Operation and Maintenance Report
January 2010 to December 2010
McCormick and Baxter
Superfund Site
Portland, Oregon

Prepared for
Oregon Department of
Environmental Quality

June 27, 2011
15670-05/Task 7

GSI Water Solutions, Inc.

HARTCROWSER

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ACRONYMS

ACB	Articulated Concrete Block
ACLs	Alternate Concentration Limits
ARAR	Applicable or Relevant and Appropriate Requirements
AWQC	Ambient Water Quality Criteria
BES	Bureau of Environmental Services
BNRR	Burlington Northern Railroad
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Clearwater	Clearwater Environmental Services, Inc
COC	constituents of concern
cPAHs	Carcinogenic Polynuclear Aromatic Hydrocarbons
DEQ	Oregon Department of Environmental Quality
DNAPL	dense non-aqueous phase liquid
DVD	digital video disk
E&E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
FWDA	Former Waste Disposal Area
GSI	GSI Water Solutions, Inc.
HPAH	high molecular weight PAH
IGA	Intergovernmental Agreement
LNAPL	light non-aqueous phase liquid
LPAH	low molecular weight PAH
McCormick & Baxter	McCormick & Baxter Creosoting Company
MCL	Primary Drinking Water Standard Maximum Contaminant Level
µg/L	microgram per liter
mg/kg	milligram per kilogram
mg/L	milligrams per liter
ng/L	nanograms per liter
NAPL	non-aqueous phase liquid
NAVD	North American Vertical Datum

ACRONYMS (CONTINUED)

NOAA Fisheries	National Oceanic and Atmospheric Marine Fisheries Service
NPDWR	National Primary Drinking Water Regulations
NRWQC	National Recommended Water Quality Criteria
O&M	Operation and Maintenance
PAHs	polynuclear aromatic hydrocarbons
PCP	pentachlorophenol
RAO	remedial action objective
ROD	Record of Decision
Site	McCormick & Baxter Creosoting Company Site
SPME	solid phase micro-extraction
TDS	total dissolved solids
TSS	Total suspended solids
UCL	upper confidence limit
UT	University of Texas
WC	Willamette Cove

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 TO DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE
PORTLAND, OREGON

1.0 INTRODUCTION AND PURPOSE

This Operation and Maintenance (O&M) Report has been prepared for the Oregon Department of Environmental Quality (DEQ) to document the O&M activities implemented at the McCormick and Baxter Superfund Site (Site) located in Portland, Multnomah County, Oregon, between January 1, 2010, and December 31, 2010. The location of the Site is shown on Figure 1. Figure 2 presents the Site layout and features, and Figure 3 presents the Site layout with surface elevations. Figure 4 presents historical non-aqueous phase liquid (NAPL) distribution, Figure 5 presents current Site use restrictions, and Figure 6 presents historical contaminant areas. This report has been prepared by DEQ's contractor team, Hart Crowser, Inc., and GSI Water Solutions, Inc. (GSI).

The DEQ is conducting O&M activities according to the October 2007 draft *O&M Plan* prepared by the DEQ (DEQ, 2007). The *O&M Plan* defines the administrative, financial, and technical details and requirements for inspecting, operating, and maintaining the remedial actions at the Site. There have been modifications to the draft O&M plan that were implemented in 2010. These revisions are described in the appropriate sections of the text. The March 2010 revised *O&M Manual* (Hart Crowser/GSI, 2010a) specifies the sampling and monitoring procedures, quality assurance and quality control, technical information, and data necessary for implementing O&M activities.

This O&M Report documents the operation, monitoring, and maintenance activities that occurred in calendar year 2010. The O&M performance standards and activities are provided in Section 2; the non-sampling O&M activities are summarized in Section 3; and the O&M sampling activities are summarized in Section 4. Section 5 discusses planned activities for 2011. Detailed presentations of these O&M activities are provided in the following appendices:

- Appendix A – Groundwater and NAPL Monitoring
- Appendix B – Site Observation and Activity Summary
- Appendix C – Vegetation Management
- Appendix D – Surface, Inter-Armoring, and Sub-Armoring Water Quality Assessment

- Appendix E – Infiltration Pond MW-59s Groundwater Quality Assessment

This O&M Report has been provided to the DEQ in hard copy and in electronic format on digital video disc (DVD). It should be noted that the DVD contains material not provided in the hard copy report including: full laboratory analytical reports, site inspection notes, status meeting summaries, etc.

O&M activities were implemented primarily by DEQ's contractor, Hart Crowser, and their teaming partner GSI (under subcontract to Hart Crowser). Hart Crowser also used the following subcontractors for support of site activities including Clearwater Environmental Services, Inc. (Clearwater) for routine operation, monitoring, and maintenance activities, and Native Ecosystems NW, Inc. for noxious weed control. The DEQ also maintained an intergovernmental agreement (IGA) with the University of Texas (UT) for specialized porewater sampling of the sediment cap. The EPA Dive Team assisted DEQ's contractor with sediment cap water quality sampling in both the Spring and Fall of 2010. Chemical analyses were performed by Pace Analytical Laboratory under contract to the DEQ.

Key personnel for implementation of O&M activities include:

- Scott Manzano: Oregon DEQ Project Officer
- Steve Campbell: Oregon DEQ Contract Officer
- Rick Ernst: Hart Crowser Program Manager
- Heidi Blischke: GSI Technical Manager
- Tim Skrotzki: Hart Crowser Site Manager

2.0 OPERATION AND MAINTENANCE PERFORMANCE STANDARDS AND ACTIVITIES

As discussed in Section 1, the DEQ is conducting O&M activities according to the *O&M Plan* prepared by the DEQ. Performance standards and activities of the October 2007 *O&M Plan* are described below.

2.1 Soil Remedy

The soil remedy consists of contaminated soil removal and construction of an upland soil cap on approximately 40 acres of the Site. The soil cap remedy was complete in September 2005. Long term monitoring is necessary because soils beneath the cap remain contaminated with arsenic, pentachlorophenol (PCP),

polynuclear aromatic hydrocarbons (PAHs), dioxins, and NAPL. The performance standards for the soil cap, determined in the Record of Decision (ROD) (EPA, 1996) and specified in the October 2007 *O&M Plan*, are as follows:

- Maintain contaminant concentrations in surface soil below the following risk-based clean-up goals, as specified in the ROD (EPA, 1996):
  - Arsenic – 8 milligrams per kilogram (mg/kg);
  - PCP – 50 mg/kg;
  - Total Carcinogenic PAHs (cPAHs) – 1 mg/kg; and
  - Dioxins/furans – 0.00004 mg/kg.
- Maintain the topsoil layer to within 50 percent of its design specification:
  - Area over impermeable geomembrane cap – maintain thickness of at least 6 inches; and
  - All areas except over impermeable geomembrane cap – maintain thickness of at least 12 inches.
- Minimize infiltration of rainwater within the subsurface barrier wall by maintaining a subsurface stormwater conveyance system.
- Minimize stormwater erosion and surface water ponding by maintaining Site grading, surface stormwater conveyance, and native vegetation.
- Maintain native vegetation within the 6-acre riparian zone for compliance with the National Marine Fisheries Service Biological Opinion (NOAA, 2004).

Monitoring activities for the soil cap (including the riparian zone) include visual inspections of the cap surface, stormwater conveyance system, security fencing, and warning signs. The soil cap is designed to be generally maintenance free, except for maintaining the native vegetation. Routine maintenance includes semi-annual manual removal of invasive plants and targeted application of herbicides. Non-routine maintenance may include repairs of the fence, replacement of warning signs, repairs of the gravel roads, filling of potential animal burrows, removal of sediment from manholes and replanting of unsuccessful trees and shrubs. The scheduled frequency of these activities through 2012 is provided in Table 1.

2.2 Sediment Remedy

The sediment remedy consisted of capping 23 acres of contaminated sediments within the Willamette River. The sediment cap remedy was completed in

September 2005. Long term monitoring and maintenance is necessary because sediments beneath the cap remain contaminated with arsenic, PCP, PAHs, dioxins, and NAPL. The performance standards for the sediment cap, determined in the ROD (EPA, 1996), and specified in the October 2007 *O&M Plan*, are as follows:

- Maintain contaminant concentrations in surface sediments below the following risk-based cleanup goals, as specified in the ROD (EPA, 1996):
  - Arsenic – 12 mg/kg, dry weight;
  - PCP – 100 mg/kg, dry weight;
  - cPAHs – 2 mg/kg, dry weight;
  - Dioxins/furans – $8x10^{-5}$ mg/kg, dry weight; and
  - Protection of benthic organisms based on sediment bioassay tests, resulting in impaired survival and growth (i.e., weight).
- Prevent visible discharge of creosote to the Willamette River.
- Minimize releases of contaminants from sediment that might result in contamination of the Willamette River in excess of the following Federal and State ambient water quality criteria (AWQC)[1]:
  - Arsenic (III) – 190 micrograms per liter (µg/L);
  - Chromium (III) – 210 µg/L;
  - Copper – 12 µg/L;
  - Zinc – 110 µg/L;
  - PCP – 13 µg/L;
  - Acenaphthene – 520 µg/L;
  - Fluoranthene – 54 µg/L;
  - Naphthalene – 620 µg/L;
  - Total Carcinogenic PAHs – 0.031 µg/L; and
  - Dioxins/furans – $1x10^{-5}$ nanograms per liter (ng/L).
- Maintain the armoring layer to within 50 percent of the design specification:

[1] One of the Remedial Action Objectives for groundwater in the ROD is to "prevent" groundwater discharges to the Willamette River that contain dissolved contaminants that would result in contaminant concentrations within the river in excess of background concentrations or in excess of water quality criteria for aquatic organisms. The 1996 AWQCs are listed as those were the criteria at the time of the ROD.

    - 6-inch rock armoring – maintain thickness of at least 6 inches.
    - 12-inch rock armoring – maintain thickness of at least 7.5 inches.
    - 24-inch rock armoring – maintain thickness of at least 12 inches.
- Maintain uniformity and continuity of articulated concrete block armoring (ACB).
- Maintain at least 20 percent excess sorption capacity of the organoclay cap.

The AWQCs listed above are the surface water criteria in effect at the time of the ROD (EPA, 1996); however, since completion of the ROD, additional recommended EPA water quality criteria have been published. During meetings in August 2007 between stakeholders (DEQ, EPA, NOAA, Warm Springs Tribe, and Yakama Tribe), it was agreed that for comparison purposes, five criteria would be included in analytical results summary tables in the 2008 O&M Report: (1) two AWQCs in effect at the time the ROD was issued (1996 criteria for chronic effects to aquatic life and for human health based on fish consumption); (2) two 2007 National Recommended Water Quality Criteria (NRWQCs) (one for chronic effects to aquatic life and one for human health [consumption of organisms]); and (3) current maximum contaminant levels (MCLs). Although these criteria have been included in this 2010 O&M Report for comparison purposes, the 1996 AWQC values are the regulatory criteria for the Site until the ROD is amended.

Monitoring activities for the sediment cap include visual inspections of near shore areas and may include aerial photography of the shoreline during extreme low river stages (late September or early October), multi-beam bathymetric surveys and side-scan sonar surveys of deeper areas, and diver inspections of areas of concern identified from the bathymetry and sonar surveys. Monitoring activities also include collection of samples from surface water, inter-armoring water, sub-armoring water, granular organophyllic clay cores, and crayfish. Organophyllic clay cores were collected in 2006, 2008, and in 2009. It is recommended that organophyllic clay cores be collected again in 2015 prior to the fourth 5-year review. Although the sediment cap is designed to be generally maintenance free, unplanned or non-routine maintenance may include: the replacement of warning buoys, placement of additional armoring due to erosion, and placement of additional organophyllic clay if unforeseen releases of creosote are discovered or if the existing organophyllic clay is not performing as designed. The frequency of these O&M activities since the remedy construction completion date in September 2005 is provided in Table 2.

2.3 Groundwater Remedy

The groundwater remedy consists of NAPL recovery, and a subsurface barrier wall surrounding approximately 18 acres within the upland soil cap. The barrier wall was completed in July 2004. Weekly NAPL recovery was conducted throughout 2010. Long-term monitoring is necessary because groundwater both within and outside of the subsurface barrier wall remains contaminated with metals, PCP, PAHs, dioxins, and NAPL. The performance standards for the subsurface barrier wall and NAPL recovery are as follows.

- Continue to recover NAPL from outside the subsurface barrier wall until recovery rates become minimal, alternative pumping strategies have been examined and/or field tested with poor results, and remaining NAPL does not pose a threat to the Willamette River and its sediments.
- Maintain contaminant concentrations in shallow, downgradient compliance wells (or sediment porewater) below Alternate Concentration Limits (ACLs) set forth in the ROD[2]:
  - Arsenic (III) – 1,000 µg/L;
  - Chromium (III) – 1,000 µg/L;
  - Copper – 1,000 µg/L;
  - Zinc – 1,000 µg/L;
  - PCP – 5,000 µg/L;
  - Total PAHs – 43,000 µg/L; and
  - Dioxins/furans – 0.2 ng/L.
- For reference purposes, groundwater data is compared with current Primary Drinking Water MCLs as follows:
  - Arsenic – 0.01 milligrams per liter (mg/L);
  - Chromium – 0.1 mg/L;
  - Copper – 1.30 mg/L;

[2] The ROD initially specified site-specific ACLs for the Site. EPA has determined that ACLs are not valid as substitutes for Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) in groundwater. Invalidation of ACLs also affects whether the groundwater RAOs derived from the provisions in CERCLA for using ACLs remain valid for the Site. As a result of this determination, the DEQ and EPA anticipate that: 1) groundwater standards for the Site will be established following a rigorous analysis of Site conditions and all relevant data; and 2) (assuming MCLs cannot be met) the application of a waiver pursuant to Section 122(d)(4) of CERCLA for MCLs to comply with the threshold criterion (meeting ARARs) for all remedies implemented pursuant to any final CERCLA ROD. Issues associated with use of ACLs at this Site are further discussed in Section VIII and IX of the Second Five-Year Review Report.

- Zinc – 5.00 mg/L;
- PCP – 1 µg/L; and
- Benz(a)pyrene – 0.2 µg/L.

- Minimize the transport of NAPL and communication of groundwater zones across the subsurface barrier wall.
- Minimize further vertical migration of creosote to the deep groundwater aquifer.
- Minimize visible discharge of creosote to the Willamette River.
- Maintain contaminant concentrations in the Willamette River below background concentrations or less than the Sediment Cap performance standards for surface water.

Monitoring activities for the groundwater remedy include groundwater elevation monitoring and groundwater sampling. Routine maintenance of equipment and providing for Site utility service are also included as elements of groundwater O&M. The frequency of these O&M activities through September 30, 2011, is provided in Table 3.

3.0 NON-SAMPLING OPERATION AND MAINTENANCE ACTIVITIES SUMMARY

As discussed in Section 1, the DEQ is conducting O&M activities according to the October 2007 *O&M Plan* prepared by DEQ. Performance standards and activities of the *O&M Plan* are described below. More detailed presentations of the non-sampling O&M activities are provided in the following appendices:

- Appendix A – Groundwater and NAPL Assessment
- Appendix B – Site Observation and Activity Summary
- Appendix C – Vegetation Management

3.1 NAPL Recovery and Thickness Assessment

Periodic well gauging, NAPL measurement, and NAPL extraction were performed to assess the performance of the barrier wall and soil cap in 2010. NAPL was monitored weekly in eight wells located outside the barrier wall in the former waste disposal area (FWDA) and one well inside the barrier wall, and monitored semi-annually in remaining site-wide wells, including 4 wells in the Willamette Cove (WC). From 2006 through 2009, the site-wide groundwater

monitoring events were conducted quarterly. Starting in 2010, the frequency of groundwater monitoring events was reduced from quarterly to semiannually.

During 2010, NAPL was detected in five (EW-1s, EW-10s, MW-20i, MW-Ds, and MW-Gs) of the nine wells gauged weekly, and in five (EW-8s, EW-15s, EW-23s, MW-22i, and MW-56s) of the site wells that are now gauged semi-annually. NAPL was only recovered from one well (EW-1s) located within the barrier wall. The EW-1s area is also where localized subsidence and elevated groundwater temperatures were documented in 2009. The subsidence is most likely associated with subsurface degradation of wood chips, and the decrease in groundwater elevation within the barrier wall. The rise in groundwater temperature is also the likely cause of increased dense non-aqueous phase liquid (DNAPL) in EW-1s.

Light non-aqueous phase liquid (LNAPL) was not recovered from any wells at the Site in 2010. Although the thickness of LNAPL varies seasonally with groundwater elevation, the accumulated volume does not appear to be increasing, either inside or outside the barrier wall.

Approximately 6,500 gallons of NAPL have been extracted from site wells to date. Approximately 146 gallons of NAPL were extracted from the Site in 2010. Approximately 54 gallons (37%) were recovered from EW-1s inside the barrier wall and approximately 92 gallons of NAPL were recovered from three wells outside the barrier wall (roughly 7.7 gallons per month and consistent with the 2009 NAPL recovery data). The bulk of DNAPL recovered outside the barrier wall was from MW-20i. Relatively small amounts of DNAPL were recovered from MW-Ds and MW-Gs.

3.2 Groundwater Flow Direction and Gradient Assessment

Manual measurements of static groundwater levels were conducted during low tide on June 15 and October 7, 2010. Shallow groundwater elevations and gradients collected during these reporting periods are consistent with conditions observed during the same reporting periods in 2009. Horizontal gradients are the greatest during periods of high precipitation and decrease during periods of low precipitation. Groundwater flow inside the barrier wall remains relatively flat, while outside the wall, shallow groundwater flow is diverted around the barrier wall to the northwest and south.

The 2010 groundwater data continues to demonstrate that shallow groundwater within the barrier is isolated from groundwater outside the barrier wall based on the independent groundwater elevations, flow directions, and gradients. Groundwater elevation differences inside versus outside the northeastern (bluff)

side of the barrier wall have increased in 2010, indicting a decrease in stormwater capture within the barrier wall. Precipitation can only enter inside the barrier wall through the riparian area, and also between the connection of the RCRA cap and the top of the barrier wall. A decrease in water levels inside the barrier wall from 2005 through 2009 suggests that there is a hydraulic connection with groundwater outside the riverward portion of barrier wall. The shallow groundwater elevation inside the barrier wall in 2010 is similar to the 2009 shallow groundwater elevation, which indicates the shallow water bearing zone inside the barrier wall has reached equilibrium with the river, and that minimal additional net groundwater migration is expected from within the barrier wall. Barrier wall groundwater and Willamette River equilibrium is also evidenced by the reversal in groundwater gradient inside the barrier wall when the Willamette River was at its peak stage (greater than 12 feet North American Vertical Datum, 1988 [NAVD88]) in June. This was the third consecutive year that this reversal in gradient occurred and is expected to continue when river elevation peaks in the summer months.

Groundwater elevation data was also collected from selected monitoring wells surrounding the barrier wall using pressure transducers monitoring groundwater level fluctuations on a half-hour basis. Hydrographs were prepared for monitoring well clusters MW-36/37, MW40s/41s, MW-44/45, and MW-52/53 inside and outside the barrier wall to document groundwater elevation level differences and assess barrier wall performance. The hydrographs illustrate a net vertical gradient between the shallow and intermediate and deep water-bearing zones, which continues to be slightly downward, similar to the vertical gradient measured in 2008 and 2009.

Transducers were also installed in two interior shallow wells (EW-1s and MW-15s) in October 2008 to measure shallow groundwater elevation fluctuation within the barrier wall. The transducer data show that groundwater elevations in these wells are more comparable to interior well MW-52s located on the upgradient (bluff) side of the barrier wall than interior well MW-36s on the downgradient side in the eastern corner. This indicates a confining silt layer is present in the vicinity of EW-1s and MW-15s by showing a muted response to groundwater conditions outside of the barrier wall.

Based on the evaluation of groundwater data from the 2010 reporting period, the barrier wall and impermeable soil cap are functioning as designed to divert groundwater flow around and prevent rainwater infiltration into NAPL source areas contained within the barrier wall. The thickness of NAPL does not appear to be increasing significantly in any of the monitoring wells inside or outside the barrier wall. The overall rate of extraction of NAPL outside the barrier wall has remained stable in MW-20i and is minimal in MW-Gs and MW-Ds.

Additional subsurface investigation in the area of NAPL recovery outside the barrier wall will be conducted in Spring 2011. The primary objective of the investigation is to collect additional data to assist with decision making regarding continued NAPL recovery at the Site.

3.3 Site Observation and Activity Summary

Tables 1 and 2 outline the planned inspections for the soil and sediment caps, respectively, through September 2012. In 2010, Hart Crowser subcontracted with Clearwater to perform routine O&M activities, including site-wide inspections. Soils and sediment cap inspections were conducted in January, February, March, June, August, and December 2010. As directed by DEQ, the frequency of inspections was reduced from monthly to quarterly in April 2010. These planned inspections document site observations and discussion items which are recorded for the Site. From mid-July through October 2010, additional sediment cap inspections were conducted during site visits for other tasks.

During 2010, shoreline sheen was observed at the Site from July through September 2010. Results of extensive study conducted from 2007 through 2009 to determine the cause and nature of periodically observed shoreline sheen conclude that the sheen is not related to Site contaminants migrating through the sediment cap. A detailed discussion of the Site sheen's nature, origin, and extent are included in *January 2009 through December 2009 O&M Report Appendix F* (Hart Crowser/GSI, 2010b).

A multibeam bathymetric survey and diver inspection of the deep water areas of the sediment cap was planned to be conducted in Spring 2010. In lieu of conducting the bathymetric survey, DEQ approved the use of 2009 NOAA multibeam bathymetric survey data of the Willamette River to produce differencing images from 2004 through 2009, which avoided the cost to conduct a duplicative, site-specific survey. The differencing images were examined to determine elevation differences which could indicate erosion and potential long term sediment cap performance issues. Minor deepening was observed in the vicinity of the BNRR bridge along the northwest shoreline, and other areas of apparent erosion were noted and subsequently inspected by the EPA Region 10 Dive Team. The inspection confirmed no obvious or visible erosion of armoring or other sand cap anomalies. Based on the bathymetry assessment and diver survey in 2010, the physical condition of the sediment cap remains stable.

An investigation was completed in 2010 to assess the sediment cap integrity in the vicinity of two ACB unconformity locations observed in the Willamette Cove

in 2009. The investigation included a historical review of WC cap design and construction data, porewater sampling, core collection from the sand cap, and a diver inspection of the unconformity locations. Results of the sampling, including a review of sediment cap water sample data from 2005 through 2010, and core sample and diver inspection, the integrity of the ACB unconformity-specific investigation activities indicate the sediment cap is operating as designed. It may be possible that the ACB unconformities are not post-sediment cap placement anomalies, but the result of original cap construction not visible beneath the WC water line at that time.

Overall, the sediment cap and the upland soil cap inspections revealed few unexpected changes. Sand covers the ACB over much of the shoreline, and there are significant amounts of large woody debris that have accumulated to help create wildlife habitat. Wildlife commonly seen at the Site includes Canada geese, blue herons, ospreys, crawfish, squirrels, and rabbits; evidence of coyotes has also been observed. The general public uses the shoreline for recreation, most commonly walking of dogs. A few instances of vandalism and littering have occurred outside the fenced perimeter of the Site. The degree of upland soil cap subsidence has decreased significantly in the localized area near EW-1s, compared to the subsidence measured in 2008 and 2009. The impermeable cap stormwater drainage system appears to be unaffected for the subsidence and continues to operate effectively following rain events.

3.4 Vegetation Management

Though an IGA with the DEQ, the City of Portland Bureau of Environmental Services (BES) provided vegetation management services at the Site from June 2005 through June 2010. Native Ecosystems Northwest, under subcontract to Hart Crowser, completed noxious weed control activities from October 25 through October 29, 2010 and continues to provide management at the Site.

The Site was planted and an irrigation system was installed by BES in February 2006. The installed plant materials have now completed their fifth growing season and the irrigation system is still in place, but no longer needed. The potential for noxious weeds problems remains high for the entire Site. Adjacent, off-site areas also have severe noxious weed problems, including Scotch broom on the Burlington North Railroad grade and butterfly bush from the Triangle Park industrial property. Continued monitoring of vegetation stability will be assessed site-wide, and impaired vegetation will be replaced in general accordance with the BES IGA, and the National Marine Fisheries Services Biological Opinion for the Site (NOAA, 2004). A revised Vegetation Management Plan for reduced long-term monitoring will be included in the revised O&M Plan expected in Spring 2012.

4.0 SAMPLING ACTIVITIES SUMMARY

This section provides a brief summary of the O&M activities listed in Tables 2 and 3 pertaining to sampling requirements at the Site. These sampling events included sampling: site-wide groundwater monitoring wells, surface water, inter-armoring water, and sub-armoring water from the sediment cap area; and the infiltration pond monitoring well MW-59s. More detailed presentations of these O&M activities related to sampling are provided in the following appendices:

- Appendix A – Groundwater and NAPL Monitoring;
- Appendix D – Surface Water, Inter-Armoring Water, and Sub-Armoring Water Quality Assessment; and
- Appendix E – Infiltration Pond MW-59s Groundwater Quality Assessment.

Supplemental information for these activities is provided in electronic format on the O&M Report DVD.

4.1 Site-Wide Groundwater Quality Assessment

Groundwater sampling was conducted at all monitoring wells at the Site in Spring 2006 to document post-remedial action dissolved groundwater concentrations of constituents of concern (COCs). A detailed description of the sampling event including sampling methodology, handling, analysis, and sampling is presented in Appendix H of the *2006 O&M Report* (E&E, 2007). Based on the results of a technical project team meeting on January 11, 2006, and the results from the Spring 2006 event, site-wide groundwater sampling was included in the draft *O&M Plan* (DEQ, 2007) as an activity to be completed in Spring 2010. Based on review and discussion of the 2006 sampling data and monitoring well data collected from the quarterly events, DEQ and EPA directed GSI to prepare a draft sampling plan and rationale for the 2010 sampling event in order to avoid sampling wells where the data was expected to provide little or no value.

Groundwater samples from 11 wells (MW-47s, MW-41s, MW-39s, MW-37s, EW-19s, MW-58s, MW-35r, MW-37i, MW-37d, MW-55s, and MW-53s) were collected on May 6, 2010, and analyzed for total metals, PCP, and PAHs. In general, the 2010 sample results are consistent with historical data, and show either less or similar contaminant concentration compared to the 2006 results. Two shallow wells (EW-19s and MW-37s, outside the barrier wall in the FWDA) contained relatively high concentrations of PAHs and PCP. PCP was also detected in shallow well MW-53s, located upgradient and to the east of the sediment cap.

4.2 Surface, Inter-Armoring, and Sub-Armoring Water Assessment

Ten rounds of post cap construction surface, inter-armoring, and sub-armoring water sampling have been conducted since the sediment cap was completed in 2005: Fall 2005 (only surface water and sub-armoring water), Spring and Fall 2006; Spring and Fall 2007; Spring and Fall 2008; Spring and Fall 2009; and Spring 2010. Pre-cap construction surface water/porewater sampling took place in 2002 and 2003. Appendix D contains the *Surface, Inter-Armoring, and Sub-Armoring Water Assessment,* which describes sampling methodology, sampling results, summaries, and references for the 2010 event, as well as a summary of results from previous sampling events conducted in 2002, 2003, and 2005 through 2009. Beginning in 2005, sampling activities were conducted in the fall and spring of each year to evaluate post sediment cap construction water quality conditions under both low-river discharge and high-river discharge conditions.

Samples taken in and after 2005 included the collection of water contained in the sand layer of the sediment cap (above the original sediments but beneath the overlying armoring layer), hence the term sub-armoring water samples. Samples taken in 2002 and 2003 were collected from the existing sediments and are referred to as porewater samples. Beginning in 2006, a third sampling zone (the armoring layer itself) was included and is referred to as inter-armoring water.

For each sampling event, analytical results obtained from the laboratory were tabulated by location and media. A series of statistical parameters were used to summarize the data and were provided for each media (i.e., surface water, inter-armoring water, and sub-armoring water) and each sampling event (i.e., Fall 2002, Fall 2003, Fall 2005, Spring 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, and Spring 2010). The parameters include the following:

- Number of Samples;
- Detection Frequency;
- Maximum Detected Concentration;
- Location of Maximum;
- Mean Concentration;
- Data Distribution; and
- 95% Upper Confidence Limit (UCL) on the Mean (95% UCL).

The summary statistics for each sampling event are provided in Appendix D.

During the 2010 sampling event, samples were analyzed for site COCs, including total metals (arsenic, chromium, copper, and zinc), PAHs, and PCP. Total suspended solids (TSS), total dissolved solids (TDS), and dissolved metals were also analyzed. Analytical results were compared against a group of water quality criteria and recommended values including AWQCs referenced in the 1996 ROD, as well as current NRWQCs and National Primary Drinking Water Regulations (NPDWRs) established by the EPA. These criteria and recommended values are collectively referred to as comparison criteria.

4.2.1 Solid Phase Micro-extraction Sample Results Summary

In Fall 2010, solid phase micro-extraction (SPME) sampling for PAHs was conducted at the same 24 locations that had previously been sampled using conventional methods during the semi-annual sampling events. SPME samplers were placed by divers and, extracted one week later by UT graduate students. The sample results are presented in Appendix D of this report.

The results of this event will be considered by the technical team to establish an SPME baseline for future water sampling to monitor the sediment cap's long term protectiveness. It is expected that SPME sampling will be conducted periodically (perhaps every 5 years) in select locations specified in the long-term monitoring plan for the Site.

In-situ pore water concentration results from the SPMEs were compared to historic water quality sampling data, last year's SPME data, and analyzed for vertical concentration profiles and intra-site variability. PAHs were measured at 6-inches into the armoring layer (similar to the inter-armor conventional sample), and at 6-inches (similar to the sub-armoring conventional sample) and 12-inches into the sand cap layer (deeper than the conventional sampling).

Low molecular weight PAHs (LPAHs) were detected more frequently than high molecular weight PAHs (HPAHs). The three most hydrophobic compounds (dibenz[a,h]anthracene, and benzo[ghi] perylene+indeno[1,2,3-cd]pyrene) were not detected in any of the samples. Only LPAHs were detected at low concentrations in the two background surface water samples.

Consistent with previous observations, two types of concentration profiles were observed in 2010 sampling. Uniform concentration profiles were present in samples located along the shoreline apparently the result of tidal action. Pronounced concentration gradients were observed in offshore locations suggesting more limited vertical mixing of contaminants. Concentrations were compared to comparison criteria (similar to the conventional sampling results); one exceedance was observed for chrysene (0.035 µg/L versus the comparsion

criteria of 0.018 µg/L) at 21 inches below the cap-water interface (or 12-inches into the sand portion of the sediment cap). A duplicate at 22 inches detected a concentration of only 0.005 µg/L. All other detected PAHs were below comparison criteria. Thus, the sampling provided no evidence of contaminant migration through the sediment cap in excess of comparison criteria.

Concentrations from 2010 sampling were compared directly to the concentrations measured in 2009. Locations 5 and 16 show higher concentrations in 2010 compared to 2009, while other locations exhibited similar or lower concentrations in 2010 compared to measurements in 2009. It is unclear if the data from locations 5 and 16 represents spatial variability or if contaminant concentrations have increased in those locations. It should be emphasized that no concentrations exceeded NWRQC except a single deep sample for chrysene at Location 5. Additional sampling would be required to identify the significance, if any, of the increased concentrations at Locations 5 and 16.

4.2.2 Summary

In summary, COC concentrations in surface water and inter-armoring water are generally below comparison criteria with the exception of arsenic for which the comparison criterion is below the method detection limit for arsenic. COC concentrations in the sub-armoring water are below comparison criteria with a few exceptions. Concentration trends are stable or decreasing. Based on water sampling from the surface water, inter-armoring, and sub-armoring, the sediment cap appears to be protective and functioning as designed.

4.3 Infiltration Pond MW-59s Groundwater Quality Assessment

The soil cap remedy was completed in 2005. A component of the soil cap is the infiltration pond at the southwestern corner of the Site, which was constructed to collect surface water runoff from a portion of the upland cap. A groundwater monitoring well, MW-59s, was installed downgradient from the infiltration pond in 2005 to monitor changes in contaminant levels in groundwater. As specified in the *O&M Plan*, four quarters of groundwater samples were to be collected from MW-59s to evaluate the potential for subsurface contaminants to be mobilized by the upland cap infiltration pond. A total of seven samples have been collected from MW-59s to date, since after four samples it was not clear whether there was an increasing trend present in the data.

During 2010, concentrations for chromium, copper, and zinc decreased for the second year in a row. Arsenic concentrations have remained constant since August 2008. Two LPAHs and two HPAHs were detected at low levels in

October 2010 with no cPAHs detected. PAHs were not detected during the first three sampling events; however, the detection limits for PAHs were higher during these events. Since lowering the detection limits, trace amounts of PAHs have been recorded in every sample. As total metals, PCP, and PAH concentrations have stabilized at low levels, there does not appear to be a risk of subsurface contaminant mobilization by the infiltration pond.

5.0 SUMMARY AND PLANNED ACTIVITIES FOR 2011

Table 4 summarizes the planned O&M activities for 2011. Tasks correspond to O&M activities outlined in Tables 1, 2, and 3. Frequency for many of the activities has been reduced or are planned to be reduced in 2011. Soil and sediment cap inspections will occur quarterly; attention to the site vegetation will occur semi-annually; and groundwater elevation monitoring will occur semi-annually. A boring investigation surrounding MW-20i is planned for early 2011 and will affect the NAPL gauging and recovery schedule for the area outside the barrier wall. The results of this investigation will inform a decision to either conduct additional NAPL recovery or discontinue the NAPL recovery that is ongoing.

6.0 REFERENCES

DEQ, 2007. *Draft Operation and Maintenance Plan, McCormick and Baxter Creosoting Company Superfund Site Portland, Oregon,* ORD00020603. October 2007.

EPA, 1996. *Record of Decision, McCormick and Baxter Creosoting Company, Portland Plant, Portland, Oregon.* March 1996.

Hart Crowser/GSI, 2010a. *Operation and Maintenance Manual, McCormick & Baxter Creosoting Company, Portland, Oregon.* March 2010.

Hart Crowser/GSI, 2010b. *Operation and Maintenance Report, January 1, 2009, to December 31, 2009, McCormick & Baxter Superfund Site Portland, Oregon*. May 25, 2010.

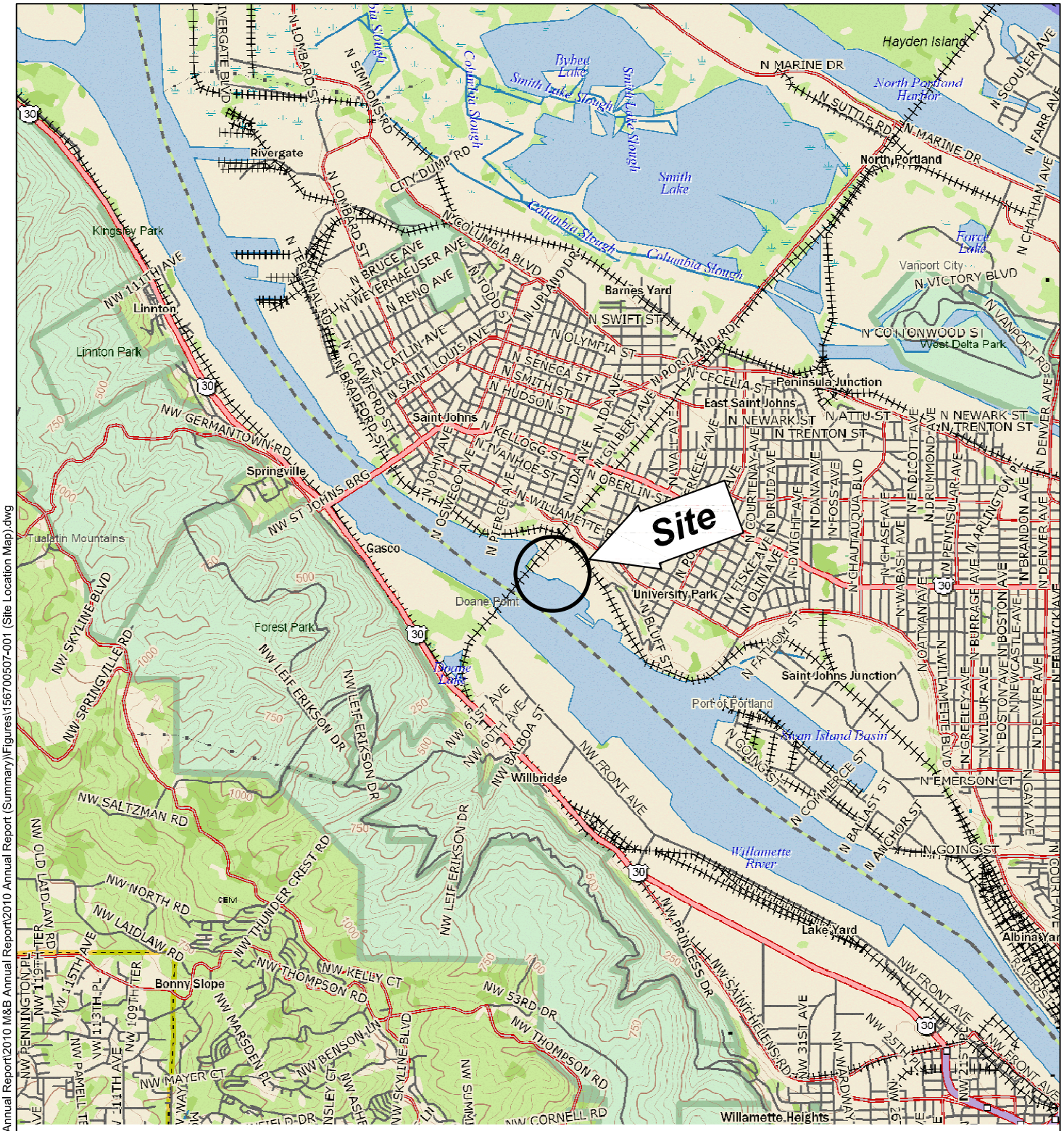
NOAA, 2004. *Endangered Species Act – Section 7 Consultation Biological Opinion & Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation, McCormick & Baxter Creosoting Company Site, Willamette River Remediation Sediment Cap, Multnomah County, Oregon.* March 15, 2004.

Table 1: Description and Frequency of Soil Cap O&M Activities through September 30, 2012	
O&M Activity	**Frequency**
Inspections: • Cap surface • Stormwater conveyance system • Security fencing • Warning signs	 • Quarterly • Quarterly • Quarterly • Quarterly
Routine Maintenance: • Manual removal of invasive plants • Targeted application of herbicides	 • Biannually (April and September) • Biannually (April and September)
Non-Routine Maintenance – such as: • Repairs of fence • Replacement of warning signs • Repairs of gravel roads • Filling of potential animal burrow into the earthen cap • Remove sediment from manholes • Replanting unsuccessful trees and shrubs • Subsidence Observations	 • As needed • As needed • As needed • As needed • As needed • As needed • As needed

Table 2: Description and Frequency of Sediment Cap O&M Activities through September 30, 2012	
O&M Activity	**Frequency**
Inspections: • Warning buoys • Near shore areas • Sediment Cap multi-beam bathymetric and side-scan sonar surveys; diver inspections of deep water.	• Quarterly • Quarterly • Spring 2015
Sampling: • Surface water, inter-armoring water, and sub-armoring water	• Spring 2015
Non-Routine Maintenance – such as: • Replacement of buoys • Additional armoring placement • Additional organoclay capping	• As needed • As needed • As needed

Table 3: Description and Frequency of Groundwater O&M Activities through September 30, 2012	
O&M Activity	**Frequency**
NAPL Recovery: • Gauging and extraction of exterior wells • Gauging of interior wells	• Weekly, until otherwise determined • Semi-annual
Groundwater Monitoring: • Downloading continuous water level data loggers • Manual water level measurements	• Semi-annual • Semi-annual
Groundwater Sampling: • Site-wide	• Spring 2015
Routine Maintenance of Equipment: • Interface probes, pumps, vehicle, data loggers/transducers, etc.	• As needed
Utility Services: • Water, electric, communication, security, solid waste, sanitary	• Continuous

Table 4: Schedule of Activities for January 2011 through December 2011	
Task	**Schedule**
Soil and Sediment Cap inspections. (contractor)	Quarterly
Manual removal of invasive plants	April and September 2011
Targeted application of herbicides	April and September 2011
Maintenance of equipment	Ongoing as needed
Non-routine maintenance	As needed
NAPL recovery exterior wells	Gauged weekly, recovery as criterion is met
NAPL recovery interior wells	Gauged quarterly, no recovery
Groundwater elevation monitoring	June and October 2011
Utility Services	Continuous



0 4,000 8,000

Scale in Feet

N

McCormick and Baxter Superfund Site
6900 N Edgewater Street, Portland, Oregon

Site Location Map

5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

1

Source: DeLorme Topo USA.

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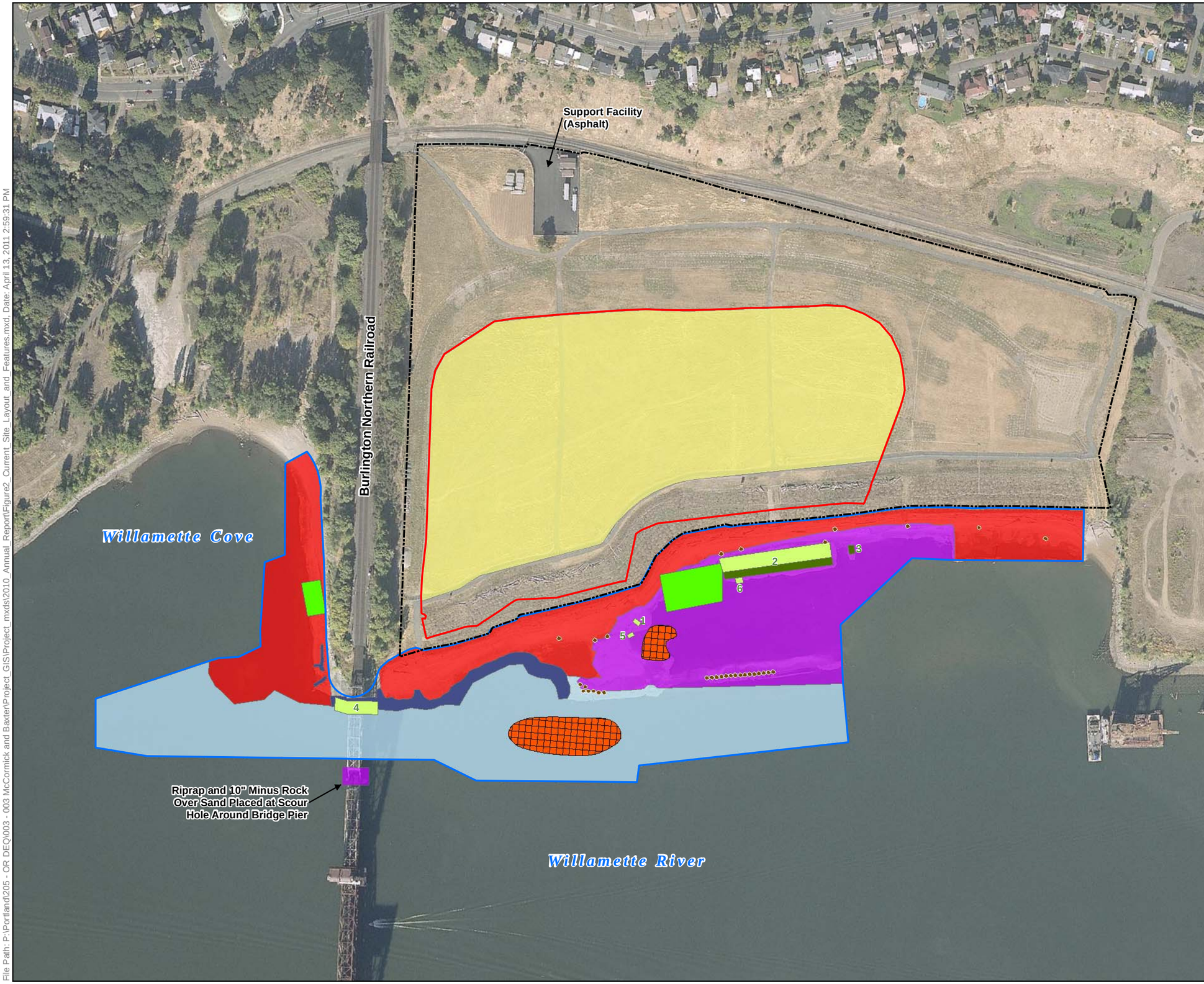


LEGEND

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Riprap Armor
- Articulated Concrete Block
- 6-inch Minus Rock Armor
- 10-inch Minus Rock Armor
- Impermeable Cap
- Earthen Soil Cap Boundary

NOTE: Aerial photo taken on September 22, 2006

0 250 500

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Current Site Layout and Features

3/11

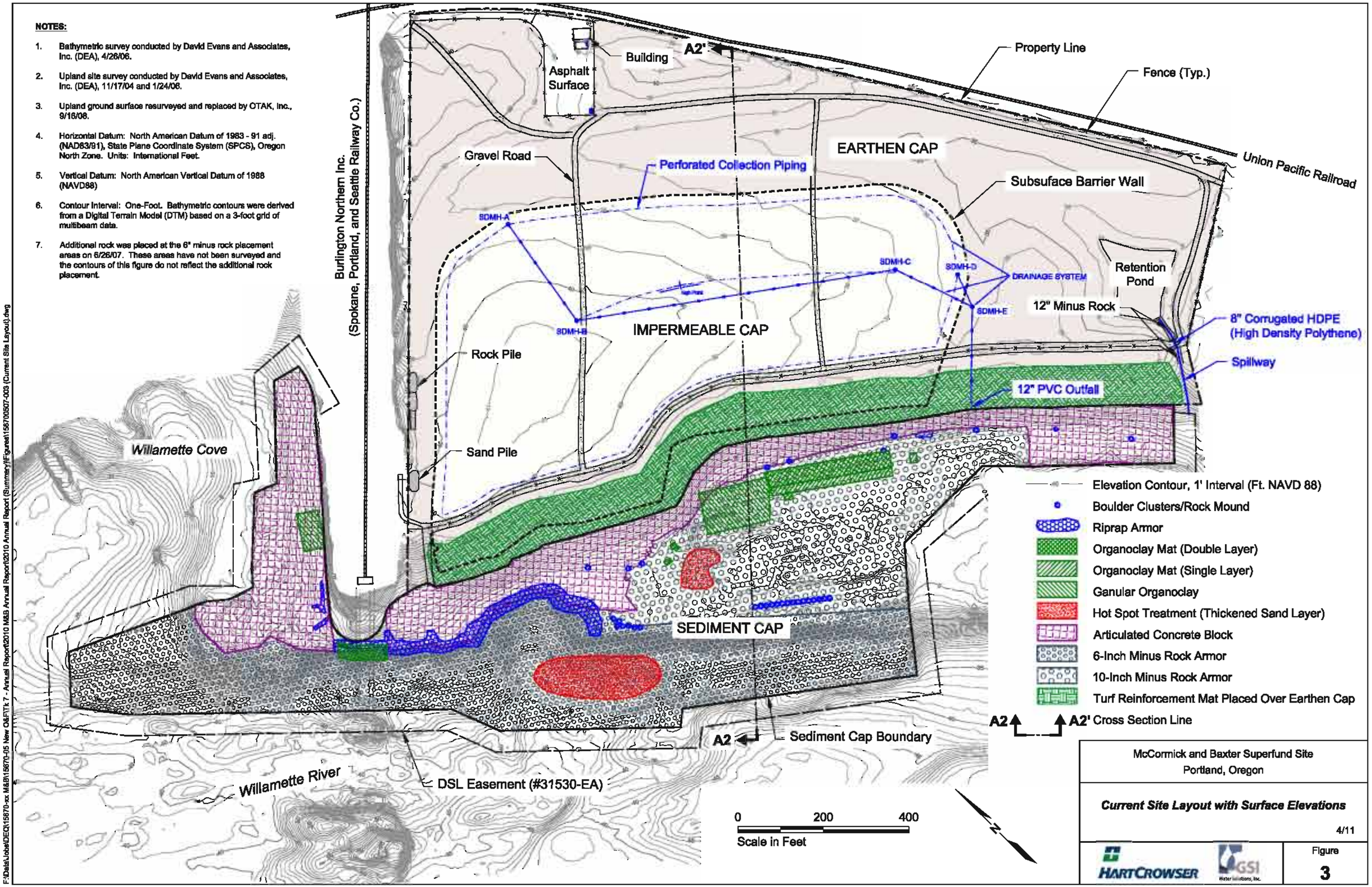
HARTCROWSER GSI Water Solutions, Inc.

Figure
2

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\Figure2_Current_Site_Layout_and_Features.mxd, Date: April 13, 2011 2:59:31 PM

NOTES:

1. Bathymetric survey conducted by David Evans and Associates, Inc. (DEA), 4/26/06.
2. Upland site survey conducted by David Evans and Associates, Inc. (DEA), 11/17/04 and 1/24/06.
3. Upland ground surface resurveyed and replaced by OTAK, Inc., 9/16/08.
4. Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone. Units: International Feet.
5. Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
6. Contour Interval: One-Foot. Bathymetric contours were derived from a Digital Terrain Model (DTM) based on a 3-foot grid of multibeam data.
7. Additional rock was placed at the 6" minus rock placement areas on 6/26/07. These areas have not been surveyed and the contours of this figure do not reflect the additional rock placement.



McCormick and Baxter Superfund Site
Portland, Oregon

Current Site Layout with Surface Elevations

4/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure
3

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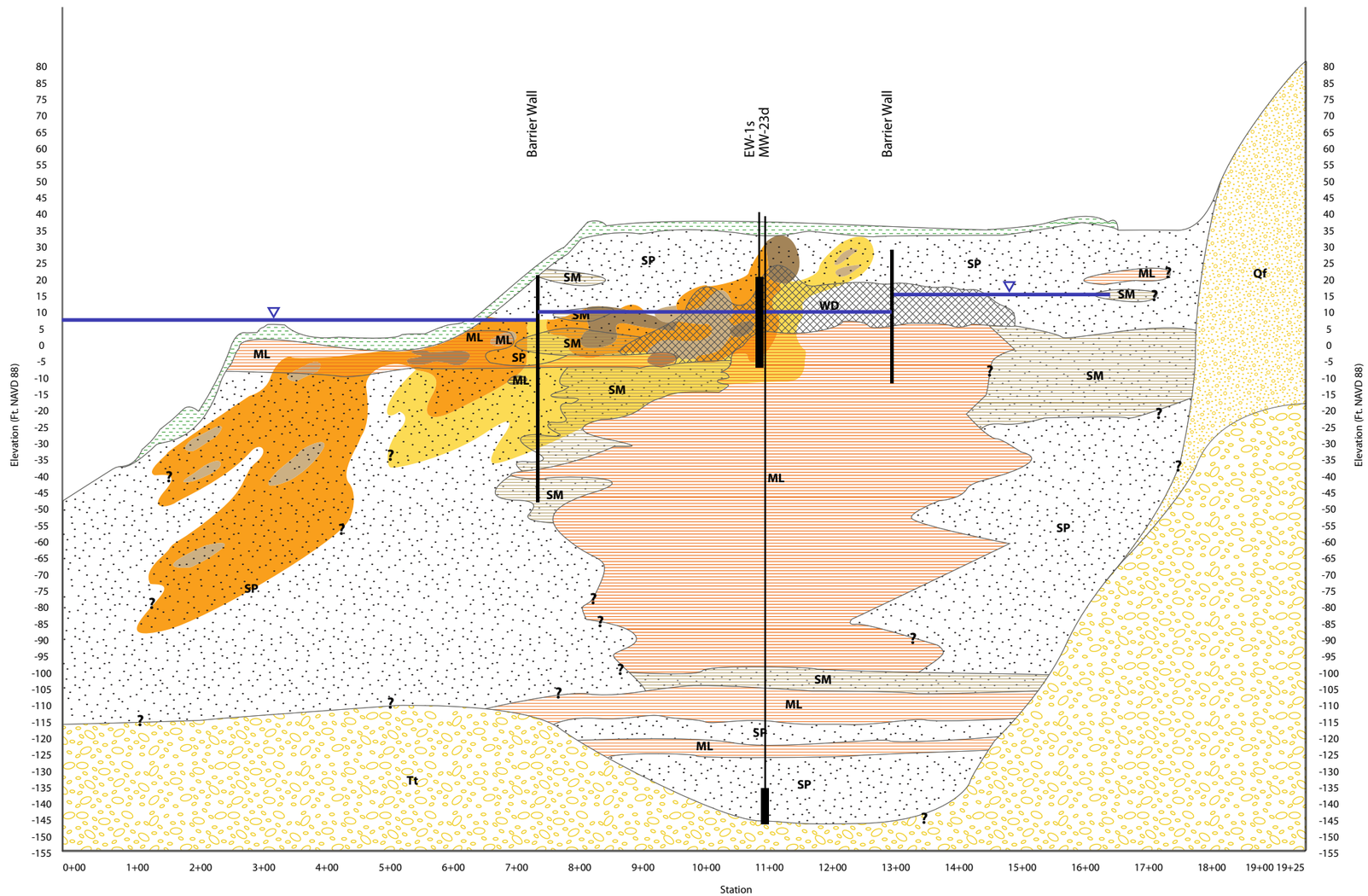


LEGEND

- SP- Sand, Fine to Medium, Poorly Graded
- SM- Silt Sand, or Thin Interbeds of Silt and Sand
- ML- Clayey Silt or Silty Clay
- WD- Wood Debris, Chips or Sawdust Occasionally
- Qf- Catastrophic Flood Deposits Consisteing of Gravels and Sands
- Tt-Troutdale Formation
- Sediment/Soil Cap
- Approximate Average Water Level 2008
- Creosote Odor
- Strong Creosote Odor
- Heavy Sheen
- Saturated

Horizontal Scale in Feet
0 200 400
0 40 80
Vertical Scale in Feet
Vertical Exaggeration = 5x

McCormick and Baxter Superfund Site
Portland, Oregon

Historic NAPL Distribution Cross Section A2-A2'

02/10

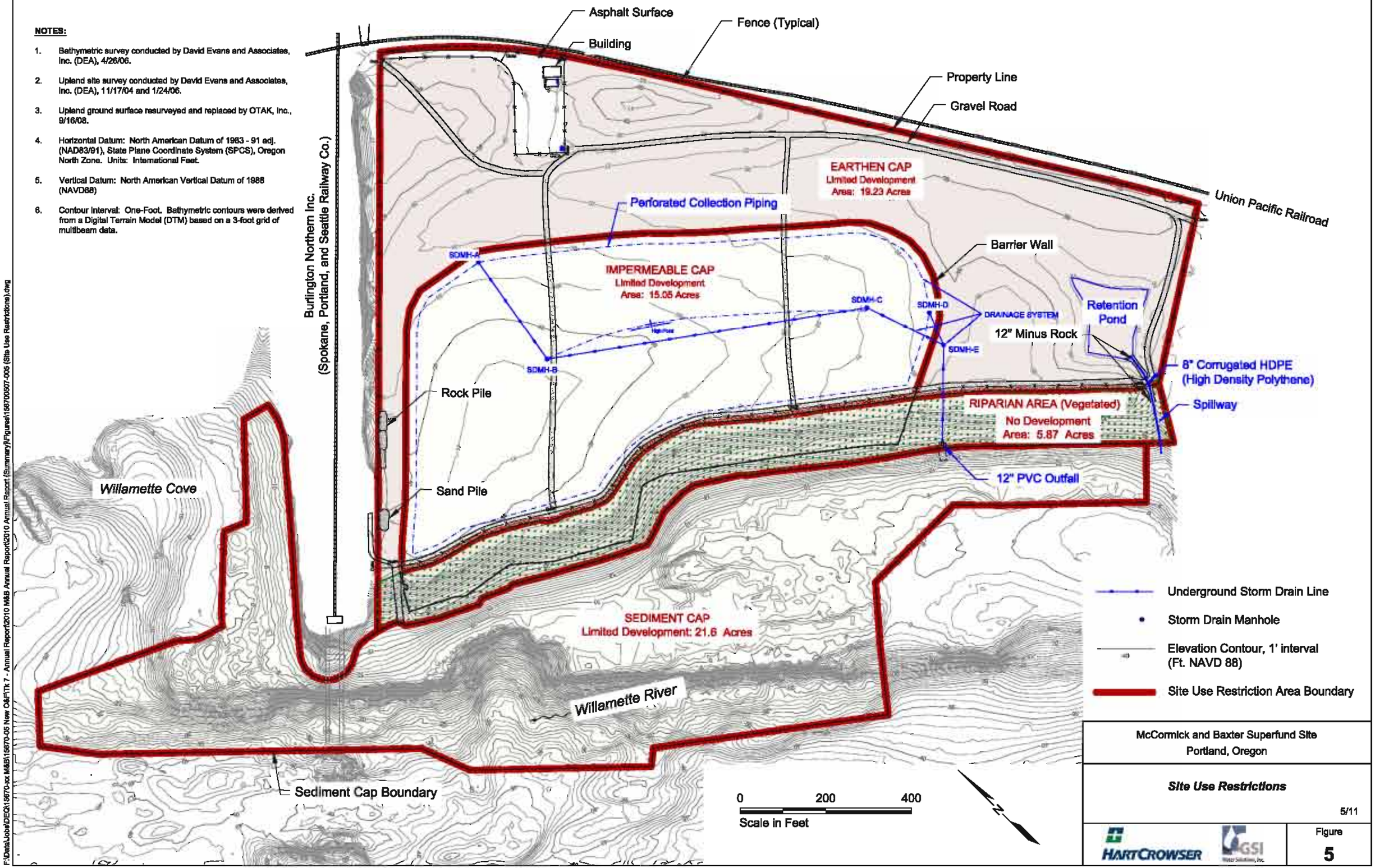
HARTCROWSER GSI Water Solutions, Inc.

Figure
4

W:\Projects\205 - OR DEQ\003 - 003 McCormick and Baxter\Figures

NOTES:

1. Bathymetric survey conducted by David Evans and Associates, Inc. (DEA), 4/26/06.
2. Upland site survey conducted by David Evans and Associates, Inc. (DEA), 11/17/04 and 1/24/06.
3. Upland ground surface resurveyed and replaced by OTAK, Inc., 9/16/08.
4. Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone. Units: International Feet.
5. Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
6. Contour Interval: One-Foot. Bathymetric contours were derived from a Digital Terrain Model (DTM) based on a 3-foot grid of multibeam data.



McCormick and Baxter Superfund Site
Portland, Oregon

Site Use Restrictions

5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure
5

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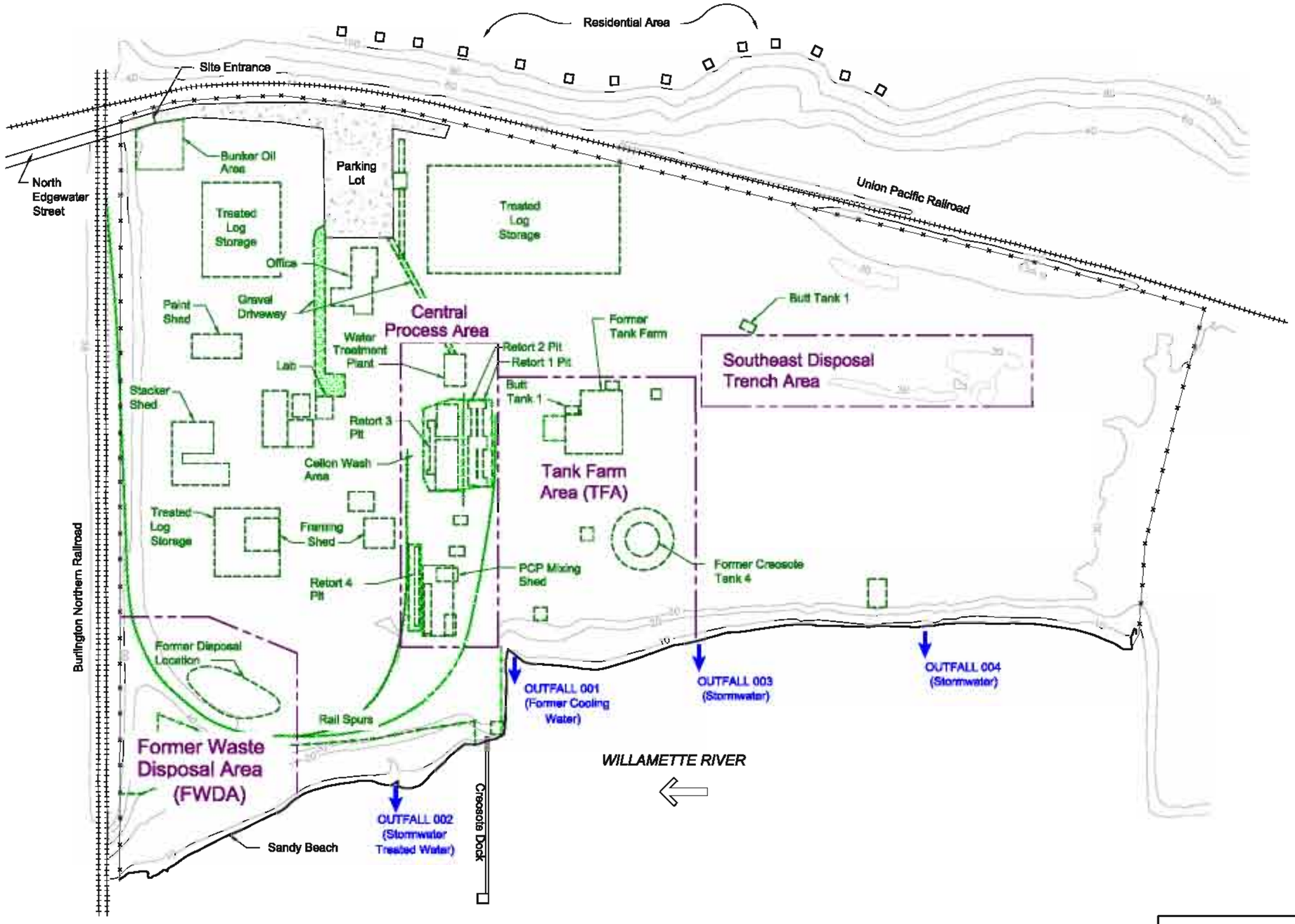

McCormick and Baxter Superfund Site
Portland, Oregon

Historic Contaminant Source Areas

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
6

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APPENDIX A
GROUNDWATER AND NAPL MONITORING

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010

Hart Crowser/GSI
15670-05/Task 7 May 20, 2011

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A Draft Technical History and DQOs for upland groundwater sampling at McCormick & Baxter Superfund Site, Portland, Oregon

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ACRONYMS

Clearwater	Clearwater Environmental Services, Inc.
COC	constituents of concern
DEQ	Oregon Department of Environmental Quality
DNAPL	dense nonaqueous phase liquid
E&E	Ecology and Environment, Inc.
EPA	Environmental Protection Agency
ft/ft	feet per foot
FWDA	Former Waste Disposal Area
IDW	investigation-derived waste
LNAPL	light nonaqueous phase liquid
MCLs	Primary Drinking Water Standard Maximum Contaminant Levels
NAPL	nonaqueous phase liquid
NAVD	North American Vertical Datum
O&M	Operation and Maintenance
PAHs	polynuclear aromatic hydrocarbons
PCP	pentachlorophenol
RCRA	Resource Conservation and Recovery Act
RM	Willamette River Mile
ROD	Record of Decision
Site	McCormick and Baxter Superfund Site
TFA	Tank Farm Area
USGS	U.S. Geological Survey

APPENDIX A
GROUNDWATER AND NAPL MONITORING
OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE

1.0 INTRODUCTION

Appendix A to the *January 2010 through December 2010 Operation and Maintenance (O&M) Report* (O&M Report) presents the nonaqueous phase liquid (NAPL) measurement and extraction results, groundwater elevation and gradient information, and groundwater quality monitoring data collected at the McCormick and Baxter Superfund Site (Site) for the period from January 1, 2010, through December 31, 2010. The location of the Site, Site layout, and surface elevations are presented on Figures 1 through 3 in the O&M Report.

2.0 NAPL MEASUREMENTS AND EXTRACTIONS

NAPL monitoring at the Site is used to evaluate the functional performance of the barrier wall and soil cap, and to document NAPL removal relative to the groundwater remedial action objective: to contain the NAPL plumes, prevent ongoing discharges of NAPL to the Willamette River, and minimize further contamination of the intermediate and deep aquifers.

2.1 Field Activities

Clearwater Environmental Services (Clearwater), under subcontract to Hart Crowser, conducts NAPL gauging weekly at eight monitoring wells in the Former Waste Disposal Area (FWDA) including: EW-2s, EW-9s, EW-10s, EW-19s, MW-20i, MW-34i, MW-Ds, and MW-Gs. These wells are located outside the barrier wall, and have historically contained NAPL. Due to dense nonaqueous phase liquid (DNAPL) volume and high temperature measurements in well EW-1s within the barrier wall the Oregon Department of Environmental Quality (DEQ) instructed Clearwater to include this interior well in their weekly NAPL gauging and recovery routine beginning July 6, 2009. DNAPL extraction from this well was initiated to reduce the potential for vertical mobility due to decreased NAPL viscosity caused by high subterraneous temperatures in this area.

NAPL gauging is also conducted in conjunction with routine water level measurements of the 74 onsite wells and 5 offsite wells on the adjacent Burlington Northern and Metro (Willamette Cove area) properties (Figure A-1).

From 2006 through the end of 2009, these groundwater monitoring events were conducted quarterly (as per the Record of Decision [ROD]). Starting in 2010, DEQ reduced the frequency of the groundwater monitoring events from quarterly to semiannually because quarterly monitoring was not necessary to obtain representative barrier wall performance data, and also to reduce monitoring costs. June and October were selected as seasonally representative high and low groundwater elevation months for monitoring. In 2010, monitoring was conducted on June 15 and October 7, 2010.

During 2010, NAPL was detected in five (EW-1s, EW-10s, MW-20i, MW-Ds, and MW-Gs) of the nine wells gauged weekly, and five (EW-8s, EW-15s, EW-23s, MW-22i, and MW-56s) of the remaining Site wells gauged semiannually. Figures A-2 and A-3 show the locations of wells that contained light nonaqueous phase liquid (LNAPL) and/or DNAPL and NAPL thickness for the June and October monitoring events, respectively. Tables A-1 and A-2 provide semiannual NAPL gauging measurements. Figures A-4 through A-15 show the NAPL and groundwater elevations in individual wells that routinely contain NAPL. The screened interval elevations and the well depth are also shown. The thickness of LNAPL can be calculated by subtracting the LNAPL elevation from the groundwater elevation. Where these lines overlap on the plots, no LNAPL was observed. Similarly, the DNAPL thickness is represented by the difference between the DNAPL elevation and the well depth elevation.

During the weekly NAPL gauging event, if individual wells meet the NAPL extraction criteria, then NAPL extraction is conducted. NAPL extraction criteria are:

- Minimum of 0.4 ft (foot) thickness of LNAPL;
- Minimum of 1.5 ft (feet) thickness of DNAPL; and
- The well is located outside the barrier wall (with the exception of EW-1s).

LNAPL is extracted using a bailer, and DNAPL is extracted using a submersible pump in accordance with the *Operation and Maintenance Manual* (Hart Crowser/GSI, 2010). With the exception of EW-1s, extraction is not conducted at wells located within the barrier wall that contain NAPL.

Tables A-3 through A-6 list, by quarter for 2010, the weekly NAPL thickness measurements and the estimated extraction volumes including water and NAPL (based on depth in a 5-gallon bucket) for wells meeting the extraction criteria. In some instances, NAPL extraction was not successful because the NAPL was

present in recovered liquids as speck-sized globules that trigger the instrument rather than distinct recoverable layers.

2.2 LNAPL Observations

Outside the Barrier Wall. The 2010 data, which are consistent with historical data, show no LNAPL accumulation in any monitoring wells outside the barrier wall; except in EW-10s. During the weekly NAPL gauging outside the barrier wall, a LNAPL thickness of up to 1.0 ft was measured in well EW-10s. When recovery has been attempted in EW-10s, water within the bailer collected from the top of the water column in the well had speck-sized globules of LNAPL dispersed throughout with no discrete layer of LNAPL product. The recorded LNAPL measurements in EW-10s likely reflect a zone of groundwater with floating LNAPL globules rather than a distinct layer of LNAPL product. Although we have little confidence in the measured NAPL measurements at EW-10s, Figure A-4 shows a plot of NAPL thickness since 1999 in EW-10s.

Inside the Barrier Wall. During semiannual monitoring in 2010, LNAPL was detected in the following wells within the barrier wall: EW-15s (0.4 ft and 2.8 ft), EW-23s (0.8 ft and 4.7 ft), and MW-56s (zero and 1.3 ft). Although LNAPL was routinely detected in EW-18s during previous quarterly monitoring events, it was not detected in this well during the semiannual 2010 events. Figures A-5 through A-8 show the thickness of LNAPL in these wells versus time. In all wells where LNAPL was consistently measured, its thickness was generally greater when the groundwater elevation was low. This is the result of gravity drainage of LNAPL through the vadose zone when the water table drops. This pattern is consistent from mid-2006 through the end of 2010 because LNAPL was not recovered inside of the barrier wall in this time-frame (i.e., LNAPL thickness was not disturbed by recovery). Although the LNAPL thickness varies cyclically with changes in the groundwater elevation, the overall LNAPL thickness in wells has remained relatively constant. Based on the consistent seasonal LNAPL thickness observed inside the barrier wall and lack of LNAPL in wells outside the barrier wall, there is no evidence of LNAPL migration through the barrier wall.

2.3 DNAPL Observations

Outside the Barrier Wall. DNAPL was regularly detected during weekly gauging of three FWDA wells (MW-20i, MW-Ds, and MW-Gs) located outside the barrier wall as shown on Figures A-9 through A-11, respectively. In the first quarter of 2010, measured DNAPL thickness ranged from a minimum of zero ft (not detected) in well MW-Gs to 7.1 ft in well MW-20i. In 2010, extraction criteria for DNAPL was met 100 percent of the time for well MW-20i, 57 percent

for well MW-Ds, and 24 percent for well MW-Gs. The DNAPL thickness present in MW-20i, MW-Ds, and MW-Gs is fairly consistent. When manual extraction is performed, well MW-20i recovers sufficiently on a weekly basis, while wells MW-Ds and MW-Gs occasionally take two or more weeks for the DNAPL to recover to the extraction criteria thickness.

Historically, both DNAPL and LNAPL have been measured in wells EW-10s and EW-9s (Figures A-4 and A-12, respectively). Well EW-10s had a short lived accumulation of DNAPL (up to 2 ft) in 2005, and no detection since. DNAPL was present in the sump in well EW-9s until March 2008 but has not been observed since.

Inside the Barrier Wall. DNAPL was detected during the 2010 semiannual monitoring events within the barrier wall near the former Tank Farm Area (TFA) in wells EW-1s, MW-22i, and EW-8s, as shown on Figures A-13 through A-15.

Although DNAPL was observed in EW-1s after construction of the barrier wall in September 2003, the volume of DNAPL decreased such that it was no longer observed in this well by January 2006. After several years with no observed product, DNAPL was noticed in this well during the quarterly monitoring event on March 13, 2009. As noted previously, weekly NAPL gauging and recovery from EW-1s began on July 6, 2009. Figure A-13 shows the DNAPL thickness versus time in EW-1s. This is the area where subsidence and elevated groundwater temperatures were documented in 2009, believed to be a result of degradation of wood chips and settling as a result of dewatering within the barrier wall. The rise in temperature likely reduced the NAPL viscosity and mobilized previously residual DNAPL. DNAPL thicknesses in this well were measured from 0.4 to 3.8 ft during the 2010 weekly and quarterly gauging events (Figures A-2 and A-3). Approximately 99 gallons of liquid (water and DNAPL) were extracted from EW-1s in 2010.

Figure A-14 shows the DNAPL thickness versus time for MW-22i. DNAPL was measured in well MW-22i at 7.3 ft and 5.2 ft during the June and October semiannual monitoring events, respectively. With one exception, DNAPL has been detected each quarter in MW-22i since the beginning of 2007. DNAPL was also consistently reported in MW-22i from 1997 to 2000. During monitoring in July 2007, Clearwater used a bailer to extract liquid from the well because of a petroleum hydrocarbon (not creosote) odor within the well. The extracted liquid contained speck-sized globules of DNAPL rather than a distinct DNAPL layer. Because the thickness of DNAPL in MW-22i was consistently measured at thicknesses greater than 5 ft, recovery was attempted again in 2008. Approximately five gallons of liquid was bailed from the bottom of the

well and allowed to settle. After settling, the liquid was observed to be primarily water with limited speck-sized DNAPL globules, rather than a distinct layer of DNAPL. Therefore, we conclude that the observations since 2007 do not accurately reflect the volume of DNAPL in the well. Because MW-22i is within the barrier wall, no further extractions have been conducted.

Figure A-15 presents the DNAPL thickness versus time for EW-8s. The DNAPL thickness in EW-8s was recorded at 8.3 ft and 0.7 ft during the June and October 2010 semiannual monitoring events, respectively. DNAPL measured in this well is approximately 2 ft (present in the well sump); however, thicknesses greater than 8 ft were observed in June 2008, June 2009, and June 2010. These elevated DNAPL measurements occurred when the Willamette River stage was high (greater than 12 ft NAVD88) which causes both vertical and horizontal gradient changes within the barrier wall and may locally mobilize DNAPL.

2.4 NAPL Extraction Summary

LNAPL was not recovered from any wells at the Site in 2010. Although the thickness of LNAPL varies seasonally with groundwater elevation, the accumulated volume does not appear to be increasing, either inside or outside the barrier wall. In instances where the LNAPL extraction criteria was exceeded in exterior well EW-10s, extraction was periodically attempted but was unsuccessful given the discontinuous nature of the LNAPL, which occurs as speck-sized globules floating near the top of the water column, rather than as a distinct LNAPL layer.

Based on periodic investigation-derived waste (IDW) drum measurements of extracted liquid (water and NAPL), approximately 146 gallons of NAPL were extracted from the Site between January 2010 and January 2011, of which approximately 54 gallons were from EW-1s inside the barrier wall. This calculation assumes that the extracted liquid contains 38% water and 62% NAPL. These percentages were based on percent present as water and NAPL after freezing NAPL/water mixtures removed from wells. Freezing was performed twice in 2007 and is reported in two technical memoranda presented in Appendix A of the *Operation and Maintenance Report January 2007 through December 2007* (E&E, 2008). The extraction volumes determined in this manner do not always correspond to the extraction volumes estimated during the weekly NAPL gauging and recovery events. During the weekly events, the quantity of extracted liquid (water + NAPL) from each well is estimated by noting the amount of liquid in a 5-gallon bucket. These measurements are often coarse approximations and tend to overestimate the amount of extracted liquid in comparison with the direct IDW drum measurements. Extraction volumes

based on IDW drum measurements are thought to be more representative of actual extraction volumes than the weekly extraction estimates and are thus used to quantify the extraction volumes.

Historical cumulative NAPL extraction (based on drum gauging) is presented in Table A-7, and shown graphically on Figure A-16. Between February 1993 and January 3, 2011, approximately 6,500 gallons of NAPL have been extracted from Site wells. Based on the weekly NAPL recovery measurements, approximately 37% of the 2010 extraction volume can be attributed to interior well EW-1s (approximately 54 gallons total). Approximately 92 gallons of NAPL were recovered from wells outside the barrier wall in 2010, which is roughly 7.7 gallons per month. Despite the numerous uncertainties involved in quantifying the extraction volumes, these totals are consistent with the 2009 estimates. The bulk of the DNAPL outside the barrier wall was recovered from MW-20i. Relatively small amounts of DNAPL were extracted from MW-Ds and MW-Gs.

3.0 SEMIANNUAL GROUNDWATER MONITORING

As previously noted, groundwater monitoring was changed from quarterly to semiannual in 2010. Despite this change in frequency, the groundwater monitoring methodology remained the same and consists of (1) manual water level gauging from 79 monitoring wells located at the Site and on the adjacent Burlington Northern and Metro (Willamette Cove area) properties, and (2) collecting continuous automated transducer data from a subset of the wells. Groundwater monitoring data can be utilized to gain insight on groundwater flow conditions inside and outside of the barrier wall. This information is evaluated to determine whether the barrier wall and impermeable Resource Conservation and Recovery Act (RCRA) type soil cap are functioning as designed.

3.1 Water Level Measurements

Manual measurements of static groundwater levels were conducted on June 15 and October 7, 2010. These measurements were typically collected during or immediately following low tide (for consistency purposes) corresponding to the low Willamette River elevation. Shallow groundwater elevation contour maps were developed for each semiannual event (Figures A-17 and A-18, respectively). The groundwater elevation data for each event are included in Tables A-1 and A-2.

In addition to the manual measurements from 79 monitoring wells at the Site, groundwater data were also collected on a 30-minute basis using pressure transducers at select monitoring wells surrounding the barrier wall. Fourteen wells with transducers are located along the riverfront portion of the barrier wall,

in the shallow, intermediate, and deep wells in well clusters MW-36, MW-37, MW-44, and MW-45, and in the shallow wells MW-40s and MW-41s. Transducers also monitored upland wells MW-52s and MW-53s and interior wells EW-1s and EW-15s to monitor groundwater conditions inside the barrier wall and to assess the monitoring well seal in EW-1s due to subsidence issues in this area (see Appendix B).

Hydrographs were prepared using the transducer data for monitoring wells inside and outside the barrier wall as shown on Figures A-19 through A-28. The hydrographs compare water-level elevations inside the barrier wall versus water-level elevations outside the barrier wall, river stage elevation, and precipitation data. While data collection from the transducers is on-going and continuous, the transition from quarterly to semiannual groundwater monitoring results in downloading the transducers semiannually (rather than quarterly) for site wells. Thus the hydrographs show water levels in wells through October 7, 2010. Water level data beyond this date will be included in the 2011 Annual Report.

Hydrographs for the paired well cluster MW-36/MW-37, located in the northwest corner of the Site, are presented in three figures showing varying time-frames to highlight specific information. Figure A-19 shows a comprehensive hydrograph of groundwater for well clusters MW-36 and MW-37 and river elevations from October 2003, when transducers initially were installed after construction of the barrier wall, to October 7, 2010. Additional detail is provided in Figures A-20 and A-21, which show the 2010 data and a subset of data for a 15-day period in May 2010, respectively. Data from MW-36d is excluded from December 9, 2009, to June 15, 2010, due to a malfunction in the pressure element of the transducer. The transducer was removed for repair on April 28, 2010, and reinstalled on June 15, 2010. The transducer functioned correctly until it started to drift again on August 8, 2010. The transducer was removed for repair on January 21, 2011; data since August 8, 2010, is considered inaccurate and is not included on the hydrographs.

Similarly, historic and annual hydrographs for well clusters MW-44 and MW-45 are presented on Figures A-22 and A-23, respectively. To show more detail and compare trends between the high and low flow conditions, Figures A-24 and A-25 were created to present two 15-day periods during select high flow and low flow events, respectively.

Historic and annual hydrographs have also been prepared for the shallow well pairs MW-40/MW-41, MW-52s/MW-53s, and EW-1s/MW-15s, and are presented on Figures A-26 through A-31. Data from EW-1s is excluded from September 3, 2009, to March 31, 2010, due to a malfunction in the transducer.

The transducer appears to be functioning correctly since it was reinstalled. MW-15s was removed on October 20, 2010, because the data could not be uploaded in the field. Data was recovered by the manufacturer and appears to have functioned correctly until it was removed. The transducer was re-installed on January 11, 2011.

River stage data were recorded on a 30-minute basis from U.S. Geological Survey (USGS) station number 14211720 (USGS, 2011a). This station is located on the upstream side of the Morrison Bridge (River Mile [RM] 12.8). River stage elevation data reported by the USGS are relative to the Portland River Datum at this location. The river stage data are corrected to North American Vertical Datum, 1988, (NAVD88) at the Site (approximately RM 7) by adding 5.001 ft to the USGS reading.

Precipitation data shown on Figures A-19 through A-31 was obtained from the Astor Elementary School raingage located approximately 0.5 miles from the Site. Daily totals were obtained from the City of Portland Hydra Network available on the USGS website (USGS, 2011b).

3.2 Shallow Groundwater Flow Direction and Horizontal Gradients

As shown in the shallow groundwater contour maps (Figures A-17 and A-18), the shallow horizontal groundwater gradient within the barrier wall is independent of the gradient outside the barrier wall demonstrating that the barrier wall has effectively cut off the connection between the shallow groundwater zone inside the barrier wall and the shallow groundwater zone outside the barrier wall. Shallow groundwater elevations at the bluff side of the barrier wall are lower inside the barrier wall while shallow groundwater elevations toward the river are lower outside the barrier wall than inside the barrier wall.

Since the installation of the barrier wall in 2003, the upland (easterly) groundwater elevations are higher outside of the barrier wall than inside it due to the impediment, which deflects groundwater flow horizontally around the barrier wall from upland areas. Prior to the barrier wall construction, the groundwater gradient was directly from the bluff to the Willamette River. After the barrier wall construction and prior to installation of the impermeable soil cap, the elevation differences between the exterior upland shallow well MW-53s, and its interior counterpart MW-52s fluctuated from approximately 0.25 ft to 2 ft (Figure A-28). After construction of the impermeable RCRA style soil cap in late 2005, the elevation difference inside versus outside the barrier wall increased to a range of 2 to 6 ft as a result of a decrease in shallow groundwater elevations inside the barrier wall. This verifies that placement of the RCRA-style soil cap within the

barrier wall resulted in a significant reduction in rainwater entering the barrier wall. The only areas where precipitation can enter the interior area within the barrier wall are through the 3 acres of riparian area and a small amount of precipitation that infiltrates between the edge of the impermeable soil cap liner and the top of the barrier wall. The shallow groundwater elevation inside the barrier wall appears to be similar to the 2009 shallow groundwater elevation (a similar observation can be seen for MW-44s) suggesting that the shallow water bearing zone inside the barrier wall is in equilibrium with the river and that minimal additional net groundwater migration is occurring from within the barrier wall. The separation observed during the June 15 and October 7, 2010, sampling events was 5.3 and 3.8 ft, respectively.

The shallow groundwater horizontal gradient inside the barrier wall is typically flat (approximately 0.002 foot per foot [ft/ft]) compared to the shallow horizontal gradient (ranging from 0.002 ft/ft to 0.02 ft/ft) outside the barrier wall. Outside the barrier wall, shallow groundwater flow is diverted around the barrier wall toward Willamette Cove and the Willamette River. This is consistent with previous reporting periods. Generally, under low flow conditions in the Willamette River, the horizontal groundwater gradient inside the barrier wall is west, toward the FWDA. The October 7, 2010, water levels in EW-1s and MW-15s, presented on Figure A-18, confirm a westerly gradient of approximately 0.001 ft/ft toward MW-15s, which is slightly flatter than the average gradient within the barrier wall (which often steepens west of well MW-15s).

Although the barrier wall penetrates a confining silt layer in most locations, the conditions in the northwestern corner (near the FWDA) of the barrier wall are less confining. In this area, the barrier wall is completed in slit and sand layers rather than the confining massive silt layer found elsewhere along the barrier wall. Due to the nature of this material, there is a hydraulic connection between the groundwater within the barrier wall and groundwater outside the barrier wall in this location.

When the Willamette River reaches peak stage (greater than about 12 ft NAVD88), as it did in June 2010, it can induce a partial reversal of gradient within the northwest corner of the barrier wall (adjacent to the Willamette River). Due to the deep hydraulic connection through sands in this area and the change in hydraulic head that the high river level induces, groundwater elevations in the northwest corner within the barrier wall increase in response to the river and the groundwater gradient changes to an easterly direction. This gradient reversal is contrary to the primarily westerly gradient direction typically observed within the barrier wall. This explains the bilateral gradient directions that can occur at peak river stage as observed on the June 15, 2010,

groundwater contour map (Figure A-17). Once the river stage subsides, the groundwater levels within the barrier wall return to their typical flat westerly gradient pattern.

The frequent fluctuations observed in 2008 and 2009 in EW-1s and MW-15s, shown on Figure A-30, are thought to be caused by methane gas produced from the degradation of the wood debris buried at the site escaping through these wells. A reduction in oscillations was noted after well EW-1s was sealed such that ambient air (with oxygen) was not entering the well. See Appendix B of the 2009 Annual Report regarding the upland subsidence in this area for further discussion.

3.3 Vertical Gradients

Vertical gradients inside and outside the barrier wall along the Willamette River are best observed in monitoring well clusters MW-36/MW-37 and MW-44/ MW-45. The hydrographs for these wells (Figures A-19 through A-25) indicate that the intermediate and deep zones of the aquifer are highly influenced by fluctuations in the river levels. The intermediate and deep zones both inside and outside of the barrier wall closely mimic the river stage both in elevation and timing with a small vertical gradient that varies between upward and downward with the tidal changes. The exterior shallow wells experience about a quarter cycle delay from river fluctuations and have dampened amplitude in comparison with the deeper wells.

Closer inspection of Figures A-21 and A-25 for monitoring well clusters MW-36/ MW-37 and MW-44/MW-45, reveals that there is typically a reversal in the vertical hydraulic gradient outside the barrier wall every time the tide advances or retreats and the river levels change. Because the shallow exterior wells have a higher groundwater elevation during low tide and low river stage events, there is a downward vertical gradient during this time. In contrast, the gradient is upward during high tide. This indicates that groundwater gradient outside the barrier wall switches between an upward and downward gradient about two times per day during the low flow season. However, as the river stage increases, the intermediate and deeper water levels in exterior well cluster MW-37 and MW-45 (Figure A-20, A-23, and A-24) raise faster than the shallow zone and the gradient in this vicinity is primarily upward until the river stage decreases back down below about 14 ft NAVD88 and the oscillations return to their normal cyclic behavior.

The fact that the response of the interior shallow wells is either muted or non-existent in comparison with the intermediate and deep zone wells suggests a

clear hydraulic disconnect between the shallow aquifer within the barrier wall and the deeper strata. The muted response to the river daily tidal fluctuations in MW-36s (Figure A-19 through A-21) is likely due to the presence of a hydraulic connection between the deeper units inside and outside the barrier wall. In contrast to the muted response of MW-36s to changes in daily river stage elevation, water levels in the shallow interior well MW-44s (Figure A-22 through A-28) are virtually non-responsive to the tidal changes in Willamette River stage. This indicates the presence of a confining layer between the shallow and intermediate zones in the vicinity of MW-44. Given the apparent discontinuity (low vertical hydraulic conductivity) between the shallow and deeper zones, the relatively strong downward gradient within the barrier wall is not indicative of groundwater flow to the deeper zones. Similarly an apparent upward gradient may result from semi-confined conditions at depth rather than the upwelling of water under unconfined conditions. The hydrographs show that the shallow reversal in gradient within the barrier wall occurs only when the Willamette River experiences stage peaks at an elevation greater than approximately 12 ft NAVD88.

Although precipitation in the Willamette River watershed ultimately affects the stage of the river, direct precipitation near the Site appears to play a minor role in determining the water levels of wells within the barrier wall and along the river. The RCRA style soil cap was designed to divert precipitation so that little infiltration occurs within the barrier wall. Although some infiltration occurs along the fringes of the soil cap, the amount of infiltration is minimal. Between the barrier wall and the river, precipitation inputs are vastly overshadowed by the response of groundwater to variations in river stage. The shallow zone upgradient or cross-gradient from the barrier wall appears to react subtly to precipitation and is less connected to the river because of its distance from the river and the presence of barrier wall, which is sealed into the underlying silt. One location where infiltration may influence groundwater elevations and flow paths is in the infiltration pond that receives diverted runoff from the soil cap. Figures A-17 and A-18 show that the groundwater gradient in this area is very flat, and that there may be a slight groundwater mound in this area east of the soil cap.

The net vertical gradients between the shallow and intermediate, intermediate and deep, and shallow and deep zones have been calculated using the transducer data from January 1, 2010, to October 7, 2010, and are presented in Table A-10. In all wells, the net annual vertical gradient is downward between the shallow zone and the intermediate and deep zones. As would be expected, the downward gradient is greater inside the barrier wall (MW-36 and MW-44 clusters) since the shallow groundwater elevation inside the barrier wall

continues to be slightly elevated as compared to the river elevation. The net vertical gradient outside the barrier wall is smaller while still downward between the shallow zone and intermediate and deep zones. The net vertical gradient is upward between the intermediate and deep zone in wells MW-37, MW-44, and MW-45, which likely indicates that these deeper zones are under confining pressures. A slightly negative net vertical gradient was calculated between the intermediate and deep zone in interior well cluster MW-36. The net vertical gradients in 2010 were very comparable (in both direction and magnitude) to the gradients calculated in 2008 and 2009.

4.0 GROUNDWATER QUALITY ASSESSMENT

Groundwater sampling was conducted at all monitoring wells at the Site in Spring 2006 to document post-remedial action dissolved groundwater concentrations of constituents of concern (COCs). A detailed description of the sampling event including sampling methodology, handling, analysis, and sampling is presented in Appendix H of the *2006 O&M Report* (E&E, 2007). Based on the results of a technical project team meeting on January 11, 2006, and the results from the Spring 2006 event, site-wide groundwater sampling was included in the draft *O&M Plan* (DEQ, 2007) as an activity to be completed in Spring 2010.

DEQ and EPA held a conference call on September 2, 2009, to discuss the proposed upcoming 2010 groundwater sampling. Based on review and discussion of the 2006 sampling data and monitoring well data collected from the quarterly events, DEQ and EPA agreed that it did not make sense to sample all site wells, and wells that contained NAPL. EPA and DEQ directed GSI to prepare a draft sampling plan and rationale for the 2010 sampling event to document the decision to reduce the sampling activity. Attachment A-1 presents the DQOs prepared for the groundwater sampling event in Spring 2010.

A total of 11 wells (MW-47s, MW-41s, MW-39s, MW-37s, EW-19s, MW-58s, MW-35r, MW-37i, MW-37d, MW-55s, and MW-53s) were sampled on May 6, 2010, as per the procedures outlined in Section 11 of the *O&M Manual* (Hart Crowser/GSI, 2010). The samples were analyzed for total metals, pentachlorophenol (PCP), and polynuclear aromatic hydrocarbons (PAHs). Table A-9 presents both the Spring 2006 and 2010 groundwater analytical data and compares the results against the Maximum Concentration Limits (MCLs) where applicable. The groundwater analytical laboratory reports can be found in Attachment B.

In general the Spring 2010 sample results are either less than or similar to the Spring 2006 results. Total PAH, benzo(a)pyrene, and PCP results are mapped in Figures A-32 through A-34, respectively. Of the wells sampled in 2010, only two shallow wells (EW-19s and MW-37s) contained elevated levels of PAHs. Both of these wells are located outside the northwestern corner of the barrier wall in an area known to historically contain NAPL. While PCP was also detected in these two shallow wells, it was also detected in the shallow well MW-53s, located upgradient and to the east of the sediment cap. These results are consistent with historical data and support the current understanding of contaminant presence and transport at the Site.

5.0 SUMMARY

With the exception of EW-10s, there was no sufficient accumulation of LNAPL during the monitoring period to warrant extraction from wells outside the barrier wall. DNAPL was extracted from three wells located outside the barrier wall in the FWDA and one well (EW-1s) located within the barrier wall. Approximately 146 gallons of DNAPL were extracted from the Site between January 2010 and January 2011. Approximately 37% of the 2010 extraction volumes (54 gallons) can be attributed to interior well EW-1s. The remaining 92 gallons, corresponding to approximately 7.7 gallons per month, were extracted from exterior wells MW-20i, MW-Ds, and MW-Gs. These calculations indicate that 2010 extraction rates are consistent with those calculated for the 2009 monitoring period (November 2008 to January 2010).

Shallow groundwater elevations and gradients during the 2010 reporting period at the Site are generally consistent with conditions observed during previous reporting periods. Horizontal gradients outside the barrier wall are the greatest during periods of high precipitation and decrease during periods of low precipitation. Groundwater gradients inside the barrier wall remain flat and generally to the west (except when peak river stage causes a reversal in gradient), while outside and upgradient of the wall, shallow groundwater flow is diverted around the barrier wall to the northwest and south. While most of the monitoring wells mimic the stage variations in the Willamette River, the oscillations in the shallow interior walls are delayed and muted and likely due to changes in pressure at depth rather than a hydraulic connection to the river. Under stable river conditions, vertical groundwater gradient figures indicate that gradients are generally downward inside the barrier wall in the FWDA and former TFA, with the exception of an upward gradient during high tide in the former TFA.

Based on the observations made through the 2010 reporting period, it appears that the barrier wall and impermeable soil cap are functioning as designed: groundwater flow and rainwater infiltration are diverted around source areas contained within the barrier wall, and NAPL contained within the barrier wall is prohibited from migrating to the Willamette River.

Site-wide groundwater sampling was completed in Spring 2010. Sample results from this event were compared to Spring 2006 data to monitor post-remedial action groundwater concentrations of COCs. Spring 2010 results indicated COC are consistent with historical data and support the current understanding of groundwater contamination at the Site.

Although uncertainties in the weekly manual extraction methodology make it difficult to quantify the volume of NAPL accumulation, the overall rate of extraction in 2010 appears to be consistent with the 2009 measurements.

6.0 RECOMMENDATIONS AND NEXT STEPS

Routine groundwater level measurements, both semi-annual manual and continuous, will continue into 2011. A DNAPL investigation is planned for 2011 outside the barrier wall in the FWDA. Based on the results of this investigation, NAPL extraction activity at the Site may be modified or discontinued. If NAPL extraction is deemed to be necessary, then it is anticipated that a recovery system will be installed. NAPL gauging is expected to continue but may be less frequent if NAPL recovery is determined to be unnecessary. Groundwater quality sampling is not anticipated in 2011.

7.0 REFERENCES

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Table A-1 - Groundwater and NAPL Elevations: June 15, 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Well ID	Time	Measuring Point Elevation (ft NAVD88)	Depth to LNAPL (ft)	Depth to water (ft)	Depth to DNAPL (ft)	Well TD Elevation (ft NAVD88)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Groundwater Elevation LNAPL Corrected (ft NAVD88)
EW-1s	16:47	40.1	ND	27.3	43.1	-6.8		3.8	12.8
EW-2s	15:57	42.4	ND	25.2	ND	-4.2			17.2
EW-8s	16:29	40.5	ND	27.5	46.4	-14.2		8.3	13.0
EW-9s	15:48	40.8	ND	24.3	ND	-5.6			16.4
EW-10s*	15:46	29.4	14.0	14.4	ND	-13.2	0.4		15.4
EW-15s	16:36	43.0	29.1	29.6	ND	-5.6	0.5		13.9
EW-18s	16:31	40.7	ND	27.9	ND	-3.9			12.9
EW-19s	15:42	25.9	10.9	10.9	ND	-4.2			15.0
EW-23s	16:09	37.6	24.2	25.0	ND	-1.7	0.8		13.4
MW-1r	15:36	37.6	ND	24.5	ND	-14.2			13.2
MW-2s	18:00	38.3	ND	24.7	ND	0.2			13.6
MW-3s	17:33	30.6	ND	12.8	ND	-0.2			17.8
MW-7 WC	15:49	36.7	ND	20.3	ND	-0.3			16.4
MW-10r	16:50	41.9	ND	29.1	ND	1.5			12.8
MW-15s	16:21	43.3	ND	30.3	ND	5.0			12.9
MW-17s	16:37	41.3	ND	28.1	ND	1.2			13.2
MW-18s	15:36	43.1	ND	26.7	ND	-3.3			16.4
MW-20i	15:52	41.4	ND	26.3	69.7	-33.3		4.9	15.1
MW-22i**	16:55	42.3	ND	27.3	51.7	-16.7		7.3	15.0
MW-23d	16:43	41.1	ND	26.0	ND	-147.3			15.1
MW-32i	17:38	39.3	ND	26.1	ND	-23.2			13.2
MW-34i	16:30	32.7	ND	17.8	ND	-52.5			14.9
MW-35r	15:46	32.3	ND	16.4	ND				15.9
MW-36d	15:52	30.5	ND	15.5	ND	-57.3			14.9
MW-36i	15:50	30.2	ND	15.0	ND	-23.2			15.2
MW-36s	15:48	30.7	ND	15.2	ND	1.7			15.5
MW-37d	15:56	26.1	ND	11.2	ND	-57.3			14.9
MW-37i	15:55	25.9	ND	10.9	ND	-22.2			14.9
MW-37s	15:54	24.9	ND	9.3	ND	-4.0			15.5
MW-38d	16:01	31.8	ND	16.9	ND	-56.8			15.0
MW-38i	16:02	32.1	ND	17.0	ND	-21.8			15.1
MW-38s	15:03	32.3	ND	18.3	ND	1.1			14.0
MW-39d	16:05	29.8	ND	14.9	ND	-57.3			15.0
MW-39i	16:06	30.1	ND	15.1	ND	-22.5			15.0
MW-39s	16:07	29.8	ND	14.0	ND	0.1			15.8
MW-40d	16:20	28.7	ND	13.7	ND	-58.6			14.9
MW-40i	16:19	28.7	ND	13.7	ND	-22.5			15.0
MW-40s	16:18	28.3	ND	14.5	ND	1.6			13.8
MW-41d	16:22	27.4	ND	12.5	ND	-57.9			14.9
MW-41i	16:23	27.1	ND	12.2	ND	-23.9			14.9
MW-41s	16:25	27.8	ND	12.1	ND	0.4			15.7
MW-42d	16:45	32.2	ND	17.4	ND	-56.7			14.9
MW-42i	16:47	32.7	ND	17.8	ND	-21.2			14.9
MW-42s	16:48	32.4	ND	19.1	ND	5.4			13.2
MW-43d	16:53	28.3	ND	13.5	ND	-57.5			14.9
MW-43i	16:52	30.3	ND	15.4	ND	-22.4			14.9
MW-43s	16:50	31.1	ND	15.8	ND	4.1			15.3
MW-44d	17:03	29.6	ND	14.4	ND	-57.6			15.2
MW-44i	17:04	29.3	ND	14.6	ND	-22.7			14.7
MW-44s	17:05	29.6	ND	16.6	ND	0.5			12.9
MW-45d	17:10	27.9	ND	13.0	ND	-58.6			14.9
MW-45i	17:09	28.0	ND	13.1	ND	-22.6			14.9
MW-45s	17:11	28.2	ND	12.6	ND	-0.1			15.6

Table A-1 - Groundwater and NAPL Elevations: June 15, 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Well ID	Time	Measuring Point Elevation (ft NAVD88)	Depth to LNAPL (ft)	Depth to water (ft)	Depth to DNAPL (ft)	Well TD Elevation (ft NAVD88)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Groundwater Elevation LNAPL Corrected (ft NAVD88)
MW-46s	17:23	35.5	ND	22.4	ND	3.8			13.1
MW-47s	17:26	35.5	ND	19.3	ND	4.4			16.2
MW-48s	18:07	38.7	ND	21.7	ND	2.6			17.0
MW-49s	18:05	37.6	ND	18.5	ND	1.9			19.0
MW-50s	16:53	39.3	ND	26.4	ND	3.8			12.9
MW-51s	16:56	39.5	ND	20.7	ND	4.4			18.8
MW-52s	17:31	40.7	ND	28.1	ND	-0.3			12.6
MW-53s	17:28	40.4	ND	22.5	ND	-0.4			17.9
MW-54s	16:11	41.8	ND	29.0	ND	5.5			12.8
MW-55s	16:08	41.0	ND	24.1	ND	5.2			17.0
MW-56s	16:28	43.5	ND	29.7	ND	6.2			13.8
MW-57s	16:14	42.0	ND	24.7	ND	5.9			17.3
MW-58d	15:32	41.4	ND	26.4	ND				15.1
MW-58i	15:37	41.0	ND	26.1	ND				14.9
MW-58s	15:35	41.5	ND	25.8	ND				15.8
MW-59s	18:40	35.9	ND	18.2	ND				17.7
MW-60d	15:40	40.1	ND	26.1	ND	-80.3			14.0
MW-61s	15:57	43.6	ND	27.5	ND	2.3			16.2
MW-62i	16:26	42.6	ND	27.7	ND	-21.3			14.9
MW-As	17:36	39.3	ND	21.3	ND	9.8			18.0
MW-Ds	16:00	42.9	ND	26.1	37.4	4.2		1.2	16.8
MW-Gs	15:55	40.2	ND	23.8	43.7	-4.5		1.0	16.4
MW-Ks	16:03	44.1	ND	27.8	ND	2.0			16.4
MW-Os	17:12	40.9	ND	22.0	ND	-4.4			18.9
PW-1d	17:18	44.0	ND	30.8	ND	-93.5			13.2
PW-2d	17:03	41.8	ND	28.6	ND	-59.0			13.2

ND = not detected NM = not measured LNAPL specific gravity estimated as 0.981 g/cm^3

*LNAPL recovery periodically attempted in EW-1s when LNAPL thickness was observed to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

**DNAPL recovery was attempted in MW-22i in July 2007 but the extracted liquid appeared to be water with speck sized globules of DNAPL (with a creosote odor), rather than a distinct layer, suggesting that the DNAPL thicknesses measured may not accurately reflect the amount of DNAPL in the well.

Table A-2 - Groundwater and NAPL Elevations: October 7, 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Well ID	Time	Measuring Point Elevation (ft NAVD88)	Depth to LNAPL (ft)	Depth to water (ft)	Depth to DNAPL (ft)	Well TD Elevation (ft NAVD88)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Groundwater Elevation LNAPL Corrected (ft NAVD88)
EW-1s	12:22	40.1	ND	27.8	44.3	-6.8		2.6	12.3
EW-2s	11:15	42.4	ND	34.6	ND	-4.2			7.8
EW-8s	12:16	40.5	ND	28.5	54.0	-14.2		0.7	12.0
EW-9s	11:13	40.8	ND	32.8	ND	-5.6			8.0
EW-10s*	11:10	29.4	ND	22.7	ND	-13.2			6.7
EW-15s	11:31	43.0	33.8	36.6	ND	-5.6	2.8		9.2
EW-18s	11:02	40.7	ND	29.4	ND	-3.9			11.3
EW-19s	11:09	25.9	ND	18.7	ND	-4.2			7.2
EW-23s	11:27	37.6	27.9	32.6	ND	-1.7	4.7		9.6
MW-1r	12:30	37.6	ND	27.3	ND	-14.2			10.3
MW-2s	14:05	38.3	ND	27.2	ND	0.2			11.1
MW-3s	13:38	30.6	ND	16.6	ND	-0.2			14.0
MW-7 WC	11:40	36.7	ND	26.4	ND	-0.3			10.3
MW-10r	--	41.9	NM	NM	NM	1.5			--
MW-15s	13:01	43.3	ND	31.7	ND	5.0			11.5
MW-17s	13:17	41.3	ND	30.0	ND	1.2			11.3
MW-18s	11:30	43.1	ND	34.8	ND	-3.3			8.4
MW-20i	11:19	41.4	ND	36.0	69.5	-33.3		5.2	5.5
MW-22i**	12:26	42.3	ND	35.6	54.0	-16.7		5.0	6.7
MW-23d	13:22	41.1	ND	33.6	ND	-147.3			7.5
MW-32i	12:33	39.3	ND	28.9	ND	-23.2			10.4
MW-34i	13:14	32.7	ND	25.8	ND	-52.5			6.9
MW-35r	11:49	32.3	ND	23.5	ND				8.8
MW-36d	11:45	30.5	ND	23.2	ND	-57.3			7.3
MW-36i	11:42	30.2	ND	22.8	ND	-23.2			7.3
MW-36s	11:39	30.7	ND	20.8	ND	1.7			10.0
MW-37d	11:53	26.1	ND	18.9	ND	-57.3			7.2
MW-37i	11:51	25.9	ND	18.6	ND	-22.2			7.2
MW-37s	11:49	24.9	ND	17.0	ND	-4.0			7.9
MW-38d	12:04	31.8	ND	24.5	ND	-56.8			7.3
MW-38i	12:02	32.1	ND	24.4	ND	-21.8			7.7
MW-38s	12:00	32.3	ND	22.2	ND	1.1			10.1
MW-39d	12:12	29.8	ND	22.6	ND	-57.3			7.3
MW-39i	12:10	30.1	ND	22.8	ND	-22.5			7.3
MW-39s	12:08	29.8	ND	21.5	ND	0.1			8.2
MW-40d	12:29	28.7	ND	21.4	ND	-58.6			7.3
MW-40i	12:23	28.7	ND	21.0	ND	-22.5			7.7
MW-40s	12:20	28.3	ND	17.6	ND	1.6			10.7
MW-41d	12:41	27.4	ND	20.1	ND	-57.9			7.3
MW-41i	12:38	27.1	ND	19.8	ND	-23.9			7.4
MW-41s	12:35	27.8	ND	19.7	ND	0.4			8.1
MW-42d	12:49	32.2	ND	25.0	ND	-56.7			7.2
MW-42i	12:47	32.7	ND	25.4	ND	-21.2			7.3
MW-42s	12:45	32.4	ND	20.6	ND	5.4			11.8
MW-43d	12:58	28.3	ND	21.1	ND	-57.5			7.2
MW-43i	12:55	30.3	ND	23.0	ND	-22.4			7.3
MW-43s	12:53	31.1	ND	23.2	ND	4.1			7.8
MW-44d	13:09	29.6	ND	22.0	ND	-57.6			7.6
MW-44i	13:07	29.3	ND	21.7	ND	-22.7			7.6
MW-44s	13:05	29.6	ND	17.6	ND	0.5			12.0
MW-45d	13:17	27.9	ND	20.6	ND	-58.6			7.3
MW-45i	13:14	28.0	ND	20.6	ND	-22.6			7.4
MW-45s	13:12	28.2	ND	21.0	ND	-0.1			7.2

Table A-2 - Groundwater and NAPL Elevations: October 7, 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Well ID	Time	Measuring Point Elevation (ft NAVD88)	Depth to LNAPL (ft)	Depth to water (ft)	Depth to DNAPL (ft)	Well TD Elevation (ft NAVD88)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Groundwater Elevation LNAPL Corrected (ft NAVD88)
MW-46s	13:25	35.5	ND	23.4	ND	3.8			12.1
MW-47s	13:29	35.5	ND	27.5	ND	4.4			8.0
MW-48s	14:20	38.7	ND	25.9	ND	2.6			12.8
MW-49s	14:17	37.6	ND	20.8	ND	1.9			16.7
MW-50s	13:30	39.3	ND	26.5	ND	3.8			12.8
MW-51s	13:31	39.5	ND	22.8	ND	4.4			16.7
MW-52s	14:03	40.7	ND	28.9	ND	-0.3			11.8
MW-53s	14:00	40.4	ND	24.8	ND	-0.4			15.7
MW-54s	12:44	41.8	ND	30.0	ND	5.5			11.8
MW-55s	12:45	41.0	ND	28.8	ND	5.2			12.3
MW-56s	12:15	43.5	33.1	34.4	ND	6.2	1.3		10.4
MW-57s	12:48	42.0	ND	33.3	ND	5.9			8.8
MW-58d	12:02	41.4	ND	34.2	ND				7.3
MW-58i	12:00	41.0	ND	33.8	ND				7.2
MW-58s	12:01	41.5	ND	33.3	ND				8.2
MW-59s	13:55	35.9	ND	22.9	ND				13.0
MW-60d	11:34	40.1	ND	32.7	ND	-80.3			7.3
MW-61s	11:32	43.6	ND	31.1	ND	2.3			12.5
MW-62i	13:40	42.6	ND	35.8	ND	-21.3			6.9
MW-As	13:07	39.3	ND	22.7	ND	9.8			16.6
MW-Ds	12:10	42.9	ND	34.8	37.0	4.2		1.7	8.1
MW-Gs	11:22	40.2	ND	32.6	43.4	-4.5		1.3	7.6
MW-Ks	12:39	44.1	ND	31.3	ND	2.0			12.9
MW-Os	13:36	40.9	ND	29.2	ND	-4.4			11.7
PW-1d	13:50	44.0	ND	33.6	ND	-93.5			10.4
PW-2d	13:35	41.8	ND	31.4	ND	-59.0			10.4

ND = not detected NM = not measured LNAPL specific gravity estimated as 0.981 g/cm^3

*LNAPL recovery periodically attempted in EW-1s when LNAPL thickness was observed to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

**DNAPL recovery was attempted in MW-22i in July 2007 but the extracted liquid appeared to be water with speck sized globules of DNAPL (with a creosote odor), rather than a distinct layer, suggesting that the DNAPL thicknesses measured may not accurately reflect the amount of DNAPL in the well.

Table A-3 - LNAPL and DNAPL Measurement Summary: First Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
LNAPL			
1/5/2010	EW-10s	**0.4**[b]	NR
1/19/2010	EW-10s	0.2	NR
1/26/2010	EW-10s	0.1	NR
2/2/2010	EW-10s	**0.4**[b]	NR
2/10/2010	EW-10s	**1.0**[b]	NR
2/17/2010	EW-10s	0.1	NR
2/23/2010	EW-10s	0.2	NR
3/2/2010	EW-10s	0.5	NR
3/9/2010	EW-10s	0.0	NR
3/19/2010	EW-10s	0.3	NR
3/30/2010	EW-10s	0.4	NR
DNAPL			
1/5/2010	MW-20i	**4.3**	3.0
1/19/2010	MW-20i	**5.4**	3.5
1/26/2010	MW-20i	**5.1**	3.3
2/2/2010	MW-20i	**4.1**	2.8
2/10/2010	MW-20i	**4.9**	3.3
2/17/2010	MW-20i	**5.6**	2.8
2/23/2010	MW-20i	**4.7**	3.2
3/2/2010	MW-20i	**4.6**	2.3
3/9/2010	MW-20i	**4.7**	2.8
3/19/2010	MW-20i	**4.5**	2.5
3/30/2010	MW-20i	**5.0**	3.0
1/5/2010	MW-Ds	**1.8**	1.0
1/19/2010	MW-Ds	1.4	NR
1/26/2010	MW-Ds	1.3	NR
2/2/2010	MW-Ds	**1.7**	NR
2/10/2010	MW-Ds	1.5	NR
2/17/2010	MW-Ds	1.2	NR
2/23/2010	MW-Ds	1.3	NR
3/2/2010	MW-Ds	**1.6**	NR
3/9/2010	MW-Ds	**2.1**	1.0
3/19/2010	MW-Ds	1.4	NR
3/30/2010	MW-Ds	**2.4**	1.0
1/5/2010	MW-Gs	1.2	NR
1/19/2010	MW-Gs	**2.1**	1.0
1/26/2010	MW-Gs	0.9	NR
2/2/2010	MW-Gs	0.4	NR
2/10/2010	MW-Gs	0.6	NR
2/17/2010	MW-Gs	0.8	1.3
2/23/2010	MW-Gs	1.3	NR
3/2/2010	MW-Gs	1.3	NR
3/9/2010	MW-Gs	1.0	NR
3/19/2010	MW-Gs	0.7	NR

Table A-3 - LNAPL and DNAPL Measurement Summary: First Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
3/30/2010	MW-Gs	**5.4**	1.0[c]
1/5/2010	EW-1s	**2.4**	2.8
1/19/2010	EW-1s	**3.1**	3.0
1/26/2010	EW-1s	**2.0**	2.8
2/2/2010	EW-1s	**2.8**	2.5
2/10/2010	EW-1s	**3.0**	2.8
2/17/2010	EW-1s	**2.8**	2.0
2/23/2010	EW-1s	**2.0**	2.3
3/2/2010	EW-1s	**3.2**	2.0
3/9/2010	EW-1s	**2.1**	2.3
3/19/2010	EW-1s	**3.1**	3.0
3/30/2010	EW-1s	**2.9**	2.3
Total Water and NAPL Extracted			**64.8**

Notes:

Bold values indicate the Extraction Criteria have been met: minimum of 0.4 feet for LNAPL and 1.5 feet for DNAPL.

NR = No Recovery

[a] Extracted volume based on visual observations at time of extraction for water + NAPL.

[b] LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

[c] Field notes indicate the extraction pump was not working properly.

Table A-4 - LNAPL and DNAPL Measurement Summary: Second Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
LNAPL			
4/10/2010	EW-10s	0.3	NR
4/15/2010	EW-10s	**0.8**[b]	NR
4/29/2010	EW-10s	**0.5**[b]	NR
5/5/2010	EW-10s	**0.4**[b]	NR
5/14/2010	EW-10s	0.2	NR
5/18/2010	EW-10s	**1.0**[b]	NR
5/25/2010	EW-10s	0.3	NR
6/2/2010	EW-10s	0.1	NR
6/12/2010	EW-10s	0.3	NR
6/18/2010	EW-10s	0.1	NR
6/23/2010	EW-10s	**0.9**[b]	NR
6/28/2010	EW-10s	0.4	NR
DNAPL			
4/10/2010	MW-20i	**5.1**	2.8
4/15/2010	MW-20i	**5.0**	2.8
4/29/2010	MW-20i	**5.0**	2.5
5/5/2010	MW-20i	**5.0**	2.5
5/14/2010	MW-20i	**4.4**	2.8
5/18/2010	MW-20i	**5.5**	2.5
5/25/2010	MW-20i	**4.5**	2.5
6/2/2010	MW-20i	**5.2**	2.3
6/12/2010	MW-20i	**5.6**	2.5
6/18/2010	MW-20i	**5.6**	2.3
6/23/2010	MW-20i	**4.2**	2.3
6/28/2010	MW-20i	**6.2**	2.5
4/10/2010	MW-Ds	1.5	NR
4/15/2010	MW-Ds	**2.1**	1.0
4/29/2010	MW-Ds	**1.9**	NR
5/5/2010	MW-Ds	**1.7**	1.3
5/14/2010	MW-Ds	1.2	NR
5/18/2010	MW-Ds	**1.5**	NR
5/25/2010	MW-Ds	**1.7**	1.0
6/2/2010	MW-Ds	**2.0**	NR
6/12/2010	MW-Ds	**2.6**	1.3
6/18/2010	MW-Ds	0.8	NR
6/23/2010	MW-Ds	1.0	NR
6/28/2010	MW-Ds	1.1	NR
4/10/2010	MW-Gs	1.2	NR
4/15/2010	MW-Gs	1.0	NR
4/29/2010	MW-Gs	**5.7**	2.0
5/5/2010	MW-Gs	0.9	NR
5/14/2010	MW-Gs	1.0	NR
5/18/2010	MW-Gs	0.8	1.3
5/25/2010	MW-Gs	**4.7**	1.5

Table A-4 - LNAPL and DNAPL Measurement Summary: Second Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
6/2/2010	MW-Gs	**2.4**	1.3
6/12/2010	MW-Gs	**1.5**	1.0
6/18/2010	MW-Gs	0.7	0.8
6/23/2010	MW-Gs	0.3	NR
6/28/2010	MW-Gs	0.2	NR
4/10/2010	EW-1s	1.1	2.3
4/15/2010	EW-1s	**2.9**	2.5
4/29/2010	EW-1s	**3.0**	2.5
5/5/2010	EW-1s	**2.3**	2.3
5/14/2010	EW-1s	**3.3**	2.5
5/18/2010	EW-1s	**1.9**	2.5
5/25/2010	EW-1s	1.4	2.3
6/2/2010	EW-1s	**3.1**	2.5
6/12/2010	EW-1s	**3.2**	2.0
6/18/2010	EW-1s	**3.4**	2.3
6/23/2010	EW-1s	**2.8**	2.3
6/28/2010	EW-1s	0.4	NR
Total Water and NAPL Extracted			**68.0**

Notes:

Bold values indicate the Extraction Criteria have been met: minimum of 0.4 feet for LNAPL and 1.5 feet for DNAPL.

NR = No Recovery

[a] Extracted volume based on visual observations at time of extraction for water + NAPL.

[b] LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

Table A-5 - LNAPL and DNAPL Measurement Summary: Third Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
LNAPL			
7/6/2010	EW-10s	**0.6**[b]	NR
7/12/2010	EW-10s	**0.4**[b]	NR
7/20/2010	EW-10s	0.0	NR
7/27/2010	EW-10s	0.3	NR
8/3/2010	EW-10s	**0.6**[b]	NR
8/9/2010	EW-10s	**0.6**[b]	NR
8/16/2010	EW-10s	0.2	NR
8/23/2010	EW-10s	**0.7**[b]	NR
8/30/2010	EW-10s	0.4	NR
DNAPL			
7/6/2010	MW-20i	**5.8**	2.8
7/12/2010	MW-20i	**5.2**	2.5
7/20/2010	MW-20i	**4.2**	2.5
7/27/2010	MW-20i	**5.6**	2.5
8/3/2010	MW-20i	**5.5**	2.3
8/9/2010	MW-20i	**5.0**	2.0
8/16/2010	MW-20i	**5.0**	2.2
8/23/2010	MW-20i	**3.9**	2.0
8/30/2010	MW-20i	**4.9**	2.4
9/11/2010	MW-20i	**5.6**	2.0
9/17/2010	MW-20i	**5.1**	2.6
9/22/2010	MW-20i	**4.7**	2.4
9/27/2010	MW-20i	**5.1**	2.5
7/6/2010	MW-Ds	1.2	NR
7/12/2010	MW-Ds	0.9	NR
7/20/2010	MW-Ds	**1.7**	1.3
7/27/2010	MW-Ds	**2.1**	1.3
8/3/2010	MW-Ds	1.3	NR
8/9/2010	MW-Ds	1.3	NR
8/16/2010	MW-Ds	1.3	NR
8/23/2010	MW-Ds	1.4	NR
8/30/2010	MW-Ds	**1.7**	1.3
9/11/2010	MW-Ds	**1.7**	NR
9/17/2010	MW-Ds	**2.6**	1.3
9/22/2010	MW-Ds	**2.0**	NR
9/27/2010	MW-Ds	**2.3**	1.3
7/6/2010	MW-Gs	1.1	NR
7/12/2010	MW-Gs	0.4	NR
7/20/2010	MW-Gs	**1.6**	1.0
7/27/2010	MW-Gs	0.5	NR
8/3/2010	MW-Gs	1.3	NR
8/9/2010	MW-Gs	0.2	NR
8/16/2010	MW-Gs	0.1	NR
8/23/2010	MW-Gs	0.2	NR

Table A-5 - LNAPL and DNAPL Measurement Summary: Third Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
8/30/2010	MW-Gs	0.3	NR
9/11/2010	MW-Gs	0.2	NR
9/17/2010	MW-Gs	0.2	NR
9/22/2010	MW-Gs	0.3	NR
9/27/2010	MW-Gs	0.4	NR
7/6/2010	EW-1s	**3.7**	2.3
7/12/2010	EW-1s	**2.4**	2.3
7/20/2010	EW-1s	**1.8**	1.5
7/27/2010	EW-1s	0.9	2.0
8/3/2010	EW-1s	**2.7**	1.5
8/9/2010	EW-1s	**1.9**	1.5
8/17/2010	EW-1s	1.3	1.5
8/23/2010	EW-1s	**2.9**	1.3
8/30/2010	EW-1s	**2.5**	1.4
9/11/2010	EW-1s	**1.6**	1.5
9/17/2010	EW-1s	**2.8**	2.5
9/22/2010	EW-1s	**1.7**	2.3
9/27/2010	EW-1s	**3.0**	2.0
Total Water and NAPL Extracted			**61.2**

Notes:

Bold values indicate the Extraction Criteria have been met: minimum of 0.4 feet for LNAPL and 1.5 feet for DNAPL.

NR = No Recovery

[a] Extracted volume based on visual observations at time of extraction for water + NAPL.

[b] LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

Table A-6 - LNAPL and DNAPL Measurement Summary: Fourth Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
LNAPL			
11/18/2010	EW-10s	0.3	NR
11/30/2010	EW-10s	0.3	NR
12/6/2010	EW-10s	**0.5**[b]	NR
12/16/2010	EW-10s	0.2	NR
12/20/2010	EW-10s	0.2	NR
12/27/2010	EW-10s	**0.5**[b]	NR
DNAPL			
10/7/2010	MW-20i	**5.2**	2.5
10/14/2010	MW-20i	**5.9**	2.8
10/20/2010	MW-20i	**4.0**	2.3
10/27/2010	MW-20i	**5.9**	2.5
11/2/2010	MW-20i	**4.9**	2.3
11/10/2010	MW-20i	**6.2**	2.5
11/18/2010	MW-20i	**4.1**	2.3
11/22/2010	MW-20i	**6.2**	2.3
11/30/2010	MW-20i	**7.1**	2.5
12/6/2010	MW-20i	**5.9**	2.0
12/16/2010	MW-20i	**5.6**	2.3
12/20/2010	MW-20i	**6.9**	2.5
12/28/2010	MW-20i	**5.5**	2.4
10/7/2010	MW-Ds	**1.7**	1.3
10/14/2010	MW-Ds	0.8	NR
10/20/2010	MW-Ds	0.8	1.0
10/27/2010	MW-Ds	**1.9**	NR
11/2/2010	MW-Ds	1.5	NR
11/10/2010	MW-Ds	1.5	NR
11/18/2010	MW-Ds	**1.9**	NR
11/22/2010	MW-Ds	**1.7**	1.3
11/30/2010	MW-Ds	**1.9**	NR
12/6/2010	MW-Ds	**1.7**	NR
12/16/2010	MW-Ds	**2.3**	1.3
12/20/2010	MW-Ds	**1.8**	1.3
12/28/2010	MW-Ds	**1.5**	NR
10/7/2010	MW-Gs	1.3	1.3
10/14/2010	MW-Gs	0.9	NR
10/20/2010	MW-Gs	0.9	NR
10/27/2010	MW-Gs	**4.5**	1.3
11/2/2010	MW-Gs	0.9	NR
11/10/2010	MW-Gs	**5.7**	2.0
11/18/2010	MW-Gs	**1.7**	1.3
11/22/2010	MW-Gs	0.6	NR
11/30/2010	MW-Gs	1.4	1.0
12/6/2010	MW-Gs	**1.5**	1.3
12/16/2010	MW-Gs	**1.5**	NR[c]

Table A-6 - LNAPL and DNAPL Measurement Summary: Fourth Quarter 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Date Measured	Well Number	Thickness (feet)	Extracted (Gallons) Based on Visual Observation (water + NAPL)[a]
12/20/2010	MW-Gs	0.5	1.0
12/28/2010	MW-Gs	1.3	NR
10/7/2010	EW-1s	**2.6**	2.0
10/14/2010	EW-1s	**3.0**	2.5
10/20/2010	EW-1s	**3.0**	2.0
10/27/2010	EW-1s	**2.9**	2.0
11/2/2010	EW-1s	**1.5**	1.8
11/10/2010	EW-1s	**2.7**	2.3
11/18/2010	EW-1s	**2.2**	2.3
11/22/2010	EW-1s	**3.0**	2.4
11/30/2010	EW-1s	**3.4**	2.3
12/6/2010	EW-1s	**2.6**	2.0
12/16/2010	EW-1s	**2.7**	2.3
12/20/2010	EW-1s	**2.8**	2.0
12/28/2010	EW-1s	**2.0**	2.3
Total Water and NAPL Extracted			**73.8**

Notes:

Bold values indicate the Extraction Criteria have been met: minimum of 0.4 feet for LNAPL and 1.5 feet for DNAPL.

NR = No Recovery

[a] Extracted volume based on visual observations at time of extraction for water + NAPL.

[b] LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

[c] Field notes indicate the extraction pump was not working properly.

Table A-7 - Cumulative NAPL Extraction Summary
McCormick and Baxter Superfund Site
Portland, Oregon

Date	Manual NAPL Extracted (DNAPL + LNAPL)	Treatment System NAPL Extracted (DNAPL & LNAPL)	Manual plus Treatment System NAPL Extracted (gallons)	Total NAPL Extracted (gallons)
Pre-Barrier Wall Extraction Volumes				
Jun-89			0	0
Feb-93			1097	1097
Feb-95			1021	2118
Dec-95	31.03	0	31.03	2149
Jan-96	20.8	0	20.8	2170
Feb-96	52.4	0	52.4	2222
Mar-96	66.05	0	66.05	2288
Apr-96	35.87	0	35.87	2324
May-96	23.36	0	23.36	2348
Jun-96	31.68	0	31.68	2379
Jul-96	29.8	0	29.8	2409
Aug-96	73.02	0	73.02	2482
Sep-96	33.5	0	33.5	2516
Oct-96	43.8	0	43.8	2559
Nov-96	39	0	39	2598
Dec-96	25.3	0	25.3	2624
Jan-97	40.36	0	40.36	2664
Feb-97	31.04	0	31.04	2695
Mar-97	34.18	0	34.18	2729
Apr-97	32.04	0	32.04	2761
May-97	8.64	0	8.64	2770
Jun-97	11.6	0	11.6	2781
Jul-97	28.29	0	28.29	2810
Aug-97	52.33	0	52.33	2862
Sep-97	38.9	0	38.9	2901
Oct-97	32.3	0	32.3	2933
Nov-97	53.8	0	53.8	2987
Dec-97	53.3	0	53.3	3040
Jan-98	33.17	112.32	145.49	3186
Feb-98	27.05	5.9	32.95	3219
Mar-98	51.1	3.83	54.93	3274
Apr-98	33.37	7.67	41.04	3315
May-98	31.45	7.67	39.12	3354
Jun-98	12.08	7.67	19.75	3374
Jul-98	9.34	8.11	17.45	3391
Aug-98	14.95	8.11	23.06	3414
Sep-98	14.17	8.11	22.28	3436
Oct-98	16	8.11	24.11	3461
Nov-98	11.3	8.11	19.41	3480
Dec-98	5.2	16.15	21.35	3501
Jan-99	15.28	0	15.28	3517
Feb-99	14.12	0	14.12	3531
Mar-99	47.74	0	47.74	3578
Apr-99	7.44	0	7.44	3586
May-99	12.82	0	12.82	3599
Jun-99	10.7	0	10.7	3609

Table A-7 - Cumulative NAPL Extraction Summary
McCormick and Baxter Superfund Site
Portland, Oregon

Date	Manual NAPL Extracted (DNAPL + LNAPL)	Treatment System NAPL Extracted (DNAPL & LNAPL)	Manual plus Treatment System NAPL Extracted (gallons)	Total NAPL Extracted (gallons)
Jul-99	6.6	7.85	14.45	3624
Aug-99	13.84	7.85	21.69	3646
Sep-99	35.88	7.85	43.73	3689
Oct-99	6.85	7.85	14.7	3704
Nov-99	7.47	7.85	15.32	3719
Dec-99	2.15	7.85	10	3729
Jan-00	3.46	21.17	24.63	3754
Feb-00	1.75	21.17	22.92	3777
Mar-00	0.98	21.17	22.15	3799
Apr-00	1.05	21.17	22.22	3821
May-00	1.9	21.17	23.07	3844
Jun-00	0.41	21.17	21.58	3866
Jul-00	14.5	21.7	36.2	3902
Aug-00	25.36	21.7	47.06	3949
Sep-00	21.83	21.6	43.43	3993
Oct-00	18.63	0	18.63	4011
Nov-00	17.38	0	17.38	4029
Dec-00	1.53	0	1.53	4030
Jan-01	4.09	0	4.09	4034
Feb-01	0.56	0	0.56	4035
Mar-01	2.64	0	2.64	4037
Apr-01	4.19	0	4.19	4042
May-01	1.36	0	1.36	4043
Jun-01	0.41	0	0.41	4043
Jul-01	0.64	0	0.64	4044
Aug-01	1.15	0	1.15	4045
Sep-01	0	0	0	4045
Oct-01	0	0	0	4045
Nov-01	5.98	0	5.98	4051
Dec-01	0.519	0	0.519	4052
Jan-02	0.46	0	0.46	4052
Feb-02	19.28	0	19.28	4071
Mar-02	18.66	0	18.66	4090
Apr-02	0.31	0	0.31	4090
May-02	5.065	0	5.065	4095
Jun-02	0	0	0	4095
Jul-02	13.81	0	13.81	4109
Aug-02	11.59	0	11.59	4121
Sep-02	8.76	0	8.76	4130
Oct-02	12.34	0	12.34	4142
Nov-02	10.19	0	10.19	4152
Dec-02	0.851	0	0.851	4153
Jan-03	1.514	0	1.514	4154
Feb-03	7.45	0	7.45	4162
Mar-03	1.73	0	1.73	4164
Apr-03	0	0	0	4164
May-03	0	0	0	4164

Table A-7 - Cumulative NAPL Extraction Summary
McCormick and Baxter Superfund Site
Portland, Oregon

Date	Manual NAPL Extracted (DNAPL + LNAPL)	Treatment System NAPL Extracted (DNAPL & LNAPL)	Manual plus Treatment System NAPL Extracted (gallons)	Total NAPL Extracted (gallons)
Jun-03	0	0	0	4164
Jul-03	0	0	0	4164
Aug-03	0	0	0	4164
Sep-03	0	0	0	4164
Oct-03	0	0	0	4164
Nov-03	10	0	10	4174
Feb-04	79.5	0	79.5	4253
Mar-04	94.5	0	94.5	4348
Post Barrier Wall Extraction Volume				
Apr-04	118.33	0	118.33	4466
May-04	163.6	0	163.6	4630
Jun-04	165.6	0	165.6	4795
Jul-04	103.3	0	103.3	4898
Aug-04	127	34.1	161.1	5060
Sep-04	98.4	32.84	131.24	5191
Oct-04	50.2	28.76	78.96	5270
Nov-04	61.44	34.3	95.74	5366
Dec-04	59.12	23.51	82.63	5448
Jan-05	49.1	24.1	73.2	5521
Feb-05	83.86	0	83.86	5605
Mar-05	132.7	1	133.7	5739
Apr-05	131.2	0	131.2	5870
May-05	66.2	0	66.2	5936
Oct-05	45	0	45	5981
Nov-05	5.16	0	5.16	5986
Dec-05	12.33	0	12.33	5999
Jan-06	13.43	0	13.43	6012
Feb-06	14.68	0	14.68	6027
Mar-06	17.17	0	17.17	6044
Apr-06	13.24	0	13.24	6057
May-06	19.43	0	19.43	6076
Jun-06	16.72	0	16.72	6092
Jul-06	14.98	0	14.98	6107
Aug-06	27.37	0	27.37	6135
Sep-06	12.19	0	12.19	6147
Dec-06	9.93	0	9.93	6157
Mar-07	10.5	0	10.5	6167
Jun-07	14.86	0	14.86	6182
Sep-07	10.08	0	10.08	6192
Dec-07	9.93	0	9.93	6202
Feb-08	4.5	0	4.5	6207
Jun-08	19.7	0	19.7	6227
Jul-08	13.9	0	13.9	6240
Nov-08	19.2	0	19.2	6260
Mar-09	31	0	31	6291
Jun-09	29.76	0	29.76	6320
Sep-09	23.56	0	23.56	6344

Table A-7 - Cumulative NAPL Extraction Summary
McCormick and Baxter Superfund Site
Portland, Oregon

Date	Manual NAPL Extracted (DNAPL + LNAPL)	Treatment System NAPL Extracted (DNAPL & LNAPL)	Manual plus Treatment System NAPL Extracted (gallons)	Total NAPL Extracted (gallons)
Sep-09	12.4	0	12.4	6356
Dec-09	7.44	0	7.44	6364
Jan-10	9.3	0	9.3	6373
Mar-10	17.36	0	17.36	6390
Jun-10	34.1	0	34.1	6425
Sep-10	34.1	0	34.1	6459
Nov-10	34.1	0	34.1	6493
Jan-11	16.74	0	16.74	6509
Total Extracted Volume				6509

Note:

NAPL volume was estimated as 62% of the drum volume each measuring period. This calculation assumes that water comprises 38% of the drum volume, although the actual quantity varies from about 10% to over 50%.

Table A-8 - Net Annual Vertical Gradients in Monitoring Well Clusters: 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Monitoring Well Cluster ID	2010 Net Annual Vertical Gradient [a]		
	From shallow to intermediate zone	From intermediate to deep zone	From shallow to deep zone
MW-36 (Interior)	-0.0443	-0.0009 [b]	-0.0258 [b]
MW-37 (Exterior)	-0.0060	0.0023	-0.0010
MW-44 (Interior)	-0.0913	0.0144	-0.0341
MW-45 (Exterior)	-0.0070 [c]	0.0044	-0.0005 [c]

Notes:

Negative values indicate a net downward hydraulic gradient and positive values indicate a net upward hydraulic gradient.

[a] Net annual gradients reflect the average gradients calculated from January 1, 2010 to October 7, 2010 transducer data.

[b] Due to malfunctions in the MW-36d transducer, net gradient calculations only include data collected between 6/15/2010 and 8/19/2010.

[c] MW-45s is missing data between 6/4/10 to 6/15/10. Net Gradient calculations exclude this period.

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			PW-1d		PW-2d		MW-1r		MW-1r Duplicate[1]		MW-2s		MW-3s		MW-7(wc)		MW-10r[3]		MW-10r Duplicate[4]	
Sample Date			4/25/2006		4/24/2006		5/19/2006		5/19/2006		4/28/2006		5/15/2006		4/25/2006		5/17/2006		5/17/2006	
Sample Time			10:42		15:51		9:02		9:02		15:30		16:42		13:17		10:01		10:01	
Well Depth			deep		deep		shallow		shallow		shallow		shallow		shallow		shallow		shallow	
NAPL (Historically)			--		--		--		--		--		--		--		NAPL		--	
Inside/Outside Barrier Wall			outside		outside		outside		outside		outside		outside		outside		inside		inside	
CONTAMINANT OF INTEREST		MCLs																		
Total Metals (mg/L)																				
Arsenic		0.01	**0.00216**		**0.00255**		0.000664	U	0.000664	U	0.000664	U	**0.00347**	**J**	**0.0159**		**0.0832**		**0.0831**	
Chromium		0.10	**0.00228**		**0.000810**		**0.00370**		**0.00365**		**0.000472**	**J**	0.000605	U[2]	**0.00670**		**0.00475**		**0.00427**	
Copper		1.30	**0.00154**		0.000300	U[2]	**0.00528**		**0.00494**		0.00124	U[2]	**0.00312**	**J**	**0.00249**		**0.00424**		**0.00387**	
Zinc		5.00	0.00562	U[2]	0.00297	U[2]	0.00449	U[2]	0.00426	U[2]	**0.00209**		**0.00446**	**J**	0.00509	U[2]	**0.00737**		**0.0146**	
Pentachlorophenol (ug/L)		1.0	0.952	U	0.943	U	0.99	U	1	U	0.943	U	0.98	U	0.962	U	**621**		**573**	
Polyaromatic Hydrocarbons (ug/L)																				
Acenaphthene	L		0.0476	U	0.0472	U	**0.124**		**0.367**		0.0472	U	0.049	U	0.0481	U	**477**		**412**	
Acenaphthylene	L		0.0476	U	0.0472	U	0.0495	U	0.05	U	0.0472	U	0.049	U	0.0481	U	12	U	12.3	U
Anthracene	L		0.0476	U	0.0472	U	**0.0502**	**J**	**0.14**		0.0472	U	0.049	U	0.0481	U	**66.1**		**50.7**	
Benzo (a) anthracene	H, C		0.0476	U	0.0472	U	0.0495	U	**0.0749**	**J**	0.0472	U	0.049	U	0.0481	U	**32.8**		**21.6**	
Benzo (a) pyrene	H, C	0.2	0.0476	U	0.0472	U	0.0495	U	0.05	U	0.0472	U	0.049	U	0.0481	U	**12.6**		12.3	U
Benzo (b) fluoranthene	H, C		0.0476	U	0.0472	U	0.0495	U	0.05	U	0.0472	U	0.049	U	0.0481	U	**28.2**		24.5	U
Benzo (k) fluoranthene	H, C		0.0476	U	0.0472	U	0.0495	U	0.05	U	0.0472	U	0.049	U	0.0481	U	12	U	24.5	U
Benzo (ghi) perylene	H, C		0.0476	U	0.0472	U	0.0495	U	0.05	U	0.0472	U	0.049	U	0.0481	U	12	U	12.3	U
Chrysene	H, C		0.0476	U	0.0472	U	0.0495	U	**0.0836**	**J**	0.0472	U	0.049	U	0.0481	U	**32**		**21.2**	
Dibenzo (a,h) anthracene	H, C		0.0952	U	0.0943	U	0.099	U	0.1	U	0.0943	U	0.098	U	0.0962	U	24	U	24.5	U
Fluoranthene	H		0.0476	U	0.0472	U	**0.0796**	**J**	**0.323**		0.0472	U	0.0495	U	0.0481	U	**161**		**111**	
Fluorene	L		0.0476	U	0.0472	U	**0.2**		**0.453**		0.0472	U	0.0495	U	0.0481	U	**251**		**212**	
Indeno (1,2,3-cd) pyrene	H, C		0.0476	U	0.0472	U	0.0495	U	0.05	U	0.0472	U	0.0495	U	0.0481	U	12	U	12.3	U
Napthalene	L		0.0476	U	0.0472	U	**0.705**		**1.53**		0.0472	U	0.0887	U[2]	0.0481	U	**19100**		**17000**	
Phenanthrene	L		0.0476	U	0.0472	U	**0.151**		**0.634**		0.0472	U	0.0495	U	0.0481	U	**386**		**294**	
Pyrene	H		0.0476	U	0.0472	U	**0.0753**	**J**	**0.238**		0.0472	U	0.0495	U	0.0481	U	**114**		**79.7**	
Total LPAHs			0.143	U	0.142	U	**1.23**		**3.12**		0.142	U	0.167	U	0.144	U	**20300**		**18000**	
Total HPAHs			0.262	U	0.260	U	**0.155**		**0.720**		0.260	U	0.270	U	0.265	U	**381**		**234**	
Total Carcinogenic PAHs			0.214	U	0.212	U	0.223	U	**0.159**		0.212	U	0.221	U	0.216	U	**106**		**42.8**	
Total PAHs			0.405	U	0.401	U	**1.39**		**3.84**		0.401	U	0.438	U	0.409	U	**20700**		**18200**	
FIELD PARAMETERS																				
Temperature (°c)			**15.05**		**16.92**		**19.34**		**19.34**		**15.29**		**15.57**		**16.86**		**23.71**		**23.71**	
Oxidation Reduction Potential (mV)			**-109**		**--**		**168**		**168**		**97**		**-70**		**-194**		**-39**		**-39**	
pH			**6.67**		**7.3**		**6.59**		**6.59**		**5.8**		**6.72**		**6.9**		**6.51**		**6.51**	
Specific Conductance (Ms/cm)			**0.986**		**0.805**		**59.6**		**59.6**		**0.364**		**61.5**		**0.9**		**62.5**		**62.5**	
Turbidity (NTU)			**141**		**447**		**37**		**37**		**39**		**2.5**		**32.6**		**21**		**21**	
Dissolved Oxygen (mg/L)			**0.07**		**0.13**		**0.3**		**0.3**		**6.4**		**0**		**0.2**		**0.3**		**0.3**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-15s		MW-17s		MW-18s		MW-20i		MW-22i		MW-23d		MW-32i		MW-34i		MW-35r	
Sample Date			5/19/2006		5/19/2006		5/22/2006		5/19/2006		5/22/2006		4/27/2006		4/24/2006		5/22/2006		4/25/2006	
Sample Time			15:36		13:36		14:22		11:36		12:31		13:15		10:01		13:30		14:35	
Well Depth			shallow		shallow		shallow		intermediate		shallow		shallow		shallow		shallow		shallow	
NAPL (Historically)			NAPL		--		--		NAPL		NAPL		--		--		NAPL		--	
Inside/Outside Barrier Wall			inside		inside		inside		outside		inside		inside		outside		outside		outside	
CONTAMINANT OF INTEREST		MCLs																		
Total Metals (mg/L)																				
Arsenic		0.01	**0.0159**		**0.00290**		**0.0220**		**0.00686**		**0.0571**		**0.00307**		**0.0100**		**0.0486**		**0.00104**	
Chromium		0.10	**0.00054**	J	0.000121	U	**0.000121**	U	**0.00700**		**0.000990**	J	**0.00102**		**0.00503**		**0.000550**	J	**0.000860**	J
Copper		1.30	**0.00201**		0.000133	U	**0.000133**	U	**0.00221**		**0.00275**		**0.000784**	J	0.000820	U[2]	**0.000310**	J	0.000480	U[2]
Zinc		5.00	0.00477	U	0.00140	U	0.00249	U[2]	**0.0281**		**0.00981**		**0.00184**	J	0.00237	U[2]	0.00438	U[2]	0.00462	U[2]
Pentachlorophenol (ug/L)		1.0	9.9	U	1	U	0.98	U	**3150**		49	U	0.952	U	0.943	U	**1.09**		0.952	U
Polyaromatic Hydrocarbons (ug/L)																				
Acenaphthene	L		**51.1**		0.05	U	**0.829**		**5640**		**357**		**0.264**		0.0472	U	**1.22**		0.0476	U
Acenaphthylene	L		1.49	U	0.05	U	0.049	U	95.2	U	**9.22**		0.0476	U	0.0472	U	0.0485	U	0.0476	U
Anthracene	L		**3.37**		**0.107**		**0.146**		**1650**		**47**		**0.144**		0.0472	U	**0.13**		0.0476	U
Benzo (a) anthracene	H, C		0.495	U	0.05	U	0.049	U	**845**		**18**		0.0476	U	0.0472	U	0.0485	U	0.0476	U
Benzo (a) pyrene	H, C	0.2	0.495	U	0.05	U	0.049	U	**228**		**4.25**	J	0.0476	U	0.0472	U	0.0485	U	0.0476	U
Benzo (b) fluoranthene	H, C		0.495	U	0.05	U	0.049	U	**623**		**5.76**		0.0476	U	0.0472	U	0.0485	U	0.0476	U
Benzo (k) fluoranthene	H, C		0.495	U	0.05	U	0.049	U	47.6	U	**5.07**		0.0476	U	0.0472	U	0.0485	U	0.0476	U
Benzo (ghi) perylene	H, C		0.495	U	0.05	U	0.049	U	47.6	U	2.45	U	0.0476	U	0.0472	U	0.0485	U	0.0476	U
Chrysene	H, C		0.495	U	0.05	U	0.049	U	**744**		**14.7**		0.0476	U	0.0472	U	0.0485	U	0.0476	U
Dibenzo (a,h) anthracene	H, C		0.99	U	0.1	U	0.098	U	95.2	U	4.9	U	0.0952	U	0.0943	U	0.0971	U	0.0952	U
Fluoranthene	H		**3.44**		**0.129**		**0.26**		**4340**		**125**		**0.53**		**0.0569**	J	**0.13**		0.0476	U
Fluorene	L		**28.8**		0.05	U	**0.468**		**4670**		**197**		**0.282**		0.0472	U	**0.37**		0.0476	U
Indeno (1,2,3-cd) pyrene	H, C		0.495	U	0.05	U	0.049	U	**52.7**	J	2.45	U	0.0476	U	0.0472	U	0.0485	U	0.0476	U
Napthalene	L		**1440**		**0.184**		**0.211**		**32700**		**9120**		**0.548**		0.0472	U	**5.7**		0.0476	U
Phenanthrene	L		**34.2**		**0.0591**	J	0.049	U	**9490**		**284**		**0.123**		0.0472	U	**0.445**		0.0476	U
Pyrene	H		**1.86**		**0.0973**	J	**0.166**		**2840**		**76.9**		**0.314**		0.0472	U	**0.089**	J	0.0476	U
Total LPAHs			**1560**		**0.350**		**1.65**		**54200**		**10000**		**1.361**		0.142	U	**7.87**		0.143	U
Total HPAHs			**5.30**		**0.226**		**0.426**		**9670**		**252**		**0.844**		0.0569		**0.219**		0.262	U
Total Carcinogenic PAHs			2.23	U	0.225	U	0.221	U	**2490**		**49.7**		0.214	U	0.212	U	0.218	U	0.214	U
Total PAHs			**1560**		**0.576**		**2.08**		**63800**		**10300**		**2.21**		0.199		**8.08**		0.405	U
FIELD PARAMETERS																				
Temperature (°c)			**16.53**		**15.30**		**15.49**		**--**		**15.6**		**15.86**		**16.81**		**--**		**17.53**	
Oxidation Reduction Potential (mV)			**-83**		**209**		**-65**		**--**		**-41**		**-214**				**--**		**-56**	
pH			**7.16**		**6.69**		**7.15**		**--**		**6.71**		**7.38**		**6.72**		**--**		**6.57**	
Specific Conductance (Ms/cm)			**53.1**		**37.0**		**59.4**		**--**		**0.117**		**0.752**		**0.9**		**--**		**0.811**	
Turbidity (NTU)			**5.6**		**4.7**		**2.6**		**--**		**14**		**12.8**		**12.1**		**--**		**20.1**	
Dissolved Oxygen (mg/L)			**0.3**		**0.6**		**0.7**		**--**		**0.7**		**0.04**		**0.09**		**--**		**0.64**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-35r		MW-36s		MW-36i		MW-36d		MW-37s		MW-37s		MW-37i		MW-37i		MW-37d	
Sample Date			5/6/2010		5/16/2006		5/12/2006		5/11/2006		5/8/2006		5/6/2010		5/4/2006		5/6/2010		5/16/2006	
Sample Time			8:11		15:02		12:46		9:36		9:26		14:20		16:32		13:35		15:47	
Well Depth			shallow		shallow		intermediate		deep		shallow		shallow		intermediate		intermediate		deep	
NAPL (Historically)			--		--		--		--		--		--		--		--		--	
Inside/Outside Barrier Wall			outside		inside		inside		inside		outside		outside		outside		outside		outside	
CONTAMINANT OF INTEREST		MCLs																		
Total Metals (mg/L)																				
Arsenic		0.01	**0.00076**		0.00332	U	**0.0553**		**0.0450**		**0.00213**		**0.00550**		**0.0513**		***0.03880***		**0.0353**	
Chromium		0.10	**0.00041**	**J**	**0.0340**		**0.0127**		**0.00222**		**0.00252**		**0.00150**		**0.00824**		**0.00240**		0.000605	U
Copper		1.30	0.00073		**0.00590**	**J**	**0.0115**		**0.000270**	**J**	**0.00153**	**J**	**0.00120**		**0.00476**		**0.00460**		**0.0105**	
Zinc		5.00	**0.00250**	**J**	**0.00676**	**J**	**0.0303**		**0.00142**	**J**	0.00350	U[2]	**0.00210**	**J**	**0.0114**		**0.01310**		**0.00966**	**J**
Pentachlorophenol (ug/L)		1.0	**0.52**	**U**	**5.36**		1	U	0.98	U	**31.6**		**158**		9.9	U	**0.082**	**U**	0.98	U
Polyaromatic Hydrocarbons (ug/L)																				
Acenaphthene	L		0.0063	U	0.171	U[2]	**25.7**		**0.529**		**8.89**	**J[5]**	**44.7**		0.0495	U	**6.6**		**1.15**	
Acenaphthylene	L		0.0042	U	0.0495	U	0.1	U	0.098	U	0.25	U	**1**		0.0495	U	**0.039**	**J**	0.049	U
Anthracene	L		0.0053	U	0.0495	U	0.129	U[2]	0.118	U[2]	**0.442**		**0.76**		0.0495	U	**0.043**		0.125	U[2]
Benzo (a) anthracene	H, C		0.0032	U	0.0495	U	0.05	U	0.0735	U[2]	**0.109**		0.0031	U	0.0495	U	0.0032	U	0.049	U
Benzo (a) pyrene	H, C	0.2	0.0032	U	0.0495	U	0.05	U	0.0558	U[2]	**0.0853**	**J[5]**	0.0031	U	0.0495	U	0.0032	U	0.049	U
Benzo (b) fluoranthene	H, C		0.0053	U	0.0495	U	0.05	U	0.0581	U[2]	**0.111**		0.0052	U	0.0495	U	0.0053	U	0.049	U
Benzo (k) fluoranthene	H, C		0.0053	U	0.0495	U	0.05	U	0.0522	U[2]	**0.107**		0.0052	U	0.0495	U	0.0053	U	0.049	U
Benzo (ghi) perylene	H, C		0.0021	U	0.0495	U	0.05	U	0.0579	U[2]	**0.0878**	**J**	0.0021	U	0.0495	U	0.0021	U	0.049	U
Chrysene	H, C		**0.0053**	**J**	0.0495	U	0.05	U	0.0748	U[2]	**0.111**		0.0031	U	0.0495	U	0.0032	U	0.049	U
Dibenzo (a,h) anthracene	H, C			R	0.099	U	0.1	U	0.098	U	0.1	U		R	0.99	U		R	0.098	U
Fluoranthene	H		**0.012**	**J**	0.0918	U[2]	0.093	U[2]	**0.0914**	**J**	**0.257**		**0.13**		0.0495	U	**0.011**	**J**	0.049	U
Fluorene	L		0.0032	U	0.0495	U	**0.899**		0.0826	U[2]	**2.52**		**18.8**		0.0495	U	**0.34**		0.049	U
Indeno (1,2,3-cd) pyrene	H, C		0.0042	U	0.0495	U	0.05	U	0.0495	U[2]	**0.0898**	**J**	0.0041	U	0.0495	U	0.0042	U	0.0495	U
Napthalene	L		**0.02**	**J**	0.0495	U	**1.87**		**1.92**		**50**		**406**		**47.4**		**0.3**		**28.2**	
Phenanthrene	L		**0.0084**	**J**	0.0495	U	0.173	U[2]	0.111	U[2]	**1.18**		**4.4**		0.0495	U	**0.0033**	**J**	0.049	U
Pyrene	H		**0.0064**	**J**	0.078	U[2]	0.0743	U[2]	0.0862	U[2]	**0.193**		**0.1**		0.0495	U	**0.011**	**J**	0.049	U
Total LPAHs			**0.028**	**J**	0.209	U	**28.5**		**2.45**		**63.0**		**476**		**47.4**		**7.3**		**29.35**	
Total HPAHs			**0.024**	**J**	0.308	U	0.309	U	**0.0914**		**1.15**		**0.23**		0.718	U	**0.022**		0.26975	U
Total Carcinogenic PAHs			**0.0053**	**J**	0.223	U	0.225	U	0.260	U	**0.701**		0.013	U	0.668	U	0.013	U	0.22075	U
Total PAHs			**0.052**	**J**	0.517	U	**28.8**		**2.54**		**64.2**		**476**		**48.1**		**7.3**		**29.35**	
FIELD PARAMETERS																				
Temperature (°c)			**12.8**		**30.17**		**23.06**		**18.97**		**21.65**		**14.6**		**27.93**		**14.8**		**15.9**	
Oxidation Reduction Potential (mV)			**235**		**129**		**-151**		**-151**		**37**		**-77**		**-204**		**-152**		**-153**	
pH			**6.47**		**6.19**		**7.53**		**7.79**		**6.72**		**6.41**		**6.98**		**7.15**		**7.73**	
Specific Conductance (Ms/cm)			**0.24**		**41.5**		**72.9**		**76**		**52.3**		**90.4**		**1**		**89.3**		**82.9**	
Turbidity (NTU)			**12.6**		**29**		**38**		**4.9**		**38**		**150**		**55**		**220**		**28**	
Dissolved Oxygen (mg/L)			**12.2**		**1.1**		**1.1**		**1.9**		**2.3**		**5.7**		**0.16**		**5**		**0**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-37d		MW-38s		MW-38i		MW-38d		MW-39s		MW-39s		MW-39i		MW-39d		MW-39d Duplicate[6]		MW-40s	
Sample Date			5/6/2010		5/16/2006		5/12/2006		5/10/2006		5/8/2006		5/6/2010		5/4/2006		5/3/2006		5/4/2006		5/16/2006	
Sample Time			13:09		13:21		10:32		16:21		16:45		11:01		14:37		15:25		15:25		10:37	
Well Depth			deep		shallow		intermediate		deep		shallow		shallow		intermediate		deep		deep		shallow	
NAPL (Historically)			--		--		--		--		--		--		--		--		--		--	
Inside/Outside Barrier Wall			outside		inside		inside		inside		outside		outside		outside		outside		outside		inside	
CONTAMINANT OF INTEREST		MCLs																				
Total Metals (mg/L)																						
Arsenic		0.01	**0.00170**		**0.0234**		**0.0224**		**0.0223**		**0.0153**		***0.01210***		**0.0383**		**0.0304**		**0.0378**		0.00332	U
Chromium		0.10	0.00024	U	**0.0102**		**0.0320**		**0.00579**		**0.0111**		**0.00140**		**0.00211**		**0.00157**		**0.00212**		**0.0154**	
Copper		1.30	**0.00320**		**0.00478**	**J**	**0.00534**		**0.000570**	**J**	**0.00719**		**0.00170**		**0.00262**		**0.00355**		**0.00133**	**J**	**0.00887**	**J**
Zinc		5.00	**0.03410**		**0.00662**	**J**	**0.0121**		0.00208	U[2]	**0.0120**		0.00280	J	0.00309	U[2]	0.00258	U[2]	0.00205	U[2]	**0.0102**	**J**
Pentachlorophenol (ug/L)		1.0	**0.51**	**U**	0.98	U	1	U	18.9	U	1	U	0.54	U	**4.22**		1	U	**3.78**		0.98	U
Polyaromatic Hydrocarbons (ug/L)																						
Acenaphthene	L		**0.11**		0.153	U[2]	0.0603	U[2]	**4.81**	**J[5]**	**0.373**	**J[5]**	**0.021**	**J**	**0.0643**	**J**	**4.71**		**0.0773**	**J**	0.139	U[2]
Acenaphthylene	L		0.004	U	0.049	U	0.05	U	0.943	U	**0.0583**	**J**	**0.0041**	**U**	0.05	U	0.1	U	0.05	U	0.049	U
Anthracene	L		**0.059**		0.101	U[2]	0.05	U	0.943	U	**0.246**		**0.051**		**0.0635**	**J**	**0.274**		**0.0722**	**J**	0.0645	U[2]
Benzo (a) anthracene	H, C		0.003	U	0.049	U	0.05	U	0.943	U	**0.0927**	**J**	**0.0031**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Benzo (a) pyrene	H, C	0.2	0.003	U	0.049	U	0.05	U	0.943	U	**0.0707**	**J[5]**	**0.0031**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Benzo (b) fluoranthene	H, C		0.005	U	0.049	U	0.05	U	0.943	U	**0.0862**	**J**	**0.0051**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Benzo (k) fluoranthene	H, C		0.005	U	0.049	U	0.05	U	0.943	U	**0.087**	**J**	**0.0051**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Benzo (ghi) perylene	H, C		0.002	U	0.049	U	0.05	U	0.943	U	**0.0586**	**J**	**0.002**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Chrysene	H, C		0.003	U	0.049	U	0.05	U	0.943	U	**0.11**		**0.0031**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Dibenzo (a,h) anthracene	H, C			R	0.098	U	0.1	U	1.89	U	0.1	U		**R**	0.1	U	0.1	U	0.1	U	0.098	U
Fluoranthene	H		0.004	U	0.113	U[2]	0.0936	U[2]	0.943	U	**0.264**		**0.026**	**J**	**0.287**		**0.0792**	**J**	**0.289**		0.0535	U[2]
Fluorene	L		0.003	U	0.117	U[2]	0.0617	U[2]	0.943	U	**0.29**		**0.011**	**J**	**0.0745**	**J**	**0.0528**	**J**	**0.0847**	**J**	0.0681	U[2]
Indeno (1,2,3-cd) pyrene	H, C		0.004	U	0.049	U	0.05	U	0.943	U	**0.0575**	**J**	**0.0041**	**U**	0.05	U	0.05	U	0.05	U	0.049	U
Napthalene	L		0.005	U	0.107	U[2]	0.268	U[2]	**56.6**		**0.195**		**0.0051**	**U**	**0.106**		**25.9**		**0.268**		0.167	U[2]
Phenanthrene	L		0.006	U	0.118	U[2]	0.0744	U[2]	0.943	U	**0.156**		**0.0061**	**U**	**0.0567**	**J**	0.1	U	**0.057**	**J**	0.0641	U[2]
Pyrene	H		0.006	U	**0.0857**	**J**	0.0704	U[2]	0.943	U	**0.195**		**0.023**	**J**	**0.175**		0.05	U	**0.181**		0.0559	U[2]
Total LPAHs			**0.17**		**0.323**		0.282	U	**61.4**		**1.32**		**0.098**	**J**	**0.365**		**30.9**		**0.559**		0.276	U
Total HPAHs			0.018	U	**0.0857**		0.307	U	5.19	U	**1.02**		**0.034**	**J**	**0.462**		**0.0792**		**0.470**		0.275	U
Total Carcinogenic PAHs			0.013	U	0.221	U	0.225	U	4.25	U	**0.563**		0.0128	**U**	0.225	U	0.225	U	0.225	U	0.221	U
Total PAHs			**0.17**		**0.408**		0.589	U	**66.6**		**2.34**		**0.132**		**0.827**		**31.0**		**1.03**		0.551	U
FIELD PARAMETERS																						
Temperature (°c)			**15.4**		**24.97**		**16.87**		**25.07**		**21.96**		**14.2**		**25.08**		**21.1**		**25.08**		**25.43**	
Oxidation Reduction Potential (mV)			**133**		**-93**		**-122**		**-112**		**-103**		**-93**		**-145**		**-160**		**-145**		**6**	
pH			**6.43**		**6.82**		**7.74**		**7.76**		**7.03**		**6.27**		**6.74**		**7.03**		**6.74**		**6.76**	
Specific Conductance (Ms/cm)			**0.35**		**57.4**		**58**		**0.9**		**77.7**		**0.87**		**0.95**		**0.94**		**0.95**		**40.3**	
Turbidity (NTU)			**11**		**36**		**23**		**36**		**50**		**9.9**		**29.2**		**20.5**		**29.2**		**60**	
Dissolved Oxygen (mg/L)			**0.6**		**0**		**2**		**3.1**		**1.6**		**1.8**		**1.6**		**4.26**		**1.6**		**0.3**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-40i		MW-40d[5]		MW-41s		MW-41s		MW-41i		MW-41d		MW-42s		MW-42i		MW-42d		MW-43s		MW-43i	
Sample Date			5/12/2006		5/10/2006		5/8/2006		5/6/2010		5/15/2006		5/3/2006		5/16/2006		5/11/2006		5/10/2006		5/5/2006		5/4/2006	
Sample Time			9:12		14:48		13:32		12:08		14:06		13:57		7:42		15:42		13:21		15:58		11:38	
Well Depth			intermediate		deep		shallow		shallow		intermediate		deep		shallow		intermediate		deep		shallow		intermediate	
NAPL (Historically)			--		--		--		--		--		--		--		--		--		--		--	
Inside/Outside Barrier Wall			inside		inside		outside		outside		outside		outside		inside		inside		inside		outside		outside	
CONTAMINANT OF INTEREST		MCLs																						
Total Metals (mg/L)																								
Arsenic		0.01	**0.0104**		**0.0103**		**0.00435**		**0.00250**		**0.00348**	J	**0.0132**		0.00332	U	**0.0349**		**0.0206**		**0.0131**		**0.00360**	
Chromium		0.10	**0.0152**		**0.00190**		**0.0246**		**0.00200**		**0.00061**	U	**0.00657**		**0.03160**		**0.00224**		**0.00341**		**0.0635**		**0.0157**	
Copper		1.30	**0.00387**		**0.000350**	J	**0.00746**		**0.00130**		**0.00718**	J	**0.00160**	J	**0.0150**		**0.00525**		**0.00110**	J	**0.0230**		**0.00352**	
Zinc		5.00	**0.0126**		0.00218	U[2]	**0.00940**		**0.00210**	J	**0.00944**	J	0.00223	U[2]	**0.0262**		**0.00970**		0.00281	U[2]	**0.0222**		**0.00661**	
Pentachlorophenol (ug/L)		1.0	0.99	U	0.943	U	0.99	U	**0.53**	U	0.99	U	0.962	U	0.98	U	0.98	U	0.943	U	0.943	U	0.98	U
Polyaromatic Hydrocarbons (ug/L)																								
Acenaphthene	L		0.117	U[2]	**0.0646**	J[5]	**0.79**	J[5]	**0.017**		0.0495	U	0.0481	U	**0.49**		**3.54**		**0.116**	J[5]	**0.397**		**0.307**	
Acenaphthylene	L		0.0495	U	0.0472	U	**0.0697**	J	0.0042	U	0.0495	U	0.0481	U	0.049	U	0.049	U	0.0472	U	**0.131**		0.049	U
Anthracene	L		0.0829	U[2]	0.0472	U	**0.125**		**0.059**		0.0495	U	**0.0572**	J	0.14	U[2]	0.124	U[2]	**0.149**		**0.575**		**0.134**	
Benzo (a) anthracene	H, C		**0.0523**	J	0.0472	U	**0.0724**	J	0.0032	U	0.0495	U	0.0481	U	0.049	U	0.0533	U[2]	**0.0683**	J	**0.388**		**0.0784**	J
Benzo (a) pyrene	H, C	0.2	0.0495	U	0.0472	U	**0.055**	J[5]	0.0032	U	0.0495	U	0.0481	U	0.049	U	0.0566	U[2]	**0.0728**	J[5]	**0.261**		0.049	U
Benzo (b) fluoranthene	H, C		0.0502	U[2]	0.0472	U	**0.0633**	J	0.0053	U	0.0495	U	0.0481	U	0.049	U	0.0987	U[2]	**0.162**		**0.402**		0.049	U
Benzo (k) fluoranthene	H, C		0.0495	U	0.0472	U	**0.0695**	J	0.0053	U	0.0495	U	0.0481	U	0.049	U	0.0802	U[2]	**0.0832**	J	**0.223**		0.049	U
Benzo (ghi) perylene	H, C		0.0495	U	0.0472	U	**0.0573**	J	0.0021	U	0.0495	U	0.0481	U	0.049	U	0.0549	U[2]	**0.0629**	J	**0.233**		0.049	U
Chrysene	H, C		0.061	U[2]	0.0472	U	**0.0803**	J	0.0032	U	0.0495	U	0.0481	U	0.049	U	0.101	U[2]	**0.126**		**0.561**		**0.0888**	J
Dibenzo (a,h) anthracene	H, C		0.099	U	0.0943	U	0.099	U		R	0.099	U	0.0962	U	0.098	U	0.098	U	0.0943	U	**0.114**		0.098	U
Fluoranthene	H		0.113	U[2]	**0.0656**	J	**0.22**		**0.0082**	J	0.0495	U	**0.182**		0.112	U[2]	0.225	U[2]	**0.328**		**2.07**		**4.32**	
Fluorene	L		0.11	U[2]	**0.0637**	J	**0.436**		**0.17**		0.0495	U	0.0481	U	0.0827	U[2]	0.0712	U[2]	**0.0844**	J	**0.368**		**0.164**	
Indeno (1,2,3-cd) pyrene	H, C		0.0495	U	0.0472	U	**0.056**	J	0.0042	U	0.0495	U	0.0481	U	0.049	U	0.0565	U[2]	**0.0623**	J	**0.211**		0.049	U
Napthalene	L		0.321	U[2]	**0.222**		**1.76**		0.0053	U	0.313	U[2]	**0.079**	J	0.484	U[2]	1.45	U[2]	**0.711**		**1.08**		**3.12**	
Phenanthrene	L		0.15	U[2]	0.0472	U	**0.228**		**0.023**	J	0.0495	U	**0.118**		0.135	U[2]	0.0952	U[2]	**0.156**		**0.574**		**0.197**	
Pyrene	H		0.0995	U[2]	**0.0549**	J	**0.155**		**0.008**	J	0.0495	U	**0.106**		0.084	U[2]	0.146	U[2]	**0.236**		**1.28**		**2.06**	
Total LPAHs			0.415	U	**0.350**		**3.41**		**0.27**	J	0.280	U	**0.254**		**0.490**		**3.54**		**1.22**		**3.13**		**3.92**	
Total HPAHs			**0.0523**		**0.121**		**0.829**		**0.016**	J	0.272	U	**0.288**		0.319	U	0.485	U	**1.20**		**5.74**		**6.55**	
Total Carcinogenic PAHs			**0.0523**		0.212	U	**0.454**		0.013	U	0.223	U	0.216	U	0.221	U	0.300	U	**0.638**		**2.39**		**0.167**	
Total PAHs			**0.468**		**0.471**		**4.24**		**0.29**	J	0.553	U	**0.542**		**0.809**		4.03	U	**2.42**		**8.87**		**10.5**	
FIELD PARAMETERS																								
Temperature (°c)			**17.68**		**20.48**		**21.79**		**14.1**		**18.09**		**21.9**		**19.4**		**17.02**		**22.81**		**17.45**		**26.47**	
Oxidation Reduction Potential (mV)			**-101**		**-128**		**-6**		**-32**		**-97**		**-149**		**13**		**-123**		**-107**		**114**		**-61**	
pH			**7.77**		**7.83**		**6.94**		**6.17**		**7.72**		**6.98**		**6.79**		**7.37**		**7.45**		**5.86**		**6.74**	
Specific Conductance (Ms/cm)			**49.5**		**75**		**68.9**		**0.69**		**43.1**		**0.9**		**32**		**103**		**0.239**		**0.9**		**0.9**	
Turbidity (NTU)			**40**		**5.6**		**25**		**34.7**		**14**		**11.6**		**170**		**60**		**6.9**		**30**		**56.6**	
Dissolved Oxygen (mg/L)			**2.7**		**1.4**		**2.9**		**1**		**0**		**0.8**		**4.2**		**0.07**		**1.7**		**0.16**		**2.88**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-43d		MW-44s		MW-44i		MW-44d		MW-45s		MW-45s Duplicate[8]		MW-45i		MW-45d		MW-46s		MW-47s		MW-47s	
Sample Date			5/3/2006		5/15/2006		5/11/2006		5/10/2006		5/5/2006		5/5/2006		5/18/2006		5/2/2006		4/27/2006		4/27/2006		5/6/2010	
Sample Time			11:20		9:56		11:37		11:16		9:31		9:31		16:48		16:28		11:07		9:42		12:20	
Well Depth			deep		shallow		intermediate		deep		shallow		intermediate		intermediate		deep		shallow		shallow		shallow	
NAPL (Historically)			--		--		--		--		--		--		--		--		--		--		--	
Inside/Outside Barrier Wall			outside		inside		inside		inside		outside		outside		outside		outside		inside		outside		outside	
CONTAMINANT OF INTEREST		MCLs																						
Total Metals (mg/L)																								
Arsenic		0.01	0.00832		0.0747		0.0492		0.00890		0.145		0.152		0.0426		0.0122		0.00891		0.0135		*0.01070*	
Chromium		0.10	0.00834		0.00356	J	0.00147		0.00396		0.00628		0.0102		0.00424		0.00327		0.00116		0.00106		0.00150	
Copper		1.30	0.0114		0.00579	J	0.000564	J	0.00116	J	0.0137		0.0134		0.00096	J	0.00201		0.000312	J	0.000212	J	0.00180	
Zinc		5.00	0.0199		0.00755	J	0.00298	J	0.00192	U[2]	0.0174		0.0159		0.00207	J	0.00253	U[2]	0.00145	J	0.00186	J	0.00480	J
Pentachlorophenol (ug/L)		1.0	0.99	U	19.8	U	9.8	U	0.952	U	19.5		20	U	49.5	U	0.971	U	0.943	U	0.962	U	0.53	U
Polyaromatic Hydrocarbons (ug/L)																								
Acenaphthene	L		4.43		105		227		1.6	J[5]	145		122		114		1.16		0.884		1.95		2.1	
Acenaphthylene	L		0.0495	U	1.98	U	24.5	U	0.0476	U	3.88	U	3.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0043	U
Anthracene	L		4.62		2.23		13.3		0.448		7.69		5.83		2.48	U	0.0495	J	0.0548		0.0632	J	0.023	J
Benzo (a) anthracene	H, C		0.892		0.99	U	0.49	U	0.0513	J	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0032	U
Benzo (a) pyrene	H, C	0.2	0.104		0.99	U	0.49	U	0.0476	U	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0032	U
Benzo (b) fluoranthene	H, C		0.295		0.99	U	0.49	U	0.0476	U	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0054	U
Benzo (k) fluoranthene	H, C		0.181		0.99	U	0.49	U	0.0476	U	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0054	U
Benzo (ghi) perylene	H, C		0.0573	J	0.99	U	0.49	U	0.0476	U	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0022	U
Chrysene	H, C		1.02		0.99	U	0.49	U	0.0555	J	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0032	U
Dibenzo (a,h) anthracene	H, C		0.099	U	1.98	U	0.98	U	0.0952	U	1.94	U	2.00	U	4.95	U	0.0971	U	0.0943	U	0.0962	U		R
Fluoranthene	H		15.5		1.32	J	14		0.695		6.47		5.05		2.48	U	0.0621	J	0.0603	J	0.0487	J	0.018	J
Fluorene	L		1.8		44.5		125		1.6		74.5		60.4		24.3		0.576		0.0472	U	0.0868	J	0.0032	U
Indeno (1,2,3-cd) pyrene	H, C		0.0628	J	0.99	U	0.49	U	0.0476	U	0.971	U	1.00	U	2.48	U	0.0485	U	0.0472	U	0.0481	U	0.0043	U
Napthalene	L		0.23		1280		4420		1.77		5450		4550		724		0.284		0.0472	U	0.0481	U	0.0054	U
Phenanthrene	L		29.1		21.6		141		3.82		58.6		45.5		7.31		0.385		0.0472	U	0.131		0.048	
Pyrene	H		6.92		0.99	U	6.6		0.333		3.35		2.68		2.48	U	0.0485	U	0.0484	J	0.0481	U	0.014	J
Total LPAHs			40.2		1450		4930		9.24		5740		4780		870		2.45		0.939		2.23		2.2	J
Total HPAHs			25.0		1.32		20.6		1.13		9.82		7.73		13.6	U	0.0621		0.109		0.0487		0.032	J
Total Carcinogenic PAHs			2.61		4.46	U	2.21	U	0.107		4.37	U	4.50	U	11.2	U	0.218	U	0.212	U	0.216	U	0.013	U
Total PAHs			65.2		1450		4950		10.4		5750		4790		870		2.52		1.05		2.28		2.2	J
FIELD PARAMETERS																								
Temperature (°c)			19.47		22.2		18.55		20.63		19.23		19.23		25.81		22.09		18.12		17.35		13.7	
Oxidation Reduction Potential (mV)			-39		-67		-84		-137		30		30		-113		-162		-61		-13		-70	
pH			6.88		6.79		6.86		7.83		5.85		5.85		6.85		6.79		5.57		5.9		6	
Specific Conductance (Ms/cm)			0.848		53.1		94.7		47.2		0.869		0.869		62.7		0.822		0.99		0.9		0.09	
Turbidity (NTU)			341		30		4.6		11		6.8		6.8		7.9		29		7		0		170	
Dissolved Oxygen (mg/L)			0.09		1.5		1.1		1.8		0		0		0		0.21		0.03		0.01		5.2	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-48s		MW-49s		MW-50s		MW-51s		MW-52s		MW-53s		MW-53s		MW-54s		MW-55s		MW-55s	
Sample Date			5/2/2006		5/18/2006		5/2/2006		4/26/2006		5/1/2006		4/26/2006		5/6/2010		5/1/2006		4/26/2006		5/6/2010	
Sample Time			12:17		14:21		9:47		12:17		16:35		10:25		10:10		15:13		9:02		9:10	
Well Depth			shallow		shallow		shallow		shallow		shallow		shallow		shallow		shallow		shallow		shallow	
NAPL (Historically)			--		--		--		--		--		--		--		--		--		--	
Inside/Outside Barrier Wall			inside		outside		inside		outside		inside		outside		outside		inside		outside		outside	
CONTAMINANT OF INTEREST		MCLs																				
Total Metals (mg/L)																						
Arsenic		0.01	0.00633		0.00276		0.00307		0.000940	J	0.00394		0.0132		*0.01810*		0.000664	U	0.00547		0.00180	
Chromium		0.10	0.00164		0.000870	J	0.000359	J	0.000890	J	0.00347		0.00102		0.00120		0.00157		0.000480		0.00086	
Copper		1.30	0.00300		0.00101	J	0.00582		0.000800	U[2]	0.00653		0.00125	J	0.00710		0.00213		0.000580	U[2]	0.00210	
Zinc		5.00	0.00501		0.00241	J	0.00639		0.00413	U[2]	0.0141		0.00688		0.01030		0.0144		0.00751		0.00600	
Pentachlorophenol (ug/L)		1.0	1	U	0.99	U	0.98	U	0.952	U	4.92	J	1650		68.4		0.962	U	0.952	U	0.51	U
Polyaromatic Hydrocarbons (ug/L)																						
Acenaphthene	L		0.388		25.9		6.93		4.91		0.0495	U	0.0472	U	0.011	J	0.0728	J	0.0476	U	0.0061	U
Acenaphthylene	L		0.05	U	0.22		0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0041	U	0.0481	U	0.0476	U	0.0041	U
Anthracene	L		0.152		0.237		0.148		0.104		0.0901	J	0.474		0.16		0.0693	J	0.146		0.022	J
Benzo (a) anthracene	H, C		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0031	U	0.0481	U	0.0476	U	0.0031	U
Benzo (a) pyrene	H, C	0.2	0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0031	U	0.0481	U	0.0476	U	0.0031	U
Benzo (b) fluoranthene	H, C		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0051	U	0.0481	U	0.0476	U	0.0051	U
Benzo (k) fluoranthene	H, C		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0051	U	0.0481	U	0.0476	U	0.0051	U
Benzo (ghi) perylene	H, C		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0021	U	0.0481	U	0.0476	U	0.002	U
Chrysene	H, C		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0031	U	0.0481	U	0.0476	U	0.0031	U
Dibenzo (a,h) anthracene	H, C		0.1	U	0.099	U	0.098	U	0.0952	U	0.099	U	0.0943	U		R	0.0962	U	0.0952	U		R
Fluoranthene	H		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0801	J	0.0472	U	0.011	J	0.112		0.0476	U	0.013	J
Fluorene	L		0.0558	J	6.51		0.0517	J	0.0476	U	0.0495	U	0.0472	U	0.017	J	0.0977		0.0476	U	0.0034	J
Indeno (1,2,3-cd) pyrene	H, C		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0495	U	0.0472	U	0.0041	U	0.0481	U	0.0476	U	0.0041	U
Napthalene	L		16.6		23.2		0.049	U	0.0476	U	0.0495	U	0.0472	U	0.45		0.0481	U	0.0476	U	0.0051	U
Phenanthrene	L		0.05	U	0.165		0.0786	J	0.0476	U	0.0495	U	0.0472	U	0.019	J	0.179		0.0476	U	0.0099	J
Pyrene	H		0.05	U	0.0495	U	0.049	U	0.0476	U	0.0612	J	0.0933	J	0.014	J	0.0677	J	0.0476	U	0.0092	J
Total LPAHs			17.2		56.2		7.21		5.01		0.0901		0.474		0.66	J	0.419		0.146		0.035	J
Total HPAHs			0.275	U	0.272	U	0.270	U	0.262	U	0.141		0.0933		0.025	J	0.180		0.262	U	0.022	J
Total Carcinogenic PAHs			0.225	U	0.223	U	0.221	U	0.214	U	0.223	U	0.212	U	0.013	U	0.216	U	0.214	U	0.013	U
Total PAHs			17.5		56.2		7.48		5.28		0.231		0.567		0.68	J	0.599		0.408		0.058	J
FIELD PARAMETERS																						
Temperature (°c)			18.06		18.9		19.21		16.09		17.93		17.03		12.8		19.98		16.56		12	
Oxidation Reduction Potential (mV)			-33		-26		-39		-6		96		-115		-118		138		-100		135	
pH			6		6.44		6.26		6.34		5.92		6.41		6.34		4.93		6.39		5.49	
Specific Conductance (Ms/cm)			0.999		51.6		0.9		0.928		0.815		0.9		0.73		0.407		0.883		0.23	
Turbidity (NTU)			10.3		1.6		0		30		237		35.2		26		263		13.5		14.9	
Dissolved Oxygen (mg/L)			0.05		0.1		0.1		0.18		0.23		0.09		0.4		0.51		0.06		0.6	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-56s[3]		MW-57s		MW-58s		MW-58s		MW-58i		MW-58d		MW-59s		MW-60d		MW-61s		MW-62i	
Sample Date			5/17/2006		5/9/2006		5/9/2006		5/6/2010		5/18/2006		4/27/2006		4/26/2006		5/9/2006		4/25/2006		5/10/2006	
Sample Time			11:04		17:06		13:56		10:36		9:41		16:55		18:01		11:07		16:43		9:22	
Well Depth			shallow		shallow		shallow		shallow		intermediate		deep		shallow		deep		shallow		intermediate	
NAPL (Historically)			NAPL		--		--		--		--		--		--		--		--		--	
Inside/Outside Barrier Wall			inside		outside		outside		outside		outside		outside		outside		outside		outside		inside	
CONTAMINANT OF INTEREST		MCLs																				
Total Metals (mg/L)																						
Arsenic		0.01	**0.0210**		**0.00762**		**0.00309**		**0.00062**		**0.0453**		**0.00696**		**0.00803**		**0.0269**		0.000664	U	**0.0376**	
Chromium		0.10	**0.000560**	J	**0.00994**		**0.00347**		**0.00110**		**0.0220**		**0.00310**		**0.00109**		**0.00844**		**0.00138**		**0.00111**	
Copper		1.30	**0.000740**	J	**0.0102**		**0.00343**		**0.00230**		**0.0155**		**0.000599**	J	**0.000503**	J	**0.00139**	J	0.000660	U[2]	0.00083	U[2]
Zinc		5.00	**0.00522**		**0.0336**		0.00368	U[2]	**0.00290**	J	**0.0277**		**0.00192**	J	**0.00556**		0.00273	U[2]	0.00653	U[2]	**0.00383**	J
Pentachlorophenol (ug/L)		1.0	**928**		192	U	0.952	U	**0.56**	U	0.99	U	0.952	U	0.943	U	9.71	U	0.962	U	0.962	U
Polyaromatic Hydrocarbons (ug/L)																						
Acenaphthene	L		**507**		**147**	J[5]	**0.325**	J[5]	0.0065	U	**2.26**		0.0476	U	0.0472	U	**89.5**	J[5]	0.0481	U	**121**	J[5]
Acenaphthylene	L		**12.1**		9.62	U	0.0476	U	0.0043	U	0.0495	U	0.0476	U	0.0472	U	0.971	U	0.0481	U	0.962	U
Anthracene	L		**71.7**		9.62	U	**0.0499**	J	**0.0084**	J	**0.514**		0.0476	U	0.0472	U	**2.41**		0.0481	U	**0.427**	
Benzo (a) anthracene	H, C		**23**		9.62	U	0.0476	U	0.0033	U	**0.46**		0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Benzo (a) pyrene	H, C	0.2	11.9	U	9.62	U	0.0476	U	0.0033	U	**0.133**		0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Benzo (b) fluoranthene	H, C		11.9	U	9.62	U	0.0476	U	0.0054	U	**0.178**		0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Benzo (k) fluoranthene	H, C		11.9	U	9.62	U	0.0476	U	0.0054	U	**0.157**		0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Benzo (ghi) perylene	H, C		11.9	U	9.62	U	0.0476	U	0.0022	U	0.0495	U	0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Chrysene	H, C		**21**		9.62	U	0.0476	U	0.0033	U	**0.385**		0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Dibenzo (a,h) anthracene	H, C		23.8	U	19.2	U	0.0952	U		R	0.099	U	0.0952	U	0.0943	U	0.971	U	0.0962	U	0.0962	U
Fluoranthene	H		**181**		**14.4**	J	**0.0697**	J	0.0043	U	**2.49**		0.0476	U	0.0472	U	**5.93**		0.0481	U	**0.163**	
Fluorene	L		**282**		**69.9**		**0.182**		**0.0057**	J	**2.06**		0.0476	U	0.0472	U	**22.1**		0.0481	U	**27.6**	
Indeno (1,2,3-cd) pyrene	H, C		11.9	U	9.62	U	0.0476	U	0.0043	U	0.0495	U	0.0476	U	0.0472	U	0.485	U	0.0481	U	0.0481	U
Napthalene	L		**12800**		**1600**		**1.31**		0.0054	U	**4.57**		0.0476	U	0.0472	U	**3870**		0.0481	U	**2.22**	
Phenanthrene	L		**505**		**66.5**		**0.0683**	J	0.0065	U	**4.75**		0.0476	U	0.0472	U	**16.3**		0.0481	U	**2.18**	
Pyrene	H		**114**		9.62	U	**0.0797**	J	0.0065	U	**1.55**		0.0476	U	0.0472	U	**3.15**		0.0481	U	**0.312**	
Total LPAHs			**14200**		**1880**		**1.94**		**0.014**	J	**14.2**		0.143	U	0.142	U	**4000**		0.144	U	**153**	
Total HPAHs			**339**		**14.4**		**0.149**		0.019	U	**5.35**		0.262	U	0.260	U	**13.4**		0.265	U	**0.475**	
Total Carcinogenic PAHs			**44.0**		43.3	U	0.214	U	0.014	U	**1.31**		0.214	U	0.212	U	2.18	U	0.216	U	0.216	U
Total PAHs			**14500**		**1890**		**2.08**		**0.014**	J	**19.5**		0.405	U	0.401	U	**4010**		0.409	U	**154**	
FIELD PARAMETERS																						
Temperature (°c)			--		**21.31**		**20.77**		**12.6**		**19.4**		**22.83**		**14.6**		**17.76**		**19.75**		**18.44**	
Oxidation Reduction Potential (mV)			--		**-54**		**-52**		**96**		**-148**		**-178**		**-20**		**-135**		**96**		**-130**	
pH			--		**6.92**		**7.23**		**6.23**		**7.6**		**7.32**		**5.94**		**7.58**		**6.18**		**7.36**	
Specific Conductance (Ms/cm)			--		**57.2**		**30.3**		**40.8**		**56.3**		**0.999**		**0.54**		**82.2**		**0.434**		**57.6**	
Turbidity (NTU)			--		**65**		**12**		**58**		**250**		**45.5**		**40.8**		**14**		**17.6**		**6.5**	
Dissolved Oxygen (mg/L)			--		**1.3**		**2.6**		**7.4**		**0**		**0.7**		**0**		**1.5**		**1.3**		**1.8**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			MW-As		MW-Ds[7]		MW-Gs		MW-Ks		MW-As		EW-1s[3,7]		EW-2s		EW-8s		EW-9s		EW-10s	
Sample Date			5/18/2006		5/18/2006		5/19/2006		4/28/2006		5/18/2006		5/17/2006		5/19/2006		5/22/2006		5/18/2006		5/19/2006	
Sample Time			11:41		11:57		13:42		16:50		11:41		14:23		8:45		10:01		15:30		15:41	
Well Depth			shallow		shallow		shallow		shallow		shallow		shallow		shallow		shallow		shallow		shallow	
NAPL (Historically)			--		NAPL		NAPL		--		--		NAPL		NAPL		NAPL		NAPL		NAPL	
Inside/Outside Barrier Wall			outside		outside		outside		outside		outside		inside		outside		inside		inside		outside	
CONTAMINANT OF INTEREST		MCLs																				
Total Metals (mg/L)																						
Arsenic		0.01	**0.00589**		***2.71***		**0.0244**		**0.00495**		**0.00318**		**0.0145**		**0.00110**		**0.00854**		**0.0402**		**0.0156**	
Chromium		0.10	**0.00159**		***212***		**0.00236**		**0.00127**		**0.00031**	***J***	0.00012	U	**0.0149**		**0.000400**	**J**	0.000121	U	**0.00375**	
Copper		1.30	**0.00206**		**5.10**		**0.00796**		**0.00924**		**0.00181**	**J**	**0.000150**	**J**	**0.00410**		**0.000133**	**U**	**0.000890**	**J**	**0.000630**	**J**
Zinc		5.00	**0.00254**	**J**	**2.21**		**0.0422**		**0.151**		0.12300		**0.0101**		0.00388	U	0.00364	U[2]	**0.000620**	**J**	0.00535	U[2]
Pentachlorophenol (ug/L)		1.0	0.971	U	240000	U	**2730**		0.943	U	0.952	U	952	U	**562**		20.8	U	95.2	U	**1030**	
Polyaromatic Hydrocarbons (ug/L)																						
Acenaphthene	L		**0.206**		**494000**		**952**		0.0472	U	0.0476	U	**9200**		**245**		**500**		**327**		**2420**	
Acenaphthylene	L		0.0485	U	12000	U	19	U	0.0472	U	0.0476	U	**99.6**		23.8	U	**12.1**		4.76	U	48.1	U
Anthracene	L		**0.0617**	**J**	**166000**		**230**		0.0472	U	0.0476	U	**2150**		**68.1**		**14.7**		**34.5**		**651**	
Benzo (a) anthracene	H, C		**0.0669**	**J**	**98900**		**112**		0.0472	U	0.0476	U	**1850**		**49.6**		**5.78**		**11.3**		**340**	
Benzo (a) pyrene	H, C	0.2	0.0485	U	**27400**		**28.5**		0.0472	U	0.0476	U	**532**		23.8	U	**1.29**	**J**	4.76	U	**89.2**	
Benzo (b) fluoranthene	H, C		0.0485	U	**91900**		**78.6**		0.0472	U	0.0476	U	**752**		**63.4**		**2.05**	**J**	**10.4**		**236**	
Benzo (k) fluoranthene	H, C		0.0485	U	12000	U	4.76	U	0.0472	U	0.0476	U	**648**		23.8	U	**1.42**	**J**	4.76	U	24	U
Benzo (ghi) perylene	H, C		0.0485	U	12000	U	**5.79**	**J**	0.0472	U	0.0476	U	**104**		23.8	U	1.04	U	4.76	U	24	U
Chrysene	H, C		**0.0632**	**J**	**91500**		**97.6**		0.0472	U	0.0476	U	**1530**		**50.6**		**4.01**		**11.1**		**299**	
Dibenzo (a,h) anthracene	H, C		0.0971	U	24000	U	9.52	U	0.0943	U	0.0952	U	95.2	U	47.6	U	2.08	U	9.52	U	48.1	U
Fluoranthene	H		**0.266**		**440000**		**557**		0.0472	U	0.0515	J	**8640**		**210**		**47.3**		**63.6**		**1740**	
Fluorene	L		**0.194**		**510000**		**710**		0.0472	U	0.0476	U	**8310**		**191**		**267**		**225**		**1810**	
Indeno (1,2,3-cd) pyrene	H, C		0.0485	U	12000	U	**6.49**	**J**	0.0472	U	0.0476	U	**116**		23.8	U	1.04	U	4.76	U	24	U
Napthalene	L		**0.738**		**1860000**		**14400**		0.0472	U	0.0476	U	**15800**		**263**		**6760**		**4010**		**18900**	
Phenanthrene	L		**0.458**		**971000**		**1530**		0.0472	U	0.0476	U	**18100**		**279**		**247**		**241**		**3610**	
Pyrene	H		**0.181**		**277000**		**375**		0.0472	U	0.0476	U	**6370**		**137**		**28**		**38.9**		**1220**	
Total LPAHs			**1.66**		**4000000**		**17800**		0.142	U	0.143	U	**53700**		**1050**		**7800**		**4840**		**27400**	
Total HPAHs			**0.577**		**1030000**		**1260**		0.260	U	0.052		**20500**		**511**		**89.9**		**135**		**3920**	
Total Carcinogenic PAHs			**0.130**		**310000**		**329**		0.212	U	0.214	U	**5530**		**164**		**14.6**		**32.8**		**964**	
Total PAHs			**2.23**		**5030000**		**19100**		0.401	U	0.194		**74200**		**1560**		**7890**		**4970**		**31300**	
FIELD PARAMETERS																						
Temperature (°c)			**19.07**		**--**		**--**		**16.01**		**15.83**		**--**		**--**		**15.32**		**--**		**--**	
Oxidation Reduction Potential (mV)			**-98**		**--**		**--**		**-144**		**-101**		**--**		**--**		**91**		**--**		**--**	
pH			**6.83**		**--**		**--**		**6.52**		**6.17**		**--**		**--**		**6.5**		**--**		**--**	
Specific Conductance (Ms/cm)			**65.1**		**--**		**--**		**0.767**		**0.807**		**--**		**--**		**71.7**		**--**		**--**	
Turbidity (NTU)			**6**		**--**		**--**		**83.7**		**52.6**		**--**		**--**		**4.9**		**--**		**--**	
Dissolved Oxygen (mg/L)			**0.1**		**--**		**--**		**0**		**0**		**--**		**--**		**3.8**		**--**		**--**	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION			EW-15s		EW-18s		EW-19s[3]		EW-19s		EW-23s		Rinsate1-051706		Rinsate2-052206	
Sample Date			5/22/2006		5/22/2006		5/17/2006		5/6/2010		5/22/2006		5/17/2006		5/22/2006	
Sample Time			10:30		9:20		14:12		14:55		11:55		16:55		15:42	
Well Depth			shallow		shallow		shallow		shallow		shallow					
NAPL (Historically)			NAPL		NAPL		NAPL		NAPL		NAPL					
Inside/Outside Barrier Wall			inside		inside		outside		outside		inside					
CONTAMINANT OF INTEREST		MCLs														
Total Metals (mg/L)																
Arsenic		0.01	**0.0221**		**0.0291**		**0.00216**		**0.00340**		**0.0294**		0.000664	U	**0.000664**	***U***
Chromium		0.10	**0.00229**		**0.000400**	**J**	**0.000380**	***J***	**0.00250**		**0.148**		**0.0163**		**0.00147**	
Copper		1.30	**0.00113**	**J**	**0.00271**		**0.000620**	**J**	**0.00350**		**0.00335**		**0.00045**	**J**	**0.000133**	**U**
Zinc		5.00	0.00418	U[2]	0.00341	U[2]	**0.00362**	**J**	**0.00200**	**J**	0.00850	U[2]	**0.00132**	**J**	0.00109	U[2]
Pentachlorophenol (ug/L)		1.0	95.2	U	95.2	U	**366**		**428**		1920	U	0.962	U	0.962	U
Polyaromatic Hydrocarbons (ug/L)																
Acenaphthene	L		**1150**		**616**		**67.1**		**111**		**14700**		**0.169**		**0.0646**	**J**
Acenaphthylene	L		19	U	19	U	12.3	U	**3.1**		**213**		0.0481	U	0.0481	U
Anthracene	L		**274**		**139**		12.3	U	**14.7**		**4200**		0.0481	U	0.0481	U
Benzo (a) anthracene	H, C		**140**		**81.7**		12.3	U	**7.3**		**2440**		0.0481	U	0.0481	U
Benzo (a) pyrene	H, C	0.2	**39.2**		**27.8**		12.3	U	**2.9**		**667**		0.0481	U	0.0481	U
Benzo (b) fluoranthene	H, C		**70.3**		**26.4**		12.3	U	**4.9**		**1120**		0.0481	U	0.0481	U
Benzo (k) fluoranthene	H, C		**39.4**		**34.9**		12.3	U	**1.7**		**667**		0.0481	U	0.0481	U
Benzo (ghi) perylene	H, C		**8.9**	**J**	**7.12**	**J**	12.3	U	**0.82**		**138**	**J**	0.0481	U	0.0481	U
Chrysene	H, C		**129**		**69.7**		12.3	U	**6.6**		**2180**		**0.079**	**J**	0.0481	U
Dibenzo (a,h) anthracene	H, C		9.52	U	9.52	U	24.5	U		R	192	U	0.0962	U	0.0962	U
Fluoranthene	H		**673**		**420**		12.3	U	**39.3**		**12100**		**0.225**		**0.0709**	**J**
Fluorene	L		**859**		**367**		**24**		**52.9**		**12600**		**0.117**		0.0481	U
Indeno (1,2,3-cd) pyrene	H, C		**9.95**		**7.87**	**J**	12.3	U	**0.91**		**158**	**J**	0.0481	U	0.0481	U
Napthalene	L		**5370**		**3000**		**915**		**284**		**53200**		**2.88**		**0.468**	
Phenanthrene	L		**1450**		**674**		12.3	U	**88.4**		**21800**		**0.199**		0.0481	U
Pyrene	H		**442**		**316**		12.3	U	**28.1**		**7870**		**0.153**		**0.0487**	**J**
Total LPAHs			**9100**		**4800**		**1010**		**554**		**107000**		**3.37**		**0.533**	
Total HPAHs			**1550**		**991**		67.6	U	**92.5**		**27300**		**1.17**		**0.120**	
Total Carcinogenic PAHs			**437**		**255**		55.3	U	**25.1**		**7370**		**0.790**		0.216	U
Total PAHs			**10700**		**5790**		**1010**		**647**		**134000**		**4.53**		**0.652**	
FIELD PARAMETERS																
Temperature (°c)			--		--		**21.58**		**14.8**		--		--		--	
Oxidation Reduction Potential (mV)			--		--		**107**		**31**		--		--		--	
pH			--		--		**6.47**		**5.61**		--		--		--	
Specific Conductance (Ms/cm)			--		--		**37.5**		**0.39**		--		--		--	
Turbidity (NTU)			--		--		**10**		**7.4**		--		--		--	
Dissolved Oxygen (mg/L)			--		--		**0**		**0.9**		--		--		--	

Table A-9 - Spring 2006 and 2010 Groundwater Quality Results
McCormick and Baxter Superfund Site
Portland, Oregon

Definitions:

Groundwater Performance Goals = As described in the Second Five-Year Review (DEQ, September 2006), the EPA has determined that Alternate Concentration Limits (ACLs) are not valid as substitutes for Maximum Contaminant Levels (MCLs) in groundwater at this Site. Invalidation of ACLs at this Site also affects whether the groundwater remedial action objectives derived from the provisions in CERCLA for using ACLs remain valid for the Site (i.e., no exceedance of contaminant background concentrations in the Willamette River). The DEQ and EPA anticipate that: 1) groundwater standards for the Site will be established following a rigorous analysis of site conditions and all relevant data; and 2) (assuming MCLs cannot be met) the application of a waiver pursuant to Section 122(d)(4) of CERCLA for MCLs to comply with the threshold criterion (meeting ARARs) for all remedies implemented pursuant to any final CERCLA ROD.
ACLs = Alternate Concentration Limits.
MCLs = Primary Drinking Water Standard Maximum Contaminant Levels.
MRL= Method Reporting Limit. Reporting Level at, or above, the lowest standard of the Calibration Table.

MDL= Method Detection Limit. Reporting Level at, or above, the statistically derived limit based on 40CFR, part 136, Appendix B.
bold = Indicates the analyte was detected above MDLs.
italic-bold = Indicates the analyte was detected in excess of ACLs.
underlined-bold = Indicates the analyte was detected in excess of MCLs.
Shaded = Indicates NAPL was historically present in well or during sampling.
ND = Not Detected; see detection limits of individual constituents.
J = Estimated Value.
U = Value Below MDL (value represents MDL).
WC = Willamette Cove well.
L = Low Molecular Weight PAH (LPAH)
H = High Molecular Weight PAH (HPAH)
C = Carcinogenic PAH
ug/L = micrograms per liter
mg/L = milligrams per liter

End Notes:
[1] Sample ID for laboratory is MW-Er.

[2] Qualified as not detected because analytes were detected in the method blank (values represent amount detected in sample).
[3] Samples were inadvertently left out of refrigerator by Test America; all sample results for PAH's + PCP must be considered estimates only.
[4] Sample ID for laboratory is EW-31r.

[5] Due to recoveries outside of method control limits in lab MS/MSD samples, results must be considered estimated levels only.
[6] Sample ID for laboratory is MW-Bs.
[7] Free Product in Sample.
[8] Sample ID for laboratory is MW-69i.

LEGEND

- Groundwater Monitoring Wells with Transducers
- All Other Groundwater Monitoring Wells
- Subsurface Barrier Wall

NOTE: Aerial photo taken on September 22, 2006

0 200 400

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Groundwater Monitoring Well Location Map

5/11

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Figure
A-1

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureA-1 Monitoring Well Location Map.mxd, Date: May 13, 2011 10:02:55 AM

LEGEND

Groundwater Monitoring Wells (Depth to LNAPL or DNAPL)

- Wells with LNAPL
- Wells with DNAPL
- Wells without LNAPL or DNAPL
- Subsurface Barrier Wall

NOTES:

1) Aerial photo taken on September 22, 2006.
2) *LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.
3) **DNAPL recovery was attempted in July 2007 but the extracted liquid appeared to be water with speck sized globules of DNAPL (with a creosote odor), rather than a distinct layer, suggesting that the DNAPL thicknesses measured may not accurately reflect the amount of DNAPL in the well. Because MW-22i is located within the barrier wall, no further extraction has been conducted.

0 200 400

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

LNAPL and DNAPL Distribution Map for June 15, 2010 Sampling Event

5/11

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Figure **A-2**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureA-2_LNAPL_and_DNAPL_Map_June15_2010.mxd, Date: May 13, 2011 10:04:42 AM

LEGEND

Groundwater Monitoring Wells (Depth to LNAPL or DNAPL)

- Wells with LNAPL
- Wells with DNAPL
- Wells without LNAPL or DNAPL
- Subsurface Barrier Wall

NOTES:

1) Aerial photo taken on September 22, 2006.
2) *LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck sized globules of product dispersed through the water column indicating that no discrete layer of product is present.
3) **DNAPL recovery was attempted in July 2007 but the extracted liquid appeared to be water with speck sized globules of DNAPL (with a creosote odor), rather than a distinct layer, suggesting that the DNAPL thicknesses measured may not accurately reflect the amount of DNAPL in the well. Because MW-22i is located within the barrier wall, no further extraction has been conducted.

0 200 400

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

LNAPL and DNAPL Distribution Map for October 7, 2010 Sampling Event

5/11

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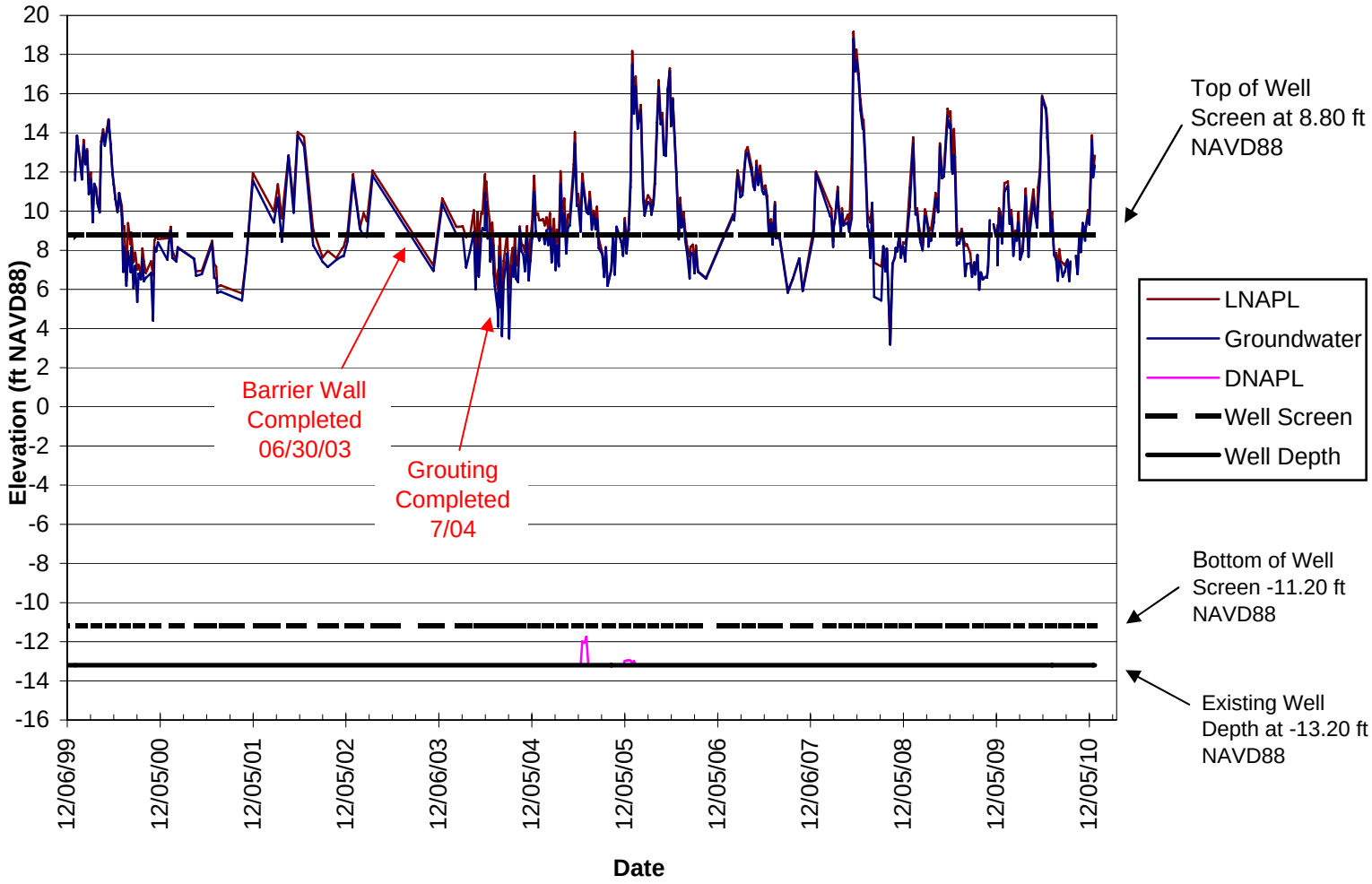
Figure **A-3**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureA-3_LNAPL_and_DNAPL_Map_Oct7_2010.mxd, Date: May 13, 2011 10:05:34 AM



McCormick and Baxter Superfund Site
Portland, Oregon

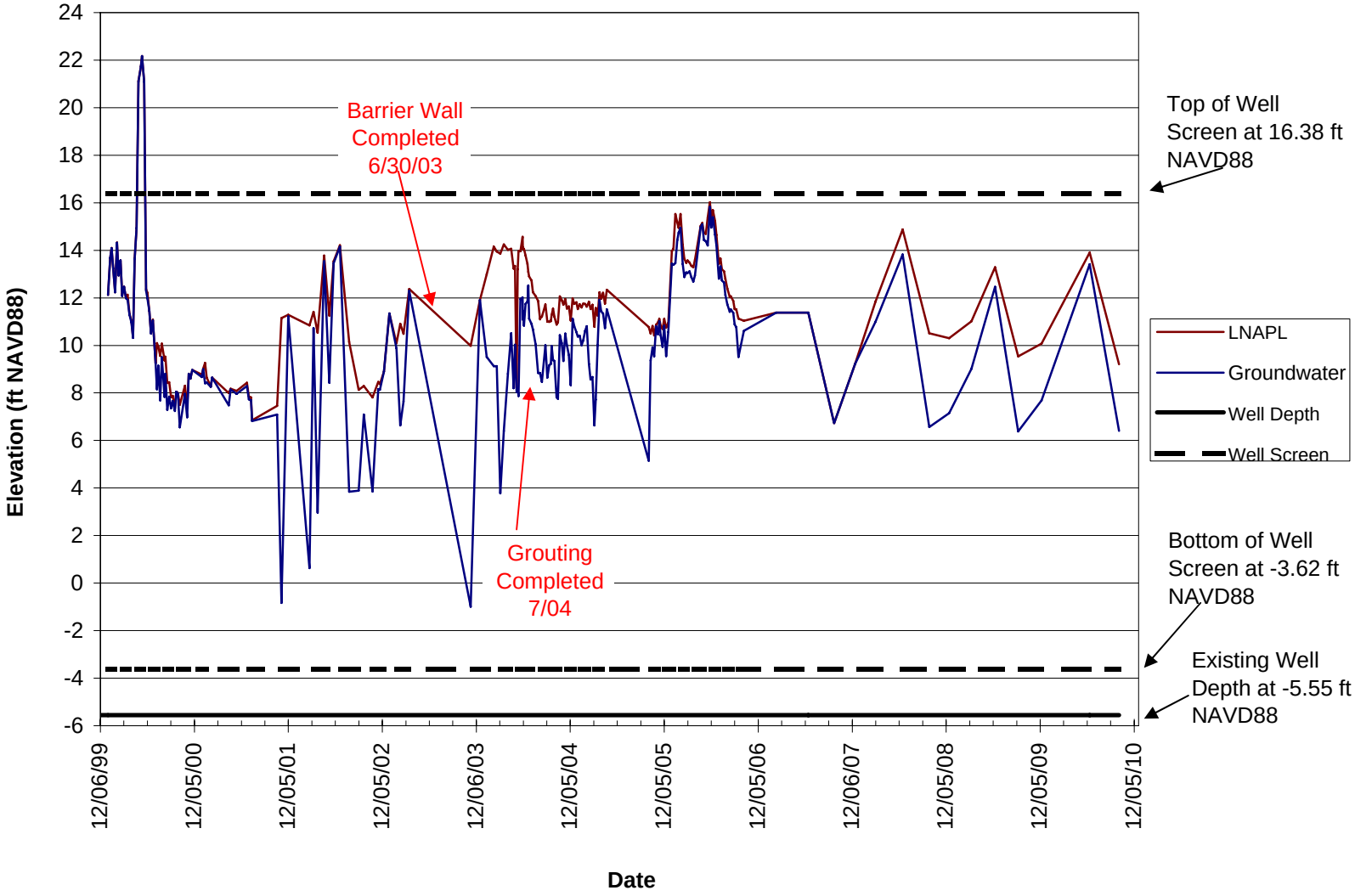
NAPL Thickness Plot for Well EW-10s

5/11

Figure
A-4

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

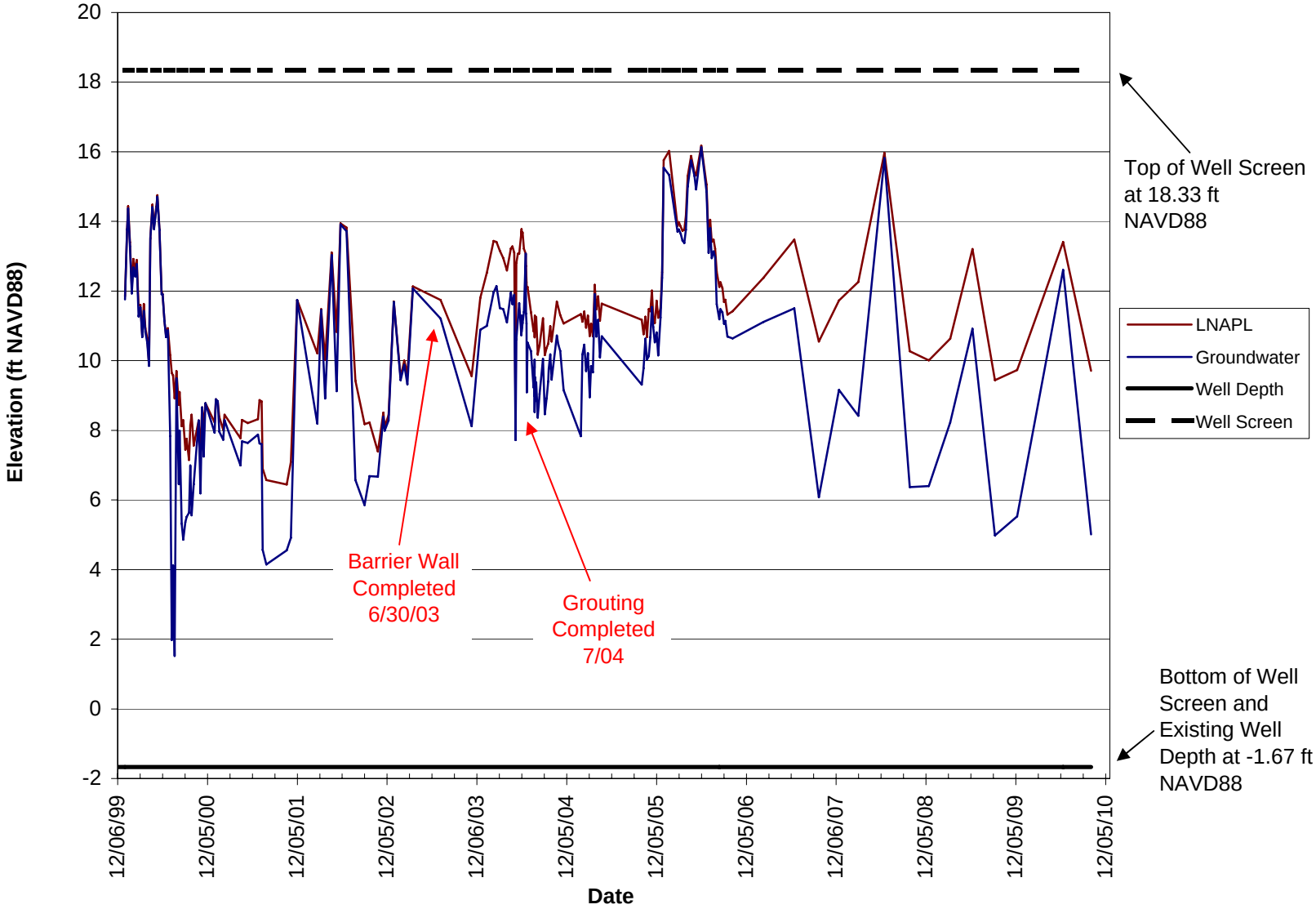
NAPL Thickness Plot for Well EW-15s

5/11

Figure **A-5**

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

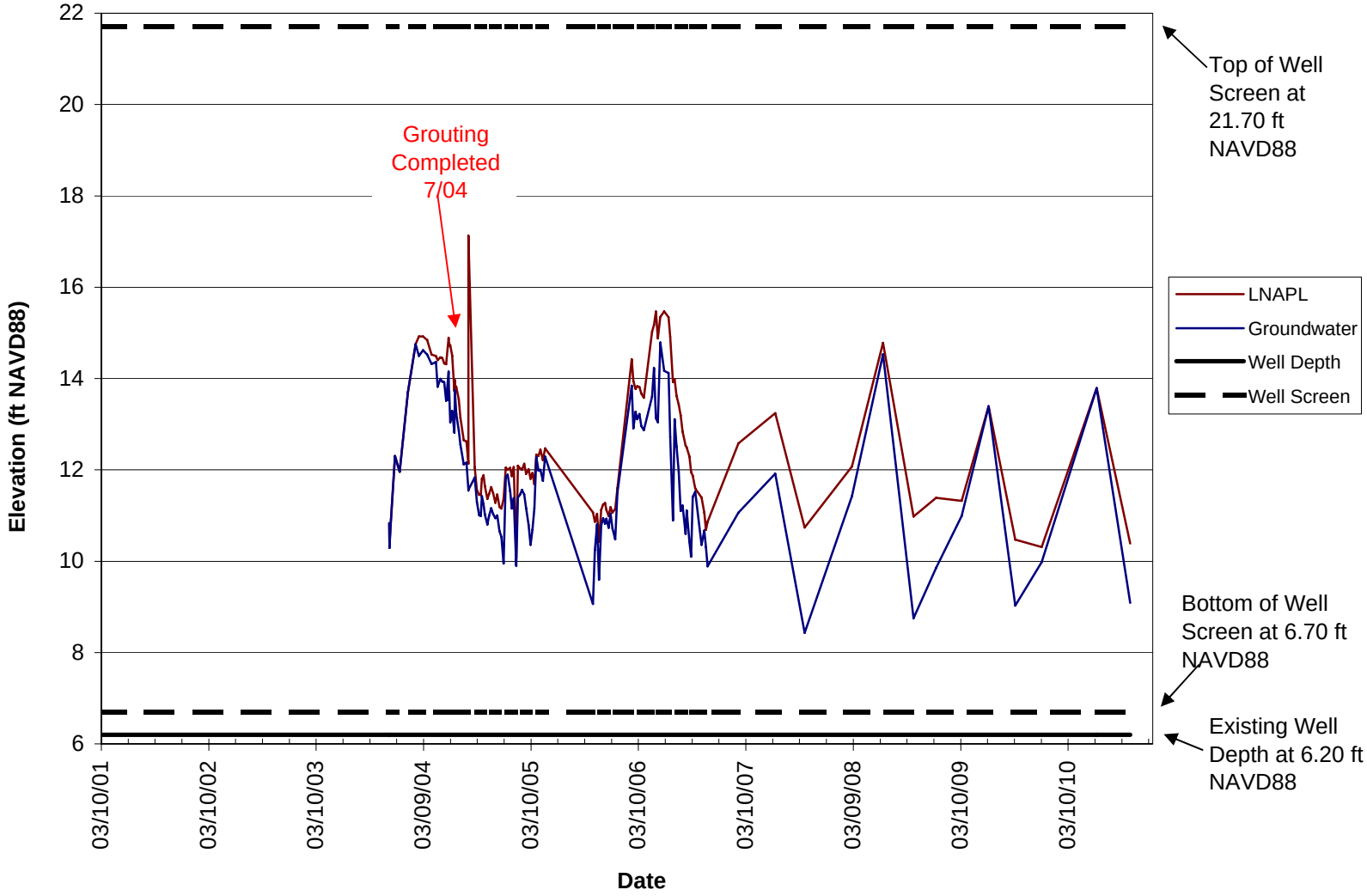
NAPL Thickness Plot for Well EW-23s

5/11

Figure **A-6**

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

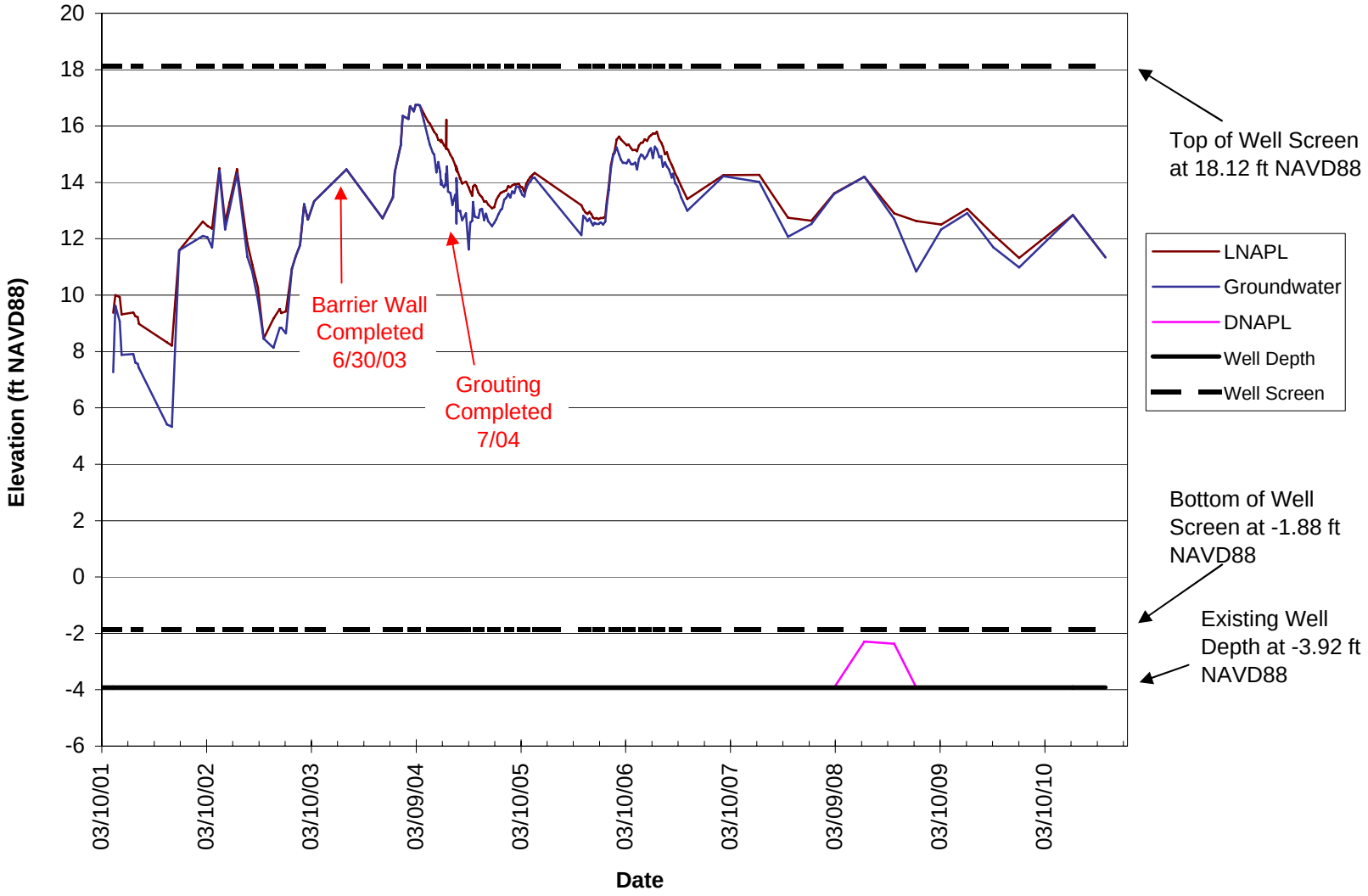
NAPL Thickness Plot for Well MW-56s

5/11

Figure **A-7**

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

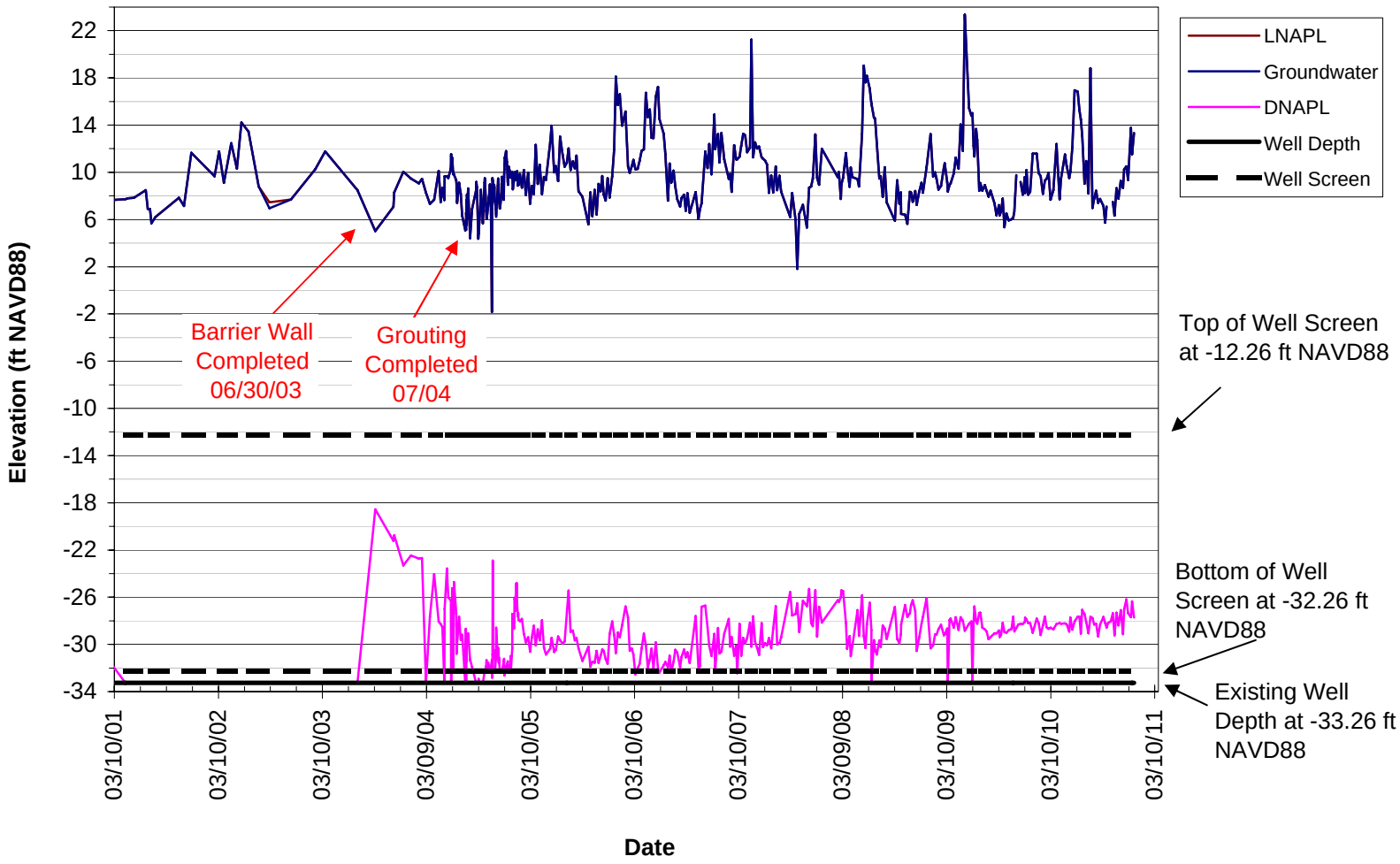
NAPL Thickness Plot for Well EW-18s

5/11

Figure **A-8**

HARTCROWSER

GSI Water Solutions, Inc.



Note: DNAPL recovery was attempted in July 2007 but the extracted liquid appeared to be water with speck sized globules of DNAPL (with a creosote odor), rather than a distinct layer, suggesting that the DNAPL thicknesses measured may not accurately reflect the amount of DNAPL in the well.

McCormick and Baxter Superfund Site
Portland, Oregon

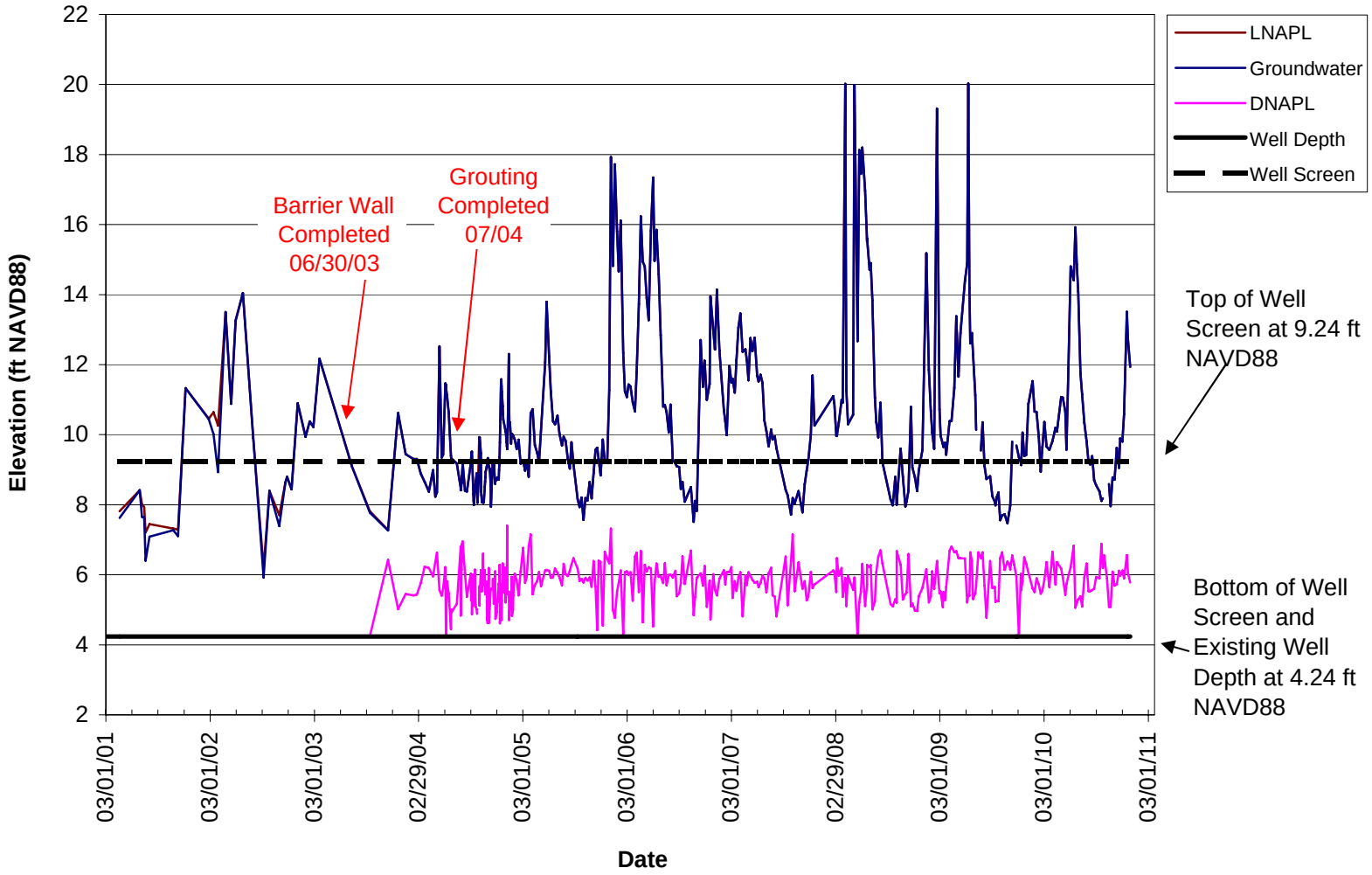
NAPL Thickness Plot for Well MW-20i

5/11

Figure **A-9**

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

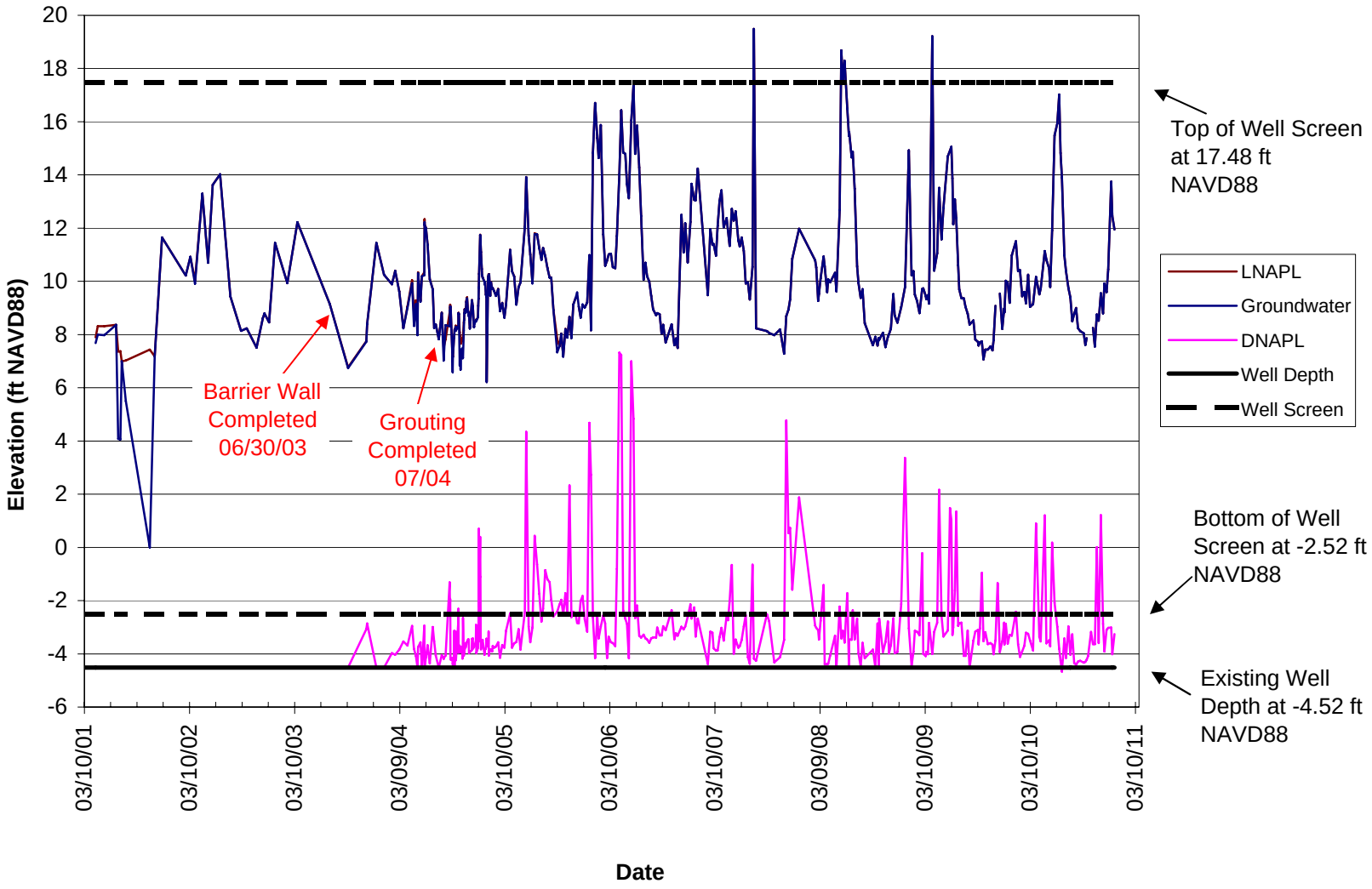
NAPL Thickness Plot for Well MW-Ds

5/11

Figure
A-10

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

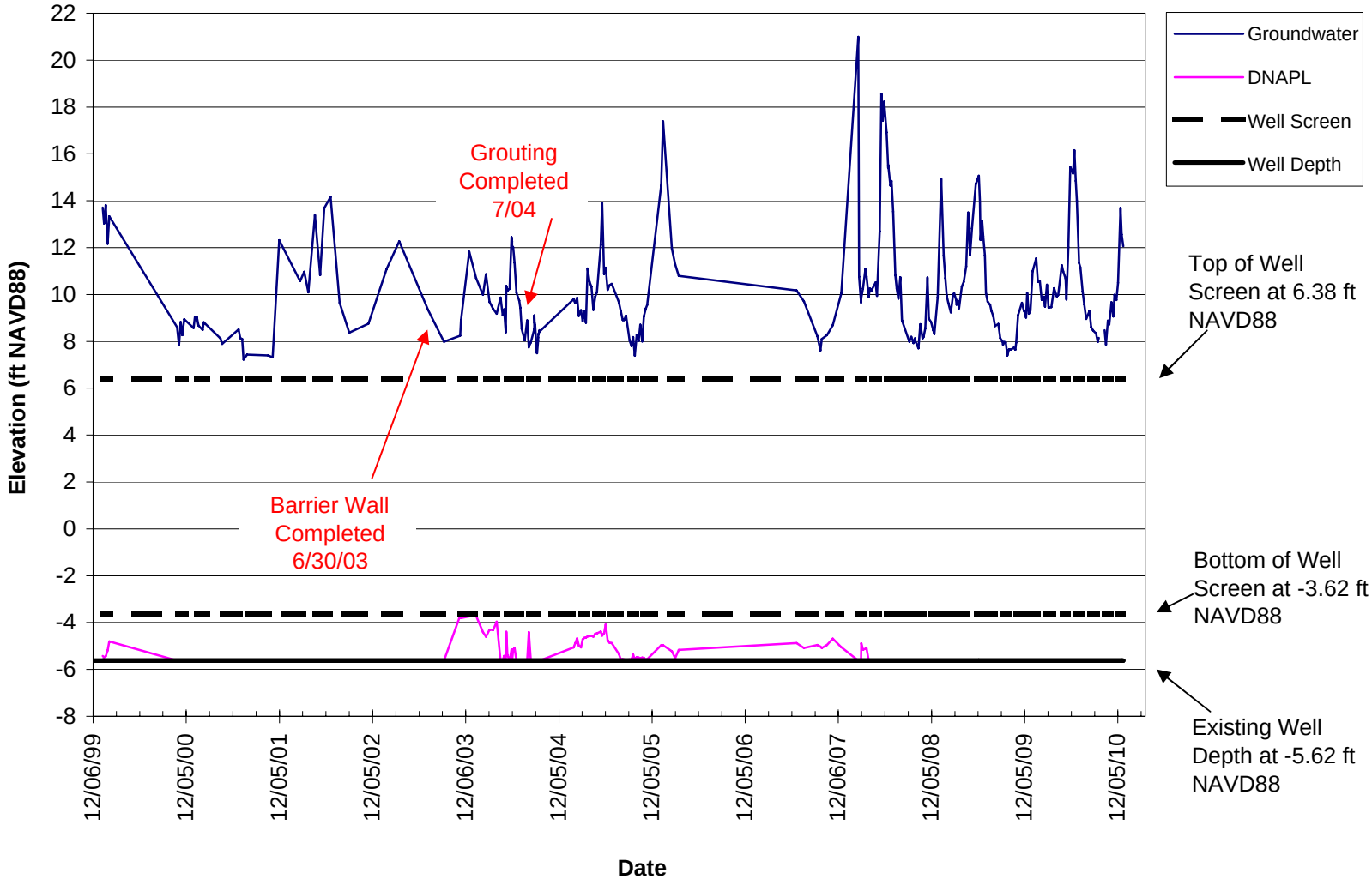
NAPL Thickness Plot for Well MW-Gs

5/11

Figure **A-11**

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

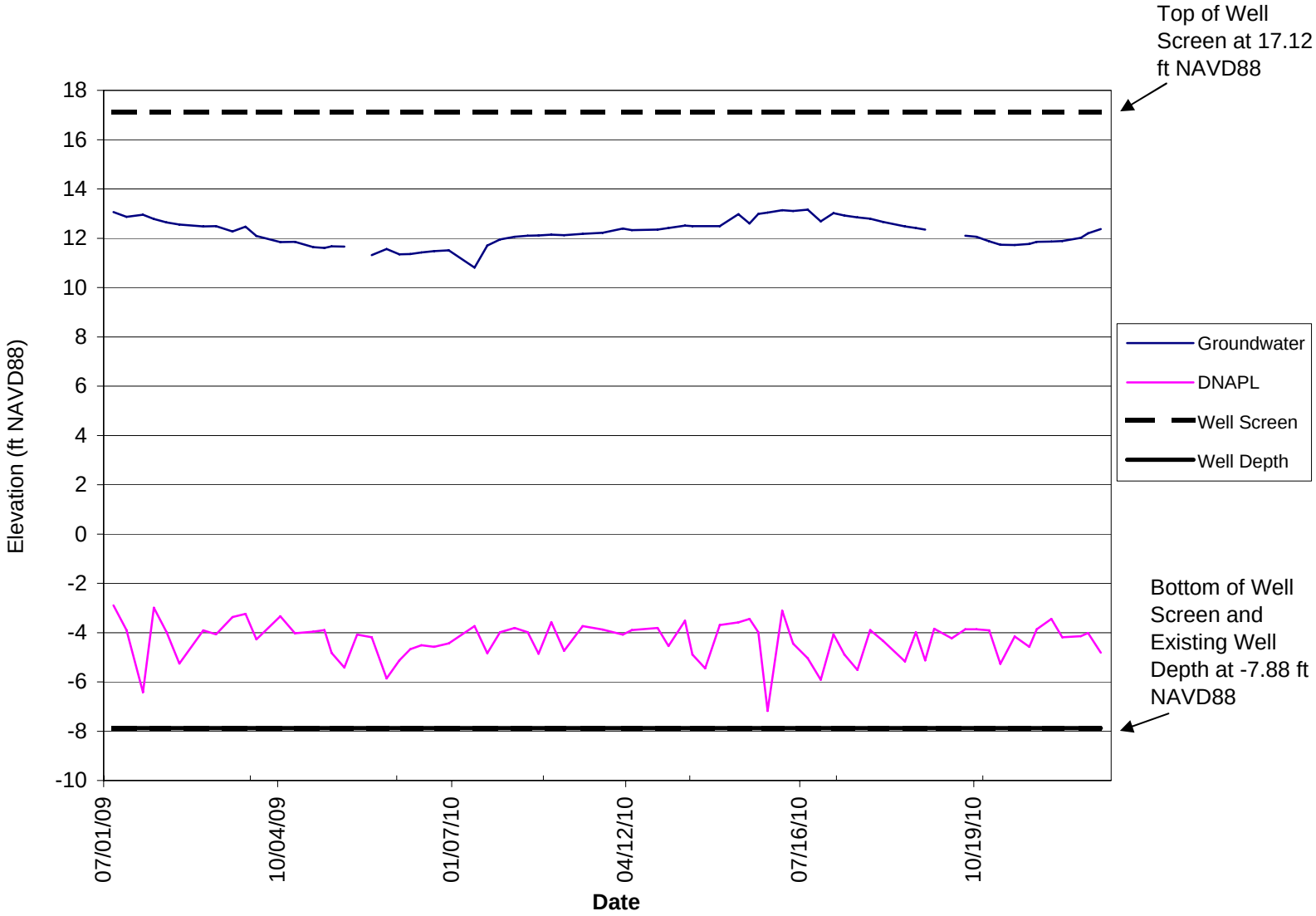
NAPL Thickness Plot for Well EW-9s

5/11

Figure **A-12**

HARTCROWSER

GSI Water Solutions, Inc.



Note: Ground subsidence has been observed in the vicinity of EW-1s and the well casing has sunk over time. The screened interval and total well depth have been referenced to the most recent ground survey from September 2009. Given that the elevations are changing with time, the elevations shown are approximate.

McCormick and Baxter Superfund Site
Portland, Oregon

NAPL Thickness Plot for Well EW-1s

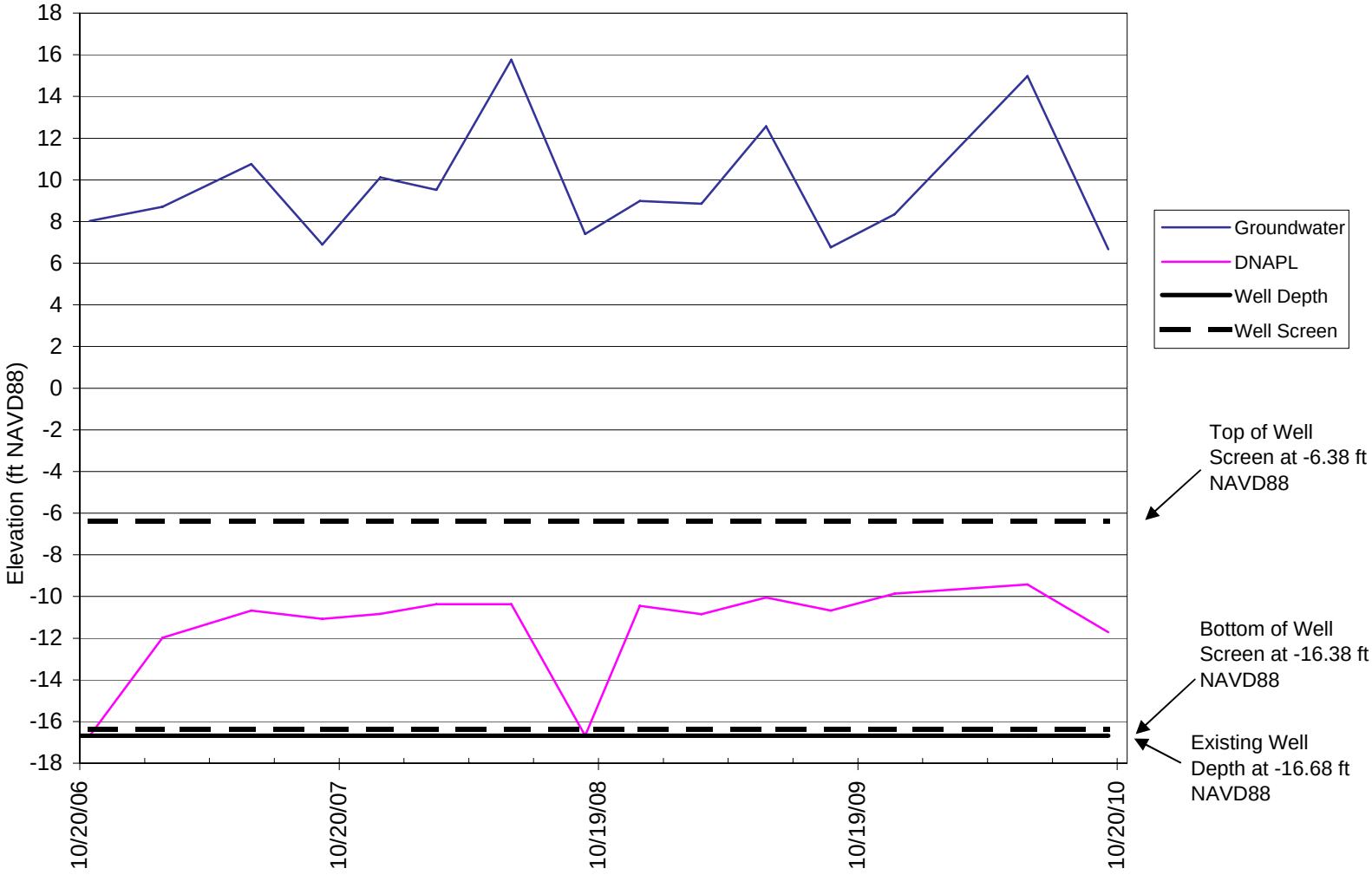
5/11

Figure

A-13

HARTCROWSER

GSI Water Solutions, Inc.



Note: LNAPL recovery periodically attempted when LNAPL thickness appears to be greater than 0.4 feet. However, the water recovered with the bailer from the top of the water column has speck-sized globules of product dispersed through the water column indicating that no discrete layer of product is present.

McCormick and Baxter Superfund Site
Portland, Oregon

NAPL Thickness Plot for Well MW-22i

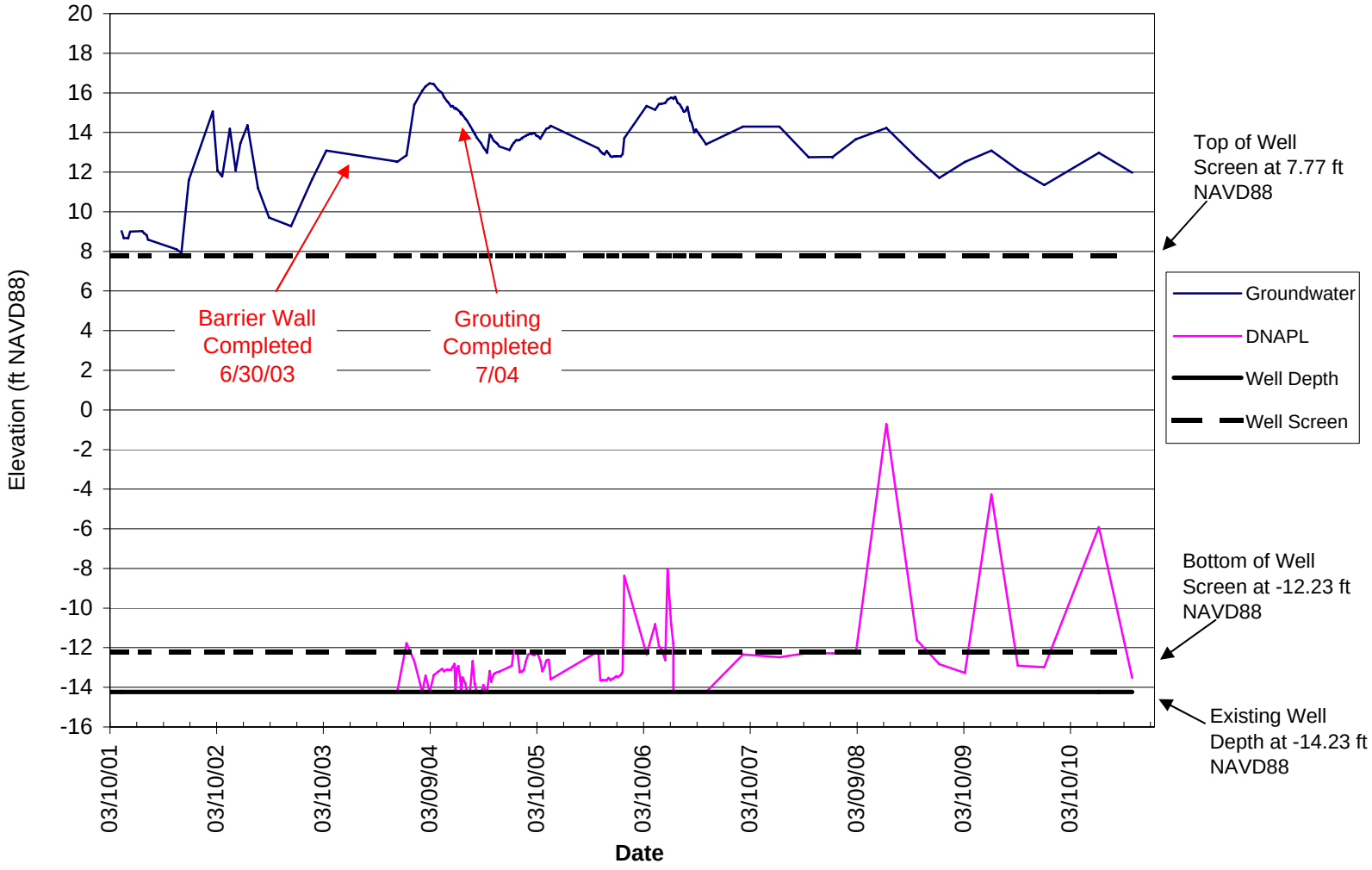
5/11

Figure

A-14

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

NAPL Thickness Plot for Well EW-8s

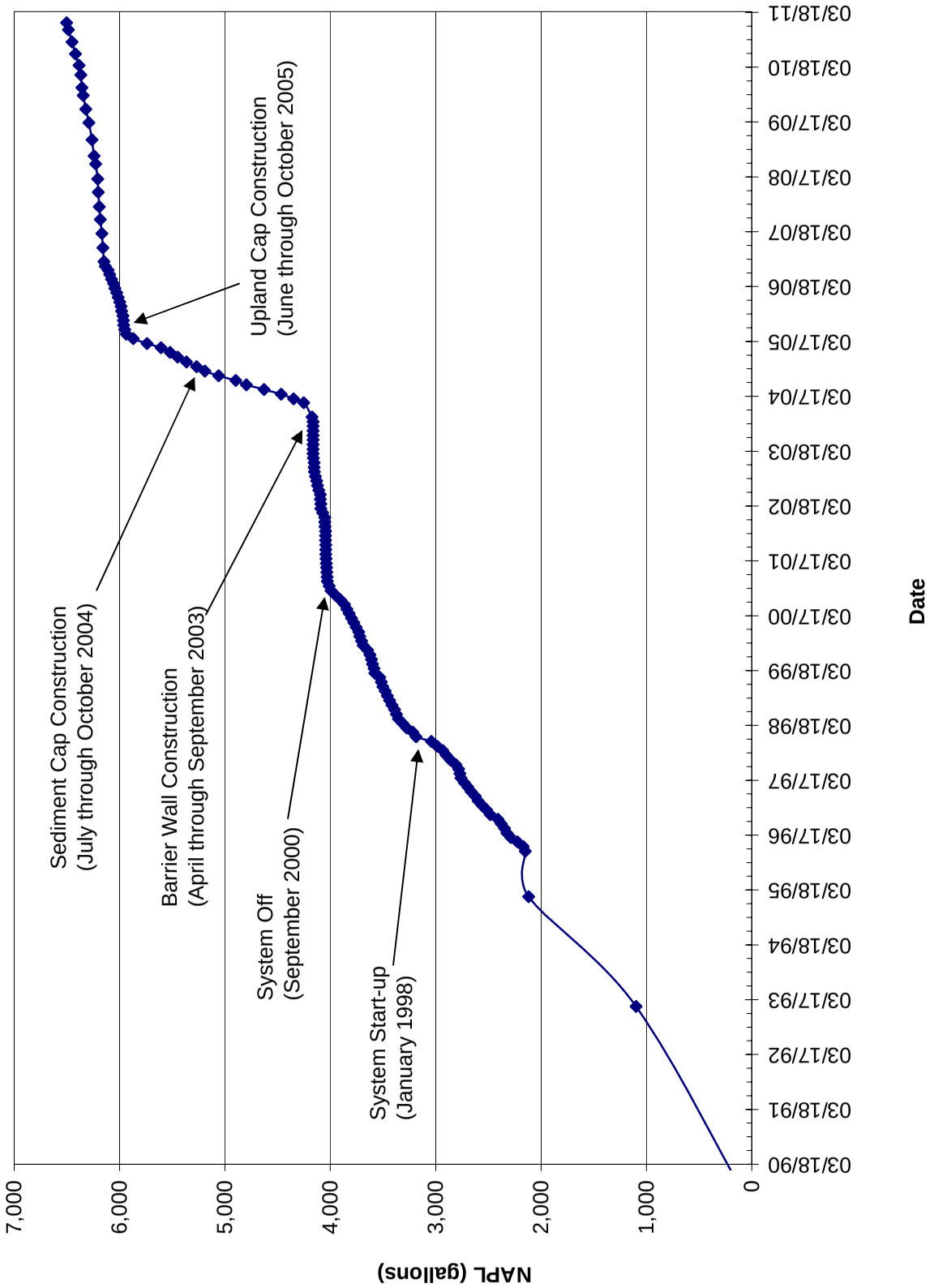
5/11

Figure

A-15

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

Cumulative NAPL Recovery

5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

A-16

LEGEND

- Groundwater Monitoring Wells (Groundwater Elevation)
- Groundwater Elevation Contours (dashed where inferred)
- Willamette River Level During Sampling Event (14.90 feet)
- Subsurface Barrier Wall

NOTES:

1) All elevations shown exist in NAVD 88
2) Aerial photo taken on September 22, 2006
3) Water levels measured between 13:00 and 18:40
4) Willamette River low tide at 18:15 at 14.90 feet NAVD 88

0 200 400

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Groundwater Contour Map for June 15, 2010 Sampling Event

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HARTCROWSER GSI Water Solutions, Inc.

Figure **A-17**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureA-17 GW Contour Map June15 2010.mxd, Date: May 13, 2011 10:06:31 AM

LEGEND

- Groundwater Monitoring Wells (Groundwater Elevation)
- Groundwater Elevation Contours (dashed where inferred)
- Willamette River Level During Sampling Event (6.6 feet)
- Subsurface Barrier Wall

NOTES:

1) All elevations shown exist in NAVD 88
2) Aerial photo taken on September 22, 2006
3) Water levels measured between 11:00 and 14:20
4) Willamette River low tide at 14:00 at 6.6 feet NAVD 88
5) MW-Os field measurement not included due to suspected error

0 200 400
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Groundwater Contour Map for October 7, 2010 Sampling Event

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure **A-18**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureA-18 GW Contour Map Oct7 2010.mxd, Date: May 13, 2011 10:07:33 AM

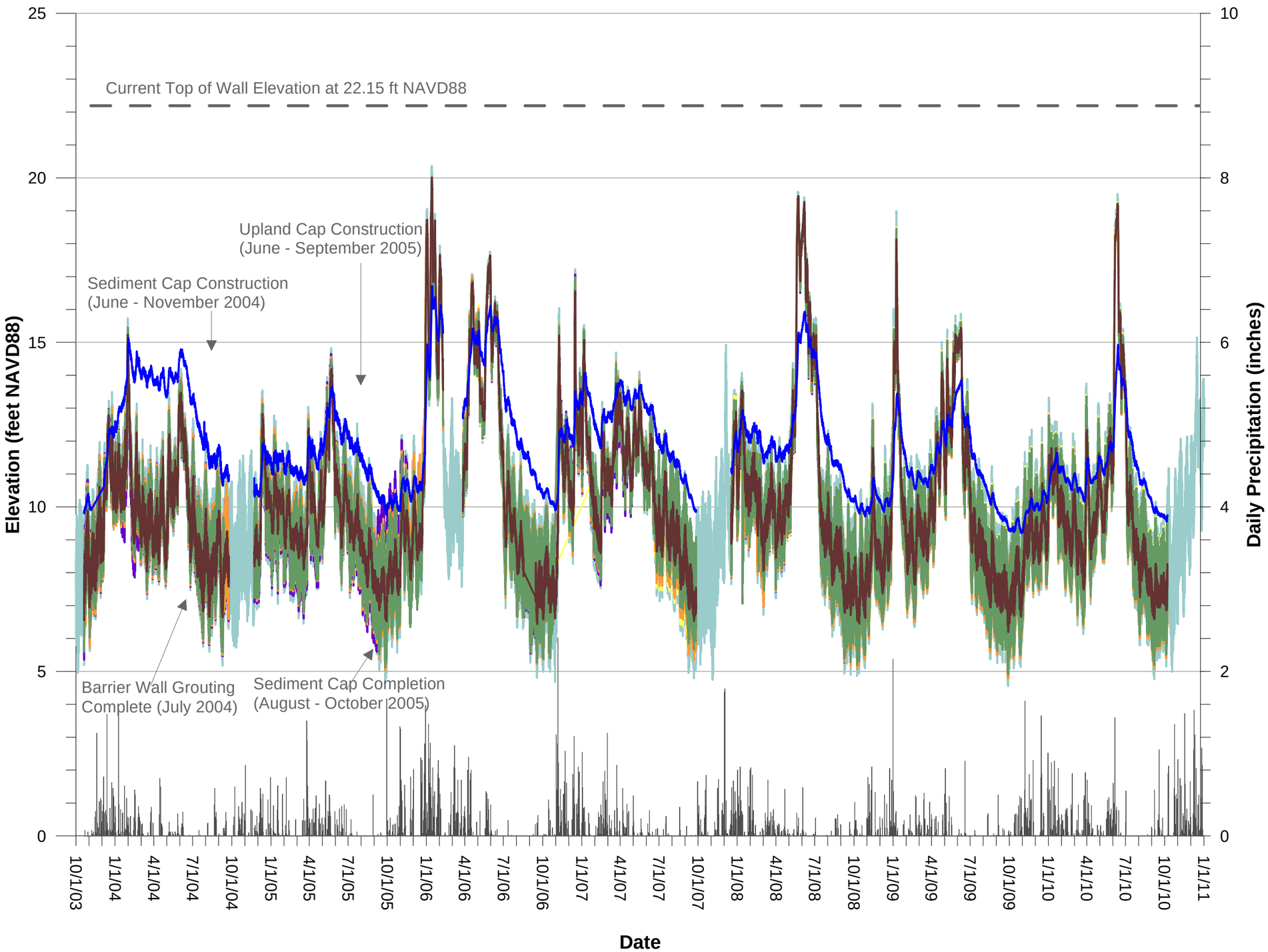


Figure A-19:
Post-Barrier Wall Groundwater Elevations in Monitoring Wells MW-36 and MW-37
McCormick and Baxter Superfund Site
Portland, OR

LEGEND

- MW-36s (Interior)
- MW-36i (Interior)
- MW-36d (Interior)
- MW-37s (Exterior)
- MW-37i (Exterior)
- MW-37d (Exterior)
- River
- Precipitation Data

Notes:
MW-36 wells are located inside the barrier wall and MW-37 wells are located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

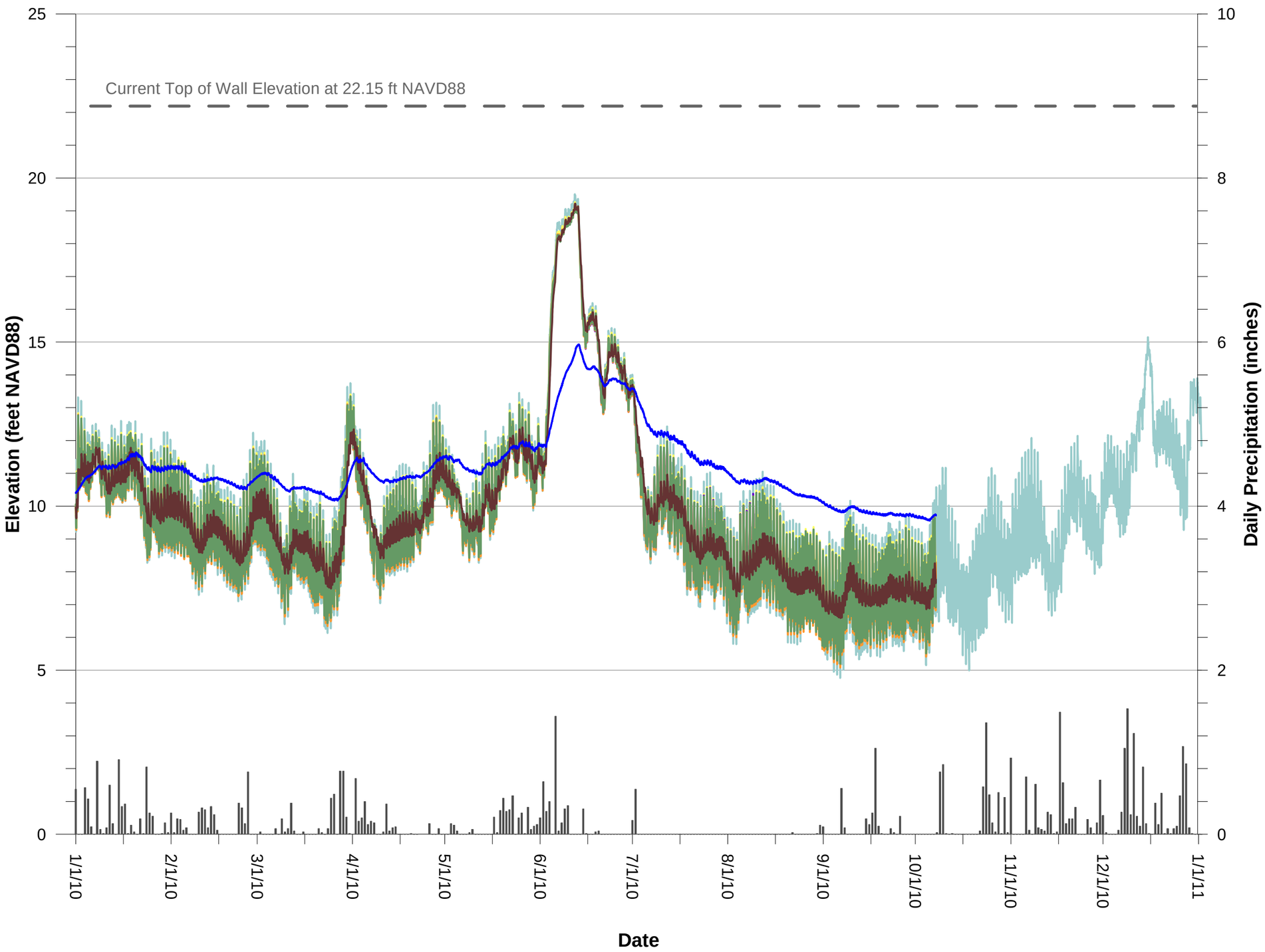


Figure A-20:
2010 Groundwater Elevations
in Monitoring Wells MW-36 and MW-37
McCormick and Baxter Superfund Site
Portland, OR

LEGEND

- MW-36s (Interior)
- MW-36i (Interior)
- MW-36d (Interior)
- MW-37s (Exterior)
- MW-37i (Exterior)
- MW-37d (Exterior)
- River
- Precipitation Data

Notes:
MW-36 wells are located inside the barrier wall and MW-37 wells are located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

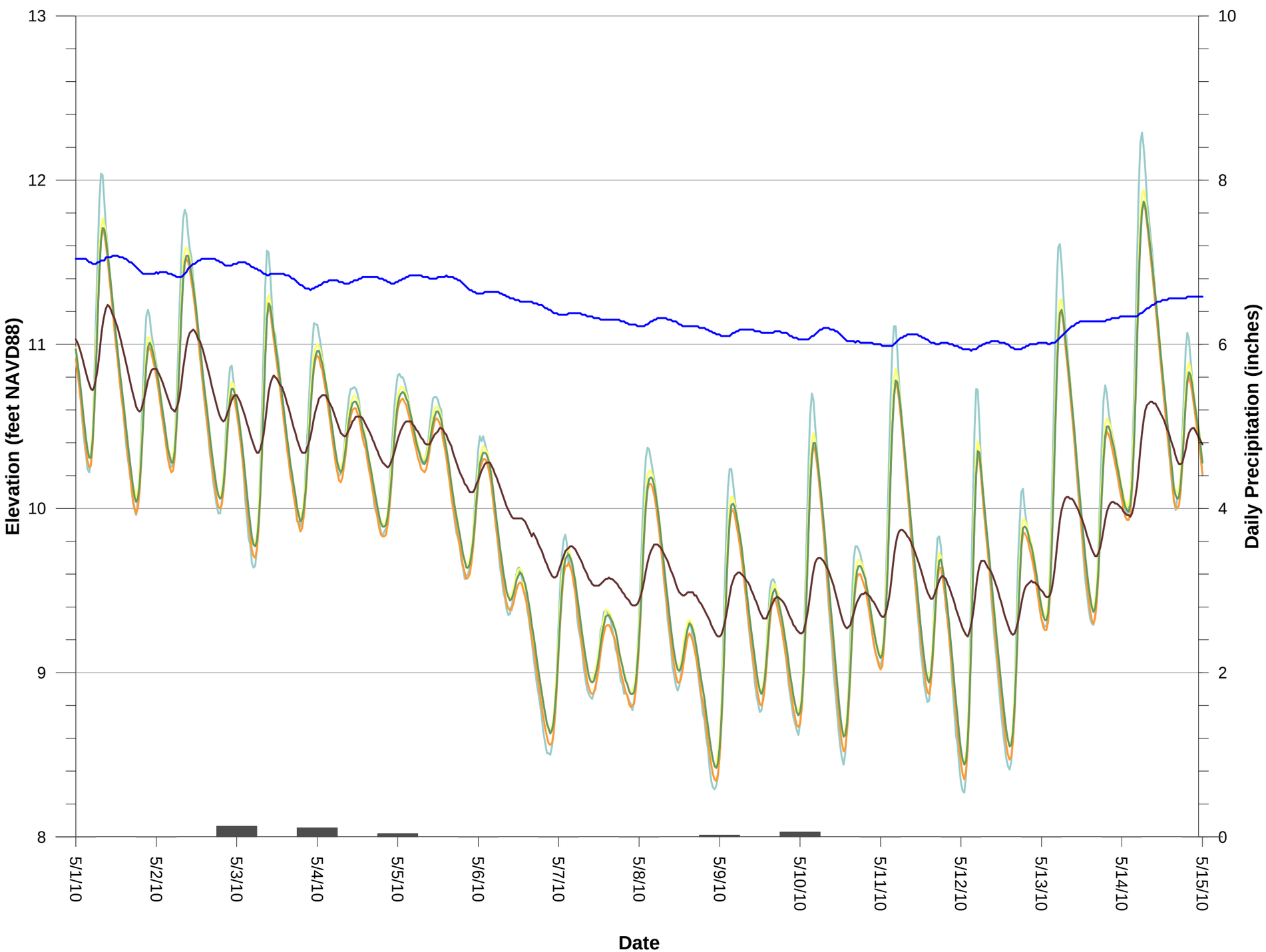


Figure A-21:
May 2010 Groundwater Elevations in Monitoring Wells MW-36 and MW-37
McCormick and Baxter Superfund Site
Portland, OR

LEGEND

- MW-36s (Interior)
- MW-36i (Interior)
- MW-36d (Interior)
- MW-37s (Exterior)
- MW-37i (Exterior)
- MW-37d (Exterior)
- River
- Precipitation Data

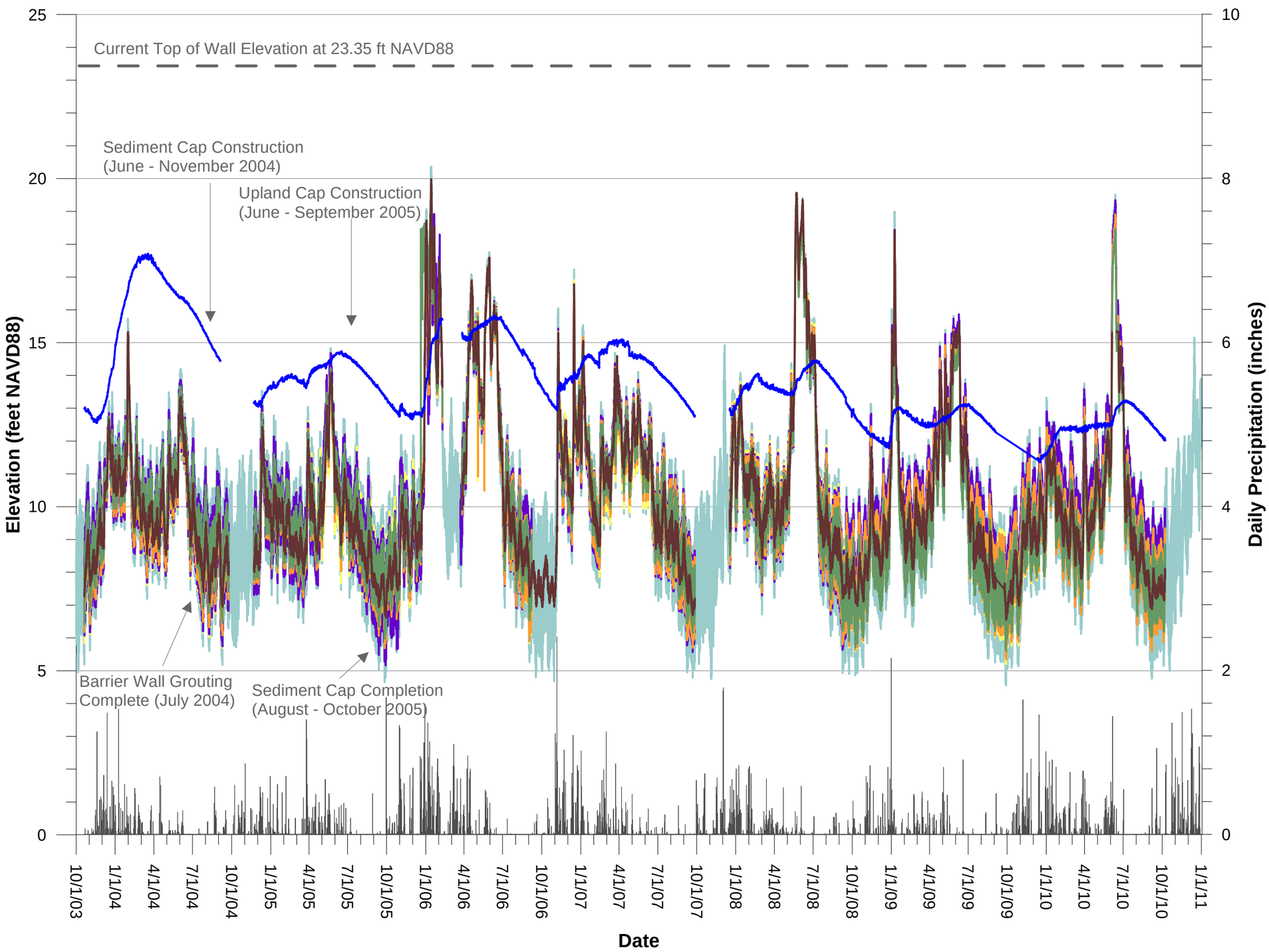
Notes:
MW-36 wells are located inside the barrier wall and MW-37 wells are located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

Figure A-22:
Post-Barrier Wall Groundwater Elevations in Monitoring Wells MW-44 and MW-45
McCormick and Baxter Superfund Site
Portland, OR



LEGEND

- MW-44s (Interior)
- MW-44i (Interior)
- MW-44d (Interior)
- MW-45s (Exterior)
- MW-45i (Exterior)
- MW-45d (Exterior)
- River
- Precipitation Data

Notes: MW-44 well cluster is located inside the barrier wall and MW-45 well cluster is located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

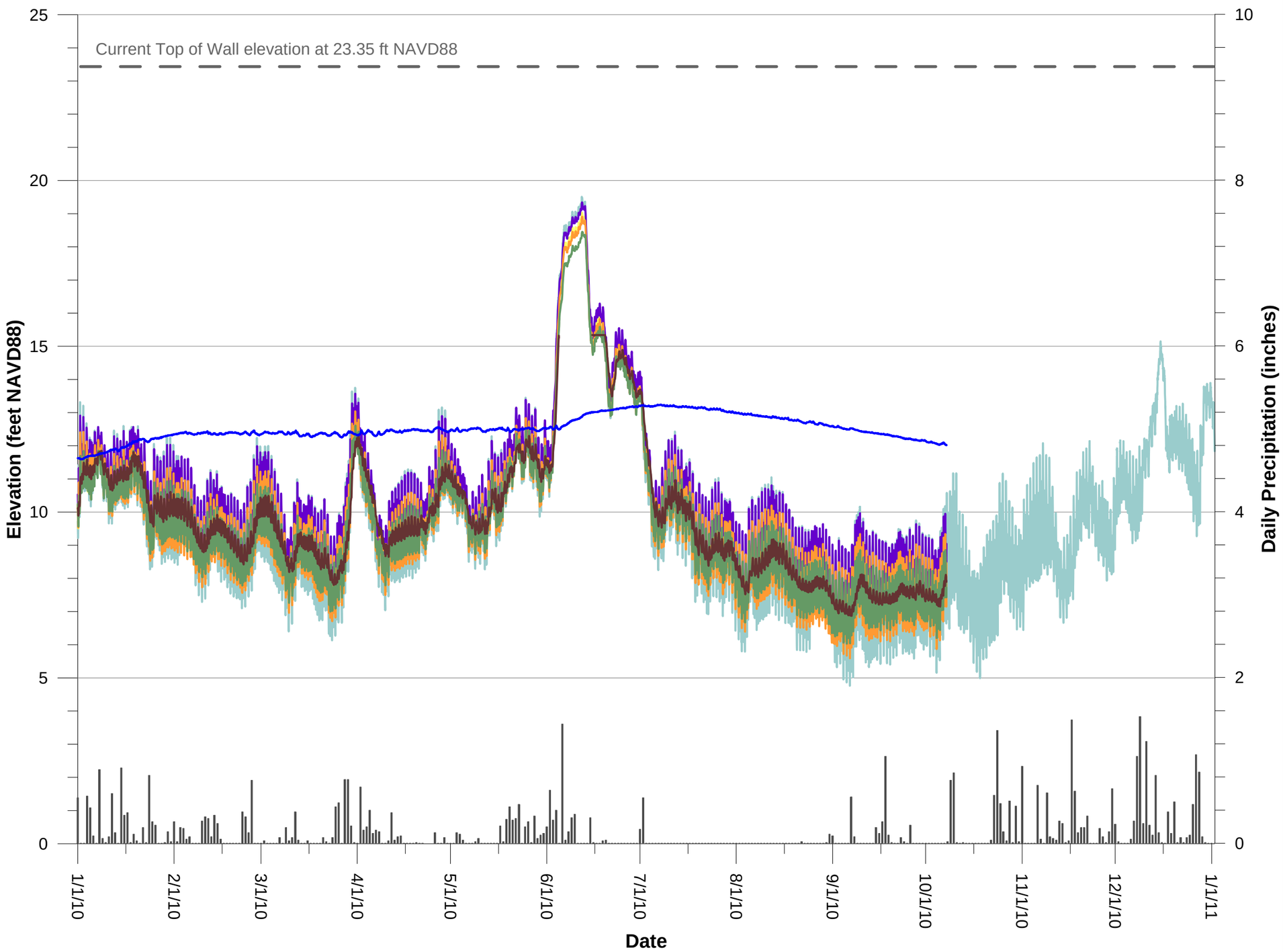


Figure A-23:
2010 Groundwater Elevations
in Monitoring Wells MW-44 and MW-45
McCormick and Baxter Superfund Site
Portland, OR

LEGEND

- MW-44s (Interior)
- MW-44i (Interior)
- MW-44d (Interior)
- MW-45s (Exterior)
- MW-45i (Exterior)
- MW-45d (Exterior)
- River
- Precipitation Data

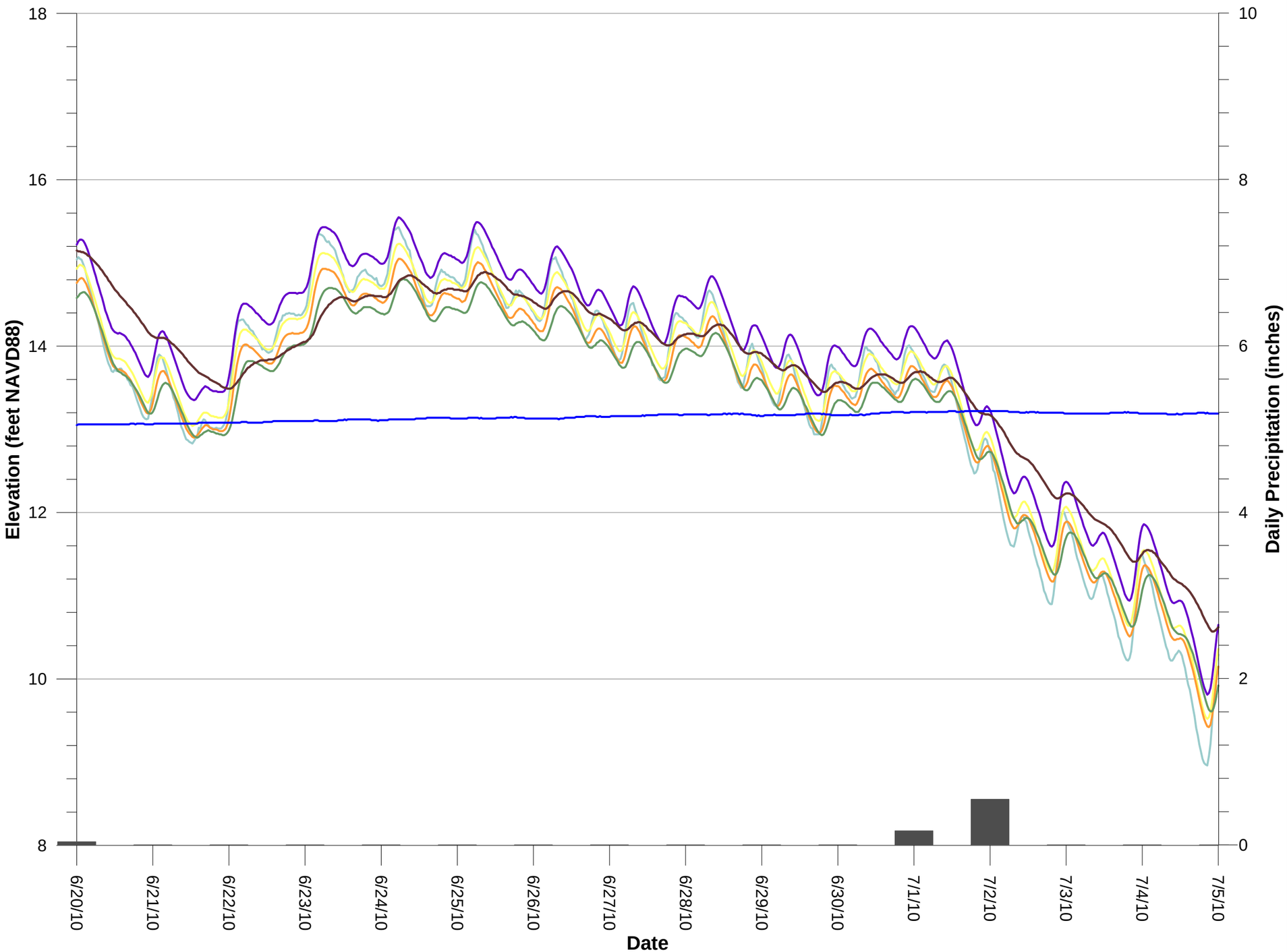
Notes: MW-44 well cluster is located inside the barrier wall and MW-45 well cluster is located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

Figure A-24:High-Flow Detail
2010 Groundwater Elevations
in Monitoring Wells MW-44 and MW-45
McCormick and Baxter Superfund Site
Portland, OR



LEGEND

- MW-44s (Interior)
- MW-44i (Interior)
- MW-44d (Interior)
- MW-45s (Exterior)
- MW-45i (Exterior)
- MW-45d (Exterior)
- River
- Precipitation Data

Notes: MW-44 well cluster is located inside the barrier wall and MW-45 well cluster is located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

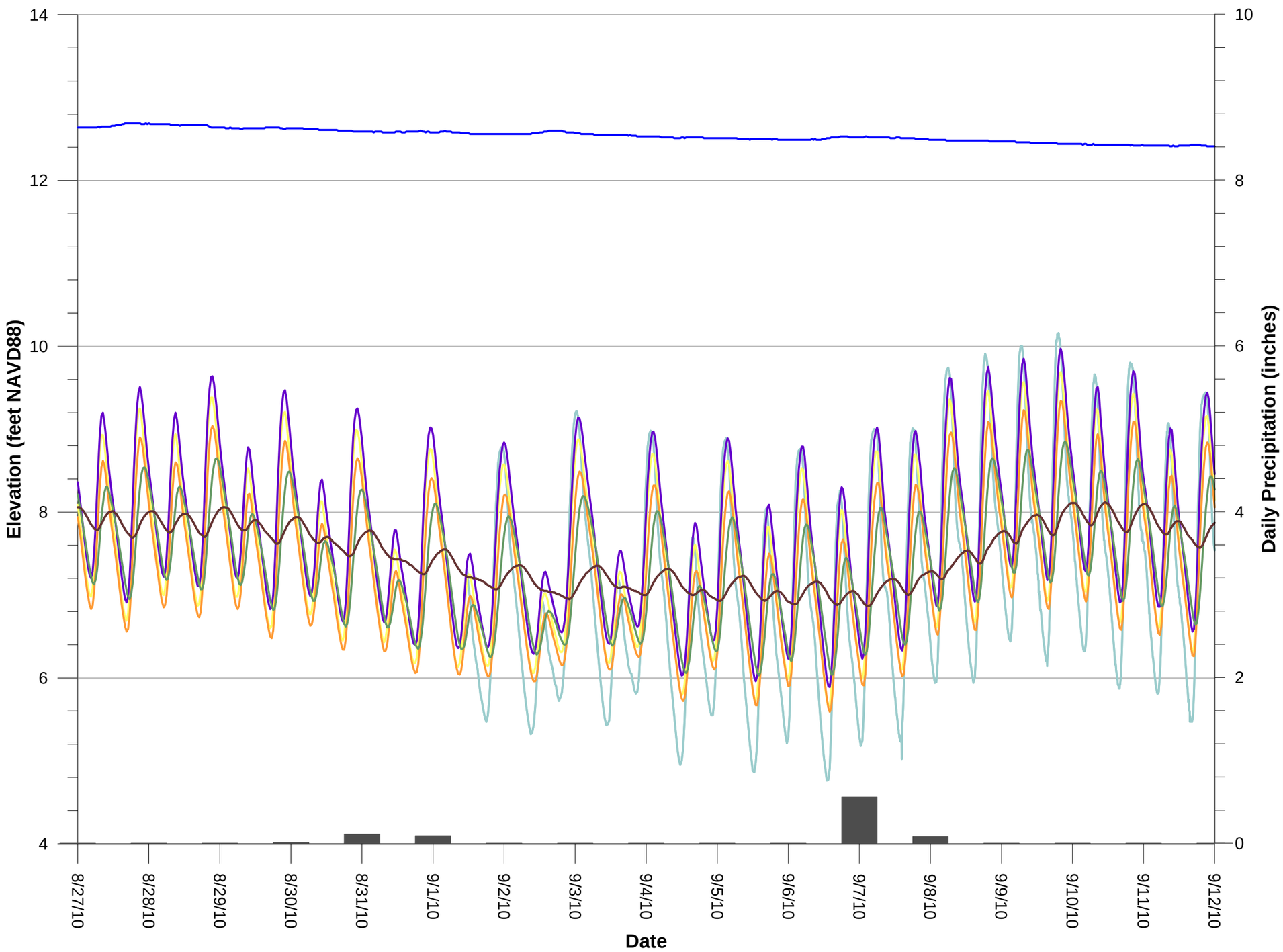


Figure A-25:Low-Flow Detail
2010 Groundwater Elevations
in Monitoring Wells MW-44 and MW-45
McCormick and Baxter Superfund Site
Portland, OR

LEGEND

- MW-44s (Interior)
- MW-44i (Interior)
- MW-44d (Interior)
- MW-45s (Exterior)
- MW-45i (Exterior)
- MW-45d (Exterior)
- River
- Precipitation Data

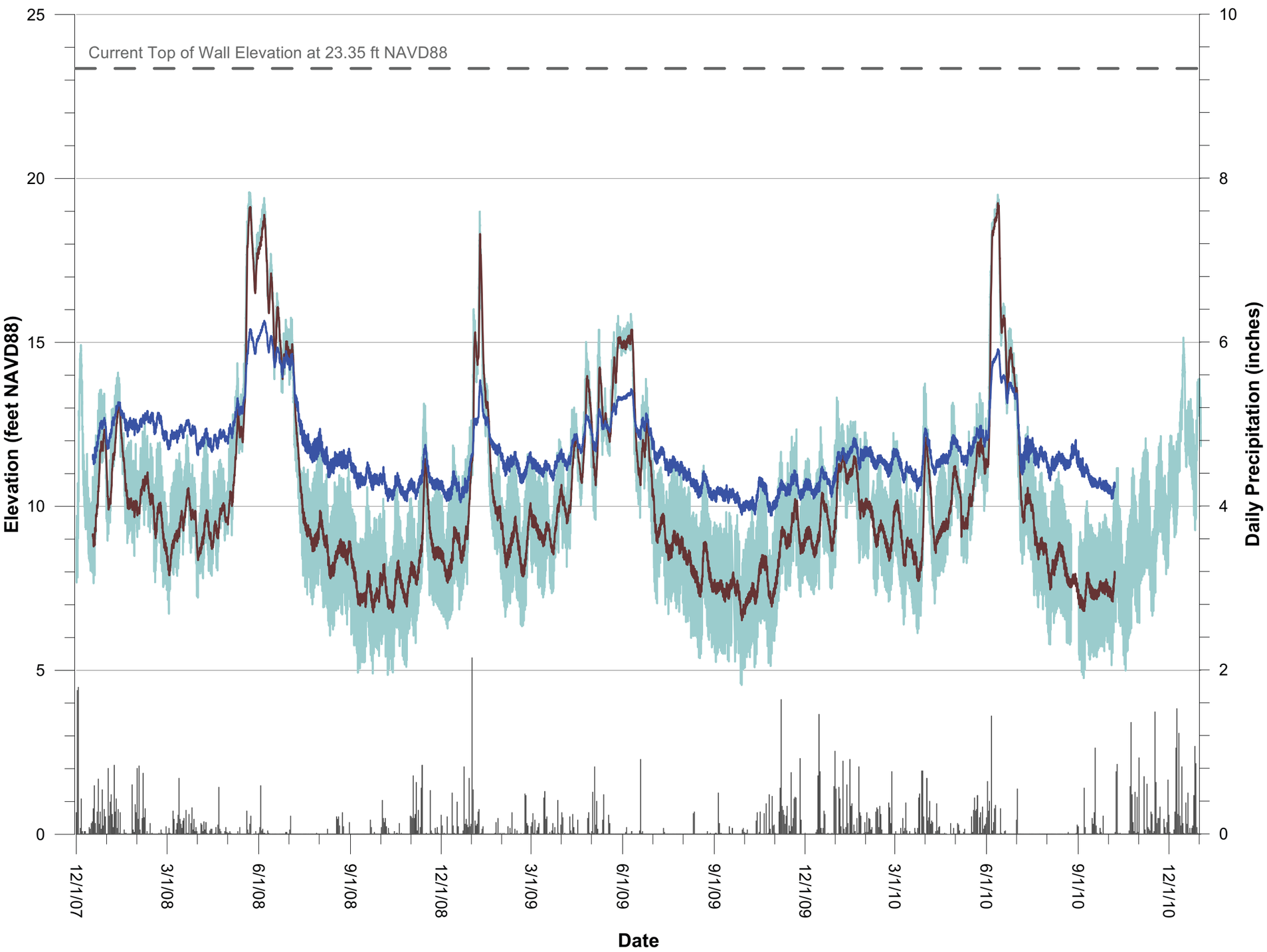
Notes: MW-44 well cluster is located inside the barrier wall and MW-45 well cluster is located outside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

Figure A-26:
Post-Barrier Wall Groundwater Elevations in Monitoring Wells MW-40s and MW-41s McCormick and Baxter Superfund Site Portland, OR



LEGEND

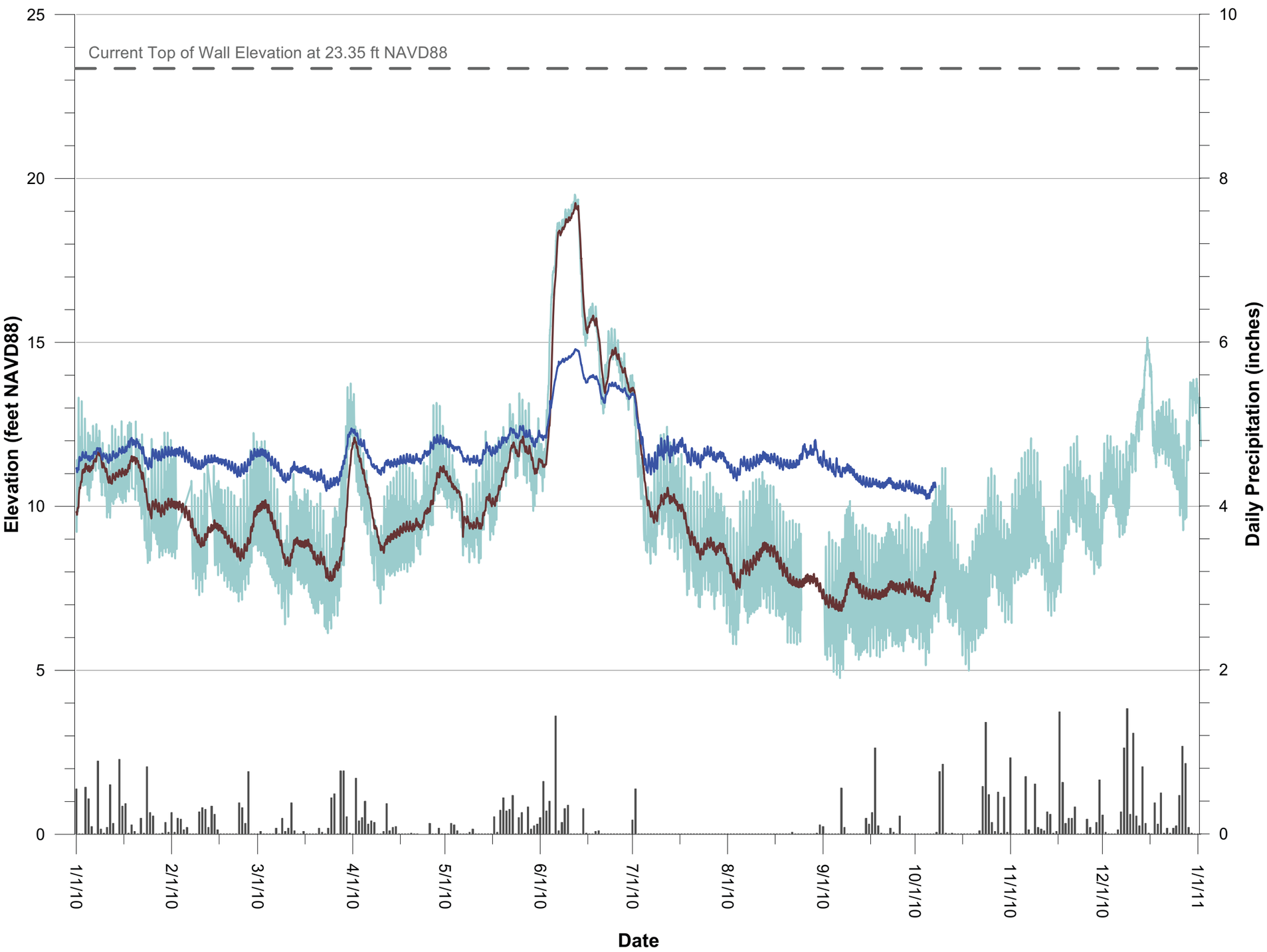
- MW-40s (Interior)
- MW-41s (Exterior)
- River
- Precipitation Data

Note: MW-40s is located inside the barrier wall and MW-41s is located outside the barrier wall.

HARTCROWSER

GSI Water Solutions, Inc.

Figure A-27:
2010 Groundwater Elevations in Monitoring Wells MW-40s and MW-41s McCormick and Baxter Superfund Site Portland, OR



LEGEND

- MW-40s (Interior)
- MW-41s (Exterior)
- River
- Precipitation Data

Note: MW-40s is located inside the barrier wall and MW-41s is located outside the barrier wall.

HARTCROWSER

GSI Water Solutions, Inc.

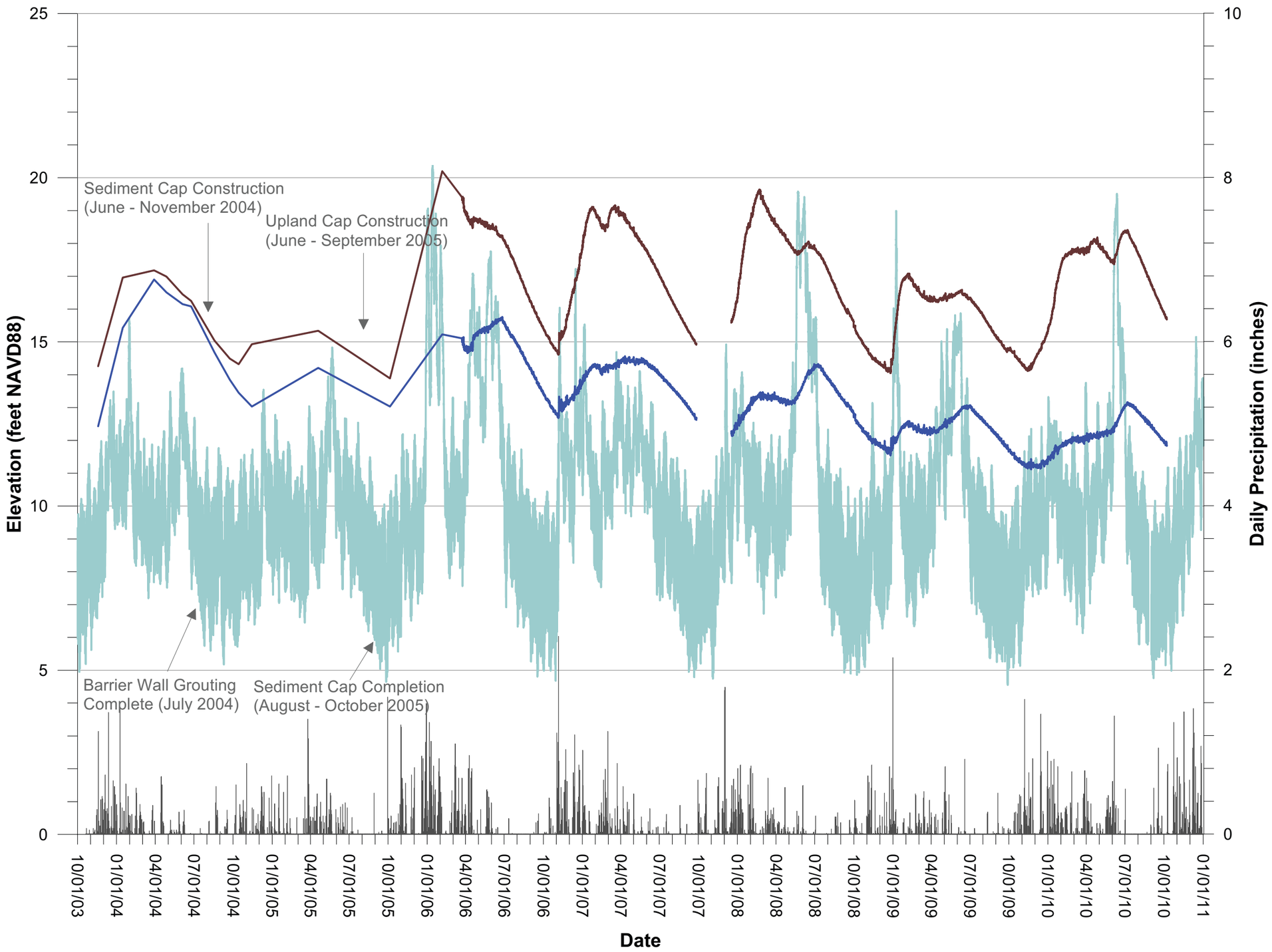


Figure A-28:
Post-Barrier Wall Groundwater Elevations in Monitoring Wells MW-52s and MW-53s McCormick and Baxter Superfund Site Portland, OR

LEGEND

- MW-52s (Interior)
- MW-53s (Exterior)
- River
- Precipitation Data

Notes:
MW-52s is located inside the barrier wall and MW-53s is located outside the barrier wall.

Top of Barrier wall (not shown) is about 31 ft NAVD.

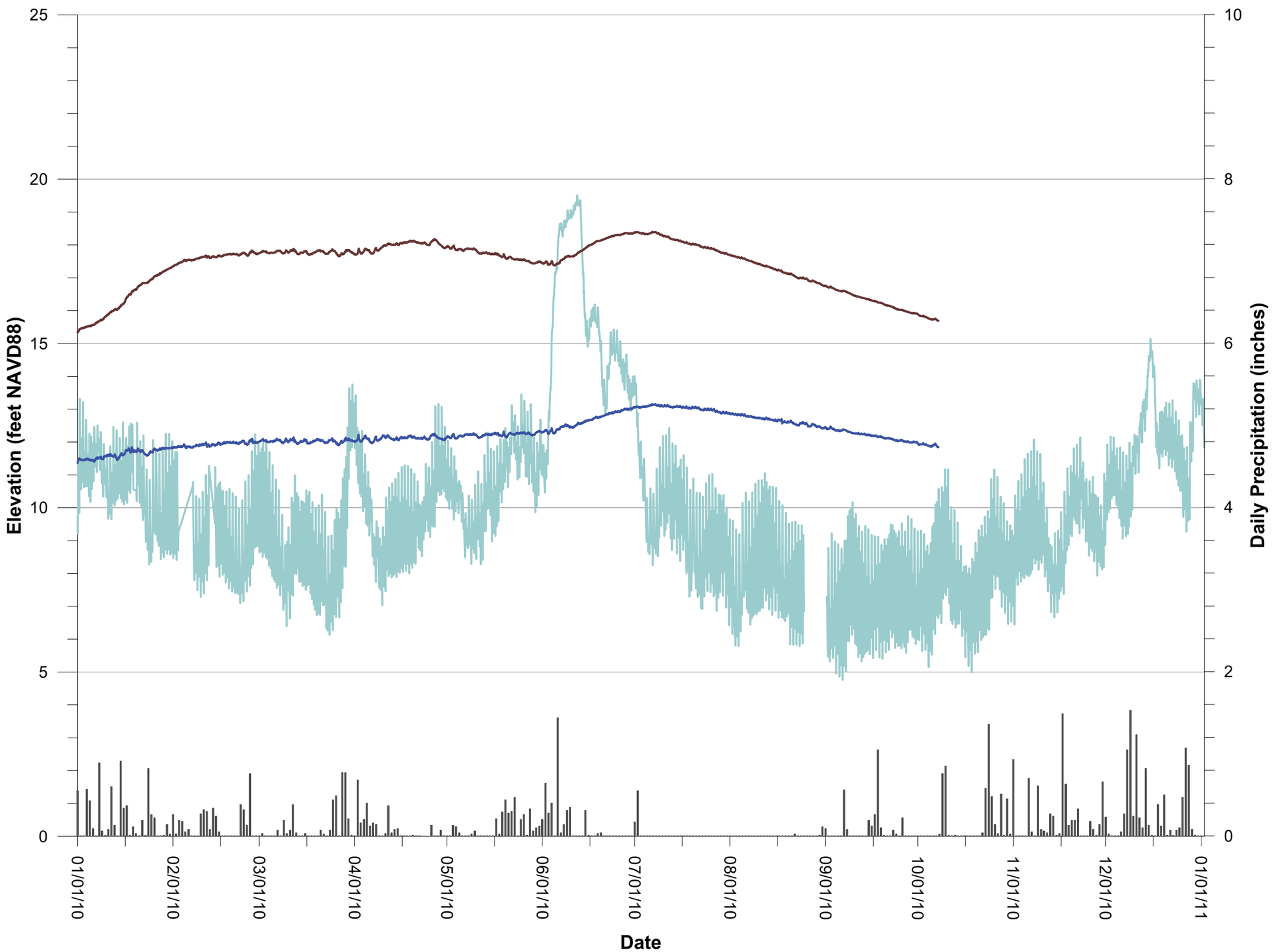
Prior to March 23, 2006 water level measurements are manual and intermittent.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

Figure A-29:
2010 Groundwater Elevations in Monitoring Wells MW-52s and MW-53s McCormick and Baxter Superfund Site Portland, OR



LEGEND

- MW-52s (Interior)
- MW-53s (Exterior)
- River
- Precipitation Data

Notes:
MW-52s is located inside the barrier wall and MW-53s is located outside the barrier wall.

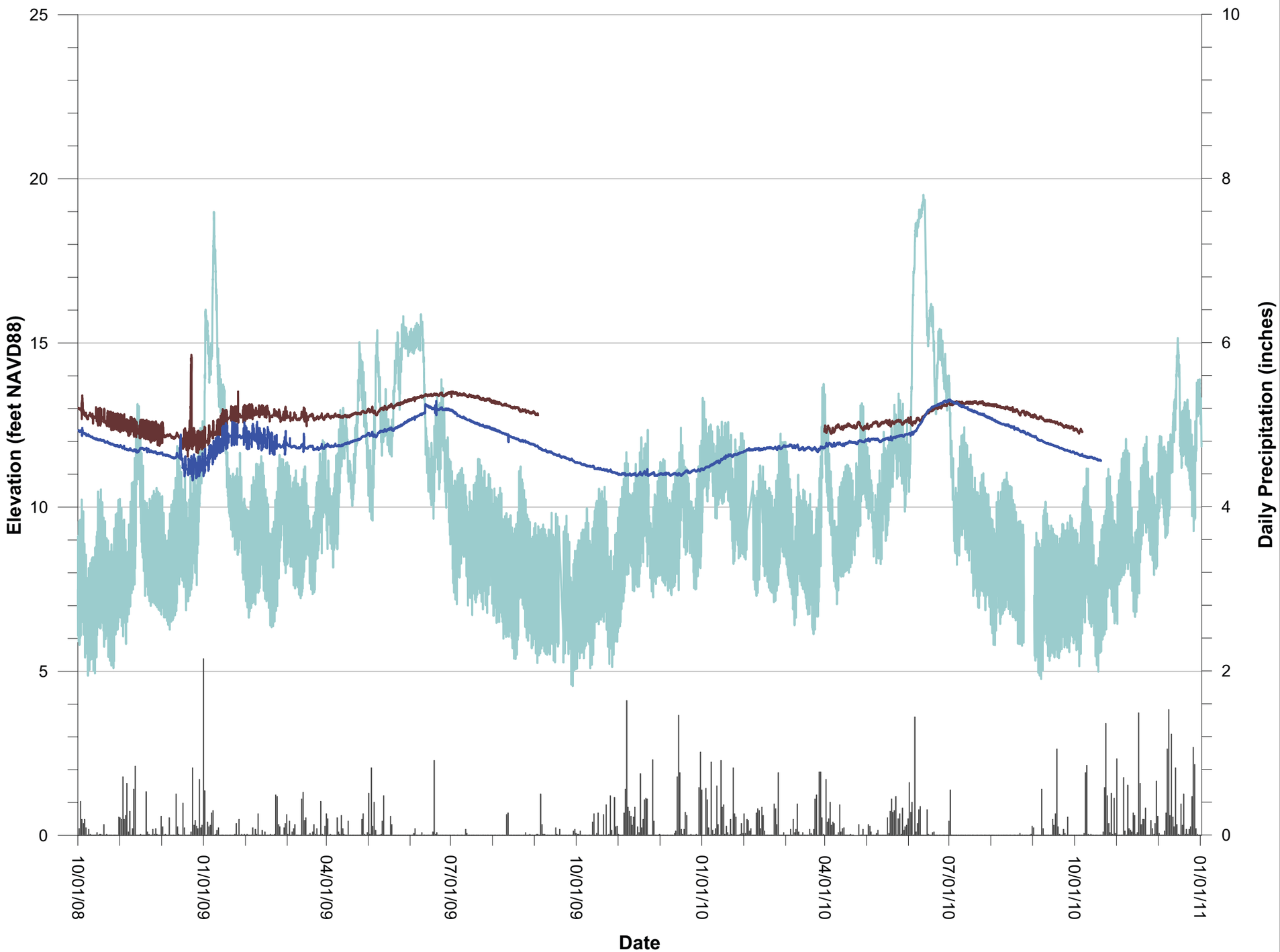
Top of Barrier wall (not shown) is about 31 ft NAVD.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

HARTCROWSER

GSI Water Solutions, Inc.

Figure A-30:
2008 to 2010 Groundwater Elevations in Monitoring Wells MW-15s and EW-1s McCormick and Baxter Superfund Site Portland, OR



LEGEND

- EW-1s (Interior)
- MW-15s (Interior)
- River
- Precipitation Data

Note: Monitoring wells EW-1s and MW-15s are located inside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

Groundwater elevation manually adjusted 0.25 ft up between 17:00 on May 6, 2010 and 14:00 on June 15, 2010 due to apparent displacement from field activities.

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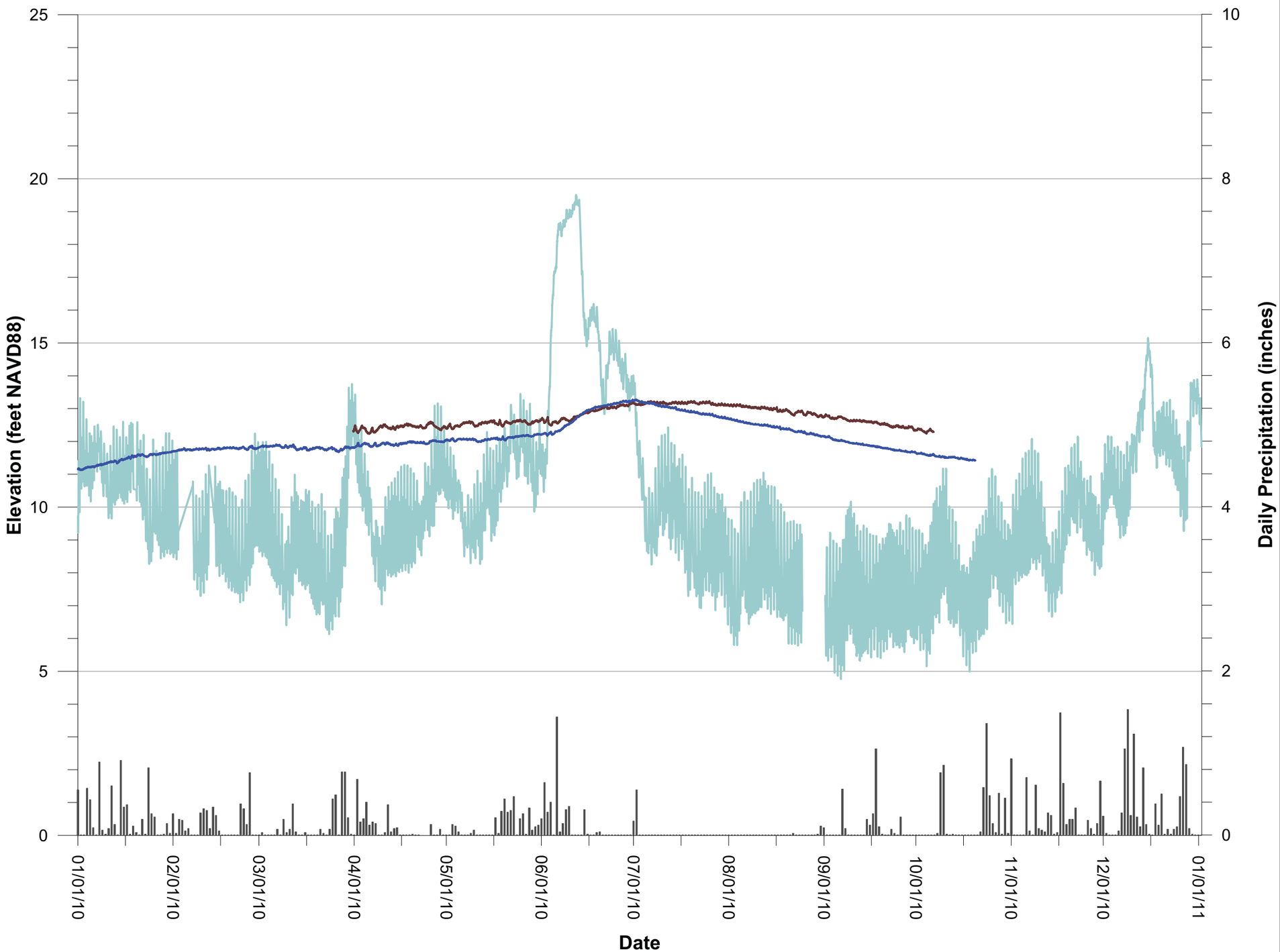
Figure A-31:
2010 Groundwater Elevations in Monitoring Wells MW-15s and EW-1s McCormick and Baxter Superfund Site Portland, OR



LEGEND

- EW-1s (Interior)
- MW-15s (Interior)
- River
- Precipitation Data

Note: Monitoring wells EW-1s and MW-15s are located inside the barrier wall.

Breaks in transducer data are the result of removal for calibration, removal for well modification, or a damaged transducer was not collecting accurate pressure readings.

Groundwater elevation manually adjusted 0.25 ft up between 17:00 on May 6, 2010 and 14:00 on June 15, 2010 due to apparent displacement from field activities.

HARTCROWSER

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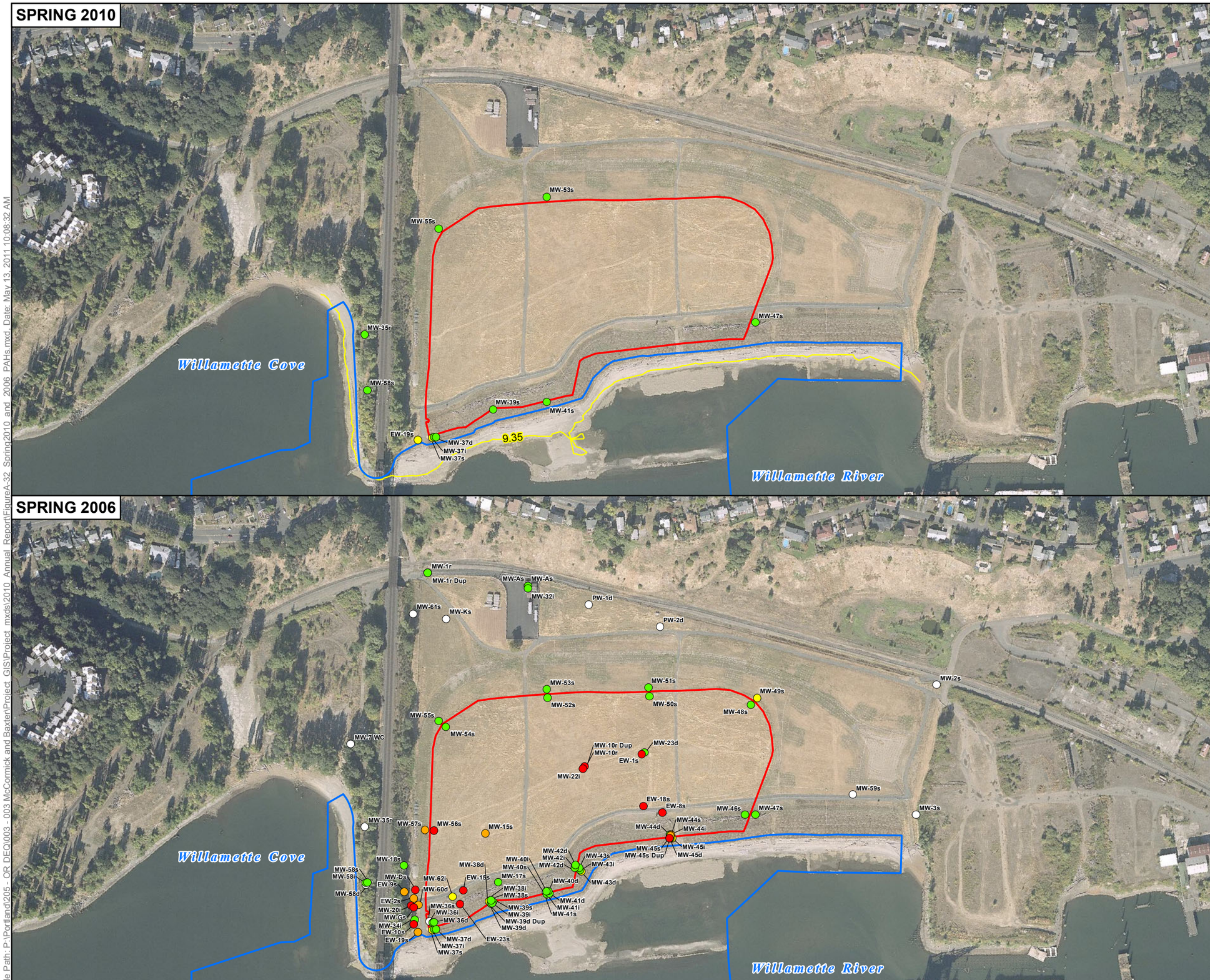

LEGEND

Total PAHs

- Non-detect
- <50 ug/L
- >50 - 1,000 ug/L
- >1,000 - 5,000 ug/L
- >5,000 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Willamette River Level During Sampling Event (9.35 feet)

NOTES:

1) Aerial photo taken on September 22, 2006
2) Willamette River low tide at 09:00 at 9.35 feet NAVD 88

0 350 700

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Total PAHs in Groundwater
Spring 2010 and Spring 2006

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
A-32

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureA-32 Spring2010 and 2006 PAHs.mxd. Date: May 13, 2011 10:08:32 AM

LEGEND

Total Benzo(a)pyrene

- Non-detect
- <0.2 ug/L
- >0.2 - 2.0 ug/L
- >2.0 - 20 ug/L
- >20 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Willamette River Level During Sampling Event (9.35 feet)

NOTES:

1) Aerial photo taken on September 22, 2006
2) Willamette River low tide at 09:00 at 9.35 feet NAVD 88

0 350 700

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Total Benzo(a)pyrene in Groundwater Spring 2010 and Spring 2006

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure **A-33**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureA-33 Spring2010 and 2006 Benzo.mxd, Date: May 13, 2011 10:09:35 AM

LEGEND

Total Pentachlorophenol

- Non-detect
- <10 ug/L
- >10 - 100 ug/L
- >100 - 1,000 ug/L
- >1,000 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Willamette River Level During Sampling Event (9.35 feet)

NOTES:

1) Aerial photo taken on September 22, 2006
2) Willamette River low tide at 09:00 at 9.35 feet NAVD 88

0 350 700

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Total Pentachlorophenol in Groundwater Spring 2010 and Spring 2006

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure **A-34**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureA-34 Spring2010 and 2006 Penta.mxd, Date: May 13, 2011 10:10:21 AM

ATTACHMENT A
DRAFT TECHNICAL HISTORY AND DQO'S FOR UPLAND GROUNDWATER SAMPLING AT MCCORMICK & BAXTER SUPERFUND SITE PORTLAND, OREGON

GSI Water Solutions, Inc.

Memorandum

To: Scott Manzano/DEQ

From: Heidi Blischke/GSI

Date: **9/10/2009**

Re: **Draft Technical History and DQOs for upland groundwater sampling at McCormick & Baxter Superfund Site, Portland, Oregon**

The Draft Final McCormick & Baxter Operation and Maintenance Plan dated October 2007 lists site-wide groundwater sampling as an activity to be conducted in Spring 2010. One complete round of groundwater sampling was conducted in the Spring 2006 to capture a complete snapshot of dissolved constituents in groundwater with the purpose of verifying the Post-Remedial Action Site Conceptual Model.

In 2004, data quality objectives (DQOs) for long-term monitoring were prepared by the Department of Environmental Quality (Attachment A). Limited groundwater monitoring is recommended. National Oceanic and Atmospheric Administration (NOAA), United States Environmental Quality (EPA), and the Tribes commented on the DQOs (Attachment A). EPA recommended that additional dissolved phase monitoring should be conducted.

The technical project team met on January 11, 2006 where it was decided that a comprehensive round of sampling should be conducted in Spring 2006 and that additional groundwater sampling after the 2006 event was to be determined during the 5-year review cycle. The objectives for groundwater sampling included:

- Since the NAPL is hard to find, the dissolved will give us an idea whether NAPL is present and quantify the dissolved loading to the river
- Need to know flux to the river
- Objective to verify conceptual model

The meeting notes for the January 11, 2006 meeting are attached (Attachment B).

Based on this information, site-wide groundwater sampling was included in the Draft Final O&M Plan as an activity for Spring 2010 (DEQ, 2007). As recommended at the January 11 meeting, DEQ initiated a discussion to determine the need to conduct a comprehensive round

of sampling. DEQ and EPA held a conference call on September 2, 2009 to discuss the proposed upcoming groundwater sampling. This memo represents the result of that conference call where it was determined that DQOs for groundwater sampling should be developed and that the post-remedial action history of rationale for conducting groundwater sampling should be documented. During the call, DEQ and EPA agreed that wells inside of the barrier wall did not need to be sampled and wells with NAPL should not be sampled. Table 1 presents the DQOs for the proposed Spring 2010 groundwater sampling. Of the wells that will be sampled, only EW-19 is an older well that should be developed prior to sampling. The other wells proposed for sampling were installed since 2000 and show good connection with the water-bearing zone as demonstrated from either quarterly water levels or transducer data.

Upon agreement of the DQOs for groundwater sampling and the selection of wells to be sampled, a detailed groundwater sampling plan will be developed.

Table 1 - Data Quality Objectives: Groundwater 2009
McCormick and Baxter Superfund Site
Portland, Oregon

Statement of Problem	Decision	Method	Inputs to Decision	Boundaries	Decision Rule	Limits to the Decision Errors
Evaluate concentrations of contaminants of concern in groundwater between the barrier wall and the River	Verify the conceptual model that concentrations in groundwater will not significantly increase and loading to the river will not exceed the sediment's attenuation capacity.	Collect groundwater samples from shallow wells between the barrier wall and the river.	Sample monitoring wells MW-47s, MW-41s, MW-39s, MW-37s, EW-19s, MW-58s, and MW-35r. (MW-59s and MW-45s were sampled in Summer 2009 and therefore do not need to be resampled Spring 2010). Groundwater will be analyzed for the McCormick and Baxter contaminants of concern including polycyclic aromatic hydrocarbons (PAHs), pentachlorophenol (PCP), and 4 metals (arsenic, copper, chromium, and zinc).	Area between the barrier wall and River (outside of the NAPL recovery area in the FWDA).	If concentrations outside the barrier wall have increased significantly since the 2006 groundwater sampling event, there may be additional migration of contaminants in groundwater that was not anticipated and additional evaluation may be required.	Analytical methods will achieve, as feasible using conventional laboratory methods, detection limits below EPA's maximum contaminant levels (MCLs).
Evaluate concentrations of contaminants of concern in groundwater that are migrating out of the barrier wall area	Verify the conceptual model that concentrations in groundwater migrating from within the barrier wall are not increasing such that loading to the river will exceed ambient water quality criteria or MCLs.	Collect groundwater samples from base of barrier wall where the massive silt is absent and leakage of groundwater from within the barrier wall occurs.	Sample monitoring wells MW-37i and MW-37d. Groundwater will be analyzed for the McCormick and Baxter contaminants of concern including PAHs, PCP, and 4 metals (arsenic, copper, chromium, and zinc).	Area between the barrier wall leaky area in the FWDA and the River.	If concentrations in groundwater at the base of the barrier wall have increased significantly, then it should be evaluated whether groundwater flux from within the barrier wall will adversely affect the river (is the remedy still protective).	Analytical methods will achieve, as feasible using conventional laboratory methods, detection limits below MCLs.
Evaluate whether the elevated PCP concentrations in MW-53s have migrated away from that limited vicinity of the well.	Verify that dissolved PCP has not migrated downgradient of MW-53s and does not pose a risk of migrating offsite.	Collect groundwater downgradient from source area of PCP.	Sample monitoring wells MW-55s (downgradient of MW-53s), MW-53s (well with 1650 ug/L PCP in 2006). Groundwater will be analyzed for the McCormick and Baxter contaminants of concern including PAHs, PCP, and 4 metals (arsenic, copper, chromium, and zinc).	MW-53 and downgradient.	If concentrations of PCP have migrated downgradient, assess whether additional evaluation or action is required to determine whether concentrations above the MCLs will migrate offsite.	Analytical methods will achieve, as feasible using conventional laboratory methods, detection limits below MCLs.

Attachment A - 2004 Data Quality Objectives
Table 1A - Groundwater and NAPL: Remedial Action Objectives and General Response Actions
McCormick and Baxter Superfund Site
Portland, Oregon

Remedial Action Objectives	Primary General Response Action	Secondary General Response Actions	Description
Preventing human exposure to or ingestion of groundwater with contaminant concentrations in excess of federal and state drinking water standards or protective levels.	Institutional Controls	Sediment Cap Barrier Wall Soil Cap	Groundwater Use restriction prevents human exposure to site groundwater Barrier Wall and Soil Cap reduce migration of dissolved phase contaminants in groundwater to surface water and therefore reduce potential human exposure
Minimizing further vertical migration of NAPL to the deep aquifer.	NAPL Extraction	Institutional Controls Barrier Wall Soil Cap	Institutional controls prevent pumping of site groundwater potentially changing hydraulic conditions that would allow NAPL to migrate to the deep aquifer. NAPL extraction reduces the mass and volume of NAPL and reduces the potential for NAPL achieving head that would allow NAPL mobility.
Preventing groundwater discharges to the Willamette River that contain dissolved contaminants that would result in contaminant concentrations within the river in excess of background concentrations or in excess of water quality criteria for aquatic organisms.	Sediment Cap	Barrier Wall Soil Cap	Sediment cap designed to sorb dissolved contaminants in groundwater and NAPL that would result in unacceptable risk in surface water or transition zone water. Surface water, groundwater, transition zone water, and NAPL zone sampling and sediment cap modeling efforts have shown the sediment cap will effectively prevent NAPL seeps and dissolved contaminant migration. The majority of near shore groundwater and transition zone water quality data previously collected at the site indicates that contaminant concentrations discharging to the Willamette River do not exceed appropriate human health and ecological risk values. Barrier Wall and Soil Cap reduce migration of dissolved phase contaminants in groundwater to surface water and therefore reduce potential human exposure

Attachment A - 2004 Data Quality Objectives
Table 1A - Groundwater and NAPL: Remedial Action Objectives and General Response Actions
McCormick and Baxter Superfund Site
Portland, Oregon

Remedial Action Objectives	Primary General Response Action	Secondary General Response Actions	Description
Minimizing NAPL discharge to the Willamette River beach and sediment to protect human health and the environment.	Sediment Cap	Barrier Wall Soil Cap	Sediment cap designed to contain NAPL using organoclay in seep areas. Barrier Wall surrounding TFA and FWDA source areas was installed to prevent NAPL migration to the River. Impermeable soil cap over a portion of the contained area is expected to prevent LNAPL or contaminated groundwater from overtopping the wall and reaching the river. Barrier Wall and Soil Cap expected to reduce hydraulic gradients to prevent or minimize downward NAPL migration within the contained area. Continued NAPL extraction outside of the barrier wall reduces mass and NAPL mobility. Additional investigation and monitoring will be required near MW-1 to assess NAPL mobility and potential risks to human health and the environment.
Removing mobile NAPL to the extent practicable to reduce the continuing source of groundwater contamination and potential for discharge to the Willamette River.	Barrier Wall	NAPL Extraction Sediment Cap Barrier Wall	Sediment cap designed to contain NAPL using organoclay in seep areas. Barrier Wall contains NAPL source areas in TFA and FWDA. Barrier Wall and Soil Cap expected to reduce hydraulic gradients to prevent or minimize downward NAPL migration within the contained area. Continued NAPL extraction outside of the barrier wall reduces mass and NAPL mobility.

Attachment A - 2004 Data Quality Objectives
Table 2 - DQO Process for General Remedy
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	The longterm effectiveness and protectiveness of the overall McCormick and Baxter Remedy needs to be demonstrated. Each element of the final remedy contributes to the overall protectiveness of the remedy to assure protection of human health and the environment.
2. Identify the Decision to be Made	Determine if the overall remedy is protective of human health and the environment. Determine if the conceptual site hydrogeologic model and groundwater model are representive and actually depict or predict site conditions. Determine if the barrier wall is effective (i.e., meets its design goals). Determine if the soil cap is effective (i.e., meets its design goals) and protective of human health. Determine if NAPL extraction outside the barrier wall is effective and increases the protectivess of the remedy. Determine if the sediment cap is effective and protective of ecologic receptors. Determine if the sediment cap is protective of human health and the environment. Determine if the institutional controls are protective of human health.
3. Identify the inputs to the Decision	see following tables for each decision identified above
4. Define the Boundaries	The area of the upland site and the area of the inwater sediment cap (see Figure X)
5. Develop a Decision Rule	see following tables for each decision identified above
6. Specify Tolerable Limits on Decision Error	see following tables for each decision identified above
7. Optimize the Design	see following tables for each decision identified above

Attachment A - 2004 Data Quality Objectives
Table 2A - DQO Process for CSM
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	**Hydrogeologic System:** The Conceptual Site Model and Groundwater Model indicate that groundwater within the barrier wall moves from the TFA towards the FWDA and that vertical gradients are minimal. Groundwater outside the barrier wall is diverted around the upland portion of the wall toward Willamette Cove and toward the southeastern portion of the site. The NAPL evaluation concluded NAPL is not mobile under current site conditions. Continued data collection is required to validate the conceptual model, numerical model and NAPL mobility.
2. Identify the Decision to be Made	Verify that groundwater flow direction and gradient are consistent with modeled and historic measured values. Determine if conceptual site model and groundwater flow model adequately represent and predict site conditions. Verify NAPL is not mobile.
3. Identify the inputs to the Decision	Periodic groundwater measurements from selected wells inside and outside the barrier wall area. Calculate groundwater gradients and flow directions inside and outside the barrier wall area. Groundwater potentiometric surface maps Evaluation of temporal and spatial changes in groundwater elevations, flow directions, and gradients. Periodic NAPL thickness measurements NAPL Extraction Records Hydrographs showing site groundwater elevations and Willamette River elevations Willamette River data (e.g., discharge measurements, river gauge data, tidal data) Other information needed to assess site hydrogeologic conditions as necessary
4. Define the Boundaries	Site wide but divided into two hydrologic regimes by the barrier wall. Separate evaluations will be conducted for the areas inside and outside the barrier wall. NAPL evaluation will focus on the area outside of the wall.
5. Develop a Decision Rule	If groundwater elevations, flow direction, and gradients remain consistent with historic and predicted patterns, then the CSM is representative. If anomalies are detected in groundwater gradients or flow direction, then the CSM may not be representative or the barrier wall or impermeable soil cap may not be intact and further investigation may be warranted. If NAPL thicknesses continue to decrease, NAPL extraction will continue with current extraction method and alternative methods will be evaluated as part of the 5-year ROD review. If unexpected NAPL accumulation is observed, then additional investigation and extraction may be warranted.

Attachment A - 2004 Data Quality Objectives
Table 2A - DQO Process for CSM
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
6. Specify Tolerable Limits on Decision Error	Groundwater and NAPL measurements will be similar to those currently achievable using equipment and accuracy defined in the FSP and QAPP. Data collection and evaluation will be conducted in accordance with approved Standard Operating Procedures and methods. Groundwater will be collected within a two-hour period surrounding low tide events. Groundwater data will be collected during seasonally high and low precipitation conditions.
7. Optimize the Design	Groundwater monitoring wells to be gauged within the barrier wall include well clusters MW-36, MW-38, MW-40, MW-42, and MW-44. Also included will be individual wells MW-46s, MW-48s, MW-50s, MW-52s, MW-54s, MW-56s, MW-Cs, MW-15s, EW-23s, EW-15s, EW-1s, EW-18s, and EW-8s. Gauging data for the remainder of the site will be collected from well clusters MW-37, MW-39, MW-41, MW-43, MW-45, and wells MW-47, MW-49, MW-51, MW-53, MW-55, MW-57, MW-1s, MW-Ks, MW-As, MW-Os, MW-2s, and MW-3s. Gauging data for the Willamette Cove area will be collected from well cluster MW-58s and wells MW-35s (proposed replacement well), and MW-7 WC. NAPL monitoring wells include: EW-23s, EW-15s, EW-18s, and EW-8s. Continuous groundwater elevations will be obtained from selected wells using pressure transducers and data loggers. Groundwater conditions will be assessed during high and low groundwater conditions. Groundwater conditions will be assessed during high and low river conditions. Increased groundwater monitoring will occur during high river level and high precipitation periods.

Attachment A - 2004 Data Quality Objectives
Table 2B - DQO Process for Barrier Wall
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	**Human Health and Ecological Risk:** The effectiveness of the barrier wall with regard to the protectiveness of human health and the environment is unknown. **Hydrogeologic System:** Barrier wall performance monitoring data and groundwater flow modeling have shown the barrier wall to effectively contain groundwater flow within the barrier wall area and minimize discharge to the Willamette River. Continued monitoring of barrier wall performance and verification of the groundwater modeling predictions will result in a better understanding of the groundwater physical system and exposure pathway and demonstrate the long-term effectiveness and protectiveness of the barrier wall.
2. Identify the Decision to be Made	Determine if the barrier wall contains NAPL within the wall and prevents discharges to the Willamette River. Determine if the barrier wall prevents or minimizes dissolved phase migration of contaminants to the Willamette River. Determine if groundwater elevations may increase and overtop the barrier wall. Determine if installation of the barrier wall continues to allow increased NAPL accumulation within the barrier wall area. Determine if conceptual site hydrogeologic model and groundater flow model adequately depict and represent site conditions.
3. Identify the inputs to the Decision	Periodic groundwater elevation measurements from selected shallow, intermediate, and deep wells within and outside the barrier wall Groundwater potentiometric surface maps Evaluation of temporal and spatial changes in groundwater elevations, flow directions, and gradients. Periodic NAPL thickness measurements NAPL Extraction Records Vertical Gradient Calculations Hydrographs showing site groundwater elevations and Willamette River elevations Willamette River data (e.g., discharge measurements, river gauge data, tidal data) Other information needed to assess wall integrity (see Barrier Wall design document - Add to Final)

Attachment A - 2004 Data Quality Objectives
Table 2B - DQO Process for Barrier Wall
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
4. Define the Boundaries	Focus on Area inside the barrier wall and limited wells outside the wall. Focus on nested shallow, intermediate, and deep well nests installed inside and outside the barrier wall. NAPL thicknesses and recovery will be monitored in selected wells from the FWDA and TFA, which have historically shown significant NAPL accumulations.
5. Develop a Decision Rule	If groundwater elevations, flow direction, and gradients remain consistent with historic and predicted patterns, then the barrier wall has effectively contained or prevented dissolved phase contaminants from reaching the river. If anomalies are detected in groundwater gradients or flow direction, then the barrier wall or impermeable soil cap may not be intact and further investigation may be warranted. If NAPL continues to be absent in areas adjacent to the wall, then the barrier wall has effectively contained NAPL from laterally migrating to the river. If vertical gradients increase significantly from historic or predicted measurements, then the potential for DNAPL to migrate beneath the barrier wall will be reevaluated.
6. Specify Tolerable Limits on Decision Error	Groundwater and NAPL measurements will be similar to those currently achievable using equipment and accuracy defined in the FSP and QAPP. Data collection and evaluation will be conducted in accordance with approved Standard Operating Procedures and methods.
7. Optimize the Design	Groundwater monitoring wells to be gauged within the barrier wall include well clusters MW-36, MW-38, MW-40, MW-42, and MW-44. Also included will be individual wells MW-46s, MW-48s, MW-50s, MW-52s, MW-54s, MW-56s, MW-Cs, MW-15s, EW-1s. NAPL monitoring wells include: EW-23s, EW-15s, EW-18s, and EW-8s. Continuous groundwater elevations will be obtained from selected wells using pressure transducers and data loggers. Groundwater conditions will be assessed during high and low groundwater conditions. Groundwater conditions will be assessed during high and low river conditions. Increased groundwater monitoring will occur during high river level and high precipitation periods. Field measurements will be compared to historical measurements and groundwater model predictions. Anomalous conditions may warrant further investigation to assess the integrity of the barrier wall.

Attachment A - 2004 Data Quality Objectives
Table 2C - DQO Process for Soil Cap
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	**Human Health and Ecological Risk:** The effectiveness of the soil cap with regard to the protectiveness of both human health and ecological risk is unknown. **Hydrogeologic System:** Groundwater flow modeling has predicted that the impermeable soil cap over a portion of the area contained by the barrier wall will effectively reduce infiltration and groundwater elevations and gradients within the barrier wall area. Verification of these modeling predictions will result in a better understanding of the groundwater physical system and exposure pathways and demonstrate the long-term effectiveness and protectiveness of the soil cap.
2. Identify the Decision to be Made	Detemine if the soil cap adequately prevents human or ecological exposure to contaminated soil and therefore is protective. Determine if soil cap is protective of human health and the environment in the MW-1s area. Determine if the partial impermeable cap placed over a portion of the area contained by the barrier wall reduces infiltration and subsequently lowers groundwater elevations and gradients within the barrier wall area and prevents overtopping of the wall. Determine if installation of an infiltration pond outside the barrier wall affects groundwater elevations, flow, and/or contaminant concentrations in groundwater. Determine if the infiltration pond significantly increases dissolved phase groundwater contamination to the river. Determine if the conceptual site hydrogeologic model and groundwater flow model adequately depict and represent site conditions. Assess if vegetation in the riparian zone reduces infiltration (i.e., groundwater recharge) within the barrier wall. Assess if vegetation in the riparian zone compromises the integrity or protectiveness of the soil cap.

Attachment A - 2004 Data Quality Objectives
Table 2C - DQO Process for Soil Cap
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
3. Identify the inputs to the Decision	Calculate groundwater gradient and flow direction both within and outside the barrier wall. Compare groundwater and NAPL elevations relative to barrier wall. Collect water quality data (baseline and post construction) hydraulically downgradient from the infiltration pond. Periodic groundwater elevation measurements from selected shallow, intermediate, and deep wells within and outside the barrier wall Groundwater potentiometric surface maps Results of further investigation of MW-1s study (e.g., geoprobes, monitoring well installation) Evaluation of temporal and spatial changes in groundwater elevations, flow directions, and gradients. Hydrographs showing site groundwater elevations and Willamette River elevations Willamette River data (e.g., discharge measurements, river gauge data, tidal data) Other information needed to assess cap integrity (see soil cap design document - Add to Final)
4. Define the Boundaries	Site wide
5. Develop a Decision Rule	If groundwater elevations and gradients decrease within the barrier wall area, then the impermeable cap is effective in reducing infiltration and preventing overtopping of the wall. If NAPL thicknesses decrease within the barrier wall area, then the impermeable cap is effective in preventing mobilization of residual NAPL through reduced infiltration. If dissolved phase contaminant concentrations increase in water quality samples collected from hydraulically downgradient of the infiltration pond, then water infiltrating through the pond area may be mobilizing contaminants in soils. If groundwater elevations, flow direction, and gradients remain consistent with historic and predicted patterns, then the cap has effectively contained or prevented dissolved phase contaminants from reaching the river. If anomalies are detected in groundwater gradients or flow direction, then the barrier wall or impermeable soil cap may not be intact and further investigation may be warranted. If vertical gradients increase significantly from historic or predicted measurements, then the potential for DNAPL to migrate beneath the barrier wall will be reevaluated. If NAPL in the vicinity of MW-1s is limited in extent and determined to be immobile and not a significant source of dissolved phase contaminants then the soil cap, in conjuction with the institutional controls, is protective. If the NAPL in not immobile or if the extent of

Attachment A - 2004 Data Quality Objectives
Table 2C - DQO Process for Soil Cap
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
6. Specify Tolerable Limits on Decision Error	Data collection is conducted according to an approved Work Plan, Standard Operating Procedures, and QAPP. Laboratory detection limits meet applicable risk values (see QAPP)
7. Optimize the Design	Groundwater monitoring wells to be gauged within the barrier wall include well clusters MW-36, MW-38, MW-40, MW-42, and MW-44. Also included will be individual wells MW-46s, MW-48s, MW-50s, MW-52s, MW-54s, MW-56s, MW-Cs, MW-15s, EW-23s, EW-15s, EW-1s, EW-18s, and EW-8s. Gauging data for the remainder of the site will be collected from well clusters MW-37, MW-39, MW-41, MW-43, MW-45, and wells MW-47, MW-49, MW-51, MW-53, MW-55, MW-57, MW-1s, MW-Ks, MW-As, MW-Os, MW-2s, and MW-3s. Gauging data for the Willamette Cove area will be collected from well cluster MW-58s and wells MW-35s (proposed replacement well), and MW-7 WC. Chemical monitoring may be performed on wells downgradient of the proposed infiltration pond. Continuous groundwater elevations will be obtained from selected wells using pressure transducers and data loggers. Groundwater conditions will be assessed during high and low groundwater conditions. Groundwater conditions will be assessed during high and low river conditions. Increased groundwater monitoring will occur during high river level and high precipitation periods. Field measurements will be compared to historical measurements and groundwater model predictions.

Attachment A - 2004 Data Quality Objectives
Table 2D - DQO Process for NAPL Extraction
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	**Human Health and Ecological Risk:** The effectiveness and protectiveness of limited NAPL extraction, in areas outside the barrier wall, to human health and the environment (Willamette River) are unknown.
2. Identify the Decision to be Made	Determine if current NAPL extraction efforts provide increased protectiveness or long-term effectiveness of the sediment cap Determine if current NAPL extraction efforts provide a cost benefit or are cost-effective. Determine if NAPL extraction is needed for NAPL present near MW-1s.
3. Identify the inputs to the Decision	NAPL extraction data (e.g., rates, volume) from wells outside the wall in the FWDA. Periodic NAPL thickness measurements. NAPL extraction, management, and disposal costs. Sediment cap monitoring data Results of evaluation of alternative technologies for NAPL extraction near the FWDA as part of the 5-year ROD review. Results of investigation of NAPL in the vicinity of MW-1s to define nature and extent of contamination including the installation of additional monitoring well(s) to monitor potential NAPL migration. Results of evaluation of potential NAPL extraction in MW-1s area.
4. Define the Boundaries	NAPL outside the wall in the FWDA and in the MW-1s area NAPL extraction will be focused on the area outside the wall in the FWDA and, if necessary, the area near MW-1s. NAPL extraction will be conducted in accordance with an approved work plan, SOPs, and QAPP. Sediment cap monitoring data will be conducted in accordance with an approved work plan, SOPs, and QAPP.
5. Develop a Decision Rule	If NAPL thicknesses continue to decrease, NAPL extraction will continue with current extraction method and evaluate alternative methods as part of the 5-year ROD review. If NAPL extraction decreases or becomes cost prohibitive a cost-benefit evaluation will be performed to determine whether NAPL extraction should continue. If NAPL near MW-1 is widespread and readily recoverable, and poses an unacceptable risk, then additional remedial activities will be considered.
6. Specify Tolerable Limits on Decision Error	Extraction thickness criteria for DNAPL and LNAPL are 1.5 feet and 0.4 feet, respectively. NAPL thickness criteria are based on minimizing extraction of groundwater.
7. Optimize the Design	Monitoring wells to be gauged outside the wall in the FWDA to monitor NAPL thickness and evaluate extraction methods. These well include MW-18s, EW-9s, EW-2s, MW-20i, MW-Gs, MW-34i, EW-10s, and EW-19s. NAPL thickness will also be monitored in monitoring well MW-1s.

Attachment A - 2004 Data Quality Objectives
Table 2E - DQO Process for Sediment Cap
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	**Human Health and Ecological Risk:** Modeling has predicted that the sediment cap will be protective of both human health and the environment. Verification of modeling results is necessary to confirm or contradict these predictions. **Hydrogeologic System:** Surface water, groundwater, transition zone water, and NAPL zone sampling and sediment cap modeling efforts have shown the sediment cap will effectively prevent NAPL seeps and dissolved contaminant migration. The majority of near shore groundwater and transition zone water quality data previously collected at the site indicates that contaminant concentrations discharging to the Willamette River do not exceed appropriate human health and ecological risk values. Sediment cap performance monitoring will verify modeling results, provide a better understanding of the groundwater to surface water migration pathway, and demonstrate the long-term effectiveness and protectiveness of the sediment cap.
2. Identify the Decision to be Made	Determine if the sediment cap adequately prevents human or ecological exposure to contaminated sediments. Determine if sediment cap is effective in preventing NAPL seeps (i.e., organoclay areas). Determine if sediment cap is protective of transition zone water (e.g., porewater) and surface water quality. Determine groundwater flux from source areas to the Willamette River. Determine if the sediment cap, including armoring and large woody debris is intact and stable. Determine whether physical process could result in exposure of contaminated sediment. Determine if benthic community is reestablished (e.g., crayfish sampling). Other information needed to assess the integrity and protectiveness of the sediment cap (see Sediment cap design document - add to final)
3. Identify the inputs to the Decision	Sediment cap bathymetry (evaluation of erosion/accretion) Visual observations of cap, benthic community, woody debris, etc. Hydrodynamic/sediment information - Surface sediment characteristics - River flow - Tidal data - Tissue Analysis as appropriate (e.g., crayfish) Transition zone water and surface water quality data

Attachment A - 2004 Data Quality Objectives
Table 2E - DQO Process for Sediment Cap
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
4. Define the Boundaries	Area of Sediment Cap (see figure X)
5. Develop a Decision Rule	TBD
6. Specify Tolerable Limits on Decision Error	TBD
7. Optimize the Design	TBD

Attachment A - 2004 Data Quality Objectives
Table 2F - DQO Process for Institutional Controls
McCormick and Baxter Superfund Site
Portland, Oregon

DQO Step	Output
1. State the Problem	**Human Health and Ecological Risk:** Institutional Controls are required by the ROD to control site land use and prevent site groundwater use. The effectiveness of institutional controls with regard to the protection of human health is unknown. Verification of site restrictions is necessary to demonstrate the long-term effectiveness and protectiveness of site institutional controls.
2. Identify the Decision to be Made	Determine if land use is compatible with the site remedy and maintains protection of human health and the environment. Verify groundwater at the site is not used to assure protection of human health. Verify restrictions are in place to prevent moorage or other disturbances to the sediment cap (see language in Sediment Cap design)
3. Identify the inputs to the Decision	TBD
4. Define the Boundaries	Upland site and inwater cap (see Figure X)
5. Develop a Decision Rule	TBD
6. Specify Tolerable Limits on Decision Error	TBD
7. Optimize the Design	TBD

McCormick & Baxter Technical Team Meeting Notes

Date: January 11, 2006

Attendees: Kevin Parrett, Heidi Blischke, Mike Poulsen, Jennifer Peterson/DEQ
Rene Fuentes, Nancy Harney/EPA
Jean Lee/EI (contractor representing Tribes)
Gayle Garman/Independent Contractor for NOAA
George Lukert/E&E (DEQ's Contractor)

Topics for Meeting:

- Compliance for Remedy – AWQC, Background, other?
- Additional Monitoring required for Operational and Functional (O&F) Period
- Monitoring Required for Operational and Maintenance Period (O&M)
- Groundwater Sampling upland?
- DNAPL Recovery

Conclusions:

Compliance for Remedy – AWQC, Background, other?

- Use 1996 AWQCs where available and for constituents without an AWQC will use background which will be determined by establishing a baseline for the site using the 2005 SW data.
- The 2006 5-year review will acknowledge Portland Harbor – but continue to use ROD required compliance numbers
- Will conduct flux chamber sampling in Spring 2006 to determine whether this is a better compliance point than surface water grab samples.
- Tables during O&F and O&M period will include both compliance and information screening values from both Portland Harbor (MCLs and JSCS Screening values) and M&B risk-based values derived as design goals
- The 2011 5-year review will assess the need to revise the ROD based on outcome for Portland Harbor
- The 2011 5-year review will provide basis to determine whether site warrants delisting from national priority listing (NPL)

Additional Monitoring required for Operational and Functional (O&F) Period

- Sampling in Spring 2006 will consist of all monitoring wells, surface water grab, flux chamber, and pore water sampling for PCP, PAHs, and total metals. Groundwater samples will also be analyzed for TPH-dx with and without silica gel cleanup. Samples will not be filtered.
- Wells will be monitored monthly for LNAPL and DNAPL as well as obtaining water levels
- Transducer data will be collected monthly from the barrier wall wells.
- NAPL will be recovered weekly from NAPL recovery wells

Monitoring Required for Operational and Maintenance Period (O&M)

- Many of the details of the O&M sampling will be determined towards the end of the O&F period.
- Crayfish, Sculpin and Clams will be sampled (if present) for tissue analysis in Fall 2006 and annually through Fall 2010. Need for sampling beyond 2010 will be determined in the 2011 5-year review.
- Surface water, Flux Chamber and Pore water sampling for PCP, PAHs, and total metals will occur semi-annually through Spring 2010. Frequency beyond that will be determined at the 2011 5-year review. Low-level detection limits will be used so that data can be compared to the Portland Harbor Screening values. Samples will not be filtered.
- Need for, locations, and frequency of groundwater sampling will be determined after we obtain the baseline groundwater analytical data (towards the end of the O&F period).
- Groundwater monitoring (fluid levels) frequency to be determined.
- NAPL recovery will continue manually within the barrier wall. NAPL recovery outside the wall at the FWDA will at a minimum continue manually but is being evaluated whether additional investigation and enhanced system is necessary.

Groundwater Sampling upland?

- One complete Round of groundwater sampling will occur in the Spring 2006 (part of the O&F period) to capture a complete snapshot of dissolved constituents in groundwater with the purpose of verifying the Site Conceptual Model.
- Groundwater will be sampled for PCP, PAHs, total metals and TPH-dx with and without silica gel cleanup. Samples will not be filtered.
- Additional groundwater sampling into the O&M period is to be determined.

DNAPL Recovery

- Continued Manual NAPL recovery from within the barrier wall. If additional wells show NAPL, these wells would be added to the NAPL recovery wells.
- No recovery outside wall in TFA, we will rely on the organoclay to sorb NAPL seeping towards the river. Additional organoclay will be added as required.
- NAPL recovery outside the wall at the FWDA will at a minimum continue manually but is being evaluated whether additional investigation and enhanced system is necessary.

General Meeting Notes

Additional Sampling During the O&F Period

Gayle suggests semi-annual sampling so that we have more of an average of conditions. We have not conducted a wet season sampling event.

Include Crayfish for O&M Fall Sampling with goal of removing crayfish advisory. Maybe include sculpin and clams if they are present at the site with the goal of evaluating the contribution to receptors from the site.

Include flux chambers with goal of using for SW compliance

Sample SW and subarmoring pore water

Use ROD AWQCs

Use M&B baseline levels as background
Use grab samples (low DL) for compliance – don't use SPMDs
Any SPMD data would be informational only
Don't use SPMDs in future sampling

Have 5-year review evaluate O&M data along with Portland Harbor information to determine whether site is protective

Data table shows compliance concentrations and non-compliance informational only values

Mike P. will perform statistical analysis of the 2005 SW data to determine baseline values for SW

Figures will indicate <MDL, baseline, 10X baseline, AWQC or 100Xbaseline if AWQC not available

For non-compliance informational usage, have tables show MCLs, lowest PH Joint Source Control Strategy Values, and M&B Design Goals

Figures show metals, Naphthalene, Fluoranthene, Acenaphthene, CPAHs, TPAHs, Phenanthrene, and Fluorene. Naphthalene, Fluoranthene and acenaphthene have AWQCs that will be used as ranges in the mapping while phenanthrene and fluorine will be mapped as they are of interest but do not have AWQCs to compare. One hundred times baseline will be used as the mapping range.

Sampling will not include filtering – will only collect total metals not dissolved.

Jennifer recommended sculpin for indicator species (Fall O&M only) and maybe clams if in overlay sand.

Similar sample locations for the Spring as were collected in the Fall – with the exception of locations that are inaccessible due to Organoclay blanket placement under bridge where rip-rap is now present.

Reduced locations for the O&M period.

Groundwater Sampling

Currently the plan is to sample one well near MW-1s area and one well downgradient of the retention pond.

O&M plan will be reassessed during 5-year reviews at a minimum

Why dissolved monitoring:

- Rene said that the NAPL is hard to find and dissolved will give us an idea whether NAPL is present and quantify the dissolved loading to the river
- Need to know flux to the river
- Objective to verify conceptual model

DEQ will prepare cost estimate for sampling existing monitoring wells for PCPs, PAHs, and TPH with and without silica gel cleanup

Conduct baseline sampling of groundwater for verifying conceptual site model this Spring

EPA to look for additional funding

NAPL Recovery

Inside Wall:

- Current approach is to continue NAPL recovery inside barrier wall as long as cost/recovery ratio is low. Goal is to provide additional safety factor for containment.

- DEQ will discuss with group prior to discontinuing NAPL recovery within the barrier wall

- Will continue to monitor for DNAPL and LNAPL in all wells monthly.

Outside wall at TFA:

- No NAPL recovery outside barrier wall at the TFA unless NAPL accumulation is observed in TFA exterior wells

Outside wall at FWDA:

- OC Blanket costs approx. $10/sq. ft. for construction (includes armoring, not including contract administration and oversight.)
- Options for FWDA include:
    - Continue on current path of manual extraction
    - Slight enhancement to current manual extraction
    - Additional investigation with major enhancement of hydraulic recovery system
- DEQ to prepare summary of NAPL distribution outside wall and team will reconvene next month to continue NAPL recovery discussion

ATTACHMENT B
GROUNDWATER ANALYTICAL LABORATORY REPORTS

Included only on the O&M Report DVD

ATTACHMENT B
QUALITY ASSURANCE REPORT

This appendix documents the results of a quality assurance (QA) review of the analytical data for the groundwater samples collected on May 6, 2010. Hart Crowser submitted samples to Pace Analytical, Services, Inc. (Pace), of Minneapolis, MN, for chemical analysis. The results were reported as sample delivery group (SDG) Number 10128363. A copy of the analytical laboratory report is included in Appendix A.

The following criteria were evaluated:

- Sample receiving condition;
- Holding times;
- Method blanks;
- Surrogate recoveries;
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries;
- Matrix spike and matrix spike duplicate (MS/MSD) recoveries;
- Laboratory duplicate relative percent difference (RPD);
- Field duplicate RPDs;
- Reporting limits (RL).

The data were determined to be acceptable for use, as qualified. Some results were rejected (R) due to LCS failures, but the samples were re-prepared and re-analyzed and results reported from the reanalyses. Rejected data (R) is summarized below:

Summary of Rejected Data (R) by Analysis Class and Analyte

Sample	Analyte	Reason for Qualification	Corrective Action
Polycyclic Aromatic Hydrocarbons by EPA 8270-SIM			
EW19s-050610, MW35r-050610 MW37s-050610, MW37s-050610dup, MW37i-050610, MW37d-050610, MW39s-050610, MW41s-050610, MW47s-050610, MW53s-050310, MW55s-050610, MW58s-050610	Dibenz(a,h)anthracene	LCS failure	Samples re-extracted and reanalyzed outside of method holding time. Dibenz(a,h)anthracene reported from re-extraction as estimated (J). Initial results for Dibenz(a,h)anthracene rejected (R). Remaining PAHs reported from initial analysis without qualification; re-extracted results rejected (R).

CHEMICAL ANALYSES ON WATERS

Analytical Methods

A total of eleven water samples were collected. One field duplicate sample was also collected. The samples were analyzed for one or more of the following:

- Total metals (arsenic, chromium, copper, and zinc) by EPA Method 6020;
- Polycyclic aromatic hydrocarbon (PAHs) by EPA Method 8270-SIM; and
- Pentachlorophenol (PCP) by EPA Method 8270-SIM;

Detection and Reporting Limits

Method detection limits (MDLs) are the minimum concentration of a chemical compound that can be measured and reported that the compound is present, and is based on instrumentation abilities and sample matrix. Method reporting limits (RLs) are set by the laboratory and are based on the low standard of the initial calibration curve or low-level calibration check standard, and represent the

concentration that can be accurately quantified. In some cases, the RL is raised due to dilutions or matrix interferences.

The laboratory reported the total metals to the MDL. The comparison criteria for the target metals chromium, copper, and zinc were higher than the RLs for those metals. The comparison criterium for arsenic was below the RL but above the MDL. Values that fell between the MDL and the RL were qualified as estimated (J) by the laboratory.

The laboratory reported the PAHs and PCP to the MDL. The comparison criteria for the PAHs were below the RL but above the MDL. Values that fell between the MDL and the RL were qualified as estimated (J) by the laboratory.

QA Review Results

The laboratory provided QC sample results, which underwent a QA review. QC samples were consistent with those specified in the OMM to evaluate precision, accuracy, representativeness, comparability, and completeness.

A field duplicate and extra sample volume for MS/MSD samples were collected.

Upon review, the sample data and laboratory QC data were generally found to be suitable for their intended use with qualifications. The following section summarizes the results of our QA review of the analytical data.

Laboratory Sample Receipt

Sample/Cooler Temperatures. The receiving temperatures were within the 2 to 6°C acceptance criteria.

Total Metals

Holding Times and Reporting Limits. All required holding times were met. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Method Blank. The method blank was non-detect.

Laboratory Control Samples. LCS recoveries were within control limits for all elements.

Matrix Spikes. MS recoveries were within control limits for all elements.

Duplicates. No laboratory duplicate analyses were performed. The field duplicate RPDs were within QAPP control limits of 25 percent.

Calibrations. The laboratory case narrative indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

PAHs

Holding Times and Reporting Limits. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Holding times were met for the initial extraction and analyses. All re-extraction analyses exceeded the method recommended holding time and the laboratory qualified the results with "H5". The H5 qualifier was changed to "J". Samples were re-extracted due to LCS failures.

Method Blanks. Method blanks were non-detect.

Surrogates. Surrogate recoveries were within laboratory control limits.

Laboratory Control Samples. LCS recoveries were within laboratory control limits with the following exceptions:

- LCS 05/10/10: The recovery for Dibenz(a,h)anthracene fell below the control limit and results in the associated samples were qualified as "L2". The samples were re-extracted outside of the method holding time and qualified as "H5". Results for Dibenz(a,h)anthracene were reported from the re-analyses and qualified as estimated (J). Results for Dibenz(a,h)anthracene in the original analyses were rejected (R). The results for the other target analytes were reported from the original analyses without qualification. The results for the other target analytes for the re-extracted samples were rejected (R).

Matrix Spikes. MS/MSD recoveries were within laboratory control limits.

Duplicates. Field duplicate RPDs were within QAPP control limits of 50 percent or were not applicable if target analytes were not detected above the reporting limits, with the following exceptions:

- MW37s-050610/MW37s-050610dup: The RPDs for Anthracene, Fluoranthene, Naphthalene, Phenanthrene, and Pyrene exceeded 50%. The results for Fluoranthene and Pyrene were less than five times the RL. No results were qualified due to field duplicate exceedances.

Internal Standards. The laboratory case narratives indicated that all IS were within acceptance criteria.

Calibrations. The laboratory case narratives indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

PCP

Holding Times and Reporting Limits. Holding times were met. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Method Blank. The method blank had a detection for PCP between the MDL and the RL. The laboratory qualified PCP results above the MDL in the associated samples with "B". The results for PCP in the associated samples MW35r-050610, MW37d-050610, MW39s-050610, MW41s-050610, MW47s-050610, MW55s-050610, and MW58s-050610 fell between the MDL and the RL, and were raised to the RL, qualified as non-detect (U), and the B qualifier removed. The result for PCP in the associated sample MW37i-050610 was less than five times the amount in the method blank, and was qualified as non-detect (U). The results for PCP in the associated samples EW19s-050610, MW37s-050610, MW37s-050610dup, and MW53s-050310 were greater than five times the amount in the method blank, and the B qualifier was removed.

Surrogates. Surrogate recoveries were within laboratory control limits with the following exceptions:

- EW19s-050610, MW37s-050610, MW37s-050610dup, and MW53s-050310: The recovery of the surrogate 2,4,6-tribromophenol was reported as 0%. The laboratory did not evaluate the surrogate recoveries due to high levels of sample dilution. The sample results were not qualified.

Laboratory Control Samples. LCS recoveries were within laboratory control limits.

Matrix Spikes. MS/MSD recoveries were within laboratory control limits

Duplicates. Field duplicate RPDs were within QAPP control limits.

Internal Standards. The laboratory case narratives indicated that all IS were within acceptance criteria.

Calibrations. The laboratory case narratives indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

June 04, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on May 08, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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(612)607-1700

CERTIFICATIONS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
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Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10128363001	**EW19s-050610**	Water	05/06/10 14:55	05/08/10 11:07
10128363002	**MW35r-050610**	Water	05/06/10 08:11	05/08/10 11:07
10128363003	**MW37s-050610**	Water	05/06/10 14:20	05/08/10 11:07
10128363004	**MW37s-050610DUP**	Water	05/06/10 14:20	05/08/10 11:07
10128363005	**MW37i-050610**	Water	05/06/10 13:35	05/08/10 11:07
10128363006	**MW37d-050610**	Water	05/06/10 13:09	05/08/10 11:07
10128363007	**MW39s-050610**	Water	05/06/10 11:01	05/08/10 11:07
10128363008	**MW41s-050610**	Water	05/06/10 12:08	05/08/10 11:07
10128363009	**MW47s-050610**	Water	05/06/10 12:20	05/08/10 11:07
10128363010	**MW53s-050610**	Water	05/06/10 10:10	05/08/10 11:07
10128363011	**MW55s-050610**	Water	05/06/10 09:10	05/08/10 11:07
10128363012	**MW58s-050610**	Water	05/06/10 10:36	05/08/10 11:07
10128363014	**EW19s-050610 Rerun**	Water	05/06/10 14:55	05/08/10 11:07
10128363015	**MW35r-050610 Rerun**	Water	05/06/10 08:11	05/08/10 11:07
10128363016	**MW37s-050610 Rerun**	Water	05/06/10 14:20	05/08/10 11:07
10128363017	**MW37s-050610DUP Rerun**	Water	05/06/10 14:20	05/08/10 11:07
10128363018	**MW37i-050610 Rerun**	Water	05/06/10 13:35	05/08/10 11:07
10128363019	**MW37d-050610 Rerun**	Water	05/06/10 13:09	05/08/10 11:07
10128363020	**MW39s-050610 Rerun**	Water	05/06/10 11:01	05/08/10 11:07
10128363021	**MW41s-050610 Rerun**	Water	05/06/10 12:08	05/08/10 11:07
10128363022	**MW47s-050610 Rerun**	Water	05/06/10 12:20	05/08/10 11:07
10128363023	**MW53s-050610 Rerun**	Water	05/06/10 10:10	05/08/10 11:07
10128363024	**MW55s-050610 Rerun**	Water	05/06/10 09:10	05/08/10 11:07
10128363025	**MW58s-050610 Rerun**	Water	05/06/10 10:36	05/08/10 11:07

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SAMPLE ANALYTE COUNT

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10128363001	**EW19s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363002	**MW35r-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363003	**MW37s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363004	**MW37s-050610DUP**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363005	**MW37i-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363006	**MW37d-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363007	**MW39s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363008	**MW41s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363009	**MW47s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363010	**MW53s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363011	**MW55s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363012	**MW58s-050610**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10128363014	**EW19s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M

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SAMPLE ANALYTE COUNT

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10128363015	**MW35r-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363016	**MW37s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363017	**MW37s-050610DUP Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363018	**MW37i-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363019	**MW37d-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363020	**MW39s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363021	**MW41s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363022	**MW47s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363023	**MW53s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363024	**MW55s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M
10128363025	**MW58s-050610 Rerun**	EPA 8270 by SIM	HRG	18	PASI-M

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PROJECT NARRATIVE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: June 04, 2010

General Information:
12 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: June 04, 2010

General Information:
24 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
- EW19s-050610 (Lab ID: 10128363001)
- MW35r-050610 (Lab ID: 10128363002)
- MW37d-050610 (Lab ID: 10128363006)
- MW37i-050610 (Lab ID: 10128363005)
- MW37s-050610 (Lab ID: 10128363003)
- MW37s-050610DUP (Lab ID: 10128363004)
- MW39s-050610 (Lab ID: 10128363007)
- MW41s-050610 (Lab ID: 10128363008)
- MW47s-050610 (Lab ID: 10128363009)
- MW53s-050610 (Lab ID: 10128363010)
- MW55s-050610 (Lab ID: 10128363011)
- MW58s-050610 (Lab ID: 10128363012)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H5: Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
- EW19s-050610 Rerun (Lab ID: 10128363014)
- MW35r-050610 Rerun (Lab ID: 10128363015)
- MW37d-050610 Rerun (Lab ID: 10128363019)
- MW37i-050610 Rerun (Lab ID: 10128363018)
- MW37s-050610 Rerun (Lab ID: 10128363016)
- MW37s-050610DUP Rerun (Lab ID: 10128363017)
- MW39s-050610 Rerun (Lab ID: 10128363020)
- MW41s-050610 Rerun (Lab ID: 10128363021)
- MW47s-050610 Rerun (Lab ID: 10128363022)
- MW53s-050610 Rerun (Lab ID: 10128363023)
- MW55s-050610 Rerun (Lab ID: 10128363024)
- MW58s-050610 Rerun (Lab ID: 10128363025)

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: June 04, 2010

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/12896

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 787448)
  - Dibenz(a,h)anthracene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: June 04, 2010

General Information:
12 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.
- EW19s-050610 (Lab ID: 10128363001)
- MW35r-050610 (Lab ID: 10128363002)
- MW37d-050610 (Lab ID: 10128363006)
- MW37i-050610 (Lab ID: 10128363005)
- MW37s-050610 (Lab ID: 10128363003)
- MW37s-050610DUP (Lab ID: 10128363004)
- MW39s-050610 (Lab ID: 10128363007)
- MW41s-050610 (Lab ID: 10128363008)
- MW47s-050610 (Lab ID: 10128363009)
- MW53s-050610 (Lab ID: 10128363010)
- MW55s-050610 (Lab ID: 10128363011)
- MW58s-050610 (Lab ID: 10128363012)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/12916

S4: Surrogate recovery not evaluated against control limits due to sample dilution.
- EW19s-050610 (Lab ID: 10128363001)
  - 2,4,6-Tribromophenol (S)
- MW37s-050610 (Lab ID: 10128363003)
  - 2,4,6-Tribromophenol (S)
- MW37s-050610DUP (Lab ID: 10128363004)
  - 2,4,6-Tribromophenol (S)
- MW53s-050610 (Lab ID: 10128363010)
  - 2,4,6-Tribromophenol (S)

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PROJECT NARRATIVE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: June 04, 2010

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/12916

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- EW19s-050610 (Lab ID: 10128363001)
  - 2,4,6-Tribromophenol (S)
- MW37s-050610 (Lab ID: 10128363003)
  - 2,4,6-Tribromophenol (S)
- MW37s-050610DUP (Lab ID: 10128363004)
  - 2,4,6-Tribromophenol (S)
- MW53s-050610 (Lab ID: 10128363010)
  - 2,4,6-Tribromophenol (S)

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: EW19s-050610 **Lab ID: 10128363001** Collected: 05/06/10 14:55 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.4**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 00:33	7440-38-2	
Chromium	**2.5**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 00:33	7440-47-3	
Copper	**3.5**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 00:33	7440-50-8	
Zinc	**2.0J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 00:33	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**111**	ug/L	0.86	0.13	20	05/10/10 16:52	05/19/10 01:04	83-32-9	
Acenaphthylene	**3.1**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 04:44	208-96-8	
Anthracene	**14.7**	ug/L	0.86	0.11	20	05/10/10 16:52	05/19/10 01:04	120-12-7	
Benzo(a)anthracene	**7.3**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 04:44	56-55-3	
Benzo(a)pyrene	**2.9**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 04:44	50-32-8	
Benzo(b)fluoranthene	**4.9**	ug/L	0.32	0.0054	1	05/10/10 16:52	05/18/10 04:44	205-99-2	
Benzo(g,h,i)perylene	**0.82**	ug/L	0.043	0.0022	1	05/10/10 16:52	05/18/10 04:44	191-24-2	
Benzo(k)fluoranthene	**1.7**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 04:44	207-08-9	
Chrysene	**6.6**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 04:44	218-01-9	
Dibenz(a,h)anthracene	**0.055J**	ug/L	0.32	0.0043	1	05/10/10 16:52	05/18/10 04:44	53-70-3	~~L2~~ R
Fluoranthene	**39.3**	ug/L	0.86	0.086	20	05/10/10 16:52	05/19/10 01:04	206-44-0	
Fluorene	**52.9**	ug/L	0.86	0.065	20	05/10/10 16:52	05/19/10 01:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.91**	ug/L	0.32	0.0043	1	05/10/10 16:52	05/18/10 04:44	193-39-5	
Naphthalene	**284**	ug/L	4.3	0.60	100	05/10/10 16:52	06/03/10 13:04	91-20-3	
Phenanthrene	**88.4**	ug/L	0.86	0.13	20	05/10/10 16:52	05/19/10 01:04	85-01-8	
Pyrene	**28.1**	ug/L	0.86	0.13	20	05/10/10 16:52	05/19/10 01:04	129-00-0	
2-Fluorobiphenyl (S)	84	%	58-125		1	05/10/10 16:52	05/18/10 04:44	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	05/10/10 16:52	05/18/10 04:44	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**428**	ug/L	52.1	14.6	100	05/13/10 09:25	05/17/10 16:47	87-86-5	~~B~~
2,4,6-Tribromophenol (S)	0	%	30-150		100	05/13/10 09:25	05/17/10 16:47	118-79-6	D3,S4

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW35r-050610 **Lab ID: 10128363002** Collected: 05/06/10 08:11 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.76**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 00:37	7440-38-2	
Chromium	**0.41J**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 00:37	7440-47-3	
Copper	**0.73**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 00:37	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 00:37	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 01:46	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	05/10/10 16:52	05/18/10 01:46	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 01:46	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 01:46	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 01:46	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.32	0.0053	1	05/10/10 16:52	05/18/10 01:46	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	05/10/10 16:52	05/18/10 01:46	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 01:46	207-08-9	
Chrysene	**0.0053J**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 01:46	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.32	0.0042	1	05/10/10 16:52	05/18/10 01:46	53-70-3	~~L2~~ R
Fluoranthene	**0.012J**	ug/L	0.042	0.0042	1	05/10/10 16:52	05/18/10 01:46	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 01:46	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.32	0.0042	1	05/10/10 16:52	05/18/10 01:46	193-39-5	
Naphthalene	**0.020J**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 01:46	91-20-3	
Phenanthrene	**0.0084J**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 01:46	85-01-8	
Pyrene	**0.0064J**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 01:46	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	05/10/10 16:52	05/18/10 01:46	321-60-8	
Terphenyl-d14 (S)	74	%	57-134		1	05/10/10 16:52	05/18/10 01:46	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.52 ~~**0.26J**~~	ug/L	0.52	0.15	1	05/13/10 09:25	05/14/10 15:51	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	76	%	30-150		1	05/13/10 09:25	05/14/10 15:51	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37s-050610 **Lab ID: 10128363003** Collected: 05/06/10 14:20 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.5**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 00:42	7440-38-2	
Chromium	**1.5**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 00:42	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 00:42	7440-50-8	
Zinc	**2.1J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 00:42	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**44.7**	ug/L	0.41	0.062	10	05/10/10 16:52	05/19/10 00:28	83-32-9	
Acenaphthylene	**1.0**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 02:04	208-96-8	
Anthracene	**0.76**	ug/L	0.041	0.0052	1	05/10/10 16:52	05/18/10 02:04	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:04	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:04	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.31	0.0052	1	05/10/10 16:52	05/18/10 02:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	05/10/10 16:52	05/18/10 02:04	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	05/10/10 16:52	05/18/10 02:04	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 02:04	53-70-3	~~L2~~ R
Fluoranthene	**0.13**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 02:04	206-44-0	
Fluorene	**18.8**	ug/L	0.41	0.031	10	05/10/10 16:52	05/19/10 00:28	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 02:04	193-39-5	
Naphthalene	**406**	ug/L	2.1	0.29	50	05/10/10 16:52	06/03/10 13:22	91-20-3	
Phenanthrene	**4.4**	ug/L	0.041	0.0062	1	05/10/10 16:52	05/18/10 02:04	85-01-8	
Pyrene	**0.10**	ug/L	0.041	0.0062	1	05/10/10 16:52	05/18/10 02:04	129-00-0	
2-Fluorobiphenyl (S)	81	%	58-125		1	05/10/10 16:52	05/18/10 02:04	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	05/10/10 16:52	05/18/10 02:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**158**	ug/L	26.6	7.4	50	05/13/10 09:25	05/17/10 15:55	87-86-5	~~B~~
2,4,6-Tribromophenol (S)	0	%	30-150		50	05/13/10 09:25	05/17/10 15:55	118-79-6	D3,S4

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37s-050610DUP **Lab ID: 10128363004** Collected: 05/06/10 14:20 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.8**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 00:46	7440-38-2	
Chromium	**1.6**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 00:46	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 00:46	7440-50-8	
Zinc	**1.9J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 00:46	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**37.7**	ug/L	2.1	0.17	50	05/10/10 16:52	06/03/10 13:40	83-32-9	
Acenaphthylene	**1.4**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 02:22	208-96-8	
Anthracene	**1.4**	ug/L	0.043	0.0053	1	05/10/10 16:52	05/18/10 02:22	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 02:22	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 02:22	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.32	0.0053	1	05/10/10 16:52	05/18/10 02:22	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	05/10/10 16:52	05/18/10 02:22	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	05/10/10 16:52	05/18/10 02:22	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 02:22	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.32	0.0043	1	05/10/10 16:52	05/18/10 02:22	53-70-3	~~L2~~ R
Fluoranthene	**0.29**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 02:22	206-44-0	
Fluorene	**27.0**	ug/L	0.21	0.016	5	05/10/10 16:52	05/19/10 00:46	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.32	0.0043	1	05/10/10 16:52	05/18/10 02:22	193-39-5	
Naphthalene	**168**	ug/L	2.1	0.30	50	05/10/10 16:52	06/03/10 13:40	91-20-3	
Phenanthrene	**10.2**	ug/L	0.043	0.0064	1	05/10/10 16:52	05/18/10 02:22	85-01-8	
Pyrene	**0.23**	ug/L	0.043	0.0064	1	05/10/10 16:52	05/18/10 02:22	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	05/10/10 16:52	05/18/10 02:22	321-60-8	
Terphenyl-d14 (S)	74	%	57-134		1	05/10/10 16:52	05/18/10 02:22	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**148**	ug/L	25.8	7.2	50	05/13/10 09:25	05/17/10 16:12	87-86-5	~~B~~
2,4,6-Tribromophenol (S)	0	%	30-150		50	05/13/10 09:25	05/17/10 16:12	118-79-6	D3,S4

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37i-050610 **Lab ID: 10128363005** Collected: 05/06/10 13:35 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**38.8**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 00:51	7440-38-2	
Chromium	**2.4**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 00:51	7440-47-3	
Copper	**4.6**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 00:51	7440-50-8	
Zinc	**13.1**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 00:51	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**6.6**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 02:40	83-32-9	
Acenaphthylene	**0.039J**	ug/L	0.042	0.0042	1	05/10/10 16:52	05/18/10 02:40	208-96-8	
Anthracene	**0.043**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 02:40	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 02:40	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 02:40	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.32	0.0053	1	05/10/10 16:52	05/18/10 02:40	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	05/10/10 16:52	05/18/10 02:40	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 02:40	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 02:40	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.32	0.0042	1	05/10/10 16:52	05/18/10 02:40	53-70-3	~~L2~~ R
Fluoranthene	**0.011J**	ug/L	0.042	0.0042	1	05/10/10 16:52	05/18/10 02:40	206-44-0	
Fluorene	**0.34**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 02:40	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.32	0.0042	1	05/10/10 16:52	05/18/10 02:40	193-39-5	
Naphthalene	**0.30**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 02:40	91-20-3	
Phenanthrene	**0.033J**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 02:40	85-01-8	
Pyrene	**0.011J**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 02:40	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	05/10/10 16:52	05/18/10 02:40	321-60-8	
Terphenyl-d14 (S)	73	%	57-134		1	05/10/10 16:52	05/18/10 02:40	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.82**	ug/L	0.53	0.15	1	05/13/10 09:25	05/14/10 16:43	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	110	%	30-150		1	05/13/10 09:25	05/14/10 16:43	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37d-050610 **Lab ID: 10128363006** Collected: 05/06/10 13:09 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.7**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 00:55	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 00:55	7440-47-3	
Copper	**3.2**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 00:55	7440-50-8	
Zinc	**34.1**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 00:55	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.11**	ug/L	0.040	0.0060	1	05/10/10 16:52	05/14/10 00:48	83-32-9	
Acenaphthylene	**<0.0040**	ug/L	0.040	0.0040	1	05/10/10 16:52	05/14/10 00:48	208-96-8	
Anthracene	**0.059**	ug/L	0.040	0.0050	1	05/10/10 16:52	05/14/10 00:48	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.040	0.0030	1	05/10/10 16:52	05/14/10 00:48	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	05/10/10 16:52	05/14/10 00:48	50-32-8	
Benzo(b)fluoranthene	**<0.0050**	ug/L	0.040	0.0050	1	05/10/10 16:52	05/14/10 00:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.040	0.0020	1	05/10/10 16:52	05/14/10 00:48	191-24-2	
Benzo(k)fluoranthene	**<0.0050**	ug/L	0.040	0.0050	1	05/10/10 16:52	05/14/10 00:48	207-08-9	
Chrysene	**<0.0030**	ug/L	0.040	0.0030	1	05/10/10 16:52	05/14/10 00:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0040**	ug/L	0.040	0.0040	1	05/10/10 16:52	05/14/10 00:48	53-70-3	~~L2~~ R
Fluoranthene	**<0.0040**	ug/L	0.040	0.0040	1	05/10/10 16:52	05/14/10 00:48	206-44-0	
Fluorene	**<0.0030**	ug/L	0.040	0.0030	1	05/10/10 16:52	05/14/10 00:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0040**	ug/L	0.040	0.0040	1	05/10/10 16:52	05/14/10 00:48	193-39-5	
Naphthalene	**<0.0050**	ug/L	0.040	0.0050	1	05/10/10 16:52	05/14/10 00:48	91-20-3	
Phenanthrene	**<0.0060**	ug/L	0.040	0.0060	1	05/10/10 16:52	05/14/10 00:48	85-01-8	
Pyrene	**<0.0060**	ug/L	0.040	0.0060	1	05/10/10 16:52	05/14/10 00:48	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	05/10/10 16:52	05/14/10 00:48	321-60-8	
Terphenyl-d14 (S)	79	%	57-134		1	05/10/10 16:52	05/14/10 00:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.51 ~~**0.47J**~~	ug/L	0.51	0.14	1	05/13/10 09:25	05/14/10 17:00	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	116	%	30-150		1	05/13/10 09:25	05/14/10 17:00	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW39s-050610 **Lab ID: 10128363007** Collected: 05/06/10 11:01 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**12.1**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 01:21	7440-38-2	
Chromium	**1.4**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 01:21	7440-47-3	
Copper	1.7	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 01:21	7440-50-8	
Zinc	**2.8J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 01:21	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.021J**	ug/L	0.041	0.0061	1	05/10/10 16:52	05/18/10 02:57	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 02:57	208-96-8	
Anthracene	**0.051**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 02:57	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:57	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:57	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.31	0.0051	1	05/10/10 16:52	05/18/10 02:57	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	05/10/10 16:52	05/18/10 02:57	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 02:57	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:57	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 02:57	53-70-3	~~L2~~ R
Fluoranthene	**0.026J**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 02:57	206-44-0	
Fluorene	**0.011J**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 02:57	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 02:57	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 02:57	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	05/10/10 16:52	05/18/10 02:57	85-01-8	
Pyrene	**0.023J**	ug/L	0.041	0.0061	1	05/10/10 16:52	05/18/10 02:57	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	05/10/10 16:52	05/18/10 02:57	321-60-8	
Terphenyl-d14 (S)	72	%	57-134		1	05/10/10 16:52	05/18/10 02:57	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.54 ~~**0.32J**~~	ug/L	0.54	0.15	1	05/13/10 09:25	05/14/10 17:52	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	95	%	30-150		1	05/13/10 09:25	05/14/10 17:52	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW41s-050610 **Lab ID: 10128363008** Collected: 05/06/10 12:08 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.5**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 01:26	7440-38-2	
Chromium	**2.0**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 01:26	7440-47-3	
Copper	**1.3**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 01:26	7440-50-8	
Zinc	**2.1J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 01:26	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.17**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 03:15	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	05/10/10 16:52	05/18/10 03:15	208-96-8	
Anthracene	**0.059**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 03:15	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 03:15	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 03:15	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.32	0.0053	1	05/10/10 16:52	05/18/10 03:15	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	05/10/10 16:52	05/18/10 03:15	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 03:15	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 03:15	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.32	0.0042	1	05/10/10 16:52	05/18/10 03:15	53-70-3	~~12~~ R
Fluoranthene	**0.0082J**	ug/L	0.042	0.0042	1	05/10/10 16:52	05/18/10 03:15	206-44-0	
Fluorene	**0.17**	ug/L	0.042	0.0032	1	05/10/10 16:52	05/18/10 03:15	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.32	0.0042	1	05/10/10 16:52	05/18/10 03:15	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	05/10/10 16:52	05/18/10 03:15	91-20-3	
Phenanthrene	**0.023J**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 03:15	85-01-8	
Pyrene	**0.0080J**	ug/L	0.042	0.0063	1	05/10/10 16:52	05/18/10 03:15	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	05/10/10 16:52	05/18/10 03:15	321-60-8	
Terphenyl-d14 (S)	75	%	57-134		1	05/10/10 16:52	05/18/10 03:15	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.53 ~~**0.29J**~~	ug/L	0.53	0.15	1	05/13/10 09:25	05/14/10 18:10	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	102	%	30-150		1	05/13/10 09:25	05/14/10 18:10	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW47s-050610 **Lab ID: 10128363009** Collected: 05/06/10 12:20 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**10.7**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 01:30	7440-38-2	
Chromium	**1.5**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 01:30	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 01:30	7440-50-8	
Zinc	**4.8J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 01:30	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**2.1**	ug/L	0.043	0.0065	1	05/10/10 16:52	05/18/10 03:33	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 03:33	208-96-8	
Anthracene	**0.023J**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 03:33	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 03:33	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 03:33	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.32	0.0054	1	05/10/10 16:52	05/18/10 03:33	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	05/10/10 16:52	05/18/10 03:33	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 03:33	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 03:33	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.32	0.0043	1	05/10/10 16:52	05/18/10 03:33	53-70-3	~~L2~~ R
Fluoranthene	**0.018J**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 03:33	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	05/10/10 16:52	05/18/10 03:33	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.32	0.0043	1	05/10/10 16:52	05/18/10 03:33	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 03:33	91-20-3	
Phenanthrene	**0.048**	ug/L	0.043	0.0065	1	05/10/10 16:52	05/18/10 03:33	85-01-8	
Pyrene	**0.014J**	ug/L	0.043	0.0065	1	05/10/10 16:52	05/18/10 03:33	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	05/10/10 16:52	05/18/10 03:33	321-60-8	
Terphenyl-d14 (S)	73	%	57-134		1	05/10/10 16:52	05/18/10 03:33	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.53 ~~**0.28J**~~	ug/L	0.53	0.15	1	05/13/10 09:25	05/14/10 18:27	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	97	%	30-150		1	05/13/10 09:25	05/14/10 18:27	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW53s-050610 **Lab ID: 10128363010** Collected: 05/06/10 10:10 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**18.1**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 01:35	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 01:35	7440-47-3	
Copper	**7.1**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 01:35	7440-50-8	
Zinc	**10.3**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 01:35	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.011J**	ug/L	0.041	0.0062	1	05/10/10 16:52	05/18/10 03:51	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 03:51	208-96-8	
Anthracene	**0.16**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 03:51	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 03:51	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 03:51	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.31	0.0051	1	05/10/10 16:52	05/18/10 03:51	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	05/10/10 16:52	05/18/10 03:51	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 03:51	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 03:51	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 03:51	53-70-3	~~LZ~~ R
Fluoranthene	**0.011J**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 03:51	206-44-0	
Fluorene	**0.017J**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 03:51	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 03:51	193-39-5	
Naphthalene	**0.45**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 03:51	91-20-3	
Phenanthrene	**0.019J**	ug/L	0.041	0.0062	1	05/10/10 16:52	05/18/10 03:51	85-01-8	
Pyrene	**0.014J**	ug/L	0.041	0.0062	1	05/10/10 16:52	05/18/10 03:51	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	05/10/10 16:52	05/18/10 03:51	321-60-8	
Terphenyl-d14 (S)	69	%	57-134		1	05/10/10 16:52	05/18/10 03:51	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**68.4**	ug/L	10.2	2.9	20	05/13/10 09:25	05/17/10 16:30	87-86-5	~~B~~
2,4,6-Tribromophenol (S)	0	%	30-150		20	05/13/10 09:25	05/17/10 16:30	118-79-6	D3,S4

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW55s-050610 **Lab ID: 10128363011** Collected: 05/06/10 09:10 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.8**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 01:39	7440-38-2	
Chromium	**0.86**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 01:39	7440-47-3	
Copper	**2.1**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 01:39	7440-50-8	
Zinc	**6.0**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 01:39	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	05/10/10 16:52	05/18/10 04:09	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 04:09	208-96-8	
Anthracene	**0.022J**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 04:09	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 04:09	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 04:09	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.31	0.0051	1	05/10/10 16:52	05/18/10 04:09	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	05/10/10 16:52	05/18/10 04:09	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 04:09	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 04:09	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 04:09	53-70-3	~~L2~~ R
Fluoranthene	**0.013J**	ug/L	0.041	0.0041	1	05/10/10 16:52	05/18/10 04:09	206-44-0	
Fluorene	**0.0034J**	ug/L	0.041	0.0031	1	05/10/10 16:52	05/18/10 04:09	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.31	0.0041	1	05/10/10 16:52	05/18/10 04:09	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	05/10/10 16:52	05/18/10 04:09	91-20-3	
Phenanthrene	**0.0099J**	ug/L	0.041	0.0061	1	05/10/10 16:52	05/18/10 04:09	85-01-8	
Pyrene	**0.0092J**	ug/L	0.041	0.0061	1	05/10/10 16:52	05/18/10 04:09	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	05/10/10 16:52	05/18/10 04:09	321-60-8	
Terphenyl-d14 (S)	71	%	57-134		1	05/10/10 16:52	05/18/10 04:09	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol 0.57	~~**0.30J**~~	ug/L	0.51	0.14	1	05/13/10 09:25	05/14/10 19:02	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	100	%	30-150		1	05/13/10 09:25	05/14/10 19:02	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW58s-050610 **Lab ID: 10128363012** Collected: 05/06/10 10:36 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.62**	ug/L	0.50	0.062	1	05/12/01 06:16	05/15/10 01:43	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	05/12/01 06:16	05/15/10 01:43	7440-47-3	
Copper	**2.3**	ug/L	0.50	0.20	1	05/12/01 06:16	05/15/10 01:43	7440-50-8	
Zinc	**2.9J**	ug/L	5.0	1.3	1	05/12/01 06:16	05/15/10 01:43	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	05/10/10 16:52	05/18/10 04:27	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 04:27	208-96-8	
Anthracene	**0.0084J**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 04:27	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	05/10/10 16:52	05/18/10 04:27	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	05/10/10 16:52	05/18/10 04:27	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.33	0.0054	1	05/10/10 16:52	05/18/10 04:27	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	05/10/10 16:52	05/18/10 04:27	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 04:27	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	05/10/10 16:52	05/18/10 04:27	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.33	0.0043	1	05/10/10 16:52	05/18/10 04:27	53-70-3	~~L2~~ R
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	05/10/10 16:52	05/18/10 04:27	206-44-0	
Fluorene	**0.0057J**	ug/L	0.043	0.0033	1	05/10/10 16:52	05/18/10 04:27	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.33	0.0043	1	05/10/10 16:52	05/18/10 04:27	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	05/10/10 16:52	05/18/10 04:27	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	05/10/10 16:52	05/18/10 04:27	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	05/10/10 16:52	05/18/10 04:27	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	05/10/10 16:52	05/18/10 04:27	321-60-8	
Terphenyl-d14 (S)	76	%	57-134		1	05/10/10 16:52	05/18/10 04:27	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.56 ~~**0.29J**~~	ug/L	0.56	0.16	1	05/13/10 09:25	05/14/10 19:19	87-86-5	~~B~~ U
2,4,6-Tribromophenol (S)	89	%	30-150		1	05/13/10 09:25	05/14/10 19:19	118-79-6	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: EW19s-050610 Rerun **Lab ID: 10128363014** Collected: 05/06/10 14:55 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**75.3**	ug/L	1.0	0.15	25	05/19/10 18:31	05/26/10 01:31	83-32-9	R
Acenaphthylene	**2.0**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 12:16	208-96-8	
Anthracene	**7.9**	ug/L	0.041	0.0069	1	05/19/10 18:31	05/22/10 12:16	120-12-7	
Benzo(a)anthracene	**4.4**	ug/L	0.041	0.0024	1	05/19/10 18:31	05/22/10 12:16	56-55-3	
Benzo(a)pyrene	**2.2**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 12:16	50-32-8	
Benzo(b)fluoranthene	**2.9**	ug/L	0.041	0.021	1	05/19/10 18:31	05/22/10 12:16	205-99-2	
Benzo(g,h,i)perylene	**0.83**	ug/L	0.041	0.0056	1	05/19/10 18:31	05/22/10 12:16	191-24-2	
Benzo(k)fluoranthene	**2.0**	ug/L	0.041	0.0040	1	05/19/10 18:31	05/22/10 12:16	207-08-9	
Chrysene	**4.7**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 12:16	218-01-9	
Dibenz(a,h)anthracene	**0.33**	ug/L	0.041	0.0077	1	05/19/10 18:31	05/22/10 12:16	53-70-3	
Fluoranthene	**28.3**	ug/L	0.21	0.021	5	05/19/10 18:31	05/25/10 15:18	206-44-0	JR
Fluorene	**30.4**	ug/L	0.21	0.015	5	05/19/10 18:31	05/25/10 15:18	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.90**	ug/L	0.041	0.0063	1	05/19/10 18:31	05/22/10 12:16	193-39-5	
Naphthalene	**13.6**	ug/L	0.21	0.026	5	05/19/10 18:31	05/25/10 15:18	91-20-3	
Phenanthrene	**32.3**	ug/L	0.21	0.031	5	05/19/10 18:31	05/25/10 15:18	85-01-8	
Pyrene	**17.6**	ug/L	0.21	0.031	5	05/19/10 18:31	05/25/10 15:18	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	05/19/10 18:31	05/22/10 12:16	321-60-8	H5
Terphenyl-d14 (S)	80	%	57-134		1	05/19/10 18:31	05/22/10 12:16	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW35r-050610 Rerun **Lab ID: 10128363015** Collected: 05/06/10 08:11 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0033**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 12:34	83-32-9	R
Acenaphthylene	**<0.0031**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 12:34	208-96-8	
Anthracene	**0.0096J**	ug/L	0.041	0.0069	1	05/19/10 18:31	05/22/10 12:34	120-12-7	
Benzo(a)anthracene	**0.014J**	ug/L	0.041	0.0024	1	05/19/10 18:31	05/22/10 12:34	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 12:34	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.041	0.021	1	05/19/10 18:31	05/22/10 12:34	205-99-2	
Benzo(g,h,i)perylene	**<0.0056**	ug/L	0.041	0.0056	1	05/19/10 18:31	05/22/10 12:34	191-24-2	
Benzo(k)fluoranthene	**<0.0040**	ug/L	0.041	0.0040	1	05/19/10 18:31	05/22/10 12:34	207-08-9	
Chrysene	**0.0063J**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 12:34	218-01-9	
Dibenz(a,h)anthracene	**<0.0077**	ug/L	0.041	0.0077	1	05/19/10 18:31	05/22/10 12:34	53-70-3	J
Fluoranthene	**0.018J**	ug/L	0.041	0.0038	1	05/19/10 18:31	05/22/10 12:34	206-44-0	R
Fluorene	**<0.0035**	ug/L	0.041	0.0035	1	05/19/10 18:31	05/22/10 12:34	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0063**	ug/L	0.041	0.0063	1	05/19/10 18:31	05/22/10 12:34	193-39-5	
Naphthalene	**0.016J**	ug/L	0.041	0.0058	1	05/19/10 18:31	05/22/10 12:34	91-20-3	
Phenanthrene	**0.018J**	ug/L	0.041	0.0055	1	05/19/10 18:31	05/22/10 12:34	85-01-8	
Pyrene	**0.0092J**	ug/L	0.041	0.0052	1	05/19/10 18:31	05/22/10 12:34	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	05/19/10 18:31	05/22/10 12:34	321-60-8	H5
Terphenyl-d14 (S)	74	%	57-134		1	05/19/10 18:31	05/22/10 12:34	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37s-050610 Rerun **Lab ID: 10128363016** Collected: 05/06/10 14:20 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**31.1**	ug/L	0.21	0.031	5	05/19/10 18:31	05/25/10 15:35	83-32-9	R
Acenaphthylene	**0.49**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 12:51	208-96-8	
Anthracene	**0.60**	ug/L	0.041	0.0069	1	05/19/10 18:31	05/22/10 12:51	120-12-7	
Benzo(a)anthracene	**0.032J**	ug/L	0.041	0.0024	1	05/19/10 18:31	05/22/10 12:51	56-55-3	
Benzo(a)pyrene	**0.024J**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 12:51	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.041	0.021	1	05/19/10 18:31	05/22/10 12:51	205-99-2	
Benzo(g,h,i)perylene	**0.013J**	ug/L	0.041	0.0056	1	05/19/10 18:31	05/22/10 12:51	191-24-2	
Benzo(k)fluoranthene	**0.026J**	ug/L	0.041	0.0040	1	05/19/10 18:31	05/22/10 12:51	207-08-9	
Chrysene	**0.036J**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 12:51	218-01-9	
Dibenz(a,h)anthracene	**<0.0077**	ug/L	0.041	0.0077	1	05/19/10 18:31	05/22/10 12:51	53-70-3	J
Fluoranthene	**0.31**	ug/L	0.041	0.0038	1	05/19/10 18:31	05/22/10 12:51	206-44-0	
Fluorene	**14.3**	ug/L	0.21	0.015	5	05/19/10 18:31	05/25/10 15:35	86-73-7	R
Indeno(1,2,3-cd)pyrene	**0.013J**	ug/L	0.041	0.0063	1	05/19/10 18:31	05/22/10 12:51	193-39-5	
Naphthalene	**18.6**	ug/L	0.21	0.026	5	05/19/10 18:31	05/25/10 15:35	91-20-3	
Phenanthrene	**2.8**	ug/L	0.041	0.0055	1	05/19/10 18:31	05/22/10 12:51	85-01-8	
Pyrene	**0.24**	ug/L	0.041	0.0052	1	05/19/10 18:31	05/22/10 12:51	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	05/19/10 18:31	05/22/10 12:51	321-60-8	H5
Terphenyl-d14 (S)	79	%	57-134		1	05/19/10 18:31	05/22/10 12:51	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37s-050610DUP Rerun **Lab ID: 10128363017** Collected: 05/06/10 14:20 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**35.8**	ug/L	0.43	0.064	10	05/19/10 18:31	05/25/10 15:53	83-32-9	R
Acenaphthylene	**0.65**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 13:09	208-96-8	
Anthracene	**0.70**	ug/L	0.043	0.0071	1	05/19/10 18:31	05/22/10 13:09	120-12-7	
Benzo(a)anthracene	**0.018J**	ug/L	0.043	0.0024	1	05/19/10 18:31	05/22/10 13:09	56-55-3	
Benzo(a)pyrene	**0.012J**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 13:09	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.043	0.021	1	05/19/10 18:31	05/22/10 13:09	205-99-2	
Benzo(g,h,i)perylene	**0.0079J**	ug/L	0.043	0.0057	1	05/19/10 18:31	05/22/10 13:09	191-24-2	
Benzo(k)fluoranthene	**0.011J**	ug/L	0.043	0.0041	1	05/19/10 18:31	05/22/10 13:09	207-08-9	
Chrysene	**0.016J**	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 13:09	218-01-9	
Dibenz(a,h)anthracene	**<0.0080**	ug/L	0.043	0.0080	1	05/19/10 18:31	05/22/10 13:09	53-70-3	
Fluoranthene	**0.28**	ug/L	0.043	0.0039	1	05/19/10 18:31	05/22/10 13:09	206-44-0	J
Fluorene	**16.2**	ug/L	0.43	0.032	10	05/19/10 18:31	05/25/10 15:53	86-73-7	R
Indeno(1,2,3-cd)pyrene	**0.0072J**	ug/L	0.043	0.0065	1	05/19/10 18:31	05/22/10 13:09	193-39-5	
Naphthalene	**65.3**	ug/L	0.43	0.053	10	05/19/10 18:31	05/25/10 15:53	91-20-3	
Phenanthrene	**3.6**	ug/L	0.043	0.0056	1	05/19/10 18:31	05/22/10 13:09	85-01-8	
Pyrene	**0.21**	ug/L	0.043	0.0053	1	05/19/10 18:31	05/22/10 13:09	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	05/19/10 18:31	05/22/10 13:09	321-60-8	H5
Terphenyl-d14 (S)	79	%	57-134		1	05/19/10 18:31	05/22/10 13:09	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37i-050610 Rerun **Lab ID: 10128363018** Collected: 05/06/10 13:35 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**7.0**	ug/L	0.042	0.0033	1	05/19/10 18:31	05/22/10 13:27	83-32-9	K
Acenaphthylene	**0.029J**	ug/L	0.042	0.0031	1	05/19/10 18:31	05/22/10 13:27	208-96-8	
Anthracene	**0.030J**	ug/L	0.042	0.0070	1	05/19/10 18:31	05/22/10 13:27	120-12-7	
Benzo(a)anthracene	**<0.0024**	ug/L	0.042	0.0024	1	05/19/10 18:31	05/22/10 13:27	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	05/19/10 18:31	05/22/10 13:27	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.042	0.021	1	05/19/10 18:31	05/22/10 13:27	205-99-2	
Benzo(g,h,i)perylene	**<0.0056**	ug/L	0.042	0.0056	1	05/19/10 18:31	05/22/10 13:27	191-24-2	
Benzo(k)fluoranthene	**<0.0041**	ug/L	0.042	0.0041	1	05/19/10 18:31	05/22/10 13:27	207-08-9	
Chrysene	**<0.0033**	ug/L	0.042	0.0033	1	05/19/10 18:31	05/22/10 13:27	218-01-9	
Dibenz(a,h)anthracene	**<0.0078**	ug/L	0.042	0.0078	1	05/19/10 18:31	05/22/10 13:27	53-70-3	
Fluoranthene	**0.019J**	ug/L	0.042	0.0039	1	05/19/10 18:31	05/22/10 13:27	206-44-0	J
Fluorene	**0.37**	ug/L	0.042	0.0035	1	05/19/10 18:31	05/22/10 13:27	86-73-7	K
Indeno(1,2,3-cd)pyrene	**<0.0064**	ug/L	0.042	0.0064	1	05/19/10 18:31	05/22/10 13:27	193-39-5	
Naphthalene	**<0.0058**	ug/L	0.042	0.0058	1	05/19/10 18:31	05/22/10 13:27	91-20-3	
Phenanthrene	**0.041J**	ug/L	0.042	0.0055	1	05/19/10 18:31	05/22/10 13:27	85-01-8	
Pyrene	**0.012J**	ug/L	0.042	0.0052	1	05/19/10 18:31	05/22/10 13:27	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	05/19/10 18:31	05/22/10 13:27	321-60-8	H5
Terphenyl-d14 (S)	81	%	57-134		1	05/19/10 18:31	05/22/10 13:27	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW37d-050610 Rerun **Lab ID: 10128363019** Collected: 05/06/10 13:09 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0032**	ug/L	0.040	0.0032	1	05/19/10 18:31	05/22/10 13:44	83-32-9	R
Acenaphthylene	**<0.0030**	ug/L	0.040	0.0030	1	05/19/10 18:31	05/22/10 13:44	208-96-8	
Anthracene	**<0.0067**	ug/L	0.040	0.0067	1	05/19/10 18:31	05/22/10 13:44	120-12-7	
Benzo(a)anthracene	**<0.0023**	ug/L	0.040	0.0023	1	05/19/10 18:31	05/22/10 13:44	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	05/19/10 18:31	05/22/10 13:44	50-32-8	
Benzo(b)fluoranthene	**<0.020**	ug/L	0.040	0.020	1	05/19/10 18:31	05/22/10 13:44	205-99-2	
Benzo(g,h,i)perylene	**<0.0054**	ug/L	0.040	0.0054	1	05/19/10 18:31	05/22/10 13:44	191-24-2	
Benzo(k)fluoranthene	**<0.0039**	ug/L	0.040	0.0039	1	05/19/10 18:31	05/22/10 13:44	207-08-9	
Chrysene	**0.0047J**	ug/L	0.040	0.0032	1	05/19/10 18:31	05/22/10 13:44	218-01-9	
Dibenz(a,h)anthracene	**<0.0075**	ug/L	0.040	0.0075	1	05/19/10 18:31	05/22/10 13:44	53-70-3	
Fluoranthene	**0.010J**	ug/L	0.040	0.0037	1	05/19/10 18:31	05/22/10 13:44	206-44-0	J
Fluorene	**<0.0034**	ug/L	0.040	0.0034	1	05/19/10 18:31	05/22/10 13:44	86-73-7	R
Indeno(1,2,3-cd)pyrene	**<0.0061**	ug/L	0.040	0.0061	1	05/19/10 18:31	05/22/10 13:44	193-39-5	
Naphthalene	**0.014J**	ug/L	0.040	0.0056	1	05/19/10 18:31	05/22/10 13:44	91-20-3	
Phenanthrene	**<0.0053**	ug/L	0.040	0.0053	1	05/19/10 18:31	05/22/10 13:44	85-01-8	
Pyrene	**0.0065J**	ug/L	0.040	0.0050	1	05/19/10 18:31	05/22/10 13:44	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	05/19/10 18:31	05/22/10 13:44	321-60-8	H5
Terphenyl-d14 (S)	80	%	57-134		1	05/19/10 18:31	05/22/10 13:44	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW39s-050610 Rerun **Lab ID: 10128363020** Collected: 05/06/10 11:01 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.020J**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 14:37	83-32-9	R
Acenaphthylene	**<0.0031**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 14:37	208-96-8	
Anthracene	**0.082**	ug/L	0.041	0.0069	1	05/19/10 18:31	05/22/10 14:37	120-12-7	
Benzo(a)anthracene	**0.020J**	ug/L	0.041	0.0024	1	05/19/10 18:31	05/22/10 14:37	56-55-3	
Benzo(a)pyrene	**0.0088J**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 14:37	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.041	0.021	1	05/19/10 18:31	05/22/10 14:37	205-99-2	
Benzo(g,h,i)perylene	**<0.0055**	ug/L	0.041	0.0055	1	05/19/10 18:31	05/22/10 14:37	191-24-2	
Benzo(k)fluoranthene	**0.0096J**	ug/L	0.041	0.0040	1	05/19/10 18:31	05/22/10 14:37	207-08-9	
Chrysene	**0.018J**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 14:37	218-01-9	
Dibenz(a,h)anthracene	**<0.0077**	ug/L	0.041	0.0077	1	05/19/10 18:31	05/22/10 14:37	53-70-3	J
Fluoranthene	**0.048**	ug/L	0.041	0.0038	1	05/19/10 18:31	05/22/10 14:37	206-44-0	R
Fluorene	**0.020J**	ug/L	0.041	0.0035	1	05/19/10 18:31	05/22/10 14:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.0069J**	ug/L	0.041	0.0063	1	05/19/10 18:31	05/22/10 14:37	193-39-5	
Naphthalene	**0.020J**	ug/L	0.041	0.0057	1	05/19/10 18:31	05/22/10 14:37	91-20-3	
Phenanthrene	**0.025J**	ug/L	0.041	0.0054	1	05/19/10 18:31	05/22/10 14:37	85-01-8	
Pyrene	**0.036J**	ug/L	0.041	0.0051	1	05/19/10 18:31	05/22/10 14:37	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	05/19/10 18:31	05/22/10 14:37	321-60-8	H5
Terphenyl-d14 (S)	80	%	57-134		1	05/19/10 18:31	05/22/10 14:37	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW41s-050610 Rerun **Lab ID: 10128363021** Collected: 05/06/10 12:08 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.078**	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 14:55	83-32-9	R
Acenaphthylene	**<0.0032**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 14:55	208-96-8	
Anthracene	**0.046**	ug/L	0.043	0.0072	1	05/19/10 18:31	05/22/10 14:55	120-12-7	
Benzo(a)anthracene	**<0.0025**	ug/L	0.043	0.0025	1	05/19/10 18:31	05/22/10 14:55	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 14:55	50-32-8	
Benzo(b)fluoranthene	**<0.022**	ug/L	0.043	0.022	1	05/19/10 18:31	05/22/10 14:55	205-99-2	
Benzo(g,h,i)perylene	**<0.0058**	ug/L	0.043	0.0058	1	05/19/10 18:31	05/22/10 14:55	191-24-2	
Benzo(k)fluoranthene	**0.0043J**	ug/L	0.043	0.0042	1	05/19/10 18:31	05/22/10 14:55	207-08-9	
Chrysene	**0.0097J**	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 14:55	218-01-9	
Dibenz(a,h)anthracene	**<0.0081**	ug/L	0.043	0.0081	1	05/19/10 18:31	05/22/10 14:55	53-70-3	
Fluoranthene	**0.032J**	ug/L	0.043	0.0040	1	05/19/10 18:31	05/22/10 14:55	206-44-0	J
Fluorene	**0.10**	ug/L	0.043	0.0037	1	05/19/10 18:31	05/22/10 14:55	86-73-7	R
Indeno(1,2,3-cd)pyrene	**<0.0066**	ug/L	0.043	0.0066	1	05/19/10 18:31	05/22/10 14:55	193-39-5	
Naphthalene	**0.023J**	ug/L	0.043	0.0060	1	05/19/10 18:31	05/22/10 14:55	91-20-3	
Phenanthrene	**0.035J**	ug/L	0.043	0.0057	1	05/19/10 18:31	05/22/10 14:55	85-01-8	
Pyrene	**0.019J**	ug/L	0.043	0.0054	1	05/19/10 18:31	05/22/10 14:55	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	05/19/10 18:31	05/22/10 14:55	321-60-8	H5
Terphenyl-d14 (S)	78	%	57-134		1	05/19/10 18:31	05/22/10 14:55	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW47s-050610 Rerun **Lab ID: 10128363022** Collected: 05/06/10 12:20 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	1.7	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 15:12	83-32-9	R
Acenaphthylene	**<0.0032**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 15:12	208-96-8	
Anthracene	**0.028J**	ug/L	0.043	0.0071	1	05/19/10 18:31	05/22/10 15:12	120-12-7	
Benzo(a)anthracene	**<0.0024**	ug/L	0.043	0.0024	1	05/19/10 18:31	05/22/10 15:12	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 15:12	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.043	0.021	1	05/19/10 18:31	05/22/10 15:12	205-99-2	
Benzo(g,h,i)perylene	**<0.0057**	ug/L	0.043	0.0057	1	05/19/10 18:31	05/22/10 15:12	191-24-2	
Benzo(k)fluoranthene	**<0.0041**	ug/L	0.043	0.0041	1	05/19/10 18:31	05/22/10 15:12	207-08-9	
Chrysene	**<0.0034**	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 15:12	218-01-9	
Dibenz(a,h)anthracene	**<0.0080**	ug/L	0.043	0.0080	1	05/19/10 18:31	05/22/10 15:12	53-70-3	J
Fluoranthene	**0.029J**	ug/L	0.043	0.0039	1	05/19/10 18:31	05/22/10 15:12	206-44-0	
Fluorene	**<0.0036**	ug/L	0.043	0.0036	1	05/19/10 18:31	05/22/10 15:12	86-73-7	R
Indeno(1,2,3-cd)pyrene	**<0.0065**	ug/L	0.043	0.0065	1	05/19/10 18:31	05/22/10 15:12	193-39-5	
Naphthalene	**0.033J**	ug/L	0.043	0.0060	1	05/19/10 18:31	05/22/10 15:12	91-20-3	
Phenanthrene	**0.058**	ug/L	0.043	0.0056	1	05/19/10 18:31	05/22/10 15:12	85-01-8	
Pyrene	**0.018J**	ug/L	0.043	0.0053	1	05/19/10 18:31	05/22/10 15:12	129-00-0	
2-Fluorobiphenyl (S)	65	%	58-125		1	05/19/10 18:31	05/22/10 15:12	321-60-8	H5
Terphenyl-d14 (S)	74	%	57-134		1	05/19/10 18:31	05/22/10 15:12	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW53s-050610 Rerun **Lab ID: 10128363023** Collected: 05/06/10 10:10 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.016J**	ug/L	0.042	0.0033	1	05/19/10 18:31	05/22/10 15:30	83-32-9	R
Acenaphthylene	**<0.0031**	ug/L	0.042	0.0031	1	05/19/10 18:31	05/22/10 15:30	208-96-8	
Anthracene	**0.27**	ug/L	0.042	0.0070	1	05/19/10 18:31	05/22/10 15:30	120-12-7	
Benzo(a)anthracene	**0.021J**	ug/L	0.042	0.0024	1	05/19/10 18:31	05/22/10 15:30	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	05/19/10 18:31	05/22/10 15:30	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.042	0.021	1	05/19/10 18:31	05/22/10 15:30	205-99-2	
Benzo(g,h,i)perylene	**<0.0056**	ug/L	0.042	0.0056	1	05/19/10 18:31	05/22/10 15:30	191-24-2	
Benzo(k)fluoranthene	**0.012J**	ug/L	0.042	0.0041	1	05/19/10 18:31	05/22/10 15:30	207-08-9	
Chrysene	**0.0078J**	ug/L	0.042	0.0033	1	05/19/10 18:31	05/22/10 15:30	218-01-9	
Dibenz(a,h)anthracene	**<0.0078**	ug/L	0.042	0.0078	1	05/19/10 18:31	05/22/10 15:30	53-70-3	
Fluoranthene	**0.031J**	ug/L	0.042	0.0039	1	05/19/10 18:31	05/22/10 15:30	206-44-0	J
Fluorene	**0.021J**	ug/L	0.042	0.0035	1	05/19/10 18:31	05/22/10 15:30	86-73-7	R
Indeno(1,2,3-cd)pyrene	**<0.0064**	ug/L	0.042	0.0064	1	05/19/10 18:31	05/22/10 15:30	193-39-5	
Naphthalene	**0.30**	ug/L	0.042	0.0058	1	05/19/10 18:31	05/22/10 15:30	91-20-3	
Phenanthrene	**0.034J**	ug/L	0.042	0.0055	1	05/19/10 18:31	05/22/10 15:30	85-01-8	
Pyrene	**0.032J**	ug/L	0.042	0.0052	1	05/19/10 18:31	05/22/10 15:30	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	05/19/10 18:31	05/22/10 15:30	321-60-8	H5
Terphenyl-d14 (S)	73	%	57-134		1	05/19/10 18:31	05/22/10 15:30	1718-51-0	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW55s-050610 Rerun Lab ID: **10128363024** Collected: 05/06/10 09:10 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.0062J**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 15:48	83-32-9	R
Acenaphthylene	**<0.0031**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 15:48	208-96-8	
Anthracene	**0.022J**	ug/L	0.041	0.0069	1	05/19/10 18:31	05/22/10 15:48	120-12-7	
Benzo(a)anthracene	**0.019J**	ug/L	0.041	0.0024	1	05/19/10 18:31	05/22/10 15:48	56-55-3	
Benzo(a)pyrene	**0.011J**	ug/L	0.041	0.0031	1	05/19/10 18:31	05/22/10 15:48	50-32-8	
Benzo(b)fluoranthene	**<0.021**	ug/L	0.041	0.021	1	05/19/10 18:31	05/22/10 15:48	205-99-2	
Benzo(g,h,i)perylene	**0.011J**	ug/L	0.041	0.0055	1	05/19/10 18:31	05/22/10 15:48	191-24-2	
Benzo(k)fluoranthene	**0.017J**	ug/L	0.041	0.0040	1	05/19/10 18:31	05/22/10 15:48	207-08-9	
Chrysene	**0.017J**	ug/L	0.041	0.0033	1	05/19/10 18:31	05/22/10 15:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0077**	ug/L	0.041	0.0077	1	05/19/10 18:31	05/22/10 15:48	53-70-3	J
Fluoranthene	**0.029J**	ug/L	0.041	0.0038	1	05/19/10 18:31	05/22/10 15:48	206-44-0	R
Fluorene	**0.025J**	ug/L	0.041	0.0035	1	05/19/10 18:31	05/22/10 15:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.0099J**	ug/L	0.041	0.0063	1	05/19/10 18:31	05/22/10 15:48	193-39-5	
Naphthalene	**<0.0057**	ug/L	0.041	0.0057	1	05/19/10 18:31	05/22/10 15:48	91-20-3	
Phenanthrene	**0.044**	ug/L	0.041	0.0054	1	05/19/10 18:31	05/22/10 15:48	85-01-8	
Pyrene	**0.018J**	ug/L	0.041	0.0051	1	05/19/10 18:31	05/22/10 15:48	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	05/19/10 18:31	05/22/10 15:48	321-60-8	H5
Terphenyl-d14 (S)	74	%	57-134		1	05/19/10 18:31	05/22/10 15:48	1718-51-0	

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ANALYTICAL RESULTS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Sample: MW58s-050610 Rerun **Lab ID: 10128363025** Collected: 05/06/10 10:36 Received: 05/08/10 11:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.012J**	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 16:06	83-32-9	R
Acenaphthylene	**<0.0032**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 16:06	208-96-8	
Anthracene	**0.010J**	ug/L	0.043	0.0072	1	05/19/10 18:31	05/22/10 16:06	120-12-7	
Benzo(a)anthracene	**<0.0025**	ug/L	0.043	0.0025	1	05/19/10 18:31	05/22/10 16:06	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	05/19/10 18:31	05/22/10 16:06	50-32-8	
Benzo(b)fluoranthene	**<0.022**	ug/L	0.043	0.022	1	05/19/10 18:31	05/22/10 16:06	205-99-2	
Benzo(g,h,i)perylene	**<0.0058**	ug/L	0.043	0.0058	1	05/19/10 18:31	05/22/10 16:06	191-24-2	
Benzo(k)fluoranthene	**<0.0042**	ug/L	0.043	0.0042	1	05/19/10 18:31	05/22/10 16:06	207-08-9	
Chrysene	**<0.0034**	ug/L	0.043	0.0034	1	05/19/10 18:31	05/22/10 16:06	218-01-9	
Dibenz(a,h)anthracene	**<0.0081**	ug/L	0.043	0.0081	1	05/19/10 18:31	05/22/10 16:06	53-70-3	J
Fluoranthene	**0.013J**	ug/L	0.043	0.0040	1	05/19/10 18:31	05/22/10 16:06	206-44-0	R
Fluorene	**0.030J**	ug/L	0.043	0.0037	1	05/19/10 18:31	05/22/10 16:06	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0066**	ug/L	0.043	0.0066	1	05/19/10 18:31	05/22/10 16:06	193-39-5	
Naphthalene	**0.027J**	ug/L	0.043	0.0060	1	05/19/10 18:31	05/22/10 16:06	91-20-3	
Phenanthrene	**0.028J**	ug/L	0.043	0.0057	1	05/19/10 18:31	05/22/10 16:06	85-01-8	
Pyrene	**0.011J**	ug/L	0.043	0.0054	1	05/19/10 18:31	05/22/10 16:06	129-00-0	
2-Fluorobiphenyl (S)	63	%	58-125		1	05/19/10 18:31	05/22/10 16:06	321-60-8	H5
Terphenyl-d14 (S)	75	%	57-134		1	05/19/10 18:31	05/22/10 16:06	1718-51-0	

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QUALITY CONTROL DATA

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

QC Batch: MPRP/20392 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10128363001, 10128363002, 10128363003, 10128363004, 10128363005, 10128363006, 10128363007, 10128363008, 10128363009, 10128363010, 10128363011, 10128363012

METHOD BLANK: 787379 Matrix: Water
Associated Lab Samples: 10128363001, 10128363002, 10128363003, 10128363004, 10128363005, 10128363006, 10128363007, 10128363008, 10128363009, 10128363010, 10128363011, 10128363012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	05/15/10 00:24	
Chromium	ug/L	<0.24	0.50	05/15/10 00:24	
Copper	ug/L	<0.20	0.50	05/15/10 00:24	
Zinc	ug/L	<1.3	5.0	05/15/10 00:24	

LABORATORY CONTROL SAMPLE: 787380

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	72.9	91	80-120	
Chromium	ug/L	80	78.0	98	80-120	
Copper	ug/L	80	73.9	92	80-120	
Zinc	ug/L	80	71.4	89	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 787381 787382

Parameter	Units	10128363006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	1.7	80	80	77.9	78.6	95	96	75-125	.9	20	
Chromium	ug/L	<0.24	80	80	77.1	77.4	96	97	75-125	.5	20	
Copper	ug/L	3.2	80	80	77.3	79.3	93	95	75-125	3	20	
Zinc	ug/L	34.1	80	80	108	109	93	94	75-125	.9	20	

MATRIX SPIKE SAMPLE: 787383

Parameter	Units	10128363012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.62	80	75.7	94	75-125	
Chromium	ug/L	1.1	80	77.8	96	75-125	
Copper	ug/L	2.3	80	77.0	93	75-125	
Zinc	ug/L	2.9J	80	75.6	91	75-125	

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QUALITY CONTROL DATA

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

QC Batch: OEXT/12896 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10128363001, 10128363002, 10128363003, 10128363004, 10128363005, 10128363006, 10128363007, 10128363008, 10128363009, 10128363010, 10128363011, 10128363012

METHOD BLANK: 787447 | Matrix: Water
Associated Lab Samples: 10128363001, 10128363002, 10128363003, 10128363004, 10128363005, 10128363006, 10128363007, 10128363008, 10128363009, 10128363010, 10128363011, 10128363012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	05/13/10 23:54	
Acenaphthylene	ug/L	<0.0040	0.040	05/13/10 23:54	
Anthracene	ug/L	<0.0050	0.040	05/13/10 23:54	
Benzo(a)anthracene	ug/L	<0.0030	0.040	05/13/10 23:54	
Benzo(a)pyrene	ug/L	<0.0030	0.040	05/13/10 23:54	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	05/13/10 23:54	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	05/13/10 23:54	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	05/13/10 23:54	
Chrysene	ug/L	<0.0030	0.040	05/13/10 23:54	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	05/13/10 23:54	
Fluoranthene	ug/L	<0.0040	0.040	05/13/10 23:54	
Fluorene	ug/L	<0.0030	0.040	05/13/10 23:54	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	05/13/10 23:54	
Naphthalene	ug/L	<0.0050	0.040	05/13/10 23:54	
Phenanthrene	ug/L	<0.0060	0.040	05/13/10 23:54	
Pyrene	ug/L	<0.0060	0.040	05/13/10 23:54	
2-Fluorobiphenyl (S)	%	73	58-125	05/13/10 23:54	
Terphenyl-d14 (S)	%	89	57-134	05/13/10 23:54	

LABORATORY CONTROL SAMPLE: 787448

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.80	80	56-125	
Acenaphthylene	ug/L	1	0.81	81	51-125	
Anthracene	ug/L	1	0.90	90	58-125	
Benzo(a)anthracene	ug/L	1	0.83	83	61-125	
Benzo(a)pyrene	ug/L	1	0.85	85	56-125	
Benzo(b)fluoranthene	ug/L	1	0.86	86	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.54	54	42-125	
Benzo(k)fluoranthene	ug/L	1	0.87	87	60-125	
Chrysene	ug/L	1	0.94	94	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.40	40	46-125	L0
Fluoranthene	ug/L	1	0.88	88	54-125	
Fluorene	ug/L	1	0.85	85	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.61	61	46-125	
Naphthalene	ug/L	1	0.79	79	47-125	
Phenanthrene	ug/L	1	0.84	84	55-125	
Pyrene	ug/L	1	0.97	97	57-125	
2-Fluorobiphenyl (S)	%			71	58-125	
Terphenyl-d14 (S)	%			86	57-134	

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QUALITY CONTROL DATA

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 787449 787450

Parameter	Units	10128363006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	0.11	1.1	1	0.85	0.95	71	82	56-125	11	30	
Acenaphthylene	ug/L	<0.0040	1.1	1	0.76	0.82	72	80	51-125	7	30	
Anthracene	ug/L	0.059	1.1	1	0.85	0.88	76	80	58-125	3	30	
Benzo(a)anthracene	ug/L	<0.0030	1.1	1	0.79	0.80	75	79	61-125	2	30	
Benzo(a)pyrene	ug/L	<0.0030	1.1	1	0.77	0.78	73	76	56-125	.7	30	
Benzo(b)fluoranthene	ug/L	<0.0050	1.1	1	0.78	0.79	74	78	54-125	2	30	
Benzo(g,h,i)perylene	ug/L	<0.0020	1.1	1	0.66	0.61	62	60	41-125	7	30	
Benzo(k)fluoranthene	ug/L	<0.0050	1.1	1	0.78	0.79	75	77	60-125	.7	30	
Chrysene	ug/L	<0.0030	1.1	1	0.75	0.76	72	75	64-125	1	30	
Dibenz(a,h)anthracene	ug/L	<0.0040	1.1	1	0.56	0.50	53	49	46-125	11	30	
Fluoranthene	ug/L	<0.0040	1.1	1	0.84	0.85	80	84	51-125	1	30	
Fluorene	ug/L	<0.0030	1.1	1	0.78	0.84	74	83	55-125	8	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	1.1	1	0.61	0.57	57	55	46-125	7	30	
Naphthalene	ug/L	<0.0050	1.1	1	0.75	0.79	71	78	34-125	6	30	
Phenanthrene	ug/L	<0.0060	1.1	1	0.80	0.82	76	80	55-125	2	30	
Pyrene	ug/L	<0.0060	1.1	1	0.89	0.91	84	89	50-127	2	30	
2-Fluorobiphenyl (S)	%						61	69	58-125			
Terphenyl-d14 (S)	%						71	74	57-134			

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QUALITY CONTROL DATA

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

QC Batch: OEXT/12964 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10128363014, 10128363015, 10128363016, 10128363017, 10128363018, 10128363019, 10128363020, 10128363021, 10128363022, 10128363023, 10128363024, 10128363025

METHOD BLANK: 792738 | Matrix: Water
Associated Lab Samples: 10128363014, 10128363015, 10128363016, 10128363017, 10128363018, 10128363019, 10128363020, 10128363021, 10128363022, 10128363023, 10128363024, 10128363025

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	05/22/10 11:05	
Acenaphthylene	ug/L	<0.0030	0.040	05/22/10 11:05	
Anthracene	ug/L	<0.0067	0.040	05/22/10 11:05	
Benzo(a)anthracene	ug/L	<0.0023	0.040	05/22/10 11:05	
Benzo(a)pyrene	ug/L	<0.0030	0.040	05/22/10 11:05	
Benzo(b)fluoranthene	ug/L	<0.020	0.040	05/22/10 11:05	
Benzo(g,h,i)perylene	ug/L	<0.0054	0.040	05/22/10 11:05	
Benzo(k)fluoranthene	ug/L	<0.0039	0.040	05/22/10 11:05	
Chrysene	ug/L	<0.0032	0.040	05/22/10 11:05	
Dibenz(a,h)anthracene	ug/L	<0.0075	0.040	05/22/10 11:05	
Fluoranthene	ug/L	<0.0040	0.040	05/22/10 11:05	
Fluorene	ug/L	<0.0030	0.040	05/22/10 11:05	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0061	0.040	05/22/10 11:05	
Naphthalene	ug/L	<0.0050	0.040	05/22/10 11:05	
Phenanthrene	ug/L	<0.0060	0.040	05/22/10 11:05	
Pyrene	ug/L	<0.0060	0.040	05/22/10 11:05	
2-Fluorobiphenyl (S)	%	76	58-125	05/22/10 11:05	
Terphenyl-d14 (S)	%	83	57-134	05/22/10 11:05	

LABORATORY CONTROL SAMPLE: 792739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.71	71	56-125	
Acenaphthylene	ug/L	1	0.68	68	51-125	
Anthracene	ug/L	1	0.76	76	58-125	
Benzo(a)anthracene	ug/L	1	0.76	76	61-125	
Benzo(a)pyrene	ug/L	1	0.73	73	56-125	
Benzo(b)fluoranthene	ug/L	1	0.76	76	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.74	74	42-125	
Benzo(k)fluoranthene	ug/L	1	0.73	73	60-125	
Chrysene	ug/L	1	0.77	77	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.71	71	46-125	
Fluoranthene	ug/L	1	0.82	82	54-125	
Fluorene	ug/L	1	0.74	74	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.74	74	46-125	
Naphthalene	ug/L	1	0.66	66	47-125	
Phenanthrene	ug/L	1	0.81	81	55-125	
Pyrene	ug/L	1	0.78	78	57-125	
2-Fluorobiphenyl (S)	%			63	58-125	
Terphenyl-d14 (S)	%			73	57-134	

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QUALITY CONTROL DATA

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 800910 800911

Parameter	Units	10128363019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0032	1	1	0.93	0.86	90	85	56-125	7	30	
Acenaphthylene	ug/L	<0.0030	1	1	0.84	0.76	81	75	51-125	10	30	
Anthracene	ug/L	<0.0067	1	1	0.92	0.82	89	81	58-125	12	30	
Benzo(a)anthracene	ug/L	<0.0023	1	1	0.86	0.79	83	78	61-125	8	30	
Benzo(a)pyrene	ug/L	<0.0030	1	1	0.83	0.78	80	77	56-125	6	30	
Benzo(b)fluoranthene	ug/L	<0.020	1	1	0.85	0.81	83	80	54-125	5	30	
Benzo(g,h,i)perylene	ug/L	<0.0054	1	1	0.72	0.75	70	73	41-125	3	30	
Benzo(k)fluoranthene	ug/L	<0.0039	1	1	0.78	0.76	76	75	60-125	3	30	
Chrysene	ug/L	0.0047J	1	1	0.87	0.81	84	79	64-125	8	30	
Dibenz(a,h)anthracene	ug/L	<0.0075	1	1	0.64	0.71	63	70	46-125	10	30	
Fluoranthene	ug/L	0.010J	1	1	0.89	0.82	86	80	51-125	8	30	
Fluorene	ug/L	<0.0034	1	1	0.90	0.79	87	78	55-125	12	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0061	1	1	0.69	0.74	67	73	46-125	6	30	
Naphthalene	ug/L	0.014J	1	1	0.82	0.69	78	66	34-125	17	30	
Phenanthrene	ug/L	<0.0053	1	1	0.88	0.80	85	79	55-125	10	30	
Pyrene	ug/L	0.0065J	1	1	0.89	0.80	86	78	50-127	10	30	
2-Fluorobiphenyl (S)	%						77	69	58-125			H5
Terphenyl-d14 (S)	%						81	76	57-134			

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QUALITY CONTROL DATA

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

QC Batch: OEXT/12916 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10128363001, 10128363002, 10128363003, 10128363004, 10128363005, 10128363006, 10128363007, 10128363008, 10128363009, 10128363010, 10128363011, 10128363012

METHOD BLANK: 789079 — Matrix: Water
Associated Lab Samples: 10128363001, 10128363002, 10128363003, 10128363004, 10128363005, 10128363006, 10128363007, 10128363008, 10128363009, 10128363010, 10128363011, 10128363012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.26J	0.50	05/14/10 15:16	B
2,4,6-Tribromophenol (S)	%	98	30-150	05/14/10 15:16	

LABORATORY CONTROL SAMPLE: 789080

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.42J	42	41-137	
2,4,6-Tribromophenol (S)	%			72	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 789081 789082

Parameter	Units	10128363006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	0.47J	1	1	1.4	1.5	86	105	30-150	13	30	
2,4,6-Tribromophenol (S)	%						110	97	30-150			

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QUALIFIERS

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H5	Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10128363001	**EW19s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363002	**MW35r-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363003	**MW37s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363004	**MW37s-050610DUP**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363005	**MW37i-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363006	**MW37d-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363007	**MW39s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363008	**MW41s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363009	**MW47s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363010	**MW53s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363011	**MW55s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363012	**MW58s-050610**	EPA 3020	MPRP/20392	EPA 6020	ICPM/8383
10128363001	**EW19s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363002	**MW35r-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363003	**MW37s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363004	**MW37s-050610DUP**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363005	**MW37i-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363006	**MW37d-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363007	**MW39s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363008	**MW41s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363009	**MW47s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363010	**MW53s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363011	**MW55s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363012	**MW58s-050610**	EPA 3510	OEXT/12896	EPA 8270 by SIM	MSSV/5520
10128363014	**EW19s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363015	**MW35r-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363016	**MW37s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363017	**MW37s-050610DUP Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363018	**MW37i-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363019	**MW37d-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363020	**MW39s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363021	**MW41s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363022	**MW47s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363023	**MW53s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363024	**MW55s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363025	**MW58s-050610 Rerun**	EPA 3510	OEXT/12964	EPA 8270 by SIM	MSSV/5547
10128363001	**EW19s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363002	**MW35r-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363003	**MW37s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363004	**MW37s-050610DUP**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363005	**MW37i-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363006	**MW37d-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363007	**MW39s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363008	**MW41s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363009	**MW47s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363010	**MW53s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524
10128363011	**MW55s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: McCormick&Baxter15670-05 TASK4
Pace Project No.: 10128363

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10128363012	**MW58s-050610**	EPA 3510	OEXT/12916	EPA 8270 by SIM	MSSV/5524

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State of Oregon Chain of Custody

10128363

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020					Comments (* low level PAHs and PCP)
Sample Preservative				None	None	HNO3					
EW05-050610	5-6-10/14:55	Water	5	X	X	X					001
MW35r-050610	5-6-10/08:11	Water	5	X	X	X					002
MW37s-050610	5-6-10/14:20	Water	5	X	X	X					003
MW37s-050610dup	5-6-10/14:20	Water	5	X	X	X					004
MW37i-050610	5-6-10/13:35	Water	5	X	X	X					005
MW37d-050610	5-6-10/13:29	Water	5	X	X	X					006
MW37d-050610MS	5-6-10/13:29	Water	4	X	X						006
MW37d-050610msd	5-6-10/13:29	Water	4	X	X						006
MW39s-050610	5-6-10/11:01	Water	5	X	X	X					007
MW41s-050610	5-6-10/12:08	Water	5	X	X	X					008
MW47s-050610	5-6-10/12:20	Water	5	X	X	X					009

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason R. Miles	Hart Crowser	Ryan Neitzel	Pace
Signature:	Time & Date: 0800 / 05-07-10	Signature:	Time & Date: 5810 1107

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T = 4.6 3.8 3.8
4.4 3.2 2.4 3.4

State of Oregon Chain of Custody

10128363

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other _____

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample Preservative

None	None	HNO3					

Requested Analyses

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020					Comments * low level PAHs and PCP
MW535-050610	5-6-10/10:10	Water	5	X	X	X					010
MW555-050610	5-6-10/09:10	Water	5	X	X	X					011
MW585-050610	5-6-10/10:36	Water	5	X	X	X					012
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason R. Miles	Hart Crowser	Ryan Neitzel	Pace
Signature:	Time & Date: 0800/05-07-10	Signature:	Time & Date: 5810 1107

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T = 4.6 3.8 3.8
4.4 3.2 2.6 3.4

Sample Condition Upon Receipt

Pace Analytical

Client Name: Hart crowser **Project #** 10128367

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: back

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ☒ **No** _____

Thermometer Used 89344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature back 0/1 26°C **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: 5/8/10

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # 1/1 - 12
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed ☑ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: CAD **Date:** 5/10/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina Division of Water Quality.

F-L213Rev.00, 05Aug2009

APPENDIX B
SITE OBSERVATION AND ACTIVITY SUMMARY

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010

Hart Crowser/GSI
15670-05/Task 7 May 20, 2011

APPENDIX B
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B-2 ACB Repair Locations
B-3 Diver Inspection Area – Differencing Map
B-4 Willamette Cove Sediment Coring Map

ATTACHMENTS

A Site Activity Log (DVD)
B Sediment Cap Observations (DVD)
C Soil Cap Observations (DVD)
D Monthly Meeting Summaries (DVD)
E Photograph Documentation
F Differencing Images (DVD)
G EPA Dive Report (DVD)
H ACB Investigation Work Plan (DVD), Core Logs, and Analytical Data (DVD)

ACRONYMS

ACB	Articulated Concrete Block
BNRR	Burlington Northern Railroad
Clearwater	Clearwater Environmental Services, Inc.
COP	City of Portland
CRD	Columbia River Datum
DEA	David Evans and Associates
DEQ	Oregon Department of Environmental Quality
E&E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
NAPL	Nonaqueous Phase Liquid
NAVD	Northern American Vertical Datum
NOAA	National Oceanographic and Atmospheric Administration
O&M	Operation and Maintenance
PAHs	Polynuclear Aromatic Hydrocarbons
PSU	Portland State University
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
Site	McCormick & Baxter Superfund Site
SPME	Solid Phase Micro-Extraction
UT	University of Texas
TFA	Tank Farm Area

APPENDIX B
SITE OBSERVATION AND ACTIVITY SUMMARY
OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE

1.0 INTRODUCTION

Appendix B to the *January 2010 through December 2010 Operation and Maintenance (O&M) Report* (O&M Report) presents a summary of sediment and soil cap observation and maintenance activities including the Five-Year Review bathymetric survey, follow-up diver survey, and an articulated concrete block (ACB) investigation at the McCormick & Baxter Superfund Site (Site) for the reporting period from January 1, 2010, through December 31, 2010. Attachments A through H provide detailed information about the activities.

Five-Year Review activities were conducted according to the *Draft Final O&M Plan* (Oregon Department of Environmental Quality [DEQ], 2007) and *Revised O&M Manual* (Hart Crowser/GSI Water Solutions, Inc. [GSI], 2010a). Additionally, the DEQ directed Hart Crowser/GSI to investigate unconformities in the ACB surface discovered in 2009 during low Willamette River levels along the Willamette Cove shoreline at the Site.

These activities were funded by the DEQ through a Cooperative Agreement with U.S. Environmental Protection Agency (EPA). The location of the Site, the Site layout, and surface elevations are shown on Figures 1 through 3 in the main section of the O&M Report.

2.0 SITE OBSERVATIONS

Site observations and maintenance activities were conducted according to the *Draft Final Operation and Maintenance Plan* (DEQ, 2007). As directed by DEQ, frequency of inspections was reduced from monthly to quarterly in April 2010. Soils and sediment cap inspections were conducted in January, February, March, June, August, and December 2010. These inspections are considered routine inspections, and are documented in observation forms developed and recorded for the Site. From mid July through October 2010, additional sediment cap inspections were conducted during Site visits for other tasks. Attachments pertinent to site activity and observations are:

- Attachment A: Site Activity Log;
- Attachment B: Sediment Cap Observations;
- Attachment C: Soil Cap Observations;
- Attachment D: Monthly Meeting Summaries;
- Attachment E: Photograph Documentation;
- Attachment F: Differencing Images;
- Attachment G: EPA Dive Report; and
- Attachment H: ACB Investigation Work Plan, Core Logs and Analytical Data.

Routine inspections were performed by Clearwater Environmental Services, Inc. (Clearwater), the O&M subcontractor to Hart Crowser for the Site. Site inspections also were performed by DEQ, Hart Crowser, and GSI during the Site meetings. Observations of interest from the routine inspections and site meetings are summarized on Figure B-1. Other Site inspection observations of interest were documented in field notes and are summarized in this report.

2.1 Sediment Cap Observations

The sediment cap was inspected 12 times in 2010. The inspections were conducted in conjunction with inspections during routine Site meetings, performance monitoring sampling, and ACB repair activities. Routine sediment cap inspection documentation is included in Attachment B. Inspections were conducted more frequently during the low-water period from mid July through October 2010. Sections 2.1.1 through 2.1.4 below describe sediment cap observations regarding sheen, habitat enhancement features and wildlife, sediment cap features, and vandalism and/or trespassing.

2.1.1 Sheen Observations

Sheen was periodically observed during Site inspections from July through September 2010. Though no sheen was observed with or appeared to be caused by ebullition, ebullition was most frequently observed in the former Tank Farm Area (TFA) and the Willamette Cove where granular bulk organophilic clay has been placed as part of the sediment cap. An extensive study from 2007 through 2009 to determine the cause and nature of periodically observed shoreline sheens at the Site demonstrated that the sheen is not related to Site contaminants migrating through the sediment cap. A detailed discussion of the Site sheen's nature, origin, and extent are included in the *January 2009 through December 2009 Operation and Maintenance (O&M) Report Appendix F.* The sheen was determined to be most likely metallic iron that concentrated through

the evaporation of water in localized trapped pools of water in the late summer and fall. Locations of sheen observed in 2010 are presented on Figure B-1.

2.1.2 Habitat Enhancement Features and Wildlife

Habitat enhancement features, such as boulder clusters and sand cover as a biotic layer, are design elements of the sediment cap. We observed the condition of these features, as well as additional enhancement features (i.e., large woody debris) along the shoreline and in the riparian area above the shoreline. Generally, the distribution of sand is similar to previous years: sand is in place over a large portion of the Site and ACB exposed where the bank slope is steeper and in Willamette Cove (Attachment E, Photographs 1 and 2).

Large woody debris continues to accumulate along the entire length of the shoreline and change with each high river event (Attachment E, Photograph 3). Three areas of the shoreline appear to accumulate woody debris at a greater rate than others including:

- The south end of the shoreline near the City of Portland (COP) outfall;
- Along the shoreline near the TFA; and
- The north end of the Site near the Burlington North Railroad (BNRR) bridge.

Boulder clusters placed during original cap construction remain in place. Numerous wildlife species continue to be observed at the Site. Most frequently observed were various birds, including Canada geese, gulls, pigeons, blue herons, and ospreys. In the Willamette River, juvenile fish, clams, and crayfish were often observed.

2.1.3 Sediment Cap Features

In general, the condition of the sediment cap remains unchanged; however, since 2007 (previous ACB grouting) several gaps between ACB mat seams (4 to 12 inches) were noted, and grouted during low river levels from October 13 through 15, 2010. Clearwater filled in 11 gaps with grout to create a smoother and safer surface and to prevent further expansion of ACB mat seams. Figure B-2 shows areas with grouted ACB gaps. In Attachment E, Photographs 4 and 5 show areas in need of grout before and after grouting.

In Willamette Cove, unconformities were observed in Fall 2009 when the Willamette River stage was lower (-3.5 feet [ft] NAVD88) than it had been since the sediment cap was installed in 2004. This area was not exposed in 2010 and could not be directly observed. Because the unconformities had not been

observed prior to 2009, it was uncertain whether they occurred during ACB installation in 2004 or had occurred after cap construction. An ACB investigation was completed from March through December 2010 which included reviewing historic sediment cap construction information, collecting porewater samples, diver inspection, and coring into the sediment cap to measure sand cap thickness and to analyze for polynuclear aromatic hydrocarbons (PAHs). The ACB investigation details are discussed in Section 5.

Following cap construction in 2004, five temporary buoys were placed to mark the outer boundary of the sediment cap to warn of potential underwater hazards; two buoys are located in Willamette Cove, and three are located south of the BNRR bridge. Since 2008, two were no longer present, possibly carried off by high river levels and debris contact with anchor lines. In late 2010, a third buoy disappeared during the high river levels. Two remaining buoys (Photograph 6) currently mark the outer boundary. Permanent buoy design is scheduled for March 2011 and installation in July 2011. Five permanent buoys will be installed to replace the original temporary buoys.

2.1.4 Vandalism and Trespassing

The shoreline along the Site and in Willamette Cove is accessible, and is often used by the public for various forms of recreation. Throughout 2010, various amounts of shoreline trash and graffiti were observed. In the summer of 2010, transient use was common along the sandy shoreline. No full-time occupants were observed; however, a dilapidated boat (obviously used as a dwelling) was commonly seen anchored in Willamette Cove (Attachment E, Photograph 7). It appeared far enough off shore that it was not anchored on the sediment cap.

2.2 Soil Cap Observations

The soil cap was inspected 10 times in 2010. The inspections were conducted in conjunction with routine inspections during monthly site meetings and miscellaneous site visits for maintenance purposes. Soil cap observation documentation is included in Attachment C. Sections 2.2.1 and 2.2.2 below describe soil cap observations regarding wildlife and vandalism and/or trespassing.

2.2.1 Wildlife

The upland soil cap provides habitat for rabbits, ground squirrels, Canada geese, several species of birds, and coyotes (likely). Despite additional gravel placement in 2008 to fill the gap beneath fencing surrounding the upland portion of the Site, evidence of periodic burrowing continues to be observed

under the southwest fence along the perimeter road (Figure B-1). These burrows are routinely filled back in and are not of major concern.

Increased ground squirrel activity continues at several locations south of the site trailers and various areas throughout the upland soil cap (Attachment E, Photograph 8). Ground squirrels are common to the general vicinity of the area, and their burrows typically extend to approximately 1 foot below ground surface. Ground squirrels prefer hillsides and low earth banks, sometimes using structures such as trees and boulders for cover (Larson, 2007). It appears the ground squirrels are using the surplus ACB stockpiled at the site, paved roadway, and concrete well monuments as habitat. There are no indications that any of these borrows exist below the depth of the soil cap, and therefore the soil cap continues to physically isolate site contaminants from human and ecological receptors. Continued monitoring of the burrows is recommended; no action to remove burrowing animals or to fill in the burrows is planned or is necessary at this time.

2.2.2 Vandalism and Trespassing

A gate at the top of North Edgewater Road marks the entrance to the Site and Willamette Cove property. The gate is locked with a series of locks and chain to provide access for two railroads, DEQ, and other agencies that require access to this area. The locks and chain on the gate were cut numerous times in 2010 by other agency and railroad personnel. Although an ongoing nuisance, these breaches of North Edgewater Road gate did not affect the security of the Site because of the surrounding fence, lighting, and alarm system.

2.3 Soil Cap Subsidence

In June 2008, the inner casing of monitoring well MW-23d was observed to be protruding approximately 4 inches above the outer well casing/monument. A subsequent upland site survey confirmed that ground surface elevation subsidence had occurred in the local vicinity of MW-23d (Attachment E, Photograph 9). A *Subsidence in Upland Cap Memorandum* (Hart Crowser/GSI, 2008) and an *Additional Subsidence Monitoring Memorandum* (Hart Crowser/GSI, 2009a) were prepared for the DEQ by Hart Crowser/GSI to present the results of the survey and additional investigation to determine the cause of the subsidence. A review of previous subsurface investigations that documented the presence of significant subsurface wood debris in this area, lead to a conclusion that further localized settling is likely to occur over time. Another potential contributing factor to the settling is a declining groundwater level inside the barrier wall. This decline was greater during the first few years after the 2005 RCRA style cap installation, but the groundwater elevation has stabilized in the

past 2 years and it now appears to be in equilibrium with the Willamette River (see Appendix A). Further significant settling in the future may stress the upland remedy features (i.e., stormwater conveyance and well boots), and could potentially affect performance of the stormwater conveyance system.

During 2010, subsidence in the MW-23d area was insignificant as determined by measuring the difference between the inner and outer casing of this well, and no movement was observed from August through December 2010. Total movement between the inner and outer casing since December 2008 (first periodic measurement conducted) is 1.45 inches. Transducer groundwater data, collected from EW-1s (near MW-23d) has confirmed that the air tight seal that was placed on the wellhead has decreased groundwater temperature, which has likely contributed to the decreased rate of settling in this area. The stormwater conveyance system was also visually inspected six times during 2010, and continues to perform as designed.

3.0 MAINTENANCE ACTIVITIES

Maintenance activities in 2010 at the Site were performed by Clearwater. Activities ranged from weekly maintenance of pumps and regulators to non-routine tasks such as bathroom pipe repairs and ACB replacement. In addition to activities performed by Clearwater, routine maintenance activities were performed by Pacific Tractor and Implement, the COP, and Instrumentation Northwest. The following section discusses routine maintenance tasks and non-routine tasks performed in 2010. Site support services, such as phone, alarm, solid waste, and wastewater were provided by Qwest, Phillips, Trashco Services, and Schulz-Clearwater Sanitation, respectively.

3.1 Routine Maintenance

Clearwater performed routine maintenance on the pumps, compressor, regulators, lines, oil interface meter (used to perform nonaqueous phase liquid [NAPL] gauging and extraction), and the site vehicle (Kubota). Routine maintenance is crucial for keeping the equipment in proper working order to avoid activity delays. Two transducer well data loggers were sent to Instrumentation Northwest for repairs in 2010. The Kubota received recommended annual inspection and maintenance by Pacific Tractor and Implement.

Routine maintenance was also provided for site vegetation management, conducted by the COP through June 2010. As irrigation of site vegetation is no longer recommended (Attachment E, Photograph 10), and the general planting goals (NOAA, 2004) have been met, the Intergovernmental Agreement between

the DEQ and the COP was allowed to expire. Noxious weed control remains the primary ongoing vegetation management activity at the site. Native Ecosystems Northwest, under subcontract to Hart Crowser, completed noxious weed control activities from October 25 through 29, 2010. The scope of work included completing application (spot spraying) of glyphosate herbicide and manual hand pulling to mitigate thistle, knapweed, Scotch broom, sweet clover, black mustard, and other noxious weeds at the 41-acre Site.

A total of eight 55-gallon drums of NAPL and purged wastewater, two totes solid waste (e.g., absorbent pads and Tyvex®), and one drum of sediment were generated at the Site in 2010, and are stored in the disposal storage area pending disposal in June 2011. The wastes are derived from NAPL extracted from wells; wastewater generated during groundwater monitoring; solid waste generated during NAPL collection; and sediment from ACB investigation coring.

3.2 Non-Routine Maintenance Activities

Clearwater and other service providers also performed non-routine maintenance activities that are typically action items from site meetings or in response to site observations. An extended cold weather event in November 2010 caused a water pipe in the trailer bathroom to break, but damage was limited because the broken pipe was underneath the trailer. Clearwater repaired the broken pipe in early December 2010. No other damage to the site trailers occurred in 2010.

4.0 SEDIMENT CAP INSPECTION

Inspection of the sediment cap includes visual surveys of habitat quality, near-shore sediment cap armoring (where visible above the river level), and sediment cap buoys. For 2010, the results of the 2009 multibeam bathymetric survey for the Portland Harbor Superfund Site (conducted for NOAA) was used to prepare sediment cap elevation differencing maps of the sediment cap in addition to a subsequent diver inspection of potential repair areas of the cap by the EPA Region 10 Dive Team. The bathymetry assessment consisted of constructing differencing images between earlier bathymetric surveys with the 2009 bathymetric survey. The dive team investigated potential anomalous areas highlighted in the differencing images. The divers also inspected anomalies in the sediment cap identified from shore during routine site inspections (e.g., Willamette Cove uneven ACB). These activities were conducted in accordance with the *Draft Final Operation and Maintenance Plan* (DEQ, 2007) to assess remedy performance for the 2011 Five-Year Review Report. Results from the Five-Year Review Report activities are discussed below.

4.1 Differencing Images

On June 19, 2010, David Evans and Associates (DEA), under subcontract to Hart Crowser, prepared three differencing images comparing post-cap installation multibeam bathymetric surveys (Fall 2004, Fall 2005, and Spring 2006) to the January 2009 NOAA Portland Harbor bathymetric survey. DEA differencing images are included in Attachment F. The purpose of the images was to detect debris or bathymetric features within the sediment cap boundary that may affect the cap's integrity or indicate changes taking place since cap construction. No significant debris, unusual features, or anomalies were discovered above the 6.5 ft depth contour Columbia River Datum ([CRD] approximately -7.9 ft in NAVD88). Minor deepening was observed at the BNRR bridge (Figure B-3) along the northwest shoreline. In general, the overall structural condition of the sediment cap remains unchanged.

The Portland Harbor multibeam conducted in January 2009 did not compile data higher than the NAVD88 0 ft elevation. The 2009 Portland Harbor survey was completed using full coverage multibeam to the 13 ft depth and single beam from 6.5 to 13 ft depth contours CRD (approximately -7.9 ft to -1.3 ft NAVD88). The previous cap installation surveys completed at McCormick and Baxter in 2004 and 2005 provided multibeam data close to the 3 ft depth contour CRD in some areas (approximately 0 ft to 1 ft NAVD88). This created a data gap that does not show bathymetric survey data on the sediment cap between -1.3 and 1.0 ft NAVD88. In general, these areas can be observed from shore during low river levels (Attachment E, Photograph 11and 12). With the exception of the ACB unconformities observed in Willamette Cove in Fall 2009, previous inspections from 2005 through 2010 did not reveal any anomalies in the sediment cap surface between -1.3 and 1.0 ft NAVD88. The unconformities observed in the ACB armoring in Willamette Cove were further investigated by a follow-up EPA diver inspection (see Section 4.2). The divers also inspected the area in the vicinity of the BNRR bridge where minor deepening was observed on the January 2009 minus Spring 2006 differencing map.

4.2 Sediment Cap Inspection

On October 11, 2010, sediment cap inspection activities were completed by the EPA Region 10 Dive Team to investigate shallow ACB unconformities in Willamette Cove. These unconformities were observed by DEQ and Hart Crowser in September 2009 during record low tide and areas of minor deepening near the BNRR bridge, as shown in the differential analysis of the bathymetric survey in Attachment F. Diver survey areas are shown on Figure B-3. EPA Divers inspected six locations for cap armor thickness, digging two holes per location generally. Depths of armor rock were found to be 8 to 14

inches, well within expected variability for cap armor placement. Additionally, a diver swam two transects in each direction in Willamette Cove from between approximately 0 and 6 ft NAVD88. One as shallow as the diver could reasonably swim (18 inches water) and one deeper transect (5 feet of water). One buckling location (uneven ACB) was confirmed and marked with a buoy and a second suspect location marked for further investigation. The EPA Dive Report is included in Attachment G.

5.0 WILLAMETTE COVE ACB INVESTIGATION

The purpose of the Willamette Cove ACB investigation was to determine sediment cap integrity in the vicinity of the ACB unconformities observed in 2009. ACB investigation activities included a review of historic sediment cap installation information, porewater sampling, diver inspection, and sediment core collection beneath the unconformities. Sediment coring and porewater sampling locations are shown on Figure B-4. Analytical results for porewater and sediment are presented in Table B-1 and Table B-2, respectively. Photographs of the unconformity areas are shown on Photographs 11 and 12 in Attachment E. The ACB Investigation Work Plan, Core Logs, and Analytical Data are included in Attachment H.

5.1 Historical Review

In 2004, a protective sediment cap was placed over contaminated river sediments in Willamette River and the Willamette Cove that posed an unacceptable risk to human health and the environment. The sediment cap consists of approximately 2 feet of sand overlain by 1 foot of armoring. ACB was utilized as the armoring in the near shore areas where wave action is high. In other areas, the armoring consists of either a foot of 6-inch minus rock or 10-inch minus rock. In two areas, where there was a potential for creosote seeps, one foot of organophylic clay was placed directly overlying the contaminated sediments. One foot of sand and ACB armoring were then placed on top of the organophylic clay.

Due to the unusually low Willamette River stage (-3.5 ft NAVD88) in the Fall of 2009, it was possible to observe greater portions of the sediment cap than have not been visible since the cap was installed in 2004. During these low water levels, uneven surfaces in the ACB armoring were observed, as presented on Photographs 4 and 11 in Attachment E. It is uncertain whether the observed ACB reflects the quality of the original construction/placement in 2004 or subsequent settlement.

According to Kevin Parrett, the DEQ project manager when the sediment cap was constructed, it was likely that the unconformities occurred shortly after sediment cap installation and were likely due to settling from the weight of the ACB and gravel cap layers. Kevin also stated that the post-installation visual observations would not have identified settling in that location because the ACB armoring for the entire Site was covered with sand, and was not visible due to the Willamette River water levels at that time. A review of previous studies by Ecology and Environment (E&E), and more recent data collected in the Willamette Cove to assess the protectiveness of the cap in Willamette Cove was conducted by Hart Crowser/GSI. A sediment cap performance summary for the Willamette Cove follows.

5.2 Previous Monitoring

Several monitoring and sampling activities have been completed since sediment cap construction was complete in 2005. Activities include an organophilic clay field study in 2006; semi-annual inter-armoring, sub-armoring, and surface water sampling from 2005 through 2010; and the comprehensive sheen investigation from 2007 through 2010. These activities are briefly described below.

5.2.1 Organoclay Cap Performance Evaluation

The Organoclay Cap Performance Evaluation (E&E, 2006) was conducted between October 2 and 5, 2006, and was a joint effort between DEQ, E&E, GSI, and personnel from the University of Texas (UT). Assistance also was provided by personnel from Portland State University (PSU).

The objectives of the evaluation included measuring the thickness of sediment cap cores to confirm that design objectives were achieved during construction. The sand cap in Willamette Cove was confirmed to be approximately one foot thick. The thickness of the sediment cap, based on the cores, is shown on Figure B-4. In general, within the central area of the Willamette Cove granular organophilic clay, the organophilic clay thickness was approximately 12 to 15 inches; within 10 feet from the edge of the design footprint, the organophilic clay thickness ranged from 7 to 10.5 inches; and at or just outside the organophilic clay design footprint, organophilic clay thickness ranged from 1.5 to 3.5 inches. Cores collected from the northern edge of the granular organophilic clay appeared to have sand cap material beneath the organophilic clay. This is likely because the sand cap to the north in Willamette Cove was placed prior to placing the Willamette Cove granular organophilic clay. The observations indicated that the sediment cap was placed according to the design criteria.

5.2.2 Inter-Armoring, Sub-Armoring, and Surface Water Sampling

Water samples have been collected in the Fall and Spring of each year (beginning in Fall 2005) from sediment cap inter-armoring, sub-armoring, and surface water to evaluate post-sediment cap construction water quality conditions under both low-river discharge (Fall) and high-river discharge (Spring) conditions (E&E, 2006, 2007, 2008 and Hart Crowser/GSI, 2009b, 2010b). Water samples have been collected, in general, from the same 24 sampling locations including three (12, 13, and 21) in Willamette Cove since the sediment cap construction was completed. Locations 13 and 21 are in the general vicinity of the unconformities as shown on Figure B-4. Solid phase micro-extraction (SPME) samples were also collected at these locations by UT in the Fall of 2009 and 2010.

Results from these sampling events document that contaminant concentrations in surface water and inter-armoring water are below water quality comparison criteria with the exception of arsenic (a background metal). Additionally, across the entire sediment cap, contaminant concentration trends are stable or decreasing. Based on water sampling from 2006 through 2010, the inter-armoring, sub-armoring, and surface water sediment cap within Willamette Cove appears to be protective and functioning as designed.

5.2.3 Sheen Investigation

Sheen has been observed along the shoreline and on near shore surface water at the Site since the sediment cap was installed in 2004 and completed in 2005. The initial sheen observed were small sheen bursts on the surface water associated with ebullition (ebullition-induced sheen). Subsequent Organoclay™ mat installation in areas of the ebullition-induced sheen appears to have mitigated this type of sheen. However, sheen, not associated with ebullition, is observed in late summer/early fall along the shoreward side of the Organoclay™ mats in the TFA, over the top of the granular organophilic clay along the Willamette Cove shoreline, and along the shoreline at the southern end of the Site (Figure B-1).

In 2008, extensive sediment cap subsurface sampling was conducted with an objective to determine whether the periodically observed shoreline sheen was caused by creosote (site contaminants) migrating through the sediment cap either vertically by tidal pumping or laterally associated with groundwater discharge. The investigation determined that it is unlikely that creosote migration through the sediment cap is creating the shoreline sheen at the Site; however, the origin and nature of the sheen were not determined or fully understood. In 2009, an additional characterization study was completed to identify the nature of the sheen with the objective of understanding whether the sheen presence is related

to site contamination, hazardous, or just biogenic or metallic sheen associated with groundwater discharge from the Site.

All sheen investigation related data collected to date suggests a lack of direct microbial contribution to the production of the sheen. Chemical results from samples of shoreline sheen are highly indicative of the presence of metals, particularly iron, the observed sheen film at the Site. Extensive study of the Site demonstrates that the sheen is not comprised of Site contaminants migrating through the sediment cap.

Detailed descriptions of the sheens investigations are provided in the *O&M Report January 2008 through December 2008* (Hart Crowser/GSI, 2009b), and the *O&M Report January 2009 through December 2009* (Hart Crowser/GSI, 2010b).

5.3 Porewater Sampling

In order to determine whether site-related contaminants are migrating through the cap in the area of observed ACB unconformities, porewater samples (ACB-1 and ACB-2) within the unconformities were collected in April 2010 using Henry samplers. This inter-armoring sampling methodology is the same as semi-annual sub-armoring samples, which is described in the *Revised O&M Manual* (Hart Crowser/GSI, 2010). At each unconformity, three porewater samples were collected from within the sand cap at 6 inches below the ACB armoring layer. Photograph 13 in Appendix E shows the typical pore water sampling set-up.

Results from the porewater samples show low detections of low molecular weight PAHs, similar to other sub-armoring samples collected from Willamette Cove during the semi-annual water sampling events. Table B-1 presents the results of the Spring 2010 porewater sampling event. There was no indication of sediment cap breakthrough; however, to ensure that sufficient sand cap thickness was present beneath the unconformities, limited coring was conducted beneath both unconformity areas as described in Section 5.4.

5.4 Sediment Coring

As described in Section 4.2, EPA divers walked transects in Willamette Cove in the Fall of 2010 looking for additional unconformities and to mark the two known unconformities. The divers did not identify additional unconformities and marked the two previously observed locations with a concrete block tied to a buoy. The concrete block was placed at the apex of each unconformity.

Sediment cores were collected at the unconformities marked by buoys in order to assess the sand cap thickness in these locations. The sampling approach and procedures are described in the *Articulated Concrete Block Unconformity Sediment Cap Coring Sampling and Analysis Plan* (Hart Crowser/GSI, 2010c).

On December 2, 2010, four 2-inch sediment cores were advanced using a push-probe rig mounted on a barge (Attachment E, Photograph 14). The coring locations are identified on Figure B-4 and were advanced within the voids of the ACB and to a depth of 5 ft. The recovery of the cores ranged from 25% to 38% as shown on the core logs in Attachment H. Based on driller's remarks and field observations, recovery is thought to represent the upper material with loss occurring when the fine grained native material is encountered at depth.

The two cores (MBACBSC-122010-1A and MBACBSC-122010-1B) collected at the first unconformity confirmed more than 1 foot of sand cap was present beneath the ACB. Because more than 1 foot of sand cap was present and no hydrocarbon odor or visual signs of contamination were noted (pre-determined in the approved sampling plan), samples were not collected for chemical analysis. Photos of these cores are presented as Photos 15 through 23 in Attachment E.

The diver placed buoy at the second unconformity location was no longer present when the drilling crew arrived on site. The Field Director and Field Geologist relocated the second unconformity based on aerial photos, site maps, and photographs that were taken during the low tide event in the Fall of 2009. Both cores in the vicinity of the second unconformity (Figure B-4) appeared to contain less than 1 ft of sand cap material and the first core (MBACBSC-122010-2A) contained evidence of a petroleum sheen and odor in the underlying native sediment (Attachment E, Photographs 24 and 25). As such, two samples were collected from each core for chemical testing of PAHs.

The first sample in each of the two cores was collected from the overlying sand cap material while the second was collected from the underlying native sediment. The rationale was to determine whether the thinner sand cap is protective in these areas and whether cap sand concentrations are in compliance with the 1996 Record of Decision (ROD) sediment cleanup goals. Table B-2 presents the results of sediment from investigative cores near the second unconformity. The upper 'sand cap' concentrations contained lower PAH concentrations than the underlying 'native sediment' and did not exceed either the sediment cleanup goal of 2 mg/kg total carcinogenic PAHs or the benthic risk threshold of 12 mg/kg total PAHs. Total PAH concentrations in native sediment from core MBSA0410-ACB-2a are 14.9 mg/kg whereas the concentrations in the overlying sand cap material are 0.227 mg/kg. The total

carcinogenic PAH concentrations were much lower in this core with 0.916 µg/kg in the native sediment and non-detect (below 0.03 mg/kg) in the overlying sand cap. In the second core (MBSA0410-ACB-2B), the PAH concentrations were more similar between the native sediment and overlying sand cap material, but both materials have PAH concentrations below the total carcinogenic and benthic risk thresholds.

5.5 Conclusions

Although the surface of the ACB armoring in Willamette Cove is uneven at the two unconformity locations (0.09 acres; approximately 0.4% of the total sediment cap area), the 23-acre sediment cap remains effective, consistent with its designed purpose 5 years after construction completion. Diver inspections of the sediment cap did not identify any additional areas of concern.

Sediment cores advanced through the unconformities in the Willamette Cove showed 4 inches to over 1 foot of sand cap material was present underlying the ACB and contained no visual signs of contamination. Samples collected from the unconformity area representative of the 'sand cap' material reflected PAH concentrations less than the sediment clean-up goals listed in the 1996 ROD. The results of water samples collected beneath the unconformities and from sample locations 12, 13, and 21 from 2005 through 2010 (including SPME data) also document PAHs concentration well below water quality criteria.

Based on the results of the Willamette Cove ACB investigation, and considering that the sand cap thickness beneath the unconformities is less than designed, it appears that the sediment cap in this area continues to attenuate site related contaminant migration to the Willamette River, as required in the ROD. Additional monitoring of this area should be considered when developing the long term monitoring plan for the Site.

6.0 SUMMARY

Overall, the 2010 sediment cap and the upland soil cap inspections and investigations revealed no significant change in remedy performance or areas of concern at the Site.

Sand continues to cover the ACB over much of the shoreline, and there are significant amounts of large woody debris that have accumulated to help create wildlife habitat. Wildlife commonly seen at the Site includes Canada geese, blue herons, ospreys, crawfish, squirrels, and rabbits; evidence of coyotes has also been observed. The general public frequents the shoreline for recreation, most

commonly walking dogs. Infrequent and minor instances of vandalism and littering have been noted.

The vicinity of upland soil cap subsidence is coincidental with subsurface wood debris. It is also likely that degradation of the wood debris coupled with the decrease in groundwater level inside the barrier wall are contributing to the subsidence in this vicinity; however, the rate of subsidence has decreased significantly and now appears to be relatively slow and steady. While the subsidence in 2010 was minor, future settling could affect the performance of cap features (i.e., stormwater conveyance and monitoring well boots). Stormwater conveyance system inspections, transducer monitoring in MW-15s and EW-1s, and elevation differencing measurement at well MW-23d should be carried forward into a long term monitoring plan for the Site.

Willamette Cove ACB investigation activities were completed to assess the sediment cap integrity in the vicinity of observed ACB unconformities in 2009. ACB investigation activities included a historical review of available data, a diver inspection survey, and sediment cap coring and porewater sampling within the unconformity area. The ACB unconformities may have been present since or shortly after sediment cap construction; however, sediment cap monitoring results from 2005 through 2010 and additional Willamette Cove investigation activities indicate the sediment cap is performing as designed.

7.0 REFERENCES

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Table B-1
ACB Investigation
Porewater Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Sediment Cap Performance Goals		Comparison Criteria			ACB-1a		ACB-1b		ACB-1c		ACB-2a		ACB-2b		ACB-2c	
SAMPLE TYPE							Porewater		Porewater		Porewater		Porewater		Porewater		Porewater	
Sample ID		McCormick & Baxter Record of Descision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	MBSA0410-ACB-1a		MBSA0410-ACB-1b		MBSA0410-ACB-1c		MBSA0410-ACB-2a		MBSA0410-ACB-2b		MBSA0410-ACB-2c	
Sample Date							4/5/2010		4/5/2010		4/5/2010		4/5/2010		4/5/2010		4/5/2010	
Sample Time							10:40		11:36		12:06		13:43		14:20		15:22	
CONTAMINANT OF INTEREST		Aquatic Life (chronic)[1]	Human Health (fish consumption only)[1]	Aquatic Life (chronic)[2]	Human Health (consumption of organism only)[2]	Maximum Contaminant Levels (MCLs)[3]												
Total Metals (µg/L)																		
Arsenic		0.19		0.15	0.00014	0.01	**6.1**		**5.3**		**5.5**		**3.9**		**19.8**		**15.5**	
Chromium		0.21		0.074		0.1	**0.36**	J	**0.47**	J	**0.26**	J	0.24	U	0.24	U	0.24	U
Copper		0.012		0.009			**1.2**		**1.7**		**0.29**	J	0.2	U	0.2	U	0.2	U
Zinc		0.11		0.12	26		**7**		**10.4**		**3.7**	J	**3.8**		**6.1**		**6.4**	
Total Dissolved Metals (µg/L)																		
Arsenic							**5.9**		**5.4**		**5.3**		**3.9**		**20.1**		**15.5**	
Chromium							0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
Copper							0.2	U	0.2	U	0.2	U	0.2	U	0.5	U	0.2	U
Zinc							5	U	5	U	5	U	5	U	5	U	5	U
Pentachlorophenol (µg/L)		13		11	3	1	0.52	U	0.51	U	0.51	U	0.51	U	0.57	U	0.55	U
PAHs (µg/L)																		
Acenaphthene	L	520		990			**0.2**		**0.096**		**0.059**		**0.064**		**0.048**	J	**0.033**	J
Acenaphthylene	L						0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0045	U	0.0041	U
Anthracene	L			40,000			0.0051	U	0.0052	U	0.0051	U	0.0051	U	0.0057	U	0.0078	U
Benzo (a) anthracene	H, C			0.018			0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0034	U	0.0031	U
Benzo (a) pyrene	H, C			0.018		0.2	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0034	U	0.0082	U
Benzo (b) fluoranthene	H, C			0.018			0.0051	U	0.0052	U	0.0051	U	0.0051	U	0.0057	U	0.0051	U
Benzo (ghi) perylene	H, C						0.0021	U	0.0021	U	0.002	U	0.0021	U	0.0023	U	0.0021	U
Benzo (k) fluoranthene	H, C			0.018			0.0051	U	0.0052	U	0.0051	U	0.0051	U	0.0057	U	0.0051	U
Chrysene	H, C			0.018			0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0034	U	0.0031	U
Dibenzo (a,h) anthracene	H, C			0.018			0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0045	U	0.0041	U
Fluoranthene	H		54	140			0.001	U	0.0041	U	0.0041	U	0.0041	U	**0.012**	J	**0.012**	J
Fluorene	L			5300			0.0031	U	0.0031	U	0.003	U	**0.013**	J	**0.017**	J	**0.021**	J
Indeno (1,2,3-cd) pyrene	H, C			0.018			0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0045	U	0.0041	U
Naphthalene	L	620					0.0051	U	0.0052	U	0.0051	U	**1.4**		0.0057	U	**0.24**	J
Phenanthrene	L						**0.025**	J	**0.29**		**0.023**	J	0.0062	U	**0.027**	J	**0.034**	J
Pyrene	H			4,000			0.0062	U	0.0062	U	0.0061	U	0.0062	U	**0.11**	J	**0.013**	J
Total LPAHs							**0.2250**		**0.3860**		**0.0160**	J	**1.4770**	J	**0.0920**	J	**0.3280**	J
Total HPAHs							0.0185	U	0.0202	U	0.0750	U	0.0201	U	**0.1220**	J	**0.0250**	J
Total CPAHs			0.031				0.0180	U	0.0181	U	0.0600	U	0.0180	U	0.0715	U	**0.0240**	U
Total PAHs							**0.2250**		**0.0233**		**0.1285**	J	**1.4770**	J	**0.2140**	J	**0.3530**	J

Notes:
L = Low Molecular Weight PAHs
H = High Molecular Weight PAHs
C = Carcinogenic PAHs
U = Analyte not detected above the method reporting limit shown.
J = Low analyte concentration identified in sample but the associated value is estimated.
MRL = Method Reporting Limit
Bold = Analyte detected
Inverse Indicates results that exceed the lowest (most stringent) of the sediment cap performance goals or comparison criteria.

[1] The 1996 Record of Decision (ROD) specifies the remedial action objectives of the sediment cap as: 1) preventing human and aquatic organisms from direct contact with contaminated sediment, and 2) minimizing releases of contaminants from sediment that might result in contamination of the Willamette River in excess of federal and state Ambient Water Quality Criteria (AWQCs).

[2] National Recommended Water Quality Criteria (NRWQCs) published as of August 15, 2007, are included for comparison (see http://www.epa.gov/waterscience/criteria/wqcriteria.html). The current publication includes criteria revisions published in 2002 National Recommended Water Quality Criteria: 2002 table (EPA-822-R-02-047) and 2003 Revised human Health Water Quality Criteria (EPA-822-F-03-012). Note that the aquatic life chronic criteria for pentachlorophenol has been adjusted to site-specific pH (7.5, representing a mid-range of the pH values measured in surface water at the site), and therefore differs from the standard table value. Criteria for metals (Cr, Cu, Zn) have not been adjusted for site-specific hardness. Carcinogenic risk-based numbers reflect a carcinogenicity risk of 10-6.

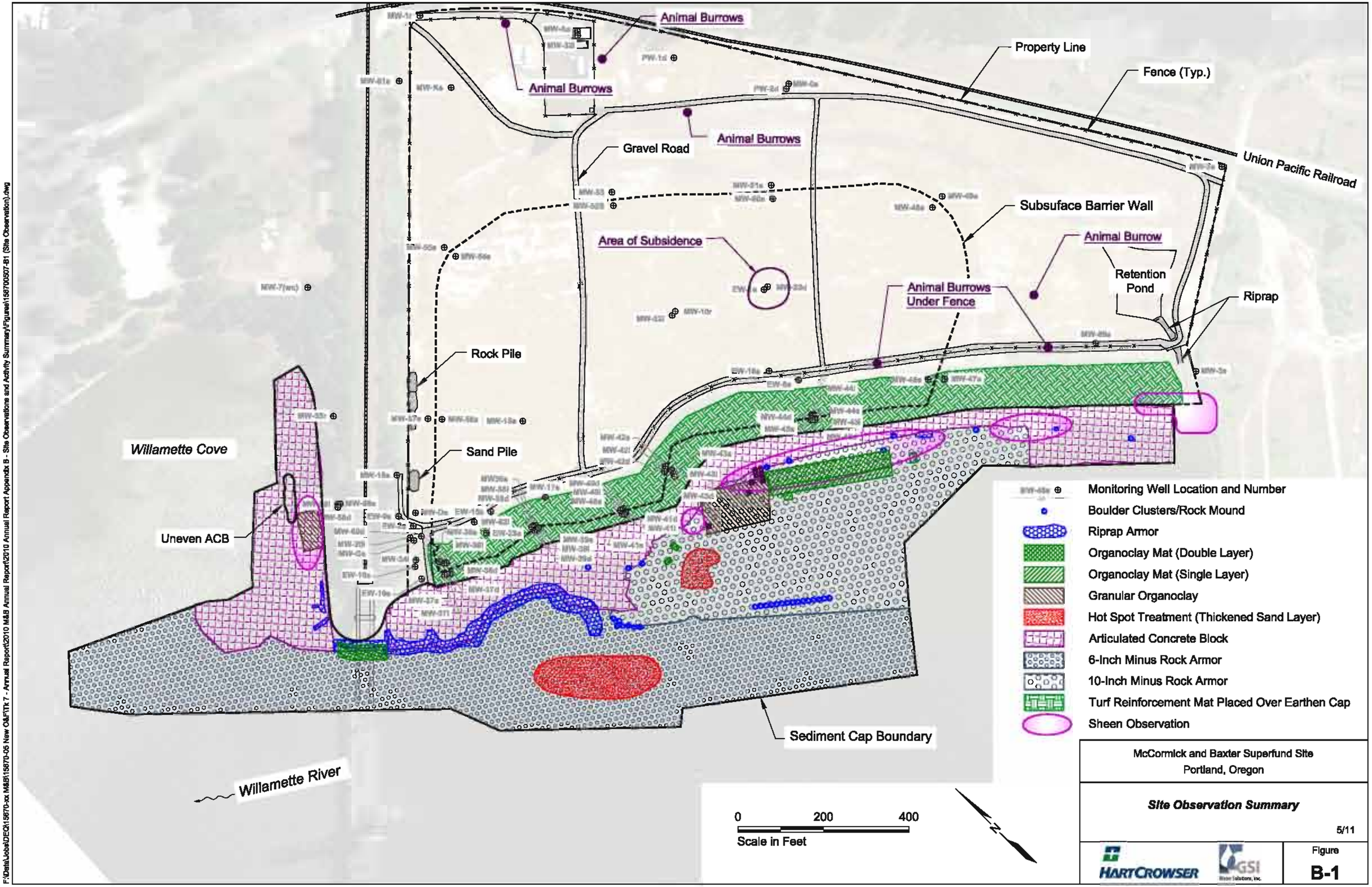
Table B-2
ACB Investigation
Sediment Core Data: Fall 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		**ACB-2a**		**ACB-2a**		**ACB-2b**		**ACB-2b**	
SAMPLE TYPE		**Sediment - Sand Cap**		**Sediment - Native**		**Sediment - Sand Cap**		**Sediment - Native**	
Sample ID		**MBACBSC-122010-2A-0-6**		**MBACBSC-122010-2A-6-12**		**MBACBSC-122010-2B-0-4**		**MBACBSC-122010-2B-4-8**	
Sample Date		**12/2/2010**		**12/2/2010**		**12/2/2010**		**12/2/2010**	
Depth		**0 - 6 inches**		**6 - 12 inches**		**0 - 4 inches**		**4 - 8 inches**	
CONTAMINANT OF INTEREST									
Pentachlorophenol (µg/L)		191	U	245	U	207	U	228	U
PAHs (µg/kg)									
Acenaphthene	L	**50.3**		**922**		**59.3**		**320**	
Acenaphthylene	L	7.6	U	52.2		8.4	U	**13.2**	
Anthracene	L	**9.3**		**309**		**14.7**		**78.2**	
Benzo (a) anthracene	H, C	7.6	U	**162**		**19.7**		**47.8**	
Benzo (a) pyrene	H, C	7.6	U	**134**		**16.6**		**35**	
Benzo (b) fluoranthene	H, C	7.6	U	**123**		**15.7**		**35.9**	
Benzo (ghi) perylene	H, C	7.6	U	**66.2**		8.4	U	**20.1**	
Benzo (k) fluoranthene	H, C	7.6	U	**123**		**16.3**		**31.4**	
Chrysene	H, C	7.6	U	**215**		**20.3**		**56**	
Dibenzo (a,h) anthracene	H, C	7.6	U	**33.9**		8.4	U	**9.8**	
Fluoranthene	H	**20.6**		**504**		**39.8**		**211**	
Fluorene	L	**42.1**		**844**		**43.9**		**265**	
Indeno (1,2,3-cd) pyrene	H, C	7.6	U	**58.8**		8.4	U	**16.7**	
Naphthalene	L	**31.7**		**9490**		**806**		**1050**	
Phenanthrene	L	**53.9**		**1450**		**44.7**		**335**	
Pyrene	H	**19**		**439**		**43**		**193**	
Total PAHs[1]	L,H	**227**		**14,926**		**1,140**		**2,718**	
Total Carcinigenic PAHs[2]	C	30	U	**916**		89		**253**	

Notes:
L = Low Molecular Weight PAHs
H = High Molecular Weight PAHs
C = Carcinogenic PAHs
U = Analyte not detected above the method reporting limit shown.
MRL = Method Reporting Limit
ROD = Record of Decision

[1] Bold Values indicate exceedences of 1996 ROD benthic threshold of 12 mg/kg (12,000 ug/kg) derived from the ecological risk assessment. Total PAHs calculated as either the sum of all detected results or if no PAHs were detected, the sum of half the detection limit was utilized to calculate these totals.

[2] No sample results exceed the 1996 ROD sediment cleanup goals of 2 mg/kg (2,000 ug/kg) total carcinogenic PAHs. Total carcinogenic PAHs calculated as either the sum of all detected carcinogenic PAH results or if none were detected, the sum of half the detection limit was utilized to calculate these totals.



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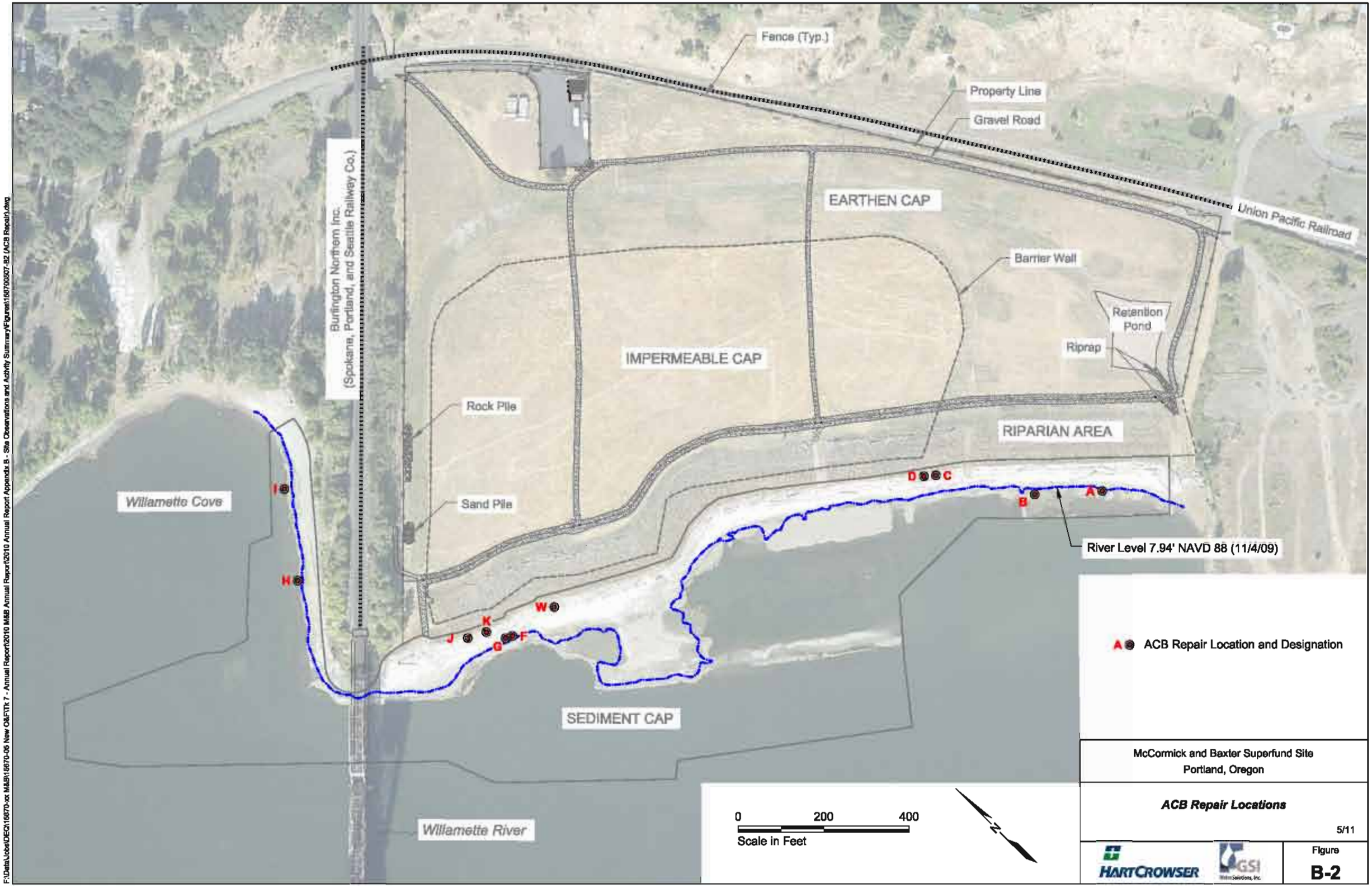

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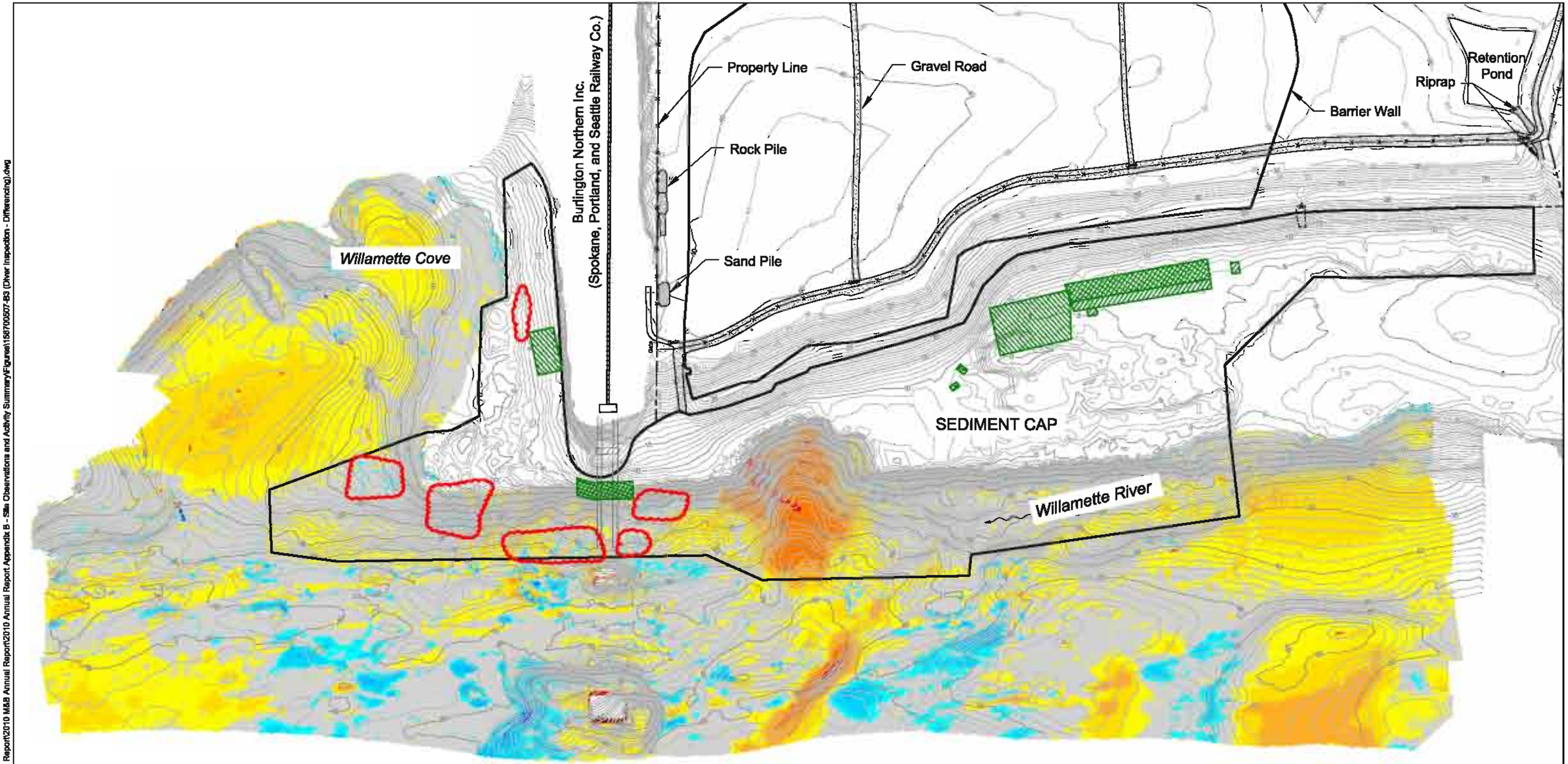
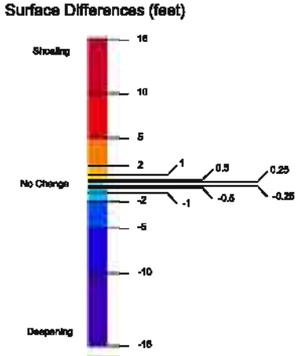


January 2009 Minus Fall 2004
Surface Differences (feet)



Elevation Contour (Ft. NAVD 88)

Organoclay Mat (Double Layer)

Organoclay Mat (Single Layer)

Ganular Organoclay

Diver Inspection Area

N

0 200 400
Scale in Feet

McCormick and Baxter Superfund Site
Portland, Oregon

Diver Inspection Area - Differencing Map

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HARTCROWSER

GSI Water Solutions, Inc.

Figure
B-3

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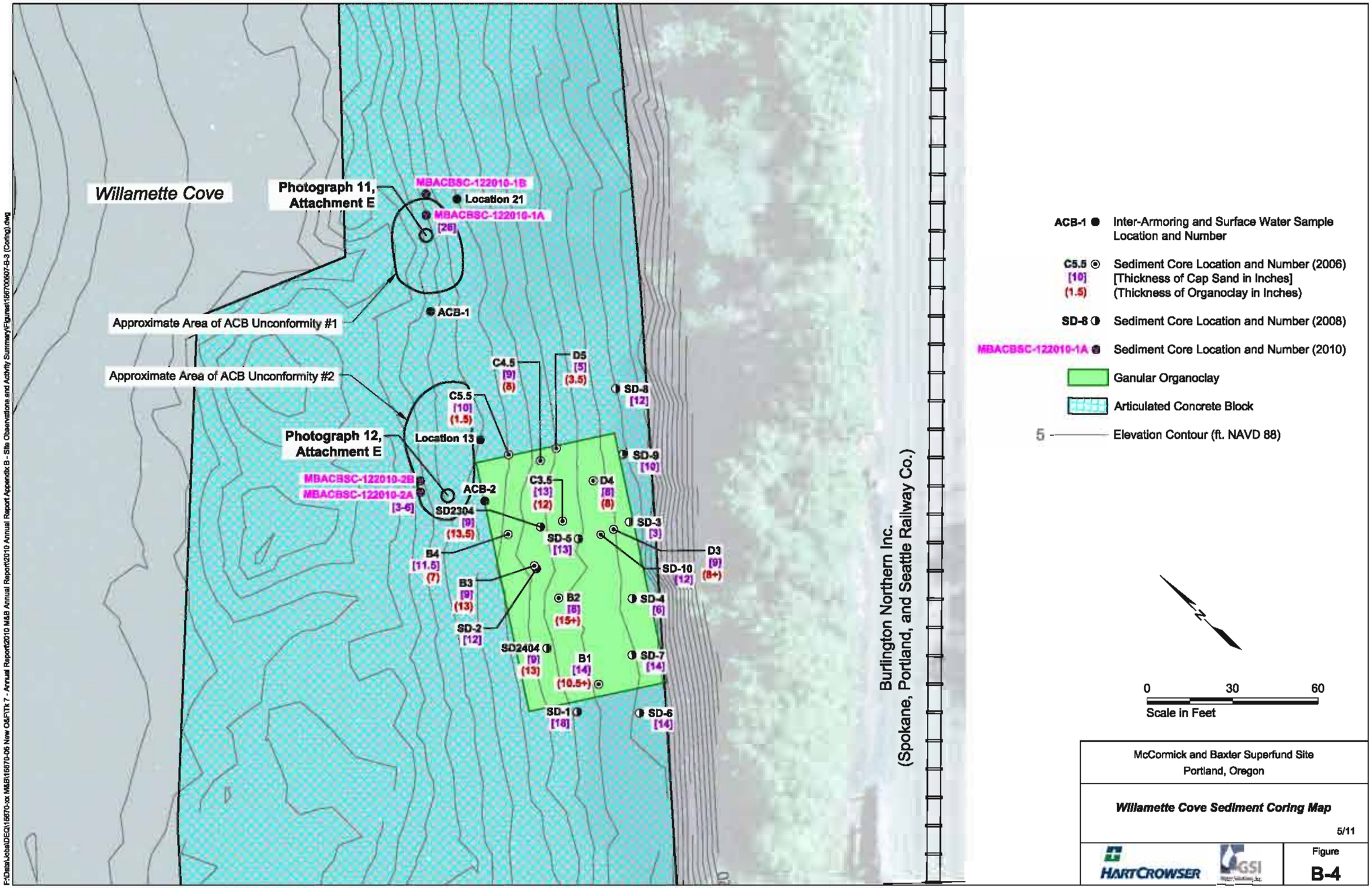

McCormick and Baxter Superfund Site
Portland, Oregon

Willamette Cove Sediment Coring Map

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HARTCROWSER GSI Water Solutions, Inc.

Figure
B-4

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ATTACHMENT A
SITE ACTIVITY LOG

Included only on the O&M Report DVD

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
1/12	0730	Am	1530	pm	N. Linn	CESI	Napl Guage/EXT
1/13	0730	Am	1000	Am	N. Linn	CESI	O&M
1/15	1030	Am	1600	pm	N. Linn	CESI	O&M/Finish
1/18	0930	Am	1430	pm	N. Linn	CESI	Scanning/Soil Inspection
1/19	0730	Am	1530	pm	N. Linn	CESI	Napl Guage/EXT
1/20	0730	Am	1530	pm	N. Linn	CESI	O&M
1/26	0730	Am	1530	pm	N. Linn	CESI	Napl Guage/EXT
1/27	0730	Am	1530	pm	N. Linn	CESI	O&M
2/02	0730	Am	1530	pm	N. Linn	CESI	Napl Guage/EXT
2/04	0730	Am	1530	pm	N. Linn	CESI	O&M
2/05	1200	pm	[redacted] 1230	Am	N. Linn	CESI	Site walk
02/09	0850	Am	1155	Am	T. Skratch	Hart Crowser	Status Meeting
2/09	"	"	1155	AM	H. Blizzard	CSI	"
2/09	"	"	"	"	S. Manzano	DEQ	"
2/10	0730	Am	1530	Am	N. Linn	Napl Guage/EXT	CES
2/11	0730	Am	1520	pm	N. Linn	[redacted] CESI	O&M
2/17	0900	Am	1200	pm	N. Linn	CESI	NAPL Guage/EXT

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
2/19	0730	Am	1530	Pm	N. LINN	CESI	O&M
2/23	0730	Am	1530	pm	N. LINN	CESI	NAPL GAUGE/EXT
2/24	0730	Am	1530	pm	N. LINN	CESI	O&M
3/02	0700	Am	1500	pm	N LINN	CESI	NAPL GAUGE/EXT
3/04	0730	Am	1530	pm	N LINN	CESI	O&M
3/09	0730	Am	1530	pm	N LINN	CESI	NAPL GAUGE/EXT
3/10	0730	Am	1530	pm	N. LINN	CESI	O&M
3/19	0500	Am	1600	pm	N. LINN	CESI	NAPL GAUGE/EXT
3/20	0500	Am	1600	pm	N. LINN	CESI	O&M
3/24	0500	Am	1300	pm	N LINN	CESI	SEDIMENT/SOIL CAP INSP.
3/25	0500	Am	1600	pm	N LINN	CESI	NAPL GAUGE/EXT.
3/26	0730	Am	1530	pm	N LINN	CESI	O&M
3/30	0730	Am	1600	pm	N LINN	CESI	NAPL GAUGE/EXT
3/31	0730	Am	1300 PM		N LINN	CESI	O&M
3/31	1235	PM	1710		Troy Fowler	HC	Logger
3/31	1235	Pm	1710		Jason Miles	HC	Logger

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
4/2	1000	am	230	pm	Jason Miles	HC	Field prep
4/2	1000	am	330	pm	Chris Martin	HC	Field prep
4/2	1030	AM	230	pm	Tim Skrotzki	HC	Field Prep
4/2	1130	AM	200	pm	Heidi Blaschke	GSI	"
4/5	0640	AM	1:30	pm	Jason Miles	HC	Cap sampling
4/5	0700	AM	1730	pm	Chris Martin	HC	Cap Sampling
4/5	0715	AM	0830	AM	Tim Skrotzki	HC	Cap Sampling
4/5	0730	AM	0850	AM	Heidi Blaschke	GSI	"
4/5	1400	PM	1500	PM	Tim Skrotzki	HC	Support
4/6	0650	AM			Jason Miles	HC	Cap Sampling
4/6	~~0[illegible]~~	~~[illegible]~~			Chris Martin	HC	Cap Sampling
4/6	1010	AM	10:45		Cliff Hewitt	GSI	" "
~~4/6~~ 4/7	0625	am	1804		Jason Miles	HC	" "
4/7	0628	am	1804		Chris Martin	HC	" "
4/8	0640	am					
4/8	12:15	NOON PM	12:30	NOON P.M.	SHAUN MCGINN	DIRECT TRANSPORT	P/U (7) ICE CHESTS
4/8	0635	am			Jason Miles	HC	cap Sampling

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Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
4/30	0730	AM	1530	PM	N. Linn	CRSI	O&M
5/3	1158	AM			J. Miles	HC	Decon sample collection
5/4	1015	A	1130	A	C. Morrison	HC	WL
5/4	1015	A	1130	A	C. Dockter	HC	" "
5/5	0730	A	1530	P	N. Linn	CRSI	NAPL Guage/FAT
5/6	0701		1800	PM	J. Miles	HC	GW Monitoring
5/6	0730	A	1730	PM	Chris Morrison	HC	" "
5/7	0710	A	0805	AM	J. Miles	HC	Sample prep
5/7	0830	A	1600	P	N. Linn	CRSI	O&M
5/14	0730	AM	1530	PM	N. Linn	CRSI	NAPL Guage/FAT
5/15	0830	AM	1600	PM	N. Linn	CRSI	O&M
5/18	0730	AM	1530	PM	N. Linn	CRSI	NAPL Guage/FAT
5/18	1540	PM	1595	PM	J. Miles	HC	Paying off Pump
5/19	0730	AM	1530	PM	N. Linn	CRSI	O&M
5/25	0730	AM	1530	PM	N. Linn	CRSI	NAPL Guage/FAT
5/25	1432	PM	1433	PM	J. Miles	HC	Pick up pump.
5/26	0730	AM	1530	PM	N. Linn	CRSI	O&M

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
4/9/12	0845		1445		Chris Morkin	HC	Cap Sampling
4/10	0500		1:00		N. Lem	CESI	NAPL Gauge/RAT
4/11	0800		1:00		N Lem	CESI	O&M
4/12	0815		8:00		J. Miles	HC	Cap Sampling
4/12	0815		1800		E. Carroll	GSI	Cap Sampling
4/13	0600	am	7:45	PM	J Miles	HC	Cap Sampling
4/13	0700		1845	PM	E. Carroll	GSI	Cap Sampling
4/13	0800	Am	330	pm	N Lem	CESI	MONTHLY MTG
4/13	08:15	Am	1000	AM	T. Skrotski	HC	Monthly Meeting
4/13	0845	Am	11:35	AM	H Blaschke	GSI	" "
4/13	0950	"	11:30	Am	S. Mallard	DEQ	" "
4/13	0715	am	1:45	PM	J. Miles	HC	Shipping Samples
4/15	0730	Am	1:30	pm	N Lem	CESI	NAPL Gauge/RAT
4/16	0730	Am	1530	pm	N Lem	CESI	O&M
4/23	0800	AM	1:35	Am	J. Miles	HC	Inventory
4/28	1020	AM	1930	PM	J. Miles	HC	Well Development
4/29	0730	Am	1:30	pm	N Lem	CESI	NAPL Gauge/RAT

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
6/02	0730	Am	1530	pm	N Linn	CESI	NAPL Gauge/EXT
6/03	0730	Am	1530	pm	N Linn	CESI	O&M
6/12	0800	Am	1600	pm	N Linn	CESI	NAPL Gauge/EXT
6/13	0800	Am	1600	Pm	N. Linn	CESI	O&M
6/15	12:10	Pm	3:00	Pm	Troy Fowler	HC	Low Tide/logging
6/15	12:10	PM	650	PM	Jason Miller	HC	Low Tide/logging
6/15	3:00	Pm			N Linn	CESI	Low tide
6/17	1640	pm	1830	pm	Robert L Adams	CESI	Tank/debris on beach
6/17	1640	pm	1830	pm	Josh Akins	CESI	Tank/debris on beach
6/18	1230	pm	1830	PM	N Linn	CESI	NAPL Gauge/EXT
6/21	11[illegible]	Am	1630	pm	N. Linn	CESI	Site walk/Insp.
6/22	0700	Am	1630	pm	N. Linn	CESI	O&M/Monthly MTG
6/22	0200	Pm	4:30	PM	H Bischel	CESI	Site Visit
6/22	0200	PM	4:30	PM	T. Skrotzki	HC	Site Meeting
6/22	2:00	PM	4:30	PM	Scott Milton	DEQ	"
6/23	0730	Am	1530	pm	N Linn	CESI	NAPL Gauge/EXT
6/25	0730	Am	1530	pm	N Linn	CESI	O&M

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
6/28	0930	A	1730	pm	N Linn	CESI	NAPL Gauge/Ext
6/29	0730	A	1530	pm	N. Linn	CESI	O&M
7/6	0900	A	1700	pm	N Linn	CESI	NAPL Gauge/Ext
7/7	0730	A	1530	pm	N. Linn	CESI	O&M
7/9	0900	A	11:00	AM	Herb Blaschke	GSI	Site walk
7/9	0900	AM	11:00	"	Mike Poulsen	DEQ	" "
7/9	0900	AM	11:00	"	Erin Madden	Nez Perce Tribe	" "
7/9	"	"	11:00	"	Scott Manzano	DEQ	"
7/9	"	"	11:00	"	Rene Fuentes	EPA	" "
7/9	"	"	11:00	"	Nancy Harney	EPA	" "
7/9	"	"	11:30	"	Tim Skratski	Hart Crowser	" "
7/9	1300	pm	1700	pm	N Linn	CESI	Repair Gate
7/12	0730	A	1530	pm	N Linn	CESI	NAPL Gauge/Ext
7/14	0730	A	1530	pm	N Linn	CESI	O&M
7/15			1530	pm	N. Linn	CESI	O&M / Supplies
7/20	0730	A	1530	pm	N Linn	CESI	NAPL Gauge/Ext
7/27	0730	A	1530	pm	N. Linn	CESI	O&M

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
7/27	0830	A	1630	P	N Linn	CESI	NAPL Gauge/EXT
7/29	0730	A	1530	P	N. Linn	CESI	O&M
8/03	0730	A	1530	P	N. Linn	CESI	NAPL Gauge/EXT
8/06	0730	A	1530	P	N. Linn	CESI	O&M
8/09	0700	A	1500	P	N. Linn	CESI	NAPL Gauge/EXT
8/9	3:30	pm	1800	P	Heal Blusell	GSI	CLASS TOUR
8/11	0700	A	1430	P	N. Linn	CESI	O&M
8/13	0730	A	1230	P	N Linn	CESI	SEPTIC INSPECTION
8/16	1030	A	1600	P	N. Linn	CESI	MONTHLY MTG
8/16	1300	P	1600	P	TIM SKOTSKI	NATCHANSON	"
8/16	"	P	1600	P	NEIL BUSCHKO	GSI	"
8/16	"	P	1600	P	SCOTT MAZENO	DEQ	"
8/17	0730	A	1530	P	N. Linn	CESI	NAPL Gauge/EXT/Locks
8/18	0700	A	1500	P	N. Linn	CESI	O&M
8/23	0700	A	1500	P	N. Linn	CESI	NAPL Gauge/EXT
8/24	0700	A	1500	P	N. Linn	CESI	O&M
8/3	0730	A	1530	P	N. Linn	CESI	NAPL Gauge/EXT

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
9/3/10	0710	am	0711	am	Jason Miles	Hart Crowser	Drop off Back flow test paperwork for Alert
9/4	0700	AM	1500	AM	N. Linn	CESI	O&M
9/9	1448	PM	1653	PM	J. Miles	Hart Crowser	Inspect ACB's
9/11	0730	A	1530	P	N. Linn	CESI	O&M
9/13	0730	A	1530	P	N. Linn	[redacted] CESI	O&M
9/14	0835	AM	0934	AM	C. Martin	H. Crowser	O&M
9/14	0835	AM	0934	AM	J. Miles	H. Crowser	O&M
9/17	0700	AM			N. Linn	CESI	NAPL Gauge/Ext
9/17	9:30	A.M.	1045	AM	Bill Ellis	All Seasons Diver	Dive Flow Test
9/18	0730	A	1530	P	N. Linn	CESI	O&M
9/22	0730	A	1530	P	N. Linn	CESI	NAPL Gauge/Ext
9/23	0730	A	1530	P	N. Linn	CESI	O&M
9/27	0730	A	1500	P	N. Linn	CESI	NAPL Gauge/Ext
9/29	0700	A	1500	P	N. Linn	[redacted] CESI	O&M
9/29	1407	PM	1445	PM	J. Miles	HC	Prep for Sampling
10/7	1000	A	1300	P	N. Linn	CESI	Low Tide Event

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
10/7/10	1120	a.m	535	P	Troy Fowler	HC	low tide monitoring
10/7/10	1120	a.m	535	P	Jason Miles	HC	low-tide monitoring
10/8	0700	A	1500	P	N. Lenn	CESI	NAPL Gauge/Eat.
10/8	1400	PM	1700		Heidi Blizelle	GSI	Prep
10/8	1420		455	P	Troy Fowler	HC	prep.
10/9	0700	A	1530	P	N. Lenn	CESI	O&M
10/11	0730	AM	1200	PM	Heidi Blizelle	GSI	Seal cap insp.
10/11	0720	AM	1535		Troy Fowler	HC	seal cap insp
10/12	0720	AM	1435	PM	Heidi Blizelle	GSI	SPMEC
10/12	730	AM	240	PM	Troy Fowler	HC	SPMEC
10/13	0736	AM	1300	pm	Josh Akins	CESI	Concrete Seams
10/13	730	am	510		Troy Fowler	HC	SPME
10/13	745	AM	335	PM	Danny Reible	~~CESI~~ UT	
10/13	745	AM	335	PM	Heidi Blizelle	GSI	
10/13	0630	AM	1300	PM	N. Lenn	CESI	Concrete Seams
10/14	0700	AM	1500	PM	N. Lenn	CESI	NAPL Gauge/Eat
10/14	9:50	AM	10:00	AM	Josh McCurdy	PDI	Pickup Gear

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
10-15-10	0700	AM	2:00	pm	Joshua Akins	CESI	concrete
10/15/10	0720	AM	200	pm	Dan Coffield	Clear Water	Concrete
10/15	0630	A	1400	P	N. Lenn	CESI	ACB/GROUTING
10/16	0730	A	1530	P	N. Lenn	CESI	Gsm
10/16	0730	A			N. Lenn	CESI	ACB/GROUTING
10/18	9:00	A	1000		MATT SMITH	NATIVE ECOSYSTEMS NW	TIM STROTSKI - Site walk
10/18	9:00	AM	1000		Tim Skrotzki	Hart Crowser	Site walk
10/18/10	9:00	AM	1000		Leonel Rocha	R France Reforestation, Inc	site walk
10.18.10	10:12	AM	235	pm	Josh Akins	CESI	ACB / Grouting
10-18	10:26	AM	240		M Brown	CESI	" "
10-18	10-45	AM	2:30	pm	[illegible]	TCB	" "
10/20	0830	Am	1600	Pm	N Lenn	CESI	MAX Gunc./GT
10/20	0845	AM	1:30	Pm	Chris		
10/20	07:35	Am	445		Xiaoxia Lu	GSI / UT	sampling
10/20	0700	Am	445		H Blischke	GSI	"
10/20	0700	Am	445		Patrick	UT	"
10/20	1130	Am	4:45		Dave Fowler	GSI	"

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
10/21	0700	A	1500	P	N Linn	CESI	NAPLEXT / O&M
10/22	1200	P	1600	P	N. Linn	CESI	O&M
10/27	0730	P	1530	P	N. Linn	CESI	NAPL Gauge / EXT
10/30	0500	P	1600	P	N Linn	CESI	O&M
11/02	0930	A	1730	P	N. Linn	CESI	NAPL Gauge/EXT
11/03	0730	A	1530	P	N. Linn	CESI	O&M
11/10	0730	A	1530	P	N. Linn	CESI	NAPL Gauge /EXT
11/11	0700	A	1500	P	N Linn	CESI	O&M
11/18	0700	A	1500	P	N. Linn	CESI	NAPL Gauge /Ext
11/20	0700	A	1500	P	N Linn	CESI	O&M
11/22	0700	A	1500	P	N Linn	CESI	NAPL Gauge/Ext
11/24	0700	A	1500	P	N. Linn	CESI	O&M
11/29	1130	A	1300	P	N. Linn	CESI	Check Leak
11/30	0700	A	1500	P	N. Linn	CESI	NAPL /Gauge /Ext
12/1	0700	A	1500	P	N Linn	CESI	O&M
12/6	0700	A	1500	P	N Linn	CESI	NAPL Gauge/Ext
12/7	0700	A	1500	P	N Linn	CESI	O&M

Site Visitation Record
McCormick and Baxter Creosoting Company
Portland, Oregon

SITE VISIT LOG

VISITORS AND WORKERS MUST CHECK IN AND OUT

Date	Time IN	a.m./ p.m.?	Time OUT	a.m./ p.m.?	Name	Name of Company, Agency, or Organization	Comment (Purpose of Visit, etc.)
12/14	0800	A	1630	P	N Lenn	CESI	Site walk / Monthly MTG
12/14	1400	PM	1600		T. Skrotzki	Hart Crowser	Status Meeting
12/14	1400	PM	↓		H Blischke	GSI	" "
"	"	"	↓		Smolenko	DEQ	"
12/16	0700	A	1500	P	N. Lenn	CESI	NAPL Gauge/Ext
12/17	0700	A	1500	P	N Lenn	CESI	O&M
12/20	0700	A	1500	P	N. Lenn	NAPL Gauge/Ext	CESI
12/27	0800	A	1600	P	N. Lenn	NAPL Gauge/Ext	CESI
12/29	0700	A	1500	P	N. Lenn	CESI	O&M

ATTACHMENT B
SEDIMENT CAP OBSERVATIONS

Included only on the O&M Report DVD

Table 3.2
Example Sediment Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

1/18/2010

Site Observations Form - Sediment Cap
Weekly / Monthly

tbl_site_observations

Category	Observation
gate conditions (weekly)	All locked and secure.
high temp (weekly)	55
low temp (weekly)	40
wind (weekly)	Light winds Approx: 5 to 7 MPH
precipitation (weekly)	None
Sheen Observations (see table below)	None Observed
Size and Location	None Observed
Source (gas bubble, debris, etc.)	None Observed
ACB and Riprap Armoring	Good
Changes in Location	Good
Displaced blocks	Good
Vandalism	None Observed
River relative to top of ACB	40 to 80 plus Feet.
Organoclay Mats (extreme low water)	None Observed
Edges of mats visible?	None Observed
Overlying Armoring conditions	Good
Evidence of movement?	Same ones we have been observing
WC OC/Seep Area	Good
TFA OC/Seep Area	Good
Wildlife	
Fish / Crayfish / clams	Clams
Other	Birds
Warning Signs Condition	Good
Buoy Condition / Location	Slightly out of position
cove shoreline (general)	Good
FWDA shoreline (general)	Good
bulkhead shoreline (general)	Good
TFA shoreline (general)	Good
observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:
Sheen Description	

Location (TFA, FWDA, Willamette Cove) indicate if located on map and attach map	Character (NS, BS, SS, MS, HS)	Size and dimension (inches)	Odor (no odor, petroleum odor. creosote odor, other odor)

Table 3.2
Example Sediment Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

2/8/2010

Site Observations Form - Sediment Cap
Weekly / Monthly

tbl_site_observations

Category	Observation
gate conditions (weekly)	All locked and secure.
high temp (weekly)	52
low temp (weekly)	45
wind (weekly)	Light winds Approx: 5 to 7 MPH
precipitation (weekly)	None
Sheen Observations (see table below)	None Observed
Size and Location	None Observed
Source (gas bubble, debris, etc.)	None Observed
ACB and Riprap Armoring	Good
Changes in Location	Good
Displaced blocks	Good
Vandalism	None Observed
River relative to top of ACB	40 to 100 plus feet
Organoclay Mats (extreme low water)	None Observed
Edges of mats visible?	None Observed
Overlying Armoring conditions	Good
Evidence of movement?	Same ones we have been observing
WC OC/Seep Area	Good
TFA OC/Seep Area	Good
Wildlife	
Fish / Crayfish / clams	Clams
Other	Birds
Warning Signs Condition	Good
Buoy Condition / Location	Slightly out of position
cove shoreline (general)	Good
FWDA shoreline (general)	Good
bulkhead shoreline (general)	Good
TFA shoreline (general)	Good
observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:
Sheen Description	

Location (TFA, FWDA, Willamette Cove) indicate if located on map and attach map	Character (NS, BS, SS, MS, HS)	Size and dimension (inches)	Odor (no odor, petroleum odor. creosote odor, other odor)

Table 3.2
Example Sediment Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

3/24/2010

Site Observations Form - Sediment Cap
Weekly / Monthly

tbl_site_observations

Category	Observation
gate conditions (weekly)	All locked and secure.
high temp (weekly)	64
low temp (weekly)	55
wind (weekly)	None Observed
precipitation (weekly)	None
Sheen Observations (see table below)	None Observed
Size and Location	None Observed
Source (gas bubble, debris, etc.)	None Observed
ACB and Riprap Armoring	Good
Changes in Location	Good
Displaced blocks	Good
Vandalism	None Observed
River relative to top of ACB	40 to 100 plus feet
Organoclay Mats (extreme low water)	None Observed
Edges of mats visible?	None Observed
Overlying Armoring conditions	Good
Evidence of movement?	Same ones we have been observing
WC OC/Seep Area	Good
TFA OC/Seep Area	Good
Wildlife	
Fish / Crayfish / clams	Clams
Other	Birds
Warning Signs Condition	Good
Buoy Condition / Location	Slightly out of position
cove shoreline (general)	Good
FWDA shoreline (general)	Good
bulkhead shoreline (general)	Good
TFA shoreline (general)	Good
observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:
Sheen Description	

Location (TFA, FWDA, Willamette Cove) indicate if located on map and attach map	Character (NS, BS, SS, MS, HS)	Size and dimension (inches)	Odor (no odor, petroleum odor. creosote odor, other odor)

Table 3.2
Example Sediment Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

Date: 6/21/10 Time:

Site Observations Form - Sediment Cap

Weekly / Monthly

tbl_site_observations

Category	Observation
gate conditions (weekly)	All locked and secure
high temp (weekly)	62
low temp (weekly)	55
wind (weekly)	None
precipitation (weekly)	None
Sheen Observations (see table below)	None observed
Size and Location	None observed
Source (gas bubble, debris, etc.)	None observed
ACB and Riprap Armoring	Good
Changes in Location	Water too high to see
Displaced blocks	Water too high to see
Vandalism	None observed
River relative to top of ACB	5 to 10 Feet
Organoclay Mats (extreme low water)	Water too high to see
Edges of mats visible?	Water too high to see
Overlying Armoring conditions	Water too high to see
Evidence of movement?	Water too high to see
WC OC/Seep Area	Water too high to see
TFA OC/Seep Area	Water too high to see
Wildlife	
Fish / Crayfish / clams	Birds
Other	
Warning Signs Condition	Good
Buoy Condition / Location	Out of correct location
cove shoreline (general)	Good
FWDA shoreline (general)	Good
bulkhead shoreline (general)	Good
TFA shoreline (general)	Good
observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:
Sheen Description	

Location (TFA, FWDA, Willamette Cove) indicate if located on map and attach map	Character (NS, BS, SS, MS, HS)	Size and dimension (inches)	Odor (no odor, petroleum odor. creosote odor, other odor)

Table 3.2
Example Sediment Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

8/13/2010

Site Observations Form - Sediment Cap
Weekly / Monthly

tbl_site_observations

Category	Observation
gate conditions (weekly)	All locked and secure.
high temp (weekly)	95
low temp (weekly)	65
wind (weekly)	None Observed
precipitation (weekly)	None
Sheen Observations (see table below)	None Observed
Size and Location	None Observed
Source (gas bubble, debris, etc.)	None Observed
ACB and Riprap Armoring	Good
Changes in Location	Good
Displaced blocks	Good
Vandalism	None Observed
River relative to top of ACB	40 to 100 plus feet
Organoclay Mats (extreme low water)	None Observed
Edges of mats visible?	None Observed
Overlying Armoring conditions	Good
Evidence of movement?	Same ones we have been observing
WC OC/Seep Area	Good
TFA OC/Seep Area	Good
Wildlife	
Fish / Crayfish / clams	Clams
Other	Birds
Warning Signs Condition	Good
Buoy Condition / Location	Slightly out of position
cove shoreline (general)	Good
FWDA shoreline (general)	Good
bulkhead shoreline (general)	Good
TFA shoreline (general)	Good
observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:
Sheen Description	

Location (TFA, FWDA, Willamette Cove) indicate if located on map and attach map	Character (NS, BS, SS, MS, HS)	Size and dimension (inches)	Odor (no odor, petroleum odor. creosote odor, other odor)

Table 3.2
Example Sediment Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

12/14/2010

Site Observations Form - Sediment Cap
Weekly / Monthly

tbl_site_observations

Category	Observation
gate conditions (weekly)	All locked and secure.
high temp (weekly)	37
low temp (weekly)	30
wind (weekly)	10 to 15 m.p.h.
precipitation (weekly)	Heavy rains at times
Sheen Observations (see table below)	None Observed
Size and Location	None Observed
Source (gas bubble, debris, etc.)	None Observed
ACB and Riprap Armoring	Good
Changes in Location	Good
Displaced blocks	Good
Vandalism	None Observed
River relative to top of ACB	10 to 20 ft
Organoclay Mats (extreme low water)	None Observed
Edges of mats visible?	None Observed
Overlying Armoring conditions	Good
Evidence of movement?	Same ones we have been observing
WC OC/Seep Area	Good
TFA OC/Seep Area	Good
Wildlife	
Fish / Crayfish / clams	Clams
Other	Birds
Warning Signs Condition	Good
Buoy Condition / Location	Need new ones
cove shoreline (general)	Good
FWDA shoreline (general)	Good
bulkhead shoreline (general)	Good
TFA shoreline (general)	Good
observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:
Sheen Description	

Location (TFA, FWDA, Willamette Cove) indicate if located on map and attach map	Character (NS, BS, SS, MS, HS)	Size and dimension (inches)	Odor (no odor, petroleum odor. creosote odor, other odor)

ATTACHMENT C
SOIL CAP OBSERVATIONS

Included only on the O&M Report DVD

Table 3.1
Example Soil Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

1/18/2010

Site Observations Form - Soil Cap
Weekly/Monthly

tbl_site_observations

Category	Observation
Gate Conditions (weekly)	All locked and secure
perimeter fence (weekly)	Good
trespassers, entry point	None Observed
High temp (weekly)	55
Low temp (weekly)	40
Wind (daily)	Light wind 5 to 7 MPH.
Precipitation (weekly)	Light Sprinkles
Erosion	Good
Around Manholes	Good
Headway retention pond	Good
Eastern edge of property	Good
Spillway area	Good
Outfall area	Fair, needs more rock placement
Animal burrows / disturbance	Old squirell holes
Manhole conditions	Good
Debris, flow, general condition	Medium flow, Approx: 2 to 4 GPM
Flow in collection piping	Medium flow, Aprox: 2 to 4 GPM.
Outfall and Spillway	
Note approx. flow volume	Medium flow, Approx: 5 to 7 GPM
Sprinkler System	Winterized
Vegetation Conditions	Fair
Wildlife	Birds, Geese
Daily activities	Site Inspection
Obsevations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:

Table 3.1
Example Soil Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

2/8/2010

Site Observations Form - Soil Cap
Weekly/Monthly

tbl_site_observations

Category	Observation
Gate Conditions (weekly)	All locked and secure
perimeter fence (weekly)	Good
trespassers, entry point	None Observed
High temp (weekly)	52
Low temp (weekly)	45
Wind (daily)	Light wind 5 to 7 MPH.
Precipitation (weekly)	None Observed
Erosion	Good
Around Manholes	Good
Headway retention pond	Good
Eastern edge of property	Good
Spillway area	Good
Outfall area	Fair, needs more rock placement
Animal burrows / disturbance	Old squirell holes
Manhole conditions	Good
Debris, flow, general condition	Medium flow, Approx: 1 to 2 gpm
Flow in collection piping	Same
Outfall and Spillway	
Note approx. flow volume	Medium flow, Approx: 2 to 2.5 gpm
Sprinkler System	Winterized
Vegetation Conditions	Fair
Wildlife	Birds, Geese
Daily activities	Site Inspection
Obsevations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:

Table 3.1
Example Soil Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

3/24/2010

Site Observations Form - Soil Cap
Weekly/Monthly

tbl_site_observations

Category	Observation
Gate Conditions (weekly)	All locked and secure
perimeter fence (weekly)	Good
trespassers, entry point	None Observed
High temp (weekly)	64
Low temp (weekly)	55
Wind (daily)	None Observed
Precipitation (weekly)	None Observed
Erosion	Good
Around Manholes	Good
Headway retention pond	Good
Eastern edge of property	Good
Spillway area	Good
Outfall area	Fair, needs more rock placement
Animal burrows / disturbance	Old squirrell holes
Manhole conditions	Good
Debris, flow, general condition	Small flow .5 to 1 G.P.M.
Flow in collection piping	Same
Outfall and Spillway	
Note approx. flow volume	Medium flow, Approx: 1 to 2 G.P.M.
Sprinkler System	Winterized
Vegetation Conditions	Fair
Wildlife	Birds, Geese
Daily activities	Site Inspection
Obsevations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:

Table 3.1
Example Soil Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

Date: 6/21/10 Time:

Site Observations Form - Soil Cap
Weekly/Monthly

tbl_site_observations

Category	Observation
Gate Conditions (weekly)	All locked and secure
perimeter fence (weekly)	Good
trespassers, entry point	None observed
High temp (weekly)	62
Low temp (weekly)	55
Wind (daily)	None
Precipitation (weekly)	None
Erosion	
Around Manholes	None
Headway retention pond	None
Eastern edge of property	None
Spillway area	None
Outfall area	Some rock out of place
Animal burrows / disturbance	Small ones through out the site
Manhole conditions	Good
Debris, flow, general condition	No debris/ 2 to 5 G.P.M.
Flow in collection piping	Same
Outfall and Spillway	Good/ Lots of vegetation growth
Note approx. flow volume	2 to 5 G.P.M.
Sprinkler System	Still Winterized
Vegetation Conditions	Good
Wildlife	Birds, Squirrels,etc
Daily activities	Site walk
Observations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:

Table 3.1
Example Soil Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

8/13/2010

Site Observations Form - Soil Cap
Weekly/Monthly

tbl_site_observations

Category	Observation
Gate Conditions (weekly)	All locked and secure
perimeter fence (weekly)	Good
trespassers, entry point	None Observed
High temp (weekly)	95
Low temp (weekly)	65
Wind (daily)	Slight wind 5 to10 mph
Precipitation (weekly)	None Observed
Erosion	Good
Around Manholes	Good
Headway retention pond	Good
Eastern edge of property	Good
Spillway area	Good
Outfall area	Fair, needs more rock placement
Animal burrows / disturbance	Old squirrell holes
Manhole conditions	Good
Debris, flow, general condition	No flow
Flow in collection piping	Same
Outfall and Spillway	
Note approx. flow volume	No flow
Sprinkler System	Winterized
Vegetation Conditions	Good
Wildlife	Birds, Geese
Daily activities	Site Inspection
Obsevations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:

Table 3.1
Example Soil Inspection Form
McCormick and Baxter Creosoting Company
Portland, Oregon

12/14/2010

Site Observations Form - Soil Cap
Weekly/Monthly

tbl_site_observations

Category	Observation
Gate Conditions (weekly)	All locked and secure, except top gate.
perimeter fence (weekly)	Good
trespassers, entry point	None Observed
High temp (weekly)	37
Low temp (weekly)	30
Wind (daily)	Slight wind 5 to20 mph
Precipitation (weekly)	Heavy rains at times
Erosion	Good
Around Manholes	Good
Headway retention pond	Good
Eastern edge of property	Good
Spillway area	Good
Outfall area	Fair, needs more rock placement
Animal burrows / disturbance	Old squirrell holes
Manhole conditions	Good
Debris, flow, general condition	20 to 30 gph
Flow in collection piping	Same
Outfall and Spillway	
Note approx. flow volume	20 to 30 gph
Sprinkler System	Winterized
Vegetation Conditions	Good
Wildlife	Birds, Geese
Daily activities	Site Inspection
Obsevations or notes	
Follow Up Inspection	☐ Yes ☐ No Date:

ATTACHMENT D
MONTHLY MEETING SUMMARIES

Included only on the O&M Report DVD

McCormick & Baxter Operational & Functional Determination Period Status Meeting Report

Tuesday, February 9, 2010
9:00 a.m.
6900 N. Edgewater Street
Portland, OR 97203

Meeting called by:	Oregon Department of Environmental Quality (DEQ)	Type of Meeting:	Progress Meeting
Facilitator:	Heidi Blischke	Note Taker:	Tim Skrotzki
Attendees:	Heidi Blischke	Technical Manager	GSI
	Scott Manzano	Project Officer	Oregon DEQ
	Tim Skrotzki	Field Manager	Hart Crowser

Progress Meeting Notes

Site Walk and Inspection

Representatives from Hart Crowser, DEQ, and GSI conducted a visual inspection of the shoreline and upland site on Tuesday, February 9, 2010. Newt Linn, of Clearwater Environmental, completed a thorough inspection of the entire site on Monday, February 8, 2009.

Site Walk – Shoreline

The following items were inspected during the shoreline site walk:

- Shoreline conditions
- Stormwater discharge
- Buoy locations

The Willamette River level at the time of the inspection (~10:00 AM) was approximately 8 feet NAVD88 with low tide at 10:00 AM and high tide at 2:00PM. The river level was approximately two feet higher than the level observed in November 2009.

Sheen was not observed during the site walk. Ebullition was minimal and observed only near the TFA. Stormwater discharge was observed to be approximately 4-5 gallon per minute.

The three remaining buoys appear to be in the same location as observed in November 2009. Five permanent buoys are planned to be placed in Summer 2010.

Site Walk – Upland

The following items were inspected during the upland site walk:

- Soil cap for burrows, erosion, signs of trespass, etc.
- BNRR road construction
- Monitoring well MW-23d inner versus outer casing
- EW-1s well-seal and one-way gas release valve

BNRR road construction activities have resumed, following a soil removal event. Road base material is being placed and compacted.

The distance between the inner casing and outer casing on MW-23d is 2.75 inches. This is 0.19 inches less than in November 2009, indicating the ground surface is continuing to subside in this location. Note: Between June and November 2009 there was no change in elevation at MW-23d.

No gas emissions were observed from the EW-1s gas release valve.

No unusual signs of erosion or burrowing were noted on the soil cap.

Action Items:	**Person Responsible**	**Deadline**
Monitor stormwater discharge	Newt Linn	Weekly
Monitor inner/outer casing MW-23d	Tim Skrotzki	Bi-Monthly
Download EW-1s transducer data	Tim Skrotzki	Quarterly

Site Activities/Miscellaneous Field Activities

NAPL Recovery: Weekly NAPL thickness measurements and recovery were completed from mid-December 2009 through January 2010. DNAPL was also recovered from EW-1s within the barrier wall.

January Site Inspection: Upland and shoreline inspections were completed on Monday January 18, 2010. January 2010 inspection results were similar to those in February 2010 with large debris deposited along the shoreline.

Water Line Repair: Clearwater repaired the bathroom trailer water line after pipes broke due to cold weather in December 2009. Waterline repairs were completed on January 7 and 8, 2010.

Burlington Northern Road Construction: According to Newt Linn of Clearwater, soil removal and waste disposal of soil from the Burlington Northern road construction was conducted in January 2010.

Surface, Inter-armoring, and Sub-armoring Water Sampling: The Region 10 EPA Dive team will be provide surface, inter-armoring, and sub-armoring water sampling assistance during the next scheduled sampling event (March 2010). The dive team will assist with the sampling work one month later, in early April 2010, due to scheduling conflicts.

Activities for Subsequent Period: Weekly NAPL gauging, including product recovery from EW-1s. Surface, inter-armoring, and sub-armoring water sampling is scheduled for April 2010. Transducers will be downloaded, reprogrammed, and desiccant changed in April 2010. Bathymetric and sonar survey activities were planned for Spring 2010 but soon after the February Site meeting, DEQ decided to use the 2009 bathymetric and side-scan sonar survey data conducted for the National Oceanographic and Atmospheric Administration in Portland Harbor, considering it will be equivalent to data from an additional survey in 2010.

Action Items	**Person Responsible**	**Deadline**
Willamette Cove ACB investigation	Heidi Blischke	April 2010
Transducer maintenance	Tim Skrotzki	March 2010
SW, IA, and SA Sampling	Tim Skrotzki	April 2010
Subsidence observations/measurement	Tim Skrotzki	Every two months
Site Inspections	Newt Linn	Monthly
NAPL monitoring and recovery	Newt Linn	Weekly

Deliverables		
Bathymetric Survey Request for Bids: The draft Bathymetric and Sonar Survey Request for Bid (RFB) document was submitted to the DEQ on February 8, 2010. As mentioned above, since then, it was determined that the 2009 bathymetric survey conducted for Portland Harbor is useable instead of conducting an additional survey. **DGPS Request for Bids:** Hart Crowser is preparing the differential Global Positioning System (DGPS) RFB document to assist the EPA Dive Team complete diver inspection activities following the bathymetry survey results analysis. The DGPS RFB will be submitted in late February 2010. **Subsidence Memorandum:** The Final Subsidence Memorandum will be completed in early February 2010.		
Action Items	**Person Responsible**	**Deadline**
Revise Subsidence Memorandum w/DEQ comments.	Tim Skrotzki/Troy Fowler	February 2010
Budget		
Budget Status: December 2009 and January 2010 expenditures were at/or below the anticipated budget. A BAP is being prepared for O&F activities from March through September 2010. The BAP should be submitted to DEQ by February 16, 2010.		
Meeting Status: The next progress meeting is tentatively scheduled for Tuesday, April 13, 2010.		
Date/Time	Tentatively; Tuesday, April 13, 2010	9:00 a.m.
Location	McCormick & Baxter Facility	Site Office

McCormick & Baxter Operational & Functional Determination Period Status Meeting Report

Tuesday, April 13, 2010
9:00 a.m.
6900 N. Edgewater Street
Portland, OR 97203

Meeting called by:	Oregon Department of Environmental Quality (DEQ)	Type of Meeting:	Progress Meeting
Facilitator:	Heidi Blischke	Note Taker:	Tim Skrotzki
Attendees:	Scott Manzano	Project Officer	DEQ
	Heidi Blischke	Technical Manager	GSI
	Tim Skrotzki	Field Manager	Hart Crowser
	Newt Linn	Field Technician	Clearwater Environmental

Progress Meeting Notes

Site Walk and Inspection

Representatives from Hart Crowser, DEQ, and GSI conducted a visual inspection of the shoreline and upland site on Tuesday, April 13, 2010. Newt Linn, of Clearwater Environmental, completed a thorough inspection of the entire site on Wednesday, March 24, 2010. Site inspection activities have been reduced from monthly to quarterly events. The next inspection is scheduled for June 2010.

Site Walk – Shoreline

The following items were inspected during the shoreline site walk:

- Shoreline conditions
- Stormwater discharge
- Buoy locations

The Willamette River level at the time of the inspection (~11:00 AM) was approximately 8.8 feet NAVD88 with high tide at 5:00 AM and low tide at 3:00PM; thus, observations were made during an outgoing tide. The river level was similar to the level observed in February 2010.

Stormwater discharge was observed at an estimated 4-5 gallon per minute.

Only two of the five temporary buoys remain in place. On Friday April 9, 2010, storm conditions and high river flow likely dislodged and swept away one of the three buoys observed in February 2010. Permanent buoys are planned to be placed in the summer of 2010.

Site Walk – Upland

The following items were inspected during the upland site walk:

- Soil cap
- BNRR road construction – road complete
- Monitoring well MW-23d
- EW-1s well-seal and one-way gas release valve

The distance between the inner casing and outer casing of MW-23d is 2.63 inches. This is 0.12 inches less than in February 2010, indicating the ground surface is continuing to subside in this location. During the last six months there was no change in elevation at MW-23d. No gas emissions were observed from the EW-1s gas release valve.

Action Items:	**Person Responsible**	**Deadline**
Monitor stormwater discharge	Newt Linn	Weekly
Monitor inner/outer casing MW-23d	Tim Skrotzki	Every two months
Download EW-1s transducer data	Tim Skrotzki	Quarterly

Site Activities/Miscellaneous Field Activities

NAPL Recovery: Weekly NAPL thickness measurements and recovery were completed from mid-January through mid-April 2010. DNAPL was also removed from EW-1s within the barrier wall when present. Gas emissions have been observed from EW-1s during weekly monitoring.

BNRR Road Construction: BNRR's contractor has been leaving the Edgewater Street gate open for extended periods, and the M&B lock is missing. The locks to the fencing gates surrounding the Site are in place; no access or entry problems have been observed.

Transducer Download: The transducer download schedule was recently changed to omit March 2010; however, transducer data was downloaded on March 31, 2010 and the transducers were reprogrammed. Transducer downloading is now scheduled for June and September 2010 and the transducers have been reprogrammed to run for one year. The damaged EW-1s transducer was removed and replaced with a backup.

Surface, Inter-armoring, and Sub-armoring Water Sampling: Surface, inter-armoring, and sub-armoring water sampling was conducted from April 5 through April 13, 2010. Sampling activities were completed using the EPA Dive Team and included sampling two additional locations as part of an investigation of the Willamette Cove ACB anomalies.

Bathymetric Survey: The bathymetric survey will not be conducted in 2010. DEQ has determined that the National Oceanographic and Atmospheric Administration's (NOAA) Willamette River bathymetric survey data, collected in 2009 for Portland Harbor, will be sufficient to assess the changes in the sediment cap's surface compared to previous years. David Evans and Associates (DEA) will use the 2009 NOAA bathymetry data to create differencing images by comparing to previous sediment cap bathymetry. Crescent Moegling of NOAA stated that DEA will have access to the data as soon as NOAA completes their review, in approximately 3 weeks. In the event that the 2009 bathymetric survey does not adequately cover the shallow area, specifically in the Willamette Cove, a laser or hand survey of the shallow area may be conducted this summer/fall. Follow-up diver inspection surveys based on the differencing maps will are planned for June 2010.

Activities for Subsequent Period: Weekly NAPL gauging, including product recovery from EW-1s. Site-wide monitoring well development and groundwater sampling activities are tentatively scheduled for late April/early May 2010.

Action Items	**Person Responsible**	**Deadline**
Bathymetric differencing images	Tim Skrotzki	May 2010
Groundwater sampling	Tim Skrotzki	May 2010
NAPL monitoring and recovery	Newt Linn	Weekly
Subsidence measurements	Tim Skrotzki	Quarterly

Site Inspections	Newt Linn	Quarterly

Deliverables

Updated Operations and Maintenance (O&M) Manual: Minor revisions were made to text, tables, and figures for the M&B O&M Manual. Revisions included updated sampling techniques, water and NAPL gauging tables, and updated record drawings. Revisions to the O&M Manual were sent to the DEQ on April 12, 2010.

Draft 2009 Operations and Maintenance (O&M) Report: The draft 2009 Annual Operation and Maintenance Report was submitted to the DEQ on March 4, 2010. DEQ provided comments mid-April.

Action Items	**Person Responsible**	**Deadline**
Final 2009 Annual O&M Report	Heidi Blischke	Mid-May, 2010

Budget

Budget Status: February and March 2010 expenditures were at/or below the anticipated budget. A new Budget and Assumptions Proposal (BAP), to complete site O&F activities from March through September 2010, was approved by the DEQ on March 10, 2010.

Meeting Status: The next progress meeting is tentatively scheduled for Tuesday, June 15, 2010.

Date/Time	Tentatively; Tuesday, June 15, 2010	9:00 a.m.
Location	McCormick & Baxter Facility	Site Office

McCormick & Baxter Operational & Functional Determination Period Status Meeting Report

Tuesday, June 22, 2010
2:00 p.m.
6900 N. Edgewater Street
Portland, OR 97203

Meeting called by:	Oregon Department of Environmental Quality (DEQ)	Type of Meeting:	Monthly Progress Meeting
Facilitator:	Heidi Blischke	Note Taker:	Tim Skrotzki
Attendees:	Scott Manzano	Project Officer	DEQ
	Heidi Blischke	Technical Manager	GSI
	Tim Skrotzki	Field Manager	Hart Crowser
	Newt Linn	Field Technician	Clearwater Environmental

Monthly Progress Meeting Notes

Site Walk and Inspection

Representatives from Hart Crowser, DEQ, and GSI conducted a visual inspection of the shoreline and upland site on Tuesday, June 22, 2010. Newt Linn, of Clearwater Environmental, completed a thorough inspection of the entire site on Monday, June 21, 2010. Site inspection activities have been reduced from monthly to quarterly events. The next inspection is scheduled for September 2010.

Site Walk – Shoreline

The following items were inspected during both the shoreline site walk and inspection:

- Inspection of the McCormick and Baxter shoreline conditions.
- Inspection of the McCormick and Baxter stormwater discharge.
- Inspection of buoy locations.

The Willamette River level at the time of the inspection (~3:00 PM) was approximately 14.3 feet NAVD88 with low tide at 11:30 AM and high tide at 5:00PM; thus, observations were made surrounding an incoming tide. The river levels are 6 feet higher to those observed in April 2010 due to heavy Spring rain.

Stormwater discharge was observed in June 2010 (5-10 gallon per minute).

The buoy located along the southern end of the sediment cap is missing likely due to increased Willamette River flow due to heavy Spring rain. Currently only two of five buoys remain in place. All buoys will be replaced in August 2010.

Site Walk – Upland

The following items were inspected during the upland site walk and inspection:

- Inspection of the soil cap.
- BNRR Road Construction.
- Inspection of monitoring well MW-23d.
- EW-1s well-seal and one-way gas release valve.

The BNRR access road is complete.

The distance between the inner casing and outer casing on MW-23d is 2.63 inches similar to the measurement collected in April 2010. As such, no movement was observed between April and June 2010. Total movement between the inner and outer casing since the first measurement in December 2008 is 1.37 inches.

Action Items:	**Person Responsible**	**Deadline**
Buoy Placement Permission	Scott Manzano	August 2010
Buoy Placement Procurement	Tim Skrotzki	August 2010
Monitor stormwater discharge.	Newt Linn	Weekly
Monitor inner/outer casing MW-23d	Tim Skrotzki	Quarterly
Download EW-1s transducer data	Tim Skrotzki	Quarterly

Site Activities / Miscellaneous Field Activities

NAPL Recovery: Weekly NAPL thickness measurements and recovery were completed from mid-mid-April through mid-June 2010. DNAPL was also removed from EW-1s within the barrier wall when present.

Well Development: Groundwater monitoring well EW-19s was re-developed on April 28, 2010, in preparation for the Five-Year Review groundwater monitoring event.

Five-Year Review Groundwater Sampling: Five-Year Review groundwater sampling was completed on May 5, 2010. Samples were collected using low-flow techniques using a peristaltic pump from 11 wells: MW-47s, MW-41s, MW-39s, MW-37s, EW-19s, MW-58s, MW-35r, MW-37i, MW-37d, MW-55s, and MW-53s.

Bathymetric Survey: On June 2, 2010, Crescent Moegling of the National Oceanic and Atmospheric Administration (NOAA) provided approval to use their 2009 Portland Harbor bathymetric survey data to complete Five-Year Review differencing images. David Evans and Associates (DEA) will complete differencing images compared between cap installation surveys and the 2009 surveys. If the bathymetric survey does not cover the shallow area in Willamette Cove, DEQ can opt to conduct laser or hand surveying of the shallow area this summer/fall. Follow-up diver inspection surveys based on the differencing maps will be completed in Summer 2010, if necessary.

Low-Tide Monitoring: Low-tide monitoring was completed on Friday June 15, 2010. Additionally during the event a recently repaired transducer was placed in monitoring well EW-15s.

Annual Technical Team Meeting: The Annual Technical Team meeting is schedule for July 8 and 9, 2010.

Activities for Subsequent Period: Weekly NAPL gauging including extraction from EW-1s.

Action Items	**Person Responsible:**	**Deadline:**
Bathymetric differencing images	DEA	July 2010
Annual Team Meeting	Heidi/Scott/Tim	July 8, 2010
Monthly Subsidence Observations	Tim Skrotzki	Quarterly
Site Inspections	Newt Linn	Quarterly (weekly July-September)
NAPL monitoring and recovery.	Newt Linn	Weekly

Deliverables		
Final 2009 Operations and Maintenance (O&M) Report: The Final 2009 Operation and Maintenance Report was submitted to the M&B Technical Team members on May 25, 2010.		
Budget		
Budget Status: The April and May 2010 Performance Monitoring (Task 4) was above the anticipated budget due to increased costs associated with inclement weather during the SW, IA, and SA Water Sampling event. A new Budget and Assumptions Proposal (BAP) to complete site O&M activities from August 2010 through February 2011 was submitted to the DEQ on June 9, 2010.		
Meeting Status: No meeting will be held in July 2010. The next progress meeting is tentatively scheduled for Tuesday, August 17, 2010.		
Date / Time	Tentatively; Tuesday, August 17, 2010	9:00 a.m.
Location	McCormick & Baxter Facility	Site Office

McCormick & Baxter Operational & Functional Determination Period Status Meeting Report

Monday, August 16, 2010
1:00 p.m.
6900 N. Edgewater Street
Portland, OR 97203

Meeting called by:	Oregon Department of Environmental Quality (DEQ)	Type of Meeting:	Monthly Progress Meeting
Facilitator:	Heidi Blischke	Note Taker:	Tim Skrotzki
Attendees:	Scott Manzano	Project Officer	DEQ
	Heidi Blischke	Technical Manager	GSI
	Tim Skrotzki	Field Manager	Hart Crowser
	Newt Linn	Field Technician	Clearwater Environmental

Progress Meeting Notes

Site Walk and Inspection

Representatives from Hart Crowser, DEQ, and GSI conducted a visual inspection of the shoreline and upland site on Monday, August 16, 2010. Newt Linn, of Clearwater Environmental, completed a thorough inspection of the entire site on Friday, August 13, 2010. The next inspection is scheduled for October 2010.

Site Walk – Shoreline

The following items were inspected during the shoreline site walk:

- Shoreline conditions
- Stormwater discharge
- Buoy locations

The Willamette River level at the time of the inspection (~3:00 PM) was approximately 8.0 feet NAVD88 with high tide at 11:00 AM and low tide at 5:00PM; thus, observations were made during an outgoing tide. The river levels are approximately 6 feet lower than those observed in June 2010.

Minimal stormwater discharge was observed in August 2010 (less then 1 gallon per minute).

Currently, two of five buoys remain in place. Buoys are planned to be replaced with a more permanent design in October 2010.

Site Walk – Upland

The following items were inspected during the upland site walk:

- Soil cap
- Monitoring well MW-23d (distance between the inner and outer casing)
- EW-1s well-seal and one-way gas release valve

The distance between the inner casing and outer casing on MW-23d was measured at 2.55 inches. This represents 0.08 inches of movement between June and August 2010. Total movement between the inner and outer casing since the first measurement in December 2008 is 1.45 inches.

Action Items:	Person Responsible	Deadline
Buoy placement permitting	Scott Manzano	August 2010
Monitor stormwater discharge	Newt Linn	Quarterly
Monitor inner/outer casing MW-23d	Tim Skrotzki	Quarterly
Download EW-1s transducer data	Tim Skrotzki	Quarterly

Site Activities/Miscellaneous Field Activities

NAPL Recovery: Weekly NAPL thickness measurements and recovery were completed from mid-June through mid-August 2010. DNAPL was also removed from EW-1s within the barrier wall. NAPL Data Gap Investigation planning was discussed; however, a subsequent meeting with EPA on August 19, 2010 concluded that a fence diagram using existing data will be created to assess subsurface NAPL data to support potential recovery efforts near well MW-20i (area of interest).

Buoy Placement Permit. DEQ is currently applying for a permit to have the remaining buoys replaced by 5 permanent buoys. Hart Crowser will complete an initial engineering design memo including calculating buoyancy based on river hydraulics and alternative drive point system for buoy anchor.

Bathymetric Survey: On June 19, 2010, David Evans and Associates (DEA) submitted differencing images comparing post-sediment cap bathymetric surveys from 2005 and 2006 with the 2009 National Oceanographic and Atmospheric Administration (NOAA) Portland Harbor Willamette River bathymetric survey. However, the 2009 NOAA Portland Harbor multibeam bathymetric survey did not extend above the NAVD88 -1.3-foot (ft) elevation. The previous cap installation surveys completed at McCormick and Baxter collected multibeam data close to the 1m depth contour Columbia River Datum (CRD) in some areas (approximately 0 to 1ft NAVD88). As such, a data gap exists on the differencing maps between -1.3 and 1.0 ft NAVD88. Because of the visual unconformities in the Willamette Cove ACB noted in September 2009, sediment cap cores will be completed beneath the unconformities to determine the physical integrity of the sand cap.

Activities for Subsequent Period: Weekly NAPL gauging, including product recovery from EW-1s.

Action Items	Person Responsible	Deadline
Buoy Placement Permit	Scott Manzano	August 2010
Willamette Cove Sediment Cap Cores	Heidi Blischke	September 2010
Buoy Anchor Engineering Memo	Tim Skrotzki	September 2010
Annual Team Meeting Summary	Heidi/Scott	September 2010
NAPL Fence Diagram	Heidi Blischke	September 2010
Monthly subsidence observations	Tim Skrotzki	Quarterly
Site Inspections	Newt Linn	Quarterly

Deliverables

DEA Bathymetric Differencing Images: DEA submitted Bathymetric Differencing Images comparing post-cap installation surveys with the 2009 NOAA Portland Harbor survey on June 19, 2010.

Budget

Budget Status: June and July 2010 expenditures were at/or below the anticipated budget. A new Budget and Assumptions Proposal (BAP) for O&F activities from October 2010 through March 2011 is currently being prepared for submittal to DEQ in late August 2010.

Meeting Status: No meeting will be held in September 2010. The next progress meeting is tentatively scheduled for Tuesday, October 19, 2010.

Date/Time	Tentatively; Tuesday, October 19, 2010	9:00 a.m.
Location	McCormick & Baxter Facility	Site Office

McCormick & Baxter Operational & Functional Determination Period Status Meeting Report

Tuesday, December 14, 2010
2:00 PM
6900 N Edgewater Street
Portland, OR 97203

Meeting called by:	Oregon Department of Environmental Quality (DEQ)	Type of Meeting:	Monthly Progress Meeting
Facilitator:	Heidi Blischke	Note Taker:	Tim Skrotzki
Attendees:	Scott Manzano	Project Officer	DEQ
	Heidi Blischke	Technical Manager	GSI
	Tim Skrotzki	Field Manager	Hart Crowser
	Newt Linn	Field Technician	Clearwater Environmental

Progress Meeting Notes

Site Walk and Inspection

Representatives from Hart Crowser, DEQ, and GSI conducted a visual inspection of the shoreline and upland site on Tuesday, December 14, 2010. Newt Linn, of Clearwater Environmental, completed a thorough inspection of the entire site on Monday, December 13, 2010. The next inspection is scheduled for March 2011.

Site Walk – Shoreline

The following items were inspected during the shoreline site walk:

- McCormick and Baxter shoreline conditions
- McCormick and Baxter stormwater discharge
- Buoy locations

The Willamette River level at the time of the inspection (~4:00 PM) was approximately 14.2 feet NAVD88 with low tide at 8:00AM and high tide at 5:00PM; thus, observations were made during high tide. The river levels are 6 feet higher to those observed in August 2010. Significant trash and wood debris was observed along the shoreline, likely due to high river levels.

Significant stormwater discharge was observed from the RCRA-style cap outfall (~30 gallons per minute) due to heavy rain.

Two of five buoys remain in place, one was tangled with wood debris. Five new, permanent buoys will be placed in 2011.

Site Walk – Upland

The following items were inspected during the upland site walk:

- Soil cap
- Monitoring well MW-23d
- EW-1s well-seal and one-way gas release valve

The distance between the inner casing and outer casing on MW-23d was measured at 2.55 inches; the same measurement taken in August 2010.

Action Items:	Person Responsible	Deadline
Monitor stormwater discharge	Newt Linn	Quarterly
Monitor inner/outer casing MW-23d	Tim Skrotzki	Quarterly
Site inspections	Newt Linn	Quarterly
Download EW-1s transducer data	Tim Skrotzki	Semi-Annual

Site Activities/Miscellaneous Field Activities

NAPL Recovery: Weekly NAPL thickness measurements and recovery were completed from mid-August through December 2010. Consistent with previous removal results the majority of NAPL was removed from monitoring well MW-20i. DNAPL was also removed weekly from EW-1s within the barrier wall when present.

Inner/outer Casing Movement at MW-23d: The distance between the inner casing and outer casing on MW-23d measured on December 14, 2010 was 2.55 inches. No movement/subsidence was observed between August and December 2010.

Low-Tide Monitoring: Low-tide monitoring was completed on Thursday October 7, 2010. The transducer located in monitoring well MW-15s is damaged and was removed for repair.

Solid Phase Microextraction (SPME) Sampling: SPME sampling was conducted from October 11 through October 22, 2010. Sampling activities were completed using the EPA Dive Team in addition to sediment cap including inspections of the Willamette Cove ACB anomalies and suspect areas identified in the bathymetry differencing maps.

ACB Grouting: ACB grouting was completed by Clearwater Environmental from October 13 through October 15, 2010.

NAPL Data Gap Investigation: Using historic data, two three-dimensional geologic fence diagrams depicting subsurface soil conditions including areas of potential NAPL near MW-20i were completed in late October 2010. A conference call to discuss these subsurface conditions and NAPL recovery potential between the DEQ, EPA, GSI, and Hart Crowser was completed on November 8, 2010. The NAPL Data Gap Investigation work plan will be completed in January 2011 and field activities are anticipated to be conducted in February 2011.

Willamette Cove ACB Coring: ACB coring was completed by Cascade Drilling on December 2, 2010. Four cores were collected from the Willamette Cove near anomaly areas, which were tagged by the EPA dive team. The sand cap thickness in two of the four cores (one anomaly location) was 3 and 6 inches thick. A meeting between the DEQ, EPA, and GSI will be convened on Thursday December 16, 2010, to discuss Willamette Cove coring and previously collected porewater data beneath the anomaly locations.

Buoy Placement Permit. The DEQ has applied for a permit to replace the buoys and are expecting permit approval in December 2010. Buoy design build bids are due from marine engineering contractors on Wednesday, December 15, 2010. Contracts to initiate buoy design build activities will be completed in late December 2010. DEQ will determine if the permanent buoys can be placed in Winter/Spring 2011 or if we need to wait to place the3 buoys within the Oregon Department of Fish and Wildlife window (to open in July 2011).

Activities for Subsequent Period: Weekly NAPL gauging, including product recovery from EW-1s.

Action Items	Person Responsible:	Deadline:
Buoy placement permit	Scott Manzano	December 2010
Buoy placement procurement/contract	Tim Skrotzki	December 2010
NAPL Data Gap Investigation Work Plan	Heidi Blischke	January 2011
NAPL data gap drilling procurement	Tim Skrotzki	January 2011

Deliverables

NAPL Data Gap Investigation Scope of Work: Hart Crowser/GSI submitted a Final NAPL Data Gap Investigation Scope of Work Memorandum to the DEQ on November 27, 2010.

ACB Investigation Sampling and Analysis Plan: Hart Crowser/GSI submitted an ACB Investigation Sampling and Analysis Plan to the DEQ on December 1, 2010.

Budget

Budget Status: August through November 2010 expenditures were at/or below the anticipated budget. A new Budget and Assumptions Proposal (BAP) to complete site O&F activities from October 2010 through March 2011 was approved by the DEQ on September 30, 2010.

Meeting Status: Progress meetings are now scheduled quarterly. The next meeting is scheduled for Tuesday, March 15, 2011.

Date/Time	Tentatively; Tuesday, March 15, 2011	9:00 AM
Location	McCormick & Baxter Facility	Site Office

ATTACHMENT E
PHOTOGRAPH DOCUMENTATION

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 TO DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE
PORTLAND, OREGON

Photograph 1 – Exposed ACB within TFA during low tide.
Photograph taken looking west (October 2010).

Photograph 2 – Exposed ACB along steep slope.
Photograph taken looking south (October 2010).

Photograph 3 – Accumulated wood debris during a high river event. Photograph taken facing south (December 2010).

Photograph 4 – Gap observed between ACB. Photograph taken looking south (September 2010).

Photograph 5 – Gap between ACB filled with grout.
Photograph taken looking south (December 2010).

Photograph 6 – Buoy placed to mark outer boundary of sediment cap.
Photograph taken looking west (October 2010).

Photograph 7 – Transient boat used as a home in Willamette Cove.
Photograph taken looking north (July 2010).

Photograph 8 – Typical ground squirrel burrow within soil cap (July 2010).

Photograph 9 – Monitoring wells MW-23d and EW-1s. Photograph taken looking west (July 2010).

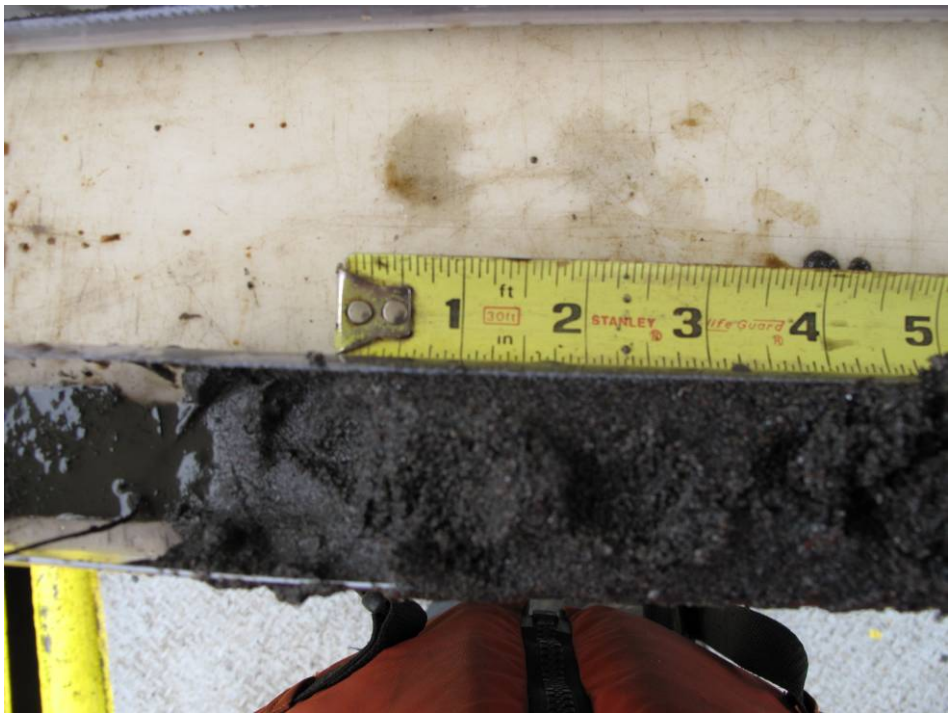
Photograph 10 – Vegetation growth on soil cap. Photograph taken looking northwest (July 2010).

Photograph 11 – Willamette Cove ACB settling. Photograph taken looking northeast (September 2009).

Photograph 12 – Willamette Cove ACB settling. Photograph taken looking northeast (September 2009).

Photograph 13 – Pore water sampling equipment in shallow water as seen from shore. Photograph taken looking west (April 2010).

Photograph 14 – Truck-mounted push probe sampling aboard barge within Willamette Cove. Photograph taken facing east (December 2010).



Photograph 15 – ACB investigation core 1A. (December 2010).

Photograph 16 – ACB investigation core 1A. (December 2010).

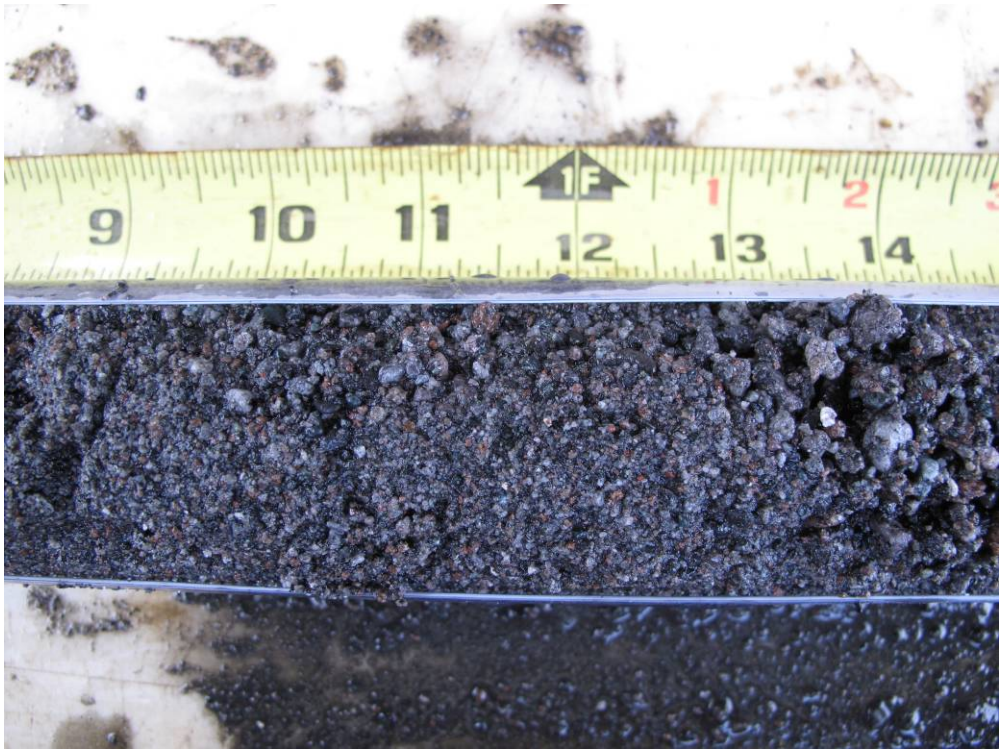
Photograph 17 – ACB investigation core 1A. (December 2010).

Photograph 18 – ACB investigation core 1A. (December 2010).

Photograph 19 – ACB investigation core 1A. (December 2010).

Photograph 20 – ACB investigation core 1B. (December 2010).

Photograph 21 – ACB investigation core 1B. (December 2010).



Photograph 22 – ACB investigation core 1B. (December 2010).

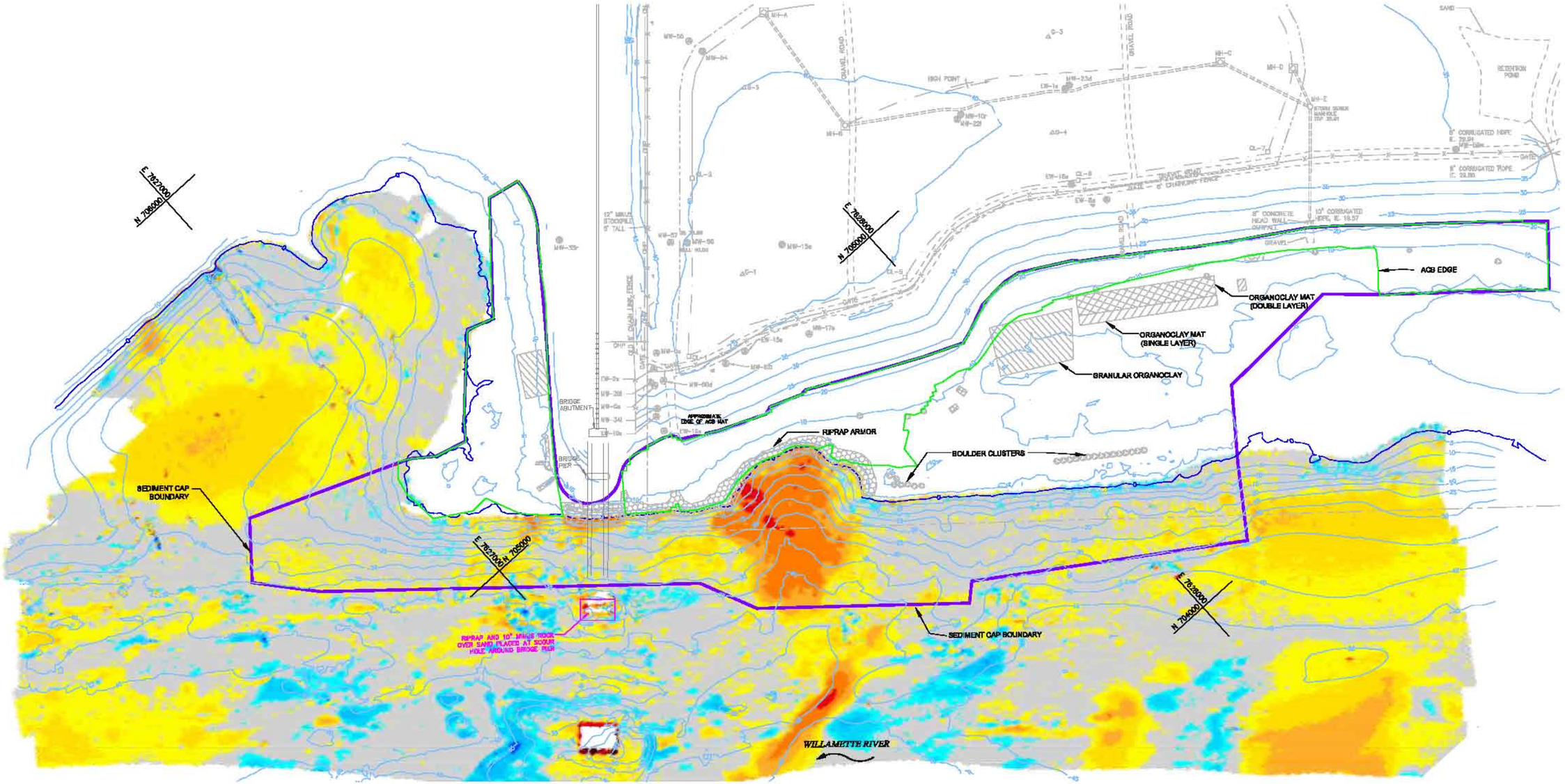
Photograph 23 – ACB investigation core 1B. (December 2010).

Photograph 24 – ACB investigation core 2A. (December 2010).

Photograph 25 – ACB investigation core 2A. (December 2010).

ATTACHMENT F
DIFFERENCING IMAGES

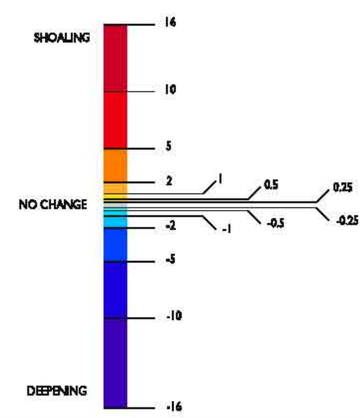
Included only on the O&M Report DVD

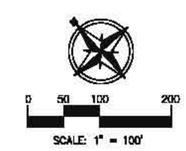


NOTES:

1. This drawing presents a comparison of multibeam bathymetric surveys conducted by David Evans and Associates, Inc. (DEA).
2. Dates of Surveys: December 4-6 2008 and January 14 and 22, 2009 vs. November 5, 2004.
3. Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
4. Vertical Datum: North American Vertical Datum of 1988 (NAVD 88)
5. Units: International Feet.
6. Contour Interval: 5 feet.
   Contours represent a composite surface from November, 2004; January, 2006; and December 2006 upland surveys and April, 2006 in-water survey.
7. The difference analysis was generated from a 3-foot difference grid of the multibeam bathymetry. The 3-foot grid values of the November 5th, 2004 survey were subtracted from the December 4-6, 2008 and January 14 and 22, 2009 survey to produce the difference grid.
8. Water surface elevations were obtained from a Real-Time Kinematic Global Positioning System (RTK GPS). An RTK GPS base station was deployed to provide real-time GPS correctors. A Post-Processed Kinematic Solution (PPK GPS) was used to apply GPS correctors when a solid RTK GPS link could not be established.
9. Horizontal positions were acquired with a POS/MV combined inertial and RTK GPS or PPK GPS.
10. Depths were acquired with a Reson multibeam bathymetric sonar integrated with a POS/MV positioning and motion reference system.

JANUARY 2009 MINUS FALL 2004 SURFACE DIFFERENCES (FEET)





FALL 2004 TO JANUARY 2009

DIFFERENCE ANALYSIS

McCORMICK AND BAXTER SITE

HART CROWSER

WILLAMETTE RIVER, PORTLAND, OREGON

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON JON L. DASLER 54579 RENEWAL 12/31/11

DAVID EVANS AND ASSOCIATES INC.
29011 Southwest Columbia Way Suite 130
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Phone: 360.314.2000

REVISIONS:	APPD.

DATE: JUNE 2010
DESIGN: MJCH
DRAWN: MMS
CHECKED:
REVISION NUMBER:

SCALE: 1"=100'

PROJECT NUMBER: HACR0000-0005

DRAWING FILE: HACR0005_DIFFERENCE.dwg

SHEET NO. 1 OF 3

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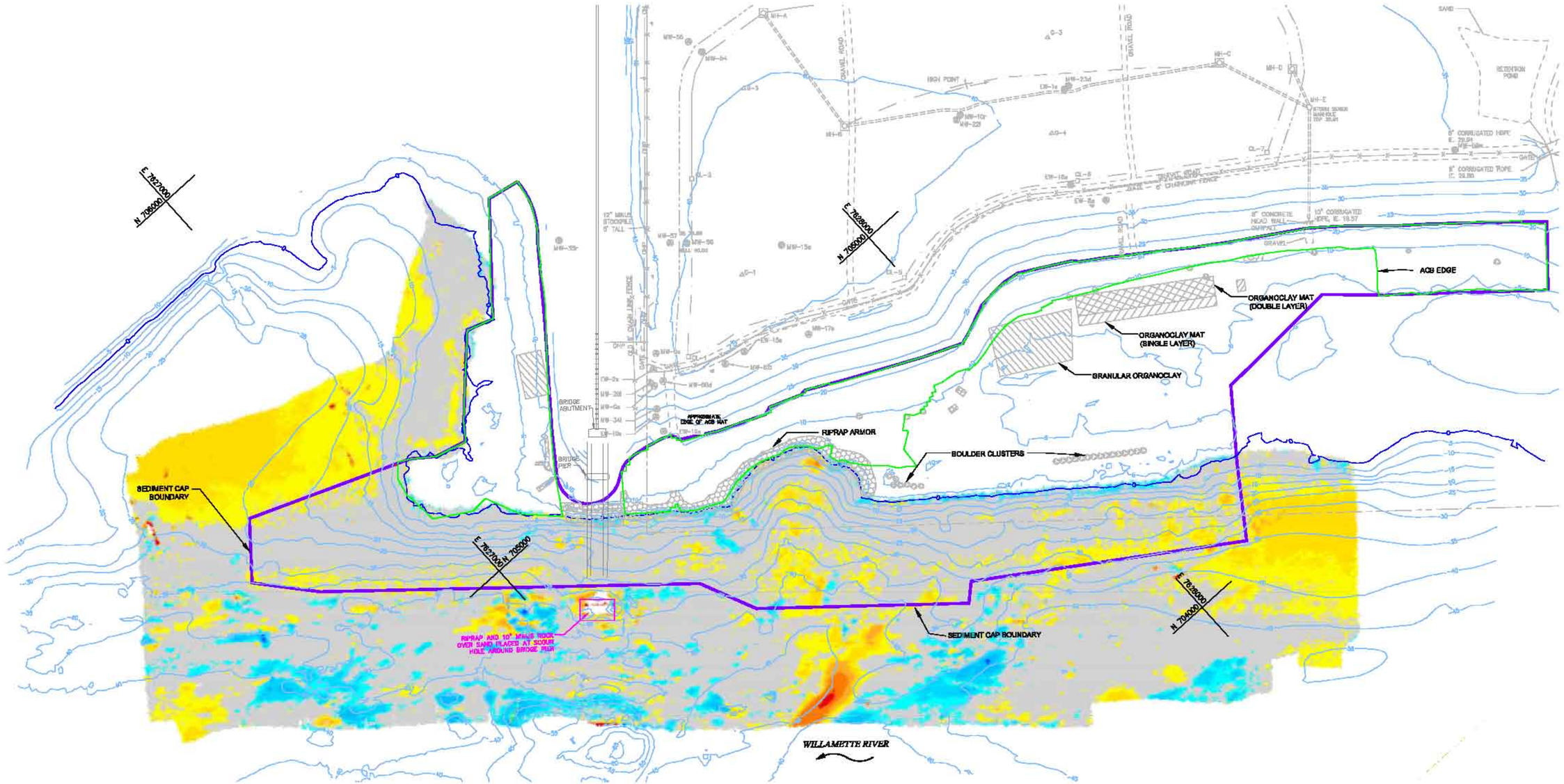
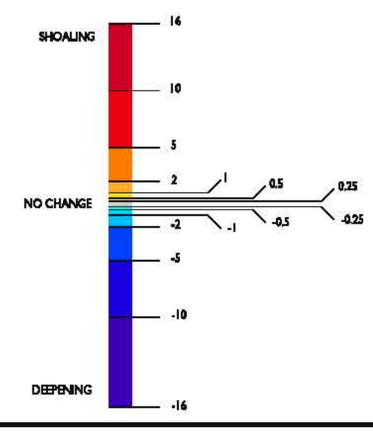
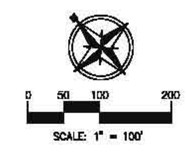


NOTES:

1. This drawing presents a comparison of multibeam bathymetric surveys conducted by David Evans and Associates, Inc. (DEA).
2. Dates of Surveys: December 4-6 2008 and January 14 and 22, 2009 vs. November 14, 2005.
3. Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
4. Vertical Datum: North American Vertical Datum of 1988 (NAVD 88)
5. Units: International Feet.
6. Contour Interval: 5 feet. Contours represent a composite surface from November, 2004; January, 2006; and December 2006 upland surveys and April, 2006 in-water survey.
7. The difference analysis was generated from a 3-foot difference grid of the multibeam bathymetry. The 3-foot grid values of the November 14th, 2005 survey were subtracted from the December 4-6, 2008 and January 14 and 22, 2009 survey to produce the difference grid.
8. Water surface elevations were obtained from a Real-Time Kinematic Global Positioning System (RTK GPS). An RTK GPS base station was deployed to provide real-time GPS correctors. A Post-Processed Kinematic Solution (PPK GPS) was used to apply GPS correctors when a solid RTK GPS link could not be established.
9. Horizontal positions were acquired with a POS/MV combined inertial and RTK GPS or PPK GPS.
10. Depths were acquired with a Reson multibeam bathymetric sonar integrated with a POS/MV positioning and motion reference system.

JANUARY 2009 MINUS FALL 2005 SURFACE DIFFERENCES (FEET)





FALL 2005 TO JANUARY 2009

DIFFERENCE ANALYSIS

McCORMICK AND BAXTER SITE

HART CROWSER

WILLAMETTE RIVER, PORTLAND, OREGON

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON JULY 15, 1992 JON L. DASLER 1452 RENEWAL 12/31/11

DAVID EVANS AND ASSOCIATES INC.
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REVISIONS:	APPD.

DATE: JUNE 2010
DESIGN: MJCH
DRAWN: MMS
CHECKED:
REVISION NUMBER:

SCALE: 1"=100'

PROJECT NUMBER: HACR0000-0005

DRAWING FILE: HACR0005_DIFFERENCE.dwg

SHEET NO. 2 OF 3

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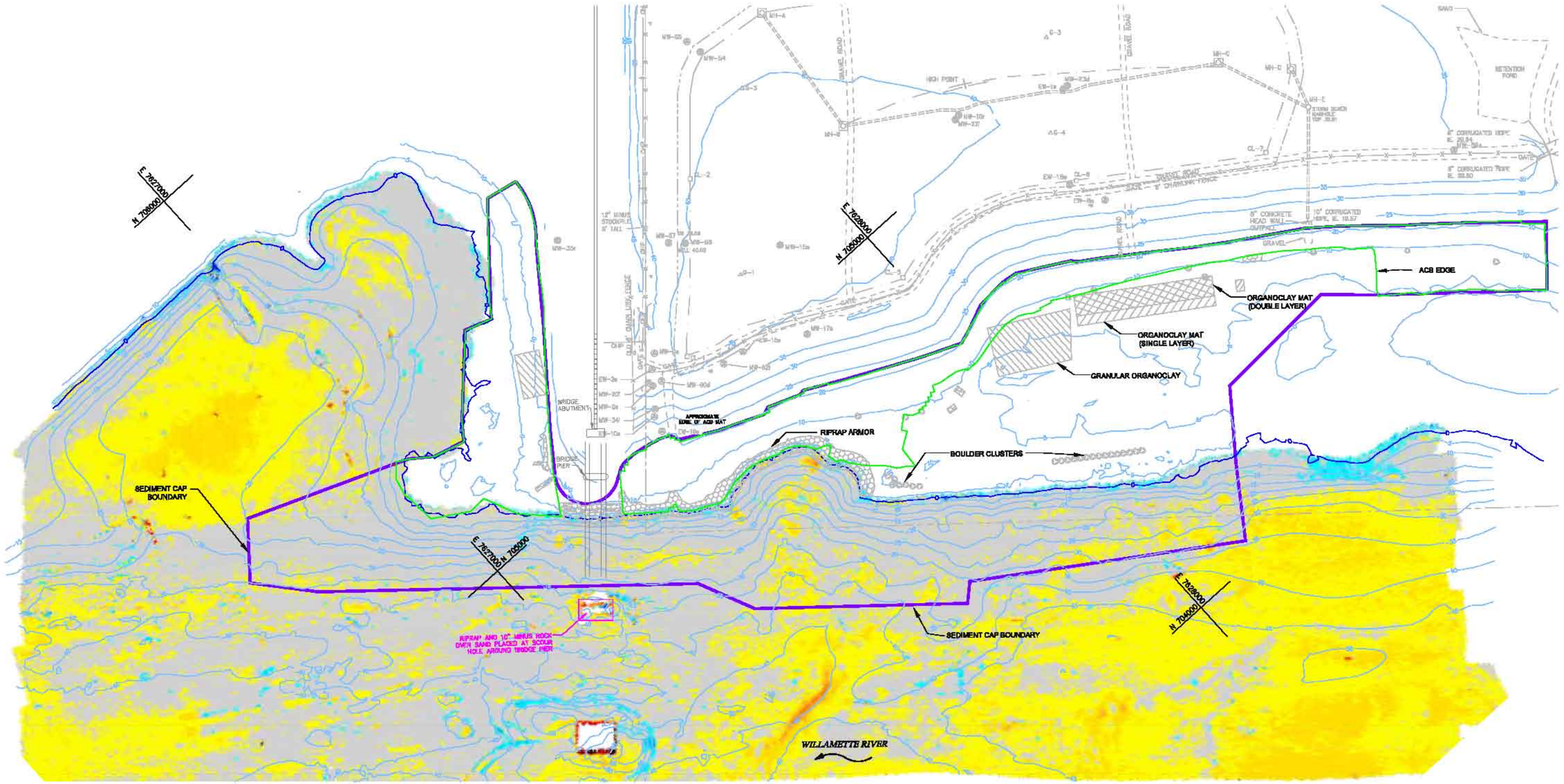
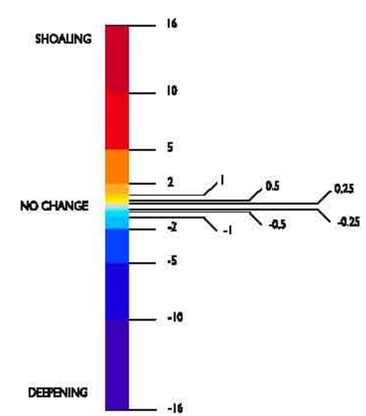
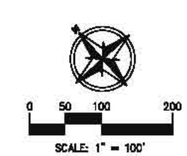


NOTES:

1. This drawing presents a comparison of multibeam bathymetric surveys conducted by David Evans and Associates, Inc. (DEA).
2. Dates of Surveys: December 4-6 2008 and January 14 and 22, 2009 vs. April 26, 2006.
3. Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
4. Vertical Datum: North American Vertical Datum of 1988 (NAVD 88)
5. Units: International Feet.
6. Contour Interval: 5 feet.
   Contours represent a composite surface from November, 2004; January, 2006; and December 2006 upland surveys and April, 2006 in-water survey.
7. The difference analysis was generated from a 3-foot difference grid of the multibeam bathymetry. The 3-foot grid values of the April 26, 2006 survey were subtracted from the December 4-6, 2008 and January 14 and 22, 2009 survey to produce the difference grid.
8. Water surface elevations were obtained from a Real-Time Kinematic Global Positioning System (RTK GPS). An RTK GPS base station was deployed to provide real-time GPS correctors. A Post-Processed Kinematic Solution (PPK GPS) was used to apply GPS correctors when a solid RTK GPS link could not be established.
9. Horizontal positions were acquired with a POS/MV combined inertial and RTK GPS or PPK GPS.
10. Depths were acquired with a Reson multibeam bathymetric sonar integrated with a POS/MV positioning and motion reference system.

JANUARY 2009 MINUS SPRING 2006 SURFACE DIFFERENCES (FEET)





SPRING 2006 TO JANUARY 2009

DIFFERENCE ANALYSIS

McCORMICK AND BAXTER SITE

HART CROWSER
WILLAMETTE RIVER, PORTLAND, OREGON

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON JON L. DASLER 2400 RENEWAL 12/31/11

DAVID EVANS AND ASSOCIATES INC.
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REVISIONS:	APPD.

DATE: JUNE 2010
DESIGN: MJCH
DRAWN: MMS
CHECKED:
REVISION NUMBER:

SCALE: 1"=100'

PROJECT NUMBER: HACR0000-0005

DRAWING FILE: HACR0005_DIFFERENCE.dw

SHEET NO. 3 OF 3

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ATTACHMENT G
EPA DIVE REPORT

Included only on the O&M Report DVD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

DIVE REPORT – October 15, 2010

version 12-01-2008

From: **Sean Sheldrake, Divemaster, Unit Diving Officer** **Dates of dives: October 11-13, 2010**

To: **Nancy Harney, RPM**
Scott Manzano, ODEQ
Mark Filippini, Dive Team Sponsor
Joyce Kelly, OEA Director

Project: **McCormick and Baxter Superfund Site**
Requested by: **USEPA, Region 10 Environmental Cleanup Office**

Site Acct code: 302DD2C 10P9RA00
Local Waterbody: Willamette River
General Location: lat= N45.57619; long= W122.73887

Scientific Diving Purpose: The Region 10 Dive Unit supported Superfund in deploying solid phase microextraction devices (SPMEs) to gauge the effectiveness of the cap and other cleanup at the McCormick and Baxter site within the Portland Harbor Superfund Site. Conducted cap inspections at several locations.

Summary of Scientific Diving Work Performed: SPMEs were installed at 12 locations that required diving. Six locations were inspected for cap armor thickness, and one dive (4 transects) was devoted to looking for buckling in armored concrete blocks (ACB) cap material.

These data will be used to evaluate the performance effectiveness of the cap at the McCormick and Baxter Superfund site (M&B).

Dive Details: (also see Summary Table below): River levels, though higher at the beginning of the week, fell throughout the week to very low levels, allowing/requiring many sites to be sampled by shore personnel. Divers could not install sites out of the water due to the weight of their diving rig (over 125 pounds out of the water).

Cap inspection. Divers inspected six locations for cap armor thickness, digging two holes per location generally (see dive details below). Depths of armor rock were found to be 8-14 inches, well within expected variability for cap armor placement.

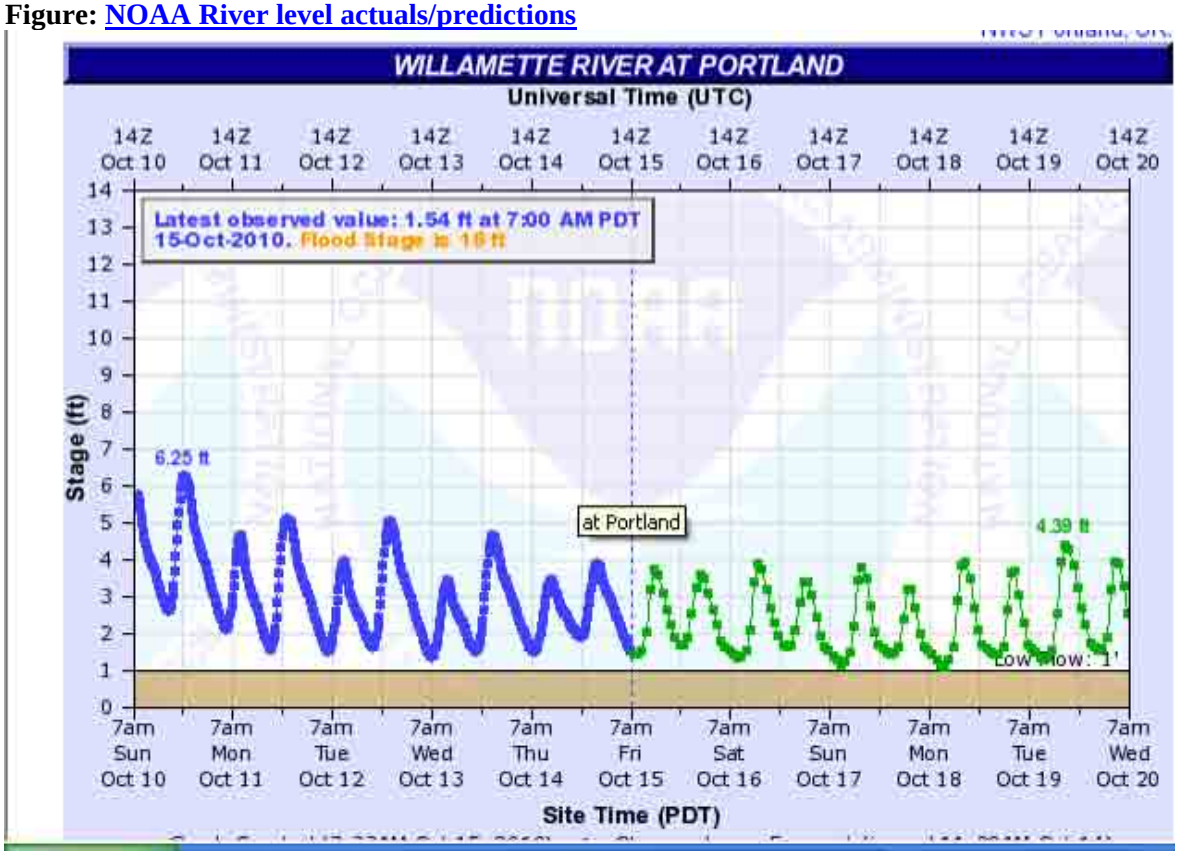
ACB (buckling) inspection. A diver swam two transects in each direction in Willamette Cove from waypoint 13 (See Figure below)—one as shallow as he could reasonably swim (18") as well as one deeper transect (4-5' of water). Only one buckling location was found that couldn't be seen from the vessel. (See dive details below).

SPME installation. SPMEs were installed at twelve locations. These were installed after clearing armor cap (approximately one foot thick—see dive details below), then penetrating the SPME one foot into the underlying sand cap. Lastly, the armor rock was replaced around the SPME to retain cap integrity. SPMEs were installed to the required 2 foot depth at all locations. Specific details may be found below on cap materials and thicknesses.

Figure: Dive Locations

mb12
MB F
mb20
mb10
C
MB E
mb18
MB D
mb9
mb15
mb19
MB3
mb17
mb5
mb25
mb8
mb26
MB4
mb7
mb16
mb6
© 2010 Europa Technologies
© 2010 Google
©2009 Google
425 ft
Imagery Date: Aug 15, 2010
45°34'36.60" N 122°44'28.14" W elev 13 ft
Eye alt 1566 ft

Figure: [NOAA River level actuals/predictions]



Personnel:
Divers: Rob Rau (RR), Sean Sheldrake (SS), Alan Humphrey (AH)
Boat Operators: Brent Richmond, Doc Thompson
Other Field Support Personnel: Heidi Blischke, GSI, Troy Fowler, Hart Crowser, Danny Reible, University of Texas

Hazards and Hazard Management: Line management was a constant factor, with a number of lines in the water. Diver briefings emphasized the choreography of the dive, to ensure that lines were kept separated so that sampling data could be obtained, and the diver could avoid entanglement. Surface crews emphasized to the diver when they saw pulling on the float attached to the SPME, which could indicate diver entanglement. Surface crews also helped the diver recognize directions to egress the sample site once work was completed at each site to preserve the sample integrity as well as ensure the diver stays clear of entanglements.

Exposures: (Temperature/Chemical/Biological): All three divers had glove leaks—which was followed by a thorough hand washing. This was remedied by changing nitrile glove size/type for SS. A larger gauntlet over glove will be investigated for future scientific diving work at M&B as a means to minimize potential exposure. Due to the construction of Viking drygloves, glove leaks do not compromise the integrity of the overall suit and leakage is limited to the hand area.

Diver /Equipment Issues: "Gardening" type rubber over gloves were used over nitrile drygloves to protect the gloves from puncture. Surface supply could be considered at this site to allow the diver to better maneuver in shallow water and stand if necessary, though this would require a 4 person dive crew rather than the 3 person crew for tethered SCUBA, increasing travel costs. The surface supply rig is only approximately 50 pounds on the diver.

First Aid Supplies Expended: None.

Decontamination: Freshwater rinse used for microbial combined sewer overflow (CSO) contaminants as well as Superfund site contaminants, such as PAHs, PCBs, pthalates, dioxins, and metals. Heavy rains over the past weekend resulted in CSOs.

Follow-up to Issues (diver initials then task**)**:

1. Tank fills: RR/SS to complete
2. AGA reassembly: RR
3. Viking cuff repair-RR to complete
4. Buy more large over gloves-RR
5. Get more #10 gloves from MEL-SS
6. Obtain PVC pipe sections from MEL for Viking drysuit neck and wrist cutting--RR

Dive Summaries (WK=work dive)

Project		Date	Dive Sequence	Diver	Max Depth	Start Time	End Time	Bottom Time	Dive Description	
McCormick & Baxter	WK	10/13/2010	16	SS	28	12:16	12:45	29	MB #14 SPME installation, 2" of silt on cap armor rock, 3" diameter cap armor, 12-14" of armor thickness on top of black gravel. Test SPME installed 15' away. The test SPME, though thoroughly buried beyond two feet, was easily retrieved from the Wooldive.	Sheldrake
McCormick & Baxter	WK	10/13/2010	15	SS	21	11:51	12:02	11	MB #11 SPME installation; 2" of silt on cap armor (3-6" diameter rock), 10 degree slope, 12-14" of cap armor thickness to black gravel.	Sheldrake
McCormick & Baxter	WK	10/13/2010	14	SS	16	10:58	11:09	16	MB #20 SPME installation, just downstream of RR bridge, 6-24" rock diameter, unknown thickness, 20 degree slope, rocks locked in on slope. Excavated 1' deep hole, inserted SPME to 1' depth in pore spaces, backfilled to full SPME depth.	Sheldrake
McCormick & Baxter	WK	10/13/2010	13	SS	6	10:12	10:31	19	MB #4 SPME installation, 14" armor thickness, 8" diameter rock on top ranging to 3" diameter with depth--shallow water/difficult vessel maneuvering. MB #5 SPME installation, 2" of silt on top of 8-10" diameter rock, unknown thickness. Large armor rocks suctioned into bottom in silt. SPME inserted in one foot deep hole excavation, backfilled to full SPME depth.	Sheldrake
McCormick & Baxter	WK	10/13/2010	12	SS	24	9:23	9:46	23	MB #10 SPME installation, 12" armor (3" rock) over mixed sand/gravel.	Sheldrake
McCormick & Baxter	WK	10/12/2010	11	AH	33	13:15	14:08	53	MB #15 and #8 SPME installations; 10" of rock and 12" of rock over sand, respectively--attempted to install test SPME for demonstration retrieval; aborted due to low air. Successful test was performed near MB #14, above.	Humphrey
McCormick & Baxter	WK	10/12/2010	10	AH	28	11:53	12:10	17	MB #8 SPME installation; 10" of rock over sand; fresh water clam shells visible.	Humphrey
McCormick & Baxter	WK	10/12/2010	9	AH	36	11:17	11:34	17	MB #16 SPME installation, 8" of rock over sand.	Humphrey
McCormick & Baxter	WK	10/12/2010	8	AH	33	10:26	10:52	26	MB #7 SPME installation; 2" of silt on top of rock; 12" of rock over sand.	Humphrey
McCormick & Baxter	WK	10/12/2010	7	AH	25	9:47	10:06	19	MB #6 SPME installation; 12" of rock on top of compact sand.	Humphrey
McCormick & Baxter	WK	10/11/2010	6	RR	4	14:12	14:46	33	WPT G; Buckle search in Willamette Cove - 1 found and marked, 200 feet searched parallel to shore in both directions.	Rau
McCormick & Baxter	WK	10/11/2010	5	RR	21	13:14	13:31	17	WPT A + SPME test--Hole #1 6" or rock or more, refusal, compacted rock; Hole #2, no Penetration, 6" to refusal. SPME insertion aborted; Cap inspection at waypoint--refusal, 12" of armor rock, 100% rock cover; 5" of silt inshore of waypoint on top of armor, 6" of silt 30 inshore/downstream of waypoint (WPT E not dived, on shore).	Rau
McCormick & Baxter	WK	10/11/2010	4	RR	16	12:29	12:41	12	WPT B- 5' visibility, rock throughout range visibility; Hole #1, 10-12" of rock armor, hole #2, 8-10" rock armor to sand	Rau
McCormick & Baxter	WK	10/11/2010	3	RR	15	11:40	11:47	7	WPT F-Hole #1, 10-12" depth of rock.	Rau
McCormick & Baxter	WK	10/11/2010	2	RR	40	11:03	11:19	16	WPT C--Hole #1, 8-10" of rock to cap sand. Hole #2 15' downstream of Hole #1, 6-8" depth of rock.	Rau
McCormick & Baxter	WK	10/11/2010	1	RR	35	10:26	10:43	17	WPT D--Rock 3-6" diameter; hole 1 10" thick layer to sand cap, Hole #2, 30' upstream of waypoint, 12" of rock, then cap sand. Holes refilled.	Rau

Photos

Hart Crowser and GSI personnel preparing an SPME (below green bar) attached to a concrete block and float for deployment. Boat driver Brent Richmond, EPA at right.

Diver Rob Rau inspecting ACB capped areas for “buckling.” The diver found one area during the survey while the surface crew found one other.

Buckle survey, looking towards the main channel and Railroad bridge

Close up of diver Alan Humphrey using LED head mounted lights to illuminate his cap work. Bottom visibilities ranged from 0 to 5 feet during the operation, with very little natural light on the bottom.

Sean Sheldrake tending tethered SCUBA divers. Having the headset loose around the neck allows other deck personnel to hear what the diver is saying during the sampling efforts. If the diver volume is turned up too loud however, this can be uncomfortable to the diver.

Diver Sean Sheldrake at the surface with Nite rider head mount.

Diver Alan Humphrey prepping Sean Sheldrake for dives on October 13, 2010.

Diver Sean Sheldrake swimming towards MB #4

ATTACHMENT H
ACB INVESTIGATION WORK PLAN, CORE LOGS, AND ANALYTICAL DATA

Work plan and analytical data are only on the O&M Report DVD

SAMPLING AND ANALYSIS PLAN

ARTICULATED CONCRETE BLOCK UNCONFORMITY SEDIMENT CAP CORING

MCCORMICK & BAXTER SUPERFUND SITE
Portland, Oregon

Prepared for

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

November 27, 2010

Prepared by

GSI Water Solutions, Inc.
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HARTCROWSER

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1.0 INTRODUCTION

This sampling and analysis plan (SAP) presents the approach and procedures to be used in implementing the sediment cap coring portion of the *Scope of Work Outline, Schedule, Cost Estimate for Investigating the Unconformities in the ACB Surface in Discrete Willamette Cove Locations; McCormick & Baxter* dated November 10, 2009.

This SAP was prepared by GSI Water Solutions Inc. (GSI) and Hart Crowser, Inc, under contract to the Oregon Department of Environmental Quality.

1.1 BACKGROUND

The McCormick & Baxter Superfund Site is located at 6900 North Edgewater Avenue, Portland, Oregon. The Site is located on the Willamette River at approximately River Mile 7, and encompasses approximately 41 acres of land and an additional 23 acres of capped contaminated river sediments. Currently, the site is vacant except for a paved parking area, a small shop building, two field office trailers, and associated utilities used to support ongoing remedial action operations and maintenance. The upland portion of the Site is fenced.

In 2004, a protective sediment cap was placed over the contaminated river sediments posing an unacceptable risk to human health and the environment. The sediment cap consists of 2 feet of sand overlain by 1 foot of armoring. The armoring is articulated concrete block (ACB) in the near shore areas where wave action is high. In other areas, the armoring consists of either a foot of 6-inch minus rock or 10-inch minus rock. In 2 areas, where there was a potential for creosote seeps from the upland, a foot of organophylic clay was placed directly overlying the contaminated sediments with only one foot of sand cap overlying the organophylic clay.

In Willamette Cove, unconformities were observed in Fall 2009 when the Willamette River stage was lower (-3.5 NAVD88) than it had been since the sediment cap was installed in 2004. Because the unconformities had not been previously observed, it was uncertain whether they occurred during ACB installation in 2004 or occurred post-cap construction. A work plan was prepared outlining scope items including investigating historic sediment cap installation information, collection of porewater samples, geophysical investigation, and coring. The project team questioned Kevin Parrett, the DEQ project manager during sediment cap construction. He thought it was likely that the unconformities have been present since sediment cap installation. No additional research was conducted as the project team present in the field no longer work for Ecology and Environment (E&E) the construction oversight contractor to DEQ.

In Spring 2010, porewater from two identified ACB unconformities was collected in the same manner as semi-annual sub-armoring samples (methodology is described in the Operation and Maintenance Manual revised by Hart Crowser in 2009). At each unconformity, three porewater samples were collected from within the sand cap at 6-

inches below the ACB armoring layer. Results were similar to other subarmoring samples from Willamette Cove with low molecular weight polycyclic aromatic hydrocarbons (PAHs) detected at low concentrations. There was no indication of sediment cap breakthrough; however, to ensure that sufficient sand cap thickness is present beneath the unconformities, limited coring will be conducted in both unconformity areas.

In Fall 2010 during the semi-annual sampling event, EPA divers walked transects in Willamette Cove looking for additional unconformities and to mark the two known unconformities. The divers did not identify additional unconformities and marked the two locations with a concrete block tied to a buoy. The concrete block was placed at the cusp of each unconformity.

1.2 PURPOSE AND OBJECTIVES

The purpose of the coring will be to establish the sediment cap integrity. This will be accomplished by measuring the sand cap thickness beneath the ACB armoring in areas of unconformities. If there is less than 1 foot sand cap thickness, then a sand cap sample will be collected for chemical testing of PAHs. This will establish whether the thinner sand cap is protective in these areas, if the thickness is less than designed.

1.3 DOCUMENT ORGANIZATION

The SAP follows DEQ and EPA guidelines:

- www.deq.state.or.us/lq/cu/siteassessment/xsampling.htm
- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, US EPA, 1998 (EPA/540/G-89/004).
- Quality Assurance Project Plan for EPA PA/SI Investigations, Oregon DEQ, 2005 (DEQ05-LQ-0069-QAPP (ver.1.0))

The SAP is presented in five sections in addition to the introduction (Section 1). Section 2 describes the general approach for coring and potential sample collection. Section 3 describes the project organization, key personnel and roles, and the anticipated schedule. Section 4 details the field sampling procedures, laboratory analysis program, and data validation procedures. Reporting is described in Section 7.

2.0 SAMPLING APPROACH

This section describes the coring design and locations that will support the objectives of the ACB Investigation.

The coring locations are shown in Figure 1. Two cores are scheduled for each ACB unconformity location. The coring will primarily focus on determining the sand cap thickness. However, if there is less than 1 foot sand cap between the ACB and the native sediment, then a sand cap sample will be collected for chemical testing for PAHs.

A total of 4 cores will be advanced at two locations. Cores will be advanced using a push-probe rig mounted upon a small barge. The barge will be anchored using a 4-point hydraulic pin anchor system. Each spud leg will be modified with a flat plate bottom with rubber that does not penetrate the sediment cap (ACB surface). Two-inch cores will be advanced within the voids of the ACB to 5 feet below top of ACB. The cores will be equipped with 5-foot continuous thin-walled sleeves that can be cut to log the cores.

The barge will navigate to the two buoys marking the cusp of the unconformities that were identified as target coring locations. The rope attached to the concrete block will be pulled with care not to move the concrete block. Once the push probe directly overlies the concrete block, the barge will be anchored, and GPS coordinates will be collected. Then the concrete block will be removed and two inch cores will be advanced through the voids of the ACB. If the borings cannot be advanced through the voids of the ACB, the ACB may need to be predrilled to break it up sufficiently to drive the push probe. The second coring location at each unconformity will be collected within 5 feet of the first core and on the opposite side of the “cusp”.

3.0 PROJECT ORGANIZATION

This section describes the organizational structure for sampling and analysis activities associated with the ACB coring, including fieldwork, laboratory services, data validation, data management, reporting and schedule.

3.1 TEAM ORGANIZATION AND RESPONSIBILITIES

This SAP will be implemented by Hart Crowser and GSI.

3.1.1 Project Manager

Heidi Blischke (GSI) is the Technical Project Manager (PM). In this role, she will oversee all phases of the work and will direct correspondence with DEQ. Heidi will work closely with the project team to assure the project objectives are achieved. Deviations from the SAP will not be made without prior approval from the PM. Tim Skrotzki (Hart Crowser) is the field manager. He is responsible for procuring the drilling contractor (Cascade Drilling) and coordination with the drillers.

3.1.2 Field Director

Chris Martin (Hart Crowser) will be the Field Director and will report directly to the PM. The Field Director will be present on the boat and assist the Field Geologist with the following responsibilities.

- Mobilize for field work, assist sampling efforts and coordinate field and laboratory activities.
- Facilitate any handing and management of investigation derived waste (IDW), if generated.
- GPS locations for cores using hand-held GPS unit.
- Provide solutions to problems if they occur.
- Consult or inform the PM of any decisions that involve significant changes to the SAP.

The field director will also function as the field safety officer on the barge/push probe rig for activities related to core logging and processing. GSI and Hart Crowser each have their own health and safety plans which are available as appendices to the McCormick & Baxter Operational and Maintenance Manual (Hart Crowser, 2009).

3.1.3 Field Geologist

Erin Carroll (GSI) will be the Field Geologist and report directly to the PM. The Field Geologist will be responsible for the following:

- Direct all aspects of the sampling to ensure that the appropriate procedures and methods are used and in accordance with the SAP.
- Conduct core logging and ensure that samples for chemical testing (if applicable) are properly collected and delivered to the laboratory.

Core Processing

The sediment cores will be logged and processed on the barge under the supervision of a Registered Geologist registered with the Oregon State Board of Geologist Examiners. Heidi Blischke, R.G. will support the project in this capacity. Heidi Blischke will prepare a report containing final core logs for inclusion in the annual report.

3.1.5 Quality Assurance Managers

Quality assurance managers have been assigned for field sampling activities and laboratory services. All quality assurance managers will report to the PM.

Field QA Manager

The Field Director will also serve as the Field QA Manager and will ensure that all appropriate field procedures and methods are followed.

Chemistry QA Manager

Should sand cap sediment be chemically tested, Anne Conrad (Hart Crowser) will serve as the Chemistry QA Manager. Anne will perform oversight of the contract laboratory (Pace Analytical Services) and will conduct the third party QA review of the analytical data. Anne will add qualifiers to be added to the Access database, as required during data review and validation, and prepare a data quality assessment report; the data validation report will be appended to the report incorporated into the annual report.

3.1.6 Data Management

Paul Robinette (GSI) will serve as the Data Manager and will maintain the project database. The Data Manager will coordinate directly with the PM, Chemical QA Manager, and contract laboratory, as needed. Validated laboratory results will be provided as electronic deliverables to the Data Manager by the Chemistry QA Manager.

3.1.7 Laboratory Services

Pace Analytical Services (Pace) of Tacoma, Washington, will perform the chemical analyses of sand cap samples, as appropriate.

3.2 HEALTH AND SAFETY

The primary hazards for the sampling event are physical hazards associated with the river environment and working on a vessel with moving (and heavy) equipment. The field crew will exercise sound field judgment and practices to maintain a safe working environment during all field activities described in this SAP.

The field crew and activities associated with the project will comply with HAZWOPER regulation under 29 CFR 1910.120. Consultants, subconsultants, and subcontractors performing field work under the project shall prepare their own HSP and be responsible for their own health and safety. As noted above, the Field Director will function as the field safety officer during the field work and while on the vessel and will determine the limits of safe practice and operating conditions during field activities. The Field Director will also provide a safety briefing at the beginning of the field work.

3.3 PROJECT SCHEDULE

The coring is scheduled for December 2, 2010. Cascade Drilling has been selected to conduct the push-probe coring.

Weather, river flow conditions, equipment conditions and other factors may affect the field schedule.

Core logs and, if appropriate, laboratory analyses should be completed and electronic data reports provided to the Chemistry QA Manager for review and validation by approximately December 20. The draft report is scheduled for submittal to the DEQ as part of the 2010 annual report scheduled for submittal in March 2011.

4.0 SAMPLE COLLECTION PROCEDURES

This section describes the procedures and methods that will be used for coring, potential sample collection; record keeping; sample handling, storage, and shipping protocols; and field quality control procedures.

4.1 SAMPLING VESSEL

Cascade Drilling will utilize push-probe rig mounted on a small barge to advance the cores.

4.2 STATION POSITIONING AND VERTICAL CONTROL

Latitude and longitude coordinates will be obtained using a hand held GPS unit operated by the Field Director. The standard projection method to be used during field activities is the North American Datum of 1983 (NAD83), State Plane Coordinate System, Oregon North Zone. The positioning objective is to accurately determine and record the positions of all sampling locations to within ± 2 meters.

Vertical positioning is required to establish the elevation of the ACB at the sampling locations. While the push-probe is in place at the sampling station, depth to ACB will be measured using a lead line or fathometer immediately prior to or during the sampling. Vertical measurements will be recorded to the nearest 0.1 foot. Water depths will be converted to elevations (feet NAVD88) based on the river stage at the time of sampling as recorded at the Morrison Street Bridge.

4.3 FIELD LOGBOOK AND FORMS

The field activities and observations will be noted in a field logbook. Information will include personnel, date, time, coring location, sampler, types of samples collected, and general observations. Any changes that occur at the site (e.g., personnel, responsibilities, deviations from the SAP) and the reasons for such changes will be documented in the field logbook.

Logbook entries will be clearly written with enough detail so that participants can reconstruct events later, if necessary. Requirements for logbook entries will include the following:

- Logbooks will be bound, with consecutively numbered pages.
- Entries will be made legibly with black (or dark) waterproof ink.
- Unbiased, accurate language will be used.

- Entries will be made while activities are in progress or as soon afterward as possible (the date and time that the notation is made should be noted, as well as the time of the observation itself).
- The date and time will appear on each page.
- When field activity is complete, the logbook will be retained in the project file at GSI's Portland, Oregon office.

Logbook corrections will be made by drawing a single line through the original entry allowing the original entry to be legible. The corrected entry will be written alongside the original. Corrections will be initialed and dated and may require a footnote for explanation.

The type of information that may be included in the field logbook and/or field data forms includes the following:

- Names of all field staff.
- Push Probe Rig information
- A record of site health and safety meetings
- Station name and location.
- Date and collection time of each sample.
- Observations made during sample collection, including weather conditions, complications, and other details associated with the sampling effort.
- Sample description (texture, coloration- see Section 4.6.2 for additional parameters).
- Depth of ACB below water surface.
- River stage at the Morrison Street Bridge immediately prior to sampling.
- Any deviation from the SAP.

The Field Director is responsible for ensuring that the field logbook and all field data forms are completed and accurate.

4.4 SAMPLE NOMENCLATURE

Cores will be labeled as follows:

MBACBSC122010 – 1a where:

MB= McCormick & Baxter
ACB = Articulated concrete block unconformity investigation
SC = Sediment Cap
12 = month
2010 = year
1a – location 1, first core

Sample nomenclature for the sand cap samples for chemical analysis, if appropriate, is as follows:

MBACBSC122010-1a-4 inches
Where: 4-inches = distance of sand cap sample from native sediment

4.4 EQUIPMENT AND SUPPLIES

Equipment and supplies will include sampling equipment, utensils, decontamination supplies, sample containers, coolers, logbooks and forms, personal protection equipment, and personal gear. Protective wear (e.g., hard hats, gloves), as required for health and safety of field personnel, will be as specified in the HSP.

Sample containers and preservatives, as well as coolers and packing material, will be supplied by the contract laboratory (Pace). Commercially available pre-cleaned jars will be used.

Sample containers will be clearly labeled at the time of sampling. Labels will include the project name, sample location and number, sampler's initials, analysis to be performed, date, and time. The nomenclature used for designating field samples is described in Section 6.4.

4.5 EQUIPMENT DECONTAMINATION PROCEDURES

Equipment that comes in direct contact with sand cap sediment samples, such as scoops and spoons, will be decontaminated in the following manner prior to use at each station and between field replicates:

- Rinse with water.
- Wash with brush and Alconox™ or other phosphate-free detergent.
- Double rinse with deionized water.
- Rinse with methanol or ethanol.

The push-probe samplers will be pressure washed or steam cleaned between coring locations with water. If the sampler contacts visibly contaminated sediment, it will be thoroughly washed using Alconox™ or other phosphate-free detergent and rinsed with site water before coring a new location.

To minimize sample contamination, gloves will be replaced or thoroughly washed using Alconox™ or other phosphate-free detergent and rinsed with distilled water before and after handling each sample, as appropriate.

4.6 SAMPLE COLLECTION PROCEDURES

This section describes the coring procedures and sample collection procedures for sand cap sand, as appropriate, for chemistry analysis.

Cores will be collected using a push-probe rig equipped with a 2-inch diameter, 5-foot sampler with clear plastic sleeves. The drillers will open the core sampler and remove the plastic sleeve. Any presence of noticeable odors or sheen at the end of the core or in the water will also be noted. The core penetration depth and physical characteristics (e.g., color, texture, odor) of the sediment sample as observed at the ends of the tube will be recorded on field log sheets.

The plastic sleeve containing the core will be fixed to the core-cutting table and cut along the long axis using a knife. The tube will be rotated approximately 180° and cut again. The core will then be systematically logged, described, and photographed.

After each core is cut open, the Field Geologist will describe the sediment on a core log.

The following information will be recorded for each core:

- Thickness of armoring, sand cap and native sediment.
- Physical sediment description (i.e., sediment type, density/consistency, color).
- Odor (e.g., hydrogen sulfide, petroleum).
- Visual stratification and characteristics (e.g., lenses or other sedimentary structures and thickness of depositional units).
- Vegetation.
- Debris.
- Evidence of biological activity (e.g., detritus, shells, tubes, bioturbation, live or dead organisms).
- Presence of oil sheen.
- Other distinguishing characteristics or features.

The boundaries of sediment cap layers will be determined primarily by changes in the grain sizes estimated visually (e.g., 3-inch minus rock to medium clean sand). The boundary between the sand cap and native sediment will be determined by both a change in grain size and a color change from lighter tan to brown sand to dark brown sand with a higher fraction of silt.

The cores will be photographed after being described and before any sediment is removed for processing.

If the sand cap thickness is less than 1 foot, then sand cap material from a few inches above the native sediment (as determined by the Field Geologist and the Project Manager) will be collected for chemical testing. In addition, a sample of the native

sediment will be collected from a few inches below the sand cap material and submitted to the laboratory for frozen archival (and potential future analysis). Each sample will be removed from the core, homogenized using a decontaminated stainless steel spoon and bowl, and placed into an 8-oz glass jar provided by Pace. No Quality Control samples will be collected.

Once jarred, the samples will be placed on ice in a cooler to achieve a sample temperature of 4°C. The Chain of custody forms will be completed at the end of the day and a Pace representative will collect the samples.

4.7 BOREHOLE ABANDONMENT

After core samples have been collected, Cascade Drilling will abandon each borehole by lowering a tremie pipe into the excavated hole and filling it completely with organoclay. In order to reinforce potentially damaged ACB, grout will be distributed onto the ACB surface immediately surrounding the abandoned borehole.

4.8 WASTE MANAGEMENT

Soil cuttings and decontamination water will be placed in DOT-approved drums. The drums will be transported to the drum storage area onsite by Clearwater. The drums will be disposed of at an appropriate waste disposal facility. Hart Crowser coordinates disposal of the site waste generated.

All disposable materials used in sample collection and processing, such as paper towels and disposable coveralls and gloves, will be placed in heavyweight garbage bags or other appropriate containers. Disposable supplies will be removed from the ship or processing facility by sampling personnel and placed in a normal refuse container for disposal at a solid waste landfill.

4.9 SAMPLE HANDLING AND TRANSPORT

Samples collected during the sampling event will be traceable from the time of sample collection through laboratory and data analysis. To ensure samples collected during the project are traceable, the following procedures will be followed.

Chain-of-Custody Procedures
Samples are in custody if they are in the custodian's view, stored in a secure place with restricted access, or placed in a container secured with custody seals. DEQ's chain-of-custody (COC) record will be signed by each person who has custody of the samples and will accompany the samples at all times. Copies of the COC will be included in laboratory and QA/QC reports. When transferring sample custody, the COC will be signed, dated, and the time of transfer will be noted on the form.

The original COC form will be transported with the samples to the laboratory. The laboratory will also designate a sample custodian, who will be responsible for receiving samples and documenting their progress through the laboratory analytical process. Each custodian will ensure that the COC and sample tracking forms are properly completed, signed, and initialed upon transfer of the samples.

Chemistry samples will be shipped to the laboratory on ice in sound ice chests sealed with custody seals. The laboratory sample custodian will establish the integrity of the seals at the laboratory.

Upon receipt of the samples at the laboratory, the laboratory sample custodian will inventory the samples by comparing sample labels to those on the COC document. The custodian will enter the sample number into a laboratory tracking system by project code and sample designation. The custodian will assign a unique laboratory number to each sample and will be responsible for distributing the samples to the appropriate analyst or for storing samples in an appropriate secure area. Specific laboratory COC procedures are described in the CAS laboratory QA plan.

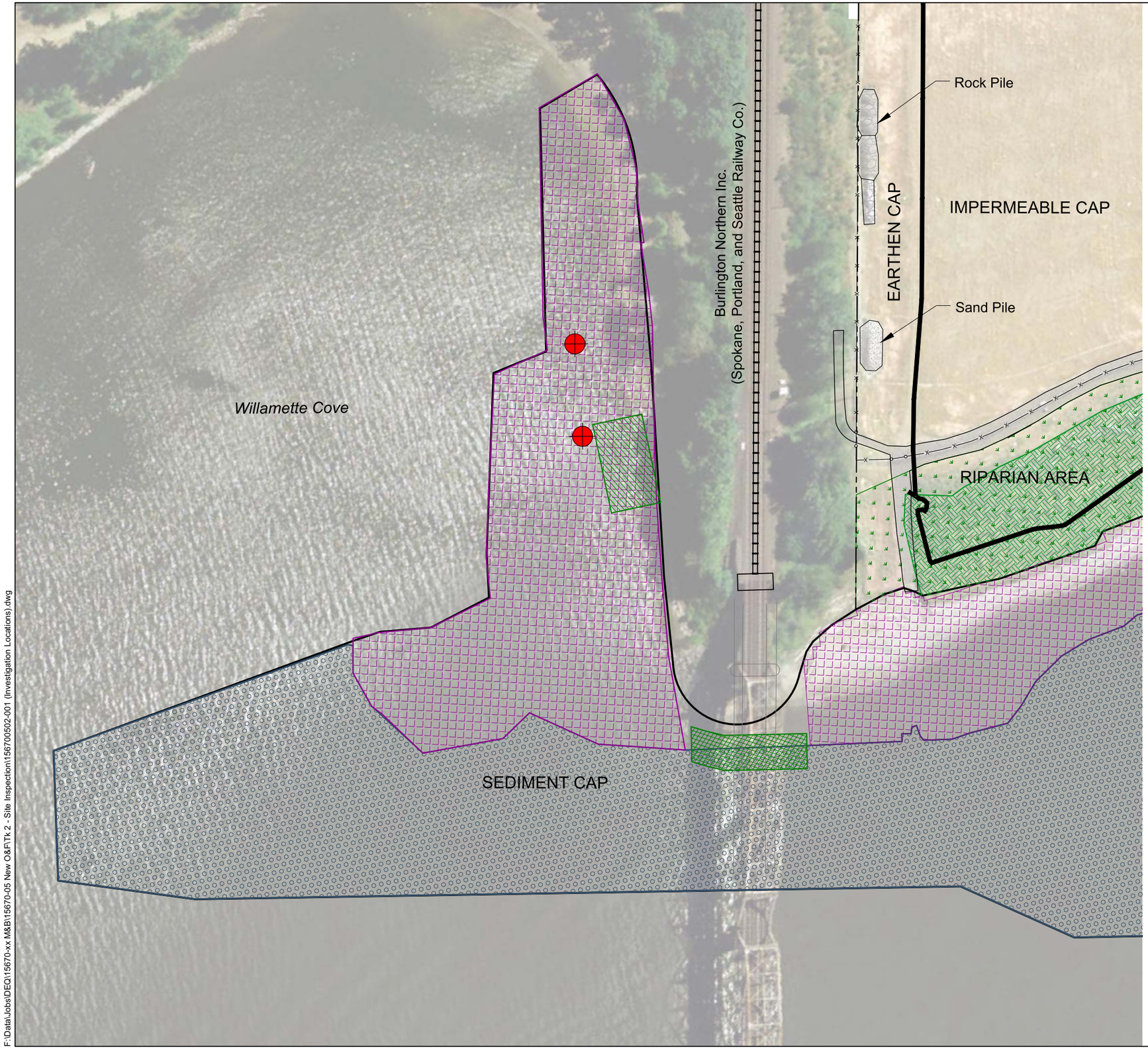
5.0 REPORTING

A draft report, titled ACB Unconformity Investigation will be included in the 2010 Annual Report. This report will include the results of the porewater sampling as well as the coring investigation. The report will include the following:

- Summary of coring and sampling approach and objectives.
- Summary of field sampling activities, sample collection procedures, and any deviations from the SAP.
- Updated maps showing actual sampling stations.
- Tables providing analytical results (if applicable)
- Final core logs and data validation report(s) (if applicable) will be appended to the final data report.
- Field notes and other voluminous documentation will be provided on a CD or DVD.
- Recommendations

An annual report will be submitted to DEQ for review and comment. A final report will be issued following comment resolution.

Upon receipt of the final report, it is anticipated that DEQ will further consider the collected data, and determine the need for additional analysis and evaluate if further action is needed to protect human health and the environment in the target area and to control potential sources of contamination to the Willamette River. Initial results and recommendations will be made to DEQ as soon as possible by Hart Crowser/GSI, before preparing the draft report, in the event that the results indicate that the sediment cap is not performing as designed.



Approximate Location of Unconformity
Organoclay Mat (Double Layer)
Ganular Organoclay
Articulated Concrete Block
6-Inch Minus Rock Armor
Turf Reinforcement Mat Placed Over Earthen Cap

N

0 100 200
Scale in Feet

McCormick and Baxter Superfund Site
Portland, Oregon

Approximate Locations of Unconformities in Articulated Concrete Block

15670-05 11/10

HARTCROWSER GSI Water Solutions, Inc.

Figure
1

F:\Data\Jobs\DEQ\15670-xx M&B\15670-05 New O&FTK 2 - Site Inspection\1567005002-001 (Investigation Locations).dwg

Key to Exploration Logs

Sample Description

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

SAND or GRAVEL Density	Standard Penetration Resistance (N) in Blows/Foot	SILT or CLAY Consistency	Standard Penetration Resistance (N) in Blows/Foot	Approximate Shear Strength in TSF
Very loose	0 to 4	Very soft	0 to 2	<0.125
Loose	4 to 10	Soft	2 to 4	0.125 to 0.25
Medium dense	10 to 30	Medium stiff	4 to 8	0.25 to 0.5
Dense	30 to 50	Stiff	8 to 15	0.5 to 1.0
Very dense	>50	Very stiff	15 to 30	1.0 to 2.0
		Hard	>30	>2.0

Minor Constituents

Minor Constituents	Estimated Percentage
Trace	<5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Test Symbols

NA	Not Available
NS	No Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
PAHs	Polynuclear Aromatic Hydrocarbons
PCP	Pentachlorophenol
TOC	Total Organic Carbon
Metals	Total Copper, Zinc, Chromium, and Arsenic
PID	Photoionization Detector Reading
ppm	Parts per Million

Sampling Symbols

- Split Spoon
- Push Probe
- Cuttings
- Grab (Jar)
- Core Run

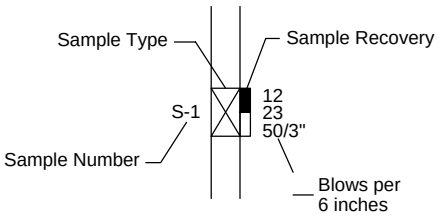
Moisture

Dry	Little perceptible moisture
Damp	Some perceptible moisture, likely below optimum
Moist	Likely near optimum moisture content
Wet	Much perceptible moisture, likely above optimum

Groundwater Indicators

- Groundwater Level on Date or (ATD) At Time of Drilling
- Groundwater Seepage (Test Pits)

Sample Key



SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Exploration Details

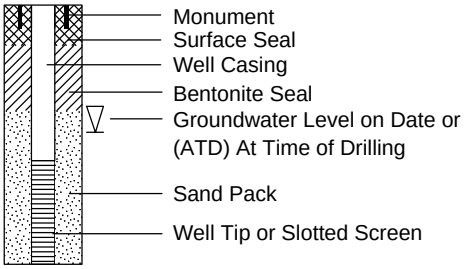


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Figure H-1

Push Probe Exploration MBACBSC-122010-1A

Location: McCormick and Baxter Superfund Site
Logged By: Erin Carroll
Reviewed By: Tim Skrotzki

Drilling Type: 5-Foot Core
Soil Sampler: Geoprobe
Hole Diameter: 2"

USCS Class	Graphic Log	Soil Descriptions	Depth in Feet
SM		(Loose), wet, dark gray, well graded, silty SAND (Cap Sand). No odor.	0
GW		Wet, dark gray to black/gray, angular GRAVEL with sand (Gravel under ACB). No odor.	
SP		(Loose), wet, dark gray to black/gray, poorly graded SAND (Cap Sand). No odor.	
		No recovery	
		Bottom of Boring at 5.0 Feet. Started 12/02/10. Completed 12/02/10. Backfilled with bentonite chips.	5

Core Length & Recovery

Tests & (PID)

NS (NA)

156700507 (CORING LOGS).GPJ

1. Refer to Figure H-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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Figure H-2

Push Probe Exploration MBACBSC-122010-1B

Location: McCormick and Baxter Superfund Site
Logged By: Erin Carroll
Reviewed By: Tim Skrotzki

Drilling Type: 5-Foot Core
Soil Sampler: Geoprobe
Hole Diameter: 2"

USCS Class	Graphic Log	Soil Descriptions	Depth in Feet	Core Length & Recovery	Tests & (PID)
SM		(Loose), wet, dark gray, well graded, fine, silty SAND (Sand Cap). No odor.	0		
		Becomes medium grain.			
		Becomes coarse.			
GP		Wet, red/green/gray, very fine GRAVEL with sand (Gravel under ACB). No odor.			NS (NA)
		Becomes dark gray, and silty.			
		No recovery.			
		Bottom of Boring at 5.0 Feet.	5		
		Started 12/02/10.			
		Completed 12/02/10.			
		Backfilled with bentonite chips.			

156700507 (CORING LOGS).GPJ

1. Refer to Figure H-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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Figure H-3

Push Probe Exploration MBACBSC-122010-2A

Location: McCormick and Baxter Superfund Site
Logged By: Erin Carroll
Reviewed By: Tim Skrotzki

Drilling Type: 5-Foot Core
Soil Sampler: Geoprobe
Hole Diameter: 2"

USCS Class	Graphic Log	Soil Descriptions	Depth in Feet		Core Length & Recovery	Tests & (PID)
SP		(Loose), wet, dark gray to yellow, red, and black, fine to medium grained, poorly graded SAND (Cap Sand). No odor.	0	MBACBSC-122010-2A-0-6		PAH, PCP (NA)
GP		(Loose), wet, dark gray to green, well graded, sandy GRAVEL (Gravel under ACB). No odor.				
MLS		Wet, gray to green, fine, sandy SILT (Native Sediment). No odor.		MBACBSC-122010-2A-6-12		PAH, PCP (NA)
SP-SM		(Loose), wet, medium, silty SAND with wood debris (Native Sediment). No odor.				
ML		Wet, SILT with some wood debris and slight sheen (Native Sediment). No odor.				
		Some wood debris with moderate petroleum-like odor.				
		No recovery.				
		Bottom of Boring at 5.0 Feet.	5			
		Started 12/02/10.				
		Completed 12/02/10.				
		Backfilled with bentonite chips.				

156700507 (CORING LOGS).GPJ

1. Refer to Figure H-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

HARTCROWSER

15670-05/Task 7 12/10

Figure H-4

Push Probe Exploration MBACBSC-122010-2B

Location: McCormick and Baxter Superfund Site
Logged By: Erin Carroll
Reviewed By: Tim Skrotzki

Drilling Type: 5-Foot Core
Soil Sampler: Geoprobe
Hole Diameter: 2"

USCS Class	Graphic Log	Soil Descriptions	Depth in Feet	Core Length & Recovery	Tests & (PID)
SM		(Loose), wet, gray, silty, fine to medium grain SAND (Cap Sand). No odor.	0	MBACBSC-122010-2B-0-4	PAH, PCP (NA)
SP-SM		(Loose), wet, brown, very silty, mostly fine grained to some medium grained, silty SAND (Native Sediment) with organic odor.		MBACBSC-122010-2B-4-8	PAH, PCP (NA)
		No recovery.			
		Bottom of Boring at 5.0 Feet. Started 12/02/10. Completed 12/02/10. Backfilled with bentonite chips.	5		

156700507 (CORING LOGS).GPJ

1. Refer to Figure H-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

HARTCROWSER

15670-05/Task 7 12/10

Figure H-5

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

December 16, 2010

Heidi Blischke
GSI Water Solutions
55SW Yamhill Ste. 400
Portland, OR 97204

RE: Project: McCormick & Baxter
Pace Project No.: 255916

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on December 04, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melanie Miller

melanie.miller@pacelabs.com
Project Manager

Enclosures

cc: Brian Boling, State of Oregon DEQ
Lisa Domenighini, Pace Analytical Seattle
Tim Skrotski, Hart Crowser

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CERTIFICATIONS

Project: McCormick & Baxter
Pace Project No.: 255916

Washington Certification IDs
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01230
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229

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SAMPLE SUMMARY

Project: McCormick & Baxter
Pace Project No.: 255916

Lab ID	Sample ID	Matrix	Date Collected	Date Received
255916001	**MBACBSC-122010-2A-0-6**	Solid	12/02/10 16:30	12/04/10 09:14
255916002	**MBACBSC-122010-2A-6-12**	Solid	12/02/10 16:30	12/04/10 09:14
255916003	**MBACBSC-122010-2B-0-4**	Solid	12/02/10 16:45	12/04/10 09:14
255916004	**MBACBSC-122010-2B-4-8**	Solid	12/02/10 16:45	12/04/10 09:14

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SAMPLE ANALYTE COUNT

Project: McCormick & Baxter
Pace Project No.: 255916

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255916001	**MBACBSC-122010-2A-0-6**	EPA 8270 by SIM	ERB	20	PASI-S
		EPA 8270	DMT	7	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
255916002	**MBACBSC-122010-2A-6-12**	EPA 8270 by SIM	ERB	20	PASI-S
		EPA 8270	DMT	7	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
255916003	**MBACBSC-122010-2B-0-4**	EPA 8270 by SIM	ERB	20	PASI-S
		EPA 8270	DMT	7	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
255916004	**MBACBSC-122010-2B-4-8**	EPA 8270 by SIM	ERB	20	PASI-S
		EPA 8270	DMT	7	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S

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PROJECT NARRATIVE

Project: McCormick & Baxter
Pace Project No.: 255916

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: State of Oregon DEQ
Date: December 16, 2010

General Information:
4 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/3070

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255892001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 51523)
  - Benzo(a)anthracene
  - Benzo(a)pyrene
  - Chrysene
  - Fluoranthene
  - Phenanthrene
  - Pyrene

R1: RPD value was outside control limits.

- MSD (Lab ID: 51524)
  - Anthracene

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PROJECT NARRATIVE

Project: McCormick & Baxter
Pace Project No.: 255916

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: State of Oregon DEQ
Date: December 16, 2010

QC Batch: OEXT/3070

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255892001

R1: RPD value was outside control limits.

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Chrysene
- Dibenz(a,h)anthracene
- Fluoranthene
- Fluorene
- Indeno(1,2,3-cd)pyrene
- Phenanthrene
- Pyrene

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: McCormick & Baxter
Pace Project No.: 255916

Method: **EPA 8270**
Description: 8270 MSSV Semivolatiles
Client: State of Oregon DEQ
Date: December 16, 2010

General Information:
4 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/3074

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- MBACBSC-122010-2A-0-6 (Lab ID: 255916001)
  - 2,4,6-Tribromophenol (S)
- MBACBSC-122010-2B-0-4 (Lab ID: 255916003)
  - 2,4,6-Tribromophenol (S)
- MS (Lab ID: 51729)
  - 2,4,6-Tribromophenol (S)
- MSD (Lab ID: 51730)
  - 2,4,6-Tribromophenol (S)

S6: Surrogate recovery outside control limits. Data accepted based on valid recovery of applicable surrogates (no analytes associated with this surrogate)

- MBACBSC-122010-2B-4-8 (Lab ID: 255916004)
  - Nitrobenzene-d5 (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: McCormick & Baxter
Pace Project No.: 255916

Method: **EPA 8270**
Description: 8270 MSSV Semivolatiles
Client: State of Oregon DEQ
Date: December 16, 2010

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: McCormick & Baxter
Pace Project No.: 255916

Sample: MBACBSC-122010-2A-0-6 **Lab ID: 255916001** Collected: 12/02/10 16:30 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**50.3**	ug/kg	7.6	1.8	1	12/08/10 12:10	12/09/10 16:16	83-32-9	
Acenaphthylene	ND	ug/kg	7.6	0.26	1	12/08/10 12:10	12/09/10 16:16	208-96-8	
Anthracene	**9.3**	ug/kg	7.6	0.42	1	12/08/10 12:10	12/09/10 16:16	120-12-7	
Benzo(a)anthracene	ND	ug/kg	7.6	0.12	1	12/08/10 12:10	12/09/10 16:16	56-55-3	
Benzo(a)pyrene	ND	ug/kg	7.6	0.18	1	12/08/10 12:10	12/09/10 16:16	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	7.6	0.76	1	12/08/10 12:10	12/09/10 16:16	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	7.6	0.34	1	12/08/10 12:10	12/09/10 16:16	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	7.6	0.54	1	12/08/10 12:10	12/09/10 16:16	207-08-9	
Chrysene	ND	ug/kg	7.6	0.35	1	12/08/10 12:10	12/09/10 16:16	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	7.6	0.31	1	12/08/10 12:10	12/09/10 16:16	53-70-3	
Fluoranthene	**20.6**	ug/kg	7.6	0.89	1	12/08/10 12:10	12/09/10 16:16	206-44-0	
Fluorene	**42.1**	ug/kg	7.6	2.0	1	12/08/10 12:10	12/09/10 16:16	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	7.6	0.28	1	12/08/10 12:10	12/09/10 16:16	193-39-5	
1-Methylnaphthalene	**8.7**	ug/kg	7.6	1.0	1	12/08/10 12:10	12/09/10 16:16	90-12-0	
2-Methylnaphthalene	**10.2**	ug/kg	7.6	2.1	1	12/08/10 12:10	12/09/10 16:16	91-57-6	
Naphthalene	**31.7**	ug/kg	7.6	2.0	1	12/08/10 12:10	12/09/10 16:16	91-20-3	
Phenanthrene	**53.9**	ug/kg	7.6	3.6	1	12/08/10 12:10	12/09/10 16:16	85-01-8	
Pyrene	**19.0**	ug/kg	7.6	0.34	1	12/08/10 12:10	12/09/10 16:16	129-00-0	
2-Fluorobiphenyl (S)	72	%	31-131		1	12/08/10 12:10	12/09/10 16:16	321-60-8	
Terphenyl-d14 (S)	64	%	30-133		1	12/08/10 12:10	12/09/10 16:16	1718-51-0	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Pentachlorophenol	ND	ug/kg	191	120	1	12/09/10 13:10	12/15/10 12:42	87-86-5	
Nitrobenzene-d5 (S)	85	%	50-110		1	12/09/10 13:10	12/15/10 12:42	4165-60-0	
2-Fluorobiphenyl (S)	73	%	40-110		1	12/09/10 13:10	12/15/10 12:42	321-60-8	
Terphenyl-d14 (S)	71	%	50-135		1	12/09/10 13:10	12/15/10 12:42	1718-51-0	
Phenol-d6 (S)	62	%	10-115		1	12/09/10 13:10	12/15/10 12:42	13127-88-3	
2-Fluorophenol (S)	25	%	20-110		1	12/09/10 13:10	12/15/10 12:42	367-12-4	
2,4,6-Tribromophenol (S)	16	%	40-125		1	12/09/10 13:10	12/15/10 12:42	118-79-6	S2
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**12.8**	%	0.10	0.10	1		12/08/10 16:19		

Sample: MBACBSC-122010-2A-6-12 **Lab ID: 255916002** Collected: 12/02/10 16:30 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**922**	ug/kg	9.8	2.3	1	12/08/10 12:10	12/09/10 16:32	83-32-9	
Acenaphthylene	**52.2**	ug/kg	9.8	0.33	1	12/08/10 12:10	12/09/10 16:32	208-96-8	
Anthracene	**309**	ug/kg	9.8	0.54	1	12/08/10 12:10	12/09/10 16:32	120-12-7	
Benzo(a)anthracene	**162**	ug/kg	9.8	0.15	1	12/08/10 12:10	12/09/10 16:32	56-55-3	

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ANALYTICAL RESULTS

Project: McCormick & Baxter
Pace Project No.: 255916

Sample: MBACBSC-122010-2A-6-12 **Lab ID: 255916002** Collected: 12/02/10 16:30 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Benzo(a)pyrene	**134**	ug/kg	9.8	0.23	1	12/08/10 12:10	12/09/10 16:32	50-32-8	
Benzo(b)fluoranthene	**123**	ug/kg	9.8	0.97	1	12/08/10 12:10	12/09/10 16:32	205-99-2	
Benzo(g,h,i)perylene	**66.2**	ug/kg	9.8	0.43	1	12/08/10 12:10	12/09/10 16:32	191-24-2	
Benzo(k)fluoranthene	**123**	ug/kg	9.8	0.70	1	12/08/10 12:10	12/09/10 16:32	207-08-9	
Chrysene	**215**	ug/kg	9.8	0.45	1	12/08/10 12:10	12/09/10 16:32	218-01-9	
Dibenz(a,h)anthracene	**33.9**	ug/kg	9.8	0.40	1	12/08/10 12:10	12/09/10 16:32	53-70-3	
Fluoranthene	**504**	ug/kg	9.8	1.1	1	12/08/10 12:10	12/09/10 16:32	206-44-0	
Fluorene	**844**	ug/kg	9.8	2.6	1	12/08/10 12:10	12/09/10 16:32	86-73-7	
Indeno(1,2,3-cd)pyrene	**58.8**	ug/kg	9.8	0.36	1	12/08/10 12:10	12/09/10 16:32	193-39-5	
1-Methylnaphthalene	**773**	ug/kg	9.8	1.3	1	12/08/10 12:10	12/09/10 16:32	90-12-0	
2-Methylnaphthalene	**1250**	ug/kg	9.8	2.7	1	12/08/10 12:10	12/09/10 16:32	91-57-6	
Naphthalene	**9490**	ug/kg	97.7	26.0	10	12/08/10 12:10	12/10/10 16:48	91-20-3	
Phenanthrene	**1450**	ug/kg	97.7	45.7	10	12/08/10 12:10	12/10/10 16:48	85-01-8	
Pyrene	**439**	ug/kg	9.8	0.43	1	12/08/10 12:10	12/09/10 16:32	129-00-0	
2-Fluorobiphenyl (S)	56	%	31-131		1	12/08/10 12:10	12/09/10 16:32	321-60-8	
Terphenyl-d14 (S)	49	%	30-133		1	12/08/10 12:10	12/09/10 16:32	1718-51-0	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Pentachlorophenol	ND	ug/kg	245	153	1	12/09/10 13:10	12/15/10 16:21	87-86-5	
Nitrobenzene-d5 (S)	56	%	50-110		1	12/09/10 13:10	12/15/10 16:21	4165-60-0	
2-Fluorobiphenyl (S)	67	%	40-110		1	12/09/10 13:10	12/15/10 16:21	321-60-8	
Terphenyl-d14 (S)	68	%	50-135		1	12/09/10 13:10	12/15/10 16:21	1718-51-0	
Phenol-d6 (S)	74	%	10-115		1	12/09/10 13:10	12/15/10 16:21	13127-88-3	
2-Fluorophenol (S)	74	%	20-110		1	12/09/10 13:10	12/15/10 16:21	367-12-4	
2,4,6-Tribromophenol (S)	85	%	40-125		1	12/09/10 13:10	12/15/10 16:21	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**31.9**	%	0.10	0.10	1		12/08/10 16:19		

Sample: MBACBSC-122010-2B-0-4 **Lab ID: 255916003** Collected: 12/02/10 16:45 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**59.3**	ug/kg	8.4	1.9	1	12/08/10 12:10	12/09/10 16:48	83-32-9	
Acenaphthylene	ND	ug/kg	8.4	0.29	1	12/08/10 12:10	12/09/10 16:48	208-96-8	
Anthracene	**14.7**	ug/kg	8.4	0.47	1	12/08/10 12:10	12/09/10 16:48	120-12-7	
Benzo(a)anthracene	**19.7**	ug/kg	8.4	0.13	1	12/08/10 12:10	12/09/10 16:48	56-55-3	
Benzo(a)pyrene	**16.6**	ug/kg	8.4	0.20	1	12/08/10 12:10	12/09/10 16:48	50-32-8	
Benzo(b)fluoranthene	**15.7**	ug/kg	8.4	0.84	1	12/08/10 12:10	12/09/10 16:48	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	8.4	0.37	1	12/08/10 12:10	12/09/10 16:48	191-24-2	
Benzo(k)fluoranthene	**16.3**	ug/kg	8.4	0.60	1	12/08/10 12:10	12/09/10 16:48	207-08-9	

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ANALYTICAL RESULTS

Project: McCormick & Baxter
Pace Project No.: 255916

Sample: MBACBSC-122010-2B-0-4 **Lab ID: 255916003** Collected: 12/02/10 16:45 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Chrysene	**20.3**	ug/kg	8.4	0.39	1	12/08/10 12:10	12/09/10 16:48	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	8.4	0.35	1	12/08/10 12:10	12/09/10 16:48	53-70-3	
Fluoranthene	**39.8**	ug/kg	8.4	0.98	1	12/08/10 12:10	12/09/10 16:48	206-44-0	
Fluorene	**43.9**	ug/kg	8.4	2.3	1	12/08/10 12:10	12/09/10 16:48	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	8.4	0.31	1	12/08/10 12:10	12/09/10 16:48	193-39-5	
1-Methylnaphthalene	**44.4**	ug/kg	8.4	1.1	1	12/08/10 12:10	12/09/10 16:48	90-12-0	
2-Methylnaphthalene	**43.1**	ug/kg	8.4	2.3	1	12/08/10 12:10	12/09/10 16:48	91-57-6	
Naphthalene	**806**	ug/kg	8.4	2.2	1	12/08/10 12:10	12/09/10 16:48	91-20-3	
Phenanthrene	**44.7**	ug/kg	8.4	3.9	1	12/08/10 12:10	12/09/10 16:48	85-01-8	
Pyrene	**43.0**	ug/kg	8.4	0.37	1	12/08/10 12:10	12/09/10 16:48	129-00-0	
2-Fluorobiphenyl (S)	62	%	31-131		1	12/08/10 12:10	12/09/10 16:48	321-60-8	
Terphenyl-d14 (S)	55	%	30-133		1	12/08/10 12:10	12/09/10 16:48	1718-51-0	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Pentachlorophenol	ND	ug/kg	207	129	1	12/09/10 13:10	12/15/10 15:34	87-86-5	
Nitrobenzene-d5 (S)	81	%	50-110		1	12/09/10 13:10	12/15/10 15:34	4165-60-0	
2-Fluorobiphenyl (S)	73	%	40-110		1	12/09/10 13:10	12/15/10 15:34	321-60-8	
Terphenyl-d14 (S)	65	%	50-135		1	12/09/10 13:10	12/15/10 15:34	1718-51-0	
Phenol-d6 (S)	69	%	10-115		1	12/09/10 13:10	12/15/10 15:34	13127-88-3	
2-Fluorophenol (S)	38	%	20-110		1	12/09/10 13:10	12/15/10 15:34	367-12-4	
2,4,6-Tribromophenol (S)	27	%	40-125		1	12/09/10 13:10	12/15/10 15:34	118-79-6	S2
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**21.0**	%	0.10	0.10	1		12/08/10 16:19		

Sample: MBACBSC-122010-2B-4-8 **Lab ID: 255916004** Collected: 12/02/10 16:45 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**320**	ug/kg	9.2	2.1	1	12/08/10 12:10	12/09/10 17:04	83-32-9	
Acenaphthylene	**13.2**	ug/kg	9.2	0.31	1	12/08/10 12:10	12/09/10 17:04	208-96-8	
Anthracene	**78.2**	ug/kg	9.2	0.51	1	12/08/10 12:10	12/09/10 17:04	120-12-7	
Benzo(a)anthracene	**47.8**	ug/kg	9.2	0.14	1	12/08/10 12:10	12/09/10 17:04	56-55-3	
Benzo(a)pyrene	**35.0**	ug/kg	9.2	0.22	1	12/08/10 12:10	12/09/10 17:04	50-32-8	
Benzo(b)fluoranthene	**35.9**	ug/kg	9.2	0.91	1	12/08/10 12:10	12/09/10 17:04	205-99-2	
Benzo(g,h,i)perylene	**20.1**	ug/kg	9.2	0.41	1	12/08/10 12:10	12/09/10 17:04	191-24-2	
Benzo(k)fluoranthene	**31.4**	ug/kg	9.2	0.66	1	12/08/10 12:10	12/09/10 17:04	207-08-9	
Chrysene	**56.0**	ug/kg	9.2	0.42	1	12/08/10 12:10	12/09/10 17:04	218-01-9	
Dibenz(a,h)anthracene	**9.8**	ug/kg	9.2	0.38	1	12/08/10 12:10	12/09/10 17:04	53-70-3	
Fluoranthene	**211**	ug/kg	9.2	1.1	1	12/08/10 12:10	12/09/10 17:04	206-44-0	
Fluorene	**265**	ug/kg	9.2	2.4	1	12/08/10 12:10	12/09/10 17:04	86-73-7	

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ANALYTICAL RESULTS

Project: McCormick & Baxter
Pace Project No.: 255916

Sample: MBACBSC-122010-2B-4-8 **Lab ID: 255916004** Collected: 12/02/10 16:45 Received: 12/04/10 09:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Indeno(1,2,3-cd)pyrene	**16.7**	ug/kg	9.2	0.34	1	12/08/10 12:10	12/09/10 17:04	193-39-5	
1-Methylnaphthalene	**180**	ug/kg	9.2	1.2	1	12/08/10 12:10	12/09/10 17:04	90-12-0	
2-Methylnaphthalene	**280**	ug/kg	9.2	2.5	1	12/08/10 12:10	12/09/10 17:04	91-57-6	
Naphthalene	**1050**	ug/kg	9.2	2.4	1	12/08/10 12:10	12/09/10 17:04	91-20-3	
Phenanthrene	**335**	ug/kg	9.2	4.3	1	12/08/10 12:10	12/09/10 17:04	85-01-8	
Pyrene	**193**	ug/kg	9.2	0.41	1	12/08/10 12:10	12/09/10 17:04	129-00-0	
2-Fluorobiphenyl (S)	57	%	31-131		1	12/08/10 12:10	12/09/10 17:04	321-60-8	
Terphenyl-d14 (S)	57	%	30-133		1	12/08/10 12:10	12/09/10 17:04	1718-51-0	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Pentachlorophenol	ND	ug/kg	228	143	1	12/09/10 13:10	12/15/10 15:58	87-86-5	
Nitrobenzene-d5 (S)	42	%	50-110		1	12/09/10 13:10	12/15/10 15:58	4165-60-0	S6
2-Fluorobiphenyl (S)	62	%	40-110		1	12/09/10 13:10	12/15/10 15:58	321-60-8	
Terphenyl-d14 (S)	60	%	50-135		1	12/09/10 13:10	12/15/10 15:58	1718-51-0	
Phenol-d6 (S)	74	%	10-115		1	12/09/10 13:10	12/15/10 15:58	13127-88-3	
2-Fluorophenol (S)	73	%	20-110		1	12/09/10 13:10	12/15/10 15:58	367-12-4	
2,4,6-Tribromophenol (S)	74	%	40-125		1	12/09/10 13:10	12/15/10 15:58	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**27.3**	%	0.10	0.10	1		12/08/10 16:20		

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QUALITY CONTROL DATA

Project: McCormick & Baxter
Pace Project No.: 255916

QC Batch: OEXT/3070 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM
Associated Lab Samples: 255916001, 255916002, 255916003, 255916004

METHOD BLANK: 51521 Matrix: Solid
Associated Lab Samples: 255916001, 255916002, 255916003, 255916004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND	6.7	12/09/10 15:45	
2-Methylnaphthalene	ug/kg	ND	6.7	12/09/10 15:45	
Acenaphthene	ug/kg	ND	6.7	12/09/10 15:45	
Acenaphthylene	ug/kg	ND	6.7	12/09/10 15:45	
Anthracene	ug/kg	ND	6.7	12/09/10 15:45	
Benzo(a)anthracene	ug/kg	ND	6.7	12/09/10 15:45	
Benzo(a)pyrene	ug/kg	ND	6.7	12/09/10 15:45	
Benzo(b)fluoranthene	ug/kg	ND	6.7	12/09/10 15:45	
Benzo(g,h,i)perylene	ug/kg	ND	6.7	12/09/10 15:45	
Benzo(k)fluoranthene	ug/kg	ND	6.7	12/09/10 15:45	
Chrysene	ug/kg	ND	6.7	12/09/10 15:45	
Dibenz(a,h)anthracene	ug/kg	ND	6.7	12/09/10 15:45	
Fluoranthene	ug/kg	ND	6.7	12/09/10 15:45	
Fluorene	ug/kg	ND	6.7	12/09/10 15:45	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	6.7	12/09/10 15:45	
Naphthalene	ug/kg	ND	6.7	12/09/10 15:45	
Phenanthrene	ug/kg	ND	6.7	12/09/10 15:45	
Pyrene	ug/kg	ND	6.7	12/09/10 15:45	
2-Fluorobiphenyl (S)	%	64	31-131	12/09/10 15:45	
Terphenyl-d14 (S)	%	80	30-133	12/09/10 15:45	

LABORATORY CONTROL SAMPLE: 51522

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	133	80.3	60	37-121	
2-Methylnaphthalene	ug/kg	133	81.2	61	33-132	
Acenaphthene	ug/kg	133	85.2	64	32-127	
Acenaphthylene	ug/kg	133	87.1	65	31-134	
Anthracene	ug/kg	133	94.6	71	42-135	
Benzo(a)anthracene	ug/kg	133	95.9	72	43-139	
Benzo(a)pyrene	ug/kg	133	112	84	44-144	
Benzo(b)fluoranthene	ug/kg	133	103	77	42-144	
Benzo(g,h,i)perylene	ug/kg	133	85.9	64	46-136	
Benzo(k)fluoranthene	ug/kg	133	103	77	45-147	
Chrysene	ug/kg	133	97.2	73	42-144	
Dibenz(a,h)anthracene	ug/kg	133	87.2	65	48-142	
Fluoranthene	ug/kg	133	92.8	70	44-143	
Fluorene	ug/kg	133	88.0	66	32-146	
Indeno(1,2,3-cd)pyrene	ug/kg	133	88.4	66	47-140	
Naphthalene	ug/kg	133	80.3	60	35-118	
Phenanthrene	ug/kg	133	88.4	66	42-131	

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QUALITY CONTROL DATA

Project: McCormick & Baxter
Pace Project No.: 255916

LABORATORY CONTROL SAMPLE: 51522

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pyrene	ug/kg	133	98.2	74	47-136	
2-Fluorobiphenyl (S)	%			67	31-131	
Terphenyl-d14 (S)	%			79	30-133	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 51523 51524

Parameter	Units	255892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/kg	13.8	146	147	127	113	78	67	31-123	12	21	
2-Methylnaphthalene	ug/kg	22.7	146	147	141	125	81	69	15-146	12	20	
Acenaphthene	ug/kg	9.0	146	147	131	112	84	70	19-141	16	24	
Acenaphthylene	ug/kg	23.1	146	147	141	130	81	73	30-142	8	22	
Anthracene	ug/kg	42.0	146	147	234	154	132	76	38-137	41	22	R1
Benzo(a)anthracene	ug/kg	83.6	146	147	295	193	145	75	37-143	41	19	M1,R1
Benzo(a)pyrene	ug/kg	102	146	147	330	212	157	75	33-147	43	18	M1,R1
Benzo(b)fluoranthene	ug/kg	53.1	146	147	186	131	91	53	25-156	34	22	R1
Benzo(g,h,i)perylene	ug/kg	58.5	146	147	215	151	107	63	26-142	35	20	R1
Benzo(k)fluoranthene	ug/kg	61.3	146	147	245	168	126	73	35-142	37	23	R1
Chrysene	ug/kg	97.4	146	147	330	214	159	79	23-150	42	23	M1,R1
Dibenz(a,h)anthracene	ug/kg	18.5	146	147	134	110	79	62	41-140	20	18	R1
Fluoranthene	ug/kg	136	146	147	391	245	175	74	25-155	46	19	M1,R1
Fluorene	ug/kg	27.1	146	147	164	132	94	71	33-152	22	18	R1
Indeno(1,2,3-cd)pyrene	ug/kg	46.4	146	147	196	139	103	63	36-139	34	19	R1
Naphthalene	ug/kg	29.0	146	147	142	129	77	68	25-121	9	34	
Phenanthrene	ug/kg	148	146	147	487	279	233	90	29-141	54	21	M1,R1
Pyrene	ug/kg	225	146	147	595	364	254	94	36-145	48	19	M1,R1
2-Fluorobiphenyl (S)	%						68	63	31-131			
Terphenyl-d14 (S)	%						75	68	30-133			

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QUALITY CONTROL DATA

Project: McCormick & Baxter
Pace Project No.: 255916

QC Batch: OEXT/3074 Analysis Method: EPA 8270
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave
Associated Lab Samples: 255916001, 255916002, 255916003, 255916004

METHOD BLANK: 51727 Matrix: Solid
Associated Lab Samples: 255916001, 255916002, 255916003, 255916004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/kg	ND	167	12/15/10 11:54	
2,4,6-Tribromophenol (S)	%	62	40-125	12/15/10 11:54	
2-Fluorobiphenyl (S)	%	83	40-110	12/15/10 11:54	
2-Fluorophenol (S)	%	77	20-110	12/15/10 11:54	
Nitrobenzene-d5 (S)	%	86	50-110	12/15/10 11:54	
Phenol-d6 (S)	%	80	10-115	12/15/10 11:54	
Terphenyl-d14 (S)	%	97	50-135	12/15/10 11:54	

LABORATORY CONTROL SAMPLE: 51728

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/kg	1330	890	67	16-86	
2,4,6-Tribromophenol (S)	%			86	40-125	
2-Fluorobiphenyl (S)	%			81	40-110	
2-Fluorophenol (S)	%			79	20-110	
Nitrobenzene-d5 (S)	%			85	50-110	
Phenol-d6 (S)	%			79	10-115	
Terphenyl-d14 (S)	%			86	50-135	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 51729 51730

Parameter	Units	255916001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/kg	ND	1500	1530	418	482	20	24	20-160	14	30	
2,4,6-Tribromophenol (S)	%						21	23	40-125			S2
2-Fluorobiphenyl (S)	%						75	77	40-110			
2-Fluorophenol (S)	%						32	34	20-110			
Nitrobenzene-d5 (S)	%						87	87	50-110			
Phenol-d6 (S)	%						64	64	10-115			
Terphenyl-d14 (S)	%						78	81	50-135			

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QUALITY CONTROL DATA

Project: McCormick & Baxter
Pace Project No.: 255916

QC Batch: PMST/1447 | Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 | Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 255916001, 255916002, 255916003, 255916004

SAMPLE DUPLICATE: 51676

Parameter	Units	255928001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.9	18.9	.5	30	

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QUALIFIERS

Project: McCormick & Baxter
Pace Project No.: 255916

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S6	Surrogate recovery outside control limits. Data accepted based on valid recovery of applicable surrogates (no analytes associated with this surrogate)

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: McCormick & Baxter
Pace Project No.: 255916

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255916001	**MBACBSC-122010-2A-0-6**	EPA 3546	OEXT/3070	EPA 8270 by SIM	MSSV/1463
255916002	**MBACBSC-122010-2A-6-12**	EPA 3546	OEXT/3070	EPA 8270 by SIM	MSSV/1463
255916003	**MBACBSC-122010-2B-0-4**	EPA 3546	OEXT/3070	EPA 8270 by SIM	MSSV/1463
255916004	**MBACBSC-122010-2B-4-8**	EPA 3546	OEXT/3070	EPA 8270 by SIM	MSSV/1463
255916001	**MBACBSC-122010-2A-0-6**	EPA 3546	OEXT/3074	EPA 8270	MSSV/1465
255916002	**MBACBSC-122010-2A-6-12**	EPA 3546	OEXT/3074	EPA 8270	MSSV/1465
255916003	**MBACBSC-122010-2B-0-4**	EPA 3546	OEXT/3074	EPA 8270	MSSV/1465
255916004	**MBACBSC-122010-2B-4-8**	EPA 3546	OEXT/3074	EPA 8270	MSSV/1465
255916001	**MBACBSC-122010-2A-0-6**	ASTM D2974-87	PMST/1447		
255916002	**MBACBSC-122010-2A-6-12**	ASTM D2974-87	PMST/1447		
255916003	**MBACBSC-122010-2B-0-4**	ASTM D2974-87	PMST/1447		
255916004	**MBACBSC-122010-2B-4-8**	ASTM D2974-87	PMST/1447		

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State of Oregon Chain of Custody

255916

Agency, Authorized Purchaser or Agent:	Contract Laboratory Name:	Lab Selection Criteria:	Turn Around Time:
Scott Manzano/Department of Environmental Quality	Pace Analytical	☐ Proximity (if TAT < 48 hrs)	X 10 days (std.)
Send Lab Report To:	**Lab Batch #:**	X Prior work on same project	☐ 5 days
Address: Heidi Blischke, GSI Water Solutions; 55 SW Yamhill Suite 400; Portland, Oregon 97204	**Invoice To:** Delia Chadwick/DEQ	☐ Cost (for anticipated analyses)	☐ 72 hours
	Address: Accounts Payable, 811 SW 6th Ave.; Portland, OR, 97204	☐ Other labs disqualified or unable to perform requested services	☐ 48 hours
Tel. #: 503-239-8799 x114			☐ 24 hours
E-mail: hblischke@gsiwatersolutions.com	Tel. #: 503-229-6748	☐ Emergency work	☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 2
Sampler Name: Chris Martin

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	**PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020				Comments
				Sample Preservative: None	None	None	None	None	None		*PAHs detection limit 10 ug/kg **PCP detection limit 167 ug/kg
MBACBSC-120210-2A-0-6	12-02-10 / 1630	Soil	one 4 oz. jar	X	X						
MBACBSC-120210-2A-6-12	12-02-10 / 1630	Soil	one 4 oz. jar	X	X						
MBACBSC-120210-2B-0-4	12-02-10 / 1645	Soil	one 4 oz. jar	X	X						
MBACBSC-120210-2B-4-8	12-02-10 / 1645	Soil	one 4 oz. jar	X	X						

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature: Tim Skotchi	Time & Date: 12/03/10 1917	Signature: Jyothi Swamy	Time & Date: 12/4/10 0914

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Received with ice at 1.6°C

255916

Sample Container Count

Pace Analytical

CLIENT: OR-DEQ

COC PAGE 1 of 1

COC ID#

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	~~WGFU~~ JGFU	WGKU				Comments
1										1					
2										1					
3										1					
4										1					
5															
6															
7															
8															
9															
10															
11															
12															Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic		JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic		R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac		U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic		VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic		VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic		VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic		VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial		VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial		WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial		WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial		ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial			
BP2O	500mL NaOH plastic		I	Wipe/Swab			

Sample Condition Upon Receipt

Pace Analytical

Client Name: OR DEQ Project # 255916

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other PCS

Tracking #: 1334583

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp. Blank Yes ____ No ____

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.6°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: NJS 12/4/10

Temp should be above freezing ≤ 6°C

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☐Yes	☑No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12. Containers says MBACBSC-122010-2A-0-6, MBACBCS-122010-2A-6-12, MBACBCS-122010-2B-0-4, MBACBCS-122010-2B-4-8
-Includes date/time/ID/Analysis Matrix: Soil				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
Exceptions: VOA, coliform, TOC, O&G				Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blanks Present:	☐Yes	☑No	☐N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

emailed about label/COC discrepancies → see attached

Project Manager Review: [signature] Date: 12/7/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

APPENDIX C
VEGETATION MANAGEMENT

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010

Hart Crowser/GSI
15670-05/Task 7 May 20, 2011

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C-1 Site Plan

ACRONYMS

BES	City of Portland Bureau of Environmental Services
DEQ	Oregon Department of Environmental Quality
GSI	GSI Water Solutions, Inc.
IGA	Intergovernmental Agreement
McCormick and Baxter	McCormick and Baxter Creosoting Company
NOAA Fisheries	National Oceanic and Atmospheric Marine Fisheries Service
O&M	Operation and Maintenance

APPENDIX C
VEGETATION MANAGEMENT
JANUARY 2010 THROUGH DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE

1.0 INTRODUCTION

This Appendix to the *January 2010 through December 2010 Operation and Maintenance (O&M) Report* summarizes the 2010 vegetation management activities at the McCormick and Baxter Superfund Site (Site). The location of the Site, the Site layout, and surface elevations are shown on Figures 1 through 3 in the main section of the O&M Report. Vegetation management elements are provided on Figure C-1.

In 2005, a soil cap with bank layback was installed at the Site as part of the remedial action. In February 2006, the soil cap was planted and an irrigation system was installed by the City of Portland Bureau of Environmental Services (BES). After a fifth growing season, the vegetation is fully established and the irrigation system is no longer needed at the Site.

The upland cap is managed as five distinct components, corresponding with the goals and objectives for management of hydrology, soils, and wildlife habitat. These components are:

- Entrance Area;
- Impermeable Cap;
- Riparian;
- Stormwater Retention Pond and Swale; and
- Earthen Cap.

2.0 CITY OF PORTLAND MANAGEMENT

Through an Intergovernmental Agreement (IGA) with the Oregon Department of Environmental Quality (DEQ), BES managed vegetation activities at the Site from June 2005 through June 2010. Vegetation management was completed in accordance with the *Upland Sediment and Soil Cap Vegetation Management Strategy* (BES, 2005) and Appendix F of the O&M Manual (Hart Crowser/GSI, 2010). A long-term Vegetation Management Plan for reduced monitoring will be included in a revised O&M Plan, expected in Spring 2012. This section

describes the results of the BES vegetation management activities at the upland (impermeable and earthen cap) and riparian areas through June 2010.

2.1 Riparian Area

For the Riparian Area, the primary goal was to create terrestrial habitat from large wood material, vegetation for food, cover and shelter, and shading (NOAA, 2004). Performance standards for the riparian area include:

- Bare soil spaces are small and well dispersed;
- Soil movement, such as active rills or gullies and soil deposition around plants or in small basin, is absent or slight and local;
- Plant litter is well distributed and effective in protecting the soil with few or no litter dams present;
- Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site;
- Vegetation structure is resulting in rooting throughout the available soil profile;
- Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy, and dominant over undesired competing vegetation;
- Streambanks have less than 5% exposed soils with margins anchored by deeply-rooted vegetation or coarse-grained alluvial debris; and
- A continuous corridor of shrubs and trees provide shade for the entire streambank.

Rodents are present and of potential concern; however, with the exception of some earlier targeted damage to the grand fir seedlings (BES, 2010), there has been only moderate damage to other plantings. Rodent activities are now monitored on a quarterly basis.

In February 2008, the riparian area was inter-planted with 500 additional alder trees, and irrigation was extended to this portion of the Site. The additional alder trees are thriving, and the only maintenance necessary is to continue to manage the knapweeds, thistles, and yellow mustard. Semi-annual noxious weed control activities including herbicide application were conducted by BES from Spring 2006 through Spring 2010. Ongoing noxious weed control spot-spraying and manual pulling is being completed on a semi-annual basis by Native Ecosystems Northwest under subcontract to Hart Crowser (Section 3.0).

Native and non-native grasses and clover groundcover, are doing a good job of preventing erosion and invasive species encroachment. There has been an increase in bare ground and generally a less vigorous herbaceous ground cover in the lower riparian area as compared to the adjacent upper Riparian Area. In general, the vegetated area for the lower Riparian Area becomes dry quickly in early to mid-summer; however, because of consistent precipitation in the Summer 2010, it is expected that irrigation is no longer required at the Site. A higher percentage of bare ground also increases the potential for invasive weed species; however, most of the non-native knapweeds and thistles are not invasive.

The shrub species that were also planted in this area, particularly the Nootka rose have begun to vigorously expand, sending out new rhizomatous shoots, significantly increasing the number of plantings per acre. Monitoring by BES through June 2010 indicates the vegetation in the Riparian Area is thriving, functional, and meets the requirements as determined by the National Marine Fisheries Services Biological Opinion for the Site (NOAA, 2004).

2.2 Upland Area

Surveys completed by BES through 2010 document that the survival of madrone, oak, ponderosa pine, and hawthorn are all performing very well. Invasive weed control has been successful due in part to a heavy cover of herbaceous species and grass thatch. In the Swale and Pond Planting component (retention pond), Grindelia and Canadian goldenrod are both providing some herbaceous diversity. Spanish clover and birdsfoot trefoil were taller than many of the smaller planted shrubs, but the shrubs are establishing well and might even benefit from the shade and nitrogen fixation provided by these species (BES, 2010). According to BES, both of these species have declined and other desirable species including native lupines, grindelia and epilobium have increased. The white clover in the Swale and Pond Planting are also contributing to soil fertility with little or no adverse effect on the woody plant material establishment. Alder and cottonwood seedlings are also naturally regenerating in this area. Thistles, Scotch broom and butterfly bush continue to be held at very low levels and are being targeted through semi-annual herbicide application activities.

The Impermeable Soil Cap component has not been part of the BES formally monitored components for this project because no woody species were designated for this area, only grasses and wildflower or herbaceous species were planted. However, BES maintained this area from February 2006 through June 2010 (BES, 2010). It appears the active drainage system hastens the drought period for this area, which is dry by early to mid summer. As the grasses have declined, invasive weed species have started to colonize this area

including: sweet clover (*Melilotus alba*), various knapweeds, Scotch broom, thistles and skeletonweed. BES continued to actively control these highly invasive species through June 2010 with a combination of herbicide applications and mechanical removal. This effort has been very successful to date. The noxious weed population continued to decline through June 2010.

3.0 NOXIOUS WEED CONTROL

Native Ecosystems Northwest of Portland, Oregon, under subcontract to Hart Crowser, completed noxious weed control activities from October 25 through October 29, 2010, and continue to use a preventative noxious weed control approach as a part of an ongoing effort to control the spread of noxious weed species at the Site. The scope of work includes spot spraying of Glyphosate herbicide and manual hand pulling to mitigate thistle, knapweed, Scotch broom, sweet clover, black mustard, and other noxious weeds. Figure 1 shows the general area for the Fall 2010 herbicide application event. The next scheduled noxious weed control activity is set for Spring 2011.

4.0 SUMMARY

The potential for noxious weed problems remains high for the entire Site. The degree of noxious weed presence will determine the longer term vegetation management requirements more than any other single factor (BES, 2010). Many of the adjacent off-site areas have severe noxious weed problems, including Scotch broom on the Burlington North Railroad grade and butterfly bush migration from the Triangle Park industrial property. Both of these properties have recently undergone major disturbances, which will likely increase the potential for noxious weed migration to the Site. Diffuse knapweeds detected in 2009 are also being actively controlled. Additional semi-annual noxious weed control activities are scheduled for Spring and Fall 2011. Continued monitoring of vegetation stability will be assessed site-wide, and as needed, impaired vegetation will be replaced consistent with the *Upland Sediment and Soil Cap Vegetation Management Strategy* (BES, 2005) and the National Marine Fisheries Services Biological Opinion for the Site (NOAA, 2004).

5.0 REFERENCES

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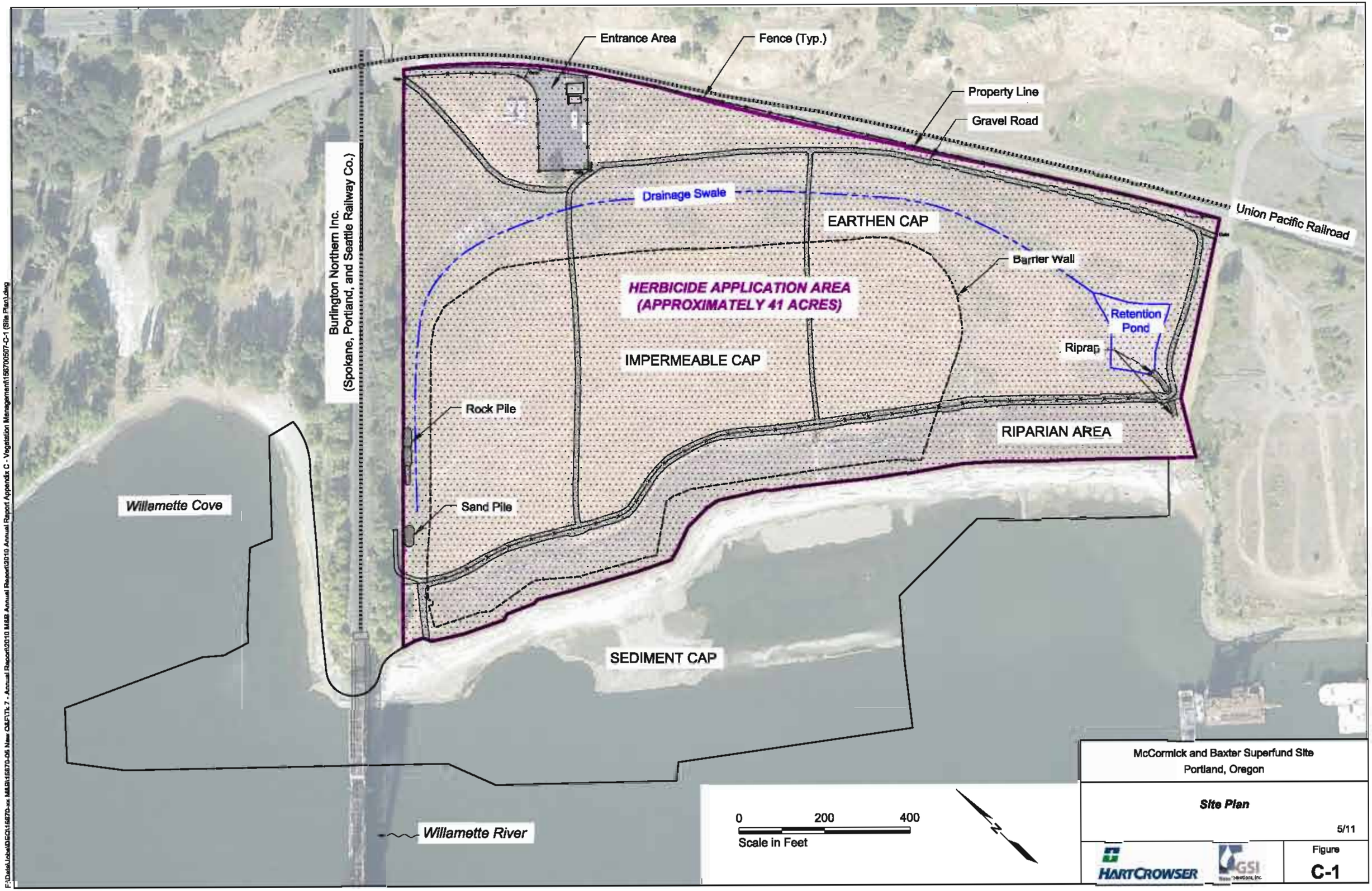

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APPENDIX D SURFACE, INTER-ARMORING, AND SUB-ARMORING WATER QUALITY ASSESSMENT

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010

Hart Crowser/GSI
15670-05/Task 7 May 20, 2011

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ATTACHMENTS

A University of Texas Final Sampling and Analysis Plan for SPMEs
B Photographic Log of Sampling Events
C Laboratory Analytical Reports and QA Memoranda for Surface, Inter-Armoring, and Sub-Armoring Water Spring 2010 Sampling Event (DVD
D EPA Spring and Fall 2010 Dive Reports (DVD)
E University of Texas SPME Methodology and Results Report

ACRONYMS

ACB	articulated concrete block
AWQC	ambient water quality criteria
cfs	cubic feet per second
COC	contaminants of concern
cPAH	carcinogenic polynuclear aromatic hydrocarbons
DEQ	Oregon Department of Environmental Quality
DI	de-ionized water
DO	dissolved oxygen
DVD	digital video disk
E&E	Ecology & Environment, Inc.
EPA	United States Environmental Protection Agency
GPS	global positioning system
GSI	GSI Water Solutions, Inc.
HPAH	high molecular weight polynuclear aromatic hydrocarbons
LPAH	low molecular weight polynuclear aromatic hydrocarbons
MCL	maximum contaminant level
MDL	method detection limit
MLE	maximum likelihood estimation
MRL	method reporting limit
MS/MSD	matrix spike/matrix spike duplicate
µg/L	micrograms per liter
µS/cm	microsiemens per centimeter
mg/L	milligrams per liter
mV	millivolts
NPDWR	National Primary Drinking Water Regulations
NRWQC	National Recommended Water Quality Criteria
NAVD	North American Vertical Datum
O&M	operation and maintenance
ORP	oxidation-reduction potential

ACRONYMS (CONTINUED)

PAHs	polynuclear aromatic hydrocarbons
PCP	pentachlorophenol
PDMS	polydimethylsiloxane
QA/QC	quality assurance/quality control
ROD	Record of Decision
Site	McCormick & Baxter Superfund Site
SPME	solid phase micro-extraction
TDS	total dissolved solids
TSS	total suspended solids
TFA	tank farm area
TPAH	total polynuclear aromatic hydrocarbons
UCL	upper confidence limit
UT	University of Texas

APPENDIX D
SURFACE, INTER-ARMORING, AND SUB-ARMORING WATER ASSESSMENT
OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE

1.0 INTRODUCTION

Appendix D to the January 2010 through December 2010 Operation and Maintenance (O&M) Report summarizes the sampling activities and analytical results for the Spring and Fall 2010 sediment cap surface water, inter-armor, and sub-armor sampling events at the McCormick and Baxter Superfund Site (Site) in Portland, Oregon. Analytical results for water sampling events conducted in 2002 through 2010 also are included in the form of plots and summary tables. The location of the Site, Site layout, and surface elevations are shown in Figures 1 through 3 in the main section of the O&M Report. The Fall 2005 to Spring 2010 sampling events were conducted in general accordance with the *2005 Surface Water and Transition-Zone Water Sampling and Analysis Plan* (E&E, 2005) and *Revised O&M Manual* (Hart Crowser/GSI, 2008).

The Spring 2010 sampling event was the 10th sampling event using the conventional sampling methodology. This provides a statically valid data set for sediment cap performance evaluation during the upcoming 3rd Five Year Review. During the June 2009 project team annual meeting, it was decided that solid phase micro-extraction (SPME) passive sampling using polydimethylsiloxane (PDMS) would be evaluated as a method for long-term sediment cap performance monitoring. The SPME method was used at 13 sample locations that were co-located with conventional sampling methods (i.e., the methodology used for the past 5 years) in the Fall of 2009. Results of the sampling and comparison between the conventional and SPME sampling are included in the 2009 O&M Report (Hart Crowser/GSI, 2010). Using the SPME methodology allowed for significantly lower detection limits in addition to obtaining samples that represent water equilibrated during an entire week, measurement of only the freely dissolved constituents, and a reduced effort for obtaining the samples. Based on the results from the Fall 2009 sampling event, it was decided that SPME sampling would be used in lieu of conventional sampling (using Henry samplers) to measure inter-armor and sub-armor water quality within the sediment cap in Fall 2010. Surface water samples within the boundary of the sediment cap were not collected in 2010. The SPME sampling was conducted in accordance with the University of Texas (UT) *SPME Sampling and Analysis Plan* (Reible, 2010).

1.1 Sampling Program

The surface, inter-armoring, and sub-armoring water sampling objectives are described in the Draft O&M Plan (DEQ, 2007). Sampling activities for the Spring and Fall 2010 sampling events took place: April 5 through April 13, 2010; and October 11 through 20, 2010, respectively. Water samples were analyzed for the Site contaminants of concern (COC). COCs include:

- Polynuclear aromatic hydrocarbons (PAHs)
- Pentachlorophenol (PCP) (Spring 2010 only)
- Metals (arsenic, chromium, copper, and zinc) (Spring 2010 only)

After installation of the sediment cap, sampling activities were conducted in the Fall and Spring of each year (beginning in Fall 2005) to collect surface water and inter- and sub-armoring water (sand cap layer) samples for use in evaluating post-sediment cap construction water quality conditions under both low-river discharge (Fall) and high-river discharge (Spring) conditions. Pre-sediment cap conditions are documented from surface water samples collected in 2002 and 2003.

During the first post-sediment cap sampling event in Fall 2005, sampling terminology included surface water and porewater and/or transition zone water. The latter term has been replaced by sub-armoring water, which denotes samples collected from within the placed cap sand overlying the native sediments. In 2006, the third sampling interval that was added was originally termed "flux chamber" after the design of the sampling equipment, which resembles a flux chamber sampling device. This interval has been renamed inter-armoring water, which denotes water samples collected from within the armoring overlying the sediment cap. The use of the term "flux chamber" for denoting the sample was dropped because sample collection does not provide a measurement of flux (i.e., groundwater entering the river).

1.2 Report Organization

Following this introduction (Section 1), the Appendix is organized as follows:

- **Section 2, Sampling Methodology.** This section presents specific sampling methodologies.
- **Section 3, Sampling Results.** This section presents the sampling analytical program, summary of sampling results, review of data quality, a statistical comparison of sampling results, and a summary of river hydraulics in Spring and Fall 2010.

- **Section 4, Summary.** This section presents a summary of the sediment cap monitoring activities to date and a discussion of planned sampling activities.
- **Section 5, References.**

Tables and figures are included in individual sections at the end of the text portion of this Appendix. The following attachments supplement the text. Attachment D is included as electronic files on the attached DVD.

- **Attachment A.** This attachment contains the final Sampling and Analysis Plan for installation, extraction, and analysis of SPMEs for the Fall 2010 sampling event.
- **Attachment B.** This attachment contains a photograph log of sampling activities during the Spring and Fall 2010 sampling events.
- **Attachment C.** This attachment contains the diver reports for the Spring and Fall 2010 sampling events. (DVD only)
- **Attachment D.** This attachment contains a copy of the Pace Analytical certified laboratory analytical data, including data validation of laboratory data for the Spring 2010 sampling event. (DVD only)
- **Attachment E.** This attachment contains the University of Texas report for the Fall 2010 SPME sampling event.

2.0 SAMPLING METHODOLOGY

This section presents the sampling methodology employed during the Spring and Fall 2010 sampling events. Conventional sampling was conducted in accordance with the *O&M Manual* (Hart Crowser/GSI, 2010). SPME sampling was conducted in accordance with the *SPME Sampling and Analysis Plan* (Reible, 2010). Sampling methodologies for surface water, inter-armoring water, and sub-armoring water samples are described below.

2.1 Methodology

During the Spring 2010 sampling event, surface water, inter-armoring water, and sub-armoring water samples were collected using the conventional method from 22 sampling locations. During the Fall 2010 sampling event, inter-armoring and sub-armoring samples were collected using SPME samplers at the same sampling locations where conventional samples have been collected during the past 5 years. Sampling locations for Spring and Fall 2010 are shown in Figures D-1 and D-2, respectively. The 22 sampling locations are located within the boundary of the sediment cap. Two surface water samples were collected outside of the

sediment cap boundary, however; one upriver and one downriver. Generally, sampling locations from the Spring and Fall 2010 events mirror those of the previous sampling events.

During the Spring and Fall 2010 sampling events, divers assisted in collecting samples only in deeper water, while near-shore samples were collected by the Hart Crowser/GSI Water Solutions (Hart Crowser/GSI) sampling team. The EPA Dive Team assisted during the Spring and Fall 2010 sampling events. Diver reports for both events are provided in Attachment D.

2.1.1 Surface Water Sampling

During the Spring sampling event, surface water samples were collected at 24 locations. Before the Spring 2007 sampling event, surface water samples in deep water were collected from a boat using a stainless steel bomb sampler. Beginning with the Spring 2007 sampling event, methodology for surface water samples was changed to using a peristaltic pump. This addresses several concerns regarding volatilization of certain organic compounds, as well as to decrease the time needed to collect a sample. The tubing is secured approximately 1 foot above the bottom of a weighted rope, which is then slowly lowered to the bottom of the river. Once in place, the tubing is connected to a peristaltic pump used to purge the surface water and collect the sample. A new length of polyethylene tubing is used at each sampling location thus eliminating the need for decontamination and minimizing the possibility for cross contamination. In shallower water, the tubing to the peristaltic pump was manually held approximately 1 foot from the surface of the cap armoring to collect the surface water sample. In 2007, the shallow surface water samples were collected by dipping the sampling jars into the surface water and allowing them to fill at approximately 1 foot from the bottom.

The peristaltic pump collection method reduces turbulence and/or aeration of the samples by eliminating pouring, as encountered while transferring the contents of the bomb sampler into the sample bottle. This minimizes the opportunity for certain organic compounds to volatilize during collection. Sample bottles were completely filled, leaving no headspace to further hinder volatilization. This method also reduced the amount of time required to collect a sample by creating an uninterrupted supply of water to fill the required sample bottles. Following collection, samples are placed on ice and stored in a cooler for transport to the laboratory.

In Fall 2010, surface water samples were collected only from the upriver and downriver locations using SPMEs. The SPMEs were attached to a concrete block, which was gently lower to the sediment surface. This allowed the SPME

tool to be located approximately 9 inches above the sediment/water interface. The SPMEs were left in place for 1 week to calibrate with the river water.

2.1.2 Inter-Armoring Sampling

Inter-armor sampling was conducted in Spring and Fall 2010 with 22 locations in the Spring and 21 locations (the SPME at Location 4 could not be retrieved) in the Fall. The Spring samples were collected using an inter-armoring sampling device, which was placed directly on top of the armor and then pushed down into the armor layer to allow collection of water from the pore spaces between the armoring. The main chamber is constructed from the bottom one-third of a 33-gallon plastic container. The chamber is attached to small-diameter polyethylene tubing using a "quick connect" fitting, which connects to the peristaltic pump used to purge the sample chamber and extract the sample. As the sampling device is placed, a 2-inch-diameter rubber stopper is pulled to allow air and surface water to pass through the chamber as it is pushed to the target depth. Once in place, the rubber stopper is reinserted before sampling. A peristaltic pump is used to purge the chamber for 1 minute at a low flow rate before collecting the sample. Field parameters are collected at the beginning and end of sample collection for each sample. Following collection, samples are placed on ice and stored in a cooler for transport to the laboratory.

SPME samplers were used to collect the Fall samples. At each location, a 24-inch-long PDMS fiber within a slotted metal rod was placed in the sediment cap to collect both inter-armoring and sub-armoring samples. The rods were placed so that the bottom of the fiber was located 1 foot into the sand portion of the cap sand. After setting the SPME rod, the armoring rocks (where present) were replaced to their previous thickness, approximately 1 foot above the cap sand layer. Where articulated concrete block (ACB) armoring was present, the rods were pushed 2 feet into the sediment cap as measured from the top of the ACB. The SPME rods were left in place for approximately 1 week and removed on October 20, 2010. After removal, the SPME fibers were cut and extracted in the field within 5 to 15 minutes of removing the rods from the sediment. It was important to extract the SPMEs quickly in the field so that the lower molecular weight PAHs (LPAH) could be accurately measured. SPME fiber sample containers were labeled, sealed in plastic bubble wrap bags, and placed on ice in a cooler for transport to UT for analysis. A detailed description of the placement and processing of SPMEs in the field, the laboratory analysis, results, and conclusions are described in Attachment E, which contains the UT report.

2.1.3 Sub-Armoring Sampling

Sub-armor sampling was conducted in Spring and Fall 2010; 22 samples were collected in the Spring and 21 samples (from two depths within the sub-armoring sand cap layer) were collected in the Fall. In the Spring, samples were co-located with inter-armor samples, collected from approximately 6 inches beneath the armoring layer, within the sand layer of the sediment cap. In the Fall, samples were collected from the same SPME sampler as the inter-armor samples with a fiber cut from 6 inches and 12 inches below the armor/sand cap interface for analysis.

Spring sampling was conducted using tubing connected to a PushPoint® mini-piezometer probe developed and sold by MHE Products (commonly known as Henry Samplers). These probes are constructed of stainless steel, and are easily decontaminated, are reusable, and have been used on similar sites throughout the country to obtain the same type of data. The probes are made of small-diameter, 316 stainless steel, and have a short screened zone that consists of a series of interlaced machined slots with approximately 20 percent open area. Each probe used in this sampling had an overall length of 36 inches and a screen length of approximately 1 inch. These devices are pushed into the sediment to the desired depth using a twisting motion. Then an internal guard rod is removed from the probe body, and tubing is attached to the end of the probe. In general, the desired depth is approximately 6 inches into the sand cap beneath the overlying armoring (rock or ACB).

Tubing is attached to the probe and porewater purged using a peristaltic pump. During purging, water quality parameters are monitored until they stabilize as described in the O&M Manual. Following collection, samples are placed on ice and stored in a cooler for transport to the laboratory.

SPME samplers were used to collect sub-armoring samples in the Fall. Location 4 was missing when the samplers were retrieved, therefore, no results are available for that location. Methods for this sampling procedure are presented in Section 2.1.2.

2.1.4 Water Quality Parameters

Water quality parameters were recorded in conjunction with the collection of each water sample when collecting samples using the conventional sampling methods (Spring 2010). No water quality parameters were collected in conjunction with the Fall SPME sampling. A Horiba U50, MP20DT Micro Purge, or YSI 6600 V2-4 Sonde multiparameter meter with a flow-through cell was utilized to monitor surface water, inter-armoring water, and sub-armoring water

conditions during the Spring 2010 sampling event. One set of parameters was recorded before collection of a surface water sample, two sets of parameters were recorded for each inter-armoring sample, and three sets of parameters were recorded for each sub-armoring sample. The first (initial) set of parameters was recorded immediately after pumping was initiated for all samples. For inter-armoring only, a second set of parameters was recorded after conditions stabilized and before the sample was collected (approximately 1 minute after the initial set during water sampling; called "pre-sampling"). The third (final) set of parameters was recorded upon completion of inter-armoring and sub-armoring sample collection. The initial and final sets of parameters are presented in Table D-1. Each set of parameters consisted of the following:

- Temperature
- Dissolved oxygen (DO)
- Oxidation-reduction potential (ORP)
- Specific conductance (conductivity)
- pH
- Turbidity

2.2 Quality Control Sampling

During the Spring 2010 event, quality control (QC) samples were collected including matrix spike and matrix spike duplicate (MS/MSD) samples for every group of 20 primary samples or fewer submitted to the laboratory for analysis. Blind duplicate samples also were collected at a rate of one duplicate for every group of 20 primary samples.

One equipment rinsate blank was collected for each type of sampling equipment used. The samples were collected at the end of each sampling event. Laboratory-supplied de-ionized (DI) water was used as the water source of the samples. Rinsate samples were collected from the inter-armoring sampling device by pouring DI water into an inverted, decontaminated inter-armoring sampling device. Sample bottles were filled by holding the uncapped bottles under the stream of water being discharged through the quick connect valve. The equipment rinsate blank for the Henry Sampler was collected by placing the screened end of the sampling device in a container of DI water and pumping into the sample jars using the peristaltic pump. These samples were collected in a manner consistent with other samples, in that no headspace was left in the sampling containers and upon collection, sample containers were labeled, sealed in plastic bubble wrap bags, and placed on ice in a cooler for transport to the contract laboratory.

During the Fall SPME sampling, field quality assurance/quality control (QA/QC) consisted of a field blank and the use of three samplers loaded with two different diameter fibers. The field/trip blank SPME traveled with the SPME to the Site and accompanied the SPMEs at the Site until they were extracted in the field. They provide background PAH concentrations that the fibers may have been exposed to during the trip and at the Site before deployment and before extraction. Sample results from the three samplers, loaded with two fiber diameters, were used to compare analytical differences in the fibers to determine if steady state (contaminant saturation of the SPME fibers) was reached after 7 days of exposure.

2.3 Modifications to Methodology

Deviations from the Revised O&M Manual for the Spring and Fall 2010 events are described below.

During the Spring 2010 event, the following deviations occurred:

- At Locations 2, 3, 12, 17, 18, and 19, during the inter-armoring sampling event, water quality parameters were collected during pre-sampling and final sampling (rather than initial and final sampling).
- At Location 2, during the inter-armoring sampling event, an extra set of water quality parameters was collected after the final set, because of difficulty making a good seal with the flux chamber. This difficulty also was encountered at Location 21.
- At Location 6, during the inter-armoring and sub-armoring sampling events, boat movement, pulled the samplers from their seated locations within the sediment cap, and necessitated the re-sampling of these layers approximately 11.3 feet from the planned global positioning system (GPS) location.
- At Location 6, during inter-armoring sampling of the duplicate, final water quality parameters were not collected because of pump failure.
- At Locations 7, 8, 15, and 19, parameters and samples were collected 20 feet, 12 feet, 35 feet, and 10 feet, respectively, from their planned GPS points because that was the best that could be done with the river current and EPA boat system.
- At Location 13, during the surface water sampling event, water quality parameters were collected during pre-sampling rather than initial sampling.
- At Location 25, the rock armoring was too thick to completely penetrate; therefore, the sub-armoring samples were collected from the greatest depth

that could be achieved with the equipment, which was still in the rock armoring layer rather than the underlying sand layer.

- At Location 26, the inter-armoring sampler was placed 1 foot into the inter-armoring layer and the Henry Sampler was placed 10 inches into the sub-armoring layer.
- Consistent with the Fall 2008 event, total suspended solids (TSS) and total dissolved solids (TDS) were added to the laboratory requests for the Spring event. TSS and TDS are not required by the O&M Plan; however, they are valuable in understanding whether concentrations of PAHs are primarily associated with particulate matter or dissolved in water. They have been measured periodically in previous events.

During the Fall 2010 event, the location 4 SPME sampling rod had been removed and the sample was lost.

3.0 SAMPLING RESULTS

This section describes the analytical results for samples collected during the Spring and Fall 2010 sampling events. Analytical results for COCs identified in the Record of Decision (ROD) (EPA, 1996) for the Site were compared to the 1996 ROD Ambient Water Quality Criteria (AWQC), the most recent EPA National Recommended Water Quality Criteria (NRWQC) (EPA, 2009a), and the most recent EPA National Primary Drinking Water Regulations (NPDWR) (EPA, 2009b). The following values are the lowest values for each COC from the above-mentioned comparison criteria:

- Arsenic (III) – 0.00014 milligrams per liter (mg/L)
- Chromium (III) – 0.074 mg/L
- Copper – 0.009 mg/L
- Zinc – 0.110 mg/L
- PCP – 1.00 micrograms per liter (µg/L)
- Acenaphthene – 520 µg/L
- Anthracene – 40,000 µg/L
- Fluoranthene – 54.0 µg/L
- Fluorene – 5,300 µg/L
- Naphthalene – 620 µg/L
- Pyrene – 4,000 µg/L

- Total carcinogenic polynuclear aromatic hydrocarbons (cPAHs) – 0.031 µg/L
- Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene – 0.018 µg/L each

The comparison criteria allow for Site-specific adjustments to their standard table values. PCP can be adjusted for Site-specific pH; chromium, copper, and zinc can be adjusted for hardness. Tables D-1 through D-5 reflect adjustments to the PCP comparison criteria to reflect Site pH, but the metals criteria have not been revised to reflect Site-specific hardness. The hardness of the Willamette River water is approximately 25 mg/L, while the hardness in the sub-armoring zone ranges from 70 to 190 mg/L. Hardness of the inter-armoring zone has not been measured. Therefore, until the water quality point of compliance is resolved, the comparison criteria calculated on the basis of a hardness of 100 mg/L is used. For surface water, if the NRWQC for chronic aquatic water were adjusted for hardness, the values would be 0.0238 mg/L for chromium III, 0.0027 mg/L for copper, and 0.0365 mg/L for zinc. The metals have not been adjusted for harness because the large difference in concentration of metals based on hardness would result in inter-armoring and sub-armoring sampling being compared to corrected criteria based on surface water hardness. PCP was adjusted for pH since the pH does not significantly change with depth into the sediment cap. The criteria listed above for zinc, acenaphthene, fluoranthene, naphthalene, and total cPAHs are based on AWQCs in place in 1996. The criteria listed above for PCP represent the NPDWR maximum contaminant level (MCL). In 1996, AWQCs for metals were based on total metal concentrations. The criteria listed above for arsenic, chromium, and copper are based on the NRWQCs in place in 2007, which were developed for dissolved metals.

The results presented in Table D-1 show concentrations both for total and dissolved metals. Total metals are compared with NRWQCs for dissolved metals, as required by EPA. The dissolved metals concentrations are presented for reference. Appropriate adjustments to the comparison criteria (i.e., hardness for metals) will be made when compliance criteria and methodology are determined before entering the operational and maintenance stage of the project.

The SPME results are presented and compared to comparison criteria in the report prepared by Dr. Reible and presented in Attachment E. SPME results also are summarized in the text.

3.1 Sample Analyses

Upon collection, sample containers were labeled, sealed in plastic bubble wrap bags, and placed on ice in a cooler for transport to the contract laboratory by the laboratory courier. Analytical services for Spring samples were provided by Pace Laboratories. Chain-of-custody procedures were followed from sample collection to analysis. Samples were analyzed for:

- PAHs and PCP using EPA Method 8270-SIM (using ultra low-level detection limits)
- Total arsenic, copper, chromium, and zinc using EPA Method 6020
- Dissolved arsenic, copper, chromium, and zinc using EPA Method 6020-diss (field filtered using a 0.45-micron filter)
- TDS using SM 2540C
- TSS using SM 2540D

Fall SPME samples were analyzed for PAHs using EPA Method 8310 by Dr. Reible at the UT.

3.2 Conventional Analytical Results – Spring 2010

Analytical summary data for PAHs, PCP, total and dissolved metals for the conventionally collected surface water, inter-armoring water, and sub-armoring water samples from the Spring event are summarized in Table D-1. Analytical summary data for PAHs for the SPME collected inter-armoring and sub-armoring water samples from the Fall event are provided in Attachment E. TSS and TDS analyses were conducted in the Spring 2010 event. While TSS and TDS are not requirements of the O&M Plan, they are valuable comparison data when evaluating the concentrations of PAHs, which are commonly associated with particulate matter.

Copies of the laboratory analytical reports and data review summary reports for the Spring 2010 event are included as Attachment C on the attached O&M Report DVD. Where concentrations are reported as not detected, it means that the constituent was not detected above the method detection limit (MDL). Additionally, where concentrations are detected above the MDL, but below the method reporting limit (MRL), the quantity is considered estimated.

Water samples were collected from 24 surface water locations and 22 subsurface locations. Total cPAH results are shown on Figures D-3 through D-5; naphthalene results are shown on Figures D-6 through D-8; and copper results

are shown on Figures D-9 through D-11. Figures D-5 and D-8 present the cPAH and naphthalene results, respectively, from the ACB porewater investigation described in detail in Appendix B of this Annual Report. Figures D-12 through D-20 present the temporal concentration trends for mean concentrations of total arsenic and copper; total PAHs; total cPAHs; and for select analytes at select individual locations. These selected locations are highlighted on the figures because they are in locations where detections in the sub-armoring sand have had consistent detections of PAHs.

3.2.1 Rinsate Blank Results

Three rinsate blanks were collected: one from the Henry Samplers used to collect sub-armoring samples and two from inter-armoring sampling devices. The results are presented in Table D-1; rinsate blank samples are denoted with the letter R. The rinsate blanks were analyzed for PAHs, PCP, and total metals.

A rinsate blank was collected from the Henry Sampler after sampling Location 15. Total copper was detected from the blank at this location at 0.0011 mg/L. Two rinsate blanks also were collected from inter-armoring sampling devices after sampling Location 6 and after sampling Location 14. The inter-armoring device rinsate blanks were analyzed for PAHs and total metals. In the rinsate blank at Location 6, copper was detected at 0.0011 mg/L; and the estimated value for zinc at this location was 0.0014 mg/L. In the blank at Location 14, the estimated values for total copper and total zinc were 0.00036 mg/L and 0.0017 mg/L, respectively. PAHs for all rinsate blanks were non-detect.

The sampling results were compared to the rinsate blank results. Samples with detections of a contaminant that are less than five times an associated detection in the rinsate blank would receive a flag indicating the contaminant was not detected (U). No samples were qualified as “not detected” as a result of concentrations in rinsate blanks.

3.2.2 Surface Water Sampling Results

During the Spring 2010 event, 25 surface water samples were collected from 24 locations including one duplicate (Location 13, MBSW0410-13D) and background samples from Location 1 and Location 27 (upstream and downstream, respectively). The following summarizes results for the 22 sample locations overlying the sediment cap.

Of the 22 locations overlying the sediment cap, four locations had detectable concentrations of PAHs with no detections of cPAHs (Figure D-3). Naphthalene was not detected in surface water samples (Figure D-6). PCP was only detected

at one location above the comparison criteria. Total arsenic was detected and exceeded the comparison criteria of 0.00014 mg/L at all locations including the two background locations. Chromium, copper (Figure D-9), and zinc did not exceed comparison criteria in any locations.

As shown on the trend plots, mean concentrations have not increased since 2005 when the sediment cap was completed (Figures D-12 through D-14a). With the exception of results from the Spring 2006 sampling event, copper concentrations in surface water are consistently below the pre-sediment cap mean copper concentrations from Fall 2002 and Fall 2003 (Figure D-12). It appears that PAH (both cPAH and total polynuclear aromatic hydrocarbons [TPAH]) concentrations have decreased in the sub-armoring layer while the surface water and inter-armoring layers have remained stable (i.e., are not increasing or decreasing). TPAHs in surface water are consistently higher in the Fall (primarily observed in near shore surface water sample locations) when surface water levels are lowest. Because the same pattern is not present in cPAHs, this suggests that low molecular weight, non-carcinogenic PAHs may migrate through the sediment cap through lateral discharge of groundwater at low river conditions. Carcinogenic PAHs have a much lower solubility and are not typically observed in groundwater at distances beyond 10's of feet from areas with residual creosote. The metals concentrations are stable and show no trends since installation of the sediment cap.

Upstream (Location 1) and downstream (Location 27) samples had detections of total and dissolved metals, but no detectable PCP or PAHs. Arsenic exceeds the comparison criteria of 0.00014 mg/L at both background locations. Analytical results for surface water samples are summarized in Table D-1 and are discussed below in more detail.

PAH Results. Total cPAH and naphthalene results for surface water samples are shown on Figures D-3 and D-6, respectively.

No PAHs exceeded comparison criteria and no cPAHs were detected. PAHs were detected at Locations 2, 12, 13 (only in the duplicate), and 25. Low level PAHs detected included acenaphthene, fluoranthene, fluorene, and pyrene. Samples from locations 2 and 12 had detections of PAHs within the inter-armoring water and sub-armoring water. Samples from locations 13 and 25 did not have detections of PAHs within the sediment cap inter-armoring or sub-armoring layers. This suggests that at Locations 2 and 12, low level PAHs may be migrating through the sediment cap while samples from locations 13 and 25 suggest lateral migration of dissolved PAHs in groundwater as these are near-shore samples. Detected PAH concentrations at all locations are greater than 3 orders of magnitude below the comparison criteria for surface water.

These results are consistent with previous semi-annual sampling results where low level PAHs have been detected in samples collected along the shore of Willamette Cove and in the former tank farm area (TFA).

PCP Results. PCP was estimated at 0.32 µg/L at Location 9, well below the comparison criteria of 1 µg/L. No other detections of PCP were observed.

Metals. Total and dissolved metals analysis was conducted for arsenic, chromium, copper, and zinc. Total metals were detected in all surface water samples with arsenic exceeding the comparison criteria of 0.00014 mg/L at all locations. The maximum total arsenic concentration was 0.0005 mg/L. The background total arsenic concentration at Location 1, located upstream of the Site was 0.00048 mg/L, similar to the maximum concentration observed overlying the sediment cap. No other metals exceeded comparison criteria and concentrations are similar to background.

3.2.3 Inter-Armoring Water Sampling Results

Twenty three samples were collected from 22 inter-armoring locations, including one duplicate: Location 13 (MBIA0410-13-D). None of the samples contained detectable amounts of PCP or cPAHs (Figure D-4). Four locations (Locations 2, 5, 10, and 12) contained detectable low level PAHs below the comparison criteria. Naphthalene was not detected at any location, as shown on Figure D-7.

Arsenic exceeded the comparison criteria at all locations. Copper exceeded the comparison criteria at 4 locations. Sample results from one location exceeded the comparison criteria for zinc, and no samples exceeded comparison criteria for chromium.

Inter-armoring results for all contaminants have remained relatively stable since the sediment cap was installed (Figures D-12 through D-14). The inter-armor layer typically has the highest concentrations of copper while for arsenic and PAHs, concentrations in the inter-armoring layer are typically lower than the sub-armoring layer. This pattern for copper suggests that it may be related to surface water loads and not related to copper migrating from the Site.

Analytical results for inter-armoring samples are summarized in Table D-1, and are discussed below in more detail.

PAH Results. Total cPAH results for inter-armoring water samples are shown on Figure D-4. Figure D-7 illustrates naphthalene results for inter-armoring water samples.

Carcinogenic PAHs were not detected in any of the inter-armoring samples (Figure D-4). Low concentrations of PAHs were detected at 4 locations (Locations 6, 7, 10, and 15). Low level PAHs detected include acenaphthene (maximum concentration of 0.56 mg/L at Location 12), fluoranthene (maximum concentration of 0.014 mg/L at Location 5), fluorene (maximum concentration of 0.12 mg/L at Location 12), phenanthrene (maximum concentration of 0.018 mg/L at Location 10) and pyrene (maximum concentration of 0.012 mg/L at Location 10). These concentrations are over 3 orders of magnitude lower than comparison criteria. Naphthalene was not detected at any location (Figure D-7).

No increasing or decreasing trends are apparent for PAHs since the sediment cap was completed in 2005 (Figures D-13a and D14-a). The inter-armoring layer appears to vary based on river discharge and is most influenced by pore water in the Fall and surface water in the Spring, as would be expected. In the Fall, the river discharge is low and groundwater flux has a larger impact. While in the Spring, when the river discharge is high, the hyporeic zone extends further beneath the river with surface water extending further into the sediments beneath the river.

PCP Results. PCP was not detected above the MDL of 0.15 µg/L in any of the inter-armoring samples.

Metals. Inter-armoring samples were analyzed for total and dissolved arsenic, chromium, copper, and zinc. Total arsenic, chromium, copper, and zinc were detected at all locations.

Total arsenic was detected above the comparison criteria for total arsenic (0.00014 mg/L) at all locations. Total arsenic concentrations had a mean of 0.0013 mg/L while the dissolved concentration mean was 0.0007 mg/L. The maximum total arsenic concentration was 0.011 mg/L at Location 6. Dissolved metals at Location 6 are an order of magnitude or more lower than total metals suggesting that a large percentage of the metals are associated with particulate matter. The mean concentration for total arsenic in the inter-armoring samples is higher than the mean concentration for total arsenic in the surface water samples. This is primarily driven by the elevated arsenic concentration associated with particulates at Location 6. In general, arsenic concentrations in the inter-armoring layer have been stable since the sediment cap was completed in 2005. Arsenic concentrations have also been consistently lower than arsenic concentrations within the sub-armoring layer, and are typically similar to the surface water concentrations (Figure D-12).

Total chromium was detected in all locations with a maximum concentration of 0.047 mg/L and a mean of 0.003 mg/L. Dissolved chromium was detected at 73

percent of the locations with a maximum concentration of 0.0009 mg/L and a mean of 0.0003 mg/L. Dissolved chromium concentrations are significantly lower than total chromium concentrations suggesting a large portion of the total chromium is present associated with particulate matter. This is consistent with the high river discharge resulting in high turbidity in the Spring. No chromium concentrations exceed comparison criteria.

Total copper event was detected at all locations with a maximum of 0.075 mg/L and a mean of 0.0077 mg/L. Locations 6, 7, 10, and 15 (0.0751 mg/L, 0.0092 mg/L, 0.022 mg/L, and 0.0094 mg/L, respectively) exceeded the comparison criteria of 0.009 mg/L. Dissolved copper was detected at all locations with a maximum of 0.003 mg/L and a mean of 0.0014 mg/L. Similar to chromium, the dissolved concentrations are significantly lower than total copper concentrations suggesting that the copper is associated with particulate matter.

Total zinc was detected at all locations with a maximum of 0.162 mg/L (Location 6) and a mean of 0.0178 mg/L. Dissolved zinc was detected at all locations with a maximum of 0.010 mg/L and a mean of 0.0034 mg/L. Total zinc at Location 6 exceeded the comparison criteria of 0.11 mg/L, however, the dissolved zinc concentration at Location 6 was estimated at 0.0033 mg/L, which again suggests higher total zinc concentrations are related to particulate matter.

Total metals at Location 6 were an order of magnitude higher than other locations while dissolved metal concentrations at Location 6 were similar to the other locations. This suggests that the water sample at location 6 contained more particulate matter. This sample skewed the statistics high for the total metals concentrations for 2010 inter-armoring water as compared to previous year's results (as shown on Figure D-15). Because turbidity and/or concentrations at Location 6 in the inter-armoring layer have not historically been elevated, we do not recommend any additional actions based on this irregular result. It is likely that the divers stirred up sediment when installing the sampler which may have cause elevated particulate in the sample.

3.2.4 Sub-Armoring Water Sampling Results

Twenty four sub-armoring water samples were collected from 22 locations including two duplicate samples (Location 13 MBSA0410-13D and Location 25 MBSA0410-25D).

Of these samples, three had detectable concentrations of cPAHs and 17 of the locations contained detectable LPAHs. No sub-armoring samples contained concentrations of PCP above the MDL. Total and dissolved arsenic were detected at all locations and exceeded the comparison criteria of 0.00014 mg/L.

Copper was detected at 68% of the locations and exceeded the comparison criteria in one location. Chromium and zinc, where detected, were all below comparison criteria.

Metals and cPAH concentrations have been stable since the sediment cap was installed (Figures D-12 and D-13). TPAHs appear to be decreasing in concentration (Figure D-14). Concentrations for PAHs and arsenic are higher in the sub-armoring layer than the surface water and inter-armoring layer, while copper concentrations are lower in the sub-armoring than in the inter-armoring layer. While generally cPAHs appear to have remained stable (i.e., primarily below detection limits), concentrations of cPAHs above the comparison criteria were observed in the subarmoring samples at both Location 12 and 21 in Willamette Cove. These locations should be included in the next sampling event.

Analytical results for sub-armoring water samples are summarized in Table D-1 and are discussed below in more detail.

PAH Results. Total cPAH results for sub-armoring samples are shown on Figure D-5. Figures D-8 shows sub-armoring naphthalene water samples results.

Detectable cPAH concentrations were reported in three of the 22 sub-armoring water samples (Location 9 at 0.012 µg/L, Location 12 at 0.092 µg/L, and Location 21 at 0.109 µg/L). Total cPAHs from these locations exceed the comparison criteria of 0.031 µg/L at Locations 12 and 21. The mean cPAH concentration appear to have dropped significantly (as shown on Figure D-13a); however, this is a result of a lower method detection limit in Spring 2011 which leads to a lower sum when using ½ the detection limit.

PCP Results. PCP was estimated at 0.32 µg/L at Location 19 which is below the comparison criteria of 1 µg/L. PCP was not detected at any other sub-armoring locations. The MDLs ranged between 0.14 µg/L to 0.16 µg/L .

Metals. Sub-armoring samples were analyzed for total and dissolved arsenic, chromium, copper, and zinc. Total and dissolved arsenic was detected and exceeded comparison criteria in all of the samples. Total copper exceeded the comparison criteria at Location 14. Chromium and zinc did not exceed their respective comparison criteria.

Samples from all locations exceeded the comparison criteria for total arsenic (0.00014 mg/L). In the Spring sampling event, the maximum total arsenic concentration was 0.036 mg/L and the mean was 0.007 mg/L. The dissolved concentrations were similar with a maximum of 0.035 mg/L and a mean of 0.007 mg/L, suggesting that the detected total arsenic is primarily in the

dissolved phase. Total arsenic concentrations are approximately an order of magnitude higher in the sub-armoring samples than in the inter-armoring samples suggesting that this dissolved phase arsenic is present in contaminated sediments beneath the cap.

Total chromium was detected in 13 locations with a maximum concentration of 0.0061 mg/L and a mean of 0.0009 mg/L. Dissolved chromium was detected at 10 of the locations with a maximum concentration of 0.0004 mg/L and a mean of 0.0002 µg/L. Dissolved chromium concentrations are significantly lower than total chromium concentrations and similar to the inter-armoring and surface water chromium concentrations, suggesting a large portion of the total chromium present is associated with particulate matter. No chromium concentrations exceed comparison criteria.

Total copper was detected at 15 locations with a maximum of 0.0095 mg/L and a mean of 0.0017. Location 14 (0.0095 mg/L) exceeded copper's comparison criteria of 0.009 mg/L. Dissolved copper was detected at 15 of the locations with a maximum of 0.0023 mg/L and a mean of 0.0005 mg/L. Dissolved copper concentrations are lower than total concentrations suggesting that a portion of the total copper is associated with particulate matter.

Total zinc was detected at 20 of the 22 locations with a maximum of 0.0232 mg/L and a mean of 0.0069 mg/L. Dissolved zinc was detected at all locations with a maximum of 0.0157 mg/L and a mean of 0.0041 mg/L. No samples exceeded the comparison criteria of 0.11 mg/L for zinc.

3.3 Water Quality Parameters – Spring 2010

Water quality parameters (temperature, specific conductance, DO, ORP, pH and turbidity) were measured during the sample collection, and total suspended solids and total dissolved solids were analyzed in the laboratory. These results were reviewed to obtain a general understanding of the geochemistry. In addition, water quality field parameters help understand the contribution of surface water and groundwater in a sample. For instance if a sample has a high dissolved oxygen concentration, it is more likely comprised primarily of surface water whereas high conductivity suggests groundwater.

The average temperatures for surface water, inter-armoring water, and sub-armoring water in the Spring were 9.82°C, 10.51°C, and 10.53°C, respectively. Generally, temperatures increase with depth (from surface water to the sub-armoring water), suggesting that the groundwater is generally warmer than the surface water.

Specific conductance was lower and showed a smaller spread in the data in the Spring when the river discharge is high. The average specific conductance for surface water, inter-armoring water, and sub-armoring water was 90 microsiemens per centimeter (µS/cm), 131 µS/cm, and 510/194 µS/cm, respectively. The specific conductance increases with depth with the surface water and inter-armoring being more similar and high specific conductivities in the sub-armoring water.

The average DO for surface water, inter-armoring water, and sub-armoring water was 11.8 mg/L, 11.16 mg/L, and 2.03 mg/L, respectively. DO decreases with depth into the subsurface.

The pH showed a limited range in all layers ranging from 5.3 to 7.6.

The average ORP for surface water, inter-armoring water, and sub-armoring water was 345 millivolts (mV), 147 mV, and 59 mV, respectively. ORP decreases with depth into the sediment cap.

The water quality parameters were very consistent between parameters, showing significant surface water influence into the inter-armoring layer. The ORP, temperature, and specific conductance increase and the DO decreases within the sub-armoring layer.

3.4 Solid Phase Micro-Extraction Results – Fall 2010

During the Fall 2009 semi-annual sampling event, SPME passive samplers using PDMS were deployed at 13 of the 22 locations overlying the sediment cap. Based on the results of last Fall's SPME sampling and to further assess the potential use of SPME as a long term sampling technology, the project team agreed to replace the conventional sampling with SPME sampling in Fall of 2010. The results of this event will be considered by the technical team to establish an SPME baseline for future water sampling to monitor the sediment cap's long term protectiveness. It is expected that SPME sampling will be conducted periodically (perhaps every 5 years) in select locations specified in the long-term monitoring plan for the Site.

For the Fall 2010 event SPME samplers were deployed at 22 locations within the cap boundary and 2 surface water sites outside the cap boundary. In-situ pore water concentration results from the SPMEs were compared to historic water quality sampling data, last year's SPME data, and analyzed for vertical concentration profiles and intra-site variability. PAHs were measured at 6-inches into the armoring layer (similar to the inter-armor conventional sample), and at 6-inches (similar to the sub-armoring conventional sample) and 12-inches into

the sand cap layer (deeper than the conventional sampling). After seven days of exposure, 21 of the 24 samplers were successfully retrieved. The SPME fibers were processed and preserved in acetonitrile immediately after retrieval, and shipped to the UT overnight. The samples were analyzed by high-performance liquid chromatography (EPA Method 8310) at the UT within one month of receipt.

Low molecular weight polynuclear aromatic hydrocarbons (PAH) were detected more frequently than high molecular weight polynuclear aromatic hydrocarbons (HPAH) (chrysene, benz[a]anthracene, benzo[b]floranthene, benzo[b]floranthene and benzo[a]pyrene). The three most hydrophobic compounds (dibenz[a,h]anthracene, and benzo[ghi] perylene+indeno[1,2,3-cd]pyrene) were not detected in any of the samples. Only LPAHs were detected at low concentrations in the two background surface water samples.

In-situ pore water PAH concentrations were compared to same criteria as for the conventional samples, and analyzed for vertical concentration profiles and intra-site variability. Consistent with observations from the 2009 SPME sampling, two types of concentration profiles were observed in 2010 sampling. Uniform concentration profiles were present in samples located along the shoreline apparently the result of tidal action. Pronounced concentration gradients were observed in offshore locations suggesting more limited vertical mixing of contaminants. Concentrations were compared to NRWQC although the measurements were of pore water and not surface water; one exceedance of the NRWQC (0.018 ug/L) was observed for chrysene (0.035 ug/L) at 21 inches below the cap-water interface (or 12-inches into the sand portion of the sediment cap). A duplicate at 22 inches detected a concentration of only 0.005 ug/L. Benz(a)anthracene reached 80 percent of the comparison criteria of 0.018 µg/L at Location 5 and 60 percent of comparison criteria at Location 16, both at the location 12 inches within the sand cap. Other PAHs at all sample locations sites and depths were well below the comparison criteria. Therefore, the SPME data shows no evidence of contaminant migration through the sediment cap in excess of comparison criteria.

Concentrations from 2010 sampling were compared directly to the concentrations measured in 2009. Locations 5 and 16 show higher concentrations in 2010 compared to 2009, while other locations exhibited similar or lower concentrations compared to measurements in 2009. It is unclear if the data from locations 5 and 16 represents spatial variability or if contaminant concentrations have increased in those locations. It should be emphasized that no concentrations exceeded NWRQC except a single deep sample for chrysene at Location 5. Additional sampling would be required to identify the significance, if any, of the increased concentrations at locations 5 and 16.

In summary, the data from sediment cap water sampling to-date continues to show that the sediment cap remains effective, with no evidence of contaminant breakthrough at concentrations that would suggest that the sediment cap is not performing as designed.

3.5 Data Review

All data presented in this report have been reviewed by a Hart Crowser chemist to determine data quality and usability. In this review, the following criteria were evaluated:

- Sample receipt temperatures;
- Holding times;
- Method blank samples;
- Matrix spike samples;
- Laboratory control samples;
- Duplicate samples;
- Surrogate spike recoveries; and
- Rinsate blank samples.

Conclusions and recommendations pertaining to the overall usefulness of the laboratory data are summarized in the Quality Assurance Reports located in Attachments C (DVD only) with the analytical data for the sampling event. Data reviewed for this report were assessed to be valid for their intended use with minor qualifications.

3.6 Statistical Analysis

Data collected during the Spring 2010 sampling events have been summarized and organized using several statistical methods. Data are tabulated by sampling event and media (surface, inter-armoring or sub-armoring water). Results for PAHs were totalized into four types: LPAHs, HPAHs, cPAHs, and TPAHs.

3.6.1 Statistical Parameters

A series of statistical parameters were used to summarize the data and were provided for each media (i.e., surface, inter-armoring, and sub-armoring water) and each sampling event (i.e., Fall 2002, Fall 2003, Fall 2005, Spring 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2010). The parameters include the following:

- Number of Samples;
- Detection Frequency;
- Maximum Detected Concentration;
- Location of Maximum;
- Mean Concentration;
- Data Distribution; and
- 95% Upper Confidence Limit on the Mean (95% UCL).

Samples resulting in all PAH constituents below MDLs, were totalized by adding one half of the MDL for each constituent being summed. If a sample resulted in detectable concentrations for any PAH constituent, only the detections were summed for that total. We recognize that this may result in data bias; however, consistency with the previous methodology was considered more important in comparing the 2010 data to previous data. Previous statistics were not recalculated.

The summary statistics for Spring 2010 are provided in Table D-1. Summary statistics for previous sampling events and the Spring 2010 event are provided in Tables D-2 (surface water), D-3 (inter-armoring), and D-4 (sub-armoring). The methodology used to calculate these statistics are provided in this section and are consistent with previous years' methodology. Background or reference samples (upstream and downstream samples collected outside the cap footprint) were not included in the statistical analysis.

The number of samples, detection frequency, maximum detected concentration, and location of maximum were determined by standard means using Microsoft Excel functions. Duplicate samples were not included in the calculation of number of samples or detection frequency. In the summary tables, if an analyte was not detected in any sample for the media and year combination, the detection frequency was shown as 0%, the maximum detected concentration was indicated as ND (not detected), and the location of maximum concentration was indicated as NA (not applicable).

Additional processing of the data was necessary to calculate the mean concentration, data distribution, and 95% UCL: non-detected analyte concentrations were represented using half the MDL. Duplicate sample datasets were reduced to "worst-case" scenarios, extracting the highest concentration for each analyte from the paired duplicate. The maximum detected concentration or maximum MDL for non-detected results between a duplicate sample and original were used to calculate the statistical parameters. If fewer than 4 of the

sample concentrations were non-unique, ProUCL advised that the 95% UCL was not valid. This is reflected in the data where no values are given for the 95% UCL. However, because half the MDL is used for samples that had no detections of a constituent and MDLs varied; the calculated 95% UCL for locations with low frequencies of detection should also be used with caution.

Data distribution and the 95% UCL were calculated using EPA's ProUCL Version 4.1(EPA, 2010). Non-detects and duplicates were included in the analysis as mentioned above. Within ProUCL, the UCL for each analyte was calculated for all UCL types at the 0.95 confidence coefficient. The number of bootstrap runs was set to the default of 2000. The ProUCL output includes raw statistics (mean, maximum, standard deviation, etc.), results of each distribution test, and recommendations for distribution and 95% UCL. The method for calculating data distribution and 95% UCL and for determining the recommended values is presented in the ProUCL Technical Guide (EPA, 2010).

In cases where few detections were present in the data set (i.e., 19 of 22 are non-detect) the recommended UCL was a nonparametric 99% statistic, resulting in a higher value than is likely to be reflected at the station, a second nonparametric 95% value was substituted (Standard Bootstrap Method). This is consistent with previous methodology. Note that conducting statistics on the data sets with predominantly non-detects or all non-detects result in means and UCLs that are not very meaningful. For these locations that have so few detections, the methods of applying distributions, such as the maximum likelihood estimation (MLE) or the regression on order statistics, to the non-detect values are also not applicable (Helsel, 2005). Although statistical methods may not be completely valid, general trends can be observed in the statistical results as described below.

3.6.2 Statistical Results

Summary tables and graphs were developed to show results from multiple sampling events. Tables D-2 through D-4 summarize the statistical results from pre- and post-capping sampling events for surface, inter-armoring, and sub-armoring water. The mean for sampling events from 2002 through 2010 for total arsenic, total copper, TPAHs and cPAHs are presented on Figures D-12 through D-14, respectively. These contaminants were selected because:

- TPAH provides an overall indication of contaminant reduction and trends. Acenaphthene, fluoranthene, and naphthalene also have ROD required performance standards (520 µg/L, 54 µg/L, and 620 µg/L, respectively). These are not individually plotted; however, they are presented in the tables and discussed below.

- Total cPAH is a ROD required performance standard (0.031 µg/L total cPAHs); the results will be considered to determine overall remedy protectiveness.
- Arsenic, chromium, copper, and zinc have ROD required performance standards (0.19 mg/L, 0.21 mg/L, 0.012 mg/L, and 0.11 mg/L, respectively), the results will be used to determine the overall protectiveness. Arsenic and copper were selected for presentation because they have a higher frequency of detections above or near the comparison criteria.

Each graph shows data from surface, inter-armoring, and sub-armoring water samples. Select graphs are presented on a log scale in addition to the linear scale.

Data is also graphically depicted for selected sample locations to show changes in contaminant concentrations over time from 2002 through 2010. Figures D-15 through D-17 show total arsenic and copper concentrations for samples collected from Locations 12, 4, and 10, respectively. These locations were agreed upon by EPA because they are in locations where detections in the sub-armoring sand have had consistent detections of PAHs. Figures D-18 through D-19 show total cPAH and TPAH concentrations for Locations 12, 10, and 4, respectively.

3.6.3 Comparison of Statistical Results

The mean concentration and 95% UCL were compared over time to evaluate overall contaminant concentration trends. The mean concentrations for total metals (arsenic, chromium, copper, and zinc) remained relatively stable between Fall 2002 and Spring 2010 in the three media. With the exception of copper, the sub-armoring samples are consistently higher in concentration than the inter-armoring and surface water samples. Metal concentrations appear to be consistent with background concentrations and have not changed significantly since installation of the sediment cap.

PCP was detected in surface water during the 2002 sampling event but has not been detected in subsequent sampling events. PCP was detected at low levels, well below comparison criteria, in Fall 2006 in the inter-armoring samples; however, it was not detected again in the 2007, 2008, or 2009 events and was detected at a low level in one surface water and one sub-armoring water sample in 2010.

Carcinogenic PAHs appear to be fairly stable, with the exception of elevated surface water concentrations in Fall 2002 prior to installation of the sediment cap and sub-armoring concentrations in 2005 directly after installation of the sediment cap that may have mobilized contaminants. Prior to 2010, the detection limit caused the summation of one-half the detection limits to result in a non-detect value for the mean that is above the cPAH ROD reference criteria

of 0.031 ug/L. In 2010, the detection limit was lower and we were able to show that the mean is below the reference criteria, even for the sub-armoring layer where few cPAHs were detected. Inter-armoring and surface water have been primarily non-detect for cPAHs since the cap was installed (Figures D-13 and D-13a; Tables D-2 and D-3). The clear reduction in cPAHs between the sub-armoring samples and the surface water and inter-armoring samples indicate that the sediment cap is functioning as designed.

Total PAHs in the inter-armoring and surface water have remained stable since installation of the sediment cap. TPAHs are regularly higher in the surface water samples in the Fall than in the Spring. River levels and discharge volumes are lower during the Fall time periods and the higher concentrations in surface water may represent a contribution from the lateral discharge of groundwater. Concentrations of TPAHs in the sub-armoring samples are consistently about an order of magnitude more than the surface water and inter-armoring samples. The sub-armoring sample concentrations have a decreasing trend since the sediment cap was installed. Again, the reduction in concentration between the sub-armoring layer and inter-armoring layer and the decreasing trend in TPAH concentrations in the sub-armoring layer show that the sediment cap is performing as designed.

A significant influence on the surface water data came from a single sample (SED-6) collected during the 2002 sampling event. Sample SED 6 contained 61.5 µg/L TPAHs. This result significantly skewed the data set. When SED 6 was removed from the data set, the mean and 95% UCL varied less than 0.2 µg/L from the remaining data sets. Statistical data sets for surface water are summarized in Table D-2. For 2002, data sets are presented with and without SED 6 data.

3.7 Willamette River Hydraulics

Discharge data for the Willamette River are presented on Figures D-21 (Spring 2010) and D-22 (Fall 2010); stream elevation data is presented in Figures D-23 (Spring 2010) and D-24 (Fall 2010); and stream velocity data are presented on Figures D-25 (Spring 2010) and D-26 (Fall 2010). The primary hydraulic differences between Fall and Spring sampling events are higher river levels, flow, and muted diurnal tidal variation during Spring. During the Spring 2010 sampling event, river elevations ranged from between 6 and 13.5 feet NAVD88. During the Fall 2010 sampling event, elevations ranged between 5 and 11 feet NAVD88. During the Spring 2010 event, river discharge averaged roughly 40,000 cubic feet per second (cfs), ranging from -25,000 to 100,000 cfs, while discharge rates during the Fall 2010 sampling event were considerably lower, averaging about 20,000 cfs, with a range from -65,000 to 35,000 cfs. Additionally, discharge rates

and stream velocities were often negative on a daily basis, resulting in reverse flow and potentially more stagnant conditions during Fall sampling events. These hydraulic differences appear to generally result in higher COC concentrations in the Fall than observed in the Spring.

4.0 SUMMARY

Surface water and sub-armoring water sampling events have been conducted since the installation of the sediment cap at the McCormick and Baxter Site: Fall 2005, Spring and Fall 2006, Spring and Fall 2007, Spring and Fall 2008, and Spring and Fall 2009, and Spring 2010. Additional sampling of inter-armoring water was added to monitor sediment cap performance in Spring 2006. Sampling conducted in 2002 and 2003 represents pre-sediment cap conditions and did not include inter-armoring or sub-armoring sampling. Porewater samples were collected in 2002. Sampling activities were conducted in general accordance with the *2005 Surface Water and Transition-Zone Water Sampling and Analysis Plan* (E&E, 2005), and *Revised O&M Manual* (Hart Crowser/GSI, 2008). Samples have been collected generally from the same 24 sampling locations since the sediment cap construction was completed. SPME samples were collected in the Fall of 2010 according to the Sampling and Analysis Plan provided in Attachment A.

Samples were analyzed for Site-specific COCs, including both total and dissolved metals (arsenic, chromium, copper, and zinc), PAHs, and PCP. Sample analysis through Spring 2008 was provided by TestAmerica and the Fall 2008, Spring and Fall 2009, and Spring 2010 sample analysis was provided by Pace Analytical, both under separate contract with the Oregon DEQ. Analytical results were compared against a group of water quality guidelines including AWQCs established in the 1996 ROD, and NRWQCs and NPDWRs established by the EPA. These guidelines are collectively referred to as comparison criteria. Of the Site COCs, comparison criteria have been developed for total metals, PCP, acenaphthene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pyrene, and total cPAHs.

Based on the large volume of data from the post-sediment cap construction water sampling, the following conclusions can be made:

- Metal concentrations in sub-armoring samples are stable and consistent in sampled locations across the sediment cap, suggesting contaminant concentrations reflect background values. Copper appears to be associated

with the Willamette River loading as evidenced by the lower concentrations in sub-armoring samples.

- With few exceptions, contaminant concentrations from surface water and inter-armoring water are consistently below comparison criteria, except for arsenic, a background metal.
- PAH contaminant concentrations in surface water are higher in samples collected from Fall sampling but are consistently below comparison criteria.

Table D-5 summarizes the exceedances of the lowest comparison criteria for post-sediment cap data. In Spring 2010, arsenic exceeded its criterion at all locations and within all sampling depths. No other comparison criteria were exceeded in surface water. Inter-armoring water exceeded the comparison criteria for copper in 4 locations and zinc in one location. Metals concentrations in inter-armoring water from Location 6 was relatively higher than all other samples. This appears to be associated with particulate matter as the dissolved metal concentrations were an order of magnitude lower. This may be a result of the divers stirring up sediment during sampling.

Water from the sub-armoring layer at Locations 12 and 21 exceeded the total cPAH criteria of 0.0310 µg/L with sums of 0.09 ug/L and 0.109 ug/L, respectively. The individual comparison criteria for benzo(a)anthracene, benzo(b)fluoranthene, and chrysene were also exceeded in the sub-armoring layer at those locations. Location 14 exceeded the comparison criteria for copper in the sub-armoring water. In the Fall SPME event, only chrysene was exceeded in one location at 12 inches into the sediment cap sand. No other exceedances were observed in the Fall 2010 SPME sampling.

Maximum detections are summarized for select analytes in Table D-6. In general, the maximum detected concentrations are relatively stable since installation of the sediment cap, particularly concentrations of metals (slightly higher in Spring 2010 inter-armoring water due to the higher concentrations thought to be associated with particulates at Location 6). Several maximum surface water PAH contaminant concentrations vary from Spring compared to Fall; a strong correlation exists between TPAHs and naphthalene from Spring 2006 through Spring 2010. Table D-7 presents the detection frequencies by year and media. The detection frequency for TPAHs is consistently higher in the sub-armoring water than in surface water or inter-armoring water.

Arsenic is consistently detected in all layers with the exception of Spring 2008. Chromium, copper, and zinc are detected more frequently in 2010 due to lower detection limits. Metals are detected in surface water and inter-armoring water at higher frequencies than in sub-armoring water.

Detection frequency for TPAHs increase with depth. Surface water detection of TPAHs between Fall 2005 through 2010 ranged from 19 to 68 percent, while sub-armoring water detections ranged from 68 to 91 percent. Detection frequencies for total metals were generally much higher than PAHs as would be expected as the metals are naturally occurring; however, no discernable pattern was observed between sampling events. This suggests that the presence of the metals in water samples collected to determine the performance of the sediment cap are primarily due to naturally occurring metals and not associated with the metals contamination associated with the wood treating products used at the Site.

COC concentrations in surface water and inter-armoring water are generally below comparison criteria with the exception of arsenic for which the comparison criterion is below the MDL for arsenic. COC concentrations in the sub-armoring water are below comparison criteria with a few exceptions. Concentration trends are stable or decreasing. Based on water sampling from the surface water, inter-armoring and sub-armoring, the sediment cap appears to be protective and functioning as designed.

5.0 REFERENCES

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Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Sediment Cap Performance Goals		Comparison Criteria																
SAMPLE TYPE Sample ID Sample Date Sample Time		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Statistics							Inter-Armoring Water Statistics						
CONTAMINANT OF INTEREST		Aquatic Life (chronic)[1]	(fish consumption only)[1]	Aquatic Life (chronic)[2]	(consumption of organism only)[2]	Maximum Contaminant Levels (MCLs)[3]	Number of Samples	Detection Frequency	Max Detection	Max Location	Mean Conc.	Data Distribution	95% UCL Value	Number of Samples	Detection Frequency	Max Detection	Max Location	Mean Conc.	Data Distribution	95% UCL Value
Total Dissolved Solids (mg/L)							22	100%	85	Location 07	62.55	Normal	66.7	22	100%	83	Location 14	62.43	Normal	67.36
Total Suspended Solids (mg/L)							22	100%	74.3	Location 16	16.85	Normal	65.8	22	100%	300	Location 10	295.0	Gamma	489.6
Total Metals (mg/L)																				
Arsenic		0.19		0.15	**0.00014**	0.01	22	100%	0.0005	Location 16	0.0004	Normal	0.0004	22	100%	0.011	Location 06	0.0013	Nonparametric	0.003
Chromium		0.21		**0.074**		0.1	22	100%	0.0013	Location 06	0.0009	Normal	0.0010	22	100%	0.047	Location 06	0.0044	Nonparametric	0.0136
Copper		0.012		**0.009**			22	100%	0.0025	Location 20	0.0016	Normal	0.0017	22	100%	0.075	Location 06	0.0077	Nonparametric	0.0228
Zinc		**0.11**		0.12	26		22	100%	0.0064	Location 21	0.0039	Nonparametric	0.0663	22	100%	0.162	Location 06	0.0178	Nonparametric	0.0492
Total Dissolved Metals (mg/L)																				
Arsenic							22	100%	0.0004	Location 06	0.0002	Normal	0.0002	22	100%	0.008	Location 06	0.0007	Nonparametric	0.0022
Chromium							22	50%	0.0005	Location 13	0.0002	Nonparametric	0.0003	22	73%	0.0009	Location 26	0.0003	Gamma	0.00046
Copper							22	100%	0.0030	Location 21	0.0011	Gamma	0.0013	22	100%	0.003	Location 06	0.0014	Gamma	0.0015
Zinc							22	100%	0.0030	Location 21	0.0020	Normal	0.0022	22	100%	0.010	Location 17	0.0034	Normal	0.0040
Pentachlorophenol (µg/L)		13		11	3	**1**	22	5%	0.32000	Location 9	0.0836	NA	NA	22	0%	ND	NA	0.0721	NA	NA
Polyaromatic Hydrocarbons (ug/L)																				
Acenaphthene	L	520		990			22	14%	0.330	Location 12	0.0200	Nonparametric	0.0847	22	9%	0.5600	Location 12	0.0306	NA	NA
Acenaphthylene	L						22	0%	ND	NA	0.0021	NA	NA	22	0%	ND	NA	0.0021	NA	NA
Anthracene	L			40,000			22	0%	ND	NA	0.0026	NA	NA	22	0%	ND	NA	0.0026	NA	NA
Benzo (a) anthracene	H, C			0.018			22	0%	ND	NA	0.0016	NA	NA	22	0%	ND	NA	0.0016	NA	NA
Benzo (a) pyrene	H, C			0.018		0.2	22	0%	ND	NA	0.0016	NA	NA	22	0%	ND	NA	0.0016	NA	NA
Benzo (b) fluoranthene	H, C			0.018			22	0%	ND	NA	0.0026	NA	NA	22	0%	ND	NA	0.0026	NA	NA
Benzo (ghi) perylene	H, C						22	0%	ND	NA	0.0010	NA	NA	22	0%	ND	NA	0.0011	NA	NA
Benzo (k) fluoranthene	H, C			0.018			22	0%	ND	NA	0.0026	NA	NA	22	0%	ND	NA	0.0026	NA	NA
Chrysene	H, C			0.018			22	0%	ND	NA	0.0016	NA	NA	22	0%	ND	NA	0.0016	NA	NA
Dibenzo (a,h) anthracene	H, C			0.018			22	0%	ND	NA	0.0021	NA	NA	22	0%	ND	NA	0.0021	NA	NA
Fluoranthene	H		54	140			22	14%	0.021	Location 12	0.0040	NA	NA	22	9%	0.0140	Location 05	0.0032	NA	NA
Fluorene	L			5300			22	14%	0.090	Location 12	0.0063	Nonparametric	0.0238	22	5%	0.1200	Location 12	0.0072	NA	NA
Indeno (1,2,3-cd) pyrene	H, C			0.018			22	0%	ND	NA	0.0021	NA	NA	22	0%	ND	NA	0.0021	NA	NA
Naphthalene	L	620					22	0%	ND	NA	0.0026	NA	NA	22	0%	ND	NA	0.0026	NA	NA
Phenanthrene	L						22	0%	ND	NA	0.0031	NA	NA	22	5%	0.0180	Location 10	0.0038	NA	NA
Pyrene	H			4,000			22	14%	0.016	Location 12	0.0045	NA	NA	22	9%	0.0120	Location 10	0.0039	NA	NA
Total LPAHs							22	14%	0.420	Location 12	0.0344	Nonparametric	0.115	22	14%	0.6800	Location 12	0.0468	Nonparametric	0.177
Total HPAHs							22	14%	0.027	Location 25	0.0209	NA	NA	22	9%	0.0260	Location 10	0.0208	NA	NA
Total CPAHs			**0.031**				22	0%	ND	NA	0.0148	NA	NA	22	0%	ND	NA	0.0151	NA	NA
Total PAHs							22	18%	0.441	Location 12	0.0540	Nonparametric	0.135	22	18%	0.6800	Location 12	0.0655	Nonparametric	0.192
Field Parameters (pre-/post-sample) [4]																				
Temperature (°C)																				
Specific Conductance (mS/cm)																				
Dissolved Oxygen (mg/L)																				
pH																				
Oxidation Reduction Potential (mV)																				
Turbidity (NTU)																				

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION									Location 1		Location 2						Location 3					
SAMPLE TYPE									Surface Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		Sub-Armoring Water Statistics							MBSW0410-01		MBSW0410-02		MBIA0410-02		MBSA0410-02		MBSW0410-03		MBIA0410-03		MBSA0410-03	
Sample Date									4/9/2010		4/12/2010		4/12/2010		4/12/2010		4/12/2010		4/12/2010		4/12/2010	
Sample Time									12:26		14:55		15:28		15:34		16:30		16:55		17:01	
CONTAMINANT OF INTEREST		Number of Samples	Detection Frequency	Max Detection	Max Location	Mean Conc.	Data Distribution	95% UCL Value														
Total Dissolved Solids (mg/L)		22	100%	899	Location 05	233.3	Gamma	317.5	**61**		**44**		**41**		**292**		**48**		**45**		**54**	
Total Suspended Solids (mg/L)		22	95%	592	Location 16	105.6	Gamma	578.8	**12.8**		**13**		**7.9**		**129**		**9.4**		**33.5**		**3.3**	
Total Metals (mg/L)																						
Arsenic		22	100%	0.0360	Location 02	0.0073	Gamma	0.0115	**0.00048**	**J**	**0.00034**	**J**	**0.00035**	**J**	**0.036**		**0.00032**	**J**	**0.00064**		**0.00058**	
Chromium		22	59%	0.0061	Location 14	0.0009	Nonparametric	0.0021	**0.0011**		**0.0009**		**0.0008**		**0.0007**		**0.00097**		**0.0013**		**0.00064**	
Copper		22	68%	0.0095	Location 14	0.0017	Gamma	0.0030	**0.0026**		**0.0014**		**0.0017**		0.0002	U	**0.0014**		**0.0026**		**0.0018**	
Zinc		22	91%	0.0232	Location 14	0.0069	Gamma	0.0096	**0.0036**	**J**	**0.0035**	**J**	**0.0086**		**0.0062**		**0.0047**	**J**	**0.0067**		**0.0062**	
Total Dissolved Metals (mg/L)																						
Arsenic		22	100%	0.0354	Location 02	0.0071	Gamma	0.0115	**0.00016**	**J**	**0.00015**	**J**	**0.00012**	**J**	**0.0354**		**0.00018**	**J**	**0.00022**	**J**	**0.0004**	**J**
Chromium		22	45%	0.0004	Location 19	0.0002	Normal	0.0002	**0.00036**	**J**	0.00024	U	**0.00043**	**J**	**0.00039**	**J**	0.00024	**U**	**0.00025**	**J**	**0.00026**	**J**
Copper		22	68%	0.0023	Location 03	0.0005	Gamma	0.0007	**0.00072**		**0.00061**		**0.00071**		0.0002	U	**0.00059**		**0.001**		**0.0023**	
Zinc		22	100%	0.0157	Location 07	0.0041	Gamma	0.0054	**0.0019**	**J**	**0.0018**	**J**	**0.0023**	**J**	**0.0041**	**J**	**0.0021**	**J**	**0.0026**	**J**	**0.0024**	**J**
Pentachlorophenol (µg/L)		22	5%	0.32	Location 19	0.085	NA	NA	0.14	U	0.14	U	0.14	U	0.15	U	0.14	U	0.14	U	0.15	U
Polyaromatic Hydrocarbons (ug/L)																						
Acenaphthene	L	22	68%	61.5	Location 12	6.6005	Nonparametric	28.1	0.0062	U	**0.038**	**J**	**0.022**	**J**	**1.8**		0.006	U	0.0062	U	0.0063	U
Acenaphthylene	L	22	18%	0.4	Location 12	0.0365	Nonparametric	0.131	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.004	U	0.0041	U	0.0042	U
Anthracene	L	22	36%	0.16	Location 12	0.0174	Nonparametric	0.0493	0.0052	U	0.0052	U	0.0051	U	**0.037**	**J**	0.005	U	0.0051	U	0.0053	U
Benzo (a) anthracene	H, C	22	9%	0.03	Location 12	0.0039	NA	NA	0.0031	U	0.0031	U	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0032	U
Benzo (a) pyrene	H, C	22	5%	0.015	Location 21	0.0022	NA	NA	0.0031	U	0.0031	U	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0032	U
Benzo (b) fluoranthene	H, C	22	9%	0.03	Location 21	0.0048	NA	NA	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.005	U	0.0051	U	0.0053	U
Benzo (ghi) perylene	H, C	22	0%	ND	NA	0.0011	NA	NA	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.002	U	0.0021	U	0.0021	U
Benzo (k) fluoranthene	H, C	22	9%	0.014	Location 12	0.0037	NA	NA	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.005	U	0.0051	U	0.0053	U
Chrysene	H, C	22	14%	0.025	Location 21	0.0041	Nonparametric	0.0106	0.0031	U	0.0031	U	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0032	U
Dibenzo (a,h) anthracene	H, C	22	0%	ND	NA	0.0021	NA	NA	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.004	U	0.0041	U	0.0042	U
Fluoranthene	H	22	50%	0.46	Location 08	0.0522	Nonparametric	0.146	0.0041	U	0.0041	U	0.0041	U	**0.015**	**J**	0.004	U	0.0041	U	0.0042	U
Fluorene	L	22	68%	12.9	Location 12	1.3265	Gamma	3.57	0.0031	U	**0.012**	**J**	0.0031	U	**0.17**		0.003	U	0.0031	U	0.0032	U
Indeno (1,2,3-cd) pyrene	H, C	22	0%	ND	NA	0.0021	NA	NA	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.004	U	0.0041	U	0.0042	U
Naphthalene	L	22	32%	16.1	Location 17	1.7436	Nonparametric	5.82	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.005	U	0.0051	U	0.0053	U
Phenanthrene	L	22	41%	10.4	Location 07	0.5285	Nonparametric	2.58	0.0062	U	0.0062	U	0.0062	U	**0.11**		0.006	U	0.0062	U	0.0063	U
Pyrene	H	22	55%	0.24	Location 08	0.0367	Nonparametric	0.089	0.0062	U	0.0062	U	0.0062	U	**0.016**	J	0.006	U	0.0062	U	0.0063	U
Total LPAHs		22	77%	76.18	Location 12	10.25	Gamma	26.11	0.01500	U	**0.03800**	**J**	**0.02200**	**J**	**2.11700**	**J**	0.01450	U	0.01490	U	0.01530	U
Total HPAHs		22	55%	0.7	Location 08	0.104	Nonparametric	0.251	0.02015	U	0.02015	U	0.02005	U	**0.03100**	**J**	0.01950	U	0.02005	U	0.02060	U
Total CPAHs		22	14%	0.109	Location 21	0.023	Nonparametric	0.046	0.01500	U	0.01500	U	0.01490	U	0.01500	U	0.01450	U	0.01490	U	0.01535	U
Total PAHs		22	82%	76.52	Location 12	10.35	Gamma	25.26	0.03515	U	**0.03800**	**J**	**0.02200**	**J**	**2.14800**	**J**	0.03400	U	0.03495	U	0.03590	U
Field Parameters (pre-/post-sample) [4]																						
Temperature (°C)									9.1		13.7		14.0/13.1		13.5/12.8		11.2		11.6/11.8		12.6/12.4	
Specific Conductance (mS/cm)									0.083		0.085		0.082/0.082		0.638/0.645		0.081		0.079/0.079		0.098/0.097	
Dissolved Oxygen (mg/L)									11.7		12.4		12.5/11.6		1.8/0.7		11.7		11.9/11.8		5.6/3.0	
pH									6.8		7.0		6.8/6.8		6.0/6.1		6.5		6.2/6.5		6.0/6.8	
Oxidation Reduction Potential (mV)									242		174		223/41		-37/-62		141		241/254		241/227	
Turbidity (NTU)									49		16		28/16		8/24		17		82/43		33/7	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 4						Location 5						Location 6							
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-04		MBIA0410-04		MBSA0410-04		MBSW0410-05		MBIA0410-05		MBSA0410-05		MBSW0410-06		MBIA0410-06		MBSA0410-06		MBSA0410-06D	
Sample Date		4/8/2010		4/8/2010		4/8/2010		4/8/2010		4/8/2010		4/8/2010		4/6/2010		4/6/2010		4/6/2010		4/6/2010	
Sample Time		13:40		14:05		14:10		12:03		12:35		12:45		12:17		17:01		16:53		16:53	
CONTAMINANT OF INTEREST																					
Total Dissolved Solids (mg/L)		54		53		266		62		62		899		70		--		121		119	
Total Suspended Solids (mg/L)		11.1		39.2		65.1		14.4		39.1		341		69.4		--		282		367	
Total Metals (mg/L)																					
Arsenic		0.00038	J	0.00051		0.0089		0.00046	J	0.0006		0.0235		0.00043	J	0.0105		0.0073		0.0079	
Chromium		0.0011		0.0014		0.0007		0.001		0.0018		0.00048	J	0.0013		0.047		0.0015		0.0014	
Copper		0.0016		0.0023		0.0016		0.002		0.0038		0.0002	U	0.0019		0.0751		0.0026		0.002	
Zinc		0.0034	J	0.0048	J	0.0042	J	0.0036	J	0.008		0.0104		0.0035	J	0.162		0.0066		0.007	
Total Dissolved Metals (mg/L)																					
Arsenic		0.00024	J	0.00025	J	0.009		0.00022	J	0.00027	J	0.0235		0.00036	J	0.0077		0.0079		0.0078	
Chromium		0.00027	J	0.00039	J	0.00024	U	0.00024	U	0.00036	J	0.00025	J	0.0004	J	0.00024	J	0.00033	J	0.00029	J
Copper		0.0011		0.001		0.00027	J	0.00074		0.0013		0.0003	J	0.0013		0.0028		0.0002	U	0.0005	
Zinc		0.0016	J	0.0027	J	0.0015	J	0.0017	J	0.0035	J	0.0106	J	0.0024	J	0.0033	J	0.0015	J	0.0014	J
Pentachlorophenol (µg/L)		0.15	U	0.15	U	0.15	U	0.14	U	0.14	U	0.16	U	0.15	U	0.14	U	0.14	U	0.14	U
Polyaromatic Hydrocarbons (ug/L)																					
Acenaphthene	L	0.0063	U	0.0063	U	0.61		0.0061	U	0.0063	U	0.47		0.0063	U	0.0061	U	1.1		0.88	
Acenaphthylene	L	0.0042	U	0.0042	U	0.0043	U	0.0041	U	0.0042	U	0.0045	U	0.0042	U	0.0041	U	0.0042	U	0.0042	U
Anthracene	L	0.0052	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.017	J	0.0053	U	0.0051	U	0.014	J	0.012	J
Benzo (a) anthracene	H, C	0.0031	U	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.0034	U	0.0032	U	0.0031	U	0.0031	U	0.0031	U
Benzo (a) pyrene	H, C	0.0031	U	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.0034	U	0.0032	U	0.0031	U	0.0031	U	0.0031	U
Benzo (b) fluoranthene	H, C	0.0052	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0056	U	0.0053	U	0.0051	U	0.0052	U	0.0052	U
Benzo (ghi) perylene	H, C	0.0021	U	0.0021	U	0.0022	U	0.002	U	0.0021	U	0.0022	U	0.0021	U	0.002	U	0.0021	U	0.0021	U
Benzo (k) fluoranthene	H, C	0.0052	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0056	U	0.0053	U	0.0051	U	0.0052	U	0.0052	U
Chrysene	H, C	0.0031	U	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.0034	U	0.0032	U	0.0031	U	0.0031	U	0.0031	U
Dibenzo (a,h) anthracene	H, C	0.0042	U	0.0042	U	0.0043	U	0.0041	U	0.0042	U	0.0045	U	0.0042	U	0.0041	U	0.0042	U	0.0042	U
Fluoranthene	H	0.0042	U	0.0042	U	0.076		0.0041	U	0.014	J	0.06		0.0042	U	0.0041	U	0.041	J	0.038	J
Fluorene	L	0.0031	U	0.0032	U	0.25		0.0031	U	0.0031	U	0.11		0.0032	U	0.0031	U	0.36		0.32	
Indeno (1,2,3-cd) pyrene	H, C	0.0042	U	0.0042	U	0.0043	U	0.0041	U	0.0042	U	0.0045	U	0.0042	U	0.0041	U	0.0042	U	0.0042	U
Naphthalene	L	0.0052	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.12		0.0053	U	0.0051	U	0.0052	U	0.0052	U
Phenanthrene	L	0.0063	U	0.0063	U	0.25		0.0061	U	0.0063	U	0.049		0.0063	U	0.0061	U	0.071		0.066	
Pyrene	H	0.0063	U	0.0063	U	0.05		0.0061	U	0.011	J	0.042	J	0.0063	U	0.0061	U	0.029	J	0.026	J
Total LPAHs		0.01515	U	0.01530	U	1.110		0.01480	U	0.00630	U	0.77	J	0.01530	U	0.01480	U	1.545	J	1.278	J
Total HPAHs		0.02035	U	0.02060	U	0.126		0.01995	U	0.02500	J	0.102	J	0.02060	U	0.01995	U	0.070	J	0.064	J
Total CPAHs		0.01510	U	0.01535	U	0.01560	U	0.01485	U	0.01510	U	0.01630	U	0.01535	U	0.01485	U	0.01510	U	0.01510	U
Total PAHs		0.03550	U	0.03590	U	1.236		0.03475	U	0.02500	J	0.87	J	0.03590	U	0.03475	U	1.615	J	1.342	J
Field Parameters (pre-/post-sample) [4]																					
Temperature (°C)		9.1		9.2/9.3		9.2/9.2		8.9		9.3/9.3		9.4/9.6		8.8		9.5		9.7/9.7		9.7/9.7	
Specific Conductance (mS/cm)		0.105		0.083/0.122		0.644/0.543		8.4		0.082/0.133		0.193/0.197		0.079		0.086		0.197/0.211		0.197/0.211	
Dissolved Oxygen (mg/L)		12.2		11.7/11.7		3.6/1.5		12.1		11.0/11.3		1.8/0.7		12.1		9.9		2.1/1.5		2.1/1.5	
pH		7.6		7.0/7.2		6.3/6.4		7.4		7.1/7.2		6.1/6.5		6.8		7.1		6.5/6.6		6.5/6.6	
Oxidation Reduction Potential (mV)		115		203/39		-42/-70		192		246/63		-61/-112		286		33		-66/-61		-66/-61	
Turbidity (NTU)		32		260/35		280/150		56		600/38		6/2		--		--		200/53		200/53	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 7						Location 8						Location 9					
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-07		MBIA0410-07		MBSA0410-07		MBSW0410-08		MBIA0410-08		MBSA0410-08		MBSW0410-09		MBIA0410-09		MBSA0410-09	
Sample Date		4/8/2010		4/8/2010		4/8/2010		4/8/2010		4/8/2010		4/8/2010		4/7/2010		4/7/2010		4/7/2010	
Sample Time		8:30		9:08		9:14		10:13		18:55		11:06		13:36		14:18		14:30	
CONTAMINANT OF INTEREST																			
Total Dissolved Solids (mg/L)		**85**		**81**		437		**73**		**58**		**335**		**62**		**68**		**67**	
Total Suspended Solids (mg/L)		**11**		**195**		11		**11.9**		**67.1**		**20.8**		**13**		**64.5**		**30.2**	
Total Metals (mg/L)																			
Arsenic		**0.00048**	**J**	**0.002**		**0.0038**		**0.00033**	**J**	**0.00065**		**0.0111**		**0.0004**	**J**	**0.00068**		**0.0018**	
Chromium		**0.001**		**0.0057**		**0.00024**	**U**	**0.0008**		**0.0017**		**0.00024**	**U**	**0.001**		**0.0019**		**0.0022**	
Copper		**0.0015**		**0.0092**		**0.00034**	**J**	**0.0014**		**0.003**		**0.0002**	**J**	**0.0017**		**0.0035**		**0.004**	
Zinc		**0.0042**	**J**	**0.0221**		**0.0165**		**0.0032**	**J**	**0.0073**		**0.01**		**0.0038**	**J**	**0.0086**		**0.0111**	
Total Dissolved Metals (mg/L)																			
Arsenic		**0.00025**	**J**	**0.00028**	**J**	**0.0037**		**0.00013**	**J**	**0.00026**	**J**	**0.011**		**0.00024**	**J**	**0.00032**	**J**	**0.0013**	
Chromium		0.00024	U	**0.00035**	**J**	0.00024	U	**0.00024**	**J**	**0.00027**	**J**	0.00024	U	**0.00036**	**J**	**0.00043**	**J**	**0.00026**	**J**
Copper		**0.0011**		**0.0018**		**0.00054**		**0.00083**		**0.0022**		0.0002	U	**0.00069**		**0.0013**		**0.00067**	
Zinc		**0.0023**	**J**	**0.0041**	**J**	**0.0157**	**J**	**0.0015**	**J**	**0.0048**	**J**	**0.0083**	**J**	**0.0015**	**J**	**0.0024**	**J**	**0.0032**	**J**
Pentachlorophenol (µg/L)		0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U	**0.32**	**J**	0.15	U	0.15	U
Polyaromatic Hydrocarbons (ug/L)																			
Acenaphthene	L	0.0064	U	0.0064	U	**38.5**		0.0067	U	0.0062	U	**2.7**		0.0061	U	0.0062	U	**0.78**	
Acenaphthylene	L	0.0043	U	0.0043	U	**0.29**		0.0044	U	0.0041	U	0.0041	U	0.004	U	0.0041	U	0.0045	U
Anthracene	L	0.0053	U	0.0053	U	0.0053	U	0.0056	U	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.0057	U
Benzo (a) anthracene	H, C	0.0032	U	0.0032	U	0.0032	U	0.0033	U	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0034	U
Benzo (a) pyrene	H, C	0.0032	U	0.0032	U	0.0032	U	0.0033	U	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0034	U
Benzo (b) fluoranthene	H, C	0.0053	U	0.0053	U	0.0053	U	0.0056	U	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.0057	U
Benzo (ghi) perylene	H, C	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0021	U	0.0021	U	0.002	U	0.0021	U	0.0023	U
Benzo (k) fluoranthene	H, C	0.0053	U	0.0053	U	0.0053	U	0.0056	U	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.0057	U
Chrysene	H, C	0.0032	U	0.0032	U	0.0032	U	0.0033	U	0.0031	U	0.0031	U	0.003	U	0.0031	U	0.0034	U
Dibenzo (a,h) anthracene	H, C	0.0043	U	0.0043	U	0.0043	U	0.0044	U	0.0041	U	0.0041	U	0.004	U	0.0041	U	0.0045	U
Fluoranthene	H	0.0043	U	0.0043	U	**0.1**		0.0044	U	0.0041	U	**0.46**		0.004	U	0.0041	U	**0.053**	
Fluorene	L	0.0032	U	0.0032	U	**10.4**		0.0033	U	0.0031	U	**0.11**		0.003	U	0.0031	U	**0.35**	
Indeno (1,2,3-cd) pyrene	H, C	0.0043	U	0.0043	U	0.0043	U	0.0044	U	0.0041	U	0.0041	U	0.004	U	0.0041	U	0.0045	U
Naphthalene	L	0.0053	U	0.0053	U	**2.6**		0.0056	U	0.0052	U	0.0052	U	0.0051	U	0.0052	U	0.0057	U
Phenanthrene	L	0.0064	U	0.0064	U	**10.4**		0.0067	U	0.0062	U	0.0062	U	0.0061	U	0.0062	U	**0.019**	J
Pyrene	H	0.0064	U	0.0064	U	**0.043**		0.0067	U	0.0062	U	**0.24**		0.0061	U	0.0062	U	**0.031**	**J**
Total LPAHs		0.01545	U	0.01545	U	**62.190**		0.01615	U	0.01500	U	**2.8100**		0.01470	U	0.01500	U	**1.15**	**J**
Total HPAHs		0.02080	U	0.02080	U	**0.143**		0.02160	U	0.02015	U	**0.7000**		0.01965	U	0.02015	U	**0.084**	**J**
Total CPAHs		0.01545	U	0.01545	U	0.01545	U	0.01605	U	0.01500	U	0.01500	U	0.01460	U	0.01500	U	0.01645	U
Total PAHs		0.03625	U	0.03625	U	62.33300		0.03775	U	0.03515	U	**3.5100**		0.03435	U	0.03515	U	**1.23**	**J**
Field Parameters (pre-/post-sample) [4]																			
Temperature (°C)		8.2		8.0/8.1		7.9/7.8		8.3		8.6/8.7		8.5/8.8		8.5		8.5/8.7		8.7/8.8	
Specific Conductance (mS/cm)		0.102		0.086/0.097		0.816/0.758		0.086		0.085/0.094		0.644/0.639		0.087		0.080/0.079		0.084/0.089	
Dissolved Oxygen (mg/L)		11.5		11.5/11.1		1.8/1.0		12.1		11.4/11.8		4.4/0.7		12.3		11.9/11.9		4.3/1.4	
pH		5.3		5.9/7.2		6.3/6.5		7.1		7.0/7.3		6.3/6.7		6.9		6.7/6.9		6.0/6.5	
Oxidation Reduction Potential (mV)		315		325/171		264/128		217		262/124		150/-40		273		279/144		219/104	
Turbidity (NTU)		24		750/130		17/3		34		550/35		50/61		26		400/79		800/23	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 10						Location 11						Location 12					
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-10		MBIA0410-10		MBSA0410-10		MBSW0410-11		MBIA0410-11		MBSA0410-11		MBSW0410-12		MBIA0410-12		MBSA0410-12	
Sample Date		4/7/2010		4/7/2010		4/7/2010		4/8/2010		4/8/2010		4/8/2010		4/13/2010		4/13/2010		4/13/2010	
Sample Time		8:55		10:18		10:30		15:45		16:18		16:30		14:00		14:30		14:48	
CONTAMINANT OF INTEREST																			
Total Dissolved Solids (mg/L)		70		65		138		65		70		128		52		71		275	
Total Suspended Solids (mg/L)		14.8		300		38.1		11.5		11.9		83.1		7.4		7.5		77.8	
Total Metals (mg/L)																			
Arsenic		0.00041	J	0.003		0.0112		0.00041	J	0.00041	J	0.0025		0.00026	J	0.0003	J	0.0082	
Chromium		0.0012		0.0134		0.00043	J	0.00093		0.001		0.0029		0.00083		0.00083		0.00026	J
Copper		0.0018		0.022		0.00049	J	0.0016		0.0031		0.006		0.0011		0.0014		0.0002	U
Zinc		0.0062		0.0523		0.006		0.0032	J	0.0038	J	0.0117		0.0024	J	0.0099		0.0016	J
Total Dissolved Metals (mg/L)																			
Arsenic		0.00026	J	0.0003	J	0.0111		0.00023	J	0.00023	J	0.0019		0.00014	J	0.00013	J	0.0081	
Chromium		0.00035	J	0.00082		0.00033	J	0.00024	U	0.00024	U	0.00024	U	0.0004	J	0.00024	U	0.00024	U
Copper		0.00095		0.0017		0.0002	J	0.00087		0.0011		0.00061		0.0007		0.00091		0.0002	U
Zinc		0.0028	J	0.0037	J	0.0028	J	0.0026	J	0.0025	J	0.0028	J	0.0023	J	0.0031	J	0.0033	J
Pentachlorophenol (µg/L)		0.15	U	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U	0.15	U	0.14	U	0.14	U
Polyaromatic Hydrocarbons (ug/L)																			
Acenaphthene	L	0.0063	U	0.0063	U	9		0.0062	U	0.0063	U	0.31		0.33		0.56		61.5	
Acenaphthylene	L	0.0042	U	0.0042	U	0.035	J	0.0041	U	0.0042	U	0.0043	U	0.0041	U	0.0041	U	0.4	
Anthracene	L	0.0053	U	0.0053	U	0.047		0.0052	U	0.0053	U	0.0053	U	0.0052	U	0.0051	U	0.16	
Benzo (a) anthracene	H, C	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.03	J
Benzo (a) pyrene	H, C	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.0031	U
Benzo (b) fluoranthene	H, C	0.0053	U	0.0053	U	0.0052	U	0.0052	U	0.0053	U	0.0053	U	0.0052	U	0.0051	U	0.022	J
Benzo (ghi) perylene	H, C	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.002	U
Benzo (k) fluoranthene	H, C	0.0053	U	0.0053	U	0.0052	U	0.0052	U	0.0053	U	0.0053	U	0.0052	U	0.0051	U	0.014	J
Chrysene	H, C	0.0032	U	0.0032	U	0.012	J	0.0031	U	0.0032	U	0.0032	U	0.0031	U	0.0031	U	0.024	J
Dibenzo (a,h) anthracene	H, C	0.0042	U	0.0042	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U	0.0041	U	0.0041	U	0.0041	U
Fluoranthene	H	0.0042	U	0.014	J	0.15		0.0041	U	0.0042	U	0.0043	U	0.021	J	0.0041	U	0.12	
Fluorene	L	0.0032	U	0.0032	U	2.5		0.0031	U	0.0032	U	0.041	J	0.09		0.12		12.9	
Indeno (1,2,3-cd) pyrene	H, C	0.0042	U	0.0042	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U	0.0041	U	0.0041	U	0.0041	U
Naphthalene	L	0.0053	U	0.0053	U	2.8		0.0052	U	0.0053	U	0.0053	U	0.0052	U	0.0051	U	0.8	
Phenanthrene	L	0.0063	U	0.018	J	0.18		0.0062	U	0.0063	U	0.0064	U	0.0062	U	0.0062	U	0.42	
Pyrene	H	0.0063	U	0.012	J	0.1		0.0062	U	0.0063	U	0.0064	U	0.016	J	0.0062	U	0.13	
Total LPAHs		0.01530	U	0.01800	J	14.56200	J	0.01500	U	0.01530	U	0.35100	J	0.42000		0.68000		76.18000	
Total HPAHs		0.02060	U	0.02600	J	0.26200	J	0.02015	U	0.02060	U	0.02080	U	0.02100	J	0.02005	U	0.340	J
Total CPAHs		0.01535	U	0.01535	U	0.01200	J	0.01500	U	0.01535	U	0.01545	U	0.01500	U	0.01490	U	0.09000	J
Total PAHs		0.03590	U	0.04400	J	14.82400	J	0.03515	U	0.03590	U	0.35100	J	0.44100	J	0.68000		76.52000	J
Field Parameters (pre-/post-sample) [4]																			
Temperature (°C)		8.3		8.5/8.5		8.6/9.0		9.1		9.1/9.0		9.3/8.9		11.7		11.8/12.4		11.8/12.0	
Specific Conductance (mS/cm)		0.119		0.085/0.126		1.73/2.58		0.088		0.083/0.089		0.184/0.238		0.083		0.086/0.085		0.522/0.523	
Dissolved Oxygen (mg/L)		11.8		11.7/11.8		6.3/0.9		12.7		11.9/11.8		10.3/8.3		11.4		12.2/11.5		6.5/0.8	
pH		5.8		6.5/7.0		6.3/6.8		7.2		6.4/6.3		5.9/6.1		6.8		6.9/7.0		6.0/6.2	
Oxidation Reduction Potential (mV)		286		289/69		29/-73		185		265/130		243/87		290		279/112		197/-34	
Turbidity (NTU)		47		580/140		84/13		41		140/33		800/24		13		15/13		20/3	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 13												Location 14					
SAMPLE TYPE		Surface Water		Surface Water		Inter-Armoring Water		Inter-Armoring Water		Sub-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-13		MBSW0410-13		MBIA0410-13		MBIA0410-13		MBSA0410-13		MBSA0410-13		MBSW0410-14		MBIA0410-14		MBSA0410-14	
Sample Date		4/13/2010		4/13/2010		4/13/2010		4/13/2010		4/13/2010		4/13/2010		4/9/2010		4/9/2010		4/9/2010	
Sample Time		16:15		16:15		16:25		16:25		17:09		17:09		8:58		9:38		9:45	
CONTAMINANT OF INTEREST																			
Total Dissolved Solids (mg/L)		**79**		**81**		**76**		**63**		**248**		**254**		**57**		**83**		**98**	
Total Suspended Solids (mg/L)		**6**		**5.8**		**5.1**		**4.9**		**52.1**		**47.3**		**12.3**		**65.6**		**102**	
Total Metals (mg/L)																			
Arsenic		**0.00031**	**J**	**0.00015**	**J**	**0.00017**	**J**	**0.00026**	**J**	**0.003**		**0.003**		**0.00039**	**J**	**0.0027**		**0.0048**	
Chromium		**0.00069**		0.00024	U	**0.00032**	**J**	**0.00055**		0.00024	U	0.00024	U	**0.00078**		**0.0015**		**0.0061**	
Copper		**0.00094**		**0.00056**		**0.00091**		**0.0012**		0.0002	U	0.0002	U	**0.0015**		**0.003**		**0.0095**	
Zinc		**0.0026**	**J**	**0.0027**	**J**	**0.002**	**J**	**0.0025**	**J**	**0.0029**	**J**	**0.0029**	**J**	**0.0038**	**J**	**0.008**		**0.0232**	
Total Dissolved Metals (mg/L)																			
Arsenic		**0.00015**	**J**	**0.0001**	**J**	**0.00027**	**J**	**0.000084**	**J**	**0.0031**		**0.0031**		**0.00023**	**J**	**0.0023**		**0.0036**	
Chromium		**0.00048**	**J**	0.00024	U	**0.00047**	**J**	0.00024	U	0.00024	U	0.00024	U	0.00024	U	**0.00067**		**0.00032**	**J**
Copper		**0.00093**		**0.00069**		**0.0011**		**0.00059**		0.0002	U	0.0002	U	**0.0007**		**0.0012**		0.0002	U
Zinc		**0.0024**	**J**	**0.002**	**J**	**0.0027**	**J**	**0.0013**	**J**	**0.0029**	**J**	**0.0032**	**J**	**0.0019**	**J**	**0.0049**	**J**	**0.0021**	**J**
Pentachlorophenol (µg/L)		0.15	U	0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U	0.14	U	0.15	U
Polyaromatic Hydrocarbons (ug/L)																			
Acenaphthene	L	0.0062	U	0.0061	U	0.0066	U	0.0063	U	0.0061	U	**0.039**	**J**	0.0062	U	0.0063	U	0.0062	U
Acenaphthylene	L	0.0041	U	0.0041	U	0.0044	U	0.0042	U	0.0041	U	0.0043	U	0.0041	U	0.0042	U	0.0041	U
Anthracene	L	0.0052	U	0.0051	U	0.0055	U	0.0053	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U	0.0052	U
Benzo (a) anthracene	H, C	0.0031	U	0.0031	U	0.0033	U	0.0032	U	0.003	U	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Benzo (a) pyrene	H, C	0.0031	U	0.0031	U	0.0033	U	0.0032	U	0.003	U	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Benzo (b) fluoranthene	H, C	0.0052	U	0.0051	U	0.0055	U	0.0053	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U	0.0052	U
Benzo (ghi) perylene	H, C	0.0021	U	0.002	U	0.0022	U	0.0021	U	0.002	U	0.0022	U	0.0021	U	0.0021	U	0.0021	U
Benzo (k) fluoranthene	H, C	0.0052	U	0.0051	U	0.0055	U	0.0053	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U	0.0052	U
Chrysene	H, C	0.0031	U	0.0031	U	0.0033	U	0.0032	U	0.003	U	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Dibenzo (a,h) anthracene	H, C	0.0041	U	0.0041	U	0.0044	U	0.0042	U	0.0041	U	0.0043	U	0.0041	U	0.0042	U	0.0041	U
Fluoranthene	H	0.0041	U	**0.015**	**J**	0.0044	U	0.0042	U	0.0041	U	0.0043	U	0.0041	U	0.0042	U	0.0041	U
Fluorene	L	0.0031	U	0.0031	U	0.0033	U	0.0032	U	**0.011**	**J**	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Indeno (1,2,3-cd) pyrene	H, C	0.0041	U	0.0041	U	0.0044	U	0.0042	U	0.0041	U	0.0043	U	0.0041	U	0.0042	U	0.0041	U
Naphthalene	L	0.0052	U	0.0051	U	0.0055	U	0.0053	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U	0.0052	U
Phenanthrene	L	0.0062	U	0.0061	U	0.0066	U	0.0063	U	0.0061	U	0.0065	U	0.0062	U	0.0063	U	0.0062	U
Pyrene	H	0.0062	U	**0.01**	**J**	0.0066	U	0.0063	U	0.0061	U	0.0065	U	0.0062	U	0.0063	U	0.0062	U
Total LPAHs		0.01500	U	0.01480	U	0.01595	U	0.01530	U	**0.01100**	**J**	**0.03900**	**J**	0.01490	U	0.01515	U	0.01500	U
Total HPAHs		0.02015	U	**0.02500**	**J**	0.02145	U	0.02060	U	0.01980	U	0.02115	U	0.02005	U	0.02035	U	0.02015	U
Total CPAHs		0.01500	U	0.01485	U	0.01595	U	0.01535	U	0.01470	U	0.01575	U	0.01490	U	0.01510	U	0.01500	U
Total PAHs		0.03515	U	**0.02500**	**J**	0.03740	U	0.03590	U	**0.01100**	**J**	**0.03900**	**J**	0.03495	U	0.03550	U	0.03515	U
Field Parameters (pre-/post-sample) [4]																			
Temperature (°C)		12.9		12.9		13.1/12.6		13.1/12.6		13.0/12.2		13.0/12.2		8.6		8.5/8.8		8.7/8.8	
Specific Conductance (mS/cm)		0.083		0.083		0.082/0.084		0.082/0.084		err/0.73		err/0.73		0.106		0.099/0.118		0.147/0.139	
Dissolved Oxygen (mg/L)		11.5		11.5		11.5/11.3		11.5/11.3		0.8/0.8		0.8/0.8		11.3		9.9/2.2		3.8/0.8	
pH		6.6		6.6		6.3/6.6		6.3/6.6		6.1/6.2		6.1/6.2		6.8		6.7/6.6		6.2/6.6	
Oxidation Reduction Potential (mV)		216		216		245/80		245/80		16/41		16/41		278		249/29		131/-57	
Turbidity (NTU)		14		14		12/13		12/13		9/20		9/20		49		750/64		640/83	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 15						Location 16						Location 17					
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-15		MBIA0410-15		MBSA0410-15		MBSW0410-16		MBIA0410-16		MBSA0410-16		MBSW0410-17		MBIA0410-17		MBSA0410-17	
Sample Date		4/7/2010		4/7/2010		4/7/2010		4/6/2010		4/6/2010		4/6/2010		4/12/2010		4/12/2010		4/12/2010	
Sample Time		15:34		16:01		16:10		9:13		10:23		10:40		10:05		10:30		10:43	
CONTAMINANT OF INTEREST																			
Total Dissolved Solids (mg/L)		**70**		**80**		**75**		**72**		**75**		**595**		**45**		**69**		**265**	
Total Suspended Solids (mg/L)		**14.2**		**190**		**33.2**		**74.3**		**293**		**592**		**7.9**		**5.7**		**6.9**	
Total Metals (mg/L)																			
Arsenic		**0.00039**	**J**	**0.0016**		**0.0016**		**0.00052**		**0.00069**		**0.02**		**0.00027**	**J**	**0.00069**		**0.0051**	
Chromium		**0.0013**		**0.0047**		**0.00084**		**0.0012**		**0.0027**		**0.00046**	J	**0.00074**		**0.00045**	J	0.00024	U
Copper		**0.0018**		**0.0094**		**0.0019**		**0.0024**		**0.0042**		**0.0005**		**0.0013**		**0.0017**		0.0002	U
Zinc		**0.004**	**J**	**0.0213**		**0.0095**		**0.0053**		**0.009**		**0.006**		**0.0032**	**J**	**0.0074**		**0.0026**	**J**
Total Dissolved Metals (mg/L)																			
Arsenic		**0.00016**	**J**	**0.00022**	**J**	**0.0012**		**0.00018**	**J**	**0.00021**	**J**	**0.0201**		**0.0002**	**J**	**0.00051**		**0.0049**	
Chromium		**0.00028**	**J**	0.00024	U	0.00024	U	**0.00028**	**J**	**0.00049**	**J**	**0.00027**	**J**	0.00024	U	0.00024	U	0.00024	U
Copper		**0.0015**		**0.0012**		**0.00039**	**J**	**0.00092**		**0.0019**		**0.00021**	J	**0.00064**		**0.00094**		**0.00025**	**J**
Zinc		**0.0019**	**J**	**0.0029**	**J**	**0.0021**	**J**	**0.0016**	**J**	**0.0025**	**J**	**0.0061**	**J**	**0.0016**	**J**	**0.0096**	**J**	**0.0038**	**J**
Pentachlorophenol (µg/L)		0.14	U	0.14	U	0.15	U	0.16	U	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
Polyaromatic Hydrocarbons (ug/L)																			
Acenaphthene	L	0.0065	U	0.0062	U	**0.36**		0.0064	U	0.0065	U	**20.1**		0.0062	U	0.0061	U	**7.5**	
Acenaphthylene	L	0.0043	U	0.0041	U	0.0041	U	0.0043	U	0.0043	U	**0.039**	**J**	0.0041	U	0.0041	U	0.0041	U
Anthracene	L	0.0054	U	0.0052	U	0.0051	U	0.0053	U	0.0054	U	**0.022**	**J**	0.0051	U	0.0051	U	**0.024**	**J**
Benzo (a) anthracene	H, C	0.0032	U	0.0031	U	0.0031	U	0.0032	U	0.0033	U	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Benzo (a) pyrene	H, C	0.0032	U	0.0031	U	0.0031	U	0.0032	U	0.0033	U	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Benzo (b) fluoranthene	H, C	0.0054	U	0.0052	U	0.0051	U	0.0053	U	0.0054	U	0.0054	U	0.0051	U	0.0051	U	0.0052	U
Benzo (ghi) perylene	H, C	0.0022	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0022	U	0.0021	U	0.002	U	0.0021	U
Benzo (k) fluoranthene	H, C	0.0054	U	0.0052	U	0.0051	U	0.0053	U	0.0054	U	0.0054	U	0.0051	U	0.0051	U	0.0052	U
Chrysene	H, C	0.0032	U	0.0031	U	0.0031	U	0.0032	U	0.0033	U	0.0033	U	0.0031	U	0.0031	U	0.0031	U
Dibenzo (a,h) anthracene	H, C	0.0043	U	0.0041	U	0.0041	U	0.0043	U	0.0043	U	0.0043	U	0.0041	U	0.0041	U	0.0041	U
Fluoranthene	H	0.0043	U	0.0041	U	0.0041	U	0.0043	U	0.0043	U	**0.02**	**J**	0.0041	U	0.0041	U	0.0041	U
Fluorene	L	0.0032	U	0.0031	U	**0.15**		0.0032	U	0.0033	U	**0.77**		0.0031	U	0.0031	U	**0.93**	
Indeno (1,2,3-cd) pyrene	H, C	0.0043	U	0.0041	U	0.0041	U	0.0043	U	0.0043	U	0.0043	U	0.0041	U	0.0041	U	0.0041	U
Naphthalene	L	0.0054	U	0.0052	U	0.0051	U	0.0053	U	0.0054	U	**2**		0.0051	U	0.0051	U	**16.1**	
Phenanthrene	L	0.0065	U	0.0062	U	0.0062	U	0.0064	U	0.0065	U	**0.087**		0.0062	U	0.0061	U	0.0062	U
Pyrene	H	0.0065	U	0.0062	U	0.0062	U	0.0064	U	0.0065	U	**0.012**	**J**	0.0062	U	0.0061	U	**0.055**	
Total LPAHs		0.01565	U	0.01500	U	**0.51000**		0.01545	U	0.01570	U	**23.02**	**J**	0.01490	U	0.01480	U	**24.554**	**J**
Total HPAHs		0.02100	U	0.02015	U	0.02005	U	0.02080	U	0.02115	U	**0.032**	**J**	0.02005	U	0.01995	U	**0.055**	
Total CPAHs		0.01560	U	0.01500	U	0.01490	U	0.01545	U	0.01575	U	0.01575	U	0.01490	U	0.01485	U	0.01500	U
Total PAHs		0.03665	U	0.03515	U	**0.51000**		0.03625	U	0.03685	U	**23.05**	**J**	0.03495	U	0.03475	U	**24.609**	**J**
Field Parameters (pre-/post-sample) [4]																			
Temperature (°C)		8.6		8.9/8.7		8.6/8.8		7.7		8.3/8.7		8.69/8.83		9.7		9.9/10.6		10.0/11.0	
Specific Conductance (mS/cm)		0.082		0.081/0.085		0.108/0.110		1.35		0.87/.080		0.969/0.94		0.101		.097/0.154		0.53/0.491	
Dissolved Oxygen (mg/L)		12.1		11.6/8.6		4.0/1.1		11.4		11.6/11.6		2.4/1.00		11.4		10.6/6.0		1.4/0.8	
pH		6.6		6.4/6.9		5.9/6.0		5.4		6.4/6.8		6.13/6.7		5.7		6.2/6.9		6.3/6.9	
Oxidation Reduction Potential (mV)		214		274/142		228/97		327		263/272		150/-83		299		303/156		250/48	
Turbidity (NTU)		37		500/210		460/38		28		360/73		113.0/89.6		67		37/11		8/5	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 18						Location 19						Location 20					
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-18		MBIA0410-18		MBSA0410-18		MBSW0410-19		MBIA0410-19		MBSA0410-19		MBSW0410-20		MBIA0410-20		MBSA0410-20	
Sample Date		4/13/2010		4/13/2010		4/13/2010		4/12/2010		4/12/2010		4/12/2010		4/7/2010		4/7/2010		4/7/2010	
Sample Time		12:48		13:15		13:18		11:30		11:35		12:07		11:07		11:45		11:58	
CONTAMINANT OF INTEREST																			
Total Dissolved Solids (mg/L)		**75**		**80**		**72**		**47**		**39**		**149**		**62**		**63**		**88**	
Total Suspended Solids (mg/L)		**7**		**15.1**		**1.15**		**20**		**13.1**		**1**	**U**	**21.2**		**91.2**		**208**	
Total Metals (mg/L)																			
Arsenic		**0.00026**	**J**	**0.00026**	**J**	**0.00043**	**J**	**0.00042**	**J**	**0.00035**	**J**	**0.00067**		**0.00034**	**J**	**0.00079**		**0.0011**	
Chromium		**0.00074**		**0.00082**		0.00024	U	**0.00097**		**0.00066**		**0.00024**	U	**0.0011**		**0.0028**		**0.0005**	
Copper		**0.001**		**0.0045**		**0.00033**	**J**	**0.0021**		**0.0015**		**0.0007**		**0.0025**		**0.0053**		**0.0052**	
Zinc		**0.0025**	**J**	**0.0056**		**0.0021**	**J**	**0.0058**		**0.0045**	**J**	**0.0072**		**0.0037**	**J**	**0.0118**		**0.0044**	**J**
Total Dissolved Metals (mg/L)																			
Arsenic		**0.00013**	**J**	**0.00012**	**J**	**0.00027**	**J**	**0.00017**	**J**	**0.00014**	**J**	**0.0007**		**0.00029**	**J**	**0.00029**	**J**	**0.00095**	
Chromium		0.00024	U	0.00024	U	0.00024	U	0.00024	U	**0.00034**	**J**	**0.00043**	J	**0.00032**	J	**0.00048**	J	**0.00028**	J
Copper		**0.0017**		**0.00075**		**0.00032**	J	**0.0011**		**0.00091**		**0.00051**		**0.0018**		**0.0018**		**0.0012**	
Zinc		**0.0016**	**J**	**0.0018**	**J**	**0.0018**	**J**	**0.0016**	**J**	**0.0021**	**J**	**0.0068**	**J**	**0.0026**	**J**	**0.0045**	**J**	**0.0015**	**J**
Pentachlorophenol (µg/L)		0.15	U	0.14	U	0.14	U	0.14	U	0.14	U	0.32	J	0.15	U	0.15	U	0.15	U
Polyaromatic Hydrocarbons (ug/L)																			
Acenaphthene	L	0.0063	U	0.0062	U	0.0062	U	0.0063	U	0.0062	U	0.0063	U	0.0061	U	0.0063	U	**0.42**	
Acenaphthylene	L	0.0042	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Anthracene	L	0.0052	U	0.0052	U	0.0052	U	0.0053	U	0.0051	U	**0.025**	**J**	0.0051	U	0.0053	U	0.0054	U
Benzo (a) anthracene	H, C	0.0031	U	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Benzo (a) pyrene	H, C	0.0031	U	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Benzo (b) fluoranthene	H, C	0.0052	U	0.0052	U	0.0052	U	0.0053	U	0.0051	U	0.0053	U	0.0051	U	0.0053	U	0.0054	U
Benzo (ghi) perylene	H, C	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.002	U	0.0021	U	0.0022	U
Benzo (k) fluoranthene	H, C	0.0052	U	0.0052	U	0.0052	U	0.0053	U	0.0051	U	0.0053	U	0.0051	U	0.0053	U	0.0054	U
Chrysene	H, C	0.0031	U	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Dibenzo (a,h) anthracene	H, C	0.0042	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Fluoranthene	H	0.0042	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Fluorene	L	0.0031	U	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	**0.12**	
Indeno (1,2,3-cd) pyrene	H, C	0.0042	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Naphthalene	L	0.0052	U	0.0052	U	**13.9**		0.0053	U	0.0051	U	0.0053	U	0.0051	U	0.0053	U	0.0054	U
Phenanthrene	L	0.0063	U	0.0062	U	0.0062	U	0.0063	U	0.0062	U	0.0063	U	0.0061	U	0.0063	U	0.0065	U
Pyrene	H	0.0063	U	0.0062	U	0.0062	U	0.0063	U	0.0062	U	0.0063	U	0.0061	U	0.0063	U	0.0065	U
Total LPAHs		0.01515	U	0.01500	U	**13.90000**		0.01530	U	0.01490	U	**0.02500**	**J**	0.01480	U	0.01530	U	**0.540**	
Total HPAHs		0.02035	U	0.02015	U	0.02015	U	0.02060	U	0.02005	U	0.02060	U	0.01995	U	0.02060	U	0.02100	U
Total CPAHs		0.01510	U	0.01500	U	0.01500	U	0.01535	U	0.01490	U	0.01535	U	0.01485	U	0.01535	U	0.01560	U
Total PAHs		0.03550	U	0.03515	U	**13.93255**		0.03590	U	0.03495	U	**0.02500**	**J**	0.03475	U	0.03590	U	**0.540**	
Field Parameters (pre-/post-sample) [4]																			
Temperature (°C)		11.3		11.7/12.3		11.9/13.3		13.1		13.4/16.2		13.8/14.4		8.6		8.6/8.8		8.8/8.8	
Specific Conductance (mS/cm)		8.5		0.081/0.080		0.084/0.084		0.082		0.078/0.077		0.254/0.275		0.085		0.84/0.83		0.113/0.129	
Dissolved Oxygen (mg/L)		11.9		11.7/11.8		3.7/1.2		11.8		12.0/12.7		3.4/1.2		12.1		12.0/11.9		4.8/1.0	
pH		6.9		6.7/6.4		6.4/6.0		7.4		7.3/7.4		6.8/6.8		7.1		7.0/7.2		6.6/1.1	
Oxidation Reduction Potential (mV)		241		276/274		293/298		166		187/218		248/260		50		184/205		214/225	
Turbidity (NTU)		24		45/17		27/34		63		46/29		9/6		23		260/56		70/18	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 21						Location 25						Location 26					
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water		Surface Water		Inter-Armoring Water		Sub-Armoring Water	
Sample ID		MBSW0410-21		MBIA0410-21		MBSA0410-21		MBSW0410-25		MBIA0410-25		MBSA0410-25		MBSW0410-26		MBIA0410-26		MBSA0410-26	
Sample Date		4/12/2010		4/12/2010		4/12/2010		4/13/2010		4/13/2010		4/13/2010		4/13/2010		4/13/2010		4/13/2010	
Sample Time		13:30		13:54		14:03		9:05		9:30		9:40		10:28		11:05		11:13	
CONTAMINANT OF INTEREST																			
Total Dissolved Solids (mg/L)		53		53		379		70		50		65		61		52		86	
Total Suspended Solids (mg/L)		5.6		6.9		87.2		5.9		23.9		7		9.3		1.15		66.8	
Total Metals (mg/L)																			
Arsenic		0.00042	J	0.00036	J	0.002		0.00025	J	0.00039	J	0.00039	J	0.00023	J	0.00082		0.0057	
Chromium		0.00065		0.00052		0.00024	U	0.00067		0.0012		0.00024	U	0.00064		0.0036		0.00024	U
Copper		0.0012		0.0013		0.0002	U	0.0012		0.0024		0.0017		0.0012		0.0062		0.0002	U
Zinc		0.0064		0.004	J	0.0013	U	0.0025	J	0.0066		0.0027	J	0.0036	J	0.0153		0.0013	U
Total Dissolved Metals (mg/L)																			
Arsenic		0.00017	J	0.0002	J	0.0019		0.00007	J	0.000098	J	0.00034	J	0.000088	J	0.00009	J	0.0059	
Chromium		0.00034	J	0.00041	J	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00086		0.00024	U
Copper		0.003		0.0014		0.00043	J	0.00086		0.0015		0.0015		0.00061		0.00081		0.0002	U
Zinc		0.003	J	0.0026	J	0.0013	J	0.002	J	0.0024	J	0.0036	J	0.0013	J	0.0018	J	0.0015	J
Pentachlorophenol (µg/L)		0.14	U	0.14	U	0.15	U	0.14	U	0.15	U	0.15	U	0.14	U	0.14	U	0.15	U
Polyaromatic Hydrocarbons (ug/L)																			
Acenaphthene	L	0.0062	U	0.0062	U	0.0062	U	0.012	J	0.0062	U	0.0063	U	0.0062	U	0.0063	U	0.0065	U
Acenaphthylene	L	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Anthracene	L	0.0052	U	0.0052	U	0.0051	U	0.0051	U	0.0051	U	0.0053	U	0.0052	U	0.0053	U	0.0054	U
Benzo (a) anthracene	H, C	0.0031	U	0.0031	U	0.025	J	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Benzo (a) pyrene	H, C	0.0031	U	0.0031	U	0.015	J	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Benzo (b) fluoranthene	H, C	0.0052	U	0.0052	U	0.03	J	0.0051	U	0.0051	U	0.0053	U	0.0052	U	0.0053	U	0.0054	U
Benzo (ghi) perylene	H, C	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U
Benzo (k) fluoranthene	H, C	0.0052	U	0.0052	U	0.014	J	0.0051	U	0.0051	U	0.0053	U	0.0052	U	0.0053	U	0.0054	U
Chrysene	H, C	0.0031	U	0.0031	U	0.025	J	0.0031	U	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Dibenzo (a,h) anthracene	H, C	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Fluoranthene	H	0.0041	U	0.0041	U	0.03	J	0.013	J	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Fluorene	L	0.0031	U	0.0031	U	0.0031	U	0.0061	J	0.0031	U	0.0032	U	0.0031	U	0.0032	U	0.0032	U
Indeno (1,2,3-cd) pyrene	H, C	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0041	U	0.0042	U	0.0041	U	0.0042	U	0.0043	U
Naphthalene	L	0.0052	U	0.0052	U	0.0051	U	0.0051	U	0.0051	U	0.0053	U	0.0052	U	0.0053	U	0.0054	U
Phenanthrene	L	0.0062	U	0.0062	U	0.0062	U	0.0062	U	0.0062	U	0.0063	U	0.0062	U	0.0063	U	0.0065	U
Pyrene	H	0.0062	U	0.0062	U	0.027	J	0.014	J	0.0062	U	0.0063	U	0.0062	U	0.0063	U	0.0065	U
Total LPAHs		0.01500	U	0.01500	U	0.02700	U	0.01810	J	0.01490	U	0.01530	U	0.01500	U	0.01530	U	0.01565	U
Total HPAHs		0.02015	U	0.02015	U	0.13900	J	0.02700	J	0.02005	U	0.02060	U	0.02015	U	0.02060	U	0.02100	U
Total CPAHs		0.01500	U	0.01500	U	0.10900	J	0.01490	U	0.01490	U	0.01535	U	0.01500	U	0.01535	U	0.01560	U
Total PAHs		0.03515	U	0.03515	U	0.16600	J	0.04510	J	0.03495	U	0.03590	U	0.03515	U	0.03590	U	0.03665	U
Field Parameters (pre-/post-sample) [4]																			
Temperature (°C)		11.7		11.6/11.7		11.8/12.0		9.7		9.9/10.2		10.9/11.0		10.5		11.5/12.7		11.5/12.0	
Specific Conductance (mS/cm)		0.094		0.096/0.089		0.781/0.786		0.092		0.080/0.080		0.097/0.097		0.079		0.078/0.077		0.123/0.130	
Dissolved Oxygen (mg/L)		12.2		11.7/11.6		2.1/0.9		11.1		10.8/10.8		5.5/3.4		11.4		12.0/12.0		1.5/0.9	
pH		6.8		6.3/6.6		6.1/6.2		5.6		6.1/6.6		6.2/6.3		6.3		6.7/7.0		6.0/6.5	
Oxidation Reduction Potential (mV)		274		273/97		-17/-64		345		342/322		330/326		337		303/152		152/25	
Turbidity (NTU)		18		24/20		4/1		14		56/26		56/6		18		170/32		11/3	

Please refer to notes at end of this table.

Table D-1
Surface, Inter-Armoring, and Sub-Armoring Water Data: Spring 2010
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		Location 27		Location 6		Location 14		Location 15	
SAMPLE TYPE		Surface Water		Inter-Armoring Water		Inter-Armoring Water		Sub Armoring Water	
Sample ID		MBSW0410-27		MBIA0410-06R		MBIA0410-14R		MBSA0410-15R	
Sample Date		4/3/2010		4/6/2010		4/9/2010		4/7/2010	
Sample Time		9:10		19:43		13:35		17:39	
CONTAMINANT OF INTEREST									
Total Dissolved Solids (mg/L)		**50**		--		--		--	
Total Suspended Solids (mg/L)		**16.3**		--		--		--	
Total Metals (mg/L)									
Arsenic		**0.00043**	**J**	**0.000062**	**U**	**0.000062**	**U**	**0.000062**	**U**
Chromium		**0.0013**		**0.00024**	U	**0.00024**	U	**0.00024**	U
Copper		**0.0021**		**0.0011**		**0.00036**	J	**0.0011**	
Zinc		**0.0044**	**J**	**0.0014**	**J**	**0.0017**	**J**	**0.0013**	**U**
Total Dissolved Metals (mg/L)									
Arsenic		**0.00027**	**J**	--		--		--	
Chromium		0.00024	U	--		--		--	
Copper		0.00087	U	--		--		--	
Zinc		**0.005**	**J**	--		--		--	
Pentachlorophenol (µg/L)		0.52	U	0.15	U	0.14	U	0.14	U
Polyaromatic Hydrocarbons (ug/L)									
Acenaphthene	L	0.0062	U	0.0065	U	0.0063	U	0.0064	U
Acenaphthylene	L	0.0041	U	0.0043	U	0.0042	U	0.0043	U
Anthracene	L	0.0051	U	0.0054	U	0.0052	U	0.0053	U
Benzo (a) anthracene	H, C	0.0031	U	0.0032	U	0.0031	U	0.0032	U
Benzo (a) pyrene	H, C	0.0031	U	0.0032	U	0.0031	U	0.0032	U
Benzo (b) fluoranthene	H, C	0.0051	U	0.0054	U	0.0052	U	0.0053	U
Benzo (ghi) perylene	H, C	0.0021	U	0.0022	U	0.0021	U	0.0021	U
Benzo (k) fluoranthene	H, C	0.0051	U	0.0054	U	0.0052	U	0.0053	U
Chrysene	H, C	0.0031	U	0.0032	U	0.0031	U	0.0032	U
Dibenzo (a,h) anthracene	H, C	0.0041	U	0.0043	U	0.0042	U	0.0043	U
Fluoranthene	H	0.0041	U	0.0043	U	0.0042	U	0.0043	U
Fluorene	L	0.0031	U	0.0032	U	0.0031	U	0.0032	U
Indeno (1,2,3-cd) pyrene	H, C	0.0041	U	0.0043	U	0.0042	U	0.0043	U
Naphthalene	L	0.0051	U	0.0054	U	0.0052	U	0.0053	U
Phenanthrene	L	0.0062	U	0.0065	U	0.0063	U	0.0064	U
Pyrene	H	0.0062	U	0.0065	U	0.0063	U	0.0064	U
Total LPAHs		0.01490	U	0.00540	U	0.00520	U	0.00530	U
Total HPAHs		0.02005	U	0.07500	U	0.07500	U	0.07500	U
Total CPAHs		0.01490	U	0.06000	U	0.06000	U	0.06000	U
Total PAHs		0.03495	U	0.00540	U	0.00520	U	0.00530	U
Field Parameters (pre-/post-sample) [4]									
Temperature (°C)		8.49		9.5		8.5/8.8		8.9/8.7	
Specific Conductance (mS/cm)		0.093		0.086		0.099/0.118		0.081/0.085	
Dissolved Oxygen (mg/L)		10.85		9.9		9.9/2.2		11.6/8.6	
pH		6.19		7.1		6.7/6.6		6.4/6.9	
Oxidation Reduction Potential (mV)		299		33		249/29		274/142	
Turbidity (NTU)		32.7		--		750/64		500/210	

Please refer to notes at end of this table.

Notes:

[1] The 1996 Record of Decision (ROD) specifies the remedial action objects of the sediment cap as 1) preventing human and aquatic organisms from direct contact with contaminated sediment, and 2) minimizing releases of contaminants from sediment that might result in contamination of the Willamette River in excess of federal and state Ambient Water Quality Criteria (AWQCs).

[2] National Recommended Water Quality Criteria (NRWQCs) published as of August 15, 2007 are included for comparison (see http://www.epa.gov/waterscience/criteria/wqcriteria.html). The current publication includes criteria revisions published in 2002 National Recommended Water Quality Criteria: 2002 table (EPA-822-R-02-047) and 2003 Revised human Health Water Quality Criteria (EPA-822-F-03-012). Note that the aquatic life chronic criteria for pentachlorophenol has been adjusted to site-specific pH (7.5, representing a mid-range of the pH values measured in surface water at the site), and therefore differs from the standard table value. Criteria for metals (Cr, Cu, Zn) have not been adjusted for site-specific hardness. Carcinogenic risk-based numbers reflect a carcinogenicity risk of 10^{-6}.

[3] National Primary Drinking Water Regulations Maximum Contaminant Levels (MCLs) promulgated as of August 15, 2007 are included for comparison (see http://www.epa.gov/safewater/contaminants/index.html#primary).

[4] Field parameters for duplicate inter-armor and sub-armor water samples were collected before and after the entire suite of bottles was collected; to clarify this, the "pre" parameters are listed beneath the first sample, with "post" parameters listed beneath the associated duplicate.

The number of significant figures presented in the table do not reflect true accuracy presented by the laboratory results. Data should only retain 3 significant figures. Due to statistical evaluation using Microsoft Excel, additional significant figures may be shown.

KEY:
AWQC = Aquatic Water Quality Criteria (1996 version)
C = Carcinogenic PAH
Gamma = Gamma Distribution
H = High Molecular Weight PAH (HPAH)
HS = Henry Sampler
J = Estimated Value
L = Low Molecular Weight PAH (LPAH)
MDL = Method Detection Limit.
mg/L = milligrams per liter
MRL = Method Reporting Limit.
N/A= Not Applicable
ND = Not Detected
NP = Nonparametric Distribution
U = Value Below MDL (value represents MDL)
IM = Instrument Malfunction
-- = Not Available
ug/L = micrograms per liter
err = probe error

Bold Indicates Analyte was detected, but does not exceed the most stringent criteria.

Inverse Indicates results that exceed the lowest (most stringent) of the sediment cap performance goals or comparison criteria.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Fall 2002							Surface Water Fall 2002 - Without Sample SED-6						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Organic Carbon (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	15	27%	0.0011	SED-6	0.0003	NP	0.0005	14	21%	0.94	SED-8 (ug/L)	0.2756	NP	0.4395
Chromium		0.21		0.074		0.1	15	33%	0.0021	SED-8	0.0006	NP	0.0010	14	36%	2.1	SED-8 (ug/L)	0.5683	NP	0.9701
Copper		0.012		0.009			15	100%	0.0209	SED-7	0.0046	Gamma	0.0158	14	100%	20.9	SED-7 (ug/L)	4.7286	Gamma	18.1255
Zinc		0.11		0.12	26		15	100%	0.0181	SED-9	0.0049	NP	0.0083	14	100%	18.1	SED-9 (ug/L)	4.5853	NP	9.5572
Dissolved Metals (mg/L)																				
Arsenic							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol (µg/L)		13		15	3	1	15	40%	0.079	SED-3	0.0684	NP	0.1233	14	36%	0.079	SED-3 (ug/L)	0.0677	Max	0.0790
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		15	13%	9.8	SED-6	0.6634	NP	7.157	14	7%	0.013	SED-8 (ug/L)	0.0108	NA	NA
Acenaphthylene	L						15	7%	0.042	SED-6	0.0127	NA	NA	14	0%	ND	N/A	0.0106	NA	NA
Anthracene	L				40,000		15	7%	3.8	SED-6	0.2632	NA	NA	14	0%	ND	N/A	0.0106	NA	NA
Benz[a]anthracene	H, C				0.018		15	27%	1.5	SED-6	0.1140	NP	1.099	14	21%	0.036	SED-1 (ug/L)	0.0150	Gamma	0.0195
Benzo[a]pyrene	H, C						15	7%	0.44	SED-6	0.0441	NA	NA	14	0%	ND	N/A	0.0158	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	15	7%	0.77	SED-6	0.0612	NA	NA	14	0%	ND	N/A	0.0106	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		15	7%	0.087	SED-6	0.0157	NA	NA	14	0%	ND	N/A	0.0106	NA	NA
Benzo[k]fluoranthene	H				0.018		15	7%	0.39	SED-6	0.0359	NA	NA	14	0%	ND	N/A	0.0106	NA	NA
Chrysene	H, C				0.018		15	27%	1.2	SED-6	0.0941	NP	0.8803	14	21%	0.036	SED-1 (ug/L)	0.0151	Gamma	0.0195
Dibenzo[a,h]anthracene	H, C				0.018		15	20%	0.093	SED-6	0.0282	NP	0.0374	14	14%	0.037	SED-2 (ug/L)	0.0235	Gamma	0.0265
Fluoranthene	H		54		140		15	60%	11.9	SED-6	0.8068	NP	8.691	14	57%	0.032	SED-3 (ug/L)	0.0144	Gamma	0.0192
Fluorene	L				5300		6	0%	ND	N/A	0.0120	NA	NA	6	0%	ND	N/A	0.0120	NA	NA
Ideno[1,2,3-cd]pyrene	H, C				0.018		15	7%	0.13	SED-6	0.0234	NA	NA	14	0%	ND	N/A	0.0158	NA	NA
Naphthalene	L	620					15	7%	3.3	SED-6	0.2299	NA	NA	14	0%	ND	N/A	0.0106	NA	NA
Phenanthrene	L						15	33%	22.7	SED-6	1.524	NP	16.574	14	29%	0.018	SED-1 (ug/L)	0.0114	Gamma	0.0125
Pyrene	H				4,000		15	33%	5.3	SED-6	0.3645	NP	3.872	14	29%	0.018	SED-1 (ug/L)	0.0120	Gamma	0.0132
Total LPAHs							15	33%	39.6	SED-6	2.680	NP	14.180	14	29%	0.076	SPMD 15	0.0458	NP	0.0772
Total HPAHs							15	60%	21.8	SED-6 (ug/L)	1.520	NP	7.830	14	57%	0.162	SED-3 (ug/L)	0.0705	NP	0.1340
Total Carcinogenic PAHs			0.031				15	20%	4.22	SED-6 (ug/L)	0.2720	NP	1.570	14	14%	0.128	SED-3 (ug/L)	0.0981	NP	0.1380
Total PAHs							15	53%	61.5	SED-6	4.198	NP	22.04	14	57%	0.204	SPMD-20 (ug/L)	0.1050	NP	0.2060

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Fall 2003							Surface Water Fall 2005						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							21	100%	180	MBSWGB0326	22.3333	NP	112.5361	26	92%	17	MBSWGB05-2A	5.9296	Gamma	7.3008
Dissolved Organic Carbon (mg/L)							21	100%	3.33	MBSWGB0312	2.2195	Gamma	2.3462	26	88%	10.9	MBSWGB05-12	2.7767	NP	5.3601
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	21	81%	0.00206	MBSWGB0326	0.0010	Normal	0.0012	26	100%	0.00142	MBSWGB05-04	0.0008	Gamma	0.0008
Chromium		0.21		0.074		0.1	21	100%	0.00547	MBSWGB0326	0.0024	NP	0.0027	26	0%	ND	NA	0.0004	NA	NA
Copper		0.012		0.009			21	100%	0.0211	MBSWGB0315	0.0035	NP	0.0079	26	81%	0.00283	MBSWGB05-32	0.0010	NP	0.0012
Zinc		0.11		0.12	26		21	100%	0.0199	MBSWGB0326	0.0072	NP	0.0088	26	88%	0.00843	305-32 (Dup. of S	0.0031	NP	0.0046
Dissolved Metals (mg/L)																				
Arsenic							--	--	--	--	--	--	--	26	46%	0.000978	MBSWGB05-18	0.0004	NP	0.0006
Chromium							--	--	--	--	--	--	--	26	0%	ND	NA	0.0004	NA	NA
Copper							--	--	--	--	--	--	--	26	81%	0.0112	MBSWGB05-13	0.0014	NP	0.0031
Zinc							--	--	--	--	--	--	--	26	85%	0.00979	MBSWGB05-13	0.0036	Gamma	0.0046
Pentachlorophenol (µg/L)		13		15	3	1	21	0%	ND	N/A	0.0340	NA	NA	26	0%	ND	NA	0.1745	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		21	0%	ND	N/A	0.0060	NA	NA	26	19%	0.0972	MBSWGB05-17	0.0168	NP	0.0356
Acenaphthylene	L						21	0%	ND	N/A	0.0060	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Anthracene	L				40,000		21	0%	ND	N/A	0.0060	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Benz[a]anthracene	H, C				0.018		21	0%	ND	N/A	0.0024	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Benzo[a]pyrene	H, C						21	5%	0.00239	MBSWGB0301	0.0012	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	21	5%	0.00806	MBSWGB0309	0.0027	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		21	0%	ND	N/A	0.0060	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Benzo[k]fluoranthene	H				0.018		21	5%	0.00806	MBSWGB0309	0.0027	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Chrysene	H, C				0.018		21	5%	0.0121	MBSWGB0309	0.0028	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		21	0%	ND	N/A	0.0027	NA	NA	26	0%	ND	NA	0.0174	NA	NA
Fluoranthene	H		54		140		21	19%	0.0783	MBSWGB0309	0.0073	NP	0.0438	26	0%	ND	NA	0.0087	NA	NA
Fluorene	L				5300		21	5%	0.0125	MBSWGB0309	0.0063	NA	NA	26	8%	0.0234	MBSWGB05-17	0.0098	NA	NA
Ideno[1,2,3-cd]pyrene	H, C				0.018		21	0%	ND	N/A	0.0027	NA	NA	26	0%	ND	NA	0.0087	NA	NA
Naphthalene	L	620					21	0%	ND	N/A	0.0073	NA	NA	26	15%	0.911	MBSWGB05-17	0.0663	NP	0.0444
Phenanthrene	L						21	5%	0.116	MBSWGB0309	0.0112	NA	NA	26	4%	0.0129	MBSWGB05-17	0.0090	NA	NA
Pyrene	H				4,000		21	33%	2.58	MBSWGB0324	0.1269	NP	1.3475	26	0%	ND	NA	0.0087	NA	NA
Total LPAHs							21	5%	0.116	MBSWGB0309	0.0407	NA	NA	26	19%	1.0445	MBSWGB05-17	0.0931	NP	0.1150
Total HPAHs							21	43%	0.166	MBSWGB0309	0.0269	NP	0.0602	26	4%	0.0132	MBSWGB05-32	0.0460	NA	NA
Total Carcinogenic PAHs			0.031				21	5%	0.101	MBSWGB0309	0.0238	NA	NA	26	0%	ND	NA	0.0414	NA	NA
Total PAHs							21	43%	0.282	MBSWGB0309	0.0498	NP	0.1070	26	19%	1.105	MBSWGB05-17	0.1437	NP	0.2000

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Spring 2006							Surface Water Fall 2006						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	22	95%	20	Location 19	5.6905	Lognormal	7.2709
Dissolved Organic Carbon (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	23	22%	0.00233	Location 25	0.0006	NP	0.0011	22	95%	0.00071	Location 25	0.0005	Gamma	0.0005
Chromium		0.21		0.074		0.1	23	74%	0.00455	Location 14	0.0010	NP	0.0036	22	64%	0.00234	Location 3	0.0003	NP	0.0007
Copper		0.012		0.009			23	74%	0.0168	Location 18	0.0040	Max	0.0168	22	100%	0.00344	Location 3	0.0011	NP	0.0014
Zinc		0.11		0.12	26		23	87%	0.04	Location 25	0.0082	NP	0.0291	22	27%	0.00482	Location 7	0.0016	NP	0.0028
Dissolved Metals (mg/L)																				
Arsenic							--	--	--	--	--	--	--	21	95%	0.00061	Location 18	0.0004	NP	0.0005
Chromium							--	--	--	--	--	--	--	21	52%	0.00013	Location 11	0.0001	NP	0.0001
Copper							--	--	--	--	--	--	--	21	100%	0.00132	Location 25	0.0007	NP	0.0008
Zinc							--	--	--	--	--	--	--	21	71%	0.00487	Location 11	0.0028	NP	0.0068
Pentachlorophenol (µg/L)		13		15	3	1	23	0%	ND	NA	0.1197	NA	NA	22	0%	ND	NA	0.1239	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		23	0%	ND	NA	0.0060	NA	NA	22	23%	0.166	Location 25	0.0190	NP	0.0534
Acenaphthylene	L						23	0%	ND	NA	0.0060	NA	NA	22	5%	0.0126	Location 4	0.0065	NA	NA
Anthracene	L				40,000		23	0%	ND	NA	0.0060	NA	NA	22	5%	0.0126	Location 4	0.0065	NA	NA
Benz[a]anthracene	H, C				0.018		23	0%	ND	NA	0.0060	NA	NA	22	5%	0.0126	Location 4	0.0065	NA	NA
Benzo[a]pyrene	H, C						23	4%	0.0146	Location 13	0.0064	NA	NA	22	0%	ND	NA	0.0062	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	23	4%	0.0124	Location 13	0.0063	NA	NA	22	5%	0.0126	Location 4	0.0065	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		23	0%	0.0062	Location 12	0.0060	NA	NA	22	0%	ND	NA	0.0062	NA	NA
Benzo[k]fluoranthene	H				0.018		23	4%	0.0119	Location 13	0.0063	NA	NA	22	0%	ND	NA	0.0062	NA	NA
Chrysene	H, C				0.018		23	9%	0.0195	Location 25	0.0069	NA	NA	22	5%	0.0126	Location 4	0.0065	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		23	0%	ND	NA	0.0120	NA	NA	22	0%	ND	NA	0.0124	NA	NA
Fluoranthene	H		54		140		23	9%	0.0396	Location 25	0.0085	NA	NA	22	5%	0.0143	Location 14	0.0066	NA	NA
Fluorene	L				5300		23	0%	ND	NA	0.0060	NA	NA	22	9%	0.062	Location 25	0.0098	NA	NA
Ideno[1,2,3-cd]pyrene	H, C				0.018		23	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0062	NA	NA
Naphthalene	L	620					23	26%	0.19	Location 25	0.0173	NP	0.0523	22	18%	0.93	Location 25	0.0873	NP	0.6179
Phenanthrene	L						23	4%	0.0159	Location 13	0.0064	NA	NA	22	9%	0.0295	Location 25	0.0075	NA	NA
Pyrene	H				4,000		23	13%	0.0319	Location 25	0.0082	NP	0.0104	22	9%	0.0128	Location 14	0.0068	NA	NA
Total LPAHs							23	26%	0.19	Location 25	0.0402	NP	0.0709	22	18%	1.1875	Location 25	0.1313	NP	0.4080
Total HPAHs							23	13%	0.1066	Location 13	0.0717	NP	0.0855	22	0%	ND	NA	0.0681	NA	NA
Total Carcinogenic PAHs			0.031				23	9%	0.053	Location 13	0.0524	NA	NA	22	0%	ND	NA	0.0557	NA	NA
Total PAHs							23	30%	0.281	Location 25	0.0936	NP	0.1450	22	23%	1.1875	Location 25	0.1429	NP	0.4160

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Spring 2007							Surface Water Fall 2007						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							23	100%	12	Location 6	7.2609	Normal	8.4000	22	91%	86	Location 25	19.0427	Log	36.4492
Dissolved Organic Carbon (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	23	100%	0.00041	Location 6	0.0003	Normal	0.0003	22	100%	0.00143	Location 17	0.0007	NP	0.0010
Chromium		0.21		0.074		0.1	23	52%	0.00165	Location 26	0.0004	NP	0.0015	22	55%	0.000825	Location 10	0.0003	Log	0.0004
Copper		0.012		0.009			23	100%	0.00315	Location 19	0.0014	NP	0.0016	22	86%	0.00223	Location 12	0.0012	Normal	0.0014
Zinc		0.11		0.12	26		23	35%	0.0216	Location 20	0.0028	NP	0.0068	22	68%	0.00445	Location 12	0.0027	Max	0.0045
Dissolved Metals (mg/L)																				
Arsenic							23	83%	0.00004	Location 10	0.0000	NP	0.0003	22	9%	0.000967	Location 17	0.0004	NA	NA
Chromium							23	100%	0.00039	Location 10	0.0004	Normal	0.0004	22	0%	ND	N/A	0.0001	NA	NA
Copper							23	100%	0.00053	Location 10	0.0005	NP	0.0007	22	95%	0.00103	Location 25	0.0007	Normal	0.0072
Zinc							23	83%	0.00158	Location 10	0.0003	NP	0.0120	22	73%	0.0058	Location 2	0.0024	NP	0.0036
Pentachlorophenol (µg/L)		13		15	3	1	23	0%	ND	N/A	0.1229	NA	NA	22	0%	ND	N/A	0.1189	NP	0.1191
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		23	0%	ND	N/A	0.0061	NA	NA	22	45%	0.411	Location 12	0.0681	NP	0.3359
Acenaphthylene	L						23	0%	ND	N/A	0.0061	NA	NA	22	9%	0.0581	Location 17	0.0088	NA	NA
Anthracene	L				40,000		23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Benz[a]anthracene	H, C				0.018		23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Benzo[a]pyrene	H, C						23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Benzo[k]fluoranthene	H				0.018		23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Chrysene	H, C				0.018		23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		23	0%	ND	N/A	0.0123	NA	NA	22	0%	ND	N/A	0.0119	NA	NA
Fluoranthene	H		54		140		23	4%	0.0133	Location 19	0.0065	NA	NA	22	14%	0.0286	Location 12	0.0084	NP	0.0109
Fluorene	L				5300		23	0%	ND	N/A	0.0061	NA	NA	22	27%	0.254	Location 17	0.0295	NP	0.1574
Ideno[1,2,3-cd]pyrene	H, C				0.018		23	0%	ND	N/A	0.0061	NA	NA	22	0%	ND	N/A	0.0059	NA	NA
Naphthalene	L	620					23	0%	ND	N/A	0.0064	NA	NA	22	50%	1.33	Location 7	0.1937	NP	1.025
Phenanthrene	L						23	0%	ND	N/A	0.0061	NA	NA	22	23%	0.073	Location 17	0.0148	NP	0.0319
Pyrene	H				4,000		23	0%	ND	N/A	0.0061	NA	NA	22	14%	0.0277	Location 12	0.0083	NP	0.0108
Total LPAHs							23	0%	ND	N/A	0.0371	NA	NA	22	68%	1.9901	Location 17	0.3028	NP	0.810
Total HPAHs							23	4%	0.0133	Location 19	0.0652	NA	NA	22	14%	0.0563	Location 12	0.0626	NP	0.0690
Total Carcinogenic PAHs			0.031				23	0%	ND	N/A	0.0553	NA	NA	22	0%	ND	N/A	0.0522	NA	NA
Total PAHs							23	4%	0.0133	Location 19	0.1007	NA	NA	22	68%	1.9901	Location 17	0.3200	NP	0.797

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Spring 2008							Surface Water Fall 2008						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)																				
Dissolved Organic Carbon (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	22	0%	ND	NA	0.0003	NA	NA	22	91%	0.00132	Location 26	0.0005	Gamma	0.0006
Chromium		0.21		0.074		0.1	22	77%	0.00097	Location 18	0.0004	NP	0.0006	22	36%	0.00257	Location 13	0.0005	NP	0.0012
Copper		0.012		0.009			22	77%	0.00348	Location 12	0.0011	Normal	0.0012	22	100%	0.00282	Location 18	0.0011	Gamma	0.0013
Zinc		0.11		0.12	26		22	9%	0.0125	Location 25	0.0031	NA	NA	22	100%	0.0111	Location 26	0.0057	Normal	0.0064
Dissolved Metals (mg/L)																				
Arsenic							22	0%	ND	NA	0.0003	NA	NA	22	86%	0.0018	Location 26	0.0004	Log	0.0005
Chromium							22	45%	0.000319	Location 26	0.0001	NP	0.0002	22	5%	ND	NA	0.0002	NA	NA
Copper							22	64%	0.00455	Location 13	0.0011	NP	0.0020	22	82%	0.00403	Location 13	0.0009	Log	0.0017
Zinc							22	36%	0.0136	Location 25	0.0027	Normal	0.0037	22	100%	0.005	Location 2	0.0044	Normal	0.0048
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	ND	NA	0.1196	NA	NA	22	0%	ND	NA	0.1245	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	14%	0.0661	Location 2	0.0125	NP	0.0287	22	14%	0.704	Location 26	0.0442	NP	0.3600
Acenaphthylene	L						22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Anthracene	L				40,000		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benz[a]anthracene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[a]pyrene	H, C						22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[k]fluoranthene	H				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Chrysene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0120	NA	NA	22	0%	ND	NA	0.0119	NA	NA
Fluoranthene	H		54		140		22	0%	ND	NA	0.0060	NA	NA	22	5%	0.0239	Location 26	0.0068	NA	NA
Fluorene	L				5300		22	14%	0.0237	Location 2	0.0078	Normal	0.0096	22	14%	0.262	Location 26	0.0192	NP	0.0698
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Naphthalene	L	620					22	18%	0.0934	Location 25	0.0135	Normal	0.0324	22	9%	2.93	Location 26	0.1541	NA	NA
Phenanthrene	L						22	0%	ND	NA	0.0060	NA	NA	22	5%	0.0566	Location 26	0.0083	NA	NA
Pyrene	H				4,000		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Total LPAHs							22	18%	0.1475	Location 25	0.0463	NP	0.0789	22	14%	3.95	Location 26	0.2343	NP	1.010
Total HPAHs							22	0%	ND	NA	0.0628	NA	NA	22	5%	0.0239	Location 26	0.0620	NA	NA
Total Carcinogenic PAHs			0.031				22	0%	ND	NA	0.0514	NA	NA	22	0%	ND	NA	0.0527	NA	NA
Total PAHs							22	18%	0.1475	Location 25	0.0971	Normal	0.1220	22	14%	3.98	Location 26	0.2908	NP	1.059

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Spring 2009							Surface Water Fall 2009						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							22	100%	83	Location 13	52.0000	Student's T	58.2600	22	100%	73	Location 11	58.6818	Lognormal	61.0600
Total Suspended Solids (mg/L)							22	82%	25	Location 25	4.5900	Gamma	6.4000	21	100%	37.2	Location 16	23.0857	Normal	25.1800
Dissolved Organic Carbon (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	22	100%	0.0018	Location 19	0.0005	NP	0.0008	22	73%	0.00071	Location 19	0.0004	NP	0.0005
Chromium		0.21		0.074		0.1	22	100%	0.0095	Location 19	0.0013	NP	0.0031	22	45%	0.00046	Location 09	0.0002	NP	0.0003
Copper		0.012		0.009			22	95%	0.015	Location 19	0.0026	NP	0.0053	22	100%	0.0015	Location 04	0.0010	NP	0.0011
Zinc		0.11		0.12	26		22	23%	0.032	Location 19	0.0062	NP	0.0116	22	73%	0.0065	Location 10	0.0029	NP	0.0034
Dissolved Metals (mg/L)																				
Arsenic							22	100%	0.0004	Location 3	0.0003	NP	0.0003	22	100%	0.00086	Location 19	0.0005	Gamma	0.0005
Chromium							22	95%	0.001	Location 8	0.0003	NP	0.0005	22	23%	0.00062	Location 25	0.0002	NP	0.0002
Copper							22	59%	0.0017	Location 5	0.0008	NP	0.0012	22	100%	0.0015	Location 19	0.0007	NP	0.0008
Zinc							22	9%	0.023	Location 3	0.0039	NA	NA	22	27%	0.0089	Location 13	0.0020	NP	0.0020
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	ND	NA	0.1609	NA	NA	22	0%	ND	NA	0.0003	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	9%	0.02	Location 2	0.0059	NA	NA	22	23%	0.098	Location 05	0.0164	NP	0.0534
Acenaphthylene	L						22	5%	0.01	Location 4	0.0050	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Anthracene	L				40,000		22	0%	ND	NA	0.0048	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Benz[a]anthracene	H, C				0.018		22	5%	0.011	Location 15	0.0050	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Benzo[a]pyrene	H, C						22	0%	ND	NA	0.0048	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	5%	0.012	Location 15	0.0051	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	5%	0.015	Location 15	0.0052	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Benzo[k]fluoranthene	H				0.018		22	5%	0.011	Location 15	0.0050	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Chrysene	H, C				0.018		22	5%	0.011	Location 15	0.0050	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0048	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Fluoranthene	H		54		140		22	9%	0.012	Location 15	0.0054	NA	NA	22	5%	0.016	Location 25	0.0079	NA	NA
Fluorene	L				5300		22	27%	0.094	Location 2	0.0280	NP	0.1010	22	14%	0.036	Location 05	0.0097	NP	0.0121
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0048	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Naphthalene	L	620					22	23%	0.11	Location 13	0.0168	NP	0.2240	22	23%	0.51	Location 05	0.0493	NP	0.0894
Phenanthrene	L						22	0%	ND	NA	0.0048	NA	NA	22	5%	0.0205	Location 03	0.0093	NA	NA
Pyrene	H				4,000		22	5%	0.011	Location 25	0.0051	NA	NA	22	0%	ND	NA	0.0076	NA	NA
Total LPAHs							22	50%	0.114	Location 2	0.0525	NP	0.1530	22	27%	0.6715	Location 05	0.0758	NP	0.2260
Total HPAHs							22	9%	0.072	Location 15	0.0466	NA	NA	22	5%	0.09975	Location 05	0.0742	NA	NA
Total Carcinogenic PAHs			0.031				22	5%	0.06	Location 15	0.0382	NA	NA	22	5%	0.07225	Location 25	0.0645	NA	NA
Total PAHs							22	59%	0.1158	Location 12	0.0735	NP	0.1690	22	27%	0.709	Location 05	0.1173	NP	0.2300

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Surface Water Statistics Spring 2010						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							22	100%	85	Location 07	62.5455	Normal	66.7000
Total Suspended Solids (mg/L)							22	100%	74.3	Location 16	16.8455	Normal	65.8000
Dissolved Organic Carbon (mg/L)													
Total Metals (mg/L)							22	100%	0.00052	Location 16	0.0004	Normal	0.0004
Arsenic		0.19		0.15	0.00014	0.01	22	100%	0.0013	Location 06	0.0009	Normal	0.0010
Chromium		0.21		0.074		0.1	22	100%	0.0025	Location 20	0.0016	Normal	0.0017
Copper		0.012		0.009			22	100%	0.0064	Location 21	0.0039	Nonparametric	0.0663
Zinc		0.11		0.12	26								
Dissolved Metals (mg/L)							22	100%	0.00036	Location 06	0.0002	Normal	0.0002
Arsenic							22	50%	0.00048	Location 13	0.0002	Nonparametric	0.0003
Chromium							22	100%	0.003	Location 21	0.0011	Gamma	0.0013
Copper							22	100%	0.003	Location 21	0.0020	Normal	0.0022
Zinc							22	5%	0.32	Location 9	0.0836	NA	NA
Pentachlorophenol (µg/L)		13		15	3	1							
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)													
Acenaphthene	L	520			990		22	14%	0.33	Location 12	0.0200	Nonparametric	0.0847
Acenaphthylene	L						22	0%	ND	NA	0.0021	NA	NA
Anthracene	L				40,000		22	0%	ND	NA	0.0026	NA	NA
Benz[a]anthracene	H, C				0.018		22	0%	ND	NA	0.0016	NA	NA
Benzo[a]pyrene	H, C						22	0%	ND	NA	0.0016	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	0%	ND	NA	0.0026	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	0%	ND	NA	0.0010	NA	NA
Benzo[k]fluoranthene	H				0.018		22	0%	ND	NA	0.0026	NA	NA
Chrysene	H, C				0.018		22	0%	ND	NA	0.0016	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0021	NA	NA
Fluoranthene	H		54		140		22	14%	0.021	Location 12	0.0040	NA	NA
Fluorene	L				5300		22	14%	0.09	Location 12	0.0063	Nonparametric	0.0238
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0021	NA	NA
Naphthalene	L	620					22	0%	ND	NA	0.0026	NA	NA
Phenanthrene	L						22	0%	ND	NA	0.0031	NA	NA
Pyrene	H				4,000		22	14%	0.016	Location 12	0.0045	NA	NA
Total LPAHs							22	14%	0.42	Location 12	0.0344	Nonparametric	0.1150
Total HPAHs							22	14%	0.027	Location 25	0.0209	NA	NA
Total Carcinogenic PAHs			0.031				22	0%	ND	NA	0.0148	NA	NA
Total PAHs							22	18%	0.441	Location 12	0.0540	Nonparametric	0.1350

Please refer to notes at end of this table.

Table D-2
Summary of Surface Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Notes:

[1]The number of significant figures presented in the table do not reflect true accuracy presented by the laboratory results. Data should only retain 3 significant figures. Due to statistical evaluation using Microsoft Excel, additional significant figures may be shown.

[2] The 1996 Record of Decision (ROD) specifies the remedial action objects of the sediment cap as: 1) preventing human and aquatic organisms from direct contact with contaminated sediment; and 2) minimizing releases of contaminants from sediment that might result in contamination of the Willamette River in excess of federal and state Ambient Water Quality Criteria (AWQCs).

[3] National Recommended Water Quality Criteria (NRWQCs) published as of August 15, 2007, are included for comparison (see http://www.epa.gov/waterscience/criteria/wqcriteria.html).

[4] National Primary Drinking Water Regulations Maximum Contaminant Levels (MCLs) promulgated as of August 15, 2007, are included for comparison (see http://www.epa.gov/safewater/contaminants/index.html).

Key:
C = Carcinogenic PAH
Gamma = Gamma Distribution
H = High Molecular Weight PAH (HPAH)
J = Estimated Value
L = Low Molecular Weight PAH (LPAH)
mg/L = milligrams per liter
MRL = Method Reporting Limit
NA= Not Applicable
ND = Not Detected
NP = Nonparametric Distribution
U = Value Below MDL (value represents MDL)
µg/L = micrograms per liter

Table D-3
Summary of Inter-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Inter-Armoring Water Spring 2006							Inter-Armoring Water Fall 2006						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	23	30%	0.00493	Location 5	0.0012	NP	0.0023	22	100%	0.00206	Location 21	0.0007	NP	0.0008
Chromium		0.21		0.074		0.1	23	43%	0.0105	Location 12	0.0008	NP	0.0053	22	64%	0.00216	Location 3	0.0004	NP	0.0015
Copper		0.012		0.009			23	96%	0.0168	Location 12	0.0026	NP	0.0056	22	100%	0.00435	Location 20	0.0017	Lognormal	0.0022
Zinc		0.11		0.12	26		23	78%	0.0392	Location 12	0.0069	NP	0.0154	22	45%	0.0147	Location 17	0.0032	NP	0.0113
Dissolved Metals (mg/L)																				
Arsenic																				
Chromium																				
Copper																				
Zinc																				
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	ND	NA	0.1200	NA	NA	22	14%	0.25	Location 6	0.1351	NP	0.1495
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	32%	3.65	Location 5	0.3208	NP	2.323	22	23%	1.81	Location 20	0.0961	NP	0.9105
Acenaphthylene	L						22	5%	0.0736	Location 10	0.0093	NA	NA	22	18%	0.0506	Location 20	0.0088	NP	0.0126
Anthracene	L				40,000		22	5%	0.199	Location 5	0.0148	NA	NA	22	14%	0.0161	Location 20	0.0070	NP	0.0080
Benz[a]anthracene	H, C				0.018		22	5%	0.0134	Location 5	0.0063	NA	NA	22	14%	0.0187	Location 5	0.0070	NP	0.0082
Benzo[b]fluoranthene	H, C				0.018	0.2	22	0%	ND	NA	0.0060	NA	NA	22	14%	0.0125	Location 6	0.0067	NP	0.0075
Benzo[k]fluoranthene	H				0.018		22	0%	ND	NA	0.0060	NA	NA	22	14%	0.0136	Location 5	0.0068	NP	0.0076
Benzo[a]pyrene	H, C						22	0%	ND	NA	0.0060	NA	NA	22	14%	0.0125	Location 6	0.0067	NP	0.0075
Benzo[g,h,i]perylene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	9%	0.0125	Location 6	0.0065	NA	NA
Chrysene	H, C				0.018		22	5%	0.0186	Location 5	0.0066	NA	NA	22	14%	0.0236	Location 5	0.0073	NP	0.0088
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0120	NA	NA	22	9%	0.025	Location 6	0.0129	NP	0.0140
Fluoranthene	H		54		140		22	5%	0.253	Location 5	0.0172	NA	NA	22	18%	0.111	Location 5	0.0123	NP	0.0333
Fluorene	L				5300		22	9%	1.99	Location 5	0.0981	NA	NA	22	18%	0.398	Location 20	0.0282	NP	0.2078
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	9%	0.0125	Location 6	0.0065	NA	NA
Naphthalene	L	620					22	50%	1.13	Location 5	0.0850	NP	0.6037	22	36%	2.08	Location 20	0.1364	NP	1.095
Phenanthrene	L						22	14%	1.73	Location 5	0.0861	NP	0.8651	22	14%	0.147	Location 20	0.0185	NP	0.0557
Pyrene	H				4,000		22	5%	0.138	Location 5	0.0120	NA	NA	22	23%	0.0601	Location 5	0.0099	NP	0.0208
Total LPAHs							22	55%	8.699	Location 5	0.6011	NP	2.377	22	36%	4.5017	Location 20	0.2830	NP	1.175
Total HPAHs							22	5%	0.423	Location 5	0.0880	NA	NA	22	18%	0.227	Location 5	0.0718	NP	0.1060
Total Carcinogenic PAHs			0.031				22	5%	0.032	Location 5	0.0530	NA	NA	22	9%	0.0559	Location 5	0.0556	NA	NA
Total PAHs							22	55%	9.122	Location 5	0.6503	NP	2.490	22	41%	4.5469	Location 20	0.3036	NP	1.209

Please refer to notes at end of this table.

Table D-3
Summary of Inter-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Inter-Armoring Water Spring 2007							Inter-Armoring Water Fall 2007						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	23	13%	0.00713	Location 5	0.0007	NP	0.0038	22	100%	0.00202	Location 13	0.0010	Normal	0.0012
Chromium		0.21		0.074		0.1	23	13%	0.0227	Location 5	0.0020	Gamma	0.0040	22	55%	0.00456	Location 16	0.0009	Gamma	0.0014
Copper		0.012		0.009			23	100%	0.037	Location 5	0.0053	NP	0.0124	22	86%	0.00858	Location 16	0.0025	Gamma	0.0033
Zinc		0.11		0.12	26		23	4%	0.03325	Location 5	0.0051	NA	NA	22	64%	0.0222	Location 16	0.0068	Gamma	0.0093
Dissolved Metals (mg/L)																				
Arsenic																				
Chromium																				
Copper																				
Zinc																				
Pentachlorophenol (µg/L)		13		15	3	1	23	0%	ND	NA	0.1228	NA	NA	22	0%	ND	NA	0.1140	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		23	13%	0.115	Location 20	0.0143	NP	0.0375	22	0%	ND	NA	0.0280	NA	NA
Acenaphthylene	L						23	0%	ND	NA	0.0061	NA	NA	22	9%	0.0673	Location 17	0.0091	NA	NA
Anthracene	L				40,000		23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Benz[a]anthracene	H, C				0.018		23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Benzo[k]fluoranthene	H				0.018		23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Benzo[a]pyrene	H, C						23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Chrysene	H, C				0.018		23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		23	0%	ND	NA	0.0123	NA	NA	22	0%	ND	NA	0.0119	NA	NA
Fluoranthene	H		54		140		23	0%	ND	NA	0.0061	NA	NA	22	32%	0.0173	Location 10	0.0084	NP	0.0098
Fluorene	L				5300		23	9%	0.0345	Location 20	0.0078	NA	NA	22	0%	ND	NA	0.0149	NA	NA
Ideno[1,2,3-cd]pyrene	H, C				0.018		23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0059	NA	NA
Naphthalene	L	620					23	0%	ND	NA	0.0066	NA	NA	22	0%	ND	NA	0.0474	NA	NA
Phenanthrene	L						23	0%	ND	NA	0.0061	NA	NA	22	0%	ND	NA	0.0089	NA	NA
Pyrene	H				4,000		23	0%	ND	NA	0.0061	NA	NA	22	5%	0.0141	Location 10	0.0063	NA	NA
Total LPAHs							23	17%	0.1495	Location 20	0.0416	NP	0.0643	22	9%	0.0673	Location 17	0.0779	NA	NA
Total HPAHs							23	0%	ND	NA	0.0678	NA	NA	22	32%	0.0314	Location 10	0.0493	NP	0.0714
Total Carcinogenic PAHs			0.031				23	0%	ND	NA	0.0553	NA	NA	22	0%	ND	NA	0.0534	NA	NA
Total PAHs							23	17%	0.1495	Location 20	0.0974	NP	0.1230	22	36%	0.0812	Location 17	0.0854	NP	0.1470

Please refer to notes at end of this table.

Table D-3
Summary of Inter-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Inter-Armoring Water Spring 2008							Inter-Armoring Water Fall 2008						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	22	5%	0.00078	Location 14	0.0004	NA	NA	22	95%	0.00257	Location 14	0.0008	Gamma	0.0011
Chromium		0.21		0.074		0.1	22	91%	0.00229	Location 14	0.0006	Lognormal	0.0008	22	55%	0.0109	Location 14	0.0014	NP	0.0023
Copper		0.012		0.009			22	82%	0.00528	Location 7	0.0019	Gamma	0.0023	22	100%	0.0236	Location 14	0.0038	Normal	0.0084
Zinc		0.11		0.12	26		22	27%	0.172	Location 9	0.0117	NP	0.0879	22	77%	0.058	Location 14	0.0109	Normal	0.0220
Dissolved Metals (mg/L)																				
Arsenic																				
Chromium																				
Copper																				
Zinc																				
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	ND	NA	0.1198	NA	NA	22	0%	ND	NA	0.1192	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	14%	0.0582	Location 2	0.0107	NP	0.0233	22	18%	0.184	Location 26	0.0213	NP	0.0363
Acenaphthylene	L						22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Anthracene	L				40,000		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benz[a]anthracene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[k]fluoranthene	H				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[a]pyrene	H, C						22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Chrysene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0120	NA	NA	22	0%	ND	NA	0.0119	NA	NA
Fluoranthene	H		54		140		22	0%	ND	NA	0.0060	NA	NA	22	5%	0.017	Location 7	0.0065	NA	NA
Fluorene	L				5300		22	9%	0.0157	Location 2	0.0067	NA	NA	22	14%	0.0692	Location 26	0.0107	NP	0.0247
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	0%	ND	NA	0.0060	NA	NA
Naphthalene	L	620					22	27%	0.0521	Location 2	0.0112	NP	0.0218	22	14%	0.488	Location 26	0.0312	NP	0.2500
Phenanthrene	L						22	0%	ND	NA	0.0060	NA	NA	22	5%	0.0154	Location 26	0.0064	NA	NA
Pyrene	H				4,000		22	0%	ND	NA	0.0060	NA	NA	22	5%	0.0181	Location 7	0.0065	Normal	0.0076
Total LPAHs							22	32%	0.126	Location 2	0.0381	NP	0.0609	22	18%	0.757	Location 26	0.0772	NP	0.0711
Total HPAHs							22	0%	ND	NA	0.0644	NA	NA	22	5%	0.0351	Location 7	0.0625	NA	NA
Total Carcinogenic PAHs			0.031				22	0%	ND	NA	0.0527	NA	NA	22	0%	ND	NA	0.0527	NA	NA
Total PAHs							22	32%	0.126	Location 2	0.0806	NP	0.1150	22	18%	0.757	Location 26	0.1308	NP	0.2620

Please refer to notes at end of this table.

Table D-3
Summary of Inter-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Inter-Armoring Water Spring 2009							Inter-Armoring Water Fall 2009						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							22	100%	100	Location 15	58	Student's T	64.37	22	100%	114	Location 13	64.36363636	Gamma	68.16
Total Suspended Solids (mg/L)							22	86%	150	Location 4	15	NP	45.52	22	100%	1150	Location 04	117.7954545	Gamma	190.4
Total Metals (mg/L)									0											
Arsenic		0.19		0.15	0.00014	0.01	22	100%	0.0071	Location 7	0.0009	NP	0.0022	22	77%	0.004	Location 17	0.0007	NP	0.0014
Chromium		0.21		0.074		0.1	22	100%	0.0043	Location 4	0.0018	Student's T	0.0021	22	68%	0.0027	Location 04	0.0005	Gamma	0.0007
Copper		0.012		0.009			22	100%	0.0092	Location 17	0.0038	Gamma	0.0048	22	100%	0.0102	Location 04	0.0019	NP	0.0037
Zinc		0.11		0.12	26		22	27%	0.018	Location 4	0.0067	NP	0.0100	22	100%	0.0303	Location 04	0.0064	NP	0.0085
Dissolved Metals (mg/L)																				
Arsenic							22	100%	0.0008	Location 14	0.0003	NP	0.0004	22	100%	0.0045	Location 17	0.0007	NP	0.0015
Chromium							22	91%	0.0017	Location 10	0.0003	NP	0.0006	22	27%	0.00065	Location 04	0.0003	NP	0.0005
Copper							22	82%	0.0029	Location 25	0.0011	NP	0.0017	22	100%	0.0016	Location 04	0.0009	Normal	0.0010
Zinc							22	18%	0.023	Location 14	0.0046	NP	0.0088	22	82%	0.0058	Location 12	0.0029	NP	0.0034
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	0.165	Location 8	0.1602	NA		22	0%	ND	NA	0.0003	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	18%	6	Location 20	0.2896	NP	1.4760	22	32%	0.14	Location 13	0.0257	NP	0.0379
Acenaphthylene	L						22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Anthracene	L				40,000		22	5%	0.029	Location 20	0.0059	NA	NA	22	5%	0.016	Location 17	0.0079	NA	NA
Benz[a]anthracene	H, C				0.018		22	5%	0.0095	Location 18	0.0050	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Benzo[k]fluoranthene	H				0.018		22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Benzo[a]pyrene	H, C						22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Chrysene	H, C				0.018		22	14%	0.014	Location 18	0.0056	NP	0.0078	22	0%	ND	NA	0.0075	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Fluoranthene	H		54		140		22	14%	0.11	Location 7	0.0125	NP	0.0353	22	9%	0.028	Location 06	0.0089	NA	NA
Fluorene	L				5300		22	27%	1.4	Location 20	0.0828	NP	0.3580	22	18%	0.09	Location 17	0.0153	NP	0.0347
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	0.0048	Location 8	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Naphthalene	L	620					22	23%	0.42	Location 2	0.0407	NP	0.1410	22	32%	0.36	Location 05	0.0310	NP	0.1030
Phenanthrene	L						22	14%	0.016	Location 20	0.0059	NP	0.0087	22	9%	0.023	Location 06	0.0111	NA	NA
Pyrene	H				4,000		22	18%	0.073	Location 7	0.0101	NP	0.0249	22	5%	0.023	Location 06	0.0082	NA	NA
Total LPAHs							22	45%	7.765	Location 20	0.4201	NP	1.9480	22	45%	0.5115	Location 05	0.0754	NP	0.1880
Total HPAHs							22	23%	0.183	Location 7	0.0529	NP	0.0827	22	9%	0.16325	Location 17	0.0815	NA	NA
Total Carcinogenic PAHs			0.031				22	5%	0.0403	Location 18	0.0368	NA	NA	22	9%	0.088	Location 06	0.0653	NA	NA
Total PAHs							22	55%	7.861	Location 20	0.4536	NP	1.9960	22	45%	0.549	Location 05	0.1186	NP	0.2180

Please refer to notes at end of this table.

Table D-3
Summary of Inter-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Inter-Armoring Water Spring 2010						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							22	100%	83	Location 14	62.43	Normal	67.36
Total Suspended Solids (mg/L)							22	100%	300	Location 10	295	Gamma	489.6
Total Metals (mg/L)													
Arsenic		0.19		0.15	0.00014	0.01	22	100%	0.0105	Location 06	0.0013	Nonparametric	0.0033
Chromium		0.21		0.074		0.1	22	100%	0.047	Location 06	0.0044	Nonparametric	0.0136
Copper		0.012		0.009			22	100%	0.0751	Location 06	0.0077	Nonparametric	0.0228
Zinc		0.11		0.12	26		22	100%	0.162	Location 06	0.0178	Nonparametric	0.0492
Dissolved Metals (mg/L)													
Arsenic							22	100%	0.0077	Location 06	0.0007	Nonparametric	0.0022
Chromium							22	73%	0.00086	Location 26	0.0003	Gamma	0.0005
Copper							22	100%	0.0028	Location 06	0.0014	Gamma	0.0015
Zinc							22	100%	0.0096	Location 17	0.0034	Normal	0.0040
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	ND	NA	0.0721	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)													
Acenaphthene	L	520			990		22	9%	0.56	Location 12	0.0306	NA	NA
Acenaphthylene	L						22	0%	ND	NA	0.0021	NA	NA
Anthracene	L				40,000		22	0%	ND	NA	0.0026	NA	NA
Benz[a]anthracene	H, C				0.018		22	0%	ND	NA	0.0016	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	0%	ND	NA	0.0016	NA	NA
Benzo[k]fluoranthene	H				0.018		22	0%	ND	NA	0.0026	NA	NA
Benzo[a]pyrene	H, C						22	0%	ND	NA	0.0011	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	0%	ND	NA	0.0026	NA	NA
Chrysene	H, C				0.018		22	0%	ND	NA	0.0016	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0021	NA	NA
Fluoranthene	H		54		140		22	9%	0.014	Location 05	0.0032	NA	NA
Fluorene	L				5300		22	5%	0.12	Location 12	0.0072	NA	NA
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0021	NA	NA
Naphthalene	L	620					22	0%	ND	NA	0.0026	NA	NA
Phenanthrene	L						22	5%	0.018	Location 10	0.0038	NA	NA
Pyrene	H				4,000		22	9%	0.012	Location 10	0.0039	NA	NA
Total LPAHs							22	14%	0.68	Location 12	0.0468	Nonparametric	0.1770
Total HPAHs							22	9%	0.026	Location 10	0.0208	NA	NA
Total Carcinogenic PAHs			0.031				22	0%	ND	NA	0.0151	NA	NA
Total PAHs							22	18%	0.68	Location 12	0.0655	Nonparametric	0.1920

Please refer to notes at end of this table.

Table D-3
Summary of Inter-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Notes:

[1]The number of significant figures presented in the table do not reflect true accuracy presented by the laboratory results. Data should only retain 3 significant figures. Due to statistical evaluation using Microsoft Excel, additional significant figures may be shown.

[2] The 1996 Record of Decision (ROD) specifies the remedial action objects of the sediment cap as: 1) preventing human and aquatic organisms from direct contact with contaminated sediment; and 2) minimizing releases of contaminants from sediment that might result in contamination of the Willamette River in excess of federal and state Ambient Water Quality Criteria (AWQCs).

[3] National Recommended Water Quality Criteria (NRWQCs) published as of August 15, 2007, are included for comparison (see http://www.epa.gov/waterscience/criteria/wqcriteria.html).

[4] National Primary Drinking Water Regulations Maximum Contaminant Levels (MCLs) promulgated as of August 15, 2007, are included for comparison (see http://www.epa.gov/safewater/contaminants/index.html).

Key:
C = Carcinogenic PAH
Gamma = Gamma Distribution
H = High Molecular Weight PAH (HPAH)
J = Estimated Value
L = Low Molecular Weight PAH (LPAH)
mg/L = milligrams per liter
MRL = Method Reporting Limit
NA= Not Applicable
ND = Not Detected
NP = Nonparametric Distribution
U = Value Below MDL (value represents MDL)
µg/L = micrograms per liter

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Sub-Armoring Water Fall 2005						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--
Total Metals (mg/L)													
Arsenic		0.19		0.15	0.00014	0.01	23	100%	0.0332	MBPWPR05-26	0.0053	Gamma	0.0084
Chromium		0.21		0.074		0.1	23	39%	0.0144	MBPWPR05-09	0.0014	NP	0.0041
Copper		0.012		0.009			23	70%	0.0282	MBPWPR05-09	0.0027	NP	0.0146
Zinc		0.11		0.12	26		23	100%	0.113	MBPWPR05-09	0.0202	Gamma	0.0280
Dissolved Metals (mg/L)													
Arsenic													
Chromium													
Copper													
Zinc													
Pentachlorophenol (µg/L)		13		15	3	1	23	4%	0.469	MBPWPR05-17 1	0.8562	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)													
Acenaphthene	L	520			990		23	57%	131	MBPWPR05-20	16.983	NP	32.650
Acenaphthylene	L						23	13%	1.22	MBPWPR05-23	0.1160	NP	0.6744
Anthracene	L				40,000		23	39%	3.42	MBPWPR05-09	0.5349	NP	2.876
Benzo[a]anthracene	H, C				0.018		23	17%	0.959	MBPWPR05-09	0.0668	NP	0.4855
Benzo[a]pyrene	H, C						23	0%	ND	NA	0.0146	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	23	4%	0.284	MBPWPR05-09	0.0216	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		23	4%	0.369	MBPWPR05-09	0.0252	NA	NA
Benzo[k]fluoranthene	H				0.018		23	9%	0.355	MBPWPR05-09	0.0251	NA	NA
Chrysene	H, C				0.018		23	22%	1.05	MBPWPR05-09	0.0713	NP	0.5283
Dibenzo[a,h]anthracene	H, C				0.018		23	0%	ND	NA	0.0337	NA	NA
Fluoranthene	H		54		140		23	61%	7.4	MBPWPR05-07	0.8853	NP	5.259
Fluorene	L				5300		23	61%	53.9	MBPWPR05-20	5.861	NP	11.587
Ideno[1,2,3-cd]pyrene	H, C				0.018		23	0%	ND	NA	0.0146	NA	NA
Naphthalene	L	620					23	61%	772	MBPWPR05-09	74.567	NP	522
Phenanthrene	L						23	61%	41	MBPWPR05-20	4.796	NP	8.902
Pyrene	H				4,000		23	65%	4.49	MBPWPR05-09	0.5216	NP	3.190
Total LPAHs							23	78%	886	MBPWPR05-10	103	NP	547
Total HPAHs							23	65%	14.257	MBPWPR05-09	1.590	NP	5.104
Total Carcinogenic PAHs			0.031				23	22%	3.017	MBPWPR05-09	0.2390	NP	0.8040
Total PAHs							23	78%	886	MBPWPR05-10	104	NP	550

Please refer to notes at end of this table.

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Sub-Armoring Water Spring 2006							Sub-Armoring Water Fall 2006						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	23	91%	0.037	Location 3	0.0103	Gamma	0.0154	22	95%	0.0386	Location 18	0.0089	Gamma	0.0142
Chromium		0.21		0.074		0.1	23	78%	0.0169	Location 11	0.0013	Log	0.0027	22	23%	0.00106	Location 25	0.0002	NP	0.0004
Copper		0.012		0.009			23	70%	0.0352	Location 19	0.0055	Gamma	0.0107	22	82%	0.00281	Location 15	0.0008	Gamma	0.0012
Zinc		0.11		0.12	26		23	87%	0.388	Location 11	0.0366	Log	0.0718	22	50%	0.0263	Location 14	0.0059	NP	0.0207
Dissolved Metals (mg/L)																				
Arsenic																				
Chromium																				
Copper																				
Zinc																				
Pentachlorophenol (µg/L)		13		15	3	1	23	4%	18.5	Location 6	0.9662	NA	NA	22	14%	0.25	Location 6	0.1409	NP	0.1578
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		23	74%	22.1	Location 20	4.520	Gamma	11.201	22	73%	19	Location 20	3.401	Gamma	8.510
Acenaphthylene	L						23	4%	0.3065	Location 20	0.0271	NA	NA	22	14%	3.27	Location 17	0.3053	NP	2.292
Anthracene	L				40,000		23	61%	0.709	Location 5	0.1116	NP	0.5145	22	50%	0.458	Location 9	0.0616	NP	0.2992
Benzo[a]anthracene	H, C				0.018		23	17%	0.0995	Location 5	0.0146	NP	0.0348	22	18%	0.055	Location 7	0.0110	NP	0.0225
Benzo[a]pyrene	H, C						23	0%	ND	NA	0.0086	NA	NA	22	9%	0.0187	Location 17	0.0070	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	23	9%	0.06	Location 16	0.0099	NA	NA	22	9%	0.0125	Location 4	0.0068	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		23	0%	ND	NA	0.0084	NA	NA	22	14%	0.0125	Location 4	0.0070	NP	0.0079
Benzo[k]fluoranthene	H				0.018		23	9%	0.0894	Location 5	0.0130	NA	NA	22	9%	0.0125	Location 6	0.0068	NA	NA
Chrysene	H, C				0.018		23	22%	0.101	Location 5	0.0158	NP	0.0366	22	27%	0.0503	Location 7	0.0121	NP	0.0242
Dibenzo[a,h]anthracene	H, C				0.018		23	0%	ND	NA	0.0167	NA	NA	22	14%	0.025	Location 6	0.0141	NP	0.0158
Fluoranthene	H		54		140		23	65%	1.67	Location 7	0.2263	NP	1.122	22	59%	10.4	Location 7	0.6263	NP	5.312
Fluorene	L				5300		23	65%	10.5	Location 5	1.117	NP	6.480	22	59%	10.3	Location 17	1.134	NP	6.446
Ideno[1,2,3-cd]pyrene	H, C				0.018		23	0%	0.06	Location 16	0.0084	NA	NA	22	5%	0.0144	Location 17	0.0066	NA	NA
Naphthalene	L	620					23	74%	726	Location 16	47.516	NP	296.574	22	73%	229	Location 5	13.323	NP	118.152
Phenanthrene	L						23	52%	6.91	Location 5	0.6117	NP	4.1800	22	59%	6.4	Location 17	0.5388	NP	3.735
Pyrene	H				4,000		23	48%	0.716	Location 7	0.1075	NP	0.5059	22	68%	3.14	Location 7	0.2309	NP	1.663
Total LPAHs							23	87%	738.2	Location 16	52.839	NP	205	22	91%	232.325	Location 5	18.452	NP	65.630
Total HPAHs							23	65%	2.4248	Location 7	0.4022	NP	1.039	22	64%	13.6453	Location 7	0.8895	NP	3.580
Total Carcinogenic PAHs			0.031				23	22%	0.3217	Location 5	0.0889	NP	0.1980	22	23%	0.1053	Location 7	0.0563	NP	0.0710
Total PAHs							23	91%	738.2	Location 16	55.530	NP	205	22	91%	232.3679	Location 5	19.318	Gamma	51.140

Please refer to notes at end of this table.

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Sub-Armoring Water Spring 2007							Sub-Armoring Water Fall 2007						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	23	100%	0.0522	Location 3	0.0080	Gamma	0.0123	22	100%	0.0322	Location 4	0.0126	Normal	0.0162
Chromium		0.21		0.074		0.1	23	30%	0.00255	Location 15	0.0006	NP	0.0022	22	9%	0.00143	Location 3	0.0003	NP	0.0006
Copper		0.012		0.009			23	96%	0.544	Location 15	0.0253	NP	0.2600	22	86%	0.00476	Location 15	0.0008	NP	0.0018
Zinc		0.11		0.12	26		23	57%	0.0526	Location 15	0.0098	NP	0.0350	22	91%	0.0335	Location 16	0.0113	Gamma	0.0154
Dissolved Metals (mg/L)																				
Arsenic																				
Chromium																				
Copper																				
Zinc																				
Pentachlorophenol (µg/L)		13		15	3	1	23	0%	ND	NA	0.3854	NA	NA	22	5%	3.27	Location 16	0.2621	NP	0.8864
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		23	78%	47.5	Location 8	8.431	Gamma	23.018	22	59%	67.6	Location 9	10.814	Gamma	27.062
Acenaphthylene	L						23	13%	0.605	Location 16	0.0581	NP	0.3423	22	0%	0.119	Location 6	0.0262	NP	0.0951
Anthracene	L				40,000		23	52%	1.32	Location 5	0.0938	NP	0.6670	22	18%	1.14	Location 9	0.1284	NP	0.6988
Benzo[a]anthracene	H, C				0.018		23	13%	0.3065	Location 5	0.0218	NP	0.0787	22	9%	0.153	Location 7	0.0140	NP	0.0434
Benzo[a]pyrene	H, C						23	4%	0.3065	Location 5	0.0204	NA	NA	22	0%	0.00595	Location 4	0.0059	NP	0.0059
Benzo[b]fluoranthene	H, C				0.018	0.2	23	4%	0.3065	Location 5	0.0199	NA	NA	22	0%	0.00595	Location 4	0.0059	NP	0.0059
Benzo[g,h,i]perylene	H, C				0.018		23	4%	0.3065	Location 5	0.0202	NA	NA	22	0%	0.00595	Location 4	0.0059	NP	0.0059
Benzo[k]fluoranthene	H				0.018		23	4%	0.3065	Location 5	0.0200	NA	NA	22	5%	0.0128	Location 7	0.0062	NP	0.0068
Chrysene	H, C				0.018		23	13%	0.3065	Location 5	0.0222	NP	0.0790	22	18%	0.151	Location 7	0.0152	NP	0.0448
Dibenzo[a,h]anthracene	H, C				0.018		23	4%	0.615	Location 5	0.0397	NA	NA	22	0%	0.0119	Location 4	0.0119	NP	0.0119
Fluoranthene	H		54		140		23	57%	2.75	Location 7	0.1935	NP	1.434	22	36%	12.2	Location 7	0.6482	NP	6.132
Fluorene	L				5300		23	65%	20.3	Location 5	1.903	NP	12.450	22	36%	25.5	Location 9	3.114	Max	25.500
Ideno[1,2,3-cd]pyrene	H, C				0.018		23	4%	0.3065	Location 5	0.0205	NA	NA	22	0%	0.00595	Location 4	0.0059	NP	0.0059
Naphthalene	L	620					23	30%	848	Location 5	69.124	NP	150	22	18%	407	Location 16	24.132	NP	325
Phenanthrene	L						23	39%	17	Location 5	0.9896	NP	8.538	22	14%	14.4	Location 9	1.112	NP	8.217
Pyrene	H				4,000		23	43%	1.31	Location 7	0.0895	NP	0.6575	22	36%	5.53	Location 7	0.3260	NP	2.810
Total LPAHs							23	87%	928.12	Location 5	80.499	NP	160	22	59%	445.89	Location 16	38.960	Gamma	101
Total HPAHs							23	57%	4.1375	Location 7	0.3076	NP	1.090	22	45%	18.0468	Location 7	1.0155	NP	4.559
Total Carcinogenic PAHs			0.031				23	13%	0.2105	Location 10	0.1789	NP	0.6910	22	18%	0.1658	Location 7	0.0552	NP	0.0821
Total PAHs							23	91%	929.17	Location 5	80.784	NP	161	22	73%	445.89	Location 16	39.904	Gamma	102

Please refer to notes at end of this table.

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Sub-Armoring Water Spring 2008							Sub-Armoring Water Fall 2008						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)							--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	22	95%	0.0296	Location 9	0.0090	Gamma	0.0140	22	100%	0.0806	Location 5	0.0091	Gamma	0.0156
Chromium		0.21		0.074		0.1	22	55%	0.00122	Location 12	0.0003	NP	0.0011	22	64%	0.00577	Location 4	0.0008	Gamma	0.0012
Copper		0.012		0.009			22	45%	0.00421	Location 17	0.0007	NP	0.0029	22	86%	0.0135	Location 4	0.0021	Gamma	0.0033
Zinc		0.11		0.12	26		22	64%	0.0219	Location 2	0.0077	NP	0.0132	22	64%	0.0328	Location 4	0.0082	NP	0.0154
Dissolved Metals (mg/L)																				
Arsenic																				
Chromium																				
Copper																				
Zinc																				
Pentachlorophenol (µg/L)		13		15	3	1	22	0%	ND	NA	0.1200	NA	NA	22	0%	ND	NA	0.1192	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	73%	50.5	Location 9	7.034	Gamma	18.920	22	59%	48	Location 12	7.814	NP	12.870
Acenaphthylene	L						22	18%	0.0647	Location 5	0.0255	NP	0.0927	22	5%	0.569	Location 12	0.0429	NA	NA
Anthracene	L				40,000		22	50%	1.27	Location 9	0.1168	NP	0.7230	22	36%	1.52	Location 9	0.1369	NP	0.2540
Benzo[a]anthracene	H, C				0.018		22	9%	0.176	Location 16	0.0163	NA	NA	22	18%	0.0912	Location 9	0.0158	NP	0.0388
Benzo[a]pyrene	H, C						22	5%	0.0131	Location 16	0.0063	NA	NA	22	5%	0.0242	Location 8	0.0068	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	5%	0.0375	Location 16	0.0074	NA	NA	22	9%	0.0321	Location 8	0.0075	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	5%	0.0437	Location 16	0.0077	NA	NA	22	14%	0.0267	Location 8	0.0076	Normal	0.0095
Benzo[k]fluoranthene	H				0.018		22	5%	0.0458	Location 16	0.0078	NA	NA	22	14%	0.0368	Location 8	0.0084	Normal	0.0112
Chrysene	H, C				0.018		22	9%	0.146	Location 16	0.0151	NA	NA	22	18%	0.0986	Location 9	0.0173	NP	0.0420
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0120	NA	NA	22	0%	ND	NA	0.0119	NA	NA
Fluoranthene	H		54		140		22	64%	2.16	Location 9	0.2574	NP	1.474	22	41%	2.19	Location 9	0.2399	NP	0.428
Fluorene	L				5300		22	64%	18.9	Location 9	2.199	NP	12.600	22	55%	17.7	Location 9	2.632	NP	4.346
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0060	NA	NA	22	5%	0.0202	Location 8	0.0066	NA	NA
Naphthalene	L	620					22	41%	232	Location 5	12.168	NP	117.300	22	55%	83.5	Location 9	4.793	NP	10.860
Phenanthrene	L						22	41%	13.1	Location 9	1.1353	NP	7.508	22	36%	13.7	Location 9	1.205	NP	2.337
Pyrene	H				4,000		22	59%	1.06	Location 9	0.1554	NP	0.8150	22	36%	1.39	Location 9	0.1517	NP	0.271
Total LPAHs							22	77%	253.2	Location 5	22.613	NP	76.680	22	64%	157	Location 9	16.584	NP	50.530
Total HPAHs							22	68%	3.3488	Location 9	0.4527	NP	1.244	22	41%	3.8	Location 9	0.4549	NP	1.338
Total Carcinogenic PAHs			0.031				22	9%	0.4621	Location 16	0.0747	NA	NA	22	18%	0.218	Location 9	0.0760	NP	0.1260
Total PAHs							22	86%	253.3	Location 5	23.084	Gamma	62.810	22	68%	161	Location 9	17.029	NP	51.730

Please refer to notes at end of this table.

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Sub-Armoring Water Spring 2009							Sub-Armoring Water Fall 2009						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							22	100%	6700	Location 11	449	NP	1754	22	1	1110	Location 16	256.6818182	Lognormal	391.7
Total Suspended Solids (mg/L)							22	91%	220	Location 11	35	Lognormal	95.61	22	1	615	Location 16	189.4590909	Gamma	298.3
Total Metals (mg/L)																				
Arsenic		0.19		0.15	0.00014	0.01	22	100%	0.057	Location 5	0.0080	Gamma	0.0139	22	95%	0.0451	Location 04	0.0093	Gamma	0.0145
Chromium		0.21		0.074		0.1	22	95%	0.01	Location 16	0.0015	Lognormal	0.0031	22	50%	0.0022	Location 18	0.0005	NP	0.0010
Copper		0.012		0.009			22	73%	0.019	Location 16	0.0026	Gamma	0.0042	22	95%	0.007	Location 02	0.0018	Gamma	0.0026
Zinc		0.11		0.12	26		22	27%	0.081	Location 11	0.0101	NP	0.0264	22	73%	0.0379	Location 18	0.0075	Gamma	0.0111
Dissolved Metals (mg/L)																				
Arsenic							22	100%	0.057	Location 5	0.0078	Gamma	0.0141	22	100%	0.0439	Location 04	0.0097	Gamma	0.0155
Chromium							22	68%	0.0016	Location 15	0.0003	Gamma	0.0004	22	32%	0.00036	Location 14	0.0002	NP	0.0002
Copper							22	32%	0.003	Location 15	0.0007	NP	0.0014	22	41%	0.0022	Location 02	0.0005	NP	0.0007
Zinc							22	9%	0.0086	Location 3	0.0038	NA	NA	22	27%	0.0075	Location 02	0.0024	NP	0.0044
Pentachlorophenol (µg/L)		13		15	3	1	22	5%	0.74	Location 5	0.1868	NA	NA	22	0%	ND	NA	0.0003	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)																				
Acenaphthene	L	520			990		22	55%	19	Location 5	2.282	NP	7.418	22	82%	45.1	Location 16	6.153	Gamma	16.200
Acenaphthylene	L						22	14%	0.35	Location 12	0.0268	NP	0.0990	22	27%	0.28	Location 12	0.0308	NP	0.0511
Anthracene	L				40,000		22	23%	0.22	Location 5	0.0259	NP	0.0761	22	27%	0.58	Location 09	0.0582	NP	0.1050
Benzo[a]anthracene	H, C				0.018		22	14%	0.066	Location 11	0.0091	NP	0.0218	22	9%	0.024	Location 17	0.0086	NA	NA
Benzo[a]pyrene	H, C						22	5%	0.013	Location 4	0.0051	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	9%	0.07	Location 11	0.0084	NA	NA	22	9%	0.021	Location 13	0.0087	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	5%	0.028	Location 11	0.0058	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Benzo[k]fluoranthene	H				0.018		22	9%	0.026	Location 11	0.0063	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Chrysene	H, C				0.018		22	14%	0.077	Location 11	0.0098	NA	NA	22	9%	0.038	Location 07	0.0095	NA	NA
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	0.00485	Location 6	0.0048	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Fluoranthene	H		54		140		22	32%	0.79	Location 7	0.0633	NP	0.223	22	41%	1.4	Location 07	0.1200	NP	0.227
Fluorene	L				5300		22	68%	10	Location 5	0.808	NP	5.610	22	64%	13	Location 09	1.733	NP	3.006
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	5%	0.03	Location 11	0.0059	NA	NA	22	0%	ND	NA	0.0075	NA	NA
Naphthalene	L	620					22	41%	0.2	Location 2	0.030	NP	0.074	22	45%	0.93	Location 16	0.156	NP	0.244
Phenanthrene	L						22	50%	1.2	Location 5	0.0847	NP	0.322	22	32%	3.5	Location 09	0.354	NP	0.677
Pyrene	H				4,000		22	27%	0.49	Location 7	0.0440	NP	0.1450	22	41%	0.79	Location 07	0.0733	NP	0.132
Total LPAHs							22	86%	30.655	Location 5	3.241	NP	20.240	22	86%	52.496	Location 16	8.451	Gamma	21.880
Total HPAHs							22	32%	1.328	Location 7	0.1530	NP	0.434	22	55%	2.228	Location 07	0.2079	NP	0.393
Total Carcinogenic PAHs			0.031				22	14%	0.297	Location 11	0.0528	NP	0.1050	22	18%	0.082	Location 13	0.0330	Student's T	0.0617
Total PAHs							22	86%	30.762	Location 5	3.369	Lognormal	8.688	22	86%	52.5835	Location 16	8.733	NP	14.450

Please refer to notes at end of this table.

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Sample		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)	Sub-Armoring Water Spring 2010						
Contaminant of Interest		Aquatic Life (chronic)[2]	Human Health (fish consumption only)[2]	Aquatic Life (chronic)[3]	Human Health (consumption of organism only)[3]	Maximum Contaminant Levels (MCLs)[4]	**Number of Samples**	**Detection Frequency**	**Max Detection**	**Max Location**	**Mean Conc.**	**Data Distribution**	**95% UCL Value**
Total Dissolved Solids (mg/L)							22	1	899	Location 05	233	Gamma	317.5
Total Suspended Solids (mg/L)							22	0.95	592	Location 16	106	Gamma	578.8
Total Metals (mg/L)													
Arsenic		0.19		0.15	0.00014	0.01	22	100%	0.036	Location 02	0.0073	Gamma	0.0115
Chromium		0.21		0.074		0.1	22	59%	0.0061	Location 14	0.0009	Nonparametric	0.0021
Copper		0.012		0.009			22	68%	0.0095	Location 14	0.0017	Gamma	0.0030
Zinc		0.11		0.12	26		22	91%	0.0232	Location 14	0.0069	Gamma	0.0096
Dissolved Metals (mg/L)													
Arsenic							22	100%	0.0354	Location 02	0.0071	Gamma	0.0115
Chromium							22	45%	0.00043	Location 19	0.0002	Normal	0.0002
Copper							22	68%	0.0023	Location 03	0.0005	Gamma	0.0007
Zinc							22	100%	0.0157	Location 07	0.0041	Gamma	0.0054
Pentachlorophenol (µg/L)		13		15	3	1	22	5%	0.32	Location 19	0.0850	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)													
Acenaphthene	L	520			990		22	68%	61.5	Location 12	6.601	Nonparametric	28.100
Acenaphthylene	L						22	18%	0.4	Location 12	0.0365	Nonparametric	0.1310
Anthracene	L				40,000		22	36%	0.16	Location 12	0.0174	Nonparametric	0.0493
Benzo[a]anthracene	H, C				0.018		22	9%	0.03	Location 12	0.0039	NA	NA
Benzo[a]pyrene	H, C						22	5%	0.015	Location 21	0.0022	NA	NA
Benzo[b]fluoranthene	H, C				0.018	0.2	22	9%	0.03	Location 21	0.0048	NA	NA
Benzo[g,h,i]perylene	H, C				0.018		22	0%	ND	NA	0.0011	NA	NA
Benzo[k]fluoranthene	H				0.018		22	9%	0.014	Location 12	0.0037	NA	NA
Chrysene	H, C				0.018		22	14%	0.025	Location 21	0.0041	Nonparametric	0.0106
Dibenzo[a,h]anthracene	H, C				0.018		22	0%	ND	NA	0.0021	NA	NA
Fluoranthene	H		54		140		22	50%	0.46	Location 08	0.0522	Nonparametric	0.146
Fluorene	L				5300		22	68%	12.9	Location 12	1.327	Gamma	3.567
Ideno[1,2,3-cd]pyrene	H, C				0.018		22	0%	ND	NA	0.0021	NA	NA
Naphthalene	L	620					22	32%	16.1	Location 17	1.744	Nonparametric	5.824
Phenanthrene	L						22	41%	10.4	Location 07	0.528	Nonparametric	2.580
Pyrene	H				4,000		22	55%	0.24	Location 08	0.0367	Nonparametric	0.089
Total LPAHs							22	77%	76.18	Location 12	10.248	Gamma	26.110
Total HPAHs							22	55%	0.7	Location 08	0.1040	Nonparametric	0.251
Total Carcinogenic PAHs			0.031				22	14%	0.109	Location 21	0.0229	Nonparametric	0.0461
Total PAHs							22	82%	76.52	Location 12	10.348	Gamma	25.260

Please refer to notes at end of this table.

Table D-4
Summary of Sub-Armoring Water Data
McCormick and Baxter Superfund Site
Portland, Oregon

Notes:

[1]The number of significant figures presented in the table do not reflect true accuracy presented by the laboratory results. Data should only retain 3 significant figures. Due to statistical evaluation using Microsoft Excel, additional significant figures may be shown.

[2] The 1996 Record of Decision (ROD) specifies the remedial action objects of the sediment cap as: 1) preventing human and aquatic organisms from direct contact with contaminated sediment; and 2) minimizing releases of contaminants from sediment that might result in contamination of the Willamette River in excess of federal and state Ambient Water Quality Criteria (AWQCs).

[3] National Recommended Water Quality Criteria (NRWQCs) published as of August 15, 2007, are included for comparison (see http://www.epa.gov/waterscience/criteria/wqcriteria.html).

[4] National Primary Drinking Water Regulations Maximum Contaminant Levels (MCLs) promulgated as of August 15, 2007, are included for comparison (see http://www.epa.gov/safewater/contaminants/index.html).

Key:
C = Carcinogenic PAH
Gamma = Gamma Distribution
H = High Molecular Weight PAH (HPAH)
J = Estimated Value
L = Low Molecular Weight PAH (LPAH)
mg/L = milligrams per liter
MRL = Method Reporting Limit
NA= Not Applicable
ND = Not Detected
NP = Nonparametric Distribution
U = Value Below MDL (value represents MDL)
µg/L = micrograms per liter

Table D-5
Comparison Criteria Exceedance Summary 2005 - 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Analyte	Comparison Criteria	2005			
		Surface Water		Sub-armoring Water	
		Total Exceedances	Sampling Location	Total Exceedances	Sampling Location
Total Arsenic	0.00014 mg/L	25	All	25	All
Total Chromium	0.074 mg/L				
Total Copper	0.009 mg/L			1	9
Total Zinc	0.11 mg/L			1	9
PCP	1 µg/L				
Acenaphthene	520 µg/L				
Anthracene	40,000 µg/L				
Benz (a) anthracene	0.018 µg/L			4	7, 9, 20, 26
Benzo (a) pyrene	0.018 µg/L			1	9
Benzo (b) fluoranthene	0.018 µg/L			1	9
Benzo (k) fluoranthene	0.018 µg/L			1	9
Chrysene	0.018 µg/L			3	9, 20, 26
Dibenz (a,h) anthracene	0.018 µg/L				
Fluoranthene	54 µg/L				
Fluorene	5,300 µg/L				
Indeno (1,2,3-cd) pyrene	0.018 µg/L				
Naphthalene	620 µg/L			2	9, 10
Pyrene	4,000 µg/L				
Total CPAHs	0.031 µg/L			4	7, 9, 20, 26
Total AWQC Exceedances		25		43	

Please refer to notes at end of this table.

Table D-5
Comparison Criteria Exceedance Summary 2005 - 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Analyte	Comparison Criteria	Spring 2006						Fall 2006					
		Surface Water		Inter-armoring Water		Sub-armoring Water		Surface Water		Inter-armoring Water		Sub-armoring Water	
		Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location
Total Arsenic	0.00014 mg/L	6	4, 15, 24, 25, 27	7	5, 7, 12, 13, 17, 20, 25	20	Multiple	23	Multiple	22		22	Multiple
Total Chromium	0.074 mg/L												
Total Copper	0.009 mg/L	3	9, 18, 27	1	12	4	11, 14, 15, 19						
Total Zinc	0.11 mg/L												
PCP	1 µg/L												
Acenaphthene	520 µg/L												
Anthracene	40,000 µg/L												
Benz (a) anthracene	0.018 µg/L					3	5, 7, 9,			1	5		
Benzo (a) pyrene	0.018 µg/L					1	5						
Benzo (b) fluoranthene	0.018 µg/L					2	5, 9						
Benzo (k) fluoranthene	0.018 µg/L												
Chrysene	0.018 µg/L	1	25	1	5	3	5, 9, 11			1	5		
Dibenz (a,h) anthracene	0.018 µg/L												
Fluoranthene	54 µg/L												
Fluorene	5,300 µg/L												
Indeno (1,2,3-cd) pyrene	0.018 µg/L												
Naphthalene	620 µg/L					1	16						
Pyrene	4,000 µg/L												
Total CPAHs	0.031 µg/L	1	13	1	5	5	5, 7, 9, 10, 11			1	5	4	7, 9, 10, 17
Total AWQC Exceedances		11		10		39		23		25			

Please refer to notes at end of this table.

Table D-5
Comparison Criteria Exceedance Summary 2005 - 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Analyte	Comparison Criteria	Spring 2007						Fall 2007					
		Surface Water		Inter-armoring Water		Sub-armoring Water		Surface Water		Inter-armoring Water		Sub-armoring Water	
		Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location
Total Arsenic	0.00014 mg/L	25	All	3	3, 5, 21	23	All	12	Multiple	18	Multiple	22	All
Total Chromium	0.074 mg/L												
Total Copper	0.009 mg/L			4	4, 5, 6, 21	2	12, 15						
Total Zinc	0.11 mg/L												
PCP	1 µg/L											1	16
Acenaphthene	520 µg/L												
Anthracene	40,000 µg/L												
Benz (a) anthracene	0.018 µg/L					2	7, 12					2	7, 10
Benzo (a) pyrene	0.018 µg/L					1	10						
Benzo (b) fluoranthene	0.018 µg/L					1	10						
Benzo (k) fluoranthene	0.018 µg/L					1	10						
Chrysene	0.018 µg/L					3	7, 10, 13					2	7, 10
Dibenz (a,h) anthracene	0.018 µg/L					1	10						
Fluoranthene	54 µg/L												
Fluorene	5,300 µg/L												
Indeno (1,2,3-cd) pyrene	0.018 µg/L					1	10						
Naphthalene	620 µg/L					1	5						
Pyrene	4,000 µg/L												
Total CPAHs	0.031 µg/L					3	7, 10, 13					2	7,10
Total AWQC Exceedances		25		7		39		12		18		29	

Please refer to notes at end of this table.

Table D-5
Comparison Criteria Exceedance Summary 2005 - 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Analyte	Comparison Criteria	Spring 2008						Fall 2008					
		Surface Water		Inter-armoring Water		Sub-armoring Water		Surface Water		Inter-armoring Water		Sub-armoring Water	
		Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location
Total Arsenic	0.00014 mg/L			1	14	21	All but 15	22	Multiple	21	All but 20		
Total Chromium	0.074 mg/L												
Total Copper	0.009 mg/L									2	5, 14	1	4
Total Zinc	0.11 mg/L			1	9								
PCP	1 µg/L												
Acenaphthene	520 µg/L												
Anthracene	40,000 µg/L												
Benz (a) anthracene	0.018 µg/L					2	9, 16					3	6, 7, 8
Benzo (a) pyrene	0.018 µg/L					1	16					1	8
Benzo (b) fluoranthene	0.018 µg/L					1	16					2	6, 8
Benzo (k) fluoranthene	0.018 µg/L					1	16					1	8
Chrysene	0.018 µg/L					2	9, 16					4	6, 7, 8, 9
Dibenz (a,h) anthracene	0.018 µg/L												
Fluoranthene	54 µg/L												
Fluorene	5,300 µg/L												
Indeno (1,2,3-cd) pyrene	0.018 µg/L											1	8
Naphthalene	620 µg/L												
Pyrene	4,000 µg/L												
Total CPAHs	0.031 µg/L						9, 16						
Total AWQC Exceedances		2				28		22		23		13	

Please refer to notes at end of this table.

Table D-5
Comparison Criteria Exceedance Summary 2005 - 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Analyte	Comparison Criteria	Spring 2009						Fall 2009					
		Surface Water		Inter-armoring Water		Sub-armoring Water		Surface Water		Inter-armoring Water		Sub-armoring Water	
		Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location	Total Exceedances	Sampling Location
Total Arsenic	0.00014 mg/L	24	All	22	All	22	All	18	Multiple	17	Multiple	21	Multiple
Total Chromium	0.074 mg/L												
Total Copper	0.009 mg/L	1	19	1	17	2	11, 16			1	4		
Total Zinc	0.11 mg/L												
PCP	1 µg/L												
Acenaphthene	520 µg/L												
Anthracene	40,000 µg/L												
Benz (a) anthracene	0.018 µg/L					3	4, 7, 11					1	17
Benzo (a) pyrene	0.018 µg/L												
Benzo (b) fluoranthene	0.018 µg/L					2	4, 11					2	13, 16
Benzo (k) fluoranthene	0.018 µg/L					1	11						
Chrysene	0.018 µg/L					3	4, 7, 11					2	7, 17
Dibenz (a,h) anthracene	0.018 µg/L												
Fluoranthene	54 µg/L												
Fluorene	5,300 µg/L												
Indeno (1,2,3-cd) pyrene	0.018 µg/L												
Naphthalene	620 µg/L												
Pyrene	4,000 µg/L												
Total CPAHs	0.031 µg/L	1	15			3	4, 7, 11					4	7, 13, 16, 17
Total AWQC Exceedances		26		23		36		18		18		30	

Please refer to notes at end of this table.

Table D-5
Comparison Criteria Exceedance Summary 2005 - 2010
McCormick and Baxter Superfund Site
Portland, Oregon

Analyte	Comparison Criteria	Spring 2010					
		Surface Water		Inter-armoring Water		Sub-armoring Water	
		Total Exceedances	Sampling Location	Total Exceedance	Sampling Location	Total Exceedan	Sampling Location
Total Arsenic	0.00014 mg/L	24	All	22	All	22	All
Total Chromium	0.074 mg/L						
Total Copper	0.009 mg/L			4	6,7,10,15,	1	14
Total Zinc	0.11 mg/L			1	6		
PCP	1 µg/L						
Acenaphthene	520 µg/L						
Anthracene	40,000 µg/L						
Benz (a) anthracene	0.018 µg/L					2	12, 21
Benzo (a) pyrene	0.018 µg/L						
Benzo (b) fluoranthene	0.018 µg/L					2	12, 21
Benzo (k) fluoranthene	0.018 µg/L						
Chrysene	0.018 µg/L					2	12, 21
Dibenz (a,h) anthracene	0.018 µg/L						
Fluoranthene	54 µg/L						
Fluorene	5,300 µg/L						
Indeno (1,2,3-cd) pyrene	0.018 µg/L						
Naphthalene	620 µg/L						
Pyrene	4,000 µg/L						
Total CPAHs	0.031 µg/L					2	12, 21
Total AWQC Exceedances		24		27		31	

Notes:
AWQCs = Ambient Water Quality Criteria (1996)
Comparison Criteria = Most conservative values from AWQCs, NRWQCs, and NPDWRs
mg/L = milligrams per liter
NPDWRs = National Primary Drinking Water Regulations
NRWQCs = National Recommended Water Quality Criteria
µg/L = micrograms per liter
PCP = Pentachlorophenol
CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbons

Table D-6
Maximum Concentration Summary
McCormick and Baxter Superfund Site
Portland, Oregon

Sampling Event	Maximum Detected Concentration											
	2002	2003	2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010
Surface Water												
Total Arsenic mg/L	0.001	0.002	0.001	0.002	0.007	0.0004	0.001	ND	0.0013	0.0018	0.0007	0.001
Total Chromium mg/L	0.002	0.005	ND	0.005	0.002	0.002	0.001	0.00097	0.00257	0.00950	0.00046	0.00130
Total Copper mg/L	0.021	0.021	0.003	0.017	0.003	0.003	0.002	0.00283	0.00282	0.01500	0.00150	0.00250
Total Zinc mg/L	0.018	0.019	0.008	0.040	0.005	0.022	0.004	0.0125	0.0111	0.0320	0.0065	0.006
PCP µg/L	0.079	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.320
Acenaphthene µg/L	9.800	ND	0.097	ND	0.166	0.013	0.411	0.066	0.704	0.020	0.098	0.330
Fluoranthene µg/L	11.900	0.078	ND	0.040	0.014	0.013	0.027	ND	0.024	0.012	0.016	0.021
Naphthalene µg/L	3.300	ND	0.911	0.190	0.930	0.025	1.330	0.093	2.930	0.110	0.510	ND
Total CPAHs µg/L	4.220	0.101	ND	0.053	ND	ND	ND	ND	ND	0.060	ND	ND
Total PAHs µg/L	61.500	0.282	1.044	0.281	1.188	0.111	1.990	0.148	3.980	0.116	0.754	0.441
Inter-Armoring Water												
Arsenic mg/L	--	--	--	0.005	0.002	0.007	0.020	0.00078	0.00257	0.00710	0.00400	0.011
Chromium mg/L	--	--	--	0.011	0.002	0.023	0.005	0.002	0.011	0.004	0.003	0.047
Copper mg/L	--	--	--	0.017	0.004	0.037	0.009	0.005	0.024	0.009	0.010	0.075
Zinc mg/L	--	--	--	0.039	0.015	0.067	0.022	0.172	0.058	0.018	0.030	0.162
PCP µg/L	--	--	--	ND	0.250	ND	ND	ND	ND	0.165	ND	ND
Acenaphthene µg/L	--	--	--	3.650	1.810	0.115	ND	0.058	0.184	6.000	0.140	0.560
Fluoranthene µg/L	--	--	--	0.253	0.111	ND	0.017	ND	0.017	0.110	0.028	0.014
Naphthalene µg/L	--	--	--	1.130	2.080	ND	ND	0.052	ND	0.420	0.360	ND
Total CPAHs µg/L	--	--	--	0.032	0.056	ND	ND	ND	ND	0.024	ND	ND
Total PAHs µg/L	--	--	--	9.122	4.457	0.150	0.081	0.126	0.757	7.861	0.594	0.680
Sub-Armoring Water												
Arsenic mg/L	--	--	0.033	0.037	0.039	0.052	0.032	0.030	0.081	0.057	0.045	0.038
Chromium mg/L	--	--	0.014	0.017	0.001	0.003	0.001	0.001	0.006	0.010	0.002	0.006
Copper mg/L	--	--	0.028	0.035	0.003	0.544	0.005	0.004	0.014	0.019	0.007	0.010
Zinc mg/L	--	--	0.113	0.388	0.026	0.053	0.036	0.022	0.033	0.081	0.038	0.023
PCP µg/L	--	--	0.469	18.500	0.250	ND	3.270	ND	ND	0.740	ND	0.320
Acenaphthene µg/L	--	--	131.000	22.100	19.000	47.500	67.600	50.5	48.0	19.0	45.1	61.5
Fluoranthene µg/L	--	--	7.400	1.670	10.400	2.750	12.200	2.16	2.19	0.790	1.400	0.46
Naphthalene µg/L	--	--	772.000	726.000	229.000	848.000	407.000	232	5	0.200	0.930	16.10
Total CPAHs µg/L	--	--	3.017	0.322	0.105	0.211	0.166	0.462	0.218	0.297	0.082	0.109
Total PAHs µg/L	--	--	885.000	738.000	232.000	929.150	445.890	253	161	30.8	52.6	76.5

Notes:
mg/L = milligrams per liter
µg/L = micrograms per liter
PCP = Pentachlorophenol
PAH = Polynuclear Aromatic Hydrocarbons
CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbons
ND = Not Detected
-- Not Sampled

Table D-7
Detection Frequency Summary
McCormick and Baxter Superfund Site
Portland, Oregon

Sampling Event	Detection Frequency											
	2002	2003	2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010
Surface Water												
Total Arsenic	27%	81%	100%	22%	95%	100%	48%	0%	91%	100%	73%	100%
Total Chromium	33%	100%	0%	74%	52%	58%	52%	77%	36%	100%	45%	100%
Total Copper	100%	100%	81%	74%	100%	100%	88%	77%	100%	95%	100%	100%
Total Zinc	100%	100%	88%	87%	27%	35%	64%	9%	27%	23%	73%	95%
Total PAHs	60%	43%	19%	30%	23%	8%	68%	18%	14%	59%	27%	14%
Inter-Armoring Water												
Total Arsenic	--	--	--	30%	100%	13%	78%	5%	95%	100%	77%	100%
Total Chromium	--	--	--	43%	64%	17%	52%	91%	55%	100%	68%	100%
Total Copper	--	--	--	96%	100%	100%	83%	82%	100%	100%	100%	100%
Total Zinc	--	--	--	78%	45%	4%	60%	27%	77%	27%	100%	100%
Total PAHs	--	--	--	55%	41%	17%	35%	32%	18%	55%	45%	18%
Sub-Armoring Water												
Total Arsenic	--	--	100%	91%	95%	100%	100%	95%	100%	100%	95%	100%
Total Chromium	--	--	0%	78%	23%	28%	8%	55%	64%	95%	50%	59%
Total Copper	--	--	70%	70%	82%	96%	88%	45%	86%	73%	95%	68%
Total Zinc	--	--	100%	87%	50%	52%	92%	64%	64%	27%	73%	91%
Total PAHs	--	--	78%	91%	91%	88%	75%	86%	68%	86%	86%	82%

Notes:
PAH = Polynuclear Aromatic Hydrocarbons
-- Not Sampled

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-1_Spring2010_Sample_Location_Map.mxd, Date: May 11, 2011 9:55:26 AM

LEGEND

- Spring 2010 Sample Locations

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

NOTES:

1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Sample Location Map
Spring 2010 Sampling Event

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
D-1

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-2_Fall2010_Sample_Location_Map.mxd, Date: March 18, 2011 2:59:43 PM

LEGEND

- Fall 2010 Sample Locations

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (6.00 feet)

NOTES:

1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (October 11, 2010 to October 13, 2010) was 6.00 feet NAVD88

0 250 500

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Sample Location Map
Fall 2010 Sampling Event

3/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
D-2

LEGEND

Sample Results

- Non-detect < 0.031 ug/L[1,2]
- Non-detect > 0.031 ug/L[1,2]
- < 0.031 ug/L[1]
- 0.031- 0.31 ug/L
- 0.31- 3.1 ug/L
- > 3.1 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:

1) Reference criteria of 0.031 ug/L represents the 1996 ROD AWQC for human health (fish consumption only) for total cPAHs.
2) For cPAHs, the individual detection limits are typically below the 2007 NRWQCs for human health (consumption of organism only). However, the cumulative values, calculated with 1/2 detection limit values for each cPAH not detected, exceed the 1996 total cPAH reference criteria of 0.031 ug/L. Refer to summary tables for individual detection limits and results.

NOTES:

1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 cPAHs Surface Water Sample Results

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure **D-3**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-3_Spring2010_cPAHs_SW_Results.mxd, Date: May 11, 2011 10:01:07 AM

LEGEND

Sample Results

- Non-detect < 0.031 ug/L[1,2]
- Non-detect > 0.031 ug/L[1,2]
- < 0.031 ug/L[1]
- 0.031- 0.31 ug/L
- 0.31- 3.1 ug/L
- > 3.1 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:

1) Reference criteria of 0.031 ug/L represents the 1996 ROD AWQC for human health (fish consumption only) for total cPAHs.
2) For cPAHs, the individual detection limits are typically below the 2007 NRWQCs for human health (consumption of organism only). However, the cumulative values, calculated with 1/2 detection limit values for each cPAH not detected, exceed the 1996 total cPAH reference criteria of 0.031 ug/L. Refer to summary tables for individual detection limits and results.

NOTES:

1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 cPAHs Inter-Armoring Water Sample Results

3/11

HARTCROWSER GSI Water Solutions, Inc.

Figure **D-4**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-4_Spring2010_cPAHs_IA_Results.mxd, Date: March 10, 2011 4:35:50 PM

LEGEND

Sample Results

- Sample Location
- Non-detect < 0.031 ug/L[1,2]
- Non-detect > 0.031 ug/L[1,2]
- < 0.031 ug/L[1]
- 0.031- 0.31 ug/L
- 0.31- 3.1 ug/L
- > 3.1 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:

1) Reference criteria of 0.031 ug/L represents the 1996 ROD AWQC for human health (fish consumption only) for total cPAHs.
2) For cPAHs, the individual detection limits are typically below the 2007 NRWQCs for human health (consumption of organism only). However, the cumulative values, calculated with 1/2 detection limit values for each cPAH not detected, exceed the 1996 total cPAH reference criteria of 0.031 ug/L. Refer to summary tables for individual detection limits and results.

NOTES:

1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 cPAHs Sub-Armoring Water Sample Results

6/11

HARTCROWSER GSI Water Solutions, Inc.

Figure **D-5**

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project GIS\Project mxds\2010 Annual Report\FigureD-5 Spring2010 cPAHs SA Results.mxd, Date: June 6, 2011 2:48:56 PM

LEGEND

Sample Results

- Non-detect
- < 620 ug/L
- 620 - 6,200 ug/L
- 6,200 - 62,000 ug/L
- > 62,000 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:
1) Reference criteria of 620 ug/L represents the 1996 ROD AWQC for Human Health (fish consumption).

NOTES:
1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 Naphthalene Surface Water Sample Results

3/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
D-6

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-6_Spring2010_Naphthalene_SW_Results.mxd, Date: March 10, 2011 4:41:17 PM

LEGEND

Sample Results

- Non-detect
- < 620 ug/L
- 620 - 6,200 ug/L
- 6,200 - 62,000 ug/L
- > 62,000 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:
1) Reference criteria of 620 ug/L represents the 1996 ROD AWQC for Human Health (fish consumption).

NOTES:
1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 Naphthalene Inter-Armoring Water Sample Results

5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
D-7

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-7_Spring2010_Naphthalene_IA_Results.mxd, Date: May 26, 2011 1:43:42 PM

LEGEND

Sample Results

- Sample Location
- Non-detect
- < 620 ug/L
- 620 - 6,200 ug/L
- 6,200 - 62,000 ug/L
- > 62,000 ug/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:
1) Reference criteria of 620 ug/L represents the 1996 ROD AWQC for Human Health (fish consumption).

NOTES:
1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 Naphthalene Sub-Armoring Water Sample Results

6/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
D-8

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-8_Spring2010_Naphthalene_SA_Results.mxd, Date: June 6, 2011 3:01:10 PM

LEGEND

Sample Results

- Non-detect
- < 0.009 mg/L
- 0.009 - 0.09 mg/L
- 0.09 - 0.9 mg/L
- > 0.9 mg/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:
1) Reference criteria of .009 mg/L represents the 2007 NRWQCs for the aquatic life (chronic).

NOTES:
1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 Copper Surface Water Sample Results

6/11

HARTCROWSER GSI Water Solutions, Inc.

Figure
D-9

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-9_Spring2010_Copper_SW_Results.mxd, Date: June 6, 2011 3:49:12 PM

LEGEND

Sample Results

- Non-detect
- < 0.009 mg/L
- 0.009 - 0.09 mg/L
- 0.09 - 0.9 mg/L
- > 0.9 mg/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:
1) Reference criteria of .009 mg/L represents the 2007 NRWQCs for the aquatic life (chronic).

NOTES:
1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 Copper Inter-Armoring Water Sample Results

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HARTCROWSER GSI Water Solutions, Inc.

Figure
D-10

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-10_Spring2010_Copper_IA_Results.mxd, Date: June 6, 2011 3:50:20 PM

LEGEND

Sample Results

- Non-detect
- < 0.009 mg/L
- 0.009 - 0.09 mg/L
- 0.09 - 0.9 mg/L
- > 0.9 mg/L

Site Features

- Subsurface Barrier Wall
- Sediment Cap Boundary
- Organoclay Granular
- Organoclay Mats (Double)
- Organoclay Mats (Single)
- Hot Spot Treatment (thickened sand layer)
- Boulder Clusters
- Willamette River Level During Sampling Event (8.0 feet)

REFERENCE INFORMATION:
1) Reference criteria of .009 mg/L represents the 2007 NRWQCs for the aquatic life (chronic).

NOTES:
1) All elevations shown in NAVD88
2) Aerial photo taken on September 22, 2006
3) Average low tide during sampling period (April 7, 2010 to April 13, 2010) was 8.0 feet NAVD88

0 250 500
Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Spring 2010 Copper Sub-Armoring Water Sample Results

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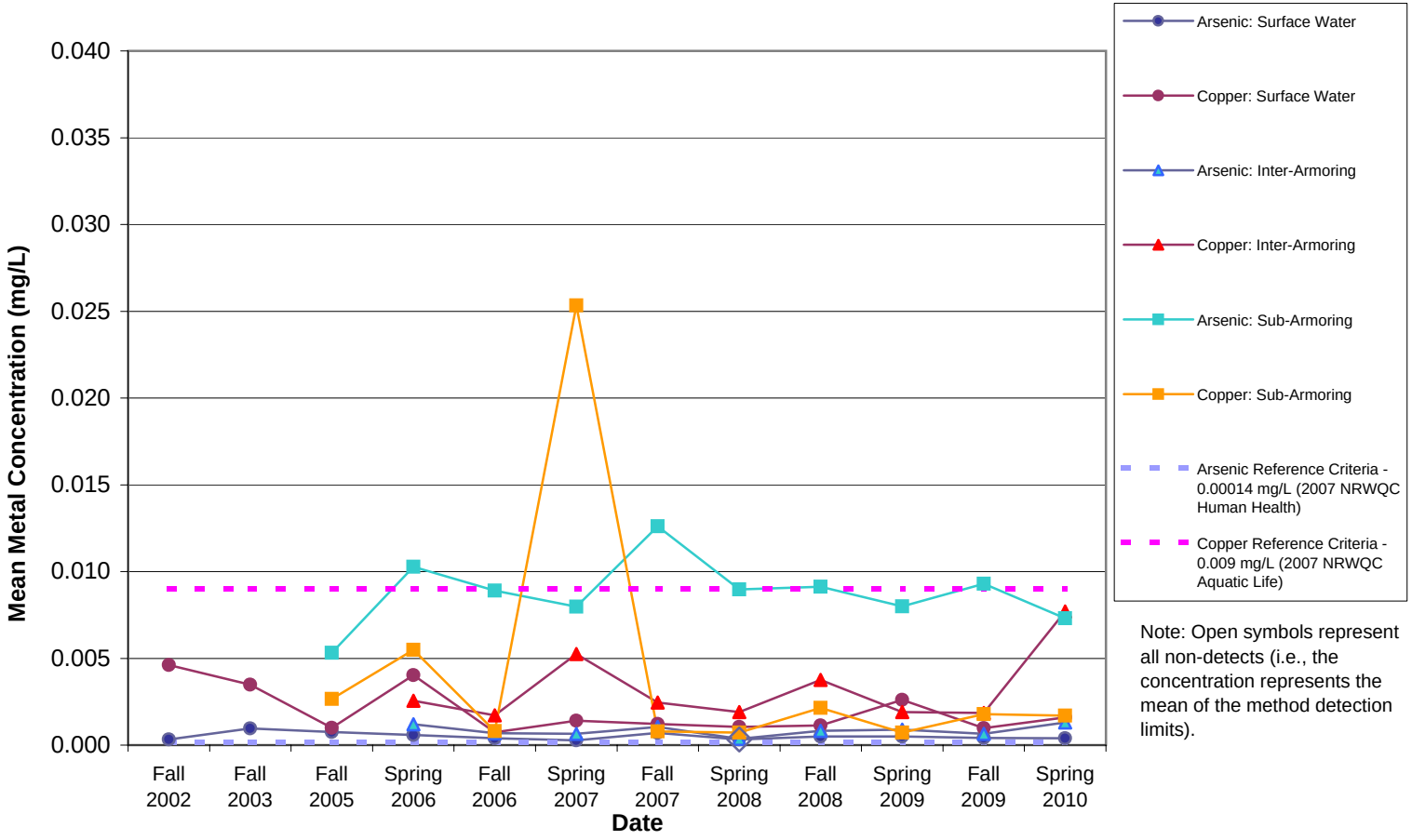
HARTCROWSER GSI Water Solutions, Inc.

Figure
D-11

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureD-11_Spring2010_Copper_SA_Results.mxd, Date: June 6, 2011 3:51:36 PM



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Mean Concentrations for Total Arsenic and Total Copper in Surface, Inter-Armoring, and Sub-Armoring Samples

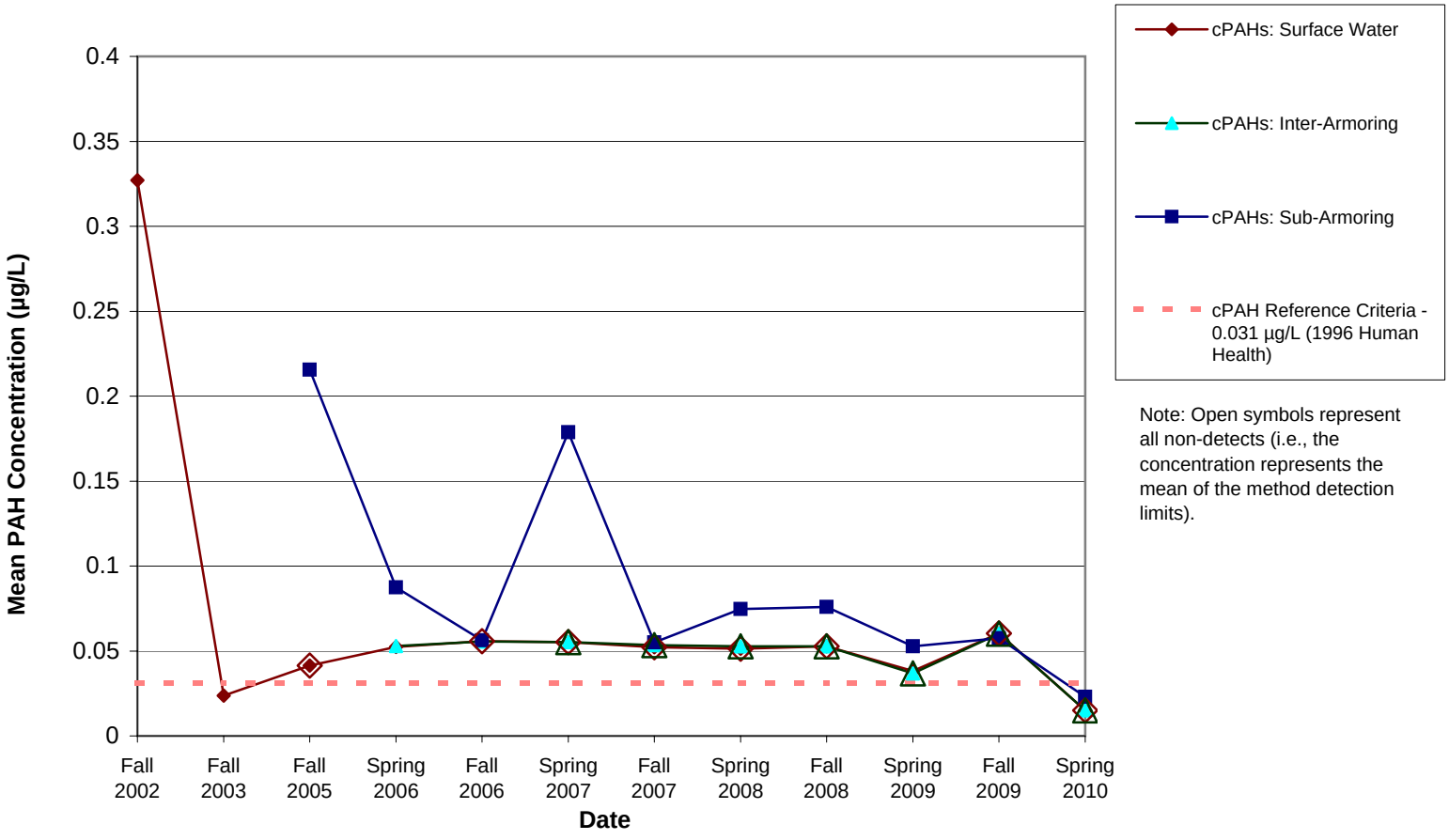
5/11

Figure

D-12

HARTCROWSER

GSI Water Solutions, Inc.



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Mean Concentrations for Total cPAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples

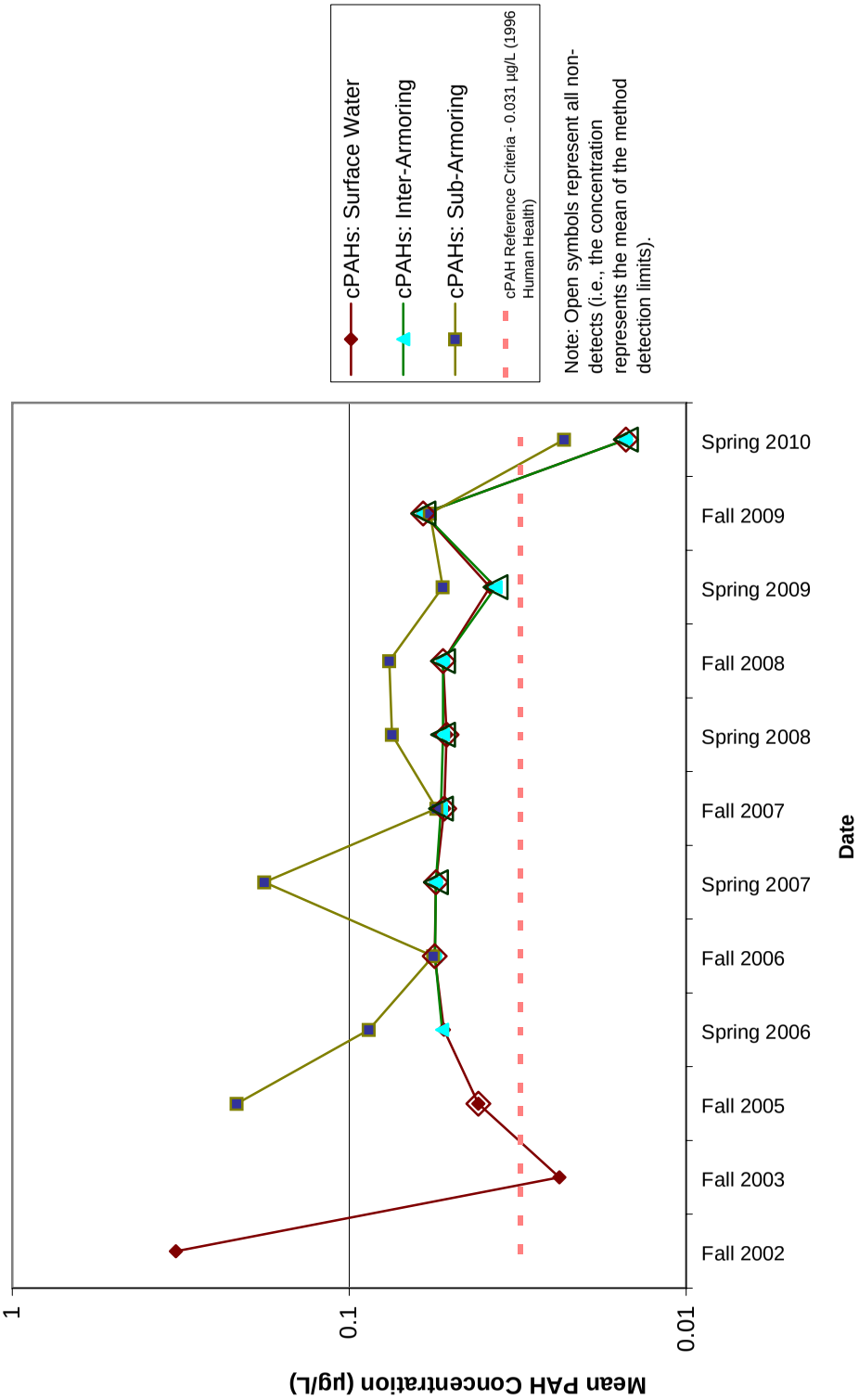
5/11

Figure

D-13

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

Mean Concentrations for Total cPAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples (Log Scale)

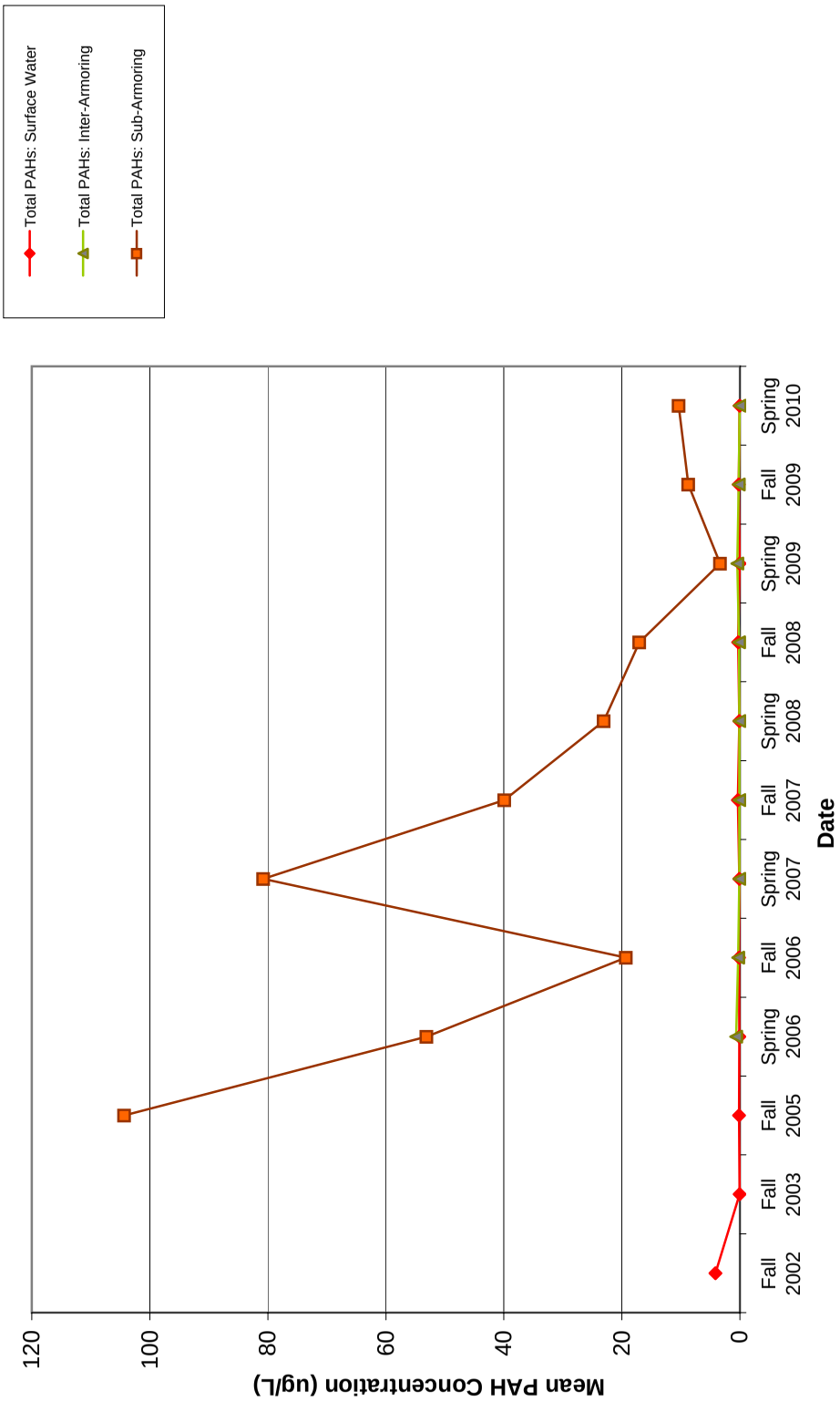
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-13a



McCormick and Baxter Superfund Site
Portland, Oregon

Mean Concentrations for Total PAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples

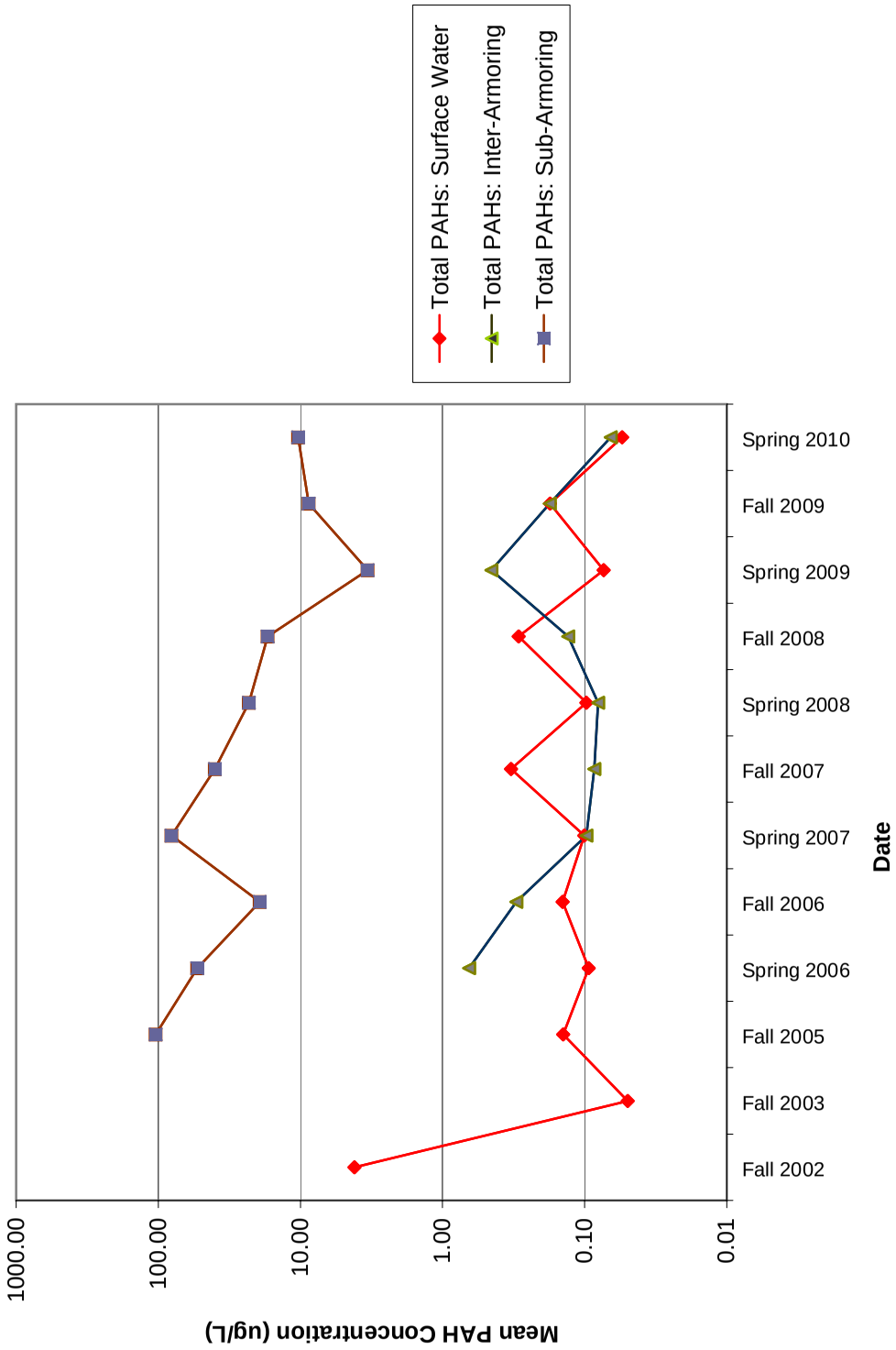
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-14



McCormick and Baxter Superfund Site
Portland, Oregon

Mean Concentrations for Total PAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples (Log Scale)

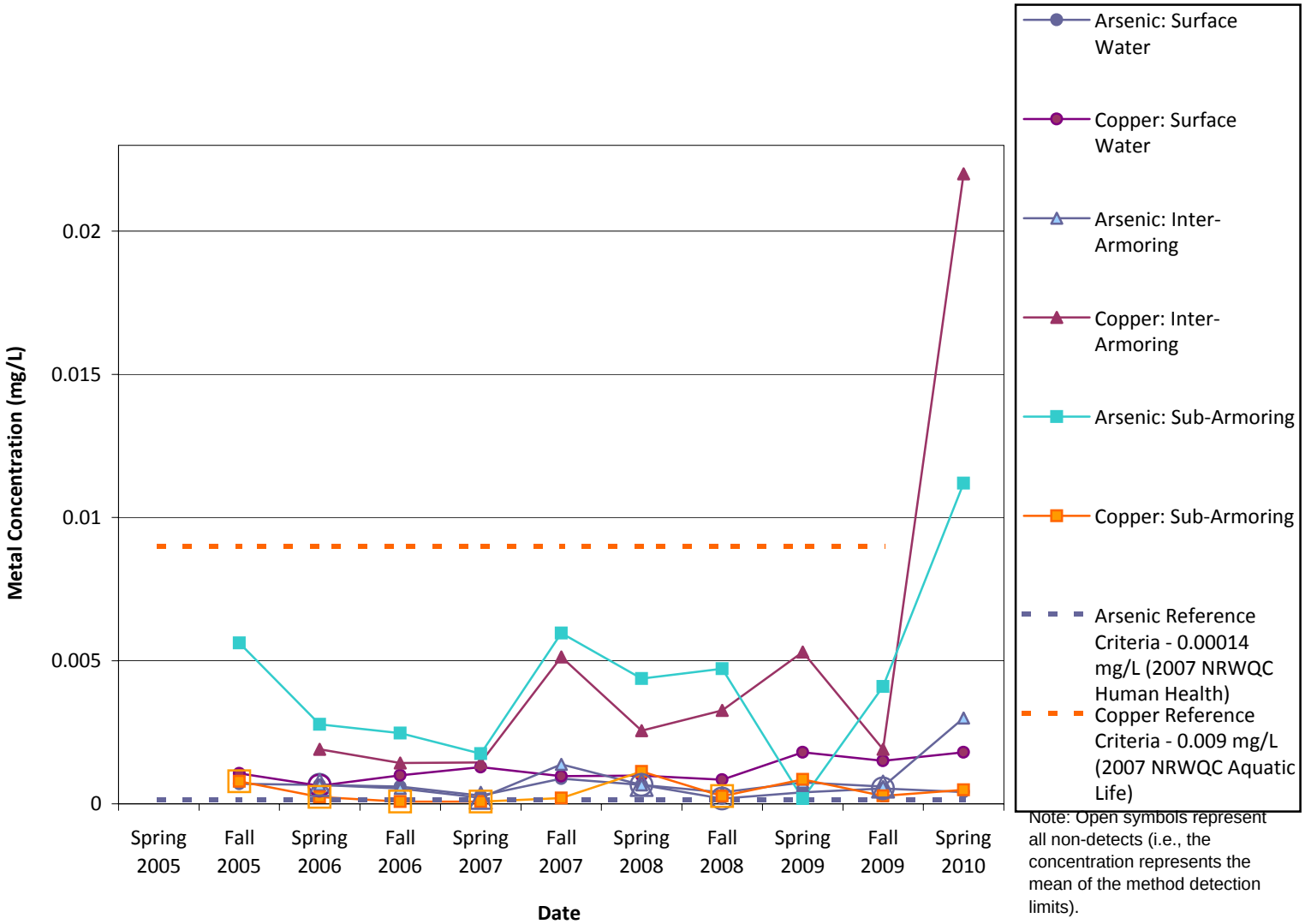
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-14a



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 10 Concentrations for Total Arsenic and Copper in Surface, Inter-Armoring, and Sub-Armoring Water Samples

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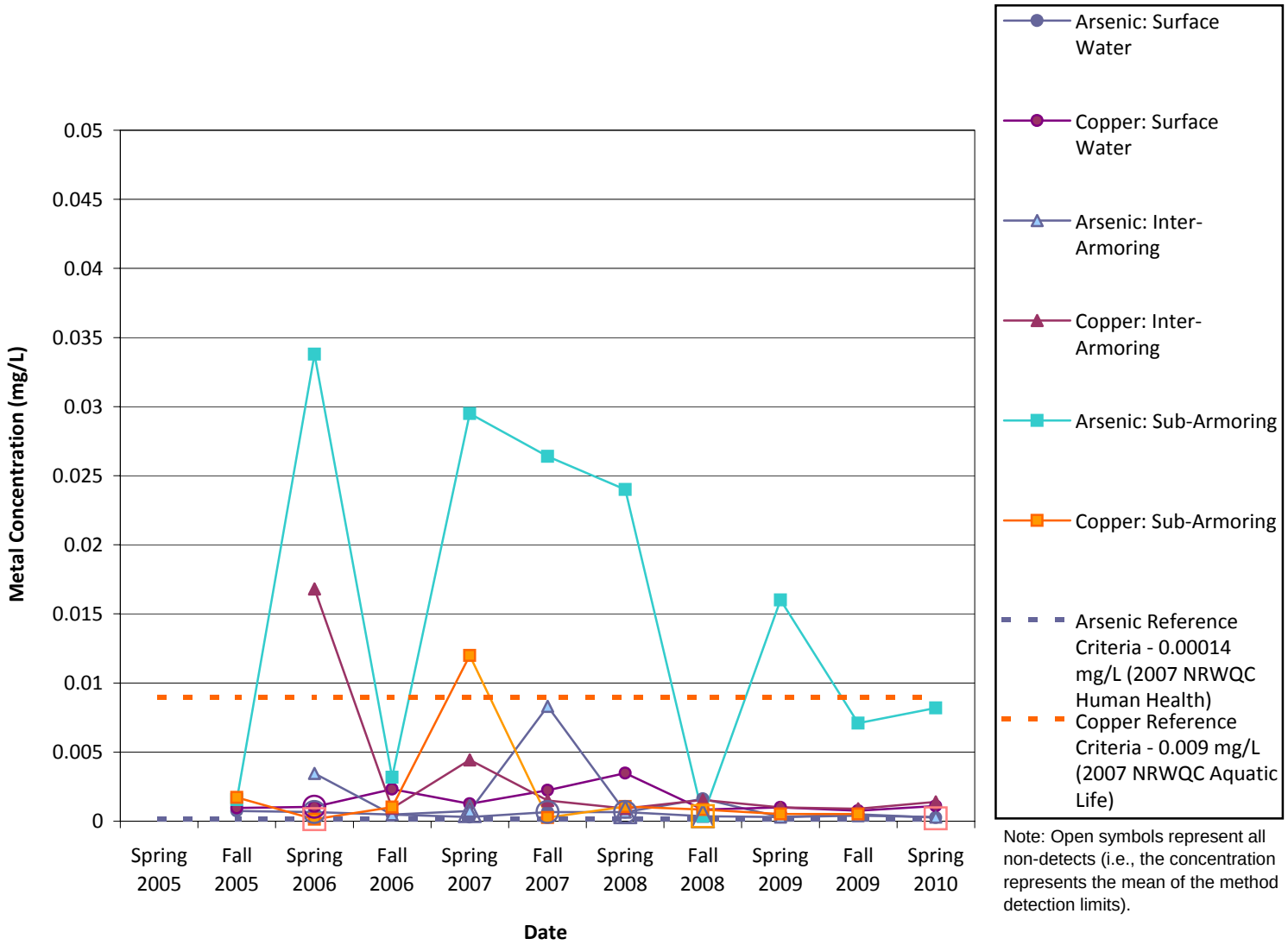
HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-15



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 12 Concentrations for Total Arsenic and Copper in Surface, Inter-Armoring, and Sub-Armoring Water Samples

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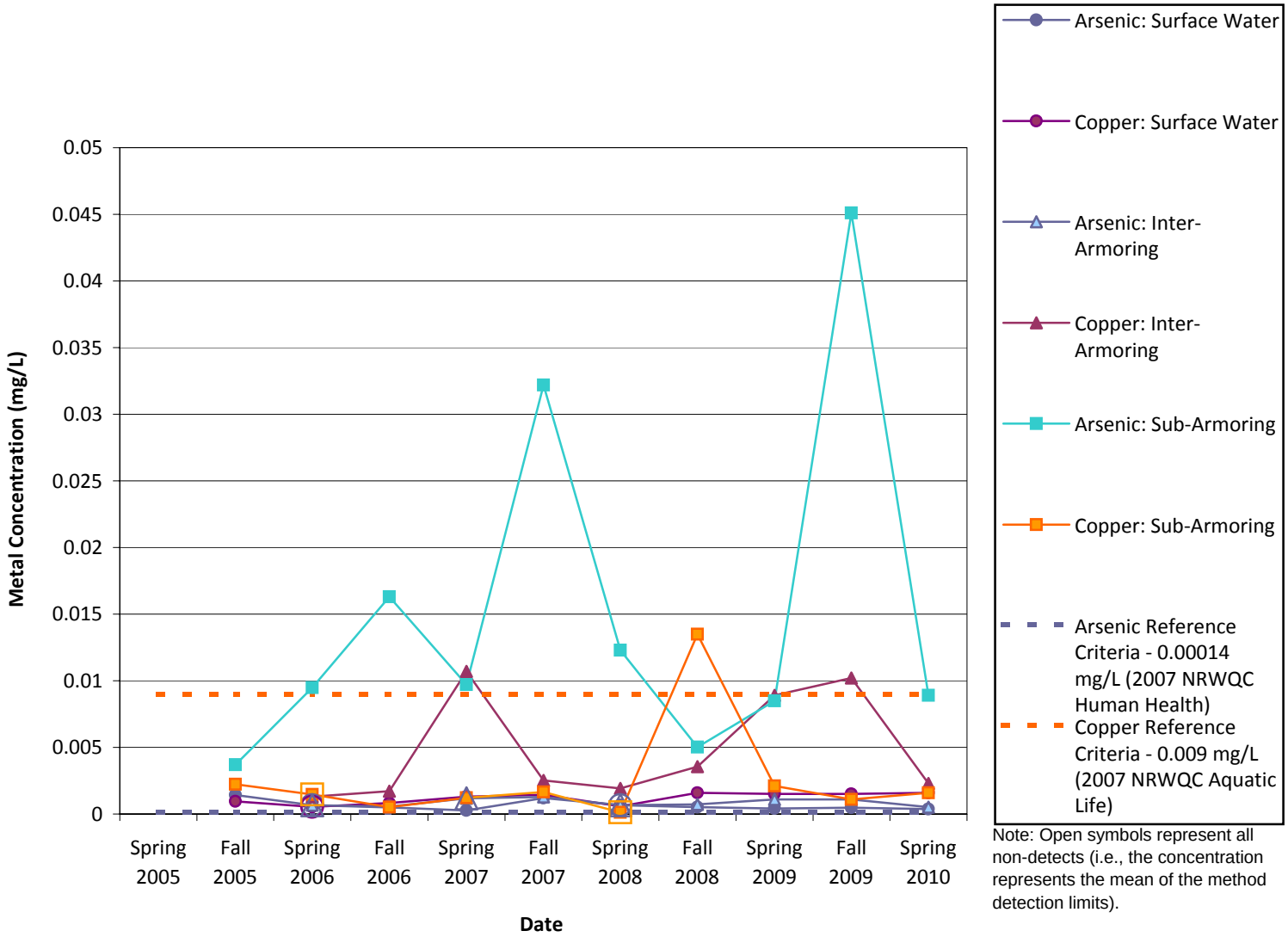
Figure

D-16

HARTCROWSER

GSI Water Solutions, Inc.



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 4 Concentrations for Total Arsenic and Copper in Surface, Inter-Armoring, and Sub-Armoring Water Samples

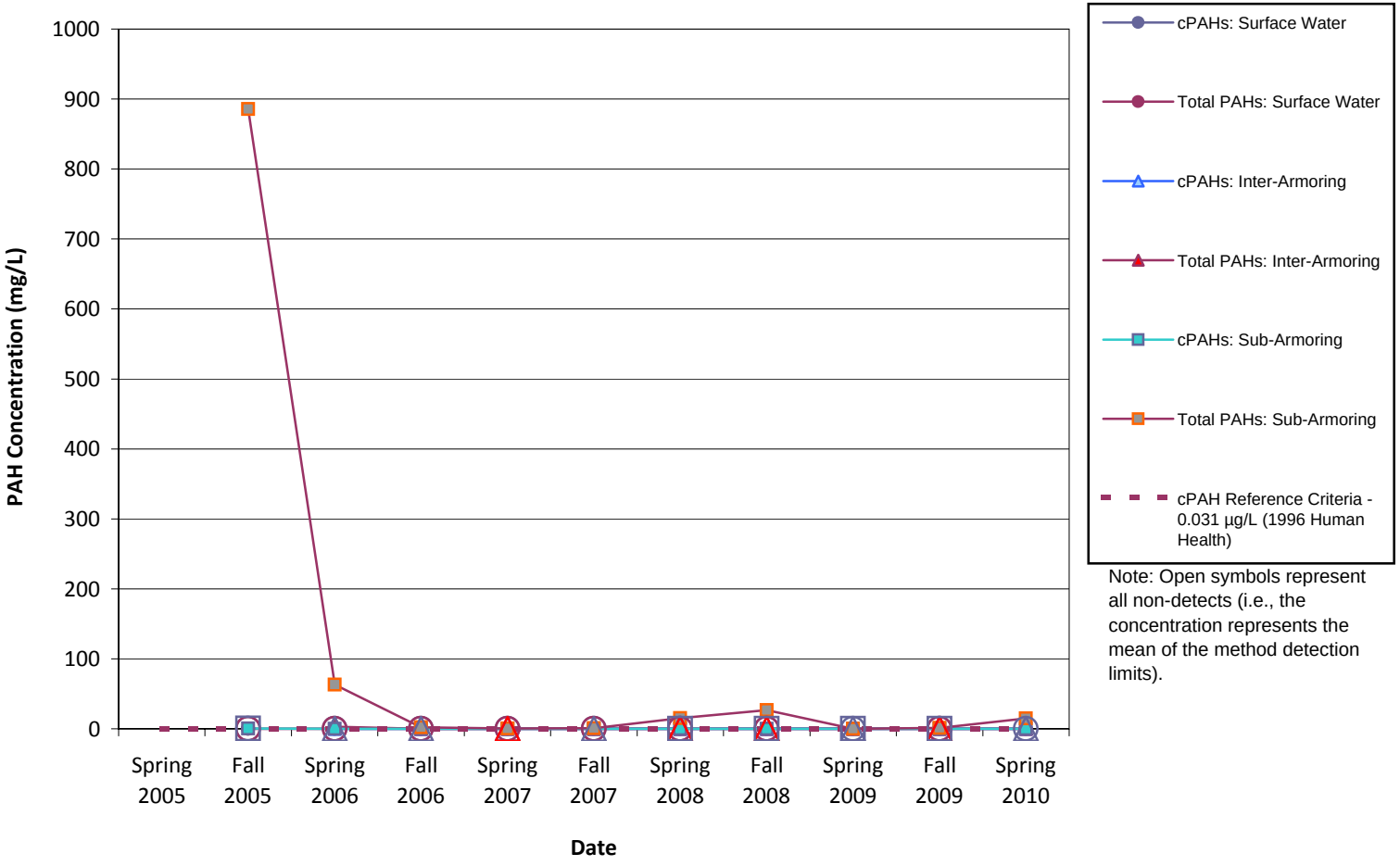
5/11

Figure

D-17

HARTCROWSER

GSI Water Solutions, Inc.



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 10 Concentrations for Total cPAHs and Total PAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples

5/11

Figure

D-18

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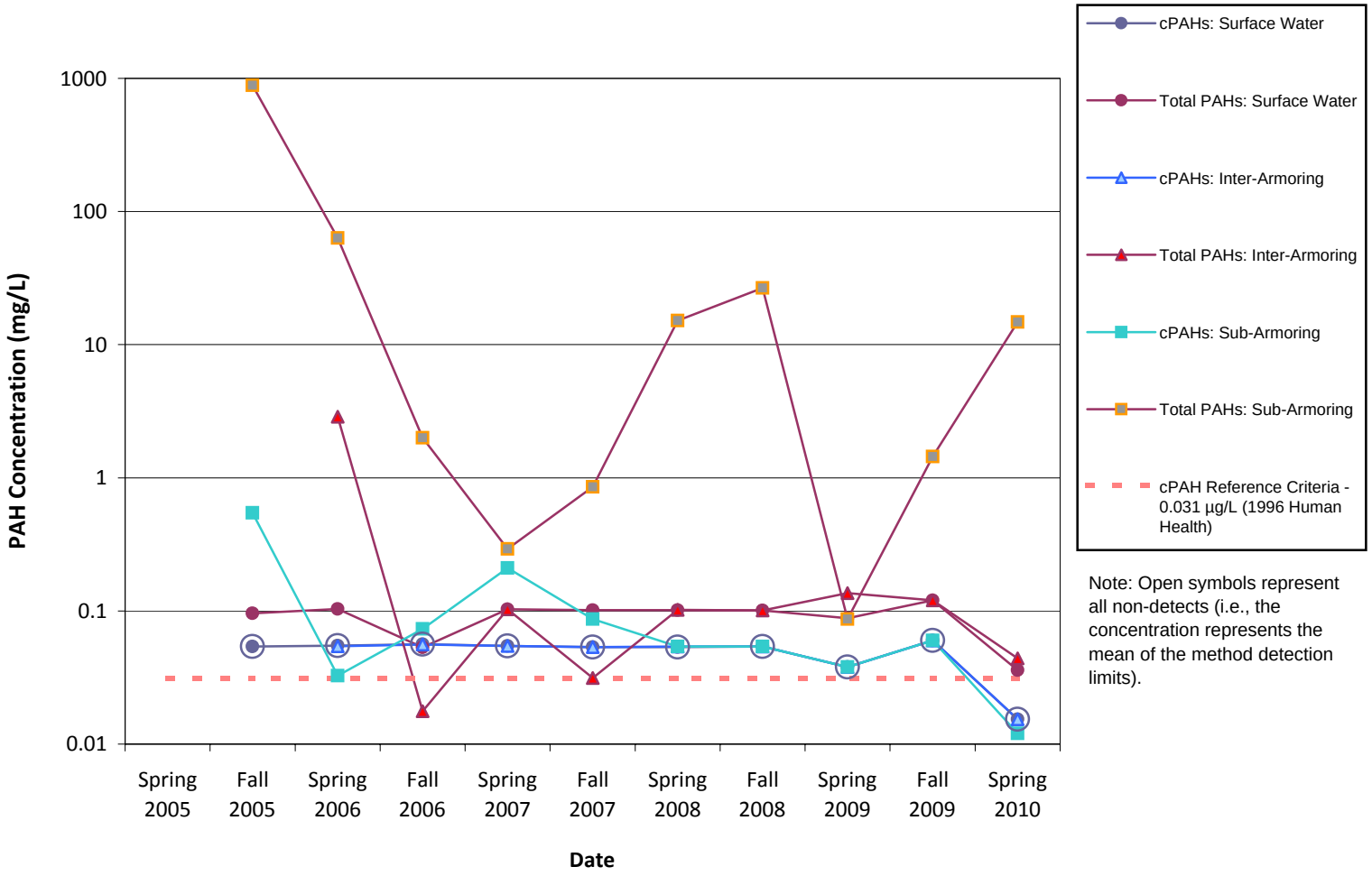


Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 10 Concentrations for Total cPAHs and Total PAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples (Log Scale)

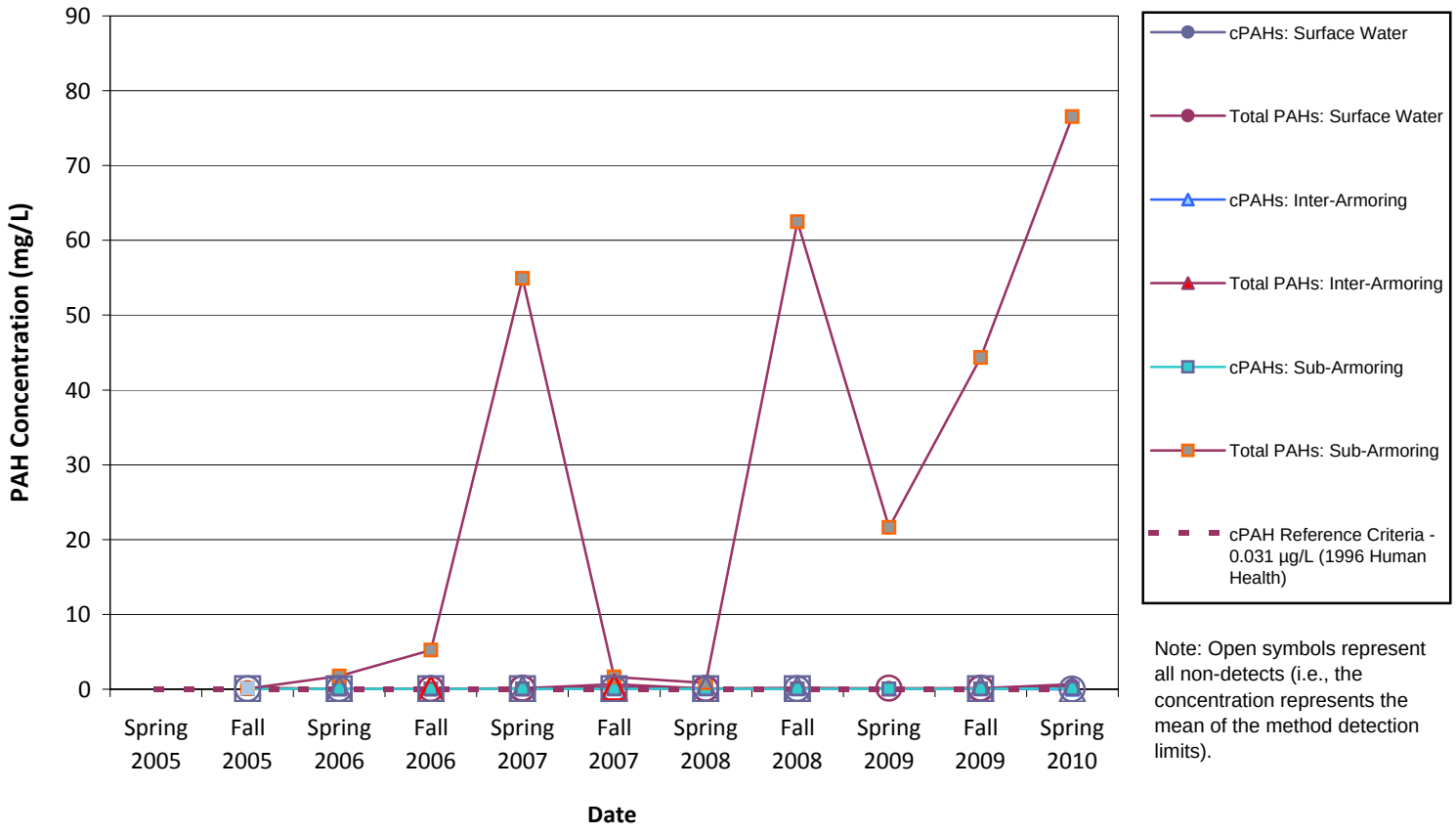
5/11

Figure

D-18a

HARTCROWSER

GSI Water Solutions, Inc.



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 12 Concentrations for Total cPAHs and Total PAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples

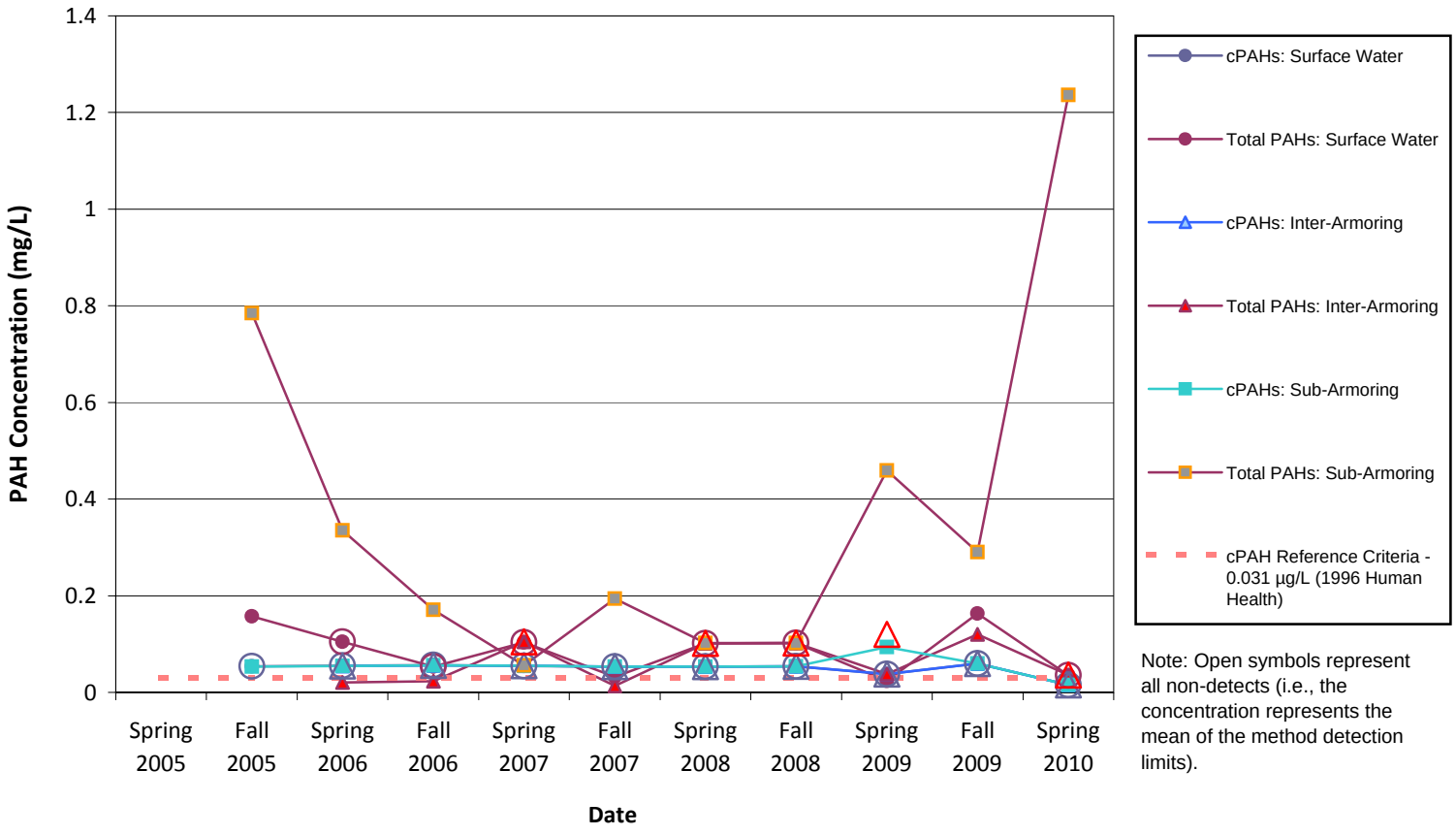
5/11

Figure

D-19

HARTCROWSER

GSI Water Solutions, Inc.



Note: Open symbols represent all non-detects (i.e., the concentration represents the mean of the method detection limits).

McCormick and Baxter Superfund Site
Portland, Oregon

Location 4 Concentrations for Total cPAHs and Total PAHs in Surface, Inter-Armoring, and Sub-Armoring Water Samples

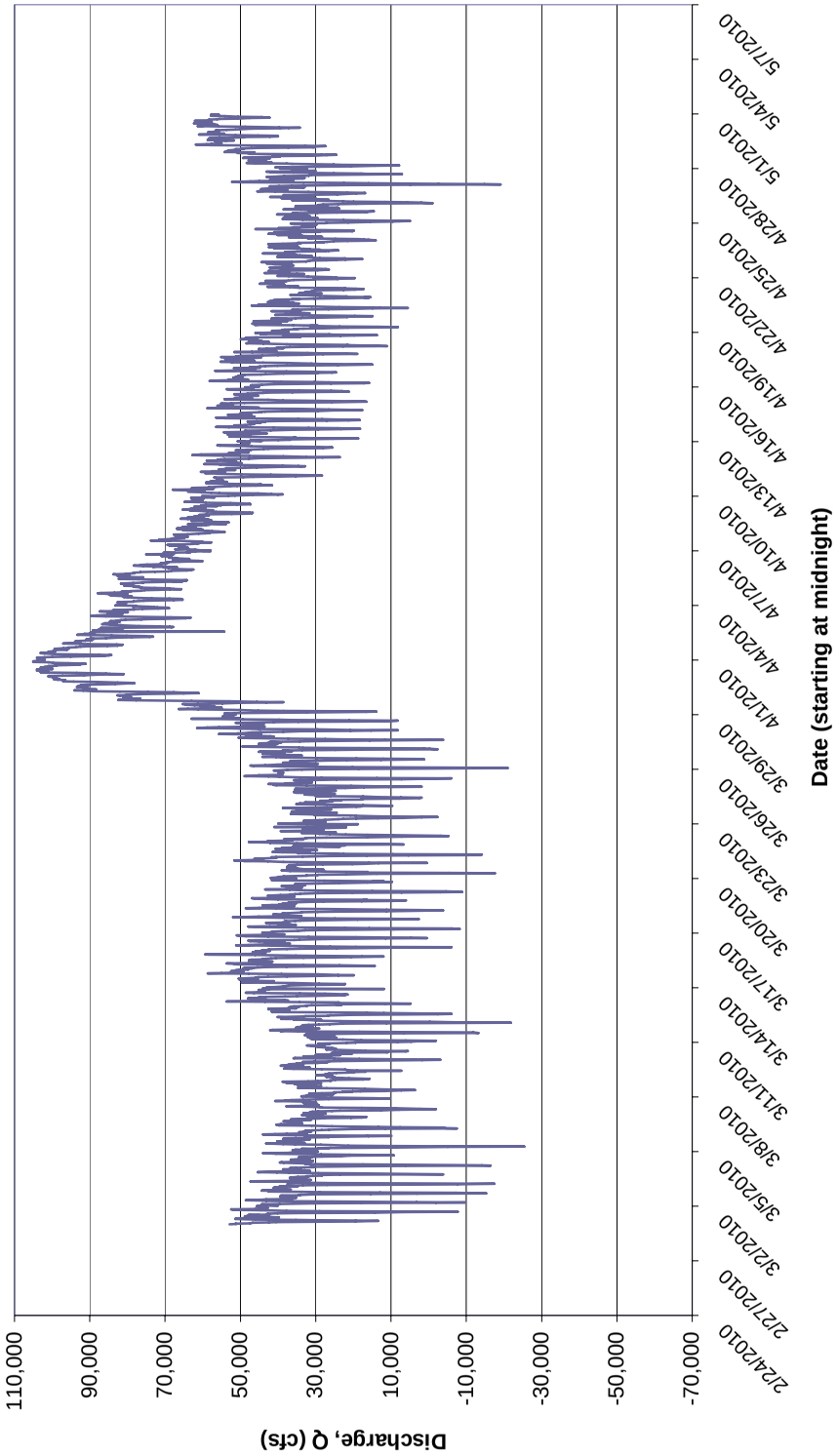
5/11

Figure

D-20

HARTCROWSER

GSI Water Solutions, Inc.



McCormick and Baxter Superfund Site
Portland, Oregon

Discharge Rate Willamette River at Portland, OR (Morrison Bridge) Spring 2010
USGS SiteID 14211720

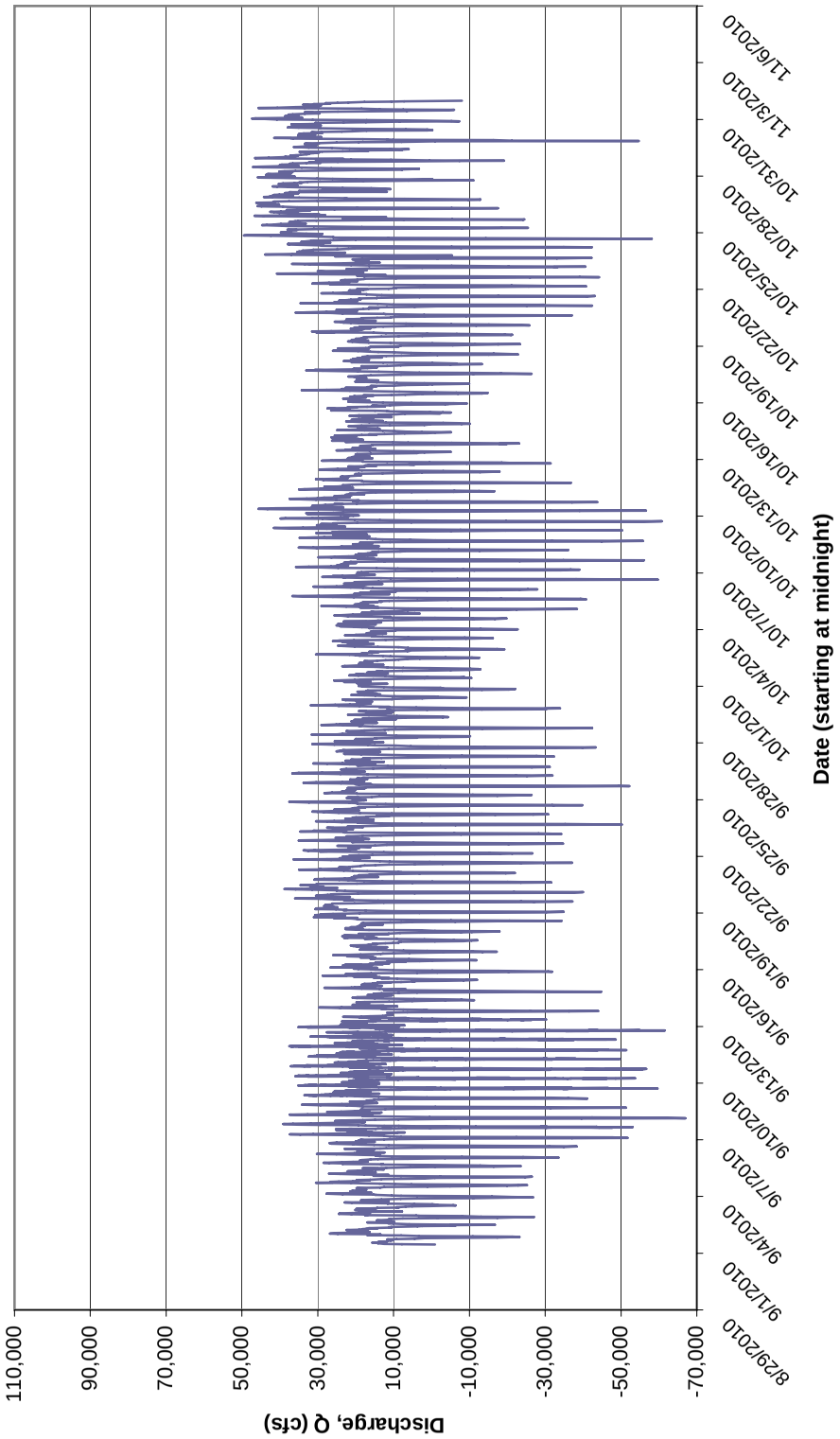
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-21



McCormick and Baxter Superfund Site
Portland, Oregon

Discharge Rate Willamette River at Portland, OR (Morrison Bridge) Fall 2010
USGS SiteID 14211720

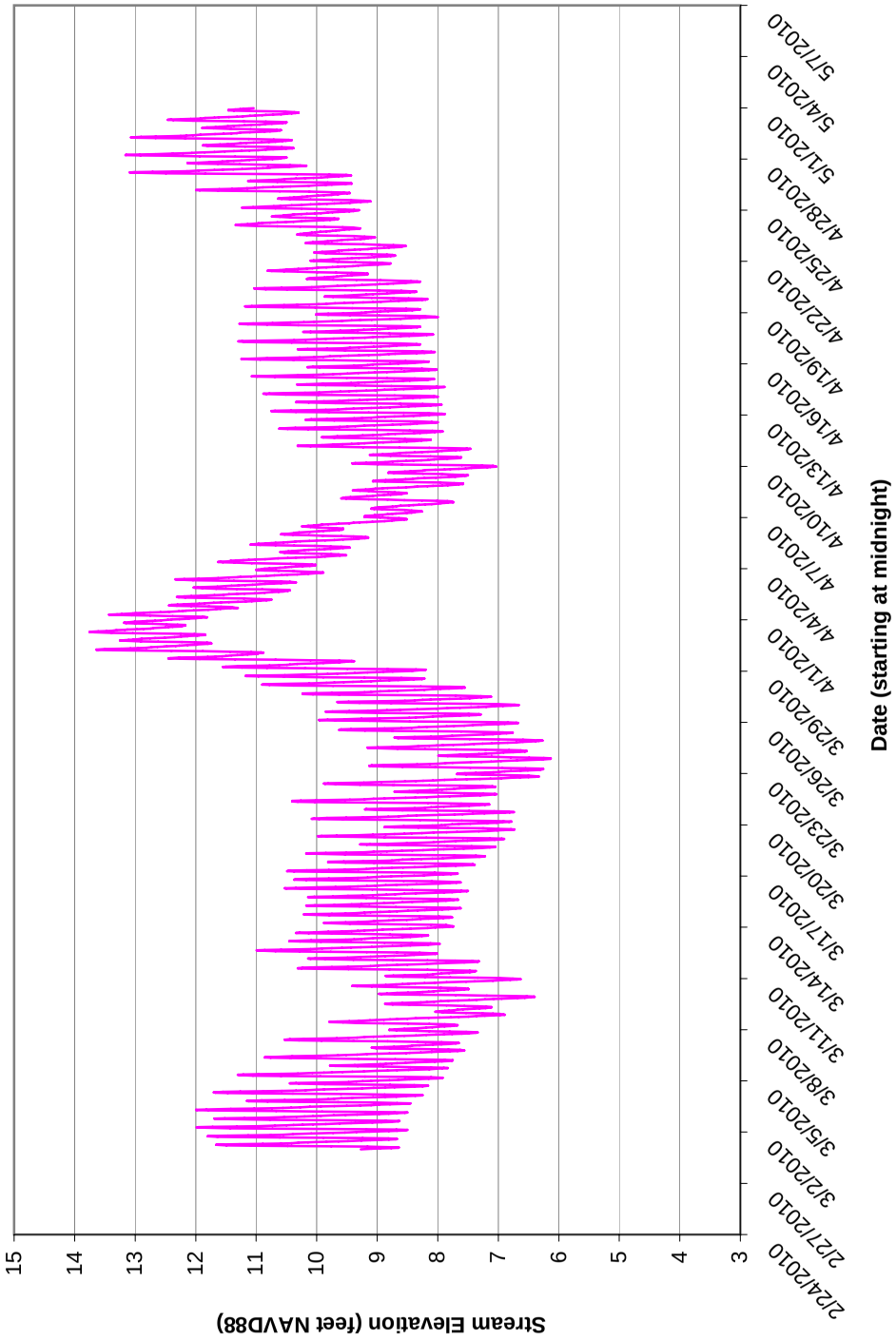
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-22



McCormick and Baxter Superfund Site
Portland, Oregon

Stream Elevation Willamette River at Portland, OR (Morrison Bridge) Spring 2010
USGS SiteID 14211720

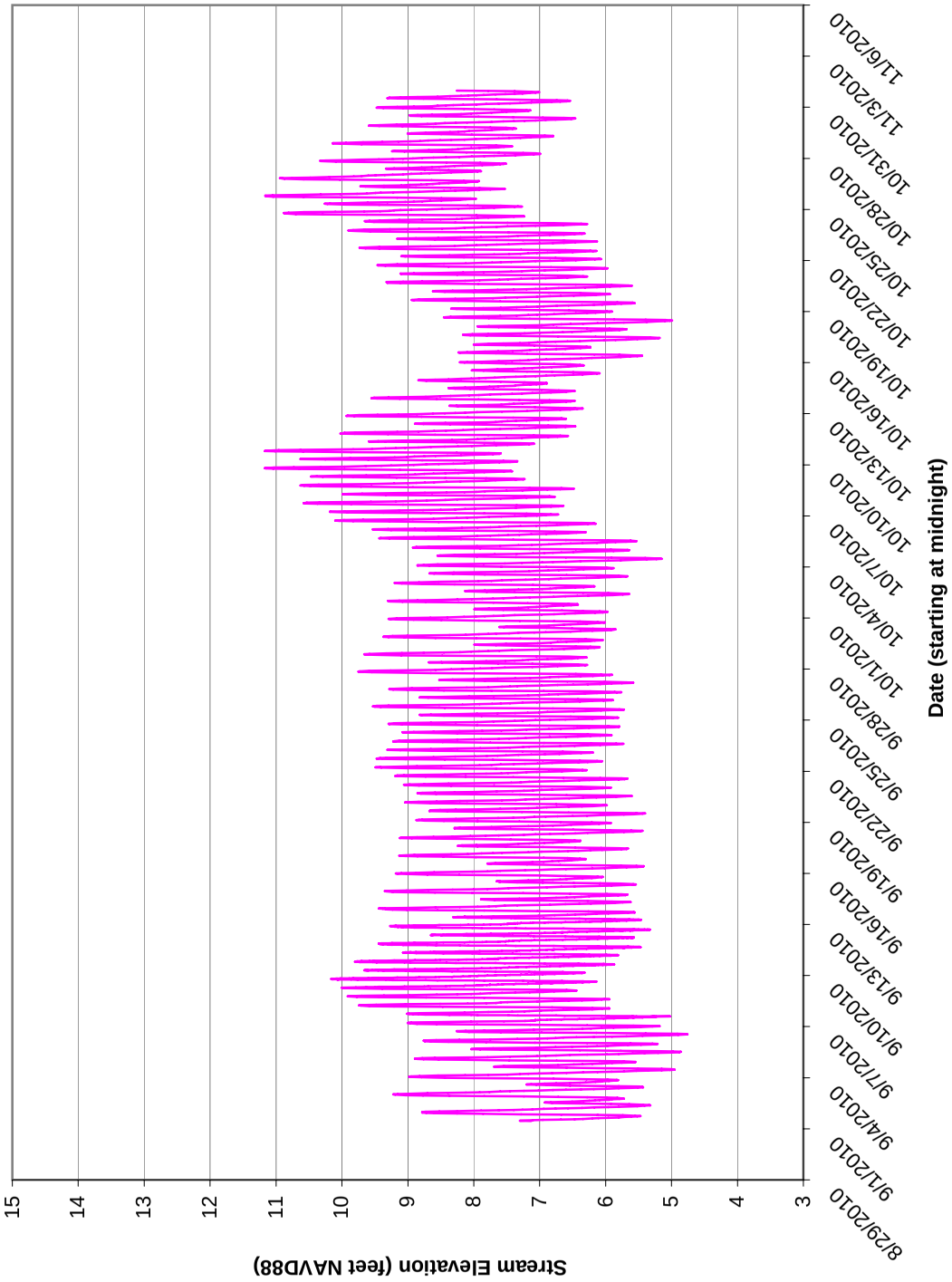
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-23



McCormick and Baxter Superfund Site
Portland, Oregon

Stream Elevation Willamette River at Portland, OR (Morrison Bridge) Fall 2010
USGS SiteID 14211720

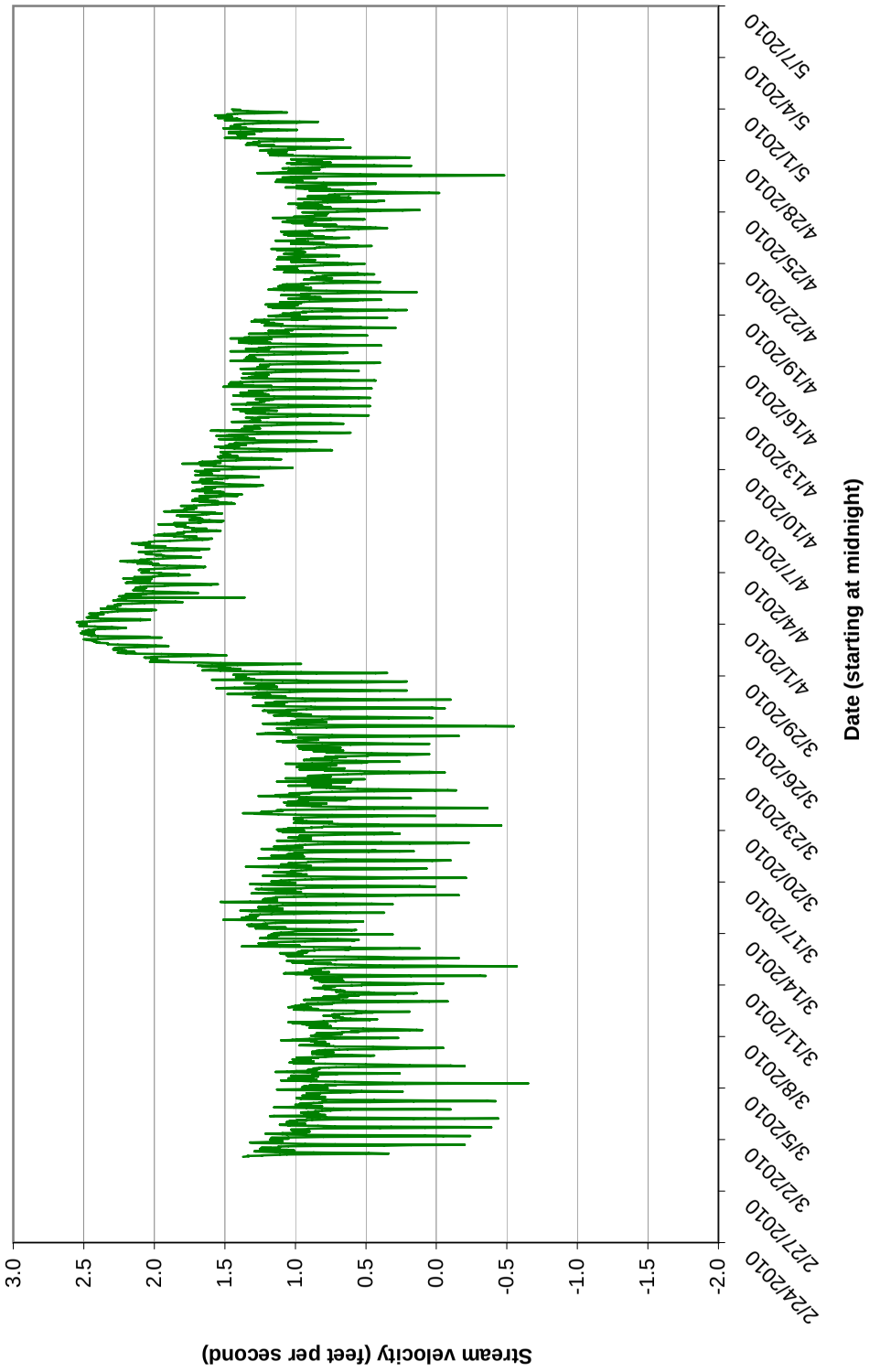
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-24



McCormick and Baxter Superfund Site
Portland, Oregon

Stream Velocity Willamette River at Portland, OR (Morrison Bridge) Spring 2010
USGS SiteID 14211720

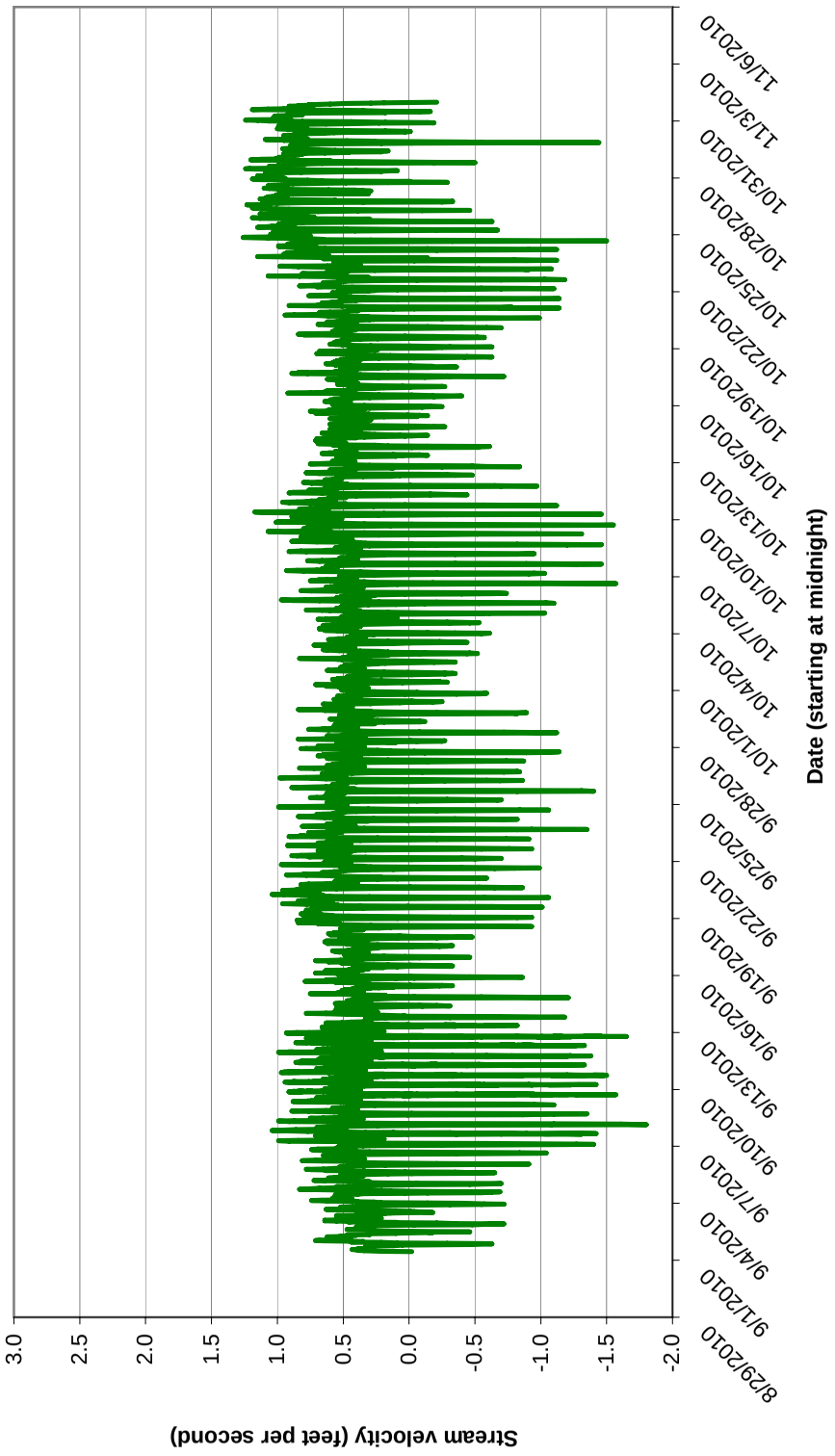
5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-25



McCormick and Baxter Superfund Site
Portland, Oregon

Stream Velocity Willamette River at Portland, OR (Morrison Bridge) Fall 2010
USGS SiteID 14211720

5/11

HARTCROWSER

GSI Water Solutions, Inc.

Figure

D-26

ATTACHMENT A
UNIVERSITY OF TEXAS FINAL SAMPLING AND ANALYSIS PLAN FOR SPMES

SAMPLING AND ANALYSIS PLAN

McCormick and Baxter Site
Portland, OR

Revision 1

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for

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October 10, 2010

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1.0 INTRODUCTION

The McCormick & Baxter Creosoting Company site (the Site) operated between 1944 and 1991, treating wood products with creosote, pentachlorophenol, and inorganic (arsenic, copper, chromium, and zinc) preservative solutions. Historically, process wastewaters were discharged directly to the Willamette River, and other process wastes were discharged to ground surface in several areas of the Site. As a result, significant concentrations of wood-treating chemicals have been found in soil and groundwater at the Site, and in river sediments adjacent to the Site. The Site includes approximately 40 acres of land and approximately 22 acres of sediments beneath the Willamette River.

The Oregon Department of Environmental Quality (DEQ) implemented a number of removal measures, including plant demolition, sludge and soil removals, and extraction of creosote from the groundwater aquifers. Creosote is currently being recovered by manual methods; approximately 6,300 gallons have been recovered since 1996. Implementation of the soil remedy began in March 1999 with the removal of 33,000 tons of highly contaminated soil and debris, and was completed by capping the entire site with several feet of clean soil in 2005.

An impermeable subsurface barrier wall was installed surrounding 18 acres of the Site in 2003 to contain a large portion of the primary source areas of groundwater contamination, and minimize horizontal seepage of creosote into the Willamette River. In 2004, a protective cap was placed over approximately 22 acres of contaminated river sediments that posed an unacceptable risk to human health and the environment. In 2005, the sediment cap was completed for a remaining acre of contaminated sediment. Also in 2005, 24,000 ft^2 of organoclay matting was placed in two locations on the cap to mitigate ebullition- induced sheen observed on surface water above the cap.

DEO has conducted water quality sampling twice per year in water above the sediment cap and in porewater within the sediment cap since the construction complete determination was made by EPA and DEO in September 2005. In 2006, 2008 and 2009 the University of Texas (UT) conducted laboratory studies on core samples collected from granular organoclay, placed during the sediment cap construction in 2004. Samples of Reactive Core Mat (RCM) were also collected in 2006 and 2008. The UT studies concluded that both the organoclay and RCM continue to have sufficient capacity to absorb potential creosote releases from the sediment cap. In 2008, additional sediment cap performance monitoring was conducted by the UT using solid phase micro-extraction (SPME) sampling to assess the potential origin and significance of sheens observed on the shoreline near the locations of the granular organoclay.

During that monitoring event, SPME fibers of the 230/210 μm size were deployed to evaluate a select group of PAHs including: phenanthrene, pyrene, benzo(a)anthraceme, benzo(b)fluoranthene, benzo(k)fluoranthene and benzo(a)pyrene. Of these, only pyrene provided enough data to directly compare to conventional porewater sampling. Laboratory contamination invalidated much of the phenanthrene results and conventional porewater sampling did not detect the heavier PAHs in most samples. Pyrene porewater concentrations derived by SPME averaged 94+/-22% of that reported by conventional water sampling (CWS) for four co-located samples. In one tidally influenced location the SPME showed a pyrene concentration 39% of nearby conventional porewater sampling, possibly due to the more representative time averaged sampling associated with the SPME. In another location conventional porewater sampling showed non-detects although PDMS and solid coring showed PAH contamination including pyrene. Additionally, core samples analyzed during the 2008 field study showed the organophylic clay had sufficient capacity to protect against potential nonaqueous-phase liquid (NAPL) migration and release to overlying surface waters.

The promising SPME results during the 2008 field study encouraged a more complete SPME deployment in 2009 (SPME samplers were deployed at 13 of the 22 conventional sampling locations during the same time period that conventional samples were collected). The 2009 field study was designed based on lessons learned from the 2008 field study and incorporated advancements since made in SPME/PDMS sampling and approach. The 2009 study employed fibers of the 1060/1000 μm size to minimize fiber breakage during deployment and retrieval. PAHs measured by SPME included the EPA list of 16 priority PAHs, although acenapthylene is not detectable with fluorescent detection (used to provide low detection limits for all other PAHs) and indenopyrene and benzoperylene coelute in the chromatographic method employed.

The 2008 sampling results supported the conclusions made bv DEO's contractor team of Hart Crowser/GSI Groundwater Solutions (HC/GSI) that the observed sheens are not likely the result of NAPL migrating through the sediment cap. In 2009, the UT conducted SPME sampling in conjunction with approximately one-half of biannual sediment cap water sample collection locations to determine the utility of SPME technology for long term performance monitoring of the sediment cap. The UT conducted SPME sampling in fall 2009 in conjunction with DEQ surface and porewater monitoring, and collected organoclay cores and conducted laboratory testing to determine the long term effectiveness of the capping material.

1.1 2009 SPME RESULTS

In-situ porewater concentrations derived by SPME in 2009 were compared to surface water quality criteria, analyzed for vertical concentration profiles and intrasite variability, and compared to conventional porewater extraction data. Surface water quality criteria were used for comparison although it should be emphasized that all measurements refer to the interstitial space in the cap and armoring layers.

Elevated concentrations in excess of surface water quality criteria for carcinogenic PAHs were observed at one location at a depth of 1 foot into the sand cap layer (i.e. 2 feet below the top of the sediment cap). The two samplers closer to the surface at the same sampling location, at 6 inches in the subarmoring layer and in the interarmoring layer, did not show elevated levels of PAHs, suggesting no significant migration to the surface.

ANOVA and Tukey-Kramer HSD analysis of sample variability revealed PAH concentrations were statistically different at Locations 12 and 9 compared to the remainder of the sampling locations. For interarmoring and 6-inch subarmoring datasets, Location 12 was deemed significantly different from all other locations for numerous compounds. Deeper in the cap, Location 9 was statistically different from other locations for most compounds. Uniform concentration profiles were present in samples located along the shoreline. Tidal effects likely increased the vertical mixing of the porewater through the cap resulting in this profile. The pronounced gradient, observed in river locations, suggested more limited vertical mixing of contaminants.

The correlation of SPME and conventional porewater sampling results was limited due to the low detection frequency by conventional porewater extraction methods as a result of the higher detection limits by that method. The correlation was good for light molecular weight PAHs with most measurements of the same order of magnitude and improved with increasing depth (due to the greater number of detections using conventional water sampling). Higher molecular weight PAHs, fluoranthene and pyrene, differed more significantly. This is possibly due to colloidal organic matter (dissolved organic matter) in the conventional samples, which increases the total water concentration. Any comparison between the two datasets is necessarily limited, however, due to the large number of non-detects in the conventional data.

1.2 Fall 2010 SPME Sampling

In fall 2010, the UT will conduct SPME analyses at 22 sediment cap locations and 2 background locations. The sample results will be compared to all previous sediment cap water sampling since the sediment cap was constructed to further develop a long term performance monitoring strategy at the Site. Developing a long term performance monitoring approach for the sediment cap will include comparing SPME sample collection and results to sample collection and data from previous conventional means.

1.3 Sampling and Analysis Plan Organization

The remainder of this SAP for the McCormick and Baxter site is organized as follows:

- Section 2.0 summarizes the Remedial Action Objectives and Operational and Maintenance performance standards and objectives for the SPME sampling
- Section 3.0 summarizes proposed field sampling activities, including proposed sampling locations. This section also describes sampling methods.
- Section 4.0 describes the data quality objectives and sampling QA.
- Section 5.0 describes the analytical methodology.
- Section 6.0 presents the field team and its responsibilities.

2.0 SEDIMENT CAP RAOs, O&M PERFORMANCE STANDARDS, AND OBJECTIVES

The sediment remedy is comprised of two primary components: institutional controls and a sediment cap. The remedial action objectives (RAOs) for the sediment cap are to prevent humans and aquatic organisms from direct contact with contaminated sediments and to minimize releases of contaminants from sediment that might result in contamination of the Willamette River in excess of federal and state ambient water quality criteria.

Sediments beneath the sediment cap remain contaminated with arsenic, PCP, PAHs, dioxins and NAPL, thus requiring the need for long-term monitoring and maintenance. The performance standards for the sediment cap are:

- Maintain contaminant concentrations in surface sediments below the following risk-based cleanup goals, as specified in the ROD:
  - Arsenic – 12 mg/kg, dry weight
  - Pentachlorophenol – 100 mg/kg, dry weight
  - Total Carcinogenic PAHs – 2 mg/kg, dry weight
  - Dioxins/furans – 8x10-5 mg/kg, dry weight
  - Protection of benthic organisms based on sediment bioassay tests, resulting in impaired survival and growth (i.e., weight).
- Prevent visible discharge of creosote to the Willamette River.
- Minimize releases of contaminants from sediment that might result in contamination of the Willamette River in excess of the following federal and state ambient water quality criteria:[1,2]
  - Arsenic (III) – 190 micrograms per liter (µg/l)
  - Chromium (III) – 210 µg/l
  - Copper – 12 µg/l
  - Zinc – 110 µg/l
  - Pentachlorophenol – 13 µg/l
  - Acenaphthene – 520 µg/l
  - Fluoranthene – 54 µg/l
  - Naphthalene – 620 µg/l
  - Total Carcinogenic PAHs – 0.031 µg/l
  - Dioxins/furans – 1.4×10^{-5} nanograms per liter (ng/l)
- Maintain the armoring layer to within 50 percent of the design specification throughout the cap:
  - 6" rock armoring – maintain thickness of at least 6 inches
  - 12" rock armoring – maintain thickness of at least 7.5 inches
  - 24" rock armoring – maintain thickness of at least 12 inches
- Maintain uniformity and continuity of articulated concrete block armoring.
- Maintain at least 20 percent excess sorption capacity of the organoclay cap.

[1] These ambient water quality criteria that are protective of aquatic life (chronic exposure) and human health (fish consumption only).
[2] The ROD specifies that no exceedance of surface water background levels for the groundwater remedy.

2.1 DESCRIPTION OF OPERATION AND MAINTENANCE ACTIVITIES FOR SEDIMENT

Operation and Maintenance (O&M) of the sediment cap is accomplished using the criteria and procedures set out in the O&M Manual (HC/GSI, 2008. Operation and Maintenance Manual for the McCormick & Baxter, Portland, Oregon prepared for Oregon DEQ). Monitoring activities for the sediment cap will include visual inspections of near-shore areas and may include aerial photography of the shoreline during extreme low river stages (late September or early October), multibeam bathymetric surveys and side-scan sonar surveys of deeper areas, diver inspections of areas of concern identified from the bathymetry and sonar surveys, and visual surveys of the riverbank and near shore areas to determine the extent and retention of the sediment cap sand overlay (i.e., biotic layer), large wood debris accumulating along the shoreline, condition of boulder clusters and rock mound, and deposition of fine-grained substrate from the water column. Monitoring activities also includes collection of samples from surface water, inter-armoring water, sub-armoring water, organoclay cores, and crayfish. This SPME sampling event is replacing the conventional surface water, inter-armoring, sub-armoring water quality monitoring.

2.2 OBJECTIVES OF WATER QUALITY MONITORING AND USE OF SPMES

- The objective of water quality monitoring from the sub-armoring and inter-armoring portion of the sediment cap is to determine whether surface water is protected to ambient water quality standards. Previously surface water sampling was also conducted (11 events over 5 years). Sampling demonstrated that surface water performance standards from the ROD presented above were met, in addition to EPA's 2007 national water quality standards.
- The objective of replacing the conventional sampling technique with the SPME sampling is to provide the ability to monitor for trends in PAHs, provide an early warning system for monitoring sediment cap performance, and with lower detection limits be able to compare against the ROD performance standard for carcinogenic PAHs (cPAHs). The conventional analytical method has significantly higher detection limits for PAHs, especially the higher molecular weight PAHs. This resulted in a situation where conventional analysis of the water from most sampling locations was below the detection limit and while the detection limits were generally below ambient water quality standards for individual PAHs, the cumulative requirement for cPAHs was exceeded when summing ½ of the nondetected values. Therefore, it was uncertain whether the water quality was meeting the cumulative cPAH performance standard. In addition, with the higher detection limits, it was difficult to assess data trends that would provide an indicator of potential sediment cap performance issues and allow for inference of causes and potential solutions. Another issue with conventional sampling is obtaining a vertical sample that is

representative of that horizon. Conventional monitoring requires pumping water which pulls water from above and below the sampling point resulting in a sample that is derived from a larger depth interval. In the case of the inter-armoring sample which has mimicked the surface water samples closely, it was uncertain whether the sampling device was adequately isolating the inter-armoring water. The SPME measure depth discrete intervals that provide a vertical profile which provides information on whether PAHs are migrating upward through the cap (or if there is surface contamination that may be adversely affecting the upper portion of the sediment cap water quality).

An additional benefit of using in situ SPME sampling is the reduction in field effort required to deploy and retrieve the samplers which is a cost savings for the field effort. The samples can be analyzed directly without large volumes of water and extraction with solvents.

2.3 SPECIFIC OBJECTIVES

Data Quality Objective (DQO) #1: Determine whether exceedances of performance standards from the record of decision and/or comparison criteria of more recent water quality criteria from EPA have occurred at any of the locations sampled. For this objective to be successful, low level detection limits for carcinogenic PAHs are necessary.

DQO #2: Assess concentration gradients between near surface and at depth. For this objective to be successful, samples from discrete intervals within the vertical sediment cap profile are required.

DQO #3: Define trends in interstitial water concentrations that may provide early warning signs of potentially significant contaminant migration through a cap (i.e. migration that may lead to exceedances of performance standards in the near future). For this objective to be successful, detection limits must be sufficiently low to detect PAHs to identify trends.

3.0 PROPOSED SAMPLING PLAN

UT will collect samples at the McCormick and Baxter Site during a sampling event scheduled for October 2010. The UT field team leader may change sampling locations and the number of samples to be collected in response to site conditions at the time of the sampling event as coordinated with the DEQ's on-site contractor team of Hart Crowser/GSI Groundwater Solutions. Sampling will be conducted, and quality assurance/quality control (QA/QC) samples will be collected.

3.1 INTRODUCTION

Post placement monitoring of a sediment cap is typically limited to sampling bulk sediment for contaminants of concern (COCs), but this neither provides a direct measure of compliance with surface water criteria nor facilitates assessment of the likelihood of cap breakthrough by dissolved-phase contaminants. In addition, equilibrium partitioning from bulk sediment is an uncertain measure to predict porewater concentrations, primarily due to the limited availability of contaminants in certain desorption resistant carbon fractions (e.g. "black" carbon). Direct analysis of porewater COCs provide a more accurate measurement to determine compliance with potential surface water criteria including both flux and concentration. At the McCormick and Baxter site, interstitial water sampling by direct porewater extraction using Henry's samplers has been employed although this method is time consuming, requires significant quantities of porewater to achieve low detection limits and provides limited vertical resolution by collected grab samples at 2 depths from within the cap. UT, with support under the DoD ESTCP program (Project 0624), has developed a profiling SPME approach for interstitial water concentrations that provides high sensitivity and high vertical resolution and is not labor intensive. The project is designed to develop standardized techniques for application of SPME and to gain wider acceptance and experience with the method. Ultimately, EPA or ASTM certification is desired although funding to achieve that goal are not part of the current project. Use of these profilers can indicate rate and mechanisms of mobile phase transport and thus provide direct indications of dissolved contaminants, NAPL and sheen migration. The method involves insertion of a shielded SPME fiber at selected locations at the site, waiting for equilibration to occur and then retrieving and analyzing the collected fibers. Equilibration (as defined by achievement of > 80%of steady state) is expected in 7 days even for high molecular weight PAH compounds such as benzo[a]pyrene in the dynamic tidal environment of the Willamette River and the permeable cap and sand layers of interest. The SPME can more accurately indicate the availability of dissolved and mobile PAHs in the near surface environment because it measures freely dissolved PAHs , and has been related to bioaccumulation in benthic organisms. These

will be employed at the McCormick and Baxter site to evaluate porewater concentrations and to demonstrate their potential as a long-term remedial performance assessment approach. Twenty two (22) locations within the sediment cap footprint and 2 locations outside the sediment cap footprint will be sampled as shown in Figure 1.

The sediment cap generally includes an armoring layer, an underlying sand layer and in some locations, organoclay layers before encountering contaminated sediment. At each sample location, an SPME fiber within a slotted metal insertion tool will be placed so that the bottom of the sorbent SPME fiber is located 1-foot into the sand portion of the cap sand. After emplacement of the SPME insertion tool, the armoring rocks (where present) will be replaced to one foot above the cap sand layer. Where articulated concrete block (ACB) armoring is present, the rods will be pushed 2 feet into the sediment cap as measured from the top of the ACB. The SPME rod will be left in place for a minimum of one week (projected time for equilibration of the SPME with the porewater and for maximum comparability of previous deployments). After removal of the SPMEs, the fiber length will be cut and extracted in the field by placement in an auto-sampling vial prefilled with solvent. The auto-sampling vials will be prefilled in the laboratory before shipment to the field. In 2009 the auto-samplers were filled with acetonitrile in the field requiring additional time for extracting. The purpose of extracting in the field is to capture to the extent possible the lower molecular weight PAHs such as naphthalene that equilibrate quickly, but can also desorb quickly from the high surface area to volume ratio sorbents (within minutes if exposed to the air and not immediately placed in solvent). All three ring PAHs (e.g., fluorene, phenanthrene, etc;) and higher molecular weight PAHs show negligible losses under the same conditions. [3]
SPME fiber will be analyzed from three depths at each location for the USEPA's Priority Pollutant list of 16 PAHs. Acenapthylene, which does not respond to fluorescence detection, will not be detected unless present in concentrations exceeding approximately 20 µg/L (by UV detection). The chromatographic conditions, which are optimized for 3-5 ring PAHs, will also not differentiate between benzo[ghi]perylene and indenopyrene and only their sum will be reported. Approximately 5 cm of fiber will be analyzed from each depth. The three depths at each location include: at 6 inches into the sediment cap armoring, and at 6 and 12 inches below the top of the cap sand (nominally 12 inches and 18 inches below the armoring sample located 6 inches into armoring). Fibers 1060 microns in diameter with a 30 micron thick sorbent PDMS (polydimethylsiloxane) layer will be employed in the study. These will provide sufficiently rapid uptake kinetics and adequate method detection limits and reduce breakage. The results

[3] Reible, D.D. (2010) SPME/PDMS Calibration Study, Final Report to Northwest Division Seattle District US Army Corps of Engineers, April 2010

will be reported as individual interval concentrations and averaged as appropriate to compare to the results from conventional porewater samples collected since the sediment cap was constructed in 2005.

Figure 1 Study area showing sampling locations

An additional prepared insertion tool will be used as a field blank during both deployment and retrieval as described below. Methods for preparing, inserting, retrieving and analyzing the field deployable SPME are included below.

3.2.1 INSERTION TOOL PREPARATION

Before deployment, all SPME sampling devices (i.e. the insertion tool as shown in Figure 2) will be prepared in the laboratory at the University of Texas by cleaning with Alconox detergent and distilled water and then rinsed with hexane. The insertion tool should then be subjected to a final distilled water rinse. Once cleaned the components of the insertion tool are packaged together, inner and outer sheath and placed aside for installation of SPME fiber.

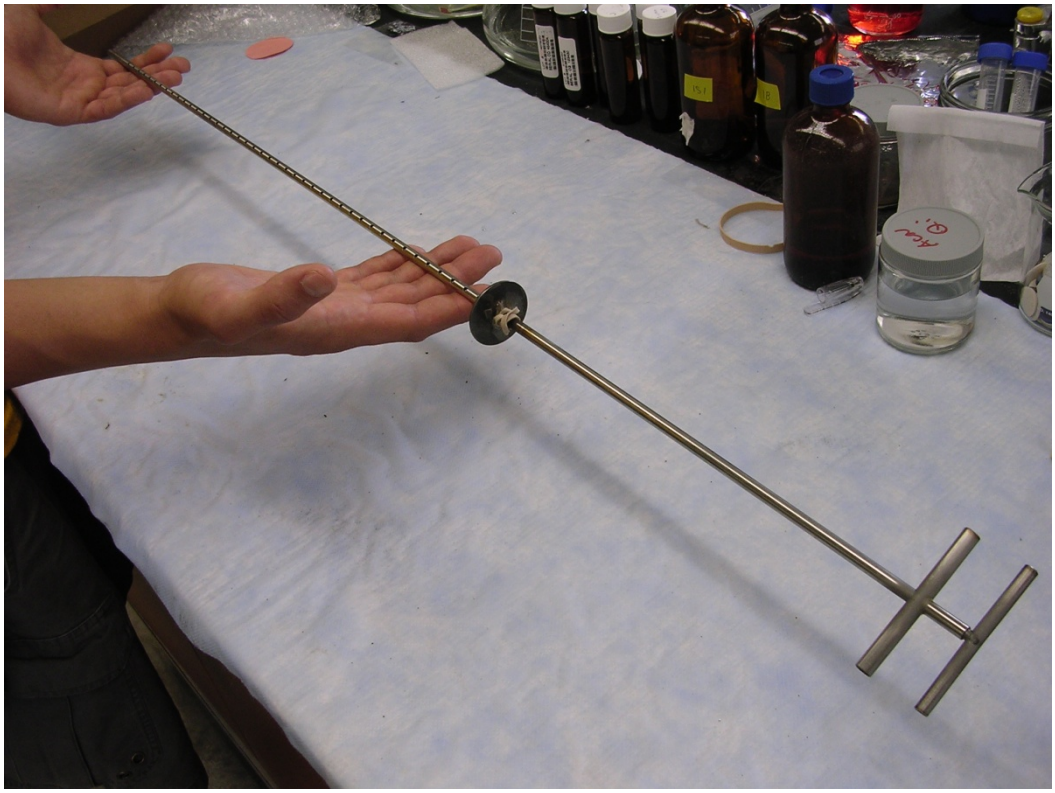


Figure 2- Profiling field deployable SPME insertion tool

SPME fiber should be cleaned before being inserted into the insertion tool with high purity solvents that will be used to extract contaminants for post-retrieval chemical analysis (i.e. acetonitrile). Cleaning the fiber consists of first sonicating pre-cut lengths of fiber in hexane for 10-15 minutes. The hexane is then replaced with acetonitrile followed by sonication for 10-15 minutes. The final acetonitrile rinse will be analyzed for PAHs to ensure that concentrations are below quantification limits. The fibers are then

removed and rinsed with distilled water. MSDS sheets will be maintained in the laboratory on all solvents used. All waste rinsates will be managed according to standard University of Texas protocols for wastes.

The cleaned fiber is laid into a groove cut into the inner rod of the insertion tool using tweezers (see Figure 3). Silicon serves to hold the fiber in place and can also be used to fill any gaps at the ends of the insertion tool to eliminate any water movement vertically. Care should be taken to avoid any placement of silicon on the screened length or active measurement portion of the insertion tool or to place so much silicon that cured silicon will hinder insertion tool separation after field exposure. To make sure the fiber is securely in place, a finger should be run along the groove. In addition, the grooved rod can be held vertically to check for any SPME fiber movement. If the fiber moves during either test, the process of installing the fiber should be repeated.

Figure 3 - Placement of SPME fiber in insertion tool (note the fiber to be employed is approximate five times the diameter of the shown fiber)

Once it is clear the fiber is securely in place, the inner and outer rods of the insertion tool should be placed side by side to determine the point on the outer rod which marks the top of the fiber and mark this with a wrapping of waterproof electrical tape. The inner rod with the fiber is then inserted into the outer sheath with groove and fiber aligned with the screened side of the sheath. The handles on both inner grooved rod and sheath are then wrapped together so the two sets of handles will not twist relative to each other causing the SPME fiber to become misaligned with the screened section of the outer sheath. The

length of fiber that was loaded into each of the insertion tools should be documented. The inner and outer rods will be maintained mated to each other until the samples are withdrawn from the sampling location and segmented for analysis.

3.3 NUMBERING

When inner rod and sheath are assembled, forming the complete SPME loaded insertion tool, handles are wrapped with electrical tape and a numbering system is constructed to keep a record of which rod was placed in what location. Different color tape can help aid with identifying planned location of deployment. Each completed insertion tool is numbered on the taped portion of the handles and planned deployment location documented.

Full insertion rod sample numbering will be as follows

Ssddddllxx

sss – site (McCormick and Baxter, MB)

dddd – date (e.g. 061208 for June 12, 2008 deployment date

xx- sample number (e.g. 1, 2…) (using similar sample numbering scheme to the conventional sampling locations – therefore numbering will not be sequential)

For a given set of samples at a given site and deployment date, the rod designation may be shortened to xx although the full sediment designation will be carried through the reporting procedures.

An individual sample will be denoted by the above number followed by –zz where zz represents the cap media and depth of the sample below the reference insertion level (for example IA06 = 6 inches into armoring and SA06 = 6-inches below armoring and SA12 = 12 inches below armoring).

3.4 SHIPMENT

The above preparations are all conducted in the laboratory before shipment to the deployment site. The SPME insertion tools should be loaded with SPME and constructed and shipped immediately before deployment to avoid potential sorption due to exposure to environmental contaminants. One SPME insertion tool should be prepared and shipped to the site but held back from deployment to serve as a field blank to identify possible contamination during shipping for placement. An additional blank will be deployed upon retrieval

3.5 DEPLOYMENT

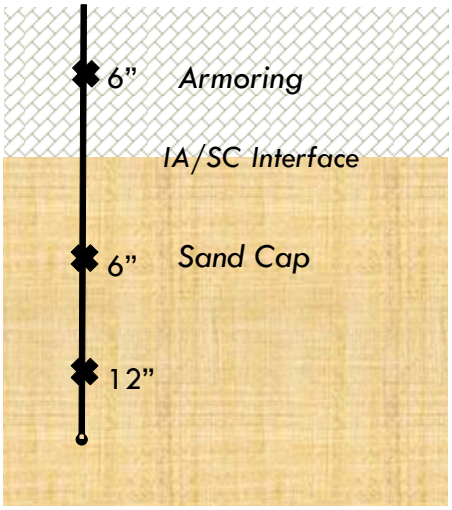
Once received at the desired location, all SPME insertion tools except the field blank are deployed. The insertion tools are inserted to the point marked on the outer sheath where the top of the fiber is within the

device. Insertion tools are inserted perpendicular into the sediment so a profile can be achieved. The depths of insertion will be approximately 24 inches into the cap. Sampling depths are expected to be

- 6 inches below the top of the 12 inch thick armoring layer
- 6 inches into the sand cap
- 12 inches into the sand cap

The vertical sampling locations within the sediment cap are depicted in Figure 4.

Figure 4. Locations sampled along the SPME sampler relative to the interarmoring-sand cap (IA/SC) Interface. At each X below, two fiber samples of 2cm in length were cut.



The porewater sampler necessarily average over a small volume (of the order of cm), the volume is very small compared to conventional sampling approaches. Conventional approach required approximately 5-10 liters of water to be withdrawn from the targeted sampling depth which potentially resulted in water entering the sampler from different layers of the sediment cap or surface water.

At the McCormick and Baxter site, the deployment will involve placement of 24 36-inch (20-22 inch working length) insertion tools. Samplers will be deployed by divers provided by the EPA. All insertion tools will be connected via nylon cording or marker tape. The sample location will be marked at the surface with flagging or buoys for subsequent retrieval, if necessary.

In 2008, several of the PDMS SPME fibers were brittle and resulted in breakage. In 2009 thicker fibers were employed with less breakage. Only one sample location was affected in that instead of a sample 12-inches into the sand portion of the sediment cap, a sample from 10-inches was obtained. The fibers become brittle at some of the near shore sampling locations where the fibers are exposed to air during low

tide. This year, the larger fibers will be employed similar to the 2009 event. The exposure to air may remain an issue and care will be taken to cut the brittle fibers during extraction.

3.6 RETRIEVAL

The devices will be allowed to equilibrate for 7 days (minimum) based on kinetics experiments conducted previously. During retrieval, the SPME fibers are withdrawn from the sediment and brought to the surface. After retrieval, the fiber will be processed immediately to maximize retention of naphthalene and other volatile species. Each fiber will be processed prior to retrieval of the next sample. Samples will be handled with care when extracting the fiber from the inner rod since the sediment particles will most likely be packed into the inner rod and the fiber may be difficult to extract. After removing the tape from the handles, the inner rod will be carefully and slowly removed and placed on a flat surface with the grooved side facing upwards. The SPME fiber will be located and carefully removed and placed on a clean, high contrast surface with position of the sediment-water interface noted. If the fiber is broken during removal care should be taken to maintain relative position of the pieces. Any missing pieces or length, if any, will be documented and the overall length of fiber recovered documented. The fiber will be gently wiped with a clean tissue and distilled water to remove any sediment particle, as needed.

Each auto-sampling vial will be pre-filled (in the laboratory at the University of Texas) with 100-200 µL of solvent (Acetonitrile for PAHs) as a preservative. The vials will be labeled with the sampler identifier and the measured depth of the sample below the sediment-water interface. Only vials sufficient for extraction of a single fiber will be open at one time to limit any potential spills to less than 1 mL of solvent. Note that the entire volume of acetonitrile to be used onsite is 1-2 oz. Absorbent towels will be placed on the sample processing table to ensure that this volume can be absorbed without spillage into the environment. All other vials will remain sealed and stored in bubble wrap in the storage container in which they were shipped to the field.

For sample extraction, the fiber should be cut into appropriate length sections using a glass capillary cutting tool. The length should be selected based upon the detection abilities of the instruments being used for analysis and the concentrations expected. For the McCormick and Baxter site, a single 5 cm length from each depth at each sampling location will be ample (for 3 5-cm pieces extracted at each location). The cut fibers will be placed in the auto-sampling vial with insert and a syringe needle used to push the fiber to the bottom of the vial such that when additional acetonitrile solvent is added, the entire fiber will be immersed. The auto-sampling vial will then be capped and prepared for shipment back to UT for analysis. Contact between the solvent and the auto-sampling cap should be avoided. If the fibers

in the vial interfere with needle insertion during auto-sampling, the solvent can be transferred to a fresh vial prior to analysis.

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 SPME ANALYSIS

PAHs at UT will be analyzed with a high performance liquid chromatography (Waters 2690 HPLC) via direct injection from the auto-sampling vial. Both UV-Diode array detection and fluorescence detection will be used to measure the concentration of the extract (EPA method 8310; SW-846 3rd edition, 1986). PAH_{16} compounds will be analyzed. Fluorescence detection is expected to be required of most samples to maximize sensitivity and acenaphthylene is not detectable by fluorescence detection and the current method does not adequately separate benzo[g,h,i]peylene and indenopyrene. Acenaphthylene will be reported if present in sufficiently high concentration to be detectable by UV detection (~ 10 µg/L) and the sum of benzo[g,h,i]perylene and indenopyrene will be reported. Section 4.0 includes standard analytical QA/QC procedures that will be adhered to in the analyses.

4.2 DATA INTERPRETATION

Collected data in the various intervals as described in Section 2.5 will be evaluated separately and compared to identify:

- Elevated porewater concentrations in excess of potentially applicable criteria (specific comparison concentrations are shown in Table 4-1)
- Comparison of porewater concentrations measured in 2010 to measurements in 2009 to infer any trends in porewater contamination
- PAH concentration gradients between near-surface and at depth
- Potential areas within the sediment cap for additional monitoring/ or areas of concern

Elevated porewater concentrations in excess of potentially applicable criteria will be further evaluated in consultation with Oregon DEQ personnel to define significance. Comparisons of SPME results to previous conventional water sample results will be evaluated for correlation or lack of correlation and causative factors. Potential differences could arise from suspended colloidal or particulate matter in the extracted porewater samples or vertical or horizontal heterogeneity. PAH concentrations gradients will be evaluated for indications of contaminant transport from underlying sediment or contamination from other sources. In general, it is expected that transport from underlying sediment should show a gradient toward the underlying sediment (i.e. concentration increases toward the sediment) that is more pronounced for more hydrophobic (and more slowly migrating) PAHs. EPA ProUCL will be used to infer distributional

information on the data and to define mean and 95% upper confidence limits. Intercomparison between sets of samples will be conducted via student's t comparisons and, for multiple comparisons, ANOVA analysis. Mathematical models of cap performance will be prepared and used to predict future cap performance on the basis of the measured porewater concentrations. A report will be prepared summarizing both measured and predicted results.

Field work is expected to commence in October 2010. A preliminary report is expected in March 2011.

SAMPLE LOCATION		Sediment Cap Performance Goals		Comparison Criteria		
Sample ID **Sample Date** **Sample Time** **Sample Type and depth**		McCormick & Baxter Record of Decision, 1996, Ambient Water Quality Criteria (AWQCs)		EPA Current, 2007, National Recommended Water Quality Criteria (NRWQCs)		EPA National Primary Drinking Water Regulations (NPDWRs)
CONTAMINANT OF INTEREST		Aquatic Life (chronic)[1]	Human Health (fish consumption only)[1]	Aquatic Life (chronic)[2]	Human Health (consumption of organism only)[2]	Maximum Contaminant Levels (MCLs)[3]
Polyaromatic Hydrocarbons (ug/L)						
Acenaphthene	L	**520**			990	
Acenaphthylene	L					
Anthracene	L				**40,000**	
Benzo (a) anthracene	H, C				**0.018**	
Benzo (a) pyrene	H, C				**0.018**	0.2
Benzo (b) fluoranthene	H, C				**0.018**	
Benzo (ghi) perylene	H, C					
Benzo (k) fluoranthene	H, C				**0.018**	
Chrysene	H, C				**0.018**	
Dibenzo (a,h) anthracene	H, C				**0.018**	
Fluoranthene	H		**54**		140	
Fluorene	L				**5300**	
Indeno (1,2,3-cd) pyrene	H, C				**0.018**	
Naphthalene	L	**620**				
Phenanthrene	L					
Pyrene	H				**4,000**	
Total LPAHs						
Total HPAHs						
Total CPAHs			**0.031**			
Total PAHs						

Table 4- 1 Potentially applicable criteria for comparison to porewater concentrations

5.0 DATA QUALITY OBJECTIVES

Sampling and laboratory analysis will be conducted to determine the presence or absence of site-related contaminants at levels of concern. Analytical data for environmental samples will be evaluated to assess whether contaminant concentrations are present above sample-specific and analyte-specific minimum reporting limits (MRL), exceed comparison criteria and background concentrations, and whether observed releases have occurred. The MRL is the analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

Analytical results will be compared to the comparison criteria listed below. Statistical measures of comparison such as mean and 95 % upper confidence limits on the mean will be the primary comparison to reference concentrations.

QA/QC samples will be collected during the sampling event to check for variations with sample collection, sample handling, equipment decontamination, and laboratory analysis. The samples to be collected and their proposed locations are summarized below.

- SPME fiber blank – Sample processed prior to preparation of field sampling devices to confirm lack of analytes prior to deployment
- Trip Blank – Samples handled as field sample but not inserted in sediment cap. Processed in identical manner as field samples to detect potential contamination concerns
- Solvent Blank – Samples of extraction fluid to detect potential contamination concerns

In addition a variety of QA/QC checks will be followed in the laboratory. These checks are summarized in Table 4.1 and 4.2 below and generally follow relevant DoD guidance for chemical analysis.

Table 5-1. ORGANIC ANALYSIS BY GAS CHROMATOGRAPHY AND HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY*
(METHODS 8011, 8015, 8021, 8070, 8081, 8082, 8141, 8151, 8310, AND 8330)

QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action	Flagging Criteria	Comments
Demonstrate acceptable analyst capability	Prior to using any test method and at any time there is a significant change in instrument type, personnel, or test method	QC acceptance criteria published by DoD, if available; otherwise method-specific criteria.	Recalculate results; locate and fix problem, then rerun demonstration for those analytes that did not meet criteria	NA	This is a demonstration of ability to generate acceptable accuracy and precision using four replicate analyses of a QC check sample (e.g., LCS or PT sample). No analysis shall be allowed by analyst until successful demonstration of capability is complete.
MDL study	At initial set-up and subsequently once per 12-month period; otherwise quarterly MDL verification checks shall be performed	See 40 CFR 136B. MDL verification checks must produce a signal at least 3 times the instrument's noise level.	Run MDL verification check at higher level and set MDL higher or re-conduct MDL study	NA	Samples cannot be analyzed without a valid MDL.

*Table B-2 from DOD Quality Services Manual. For acronyms, see that document.

QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action	Flagging Criteria	Comments
Minimum five-point initial calibration for all analytes (ICAL)	Initial calibration prior to sample analysis	1. Average response factor (RF) for SVOCs - ≥ 0.050. 2. RSD for RFs f SVOCs - ≤ 30% and one option below; - Option 1: RSD for each analyte ≤ 15% - Option 2: linear least squares regression r ≥ 0.995 - Option 3: non-linear regression - coefficient of determination (COD) r2 ≥ 0.99 (6 points shall be used for second order, 7 points shall be used for third order)	Correct problem then repeat initial calibration.	Flagging criteria are not appropriate.	Problem must be corrected. No samples may be run until ICAL has passed.
Retention time window position establishment for each analyte and surrogate	Once per ICAL	Position shall be set using the midpoint standard of the initial calibration curve.	NA	NA	
Evaluation of relative retention times (RRT)	With each sample	RRT of each target analyte in each calibration standard within ± 0.06 RRT units.	Correct problem, then rerun ICAL.	Flagging criteria are not appropriate.	

QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action	Flagging Criteria	Comments
Calibration verification (CV)	Daily, before sample analysis, and every 12 hours of analysis time	1. Average RF for SVOCs ≥ 0.050. 2. %Difference/Drift for SVOCs ≤ 20%D (Note: D = difference when using RFs or drift when using least squares regression or non-linear calibration.)	Correct problem, then rerun CV. If that fails, repeat initial calibration.	Apply Q-flag if no sample material remains and analyte exceeds criteria.	
Internal standards verification	In all field samples and standards	Retention time ± 30 seconds from retention time of the midpoint standard in the ICAL EICP area within - 50% to + 100% of ICAL midpoint standard	Inspect mass spectrometer and GC for malfunctions. Reanalysis of samples analyzed while system was malfunctioning is mandatory.	If corrective action fails in field samples, apply Q-flag to analytes associated with the non-compliant IS. Flagging criteria are not appropriate for failed standards.	Sample results are not acceptable without a valid IS verification.
Method blank	One per preparatory batch	No analytes detected > ½ RL. For common laboratory contaminants, no analytes detected > RL.	Correct problem, then, If required, re-prep and reanalyze method blank and all samples processed with the contaminated blank.	Apply B-flag to all results for the specific analyte(s) in all samples in the associated preparatory batch.	
LCS containing all analytes required to be reported, including surrogates	One LCS per preparatory batch	QC acceptance criteria specified by DoD, if available	Correct problem, then re-prep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	If corrective action fails, apply Q-flag to specific analyte(s) in all samples in the associated preparatory batch.	
Results reported between LOD and LOQ	NA	NA	NA	Apply J-flag to all results between LOD and LOQ.	

TABLE 5- 2 LCS CONTROL LIMITS FOR POLYNUCLEAR AROMATIC HYDROCARBONS SW-846 METHOD 8310 WATER MATRIX**

Analyte	Mean	Standard Deviation	Lower Control Limit	Upper Control Limit	Lower ME Limit	Upper ME Limit
Acenaphthene	70	11	35	105	25	115
Acenaphthylene	74	13	35	115	20	125
Anthracene	77	12	40	110	30	125
Benz[a]anthracene	81	11	50	110	40	125
Benzo[a]pyrene	79	11	45	115	35	125
Benzo[b]fluoranthene	82	10	50	110	40	125
Benzo[k]fluoranthene	79	10	50	110	40	120
Benzo[g,h,i]perylene	77	14	35	120	20	135
Chrysene	83	9	55	110	40	125
Dibenz[a,h]anthracene	64	15	20	110	10	125
Fluoranthene	82	11	50	115	35	125
Fluorene	69	11	35	105	25	115
Indeno[1,2,3-cd]pyrene	80	11	45	110	35	125
Naphthalene	68	12	35	105	20	115
Phenanthrene	80	13	40	120	25	135
Pyrene	80	9	50	110	45	115

** Table D-10 from DOD QSM
A number of sporadic marginal exceedances of the control limits are allowed, depending on the number of analytes spiked in the LCS.
Refer to section D.2 and Table D-1 in the DOD QSM for guidance on the appropriate application of control and ME limits.

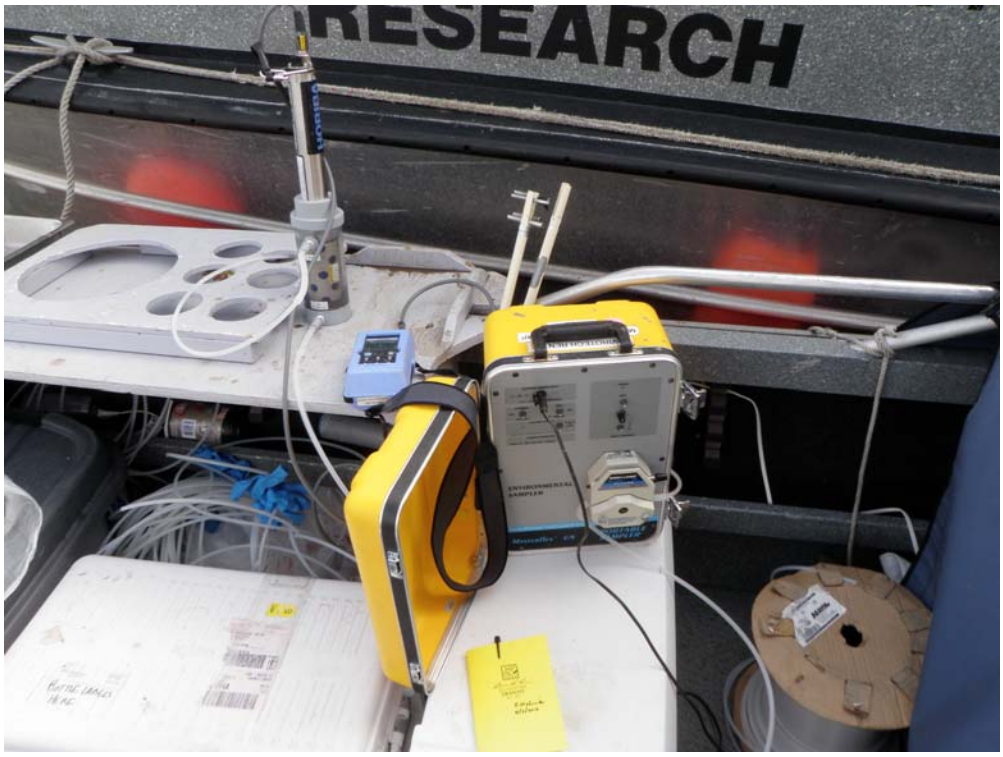
Table 5.3 – Summary of linear correlation between measured water and SMPE PDMS fiber concentrations. Also included is minimum measured concentration and coefficient of variation in both fiber and water at that concentration. Also included is the concentration that is effectively indistinguishable from zero on the basis of the best fit linear correlation (based upon the correlation intercept). The theoretical detection limit for a 1 cm length of PDMS fiber is also included based upon calculation from the direct water injection MDL from Table B3. The surface water quality concentration, the desired low concentration endpoint is also included for comparison and the maximum concentration used in fitting the fiber-water partition coefficient.

	Low Range K_{fw}	Low Range r^2	Low Range Min Conc µg/L	COV % Fiber Lowest Conc.	COV % Water Lowest Conc	Low Conc ~ 0 (linear fit) µg/L	Fiber MDL µg/L *	Surface Water Quality Std µg/L	Low Range Max Conc µg/L
Naphthalene	78.5	0.1547	2.35	88.8%	11.0%	5.96	0.3332	9.58	435
DBF	4027	0.985	1.64	10.0%	8.5%	1.06	0.0123		70
2-MNP	2591	0.9817	3.73	70.2%	9.2%	10.19	0.0268		138
Fluorene	4227	0.9984	0.503	5.6%	21.7%	0.14	0.0697	3460	26
Acenaphthene	3662	0.9996	0.526	14.1%	20.0%	0.73	0.0315	640	49
Phenanthrene	10938	0.9973	0.362	1.3%	25.5%	0.36	0.0076		13
Anthracene	10810	0.998	0.018	18.1%	6.9%	0.014	0.0075	26400	0.7
Fluoranthene	30327	0.9985	0.101	9.9%	2.2%	0.054	0.0025	90	2.77
Pyrene	35394	0.9987	0.055	8.1%	3.8%	0.018	0.0021	2590	1.56
Chrysene	52898	0.9967	0.0012	19.1%	1.5%	0.0022	0.00048	0.018	0.055
Benz[a]anth	85097	0.9978	0.0048	3.9%	0.1%	0.0015	0.00011	0.018	0.112
Benzo[b]F	119712	0.9945	0.00089	11.6%	11.5%	0.00047	0.00011	0.018	0.0158
Benzo[k]F	120458	0.9781	0.00039	8.0%	1.4%	0.00036	0.00002	0.018	0.0055
Benzo[a]pyrene	122795	0.9755	0.0021	5.8%	7.5%	0.00431	0.00005	0.018	0.046
Dibenz[a,h]anthracene	142042	0.9241	0.009	5.5%	19.5%	0.00829	0.00007	0.018	0.059
Benzo[ghi]perylene + Indenopyrene	161013	0.9179	0.0234	7.0%	34.0%	0.00632	0.00010	0.018	0.106

Fiber MDL = MDL (Table B3)(25µL injection volume)/(K_{fw}*0.069 µL PDMS/cm)

ATTACHMENT B
PHOTOGRAPH DOCUMENTATION

ATTACHMENT B
PHOTOGRAPH DOCUMENTATION
OPERATION AND MAINTENANCE REPORT
JANUARY 2010 TO DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE
PORTLAND, OREGON



Photograph 1 – Surface, inter-armoring, and sub-armoring water sampling using low-flow peristaltic pumps with a multi-parameter probe.

Photograph 2 – EPA Dive Team preparing for dive.

ATTACHMENT B
PHOTOGRAPH DOCUMENTATION
OPERATION AND MAINTENANCE REPORT
JANUARY 2010 TO DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE
PORTLAND, OREGON

Photograph 3 – Inter-armoring and sub-armoring sampling using Henry Sampler from shoreline.

Photograph 4 – Using divers for retrieval of the SPME samplers.

ATTACHMENT C
LABORATORY ANALYTICAL REPORTS AND QA MEMORANDA FOR SURFACE, INTER-ARMORING, AND SUB-ARMORING WATER SPRING 2010 SAMPLING EVENT

Included only on the O&M Report DVD

ATTACHMENT C
QUALITY ASSURANCE REPORT

This attachment to Appendix C documents the results of a quality assurance (QA) review of the analytical data for the surface water, inter-armoring water, and sub-armoring water samples collected on April 5, 6, 7, 8, 9, 12, and 13, 2010. In addition, samples for the Willamette Cove ACB elevation study were collected on April 5, 2010. Field procedures used for sample collection are discussed in the Operation and Maintenance Manual (OMM) (Hart Crowser, 2008). Hart Crowser submitted surface water and pore water samples to Pace Analytical, Services, Inc. (Pace), of Minneapolis, MN, for chemical analysis. The results were reported as sample delivery group (SDG) Numbers 10125889, 10125960, 10126069, 10126195, 10126348, 10126413, and 10126496. A copy of the analytical laboratory reports is included with this Attachment.

The following criteria were evaluated:

- Sample receiving condition;
- Holding times;
- Method blanks;
- Surrogate recoveries;
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries;
- Matrix spike and matrix spike duplicate (MS/MSD) recoveries;
- Laboratory duplicate relative percent difference (RPD);
- Field duplicate RPDs;
- Reporting limits (RL).

The data were determined to be acceptable for use, as qualified. Some results were rejected (R) due to surrogate failures, but the samples were re-prepared and re-analyzed and results reported from the reanalyses. Rejected data (R) is summarized below:

Summary of Rejected Data (R) by Analysis Class and Analyte

Sample	Analyte	Reason for Qualification	Corrective Action
Polycyclic Aromatic Hydrocarbons by EPA 8270-SIM			
MBSA0410-ACB-2b MBSA0410-ACB-2c	All analytes	Surrogate failure	Samples re-extracted and reanalyzed outside of method holding time. All analytes reported from re-extraction as estimated (J). Initial results rejected (R).
Pentachlorophenol by EPA 8270-SIM			
MBSW0410-09	Pentachlorophenol	Surrogate failure	Sample re-extracted and reanalyzed outside of method holding time. Pentachlorophenol reported from re-extraction as estimated (J). Initial results rejected (R).

CHEMICAL ANALYSES ON WATERS

Analytical Methods

A total of 24 surface water, 22 inter-armoring water, and 22 sub-armoring water samples were collected. Six samples for the Willamette Cove ACB elevation study were collected. Four field duplicate, four field filter, and four rinsate blank samples were also collected. The samples were analyzed for one or more of the following:

- Total metals (arsenic, chromium, copper, and zinc) by EPA Method 6020;
- Dissolved metals (arsenic, chromium, copper, and zinc) by EPA Method 6020;
- Polycyclic aromatic hydrocarbon (PAHs) by EPA Method 8270-SIM;
- Pentachlorophenol (PCP) by EPA Method 8270-SIM;
- Total dissolved solids (TDS) by Standard Methods (SM) 2540C; and
- Total suspended solids (TSS) by SM 2540D.

These analytical test methods with the exceptions of TSS and TDS, were the analytical methods specified in the OMM.

Detection and Reporting Limits

Method detection limits (MDLs) are the minimum concentration of a chemical compound that can be measured and reported that the compound is present, and is based on instrumentation abilities and sample matrix. Method reporting limits (RLs) are set by the laboratory and are based on the low standard of the initial calibration curve or low-level calibration check standard, and represent the concentration that can be accurately quantified. In some cases, the RL is raised due to dilutions or matrix interferences.

The laboratory reported the total and dissolved metals to the MDL. The comparison criteria for the target metals chromium, copper, and zinc were higher than the RLs for those metals. The comparison criterium for arsenic was below the RL but above the MDL. Values that fell between the MDL and the RL were qualified as estimated (J) by the laboratory.

The laboratory reported the PAHs and PCP to the MDL. The comparison criteria for the PAHs were below the RL but above the MDL. Values that fell between the MDL and the RL were qualified as estimated (J) by the laboratory.

QA Review Results

The laboratory provided QC sample results, which underwent a QA review. QC samples were consistent with those specified in the OMM to evaluate precision, accuracy, representativeness, comparability, and completeness.

Field duplicates were collected for the inter-armoring water, surface water, and sub-armoring water on April 6 and 13, 2010. Extra volume was collected for MS/MSD samples from the surface water, inter-armoring water, and sub-armoring water on April 13, 2010. Rinsate blanks were collected from sampling events on April 5, 6, 7, and 9, 2010.

Upon review, the sample data and laboratory QC data were generally found to be suitable for their intended use with qualifications. The following section summarizes the results of our QA review of the analytical data.

Laboratory Sample Receipt

Sample/Cooler Temperatures. The receiving temperatures of most of the coolers were within the 2 to 6°C acceptance criteria, or were below 2°C. No sample results were qualified based on temperature exceedances, as the low temperatures would not significantly affect the metals or semi-volatile results.

The cooler containing samples MBSA0410-07 and MBSW0410-08 arrived at the laboratory with a temperature of 8.6°C. No sample results were qualified based on this temperature exceedance, as the slightly elevated temperatures would not significantly affect the metals or semi-volatile results.

Total Metals

Holding Times and Reporting Limits. All required holding times were met. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Method and Rinsate Blanks. Method blanks were non-detect. Rinsate blanks were non-detect with the following exceptions:

- MBSA0410-ACB-2aR: Zinc was detected between the MDL and RL. Copper was detected above the RL. Results for copper were higher in the rinsate blank than in sample MBSA0410-ACB-2a, while results for zinc were comparable.

- MBIA0410-06R: Zinc was detected between the MDL and RL. Copper was detected above the RL. Copper and zinc were reported in sample MBIA0410-06 significantly higher than the RL.

- MBSA0410-15R: Copper was detected above the RL. Copper was reported in sample MBSA0410-15 above the RL.

- MBIA0410-14R: Copper and zinc were detected between the MDL and the RL. Copper and zinc were reported in sample MBIA0410-14 above the RL.

No sample results were qualified due to rinsate blank detections.

Laboratory Control Samples. LCS recoveries were within control limits for all elements.

Matrix Spikes. MS recoveries were within control limits for all elements.

Duplicates. No laboratory duplicate analyses were performed. The field duplicate RPDs were within QAPP control limits of 25 percent or not applicable as target metals were not detected above the reporting limits, with the following exceptions:

- MBSA0410-06/MBSA0410-06D: The RPD for copper exceeded 25 percent. The results for sample and duplicate were less than five times the RL.

- MBSW0410-13/MBSW0410-13D: The RPD for arsenic, chromium, and copper exceeded 25 percent. The results for sample and duplicate were less than five times the RL.

- MBIA0410-13/MBIA0410-13D: The RPD for arsenic, chromium, copper, and zinc exceeded 25 percent. The results for sample and duplicate were less than five times the RL.

Results were not qualified for field duplicate exceedances.

Calibrations. The laboratory case narratives indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

Dissolved Metals

Holding Times and Reporting Limits. All required holding times were met. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Method and Field Filter Blanks. Method blanks were non-detect with the following exceptions:

- MB 04/08/10: Copper and zinc were detected between the MDL and the RL. The laboratory qualified zinc and copper in the associated samples with "Z2". Results for copper in the associated samples MBSA0410-ACB-1a, MBSA0410-ACB-1b, MBSA0410-ACB-1c, MBSA0410-AC2a, and MBSA0410-ACB-2c fell below the MDL and had the Z2 qualifier removed. The result for copper in the associated sample MBSW0410-27 was less than ten times the amount in the MB, and was qualified as non-detect (U) and the Z2 qualifier removed. The results for copper in the associated samples MBSA0410-ACB-2b and MBFF0410-0405 fell between the MDL and the RL, and were raised to the RL and qualified as non-detect (U) and the Z2 qualifier removed. The result for zinc in the associated sample MBFF0410-0405 fell below the MDL and had the Z2 qualifier removed. Results for zinc in the associated samples MBSW0410-27, MBSA0410-ACB-1a, MBSA0410-ACB-1b, MBSA0410-ACB-1c, MBSA0410-ACB-2a, MBSA0410-ACB-2b, and MBSA0410-ACB-2c fell between the MDL and the RL, and were raised to the RL, qualified as non-detect (U), and the Z2 qualifiers removed.

Field filter blanks were non-detect with the following exceptions:

- MBFF0410-0405: Copper was detected between the MDL and the RL. The result for copper was raised to the RL and qualified as non-detect (U) due to method blank contamination. The laboratory qualifier Z2 was removed.

- MBFF0410-0406: Copper was detected between the MDL and the RL.

Results were not qualified due to field filter blank exceedances.

Laboratory Control Samples. LCS recoveries were within control limits for all elements.

Matrix Spikes. MS recoveries were within control limits for all elements.

Duplicates. No laboratory duplicate analyses were performed. The field duplicate RPDs were within QAPP control limits of 25 percent or not applicable as target metals were not detected above the reporting limits, with the following exceptions:

- MBSA0410-06/MBSA0410-06D: The RPD for copper exceeded 25 percent. The results for sample and duplicate were less than five times the RL.

- MBSW0410-13/MBSW0410-13D: The RPD for arsenic, chromium, and copper exceeded 25 percent. The results for sample and duplicate were less than five times the RL.

- MBIA0410-13/MBIA0410-13D: The RPD for arsenic, chromium, copper, and zinc exceeded 25 percent. The results for sample and duplicate were less than five times the RL.

Results were not qualified for field duplicate exceedances.

Calibrations. The laboratory case narratives indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

PAHs

Holding Times and Reporting Limits. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Holding times were met for the initial extraction and analyses. All re-extraction analyses exceeded the method recommended holding time and the laboratory qualified the results with "2M". The 2M qualifier was changed to "J". Samples were re-extracted due to surrogate failures.

Method and Rinsate Blanks. Method blanks were non-detect. Rinsate blanks were non-detect.

Surrogates. Surrogate recoveries were within laboratory control limits with the following exceptions:

- MBSA0410-ACB-2b: The recovery of the surrogate Terphenyl-d14 fell below the control limits. The recovery for the surrogate 2-Fluorobiphenyl fell just within the control limits. The sample was re-extracted outside of the method recommended holding time. Surrogate recoveries in the re-extraction were within control limits.

Results were reported from the re-extraction and qualified as estimated (J) due to the holding time exceedance. Results from the initial extraction were rejected (R).

- MBSA0410-ACB-2c: The recoveries for surrogates Terphenyl-d14 and 2-Fluorobiphenyl fell below the control limits. The sample was re-extracted outside of method recommended holding time with the surrogate recoveries within laboratory control limits. Results were reported from the re-extraction and qualified as estimated (J) due to the holding time exceedance. Results from the initial extraction were rejected (R).

Laboratory Control Samples. LCS recoveries were within laboratory control limits with the following exceptions:

- LCS/LCSD 04/08/10: The recoveries for the target analytes in the LCS and the LCSD were within laboratory control limits. The RPDs for Benzo(ghi)perylene, Dibenz(a,h)anthracene, and Indeno(123-cd)pyrene exceeded the control limits. Results in the associated samples were non-detect for those analytes, and no results were qualified.

Matrix Spikes. MS/MSD recoveries were within laboratory control limits.

Duplicates. Field duplicate RPDs were within QAPP control limits of 50 percent or were not applicable if target analytes were not detected above the reporting limits.

Internal Standards. The laboratory case narratives indicated that all IS were within acceptance criteria.

Calibrations. The laboratory case narratives indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

PCP

Holding Times and Reporting Limits. Holding times were met for the initial extraction and analyses. All re-extraction analyses exceeded the method recommended holding time and the laboratory qualified the results with "2M". The 2M qualifier was changed to "J". Samples were re-extracted due to sample surrogate failures. Results between the MDL and RL were qualified as estimated (J) by the laboratory.

Method and Rinsate Blanks. Method blanks were non-detect with the following exceptions:

- MB 04/08/10: PCP was detected between the MDL and the RL. The laboratory qualified PCP results above the MDL in the associated samples with "1M". The results for PCP in the associated samples MBSW0410-27, MBSA0410-ACB-1a,

MBSA0410-ACB-1b, MBSA0410-ACB-1c, MBSA0410-ACB-2a, MBSA0410-ACB-2b, and MBSA0410-ACB-2c fell between the MDL and the RL, and were raised to the RL, qualified as non-detect (U), and the 1M qualifier removed.

- MB 04/21/10: PCP was detected between the MDL and the RL. The laboratory qualified PCP results above the MDL in the associated samples with "1M". The result for PCP in the associated sample MBSW0410-09 fell between the MDL and the RL, and was raised to the RL, qualified as non-detect (U), and the 1M qualifier removed.

Rinsate blanks were non-detect.

Surrogates. Surrogate recoveries were within laboratory control limits with the following exceptions:

- MBSW0410-09: The recovery of the surrogate 2,4,6-tribromophenol fell below the control limits. The sample was re-extracted out of hold with the surrogate recovery within laboratory control limits. Results were reported from the re-extract and qualified as estimated (J). The result from the original analysis was rejected (R).

Laboratory Control Samples. LCS recoveries were within laboratory control limits.

Matrix Spikes. MS/MSD recoveries were within laboratory control limits

Duplicates. Field duplicate RPDs were not applicable as the target analyte was not detected above the reporting limits.

Internal Standards. The laboratory case narratives indicated that all IS were within acceptance criteria.

Calibrations. The laboratory case narratives indicated that all initial calibration curves and continuing calibrations were within acceptance criteria.

Total Dissolved Solids (TDS)

Holding Times. Holding times were acceptable.

Method Blank. Method blanks were non-detect.

Laboratory Control Samples. LCS recoveries were within control limits.

Duplicates. Laboratory duplicate RPDs were acceptable. Field duplicate RPDs were acceptable.

Total Suspended Solids (TSS)

Sample MBIA0410-08 was spilled at the laboratory. Sample volume for TSS was removed from the TDS bottle, and results were not qualified.

Holding Times. Holding times were acceptable.

Method Blank. Method blanks were non-detect with the following exceptions:

- MB 04/13/10: One method blank prepared on April 13, 2010 had a detection below the RL. The associated samples were qualified by the laboratory with "Z2". Results in the associated samples MBSW0410-09, MBIA0410-09, MBSA0410-09, MBSW0410-10, MBIA0410-10, MBSA0410-10, MBSW0410-15, MBIA0410-15, MBSA0410-15, MBSW0410-20, MBIA0410-20, MBSA0410-20, MBSW0410-04, MBIA0410-04, MBSA0410-04, MBSW0410-05, MBIA0410-05, MBSA0410-05, and MBSW0410-07 were greater than ten times the amount in the blank, and the Z2 qualifiers were removed.

- MB 04/14/10: Both method blanks prepared on April 14, 2010 had detections below the RL. The associated samples were qualified by the laboratory with "Z2". Results in the associated samples MBIA0410-07, MBSA0410-07, MBSW0410-08, MBIA0410-08, MBSA0410-08, MBSW0410-11, MBIA0410-11, MBSA0410-11, MBSW0410-01, MBSW0410-14, MBIA0410-14, and MBSA0410-14 were greater than ten times the amount in the blank, and the Z2 qualifiers were removed.

- MB 04/16/10: One method blank prepared on April 16, 2010 had a detection below the RL. The associated sample MBSA0410-19 was less than ten times the amount in the MB and was qualified by the laboratory with "B". The B qualifier was changed to U (non-detect).

Laboratory Control Samples. LCS recoveries were within control limits with the following exception:

- LCS 04/14/10: The recoveries were within control limits. The RPD exceeded the control limits. As the recoveries were within control, no results were qualified.

Duplicates. Laboratory duplicate RPDs were acceptable. Field duplicate RPDs were within 20 percent with the following exception:

- MBSA0410-06/MBSA0410-06D

Results were not qualified for field duplicate exceedances.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

January 04, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126496001	**MBSW0410-12**	Water	04/13/10 14:00	04/15/10 09:49
10126496002	**MBIA0410-12**	Water	04/13/10 14:30	04/15/10 09:49
10126496003	**MBSA0410-12**	Water	04/13/10 14:48	04/15/10 09:49
10126496004	**MBSW0410-13**	Water	04/13/10 16:15	04/15/10 09:49
10126496005	**MBSW0410-13D**	Water	04/13/10 16:15	04/15/10 09:49
10126496008	**MBIA0410-13**	Water	04/13/10 16:25	04/15/10 09:49
10126496009	**MBIA0410-13D**	Water	04/13/10 16:25	04/15/10 09:49
10126496012	**MBSA0410-13**	Water	04/13/10 17:09	04/15/10 09:49
10126496013	**MBSA0410-13D**	Water	04/13/10 17:09	04/15/10 09:49
10126496016	**MBSW0410-18**	Water	04/13/10 12:48	04/15/10 09:49
10126496017	**MBIA0410-18**	Water	04/13/10 13:15	04/15/10 09:49
10126496018	**MBSA0410-18**	Water	04/13/10 13:18	04/15/10 09:49
10126496019	**MBSW0410-25**	Water	04/13/10 09:05	04/15/10 09:49
10126496020	**MBIA0410-25**	Water	04/13/10 09:30	04/15/10 09:49
10126496021	**MBSA0410-25**	Water	04/13/10 09:40	04/15/10 09:49
10126496022	**MBSW0410-26**	Water	04/13/10 10:28	04/15/10 09:49
10126496023	**MBIA0410-26**	Water	04/13/10 11:05	04/15/10 09:49
10126496024	**MBSA0410-26**	Water	04/13/10 11:13	04/15/10 09:49

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126496001	**MBSW0410-12**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496002	**MBIA0410-12**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496003	**MBSA0410-12**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496004	**MBSW0410-13**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496005	**MBSW0410-13D**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496008	**MBIA0410-13**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496009	**MBIA0410-13D**	EPA 6020	CJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496012	**MBSA0410-13**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496013	**MBSA0410-13D**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496016	**MBSW0410-18**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496017	**MBIA0410-18**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496018	**MBSA0410-18**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496019	**MBSW0410-25**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496020	**MBIA0410-25**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496021	**MBSA0410-25**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496022	**MBSW0410-26**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496023	**MBIA0410-26**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496024	**MBSA0410-26**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 04, 2011

General Information:
18 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 04, 2011

General Information:
18 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
18 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
18 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 04, 2011

General Information:
18 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 04, 2011

General Information:
18 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-12 **Lab ID: 10126496001** Collected: 04/13/10 14:00 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:30	7440-38-2	
Chromium	**0.83**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:30	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:30	7440-50-8	
Zinc	**2.4J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:30	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.14J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:50	7440-38-2	
Chromium, Dissolved	**0.40J**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:50	7440-47-3	
Copper, Dissolved	**0.70**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:50	7440-50-8	
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:50	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.33**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:48	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 17:48	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	53-70-3	
Fluoranthene	**0.021J**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	206-44-0	
Fluorene	**0.090**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:48	85-01-8	
Pyrene	**0.016J**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:48	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/16/10 16:51	04/21/10 17:48	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/16/10 16:51	04/21/10 17:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 14:28	87-86-5	
2,4,6-Tribromophenol (S)	87	%	30-150		1	04/15/10 16:06	04/26/10 14:28	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**52.0**	mg/L	10.0	5.0	1		04/16/10 15:22		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**7.4**	mg/L	2.0	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-12 **Lab ID: 10126496002** Collected: 04/13/10 14:30 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.30J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:34	7440-38-2	
Chromium	**0.83**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:34	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:34	7440-50-8	
Zinc	**9.9**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:34	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.13J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:54	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:54	7440-47-3	
Copper, Dissolved	**0.91**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:54	7440-50-8	
Zinc, Dissolved	**3.1J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.56**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 18:07	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 18:07	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	206-44-0	
Fluorene	**0.12**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 18:07	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 18:07	129-00-0	
2-Fluorobiphenyl (S)	85	%	58-125		1	04/16/10 16:51	04/21/10 18:07	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/16/10 16:51	04/21/10 18:07	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 14:42	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/15/10 16:06	04/26/10 14:42	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**71.0**	mg/L	10.0	5.0	1		04/16/10 15:23		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**7.5**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-12 **Lab ID: 10126496003** Collected: 04/13/10 14:48 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**8.2**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:51	7440-38-2	
Chromium	**0.26J**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:51	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:51	7440-50-8	
Zinc	**1.6J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:51	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**8.1**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:58	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:58	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:58	7440-50-8	
Zinc, Dissolved	**3.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:58	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**61.5**	ug/L	0.41	0.061	10	04/16/10 16:51	04/22/10 13:39	83-32-9	
Acenaphthylene	**0.40**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	208-96-8	
Anthracene	**0.16**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	120-12-7	
Benzo(a)anthracene	**0.030J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:26	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:26	50-32-8	
Benzo(b)fluoranthene	**0.022J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/16/10 16:51	04/21/10 18:26	191-24-2	
Benzo(k)fluoranthene	**0.014J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	207-08-9	
Chrysene	**0.024J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:26	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	53-70-3	
Fluoranthene	**0.12**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	206-44-0	
Fluorene	**12.9**	ug/L	0.41	0.031	10	04/16/10 16:51	04/22/10 13:39	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	193-39-5	
Naphthalene	**0.80**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	91-20-3	
Phenanthrene	**0.42**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:26	85-01-8	
Pyrene	**0.13**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:26	129-00-0	
2-Fluorobiphenyl (S)	84	%	58-125		1	04/16/10 16:51	04/21/10 18:26	321-60-8	
Terphenyl-d14 (S)	93	%	57-134		1	04/16/10 16:51	04/21/10 18:26	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 14:56	87-86-5	
2,4,6-Tribromophenol (S)	102	%	30-150		1	04/15/10 16:06	04/26/10 14:56	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**275**	mg/L	10.0	5.0	1		04/16/10 15:23		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**77.8**	mg/L	5.0	2.5	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-13 **Lab ID: 10126496004** Collected: 04/13/10 16:15 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.31J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:55	7440-38-2	
Chromium	**0.69**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:55	7440-47-3	
Copper	**0.94**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:55	7440-50-8	
Zinc	**2.6J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:55	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.15J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:02	7440-38-2	
Chromium, Dissolved	**0.48J**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:02	7440-47-3	
Copper, Dissolved	**0.93**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:02	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:02	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 05:09	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 05:09	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 05:09	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 05:09	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/16/10 16:51	04/21/10 05:09	321-60-8	
Terphenyl-d14 (S)	86	%	57-134		1	04/16/10 16:51	04/21/10 05:09	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 15:09	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/15/10 16:06	04/26/10 15:09	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**79.0**	mg/L	10.0	5.0	1		04/16/10 15:24		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**6.0**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-13D **Lab ID: 10126496005** Collected: 04/13/10 16:15 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.15J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:12	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:12	7440-47-3	
Copper	**0.56**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:12	7440-50-8	
Zinc	**2.7J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:12	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.10J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:19	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:19	7440-47-3	
Copper, Dissolved	**0.69**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:19	7440-50-8	
Zinc, Dissolved	**2.0J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:19	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:45	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/16/10 16:51	04/21/10 18:45	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	53-70-3	
Fluoranthene	**0.015J**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:45	85-01-8	
Pyrene	**0.010J**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:45	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	04/16/10 16:51	04/21/10 18:45	321-60-8	
Terphenyl-d14 (S)	87	%	57-134		1	04/16/10 16:51	04/21/10 18:45	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 15:51	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 15:51	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**81.0**	mg/L	10.0	5.0	1		04/16/10 15:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.8**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-13 **Lab ID: 10126496008** Collected: 04/13/10 16:25 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.17J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:16	7440-38-2	
Chromium	**0.32J**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:16	7440-47-3	
Copper	**0.91**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:16	7440-50-8	
Zinc	**2.0J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:16	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:36	7440-38-2	
Chromium, Dissolved	**0.47J**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:36	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:36	7440-50-8	
Zinc, Dissolved	**2.7J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:36	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0066**	ug/L	0.044	0.0066	1	04/16/10 14:18	04/27/10 12:31	83-32-9	
Acenaphthylene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	208-96-8	
Anthracene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	50-32-8	
Benzo(b)fluoranthene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.044	0.0022	1	04/16/10 14:18	04/27/10 12:31	191-24-2	
Benzo(k)fluoranthene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	207-08-9	
Chrysene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	218-01-9	
Dibenz(a,h)anthracene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	53-70-3	
Fluoranthene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	206-44-0	
Fluorene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	193-39-5	
Naphthalene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	91-20-3	
Phenanthrene	**<0.0066**	ug/L	0.044	0.0066	1	04/16/10 14:18	04/27/10 12:31	85-01-8	
Pyrene	**<0.0066**	ug/L	0.044	0.0066	1	04/16/10 14:18	04/27/10 12:31	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/16/10 14:18	04/27/10 12:31	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/16/10 14:18	04/27/10 12:31	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/16/10 16:49	04/26/10 17:27	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/16/10 16:49	04/26/10 17:27	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**76.0**	mg/L	10.0	5.0	1		04/16/10 15:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.1**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-13D **Lab ID: 10126496009** Collected: 04/13/10 16:25 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:29	7440-38-2	
Chromium	**0.55**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:29	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:29	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:29	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.084J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:40	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:40	7440-47-3	
Copper, Dissolved	**0.59**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:40	7440-50-8	
Zinc, Dissolved	**1.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:40	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:04	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 16:51	04/21/10 19:04	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:04	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:04	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 16:51	04/21/10 19:04	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 16:51	04/21/10 19:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/15/10 16:06	04/26/10 16:04	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 16:04	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**63.0**	mg/L	10.0	5.0	1		04/16/10 15:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**4.9**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-13 **Lab ID: 10126496012** Collected: 04/13/10 17:09 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.0**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:45	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:45	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:45	7440-50-8	
Zinc	**2.9J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:45	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.1**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:44	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:44	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:44	7440-50-8	
Zinc, Dissolved	**2.9J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:44	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 14:18	04/27/10 13:28	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/16/10 14:18	04/27/10 13:28	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	207-08-9	
Chrysene	**<0.0030**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	206-44-0	
Fluorene	**0.011J**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 14:18	04/27/10 13:28	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 14:18	04/27/10 13:28	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/16/10 14:18	04/27/10 13:28	321-60-8	
Terphenyl-d14 (S)	81	%	57-134		1	04/16/10 14:18	04/27/10 13:28	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/16/10 16:49	04/26/10 18:08	87-86-5	
2,4,6-Tribromophenol (S)	112	%	30-150		1	04/16/10 16:49	04/26/10 18:08	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**248**	mg/L	10.0	5.0	1		04/16/10 15:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**52.1**	mg/L	5.0	2.5	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-13D **Lab ID: 10126496013** Collected: 04/13/10 17:09 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.0**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:50	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:50	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:50	7440-50-8	
Zinc	**2.9J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.1**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:57	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:57	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:57	7440-50-8	
Zinc, Dissolved	**3.2J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:57	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.039J**	ug/L	0.043	0.0065	1	04/16/10 16:51	04/21/10 19:23	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/16/10 16:51	04/21/10 19:23	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	206-44-0	
Fluorene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 16:51	04/21/10 19:23	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 16:51	04/21/10 19:23	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/16/10 16:51	04/21/10 19:23	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 16:51	04/21/10 19:23	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.55	0.15	1	04/15/10 16:06	04/26/10 16:18	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/15/10 16:06	04/26/10 16:18	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**254**	mg/L	10.0	5.0	1		04/16/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**47.3**	mg/L	5.0	2.5	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-18 **Lab ID: 10126496016** Collected: 04/13/10 12:48 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:54	7440-38-2	
Chromium	**0.74**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:54	7440-47-3	
Copper	**1.0**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:54	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:54	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.13J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:01	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:01	7440-47-3	
Copper, Dissolved	**1.7**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:01	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:01	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:42	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 16:51	04/21/10 19:42	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:42	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:42	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/16/10 16:51	04/21/10 19:42	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 16:51	04/21/10 19:42	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 16:32	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/15/10 16:06	04/26/10 16:32	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**75.0**	mg/L	10.0	5.0	1		04/16/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-18 **Lab ID: 10126496017** Collected: 04/13/10 13:15 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:58	7440-38-2	
Chromium	**0.82**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:58	7440-47-3	
Copper	**4.5**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:58	7440-50-8	
Zinc	**5.6**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:58	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.12J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:05	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:05	7440-47-3	
Copper, Dissolved	**0.75**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:05	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:05	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:25	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 14:25	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:25	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:25	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	04/16/10 14:18	04/27/10 14:25	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/16/10 14:18	04/27/10 14:25	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 16:46	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/15/10 16:06	04/26/10 16:46	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**80.0**	mg/L	10.0	5.0	1		04/16/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**15.1**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-18 **Lab ID: 10126496018** Collected: 04/13/10 13:18 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.43J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:02	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:02	7440-47-3	
Copper	**0.33J**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:02	7440-50-8	
Zinc	**2.1J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:02	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:09	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:09	7440-47-3	
Copper, Dissolved	**0.32J**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:09	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:09	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:44	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:44	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:44	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 14:44	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:44	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	193-39-5	
Naphthalene	**13.9**	ug/L	0.21	0.026	5	04/16/10 14:18	04/27/10 16:56	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:44	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:44	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	04/16/10 14:18	04/27/10 14:44	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 14:18	04/27/10 14:44	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/16/10 16:49	04/26/10 18:50	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/16/10 16:49	04/26/10 18:50	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**72.0**	mg/L	10.0	5.0	1		04/16/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**1.1J**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-25 **Lab ID: 10126496019** Collected: 04/13/10 09:05 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.25J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:06	7440-38-2	
Chromium	**0.67**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:06	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:06	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:06	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.070J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:14	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:14	7440-47-3	
Copper, Dissolved	**0.86**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:14	7440-50-8	
Zinc, Dissolved	**2.0J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:14	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.012J**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:03	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 15:03	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	53-70-3	
Fluoranthene	**0.013J**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	206-44-0	
Fluorene	**0.0061J**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:03	85-01-8	
Pyrene	**0.014J**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:03	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 14:18	04/27/10 15:03	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/16/10 14:18	04/27/10 15:03	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/16/10 16:49	04/26/10 19:04	87-86-5	
2,4,6-Tribromophenol (S)	79	%	30-150		1	04/16/10 16:49	04/26/10 19:04	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/16/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.9**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-25 **Lab ID: 10126496020** Collected: 04/13/10 09:30 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:10	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:10	7440-47-3	
Copper	**2.4**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:10	7440-50-8	
Zinc	**6.6**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:10	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.098J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:08	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:08	7440-47-3	
Copper, Dissolved	**1.5**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:08	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:08	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:21	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 15:21	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:21	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:21	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 14:18	04/27/10 15:21	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/16/10 14:18	04/27/10 15:21	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/16/10 16:49	04/26/10 19:17	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/16/10 16:49	04/26/10 19:17	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**50.0**	mg/L	10.0	5.0	1		04/20/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**23.9**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-25 **Lab ID: 10126496021** Collected: 04/13/10 09:40 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:15	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:15	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:15	7440-50-8	
Zinc	**2.7J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:15	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.34J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:12	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:12	7440-47-3	
Copper, Dissolved	**1.5**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:12	7440-50-8	
Zinc, Dissolved	**3.6J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:12	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 15:40	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 14:18	04/27/10 15:40	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 15:40	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 15:40	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 14:18	04/27/10 15:40	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/16/10 14:18	04/27/10 15:40	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/16/10 16:49	04/26/10 19:31	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/16/10 16:49	04/26/10 19:31	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**65.0**	mg/L	10.0	5.0	1		04/20/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-26 **Lab ID: 10126496022** Collected: 04/13/10 10:28 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.23J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:19	7440-38-2	
Chromium	**0.64**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:19	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:19	7440-50-8	
Zinc	**3.6J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:19	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.088J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:16	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:16	7440-47-3	
Copper, Dissolved	**0.61**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:16	7440-50-8	
Zinc, Dissolved	**1.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:16	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:59	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 15:59	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:59	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:59	129-00-0	
2-Fluorobiphenyl (S)	83	%	58-125		1	04/16/10 14:18	04/27/10 15:59	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/16/10 14:18	04/27/10 15:59	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/16/10 16:49	04/26/10 19:45	87-86-5	
2,4,6-Tribromophenol (S)	83	%	30-150		1	04/16/10 16:49	04/26/10 19:45	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**61.0**	mg/L	10.0	5.0	1		04/20/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**9.3**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-26 **Lab ID: 10126496023** Collected: 04/13/10 11:05 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.82**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:23	7440-38-2	
Chromium	**3.6**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:23	7440-47-3	
Copper	**6.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:23	7440-50-8	
Zinc	**15.3**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:23	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.090J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:20	7440-38-2	
Chromium, Dissolved	**0.86**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:20	7440-47-3	
Copper, Dissolved	**0.81**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:20	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:20	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 16:18	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 14:18	04/27/10 16:18	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 16:18	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 16:18	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/16/10 14:18	04/27/10 16:18	321-60-8	
Terphenyl-d14 (S)	80	%	57-134		1	04/16/10 14:18	04/27/10 16:18	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/16/10 16:49	04/26/10 19:59	87-86-5	
2,4,6-Tribromophenol (S)	75	%	30-150		1	04/16/10 16:49	04/26/10 19:59	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**52.0**	mg/L	10.0	5.0	1		04/20/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**1.1J**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-26 **Lab ID: 10126496024** Collected: 04/13/10 11:13 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.7**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:48	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:48	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:48	7440-50-8	
Zinc	**<1.3**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:48	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.9**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:25	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:25	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:25	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:25	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 14:18	04/27/10 16:37	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/16/10 14:18	04/27/10 16:37	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 14:18	04/27/10 16:37	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 14:18	04/27/10 16:37	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	04/16/10 14:18	04/27/10 16:37	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/16/10 14:18	04/27/10 16:37	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/16/10 16:49	04/26/10 20:13	87-86-5	
2,4,6-Tribromophenol (S)	81	%	30-150		1	04/16/10 16:49	04/26/10 20:13	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**86.0**	mg/L	10.0	5.0	1		04/20/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**66.8**	mg/L	3.3	1.7	1		04/20/10 13:14		

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: MPRP/19990 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774456 Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/16/10 17:22	
Chromium	ug/L	<0.24	0.50	04/16/10 17:22	
Copper	ug/L	<0.20	0.50	04/16/10 17:22	
Zinc	ug/L	<1.3	5.0	04/16/10 17:22	

LABORATORY CONTROL SAMPLE: 774457

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.8	100	85-115	
Chromium	ug/L	80	79.2	99	85-115	
Copper	ug/L	80	83.8	105	85-115	
Zinc	ug/L	80	82.9	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774458 774459

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.31J	80	80	81.0	80.6	101	100	75-125	.5	20	
Chromium	ug/L	0.69	80	80	81.4	82.3	101	102	75-125	1	20	
Copper	ug/L	0.94	80	80	85.7	86.3	106	107	75-125	.7	20	
Zinc	ug/L	2.6J	80	80	85.4	85.6	103	104	75-125	.2	20	

MATRIX SPIKE SAMPLE: 774460

Parameter	Units	10126496008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.17J	80	80.9	101	75-125	
Chromium	ug/L	0.32J	80	81.6	102	75-125	
Copper	ug/L	0.91	80	86.1	106	75-125	
Zinc	ug/L	2.0J	80	85.5	104	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: MPRP/19988 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774447 Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/21/10 01:41	
Chromium, Dissolved	ug/L	<0.24	0.50	04/21/10 01:41	
Copper, Dissolved	ug/L	<0.20	0.50	04/21/10 01:41	
Zinc, Dissolved	ug/L	<1.3	5.0	04/21/10 01:41	

LABORATORY CONTROL SAMPLE: 774448

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.1	103	85-115	
Chromium, Dissolved	ug/L	80	81.2	101	85-115	
Copper, Dissolved	ug/L	80	83.8	105	85-115	
Zinc, Dissolved	ug/L	80	82.4	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774449 774450

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.15J	80	80	82.0	81.2	102	101	75-125	1	20	
Chromium, Dissolved	ug/L	0.48J	80	80	82.1	81.8	102	102	75-125	.4	20	
Copper, Dissolved	ug/L	0.93	80	80	85.2	84.4	105	104	75-125	.9	20	
Zinc, Dissolved	ug/L	2.4J	80	80	82.9	81.8	101	99	75-125	1	20	

MATRIX SPIKE SAMPLE: 774451

Parameter	Units	10126496012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	3.1	80	84.6	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	82.0	103	75-125	
Copper, Dissolved	ug/L	<0.20	80	84.0	105	75-125	
Zinc, Dissolved	ug/L	2.9J	80	84.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12716 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016

METHOD BLANK: 774461 | Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 21:35	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 21:35	
Anthracene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 21:35	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Chrysene	ug/L	<0.0030	0.040	04/20/10 21:35	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluorene	ug/L	<0.0030	0.040	04/20/10 21:35	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 21:35	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 21:35	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 21:35	
Pyrene	ug/L	<0.0060	0.040	04/20/10 21:35	
2-Fluorobiphenyl (S)	%	88	58-125	04/20/10 21:35	
Terphenyl-d14 (S)	%	90	57-134	04/20/10 21:35	

LABORATORY CONTROL SAMPLE: 774462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.90	90	56-125	
Acenaphthylene	ug/L	1	0.93	93	51-125	
Anthracene	ug/L	1	1.1	108	58-125	
Benzo(a)anthracene	ug/L	1	0.89	89	61-125	
Benzo(a)pyrene	ug/L	1	0.92	92	56-125	
Benzo(b)fluoranthene	ug/L	1	0.86	86	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.87	87	42-125	
Benzo(k)fluoranthene	ug/L	1	1.0	103	60-125	
Chrysene	ug/L	1	0.96	96	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.87	87	46-125	
Fluoranthene	ug/L	1	0.93	93	54-125	
Fluorene	ug/L	1	0.94	94	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.87	87	46-125	
Naphthalene	ug/L	1	0.81	81	47-125	
Phenanthrene	ug/L	1	0.87	87	55-125	
Pyrene	ug/L	1	1.0	101	57-125	
2-Fluorobiphenyl (S)	%			86	58-125	
Terphenyl-d14 (S)	%			92	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774463 774464

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0062	1	1	0.92	0.88	90	85	56-125	4	30	
Acenaphthylene	ug/L	<0.0041	1	1	0.90	0.85	88	82	51-125	5	30	
Anthracene	ug/L	<0.0052	1	1	1.1	1.1	108	104	58-125	3	30	
Benzo(a)anthracene	ug/L	<0.0031	1	1	0.80	0.78	78	75	61-125	3	30	
Benzo(a)pyrene	ug/L	<0.0031	1	1	0.91	0.91	89	87	56-125	.3	30	
Benzo(b)fluoranthene	ug/L	<0.0052	1	1	0.93	0.92	90	88	54-125	1	30	
Benzo(g,h,i)perylene	ug/L	<0.0021	1	1	0.77	0.81	75	77	41-125	5	30	
Benzo(k)fluoranthene	ug/L	<0.0052	1	1	0.94	0.95	91	91	60-125	1	30	
Chrysene	ug/L	<0.0031	1	1	1.0	1.1	99	101	64-125	3	30	
Dibenz(a,h)anthracene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	.4	30	
Fluoranthene	ug/L	<0.0041	1	1	0.92	0.91	90	88	51-125	1	30	
Fluorene	ug/L	<0.0031	1	1	0.90	0.90	88	86	55-125	.6	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	.8	30	
Naphthalene	ug/L	<0.0052	1	1	0.84	0.80	82	77	34-125	5	30	
Phenanthrene	ug/L	<0.0062	1	1	0.89	0.88	87	85	55-125	.8	30	
Pyrene	ug/L	<0.0062	1	1	1.0	1.0	100	98	50-127	.3	30	
2-Fluorobiphenyl (S)	%						84	76	58-125			
Terphenyl-d14 (S)	%						87	85	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12722 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126496008, 10126496012, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774820 | Matrix: Water
Associated Lab Samples: 10126496008, 10126496012, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/27/10 11:53	
Acenaphthylene	ug/L	<0.0040	0.040	04/27/10 11:53	
Anthracene	ug/L	<0.0050	0.040	04/27/10 11:53	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/27/10 11:53	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/27/10 11:53	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/27/10 11:53	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/27/10 11:53	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/27/10 11:53	
Chrysene	ug/L	<0.0030	0.040	04/27/10 11:53	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/27/10 11:53	
Fluoranthene	ug/L	<0.0040	0.040	04/27/10 11:53	
Fluorene	ug/L	<0.0030	0.040	04/27/10 11:53	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/27/10 11:53	
Naphthalene	ug/L	<0.0050	0.040	04/27/10 11:53	
Phenanthrene	ug/L	<0.0060	0.040	04/27/10 11:53	
Pyrene	ug/L	<0.0060	0.040	04/27/10 11:53	
2-Fluorobiphenyl (S)	%	77	58-125	04/27/10 11:53	
Terphenyl-d14 (S)	%	88	57-134	04/27/10 11:53	

LABORATORY CONTROL SAMPLE: 774821

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.84	84	56-125	
Acenaphthylene	ug/L	1	0.82	82	51-125	
Anthracene	ug/L	1	0.92	92	58-125	
Benzo(a)anthracene	ug/L	1	0.80	80	61-125	
Benzo(a)pyrene	ug/L	1	0.90	90	56-125	
Benzo(b)fluoranthene	ug/L	1	0.85	85	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.85	85	42-125	
Benzo(k)fluoranthene	ug/L	1	0.91	91	60-125	
Chrysene	ug/L	1	0.89	89	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.80	80	46-125	
Fluoranthene	ug/L	1	0.95	95	54-125	
Fluorene	ug/L	1	0.88	88	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.83	83	46-125	
Naphthalene	ug/L	1	0.77	77	47-125	
Phenanthrene	ug/L	1	0.87	87	55-125	
Pyrene	ug/L	1	0.86	86	57-125	
2-Fluorobiphenyl (S)	%			75	58-125	
Terphenyl-d14 (S)	%			82	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774822 774823

Parameter	Units	10126496008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0066	1	1	0.83	0.90	81	86	56-125	7	30	
Acenaphthylene	ug/L	<0.0044	1	1	0.82	0.88	80	85	51-125	8	30	
Anthracene	ug/L	<0.0055	1	1	0.95	1.0	93	96	58-125	5	30	
Benzo(a)anthracene	ug/L	<0.0033	1	1	0.86	0.87	83	84	61-125	2	30	
Benzo(a)pyrene	ug/L	<0.0033	1	1	0.91	0.94	89	91	56-125	3	30	
Benzo(b)fluoranthene	ug/L	<0.0055	1	1	0.90	0.93	87	89	54-125	4	30	
Benzo(g,h,i)perylene	ug/L	<0.0022	1	1	0.90	0.92	88	88	41-125	3	30	
Benzo(k)fluoranthene	ug/L	<0.0055	1	1	0.91	0.93	89	89	60-125	2	30	
Chrysene	ug/L	<0.0033	1	1	0.91	0.94	89	90	64-125	4	30	
Dibenz(a,h)anthracene	ug/L	<0.0044	1	1	0.85	0.90	83	86	46-125	5	30	
Fluoranthene	ug/L	<0.0044	1	1	0.98	1.0	96	97	51-125	2	30	
Fluorene	ug/L	<0.0033	1	1	0.91	0.94	88	90	55-125	3	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0044	1	1	0.86	0.90	83	86	46-125	5	30	
Naphthalene	ug/L	<0.0055	1	1	0.74	0.78	72	75	34-125	5	30	
Phenanthrene	ug/L	<0.0066	1	1	0.90	0.93	88	89	55-125	3	30	
Pyrene	ug/L	<0.0066	1	1	0.90	0.91	87	87	50-127	1	30	
2-Fluorobiphenyl (S)	%						70	75	58-125			
Terphenyl-d14 (S)	%						82	84	57-134			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774824 774825

Parameter	Units	10126496012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0061	1.1	1	0.99	0.98	93	96	56-125	1	30	
Acenaphthylene	ug/L	<0.0041	1.1	1	0.99	0.97	93	95	51-125	2	30	
Anthracene	ug/L	<0.0051	1.1	1	1.0	0.98	96	96	58-125	4	30	
Benzo(a)anthracene	ug/L	<0.0030	1.1	1	0.92	0.90	86	89	61-125	1	30	
Benzo(a)pyrene	ug/L	<0.0030	1.1	1	0.85	0.82	80	81	56-125	4	30	
Benzo(b)fluoranthene	ug/L	<0.0051	1.1	1	0.91	0.90	86	89	54-125	1	30	
Benzo(g,h,i)perylene	ug/L	<0.0020	1.1	1	0.82	0.80	77	79	41-125	2	30	
Benzo(k)fluoranthene	ug/L	<0.0051	1.1	1	0.92	0.88	86	86	60-125	5	30	
Chrysene	ug/L	<0.0030	1.1	1	0.94	0.89	88	88	64-125	5	30	
Dibenz(a,h)anthracene	ug/L	<0.0041	1.1	1	0.76	0.73	72	72	46-125	5	30	
Fluoranthene	ug/L	<0.0041	1.1	1	1.0	1.0	98	99	51-125	3	30	
Fluorene	ug/L	0.011J	1.1	1	1.0	0.96	95	94	55-125	5	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0041	1.1	1	0.78	0.73	73	72	46-125	6	30	
Naphthalene	ug/L	<0.0051	1.1	1	0.94	0.97	89	95	34-125	3	30	
Phenanthrene	ug/L	<0.0061	1.1	1	1.0	0.98	96	97	55-125	4	30	
Pyrene	ug/L	<0.0061	1.1	1	0.95	0.92	89	91	50-127	3	30	
2-Fluorobiphenyl (S)	%						78	79	58-125			
Terphenyl-d14 (S)	%						83	84	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12714 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016, 10126496017

METHOD BLANK: 774206 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016, 10126496017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/26/10 11:43	
2,4,6-Tribromophenol (S)	%	85	30-150	04/26/10 11:43	

LABORATORY CONTROL SAMPLE: 774207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.66	66	41-137	
2,4,6-Tribromophenol (S)	%			87	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774208 774209

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1.1	1	0.58	0.50J	55	49	30-150		30	
2,4,6-Tribromophenol (S)	%						87	85	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12721 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126496008, 10126496012, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774724 — Matrix: Water
Associated Lab Samples: 10126496008, 10126496012, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/26/10 17:00	
2,4,6-Tribromophenol (S)	%	91	30-150	04/26/10 17:00	

LABORATORY CONTROL SAMPLE: 774725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.89	89	41-137	
2,4,6-Tribromophenol (S)	%			94	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774726 774727

Parameter	Units	10126496008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1	1	0.52	0.52	50	52	30-150		30	
2,4,6-Tribromophenol (S)	%						82	90	30-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774728 774729

Parameter	Units	10126496012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1.1	1.1	1.2	1.0	110	96	30-150	13	30	
2,4,6-Tribromophenol (S)	%						107	100	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: WET/18790 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019

METHOD BLANK: 774703 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/16/10 15:19	

LABORATORY CONTROL SAMPLE: 774704

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	20.9	24.0	115	80-120	

SAMPLE DUPLICATE: 774705

Parameter	Units	10126496004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	79.0	74.0	7	20	

SAMPLE DUPLICATE: 774706

Parameter	Units	10126496012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	248	251	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: WET/18813 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 775961 Matrix: Water
Associated Lab Samples: 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/20/10 15:24	

LABORATORY CONTROL SAMPLE: 775962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	21.6	21.0	97	80-120	

SAMPLE DUPLICATE: 775963

Parameter	Units	10126534001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	226	236	4	20	

SAMPLE DUPLICATE: 775964

Parameter	Units	10126534009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	188	198	5	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: WET/18815 — Analysis Method: SM 2540D
QC Batch Method: SM 2540D — Analysis Description: TSS, Low Level
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 775970 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/20/10 13:14	

METHOD BLANK: 775973 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/20/10 13:14	

LABORATORY CONTROL SAMPLE & LCSD: 775971 775972

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	26.2	23.6	24.1	90	92	80-120	2	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126496001	**MBSW0410-12**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496002	**MBIA0410-12**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496003	**MBSA0410-12**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496004	**MBSW0410-13**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496005	**MBSW0410-13D**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496008	**MBIA0410-13**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496009	**MBIA0410-13D**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496012	**MBSA0410-13**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496013	**MBSA0410-13D**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496016	**MBSW0410-18**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496017	**MBIA0410-18**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496018	**MBSA0410-18**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496019	**MBSW0410-25**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496020	**MBIA0410-25**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496021	**MBSA0410-25**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496022	**MBSW0410-26**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496023	**MBIA0410-26**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496024	**MBSA0410-26**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496001	**MBSW0410-12**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496002	**MBIA0410-12**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496003	**MBSA0410-12**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496004	**MBSW0410-13**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496005	**MBSW0410-13D**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496008	**MBIA0410-13**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496009	**MBIA0410-13D**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496012	**MBSA0410-13**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496013	**MBSA0410-13D**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496016	**MBSW0410-18**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496017	**MBIA0410-18**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496018	**MBSA0410-18**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496019	**MBSW0410-25**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496020	**MBIA0410-25**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496021	**MBSA0410-25**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496022	**MBSW0410-26**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496023	**MBIA0410-26**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496024	**MBSA0410-26**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496001	**MBSW0410-12**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496002	**MBIA0410-12**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496003	**MBSA0410-12**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496004	**MBSW0410-13**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496005	**MBSW0410-13D**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496008	**MBIA0410-13**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496009	**MBIA0410-13D**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496012	**MBSA0410-13**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496013	**MBSA0410-13D**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496016	**MBSW0410-18**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126496017	**MBIA0410-18**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496018	**MBSA0410-18**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496019	**MBSW0410-25**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496020	**MBIA0410-25**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496021	**MBSA0410-25**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496022	**MBSW0410-26**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496023	**MBIA0410-26**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496024	**MBSA0410-26**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496001	**MBSW0410-12**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496002	**MBIA0410-12**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496003	**MBSA0410-12**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496004	**MBSW0410-13**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496005	**MBSW0410-13D**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496008	**MBIA0410-13**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496009	**MBIA0410-13D**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496012	**MBSA0410-13**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496013	**MBSA0410-13D**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496016	**MBSW0410-18**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496017	**MBIA0410-18**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496018	**MBSA0410-18**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496019	**MBSW0410-25**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496020	**MBIA0410-25**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496021	**MBSA0410-25**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496022	**MBSW0410-26**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496023	**MBIA0410-26**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496024	**MBSA0410-26**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496001	**MBSW0410-12**	SM 2540C	WET/18790		
10126496002	**MBIA0410-12**	SM 2540C	WET/18790		
10126496003	**MBSA0410-12**	SM 2540C	WET/18790		
10126496004	**MBSW0410-13**	SM 2540C	WET/18790		
10126496005	**MBSW0410-13D**	SM 2540C	WET/18790		
10126496008	**MBIA0410-13**	SM 2540C	WET/18790		
10126496009	**MBIA0410-13D**	SM 2540C	WET/18790		
10126496012	**MBSA0410-13**	SM 2540C	WET/18790		
10126496013	**MBSA0410-13D**	SM 2540C	WET/18790		
10126496016	**MBSW0410-18**	SM 2540C	WET/18790		
10126496017	**MBIA0410-18**	SM 2540C	WET/18790		
10126496018	**MBSA0410-18**	SM 2540C	WET/18790		
10126496019	**MBSW0410-25**	SM 2540C	WET/18790		
10126496020	**MBIA0410-25**	SM 2540C	WET/18813		
10126496021	**MBSA0410-25**	SM 2540C	WET/18813		
10126496022	**MBSW0410-26**	SM 2540C	WET/18813		
10126496023	**MBIA0410-26**	SM 2540C	WET/18813		
10126496024	**MBSA0410-26**	SM 2540C	WET/18813		

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126496001	**MBSW0410-12**	SM 2540D	WET/18815		
10126496002	**MBIA0410-12**	SM 2540D	WET/18815		
10126496003	**MBSA0410-12**	SM 2540D	WET/18815		
10126496004	**MBSW0410-13**	SM 2540D	WET/18815		
10126496005	**MBSW0410-13D**	SM 2540D	WET/18815		
10126496008	**MBIA0410-13**	SM 2540D	WET/18815		
10126496009	**MBIA0410-13D**	SM 2540D	WET/18815		
10126496012	**MBSA0410-13**	SM 2540D	WET/18815		
10126496013	**MBSA0410-13D**	SM 2540D	WET/18815		
10126496016	**MBSW0410-18**	SM 2540D	WET/18815		
10126496017	**MBIA0410-18**	SM 2540D	WET/18815		
10126496018	**MBSA0410-18**	SM 2540D	WET/18815		
10126496019	**MBSW0410-25**	SM 2540D	WET/18815		
10126496020	**MBIA0410-25**	SM 2540D	WET/18815		
10126496021	**MBSA0410-25**	SM 2540D	WET/18815		
10126496022	**MBSW0410-26**	SM 2540D	WET/18815		
10126496023	**MBIA0410-26**	SM 2540D	WET/18815		
10126496024	**MBSA0410-26**	SM 2540D	WET/18815		

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1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3	HNO3	None	None		
MBSW0410-12	4-13-10/14:00	Water	8	X	X	X	X	X	X		1012649 001
MBIA0410-12	4-13-10/14:30	Water	8	X	X	X	X	X	X		002
MBSA0410-12	4-13-10/14:48	Water	8	X	X	X	X	X	X		003
MBSW0410-13	4-13-10/16:15	Water	8	X	X	X	X	X	X		004
MBSW0410-13D	4-13-10/16:15	Water	8	X	X	X	X	X	X		005
MBSW0410-13M	4-13-10/16:18	Water	4	X	X						~~006~~ 004
MBSW0410-13MD	4-13-10/16:18	Water	4	X	X						~~007~~ 004
MBIA0410-13	4-13-10/16:25	Water	8	X	X	X	X	X	X		008
MBIA0410-13D	4-13-10/16:25	Water	8	X	X	X	X	X	X		009
MBIA0410-13M	4-13-10/16:25	Water	4	X	X						~~010~~ 008
MBIA0410-13MD	4-13-10/16:25	Water	4	X	X						~~011~~ 008

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	4-15-10 Alex Kulzer	PACE MN
Signature:	Time & Date: 4/14/10 0800	Signature:	Time & Date: 4-15-10 0949

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T=0.7, 0.6, 1.5, 2.6, 1.4, 0.9, 2.6, 2.8, 0.9, 1.4, 0.9, 1.2°

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

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- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 nm filter)
Sample Preservative				None	None	HNO3	HNO3	None	None		
MBSA0410-13	4-13-10/17:07	Water	8	X	X	X	X	X	X		012
MBSA0410-13D	4-13-10/17:07	Water	8	X	X	X	X	X	X		013
MBSA0410-13M	4-13-10/17:07	Water	4	X	X						~~014~~ 012
MBSA 0410-13MD	4-13-10/17:07	Water	4	X	X						~~015~~ 012
MBSW0410-18	4-13-10/12:48	Water	8	X	X	X	X	X	X		016
MBIA0410-18	4-13-10/13:15	Water	8	X	X	X	X	X	X		017
MBSA0410-18	4-13-10/13:18	Water	8	X	X	X	X	X	X		018
MBSW0410-25	4-13-10/08:05	Water	8	X	X	X	X	X	X		019
MBIA0410-25	4-13-10/08:30	Water	8	X	X	X	X	X	X		020
MBSA0410-25	4-13-10/08:40	Water	8	X	X	X	X	X	X		021
MBSW 0410-26	4-13-10/10:28	Water	8	X	X	X	X	X	X		022

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Alex Kutzer	Pace MN
Signature:	Time & Date: 0800 4/14/10	Signature:	Time & Date: 4-15-10 0949

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T=0.7,0.0,1.5,2.6,1.4,0.9,1.4,0.0,1.2°

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
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Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
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- ☐ Cost (for anticipated analyses)
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- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other _____

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
				Sample Preservative: None	None	HNO3	HNO3	None	None		
MBIA0410-26	4-13-10/11:05	Water	8	X	X	X	X	X	X		023
MBSA0410-26	4-13-10/11:13	Water	8	X	X	X	X	X	X		024
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Alex Kelzer	Pace MN
Signature: [signature]	Time & Date: 0800 4/14/10	Signature: [signature]	Time & Date: 4/15/10 0949

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T= 0.7, 0.0, 1.5, 2.6, 1.4, 0.9, 1.4, 0.0, 1.2°

[redacted]

Pace Analytical

Client Name: Oregon DEQ **Project #** 10124494

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** / **No** _____

Thermometer Used 80344043 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature _____ **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4-15-10

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # W1-024
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water	☐Yes ☑No	Initial when completed [illegible] Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

"M" and "MD" samples are for MS/MSD

Project Manager Review: [illegible] **Date:** 4-15-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Analytical Services, Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

8706-8063-9215 - 0.7c"
8706-8063-9226 - 0.0c"
8706-8063-8870 - 1.5c"
8706-8063-9237 - 2.6c"
8706-8063-9270 - 1.4c"
8706-8063-9248 - 0.9c"
8706-8063-8859 - 2.6c"
8706-8063-8881 - 2.8c"
8706-8063-8848 - 0.9c"
8706-8063-9259 - 1.4c"
8706-8063-8860 - 0.0c"
8706-8063-9260 - 1.2c"

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

May 12, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 14, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report has been revised to add missing QC data on page 30.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126413001	**MBSW0410-02**	Water	04/12/10 14:55	04/14/10 09:58
10126413002	**MBIA0410-02**	Water	04/12/10 15:28	04/14/10 09:58
10126413003	**MBSA0410-02**	Water	04/12/10 15:34	04/14/10 09:58
10126413004	**MBSW0410-03**	Water	04/12/10 16:30	04/14/10 09:58
10126413005	**MBIA0410-03**	Water	04/12/10 16:55	04/14/10 09:58
10126413006	**MBSA0410-03**	Water	04/12/10 17:01	04/14/10 09:58
10126413007	**MBSW0410-17**	Water	04/12/10 10:05	04/14/10 09:58
10126413008	**MBIA0410-17**	Water	04/12/10 10:30	04/14/10 09:58
10126413009	**MBSA0410-17**	Water	04/12/10 10:43	04/14/10 09:58
10126413010	**MBSW0410-19**	Water	04/12/10 11:30	04/14/10 09:58
10126413011	**MBIA0410-19**	Water	04/12/10 11:35	04/14/10 09:58
10126413012	**MBSA0410-19**	Water	04/12/10 12:07	04/14/10 09:58
10126413013	**MBSW0410-21**	Water	04/12/10 13:30	04/14/10 09:58
10126413014	**MBIA0410-21**	Water	04/12/10 13:54	04/14/10 09:58
10126413015	**MBSA0410-21**	Water	04/12/10 14:03	04/14/10 09:58

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126413001	**MBSW0410-02**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413002	**MBIA0410-02**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413003	**MBSA0410-02**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413004	**MBSW0410-03**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413005	**MBIA0410-03**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413006	**MBSA0410-03**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413007	**MBSW0410-17**	EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413008	**MBIA0410-17**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413009	**MBSA0410-17**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413010	**MBSW0410-19**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413011	**MBIA0410-19**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413012	**MBSA0410-19**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413013	**MBSW0410-21**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413014	**MBIA0410-21**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS, RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413015	**MBSA0410-21**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS, RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	ACH	1	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: May 12, 2010

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: May 12, 2010

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: May 12, 2010

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5456

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: May 12, 2010

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5447

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: May 12, 2010

General Information:
15 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: May 12, 2010

General Information:
15 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-02 **Lab ID: 10126413001** Collected: 04/12/10 14:55 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.34J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:00	7440-38-2	
Chromium	**0.90**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:00	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:00	7440-50-8	
Zinc	**3.5J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.15J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:29	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:29	7440-47-3	
Copper, Dissolved	**0.61**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:29	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:29	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.038J**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:14	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 15:14	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	206-44-0	
Fluorene	**0.012J**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:14	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:14	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/15/10 16:56	04/22/10 15:14	321-60-8	
Terphenyl-d14 (S)	80	%	57-134		1	04/15/10 16:56	04/22/10 15:14	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 18:44	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/14/10 16:53	04/20/10 18:44	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**44.0**	mg/L	10.0	5.0	1		04/15/10 15:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**65.2**	mg/L	2.1	1.1	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-02 **Lab ID: 10126413002** Collected: 04/12/10 15:28 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.35J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:17	7440-38-2	
Chromium	**0.80**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:17	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:17	7440-50-8	
Zinc	**8.6**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:17	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.12J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:33	7440-38-2	
Chromium, Dissolved	**0.43J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:33	7440-47-3	
Copper, Dissolved	**0.71**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:33	7440-50-8	
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:33	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.022J**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:33	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 15:33	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:33	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:33	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/15/10 16:56	04/22/10 15:33	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/15/10 16:56	04/22/10 15:33	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 18:57	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/14/10 16:53	04/20/10 18:57	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**41.0**	mg/L	10.0	5.0	1		04/15/10 15:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**39.7**	mg/L	2.1	1.1	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-02 **Lab ID: 10126413003** Collected: 04/12/10 15:34 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**36.0**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:21	7440-38-2	
Chromium	**0.70**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:21	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:21	7440-50-8	
Zinc	**6.2**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:21	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**35.4**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:37	7440-38-2	
Chromium, Dissolved	**0.39J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:37	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:37	7440-50-8	
Zinc, Dissolved	**4.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:37	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**1.8**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:52	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	208-96-8	
Anthracene	**0.037J**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 15:52	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	53-70-3	
Fluoranthene	**0.015J**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	206-44-0	
Fluorene	**0.17**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	91-20-3	
Phenanthrene	**0.11**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:52	85-01-8	
Pyrene	**0.016J**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:52	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/15/10 16:56	04/22/10 15:52	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/15/10 16:56	04/22/10 15:52	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/14/10 16:53	04/20/10 19:11	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/14/10 16:53	04/20/10 19:11	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**292**	mg/L	10.0	5.0	1		04/15/10 15:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**644**	mg/L	10.0	5.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-03 **Lab ID: 10126413004** Collected: 04/12/10 16:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.32J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:25	7440-38-2	
Chromium	**0.97**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:25	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:25	7440-50-8	
Zinc	**4.7J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:25	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.18J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:41	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:41	7440-47-3	
Copper, Dissolved	**0.59**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:41	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:41	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0060**	ug/L	0.040	0.0060	1	04/15/10 16:56	04/22/10 16:11	83-32-9	
Acenaphthylene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	208-96-8	
Anthracene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	50-32-8	
Benzo(b)fluoranthene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.040	0.0020	1	04/15/10 16:56	04/22/10 16:11	191-24-2	
Benzo(k)fluoranthene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	207-08-9	
Chrysene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	218-01-9	
Dibenz(a,h)anthracene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	53-70-3	
Fluoranthene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	206-44-0	
Fluorene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	193-39-5	
Naphthalene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	91-20-3	
Phenanthrene	**<0.0060**	ug/L	0.040	0.0060	1	04/15/10 16:56	04/22/10 16:11	85-01-8	
Pyrene	**<0.0060**	ug/L	0.040	0.0060	1	04/15/10 16:56	04/22/10 16:11	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/15/10 16:56	04/22/10 16:11	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/15/10 16:56	04/22/10 16:11	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 19:25	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/14/10 16:53	04/20/10 19:25	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**48.0**	mg/L	10.0	5.0	1		04/15/10 15:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**47.0**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-03 **Lab ID: 10126413005** Collected: 04/12/10 16:55 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.64**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:29	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:29	7440-47-3	
Copper	**2.6**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:29	7440-50-8	
Zinc	**6.7**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:29	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.22J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:07	7440-38-2	
Chromium, Dissolved	**0.25J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:07	7440-47-3	
Copper, Dissolved	**1.0**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:07	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:07	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 16:30	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 16:30	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 16:30	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 16:30	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/15/10 16:56	04/22/10 16:30	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/15/10 16:56	04/22/10 16:30	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 19:38	87-86-5	
2,4,6-Tribromophenol (S)	91	%	30-150		1	04/14/10 16:53	04/20/10 19:38	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**45.0**	mg/L	10.0	5.0	1		04/15/10 15:55		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**167**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-03 **Lab ID: 10126413006** Collected: 04/12/10 17:01 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.58**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 18:51	7440-38-2	
Chromium	**0.64**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 18:51	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 18:51	7440-50-8	
Zinc	**6.2**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 18:51	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.40J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:11	7440-38-2	
Chromium, Dissolved	**0.26J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:11	7440-47-3	
Copper, Dissolved	**2.3**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:11	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:11	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 16:48	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/22/10 16:48	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 16:48	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 16:48	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/15/10 16:56	04/22/10 16:48	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/15/10 16:56	04/22/10 16:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/15/10 16:06	04/26/10 12:11	87-86-5	
2,4,6-Tribromophenol (S)	82	%	30-150		1	04/15/10 16:06	04/26/10 12:11	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**54.0**	mg/L	10.0	5.0	1		04/15/10 15:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**16.5**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-17 **Lab ID: 10126413007** Collected: 04/12/10 10:05 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.27J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 18:55	7440-38-2	
Chromium	**0.74**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 18:55	7440-47-3	
Copper	**1.3**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 18:55	7440-50-8	
Zinc	**3.2J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 18:55	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.20J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:15	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:15	7440-47-3	
Copper, Dissolved	**0.64**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:15	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:15	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:08	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 17:08	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:08	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:08	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/15/10 16:56	04/22/10 17:08	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/15/10 16:56	04/22/10 17:08	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 12:25	87-86-5	
2,4,6-Tribromophenol (S)	91	%	30-150		1	04/15/10 16:06	04/26/10 12:25	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**45.0**	mg/L	10.0	5.0	1		04/15/10 15:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**39.5**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-17 **Lab ID: 10126413008** Collected: 04/12/10 10:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.69**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:00	7440-38-2	
Chromium	**0.45J**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:00	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:00	7440-50-8	
Zinc	**7.4**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.51**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:19	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:19	7440-47-3	
Copper, Dissolved	**0.94**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:19	7440-50-8	
Zinc, Dissolved	**9.6**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:19	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/15/10 16:56	04/22/10 17:27	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/15/10 16:56	04/22/10 17:27	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/15/10 16:56	04/22/10 17:27	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/15/10 16:56	04/22/10 17:27	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/15/10 16:56	04/22/10 17:27	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/15/10 16:56	04/22/10 17:27	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 12:38	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 12:38	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**69.0**	mg/L	10.0	5.0	1		04/15/10 15:57		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**28.6**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-17 **Lab ID: 10126413009** Collected: 04/12/10 10:43 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.1**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:04	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:04	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:04	7440-50-8	
Zinc	**2.6J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:04	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**4.9**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:23	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:23	7440-47-3	
Copper, Dissolved	**0.25J**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:23	7440-50-8	
Zinc, Dissolved	**3.8J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:23	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**7.5**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:45	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	208-96-8	
Anthracene	**0.024J**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 17:45	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 17:45	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 17:45	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 17:45	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	206-44-0	
Fluorene	**0.93**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	193-39-5	
Naphthalene	**16.1**	ug/L	0.21	0.026	5	04/15/10 16:56	04/27/10 11:34	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:45	85-01-8	
Pyrene	**0.055**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:45	129-00-0	
2-Fluorobiphenyl (S)	81	%	58-125		1	04/15/10 16:56	04/22/10 17:45	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/15/10 16:56	04/22/10 17:45	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 12:52	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/15/10 16:06	04/26/10 12:52	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**265**	mg/L	10.0	5.0	1		04/15/10 15:57		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**34.6**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-19 **Lab ID: 10126413010** Collected: 04/12/10 11:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.42J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:08	7440-38-2	
Chromium	**0.97**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:08	7440-47-3	
Copper	**2.1**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:08	7440-50-8	
Zinc	**5.8**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:08	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.17J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:27	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:27	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:27	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:27	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:04	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/22/10 18:04	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:04	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:04	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/15/10 16:56	04/22/10 18:04	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/15/10 16:56	04/22/10 18:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 13:06	87-86-5	
2,4,6-Tribromophenol (S)	82	%	30-150		1	04/15/10 16:06	04/26/10 13:06	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**47.0**	mg/L	10.0	5.0	1		04/15/10 15:58		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**99.8**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-19 **Lab ID: 10126413011** Collected: 04/12/10 11:35 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.35J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:12	7440-38-2	
Chromium	**0.66**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:12	7440-47-3	
Copper	**1.5**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:12	7440-50-8	
Zinc	**4.5J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:12	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.14J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:31	7440-38-2	
Chromium, Dissolved	**0.34J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:31	7440-47-3	
Copper, Dissolved	**0.91**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:31	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:31	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 18:23	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 18:23	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 18:23	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 18:23	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/15/10 16:56	04/22/10 18:23	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/15/10 16:56	04/22/10 18:23	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 13:19	87-86-5	
2,4,6-Tribromophenol (S)	80	%	30-150		1	04/15/10 16:06	04/26/10 13:19	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**39.0**	mg/L	10.0	5.0	1		04/15/10 15:58		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**65.3**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-19 **Lab ID: 10126413012** Collected: 04/12/10 12:07 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.67**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:25	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:25	7440-47-3	
Copper	**0.70**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:25	7440-50-8	
Zinc	**7.2**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:25	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.70**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:36	7440-38-2	
Chromium, Dissolved	**0.43J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:36	7440-47-3	
Copper, Dissolved	**0.51**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:36	7440-50-8	
Zinc, Dissolved	**6.8**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:36	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:42	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	208-96-8	
Anthracene	**0.025J**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/22/10 18:42	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:42	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:42	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/15/10 16:56	04/22/10 18:42	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/15/10 16:56	04/22/10 18:42	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.32J**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 13:33	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/15/10 16:06	04/26/10 13:33	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**149**	mg/L	10.0	5.0	1		04/15/10 15:59		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**3.7**	mg/L	2.1	1.0	1		04/16/10 14:34		~~B~~ U

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-21 **Lab ID: 10126413013** Collected: 04/12/10 13:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.42J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:41	7440-38-2	
Chromium	**0.65**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:41	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:41	7440-50-8	
Zinc	**6.4**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:41	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.17J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:40	7440-38-2	
Chromium, Dissolved	**0.34J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:40	7440-47-3	
Copper, Dissolved	**3.0**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:40	7440-50-8	
Zinc, Dissolved	**3.0J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:40	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:01	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 19:01	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:01	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:01	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	04/15/10 16:56	04/22/10 19:01	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/15/10 16:56	04/22/10 19:01	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 13:47	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/15/10 16:06	04/26/10 13:47	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**53.0**	mg/L	10.0	5.0	1		04/15/10 15:30		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**28.2**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-21 **Lab ID: 10126413014** Collected: 04/12/10 13:54 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.36J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:46	7440-38-2	
Chromium	**0.52**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:46	7440-47-3	
Copper	**1.3**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:46	7440-50-8	
Zinc	**4.0J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:46	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.20J**	ug/L	0.50	0.062	1	04/16/10 11:36	04/19/10 17:29	7440-38-2	
Chromium, Dissolved	**0.41J**	ug/L	0.50	0.24	1	04/16/10 11:36	04/19/10 17:29	7440-47-3	
Copper, Dissolved	**1.4**	ug/L	0.50	0.20	1	04/16/10 11:36	04/20/10 12:31	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/16/10 11:36	04/19/10 17:29	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:20	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 19:20	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:20	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:20	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/15/10 16:56	04/22/10 19:20	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/15/10 16:56	04/22/10 19:20	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 14:01	87-86-5	
2,4,6-Tribromophenol (S)	84	%	30-150		1	04/15/10 16:06	04/26/10 14:01	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**53.0**	mg/L	10.0	5.0	1		04/15/10 15:30		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**34.7**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-21 **Lab ID: 10126413015** Collected: 04/12/10 14:03 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.0**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:50	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:50	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:50	7440-50-8	
Zinc	**<1.3**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.9**	ug/L	0.50	0.062	1	04/16/10 11:36	04/19/10 17:34	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:36	04/19/10 17:34	7440-47-3	
Copper, Dissolved	**0.43J**	ug/L	0.50	0.20	1	04/16/10 11:36	04/20/10 12:36	7440-50-8	
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/16/10 11:36	04/19/10 17:34	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:29	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	120-12-7	
Benzo(a)anthracene	**0.025J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	56-55-3	
Benzo(a)pyrene	**0.015J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	50-32-8	
Benzo(b)fluoranthene	**0.030J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 17:29	191-24-2	
Benzo(k)fluoranthene	**0.014J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	207-08-9	
Chrysene	**0.025J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	53-70-3	
Fluoranthene	**0.030J**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:29	85-01-8	
Pyrene	**0.027J**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:29	129-00-0	
2-Fluorobiphenyl (S)	82	%	58-125		1	04/16/10 16:51	04/21/10 17:29	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/16/10 16:51	04/21/10 17:29	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 14:15	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 14:15	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**379**	mg/L	10.0	5.0	1		04/16/10 15:19		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**436**	mg/L	10.0	5.0	1		04/16/10 14:34		

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: MPRP/19967 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

METHOD BLANK: 773504 Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/21/10 12:52	
Chromium	ug/L	<0.24	0.50	04/21/10 12:52	
Copper	ug/L	<0.20	0.50	04/21/10 12:52	
Zinc	ug/L	<1.3	5.0	04/21/10 12:52	

LABORATORY CONTROL SAMPLE: 773505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	80.7	101	85-115	
Copper	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	82.3	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773506 773507

Parameter	Units	10126413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	80	80	79.8	80.0	99	100	75-125	0	20	
Chromium	ug/L	0.90	80	80	81.0	82.0	100	101	75-125	1	20	
Copper	ug/L	1.4	80	80	84.6	85.0	104	105	75-125	0	20	
Zinc	ug/L	3.5J	80	80	84.3	84.7	101	101	75-125	0	20	

MATRIX SPIKE SAMPLE: 773508

Parameter	Units	10126413011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	79.3	99	75-125	
Chromium	ug/L	0.66	80	80.1	99	75-125	
Copper	ug/L	1.5	80	83.3	102	75-125	
Zinc	ug/L	4.5J	80	86.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: MPRP/19966 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013

METHOD BLANK: 773499 Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/16/10 14:26	
Chromium, Dissolved	ug/L	<0.24	0.50	04/16/10 14:26	
Copper, Dissolved	ug/L	<0.20	0.50	04/16/10 14:26	
Zinc, Dissolved	ug/L	<1.3	5.0	04/16/10 14:26	

LABORATORY CONTROL SAMPLE: 773500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.0	103	85-115	
Chromium, Dissolved	ug/L	80	81.3	102	85-115	
Copper, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	83.6	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773501 773502

Parameter	Units	10126348001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.16J	80	80	81.4	83.2	101	104	75-125	2	20	
Chromium, Dissolved	ug/L	0.36J	80	80	81.1	82.1	101	102	75-125	1	20	
Copper, Dissolved	ug/L	0.72	80	80	86.3	86.4	107	107	75-125	0	20	
Zinc, Dissolved	ug/L	1.9J	80	80	86.1	85.6	105	105	75-125	1	20	

MATRIX SPIKE SAMPLE: 773503

Parameter	Units	10126413004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.18J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	79.2	99	75-125	
Copper, Dissolved	ug/L	0.59	80	83.7	104	75-125	
Zinc, Dissolved	ug/L	2.1J	80	83.6	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: MPRP/19986 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126413014, 10126413015

METHOD BLANK: 774438 | Matrix: Water
Associated Lab Samples: 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/19/10 16:01	
Chromium, Dissolved	ug/L	<0.24	0.50	04/19/10 16:01	
Copper, Dissolved	ug/L	<0.20	0.50	04/20/10 11:25	
Zinc, Dissolved	ug/L	<1.3	5.0	04/19/10 16:01	

LABORATORY CONTROL SAMPLE: 774439

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	76.5	96	85-115	
Chromium, Dissolved	ug/L	80	80.8	101	85-115	
Copper, Dissolved	ug/L	80	84.8	106	85-115	
Zinc, Dissolved	ug/L	80	75.8	95	85-115	

MATRIX SPIKE SAMPLE: 774442

Parameter	Units	253480006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.12J	80	81.5	102	75-125	
Chromium, Dissolved	ug/L	0.35J	80	82.2	102	75-125	
Copper, Dissolved	ug/L	2.2	80	81.9	100	75-125	
Zinc, Dissolved	ug/L	43.3	80	125	103	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774658 774659

Parameter	Units	20776039 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.89	80	80	98.0	89.9	121	111	75-125	9	20	
Chromium, Dissolved	ug/L	ND	80	80	99.1	91.7	124	114	75-125	8	20	
Copper, Dissolved	ug/L	0.73	80	80	78.8	86.8	98	108	75-125	10	20	
Zinc, Dissolved	ug/L	ND	80	80	95.5	86.0	116	104	75-125	10	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12706 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

METHOD BLANK: 773748 | Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/21/10 15:55	
Acenaphthylene	ug/L	<0.0040	0.040	04/21/10 15:55	
Anthracene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/21/10 15:55	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Chrysene	ug/L	<0.0030	0.040	04/21/10 15:55	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluoranthene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluorene	ug/L	<0.0030	0.040	04/21/10 15:55	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/21/10 15:55	
Naphthalene	ug/L	<0.0050	0.040	04/21/10 15:55	
Phenanthrene	ug/L	<0.0060	0.040	04/21/10 15:55	
Pyrene	ug/L	<0.0060	0.040	04/21/10 15:55	
2-Fluorobiphenyl (S)	%	84	58-125	04/21/10 15:55	
Terphenyl-d14 (S)	%	98	57-134	04/21/10 15:55	

LABORATORY CONTROL SAMPLE & LCSD: 773749 773750

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	2	20	
Acenaphthylene	ug/L	1	0.81	0.82	81	82	51-125	2	20	
Anthracene	ug/L	1	1.1	1.1	108	108	58-125	0	20	
Benzo(a)anthracene	ug/L	1	0.79	0.80	79	80	61-125	2	20	
Benzo(a)pyrene	ug/L	1	0.97	0.97	97	97	56-125	1	20	
Benzo(b)fluoranthene	ug/L	1	0.81	0.84	81	84	54-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.47	0.53	47	53	42-125	11	20	
Benzo(k)fluoranthene	ug/L	1	1.2	1.2	123	120	60-125	2	20	
Chrysene	ug/L	1	1.0	1.0	103	104	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.49	0.54	49	54	46-125	9	20	
Fluoranthene	ug/L	1	0.89	0.90	89	90	54-125	1	20	
Fluorene	ug/L	1	0.83	0.82	83	82	55-125	1	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.58	0.61	58	61	46-125	5	20	
Naphthalene	ug/L	1	0.74	0.77	74	77	47-125	4	20	
Phenanthrene	ug/L	1	0.83	0.83	83	83	55-125	1	20	
Pyrene	ug/L	1	1.0	1.0	101	102	57-125	1	20	
2-Fluorobiphenyl (S)	%				75	76	58-125			
Terphenyl-d14 (S)	%				94	94	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12716
QC Batch Method: EPA 3510
Analysis Method: EPA 8270 by SIM
Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126413015

METHOD BLANK: 774461
Matrix: Water
Associated Lab Samples: 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 21:35	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 21:35	
Anthracene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 21:35	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Chrysene	ug/L	<0.0030	0.040	04/20/10 21:35	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluorene	ug/L	<0.0030	0.040	04/20/10 21:35	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 21:35	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 21:35	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 21:35	
Pyrene	ug/L	<0.0060	0.040	04/20/10 21:35	
2-Fluorobiphenyl (S)	%	88	58-125	04/20/10 21:35	
Terphenyl-d14 (S)	%	90	57-134	04/20/10 21:35	

LABORATORY CONTROL SAMPLE: 774462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.90	90	56-125	
Acenaphthylene	ug/L	1	0.93	93	51-125	
Anthracene	ug/L	1	1.1	108	58-125	
Benzo(a)anthracene	ug/L	1	0.89	89	61-125	
Benzo(a)pyrene	ug/L	1	0.92	92	56-125	
Benzo(b)fluoranthene	ug/L	1	0.86	86	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.87	87	42-125	
Benzo(k)fluoranthene	ug/L	1	1.0	103	60-125	
Chrysene	ug/L	1	0.96	96	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.87	87	46-125	
Fluoranthene	ug/L	1	0.93	93	54-125	
Fluorene	ug/L	1	0.94	94	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.87	87	46-125	
Naphthalene	ug/L	1	0.81	81	47-125	
Phenanthrene	ug/L	1	0.87	87	55-125	
Pyrene	ug/L	1	1.0	101	57-125	
2-Fluorobiphenyl (S)	%			86	58-125	
Terphenyl-d14 (S)	%			92	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774463 774464

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0062	1	1	0.92	0.88	90	85	56-125	4	30	
Acenaphthylene	ug/L	<0.0041	1	1	0.90	0.85	88	82	51-125	5	30	
Anthracene	ug/L	<0.0052	1	1	1.1	1.1	108	104	58-125	3	30	
Benzo(a)anthracene	ug/L	<0.0031	1	1	0.80	0.78	78	75	61-125	3	30	
Benzo(a)pyrene	ug/L	<0.0031	1	1	0.91	0.91	89	87	56-125	0	30	
Benzo(b)fluoranthene	ug/L	<0.0052	1	1	0.93	0.92	90	88	54-125	1	30	
Benzo(g,h,i)perylene	ug/L	<0.0021	1	1	0.77	0.81	75	77	41-125	5	30	
Benzo(k)fluoranthene	ug/L	<0.0052	1	1	0.94	0.95	91	91	60-125	1	30	
Chrysene	ug/L	<0.0031	1	1	1.0	1.1	99	101	64-125	3	30	
Dibenz(a,h)anthracene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	0	30	
Fluoranthene	ug/L	<0.0041	1	1	0.92	0.91	90	88	51-125	1	30	
Fluorene	ug/L	<0.0031	1	1	0.90	0.90	88	86	55-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	1	30	
Naphthalene	ug/L	<0.0052	1	1	0.84	0.80	82	77	34-125	5	30	
Phenanthrene	ug/L	<0.0062	1	1	0.89	0.88	87	85	55-125	1	30	
Pyrene	ug/L	<0.0062	1	1	1.0	1.0	100	98	50-127	0	30	
2-Fluorobiphenyl (S)	%						84	76	58-125			
Terphenyl-d14 (S)	%						87	85	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12705 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005

METHOD BLANK: 773677 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 12:15	
2,4,6-Tribromophenol (S)	%	91	30-150	04/20/10 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 773678 773679

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.90	0.93	90	93	41-137	3	20	
2,4,6-Tribromophenol (S)	%				96	95	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12714 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

METHOD BLANK: 774206 — Matrix: Water
Associated Lab Samples: 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/26/10 11:43	
2,4,6-Tribromophenol (S)	%	85	30-150	04/26/10 11:43	

LABORATORY CONTROL SAMPLE: 774207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.66	66	41-137	
2,4,6-Tribromophenol (S)	%			87	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774208 774209

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1.1	1	0.58	0.50J	55	49	30-150		30	
2,4,6-Tribromophenol (S)	%						87	85	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: WET/18769 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

METHOD BLANK: 773921 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/15/10 15:49	

LABORATORY CONTROL SAMPLE: 773922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	20.9	19.0	91	80-120	

SAMPLE DUPLICATE: 773923

Parameter	Units	10126310001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1800	1790	1	20	

SAMPLE DUPLICATE: 773924

Parameter	Units	10126413005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	45.0	47.0	4	20	

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: WET/18790 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126413015

METHOD BLANK: 774703 | Matrix: Water
Associated Lab Samples: 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/16/10 15:19	

LABORATORY CONTROL SAMPLE: 774704

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	20.9	24.0	115	80-120	

SAMPLE DUPLICATE: 774705

Parameter	Units	10126496004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	79.0	74.0	7	20	

SAMPLE DUPLICATE: 774706

Parameter	Units	10126496012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	248	251	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: WET/18791 — Analysis Method: SM 2540D
QC Batch Method: SM 2540D — Analysis Description: TSS, Low Level
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

METHOD BLANK: 774707 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.3J	2.0	04/16/10 14:34	

METHOD BLANK: 774711 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/16/10 14:35	

LABORATORY CONTROL SAMPLE & LCSD: 774708 776065

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	26.2	27.8	27.8	106	106	80-120	0	20	

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5447

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5456

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126413001	**MBSW0410-02**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413002	**MBIA0410-02**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413003	**MBSA0410-02**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413004	**MBSW0410-03**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413005	**MBIA0410-03**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413006	**MBSA0410-03**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413007	**MBSW0410-17**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413008	**MBIA0410-17**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413009	**MBSA0410-17**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413010	**MBSW0410-19**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413011	**MBIA0410-19**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413012	**MBSA0410-19**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413013	**MBSW0410-21**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413014	**MBIA0410-21**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413015	**MBSA0410-21**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413001	**MBSW0410-02**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413002	**MBIA0410-02**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413003	**MBSA0410-02**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413004	**MBSW0410-03**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413005	**MBIA0410-03**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413006	**MBSA0410-03**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413007	**MBSW0410-17**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413008	**MBIA0410-17**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413009	**MBSA0410-17**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413010	**MBSW0410-19**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413011	**MBIA0410-19**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413012	**MBSA0410-19**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413013	**MBSW0410-21**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413014	**MBIA0410-21**	EPA 3020	MPRP/19986	EPA 6020	ICPM/8204
10126413015	**MBSA0410-21**	EPA 3020	MPRP/19986	EPA 6020	ICPM/8204
10126413001	**MBSW0410-02**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413002	**MBIA0410-02**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413003	**MBSA0410-02**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413004	**MBSW0410-03**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413005	**MBIA0410-03**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413006	**MBSA0410-03**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413007	**MBSW0410-17**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413008	**MBIA0410-17**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413009	**MBSA0410-17**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413010	**MBSW0410-19**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413011	**MBIA0410-19**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413012	**MBSA0410-19**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413013	**MBSW0410-21**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413014	**MBIA0410-21**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413015	**MBSA0410-21**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126413001	**MBSW0410-02**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447

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(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126413002	**MBIA0410-02**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413003	**MBSA0410-02**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413004	**MBSW0410-03**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413005	**MBIA0410-03**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413006	**MBSA0410-03**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413007	**MBSW0410-17**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413008	**MBIA0410-17**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413009	**MBSA0410-17**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413010	**MBSW0410-19**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413011	**MBIA0410-19**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413012	**MBSA0410-19**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413013	**MBSW0410-21**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413014	**MBIA0410-21**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413015	**MBSA0410-21**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413001	**MBSW0410-02**	SM 2540C	WET/18769		
10126413002	**MBIA0410-02**	SM 2540C	WET/18769		
10126413003	**MBSA0410-02**	SM 2540C	WET/18769		
10126413004	**MBSW0410-03**	SM 2540C	WET/18769		
10126413005	**MBIA0410-03**	SM 2540C	WET/18769		
10126413006	**MBSA0410-03**	SM 2540C	WET/18769		
10126413007	**MBSW0410-17**	SM 2540C	WET/18769		
10126413008	**MBIA0410-17**	SM 2540C	WET/18769		
10126413009	**MBSA0410-17**	SM 2540C	WET/18769		
10126413010	**MBSW0410-19**	SM 2540C	WET/18769		
10126413011	**MBIA0410-19**	SM 2540C	WET/18769		
10126413012	**MBSA0410-19**	SM 2540C	WET/18769		
10126413013	**MBSW0410-21**	SM 2540C	WET/18769		
10126413014	**MBIA0410-21**	SM 2540C	WET/18769		
10126413015	**MBSA0410-21**	SM 2540C	WET/18790		
10126413001	**MBSW0410-02**	SM 2540D	WET/18791		
10126413002	**MBIA0410-02**	SM 2540D	WET/18791		
10126413003	**MBSA0410-02**	SM 2540D	WET/18791		
10126413004	**MBSW0410-03**	SM 2540D	WET/18791		
10126413005	**MBIA0410-03**	SM 2540D	WET/18791		
10126413006	**MBSA0410-03**	SM 2540D	WET/18791		
10126413007	**MBSW0410-17**	SM 2540D	WET/18791		
10126413008	**MBIA0410-17**	SM 2540D	WET/18791		
10126413009	**MBSA0410-17**	SM 2540D	WET/18791		
10126413010	**MBSW0410-19**	SM 2540D	WET/18791		
10126413011	**MBIA0410-19**	SM 2540D	WET/18791		
10126413012	**MBSA0410-19**	SM 2540D	WET/18791		
10126413013	**MBSW0410-21**	SM 2540D	WET/18791		
10126413014	**MBIA0410-21**	SM 2540D	WET/18791		
10126413015	**MBSA0410-21**	SM 2540D	WET/18791		

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10126413

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3	HNO3	None	None		
MBSW0410-02	4-12-10/14:55	Water	8	X	X	X	X	X	X		001
MBIA0410-02	4-12-10/15:28	Water	8	X	X	X	X	X	X		002
MBSA0410-02	4-12-10/15:34	Water	8	X	X	X	X	X	X		003
MBSW0410-03	4-12-10/16:30	Water	8	X	X	X	X	X	X		004
MBIA0410-03	4-12-10/16:55	Water	8	X	X	X	X	X	X		005
MBSA0410-03	4-12-10/17:01	Water	8	X	X	X	X	X	X		006
MBSW0410-17	4-12-10/10:05	Water	8	X	X	X	X	X	X		007
MBIA0410-17	4-12-10/10:30	Water	8	X	X	X	X	X	X		008
MBSA0410-17	4-12-10/10:43	Water	8	X	X	X	X	X	X		009
MBSW0410-19	4-12-10/11:30	Water	8	X	X	X	X	X	X		010
MBIA0410-19	4-12-10/11:35	Water	8	X	X	X	X	X	X		011

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Pace MN	Pace MN
Signature: Jason Miles	Time & Date: 04/13/10 0730	Signature: Alex Kulzer	Time & Date: 4.14.10 0958

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T = 0.5, 1.1, 0.0, 0.1, 1.1, 1.1, 0.8, 0.8

1026413

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample Preservative

Requested Analyses

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM (None)	*PCP EPA Method 8270-SIM (None)	Total Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	Total Suspended Solids (None)	Total Dissolved Solids (None)		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
MBSA0410-19	4-12-10/1207	Water	8	X	X	X	X	X	X		012
MBSW0410-21	4-12-10/1330	Water	8	X	X	X	X	X	X		013
MBSD0410-21	4-12-10/1324	Water	8	X	X	X	X	X	X		014
MBSA0410-21	4-12-10/1403	Water	8	X	X	X	X	X	X		015
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By: [illegible]	Agency/Agent: PBL MN
Signature: [illegible]	Time & Date: 04/13/10 0750	Signature: Alex Kulzer	Time & Date: 4.14.10 0958

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Fe 0.5°, 1.1, 0.0, 0.1, 1.1, 1.1, 0.1, 0.8

JM

[redacted]

Pace Analytical

Client Name: Hart Crowser **Project #** L012641 3

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ✓ **No** _____

Thermometer Used 80344942 or 179425 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature _____ **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4-14-10

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-includes date/time/ID/Analysis Matrix: LOT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # 101-015
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: CAW **Date:** 4-14-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Analytical Services, Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 04, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 14, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report has been revised to add missing QC data on page 30.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126413001	**MBSW0410-02**	Water	04/12/10 14:55	04/14/10 09:58
10126413002	**MBIA0410-02**	Water	04/12/10 15:28	04/14/10 09:58
10126413003	**MBSA0410-02**	Water	04/12/10 15:34	04/14/10 09:58
10126413004	**MBSW0410-03**	Water	04/12/10 16:30	04/14/10 09:58
10126413005	**MBIA0410-03**	Water	04/12/10 16:55	04/14/10 09:58
10126413006	**MBSA0410-03**	Water	04/12/10 17:01	04/14/10 09:58
10126413007	**MBSW0410-17**	Water	04/12/10 10:05	04/14/10 09:58
10126413008	**MBIA0410-17**	Water	04/12/10 10:30	04/14/10 09:58
10126413009	**MBSA0410-17**	Water	04/12/10 10:43	04/14/10 09:58
10126413010	**MBSW0410-19**	Water	04/12/10 11:30	04/14/10 09:58
10126413011	**MBIA0410-19**	Water	04/12/10 11:35	04/14/10 09:58
10126413012	**MBSA0410-19**	Water	04/12/10 12:07	04/14/10 09:58
10126413013	**MBSW0410-21**	Water	04/12/10 13:30	04/14/10 09:58
10126413014	**MBIA0410-21**	Water	04/12/10 13:54	04/14/10 09:58
10126413015	**MBSA0410-21**	Water	04/12/10 14:03	04/14/10 09:58

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126413001	**MBSW0410-02**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413002	**MBIA0410-02**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413003	**MBSA0410-02**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413004	**MBSW0410-03**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413005	**MBIA0410-03**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413006	**MBSA0410-03**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413007	**MBSW0410-17**	EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413008	**MBIA0410-17**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413009	**MBSA0410-17**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413010	**MBSW0410-19**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413011	**MBIA0410-19**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413012	**MBSA0410-19**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413013	**MBSW0410-21**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413014	**MBIA0410-21**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS, RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	JDL	1	PASI-M
		SM 2540D	ACH	1	PASI-M
10126413015	**MBSA0410-21**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS, RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	ACH	1	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5456

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5447

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-02 **Lab ID: 10126413001** Collected: 04/12/10 14:55 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.34J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:00	7440-38-2	
Chromium	**0.90**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:00	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:00	7440-50-8	
Zinc	**3.5J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.15J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:29	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:29	7440-47-3	
Copper, Dissolved	**0.61**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:29	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:29	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.038J**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:14	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 15:14	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	206-44-0	
Fluorene	**0.012J**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:14	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:14	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:14	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:14	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:14	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/15/10 16:56	04/22/10 15:14	321-60-8	
Terphenyl-d14 (S)	80	%	57-134		1	04/15/10 16:56	04/22/10 15:14	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 18:44	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/14/10 16:53	04/20/10 18:44	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**44.0**	mg/L	10.0	5.0	1		04/15/10 15:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**13.0**	mg/L	2.1	1.1	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-02 **Lab ID: 10126413002** Collected: 04/12/10 15:28 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.35J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:17	7440-38-2	
Chromium	**0.80**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:17	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:17	7440-50-8	
Zinc	**8.6**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:17	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.12J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:33	7440-38-2	
Chromium, Dissolved	**0.43J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:33	7440-47-3	
Copper, Dissolved	**0.71**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:33	7440-50-8	
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:33	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.022J**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:33	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 15:33	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:33	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:33	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 15:33	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:33	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:33	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/15/10 16:56	04/22/10 15:33	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/15/10 16:56	04/22/10 15:33	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 18:57	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/14/10 16:53	04/20/10 18:57	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**41.0**	mg/L	10.0	5.0	1		04/15/10 15:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**7.9**	mg/L	2.1	1.1	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-02 **Lab ID: 10126413003** Collected: 04/12/10 15:34 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**36.0**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:21	7440-38-2	
Chromium	**0.70**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:21	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:21	7440-50-8	
Zinc	**6.2**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:21	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**35.4**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:37	7440-38-2	
Chromium, Dissolved	**0.39J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:37	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:37	7440-50-8	
Zinc, Dissolved	**4.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:37	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**1.8**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:52	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	208-96-8	
Anthracene	**0.037J**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 15:52	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	53-70-3	
Fluoranthene	**0.015J**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	206-44-0	
Fluorene	**0.17**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 15:52	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 15:52	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 15:52	91-20-3	
Phenanthrene	**0.11**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:52	85-01-8	
Pyrene	**0.016J**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 15:52	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/15/10 16:56	04/22/10 15:52	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/15/10 16:56	04/22/10 15:52	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/14/10 16:53	04/20/10 19:11	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/14/10 16:53	04/20/10 19:11	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**292**	mg/L	10.0	5.0	1		04/15/10 15:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**129**	mg/L	10.0	5.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-03 **Lab ID: 10126413004** Collected: 04/12/10 16:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.32J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:25	7440-38-2	
Chromium	**0.97**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:25	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:25	7440-50-8	
Zinc	**4.7J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:25	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.18J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:41	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:41	7440-47-3	
Copper, Dissolved	**0.59**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:41	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:41	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0060**	ug/L	0.040	0.0060	1	04/15/10 16:56	04/22/10 16:11	83-32-9	
Acenaphthylene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	208-96-8	
Anthracene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	50-32-8	
Benzo(b)fluoranthene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.040	0.0020	1	04/15/10 16:56	04/22/10 16:11	191-24-2	
Benzo(k)fluoranthene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	207-08-9	
Chrysene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	218-01-9	
Dibenz(a,h)anthracene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	53-70-3	
Fluoranthene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	206-44-0	
Fluorene	**<0.0030**	ug/L	0.040	0.0030	1	04/15/10 16:56	04/22/10 16:11	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0040**	ug/L	0.040	0.0040	1	04/15/10 16:56	04/22/10 16:11	193-39-5	
Naphthalene	**<0.0050**	ug/L	0.040	0.0050	1	04/15/10 16:56	04/22/10 16:11	91-20-3	
Phenanthrene	**<0.0060**	ug/L	0.040	0.0060	1	04/15/10 16:56	04/22/10 16:11	85-01-8	
Pyrene	**<0.0060**	ug/L	0.040	0.0060	1	04/15/10 16:56	04/22/10 16:11	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/15/10 16:56	04/22/10 16:11	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/15/10 16:56	04/22/10 16:11	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 19:25	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/14/10 16:53	04/20/10 19:25	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**48.0**	mg/L	10.0	5.0	1		04/15/10 15:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**9.4**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-03 **Lab ID: 10126413005** Collected: 04/12/10 16:55 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.64**	ug/L	0.50	0.062	1	04/16/10 14:08	04/21/10 13:29	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/16/10 14:08	04/21/10 13:29	7440-47-3	
Copper	**2.6**	ug/L	0.50	0.20	1	04/16/10 14:08	04/21/10 13:29	7440-50-8	
Zinc	**6.7**	ug/L	5.0	1.3	1	04/16/10 14:08	04/21/10 13:29	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.22J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:07	7440-38-2	
Chromium, Dissolved	**0.25J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:07	7440-47-3	
Copper, Dissolved	**1.0**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:07	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:07	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 16:30	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 16:30	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 16:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 16:30	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 16:30	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 16:30	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 16:30	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/15/10 16:56	04/22/10 16:30	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/15/10 16:56	04/22/10 16:30	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 19:38	87-86-5	
2,4,6-Tribromophenol (S)	91	%	30-150		1	04/14/10 16:53	04/20/10 19:38	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**45.0**	mg/L	10.0	5.0	1		04/15/10 15:55		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**33.5**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-03 **Lab ID: 10126413006** Collected: 04/12/10 17:01 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.58**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 18:51	7440-38-2	
Chromium	**0.64**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 18:51	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 18:51	7440-50-8	
Zinc	**6.2**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 18:51	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.40J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:11	7440-38-2	
Chromium, Dissolved	**0.26J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:11	7440-47-3	
Copper, Dissolved	**2.3**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:11	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:11	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 16:48	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/22/10 16:48	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 16:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 16:48	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 16:48	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 16:48	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 16:48	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/15/10 16:56	04/22/10 16:48	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/15/10 16:56	04/22/10 16:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/15/10 16:06	04/26/10 12:11	87-86-5	
2,4,6-Tribromophenol (S)	82	%	30-150		1	04/15/10 16:06	04/26/10 12:11	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**54.0**	mg/L	10.0	5.0	1		04/15/10 15:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**3.3**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-17 **Lab ID: 10126413007** Collected: 04/12/10 10:05 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.27J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 18:55	7440-38-2	
Chromium	**0.74**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 18:55	7440-47-3	
Copper	**1.3**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 18:55	7440-50-8	
Zinc	**3.2J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 18:55	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.20J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:15	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:15	7440-47-3	
Copper, Dissolved	**0.64**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:15	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:15	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:08	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 17:08	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:08	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:08	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:08	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:08	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:08	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/15/10 16:56	04/22/10 17:08	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/15/10 16:56	04/22/10 17:08	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 12:25	87-86-5	
2,4,6-Tribromophenol (S)	91	%	30-150		1	04/15/10 16:06	04/26/10 12:25	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**45.0**	mg/L	10.0	5.0	1		04/15/10 15:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**7.9**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-17 **Lab ID: 10126413008** Collected: 04/12/10 10:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.69**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:00	7440-38-2	
Chromium	**0.45J**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:00	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:00	7440-50-8	
Zinc	**7.4**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.51**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:19	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:19	7440-47-3	
Copper, Dissolved	**0.94**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:19	7440-50-8	
Zinc, Dissolved	**9.6**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:19	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/15/10 16:56	04/22/10 17:27	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/15/10 16:56	04/22/10 17:27	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:27	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:27	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 17:27	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/15/10 16:56	04/22/10 17:27	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/15/10 16:56	04/22/10 17:27	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/15/10 16:56	04/22/10 17:27	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/15/10 16:56	04/22/10 17:27	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 12:38	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 12:38	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**69.0**	mg/L	10.0	5.0	1		04/15/10 15:57		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.7**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-17 **Lab ID: 10126413009** Collected: 04/12/10 10:43 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.1**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:04	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:04	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:04	7440-50-8	
Zinc	**2.6J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:04	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**4.9**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:23	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:23	7440-47-3	
Copper, Dissolved	**0.25J**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:23	7440-50-8	
Zinc, Dissolved	**3.8J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:23	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**7.5**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:45	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	208-96-8	
Anthracene	**0.024J**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 17:45	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 17:45	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 17:45	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 17:45	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	206-44-0	
Fluorene	**0.93**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 17:45	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 17:45	193-39-5	
Naphthalene	**16.1**	ug/L	0.21	0.026	5	04/15/10 16:56	04/27/10 11:34	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:45	85-01-8	
Pyrene	**0.055**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 17:45	129-00-0	
2-Fluorobiphenyl (S)	81	%	58-125		1	04/15/10 16:56	04/22/10 17:45	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/15/10 16:56	04/22/10 17:45	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 12:52	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/15/10 16:06	04/26/10 12:52	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**265**	mg/L	10.0	5.0	1		04/15/10 15:57		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**6.9**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-19 **Lab ID: 10126413010** Collected: 04/12/10 11:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.42J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:08	7440-38-2	
Chromium	**0.97**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:08	7440-47-3	
Copper	**2.1**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:08	7440-50-8	
Zinc	**5.8**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:08	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.17J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:27	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:27	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:27	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:27	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:04	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/22/10 18:04	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:04	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:04	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:04	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:04	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/15/10 16:56	04/22/10 18:04	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/15/10 16:56	04/22/10 18:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 13:06	87-86-5	
2,4,6-Tribromophenol (S)	82	%	30-150		1	04/15/10 16:06	04/26/10 13:06	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**47.0**	mg/L	10.0	5.0	1		04/15/10 15:58		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**20.0**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-19 **Lab ID: 10126413011** Collected: 04/12/10 11:35 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.35J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:12	7440-38-2	
Chromium	**0.66**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:12	7440-47-3	
Copper	**1.5**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:12	7440-50-8	
Zinc	**4.5J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:12	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.14J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:31	7440-38-2	
Chromium, Dissolved	**0.34J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:31	7440-47-3	
Copper, Dissolved	**0.91**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:31	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:31	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 18:23	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 18:23	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 18:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 18:23	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/15/10 16:56	04/22/10 18:23	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 18:23	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 18:23	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/15/10 16:56	04/22/10 18:23	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/15/10 16:56	04/22/10 18:23	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 13:19	87-86-5	
2,4,6-Tribromophenol (S)	80	%	30-150		1	04/15/10 16:06	04/26/10 13:19	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**39.0**	mg/L	10.0	5.0	1		04/15/10 15:58		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**13.1**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-19 **Lab ID: 10126413012** Collected: 04/12/10 12:07 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.67**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:25	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:25	7440-47-3	
Copper	**0.70**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:25	7440-50-8	
Zinc	**7.2**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:25	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.70**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:36	7440-38-2	
Chromium, Dissolved	**0.43J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:36	7440-47-3	
Copper, Dissolved	**0.51**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:36	7440-50-8	
Zinc, Dissolved	**6.8**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:36	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:42	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	208-96-8	
Anthracene	**0.025J**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/22/10 18:42	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/15/10 16:56	04/22/10 18:42	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/22/10 18:42	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/15/10 16:56	04/22/10 18:42	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:42	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/22/10 18:42	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/15/10 16:56	04/22/10 18:42	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/15/10 16:56	04/22/10 18:42	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.32J**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 13:33	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/15/10 16:06	04/26/10 13:33	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**149**	mg/L	10.0	5.0	1		04/15/10 15:59		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**<1.0**	mg/L	2.1	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSW0410-21 **Lab ID: 10126413013** Collected: 04/12/10 13:30 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.42J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:41	7440-38-2	
Chromium	**0.65**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:41	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:41	7440-50-8	
Zinc	**6.4**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:41	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.17J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 16:40	7440-38-2	
Chromium, Dissolved	**0.34J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 16:40	7440-47-3	
Copper, Dissolved	**3.0**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 16:40	7440-50-8	
Zinc, Dissolved	**3.0J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 16:40	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:01	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 19:01	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:01	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:01	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:01	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:01	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:01	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	04/15/10 16:56	04/22/10 19:01	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/15/10 16:56	04/22/10 19:01	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 13:47	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/15/10 16:06	04/26/10 13:47	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**53.0**	mg/L	10.0	5.0	1		04/15/10 15:30		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.6**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBIA0410-21 **Lab ID: 10126413014** Collected: 04/12/10 13:54 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.36J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:46	7440-38-2	
Chromium	**0.52**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:46	7440-47-3	
Copper	**1.3**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:46	7440-50-8	
Zinc	**4.0J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:46	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.20J**	ug/L	0.50	0.062	1	04/16/10 11:36	04/19/10 17:29	7440-38-2	
Chromium, Dissolved	**0.41J**	ug/L	0.50	0.24	1	04/16/10 11:36	04/19/10 17:29	7440-47-3	
Copper, Dissolved	**1.4**	ug/L	0.50	0.20	1	04/16/10 11:36	04/20/10 12:31	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/16/10 11:36	04/19/10 17:29	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:20	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/22/10 19:20	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/22/10 19:20	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/22/10 19:20	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/22/10 19:20	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:20	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/22/10 19:20	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/15/10 16:56	04/22/10 19:20	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/15/10 16:56	04/22/10 19:20	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 14:01	87-86-5	
2,4,6-Tribromophenol (S)	84	%	30-150		1	04/15/10 16:06	04/26/10 14:01	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**53.0**	mg/L	10.0	5.0	1		04/15/10 15:30		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**6.9**	mg/L	2.0	1.0	1		04/16/10 14:34		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Sample: MBSA0410-21 **Lab ID: 10126413015** Collected: 04/12/10 14:03 Received: 04/14/10 09:58 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.0**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:50	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:50	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:50	7440-50-8	
Zinc	**<1.3**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.9**	ug/L	0.50	0.062	1	04/16/10 11:36	04/19/10 17:34	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:36	04/19/10 17:34	7440-47-3	
Copper, Dissolved	**0.43J**	ug/L	0.50	0.20	1	04/16/10 11:36	04/20/10 12:36	7440-50-8	
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/16/10 11:36	04/19/10 17:34	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:29	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	120-12-7	
Benzo(a)anthracene	**0.025J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	56-55-3	
Benzo(a)pyrene	**0.015J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	50-32-8	
Benzo(b)fluoranthene	**0.030J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 17:29	191-24-2	
Benzo(k)fluoranthene	**0.014J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	207-08-9	
Chrysene	**0.025J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	53-70-3	
Fluoranthene	**0.030J**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:29	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 17:29	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:29	85-01-8	
Pyrene	**0.027J**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:29	129-00-0	
2-Fluorobiphenyl (S)	82	%	58-125		1	04/16/10 16:51	04/21/10 17:29	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/16/10 16:51	04/21/10 17:29	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 14:15	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 14:15	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**379**	mg/L	10.0	5.0	1		04/16/10 15:19		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**87.2**	mg/L	10.0	5.0	1		04/16/10 14:34		

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: MPRP/19967 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

METHOD BLANK: 773504 Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/21/10 12:52	
Chromium	ug/L	<0.24	0.50	04/21/10 12:52	
Copper	ug/L	<0.20	0.50	04/21/10 12:52	
Zinc	ug/L	<1.3	5.0	04/21/10 12:52	

LABORATORY CONTROL SAMPLE: 773505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	80.7	101	85-115	
Copper	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	82.3	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773506 773507

Parameter	Units	10126413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	80	80	79.8	80.0	99	100	75-125	.4	20	
Chromium	ug/L	0.90	80	80	81.0	82.0	100	101	75-125	1	20	
Copper	ug/L	1.4	80	80	84.6	85.0	104	105	75-125	.5	20	
Zinc	ug/L	3.5J	80	80	84.3	84.7	101	101	75-125	.5	20	

MATRIX SPIKE SAMPLE: 773508

Parameter	Units	10126413011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	79.3	99	75-125	
Chromium	ug/L	0.66	80	80.1	99	75-125	
Copper	ug/L	1.5	80	83.3	102	75-125	
Zinc	ug/L	4.5J	80	86.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: MPRP/19966 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013

METHOD BLANK: 773499 Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/16/10 14:26	
Chromium, Dissolved	ug/L	<0.24	0.50	04/16/10 14:26	
Copper, Dissolved	ug/L	<0.20	0.50	04/16/10 14:26	
Zinc, Dissolved	ug/L	<1.3	5.0	04/16/10 14:26	

LABORATORY CONTROL SAMPLE: 773500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.0	103	85-115	
Chromium, Dissolved	ug/L	80	81.3	102	85-115	
Copper, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	83.6	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773501 773502

Parameter	Units	10126348001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.16J	80	80	81.4	83.2	101	104	75-125	2	20	
Chromium, Dissolved	ug/L	0.36J	80	80	81.1	82.1	101	102	75-125	1	20	
Copper, Dissolved	ug/L	0.72	80	80	86.3	86.4	107	107	75-125	.1	20	
Zinc, Dissolved	ug/L	1.9J	80	80	86.1	85.6	105	105	75-125	.6	20	

MATRIX SPIKE SAMPLE: 773503

Parameter	Units	10126413004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.18J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	79.2	99	75-125	
Copper, Dissolved	ug/L	0.59	80	83.7	104	75-125	
Zinc, Dissolved	ug/L	2.1J	80	83.6	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: MPRP/19986 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126413014, 10126413015

METHOD BLANK: 774438 | Matrix: Water
Associated Lab Samples: 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/19/10 16:01	
Chromium, Dissolved	ug/L	<0.24	0.50	04/19/10 16:01	
Copper, Dissolved	ug/L	<0.20	0.50	04/20/10 11:25	
Zinc, Dissolved	ug/L	<1.3	5.0	04/19/10 16:01	

LABORATORY CONTROL SAMPLE: 774439

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	76.5	96	85-115	
Chromium, Dissolved	ug/L	80	80.8	101	85-115	
Copper, Dissolved	ug/L	80	84.8	106	85-115	
Zinc, Dissolved	ug/L	80	75.8	95	85-115	

MATRIX SPIKE SAMPLE: 774442

Parameter	Units	253480006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.12J	80	81.5	102	75-125	
Chromium, Dissolved	ug/L	0.35J	80	82.2	102	75-125	
Copper, Dissolved	ug/L	2.2	80	81.9	100	75-125	
Zinc, Dissolved	ug/L	43.3	80	125	103	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774658 774659

Parameter	Units	20776039 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.89	80	80	98.0	89.9	121	111	75-125	9	20	
Chromium, Dissolved	ug/L	ND	80	80	99.1	91.7	124	114	75-125	8	20	
Copper, Dissolved	ug/L	0.73	80	80	78.8	86.8	98	108	75-125	10	20	
Zinc, Dissolved	ug/L	ND	80	80	95.5	86.0	116	104	75-125	10	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12706 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

METHOD BLANK: 773748 | Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/21/10 15:55	
Acenaphthylene	ug/L	<0.0040	0.040	04/21/10 15:55	
Anthracene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/21/10 15:55	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Chrysene	ug/L	<0.0030	0.040	04/21/10 15:55	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluoranthene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluorene	ug/L	<0.0030	0.040	04/21/10 15:55	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/21/10 15:55	
Naphthalene	ug/L	<0.0050	0.040	04/21/10 15:55	
Phenanthrene	ug/L	<0.0060	0.040	04/21/10 15:55	
Pyrene	ug/L	<0.0060	0.040	04/21/10 15:55	
2-Fluorobiphenyl (S)	%	84	58-125	04/21/10 15:55	
Terphenyl-d14 (S)	%	98	57-134	04/21/10 15:55	

LABORATORY CONTROL SAMPLE & LCSD: 773749 773750

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	2	20	
Acenaphthylene	ug/L	1	0.81	0.82	81	82	51-125	2	20	
Anthracene	ug/L	1	1.1	1.1	108	108	58-125	.3	20	
Benzo(a)anthracene	ug/L	1	0.79	0.80	79	80	61-125	2	20	
Benzo(a)pyrene	ug/L	1	0.97	0.97	97	97	56-125	.7	20	
Benzo(b)fluoranthene	ug/L	1	0.81	0.84	81	84	54-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.47	0.53	47	53	42-125	11	20	
Benzo(k)fluoranthene	ug/L	1	1.2	1.2	123	120	60-125	2	20	
Chrysene	ug/L	1	1.0	1.0	103	104	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.49	0.54	49	54	46-125	9	20	
Fluoranthene	ug/L	1	0.89	0.90	89	90	54-125	1	20	
Fluorene	ug/L	1	0.83	0.82	83	82	55-125	1	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.58	0.61	58	61	46-125	5	20	
Naphthalene	ug/L	1	0.74	0.77	74	77	47-125	4	20	
Phenanthrene	ug/L	1	0.83	0.83	83	83	55-125	.6	20	
Pyrene	ug/L	1	1.0	1.0	101	102	57-125	.5	20	
2-Fluorobiphenyl (S)	%				75	76	58-125			
Terphenyl-d14 (S)	%				94	94	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12716 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126413015

METHOD BLANK: 774461 | Matrix: Water
Associated Lab Samples: 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 21:35	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 21:35	
Anthracene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 21:35	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Chrysene	ug/L	<0.0030	0.040	04/20/10 21:35	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluorene	ug/L	<0.0030	0.040	04/20/10 21:35	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 21:35	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 21:35	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 21:35	
Pyrene	ug/L	<0.0060	0.040	04/20/10 21:35	
2-Fluorobiphenyl (S)	%	88	58-125	04/20/10 21:35	
Terphenyl-d14 (S)	%	90	57-134	04/20/10 21:35	

LABORATORY CONTROL SAMPLE: 774462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.90	90	56-125	
Acenaphthylene	ug/L	1	0.93	93	51-125	
Anthracene	ug/L	1	1.1	108	58-125	
Benzo(a)anthracene	ug/L	1	0.89	89	61-125	
Benzo(a)pyrene	ug/L	1	0.92	92	56-125	
Benzo(b)fluoranthene	ug/L	1	0.86	86	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.87	87	42-125	
Benzo(k)fluoranthene	ug/L	1	1.0	103	60-125	
Chrysene	ug/L	1	0.96	96	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.87	87	46-125	
Fluoranthene	ug/L	1	0.93	93	54-125	
Fluorene	ug/L	1	0.94	94	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.87	87	46-125	
Naphthalene	ug/L	1	0.81	81	47-125	
Phenanthrene	ug/L	1	0.87	87	55-125	
Pyrene	ug/L	1	1.0	101	57-125	
2-Fluorobiphenyl (S)	%			86	58-125	
Terphenyl-d14 (S)	%			92	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774463 774464

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0062	1	1	0.92	0.88	90	85	56-125	4	30	
Acenaphthylene	ug/L	<0.0041	1	1	0.90	0.85	88	82	51-125	5	30	
Anthracene	ug/L	<0.0052	1	1	1.1	1.1	108	104	58-125	3	30	
Benzo(a)anthracene	ug/L	<0.0031	1	1	0.80	0.78	78	75	61-125	3	30	
Benzo(a)pyrene	ug/L	<0.0031	1	1	0.91	0.91	89	87	56-125	.3	30	
Benzo(b)fluoranthene	ug/L	<0.0052	1	1	0.93	0.92	90	88	54-125	1	30	
Benzo(g,h,i)perylene	ug/L	<0.0021	1	1	0.77	0.81	75	77	41-125	5	30	
Benzo(k)fluoranthene	ug/L	<0.0052	1	1	0.94	0.95	91	91	60-125	1	30	
Chrysene	ug/L	<0.0031	1	1	1.0	1.1	99	101	64-125	3	30	
Dibenz(a,h)anthracene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	.4	30	
Fluoranthene	ug/L	<0.0041	1	1	0.92	0.91	90	88	51-125	1	30	
Fluorene	ug/L	<0.0031	1	1	0.90	0.90	88	86	55-125	.6	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	.8	30	
Naphthalene	ug/L	<0.0052	1	1	0.84	0.80	82	77	34-125	5	30	
Phenanthrene	ug/L	<0.0062	1	1	0.89	0.88	87	85	55-125	.8	30	
Pyrene	ug/L	<0.0062	1	1	1.0	1.0	100	98	50-127	.3	30	
2-Fluorobiphenyl (S)	%						84	76	58-125			
Terphenyl-d14 (S)	%						87	85	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12705 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005

METHOD BLANK: 773677 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 12:15	
2,4,6-Tribromophenol (S)	%	91	30-150	04/20/10 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 773678 773679

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.90	0.93	90	93	41-137	3	20	
2,4,6-Tribromophenol (S)	%				96	95	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: OEXT/12714 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

METHOD BLANK: 774206 — Matrix: Water
Associated Lab Samples: 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/26/10 11:43	
2,4,6-Tribromophenol (S)	%	85	30-150	04/26/10 11:43	

LABORATORY CONTROL SAMPLE: 774207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.66	66	41-137	
2,4,6-Tribromophenol (S)	%			87	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774208 774209

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1.1	1	0.58	0.50J	55	49	30-150		30	
2,4,6-Tribromophenol (S)	%						87	85	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: WET/18769 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

METHOD BLANK: 773921 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/15/10 15:49	

LABORATORY CONTROL SAMPLE: 773922

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	20.9	19.0	91	80-120	

SAMPLE DUPLICATE: 773923

Parameter	Units	10126310001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1800	1790	.9	20	

SAMPLE DUPLICATE: 773924

Parameter	Units	10126413005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	45.0	47.0	4	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: WET/18790 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126413015

METHOD BLANK: 774703 | Matrix: Water
Associated Lab Samples: 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/16/10 15:19	

LABORATORY CONTROL SAMPLE: 774704

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	20.9	24.0	115	80-120	

SAMPLE DUPLICATE: 774705

Parameter	Units	10126496004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	79.0	74.0	7	20	

SAMPLE DUPLICATE: 774706

Parameter	Units	10126496012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	248	251	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

QC Batch: WET/18791 — Analysis Method: SM 2540D
QC Batch Method: SM 2540D — Analysis Description: TSS, Low Level
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

METHOD BLANK: 774707 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/16/10 14:34	

METHOD BLANK: 774711 — Matrix: Water
Associated Lab Samples: 10126413001, 10126413002, 10126413003, 10126413004, 10126413005, 10126413006, 10126413007, 10126413008, 10126413009, 10126413010, 10126413011, 10126413012, 10126413013, 10126413014, 10126413015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/16/10 14:35	

LABORATORY CONTROL SAMPLE & LCSD: 774708 776065

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	26.2	27.8	27.8	106	106	80-120	0	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5447

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5456

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126413001	**MBSW0410-02**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413002	**MBIA0410-02**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413003	**MBSA0410-02**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413004	**MBSW0410-03**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413005	**MBIA0410-03**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413006	**MBSA0410-03**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413007	**MBSW0410-17**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413008	**MBIA0410-17**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413009	**MBSA0410-17**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413010	**MBSW0410-19**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413011	**MBIA0410-19**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413012	**MBSA0410-19**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413013	**MBSW0410-21**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413014	**MBIA0410-21**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413015	**MBSA0410-21**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126413001	**MBSW0410-02**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413002	**MBIA0410-02**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413003	**MBSA0410-02**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413004	**MBSW0410-03**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413005	**MBIA0410-03**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413006	**MBSA0410-03**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413007	**MBSW0410-17**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413008	**MBIA0410-17**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413009	**MBSA0410-17**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413010	**MBSW0410-19**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413011	**MBIA0410-19**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413012	**MBSA0410-19**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413013	**MBSW0410-21**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126413014	**MBIA0410-21**	EPA 3020	MPRP/19986	EPA 6020	ICPM/8204
10126413015	**MBSA0410-21**	EPA 3020	MPRP/19986	EPA 6020	ICPM/8204
10126413001	**MBSW0410-02**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413002	**MBIA0410-02**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413003	**MBSA0410-02**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413004	**MBSW0410-03**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413005	**MBIA0410-03**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413006	**MBSA0410-03**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413007	**MBSW0410-17**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413008	**MBIA0410-17**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413009	**MBSA0410-17**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413010	**MBSW0410-19**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413011	**MBIA0410-19**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413012	**MBSA0410-19**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413013	**MBSW0410-21**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413014	**MBIA0410-21**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126413015	**MBSA0410-21**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126413001	**MBSW0410-02**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126413

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126413002	**MBIA0410-02**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413003	**MBSA0410-02**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413004	**MBSW0410-03**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413005	**MBIA0410-03**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126413006	**MBSA0410-03**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413007	**MBSW0410-17**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413008	**MBIA0410-17**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413009	**MBSA0410-17**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413010	**MBSW0410-19**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413011	**MBIA0410-19**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413012	**MBSA0410-19**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413013	**MBSW0410-21**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413014	**MBIA0410-21**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413015	**MBSA0410-21**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126413001	**MBSW0410-02**	SM 2540C	WET/18769		
10126413002	**MBIA0410-02**	SM 2540C	WET/18769		
10126413003	**MBSA0410-02**	SM 2540C	WET/18769		
10126413004	**MBSW0410-03**	SM 2540C	WET/18769		
10126413005	**MBIA0410-03**	SM 2540C	WET/18769		
10126413006	**MBSA0410-03**	SM 2540C	WET/18769		
10126413007	**MBSW0410-17**	SM 2540C	WET/18769		
10126413008	**MBIA0410-17**	SM 2540C	WET/18769		
10126413009	**MBSA0410-17**	SM 2540C	WET/18769		
10126413010	**MBSW0410-19**	SM 2540C	WET/18769		
10126413011	**MBIA0410-19**	SM 2540C	WET/18769		
10126413012	**MBSA0410-19**	SM 2540C	WET/18769		
10126413013	**MBSW0410-21**	SM 2540C	WET/18769		
10126413014	**MBIA0410-21**	SM 2540C	WET/18769		
10126413015	**MBSA0410-21**	SM 2540C	WET/18790		
10126413001	**MBSW0410-02**	SM 2540D	WET/18791		
10126413002	**MBIA0410-02**	SM 2540D	WET/18791		
10126413003	**MBSA0410-02**	SM 2540D	WET/18791		
10126413004	**MBSW0410-03**	SM 2540D	WET/18791		
10126413005	**MBIA0410-03**	SM 2540D	WET/18791		
10126413006	**MBSA0410-03**	SM 2540D	WET/18791		
10126413007	**MBSW0410-17**	SM 2540D	WET/18791		
10126413008	**MBIA0410-17**	SM 2540D	WET/18791		
10126413009	**MBSA0410-17**	SM 2540D	WET/18791		
10126413010	**MBSW0410-19**	SM 2540D	WET/18791		
10126413011	**MBIA0410-19**	SM 2540D	WET/18791		
10126413012	**MBSA0410-19**	SM 2540D	WET/18791		
10126413013	**MBSW0410-21**	SM 2540D	WET/18791		
10126413014	**MBIA0410-21**	SM 2540D	WET/18791		
10126413015	**MBSA0410-21**	SM 2540D	WET/18791		

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TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

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Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

10126413

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample Preservative

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM (None)	*PCP EPA Method 8270-SIM (None)	Total Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	Total Suspended Solids (None)	Total Dissolved Solids (None)		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
MBSW0410-02	4-12-10/14:55	Water	8	X	X	X	X	X	X		001
MBIA0410-02	4-12-10/15:28	Water	8	X	X	X	X	X	X		002
MBSA0410-02	4-12-10/15:34	Water	8	X	X	X	X	X	X		003
MBSW0410-03	4-12-10/16:30	Water	8	X	X	X	X	X	X		004
MBIA0410-03	4-12-10/16:55	Water	8	X	X	X	X	X	X		005
MBSA0410-03	4-12-10/17:01	Water	8	X	X	X	X	X	X		006
MBSW0410-17	4-12-10/10:05	Water	8	X	X	X	X	X	X		007
MBIA0410-17	4-12-10/10:30	Water	8	X	X	X	X	X	X		008
MBSA0410-17	4-12-10/10:43	Water	8	X	X	X	X	X	X		009
MBSW0410-19	4-12-10/11:30	Water	8	X	X	X	X	X	X		010
MBIA0410-19	4-12-10/11:35	Water	8	X	X	X	X	X	X		011

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Pace MN	Pace MN
Signature: Jason Miles	Time & Date: 04/13/10 0730	Signature: Alex Kulzer	Time & Date: 4.14.10 0958

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T = 0.5, 1.1, 0.0, 0.1, 1.1, 1.1, 0.8, 0.8

1026413

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample Preservative

Requested Analyses

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM (None)	*PCP EPA Method 8270-SIM (None)	Total Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	Total Suspended Solids (None)	Total Dissolved Solids (None)		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
MBSA0410-19	4-12-10/12:07	Water	8	X	X	X	X	X	X		012
MBSW0410-21	4-12-10/1330	Water	8	X	X	X	X	X	X		013
MBSD0410-21	4-12-10/1324	Water	8	X	X	X	X	X	X		014
MBSA0410-21	4-12-10/1403	Water	8	X	X	X	X	X	X		015
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By: [illegible]	Agency/Agent: PBL MN
Signature: [illegible]	Time & Date: 04/13/10 0750	Signature: Alex Kulzer	Time & Date: 4.14.10 0958

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Fe 0.5u, 1.1, 0.0, 0.1, 1.1, 1.1, 0.1, 0.8

JM

[redacted]

Pace Analytical

Client Name: Hart Crowser **Project #** L012641 3

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ✓ **No** _____

Thermometer Used 80344942 or 179425 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature _____ **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4-14-10

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-includes date/time/ID/Analysis Matrix: LOT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # 101-015
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: CAW **Date:** 4-14-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Analytical Services, Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 23, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 13, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126348001	**MBSW0410-01**	Water	04/09/10 12:26	04/13/10 10:00
10126348002	**MBSW0410-14**	Water	04/09/10 08:58	04/13/10 10:00
10126348003	**MBIA0410-14**	Water	04/09/10 09:38	04/13/10 10:00
10126348004	**MBSA0410-14**	Water	04/09/10 09:45	04/13/10 10:00
10126348005	**MBIA0410-14R**	Water	04/09/10 13:35	04/13/10 10:00
10126348006	**MBFF0410-0409**	Water	04/09/10 13:33	04/13/10 10:00

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Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126348001	**MBSW0410-01**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348002	**MBSW0410-14**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348003	**MBIA0410-14**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348004	**MBSA0410-14**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348005	**MBIA0410-14R**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10126348006	**MBFF0410-0409**	EPA 6020	CJS	4	PASI-M

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: April 23, 2010

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: April 23, 2010

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 23, 2010

General Information:
5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5451

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSSV/5456

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 23, 2010

General Information:
5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5447

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: April 23, 2010

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 23, 2010

General Information:
4 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBIA0410-14 (Lab ID: 10126348003)
- MBSA0410-14 (Lab ID: 10126348004)
- MBSW0410-01 (Lab ID: 10126348001)
- MBSW0410-14 (Lab ID: 10126348002)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: WET/18751

R1: RPD value was outside control limits.
- LCSD (Lab ID: 773542)
  - Total Suspended Solids

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Batch Comments:

LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.
- QC Batch: WET / 18751

This data package has been reviewed for quality and completeness and is approved for release.

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www.pacelabs.com

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBSW0410-01 **Lab ID: 10126348001** Collected: 04/09/10 12:26 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.48J**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:10	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:10	7440-47-3	
Copper	**2.6**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:10	7440-50-8	
Zinc	**3.6J**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:10	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.16J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 14:35	7440-38-2	
Chromium, Dissolved	**0.36J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 14:35	7440-47-3	
Copper, Dissolved	**0.72**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 14:35	7440-50-8	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 14:35	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 02:57	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 02:57	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 02:57	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 02:57	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/14/10 16:04	04/21/10 02:57	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 02:57	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 17:08	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 17:08	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**61.0**	mg/L	10.0	5.0	1		04/14/10 17:55		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**63.8**	mg/L	2.0	1.0	1		04/14/10 18:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBSW0410-14 **Lab ID: 10126348002** Collected: 04/09/10 08:58 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:14	7440-38-2	
Chromium	**0.78**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:14	7440-47-3	
Copper	**1.5**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:14	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:14	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.23J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 14:51	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 14:51	7440-47-3	
Copper, Dissolved	**0.70**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 14:51	7440-50-8	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 14:51	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 03:16	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 03:16	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 03:16	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 03:16	129-00-0	
2-Fluorobiphenyl (S)	**65**	%	58-125		1	04/14/10 16:04	04/21/10 03:16	321-60-8	
Terphenyl-d14 (S)	**83**	%	57-134		1	04/14/10 16:04	04/21/10 03:16	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 17:21	87-86-5	
2,4,6-Tribromophenol (S)	**93**	%	30-150		1	04/14/10 16:53	04/20/10 17:21	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**57.0**	mg/L	10.0	5.0	1		04/14/10 17:55		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**61.3**	mg/L	2.0	1.0	1		04/14/10 18:04		~~22~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBIA0410-14 **Lab ID: 10126348003** Collected: 04/09/10 09:38 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.7**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:18	7440-38-2	
Chromium	**1.5**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:18	7440-47-3	
Copper	**3.0**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:18	7440-50-8	
Zinc	**8.0**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:18	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**2.3**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 14:55	7440-38-2	
Chromium, Dissolved	**0.67**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 14:55	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 14:55	7440-50-8	
Zinc, Dissolved	**4.9J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 14:55	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 03:35	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/21/10 03:35	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 03:35	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 03:35	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	04/14/10 16:04	04/21/10 03:35	321-60-8	
Terphenyl-d14 (S)	81	%	57-134		1	04/14/10 16:04	04/21/10 03:35	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 17:35	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/14/10 16:53	04/20/10 17:35	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**83.0**	mg/L	10.0	5.0	1		04/14/10 17:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**328**	mg/L	2.1	1.0	1		04/14/10 18:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBSA0410-14 **Lab ID: 10126348004** Collected: 04/09/10 09:45 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**4.8**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:22	7440-38-2	
Chromium	**6.1**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:22	7440-47-3	
Copper	**9.5**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:22	7440-50-8	
Zinc	**23.2**	ug/L	5 0	1.3	1	04/14/10 14:21	04/16/10 04:22	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.6**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:00	7440-38-2	
Chromium, Dissolved	**0.32J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:00	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:00	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:00	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/21/10 16:52	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/21/10 16:52	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/21/10 16:52	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/21/10 16:52	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/15/10 16:56	04/21/10 16:52	321-60-8	
Terphenyl-d14 (S)	94	%	57-134		1	04/15/10 16:56	04/21/10 16:52	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/14/10 16:53	04/20/10 17:49	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/14/10 16:53	04/20/10 17:49	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**98.0**	mg/L	10.0	5.0	1		04/14/10 17:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**509**	mg/L	4.0	2.0	1		04/14/10 18:04		~~ZZ~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBIA0410-14R **Lab ID: 10126348005** Collected: 04/09/10 13:35 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:54	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:54	7440-47-3	
Copper	**0.36J**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:54	7440-50-8	
Zinc	**1.7J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/21/10 17:10	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/21/10 17:10	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/21/10 17:10	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/21/10 17:10	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/15/10 16:56	04/21/10 17:10	321-60-8	
Terphenyl-d14 (S)	90	%	57-134		1	04/15/10 16:56	04/21/10 17:10	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 18:03	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/14/10 16:53	04/20/10 18:03	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBFF0410-0409 **Lab ID: 10126348006** Collected: 04/09/10 13:33 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:16	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:16	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:16	7440-50-8	
Zinc, Dissolved	**1.7J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:16	7440-66-6	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: MPRP/19950 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

METHOD BLANK: 773112 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/16/10 03:03	
Chromium	ug/L	<0.24	0.50	04/16/10 03:03	
Copper	ug/L	<0.20	0.50	04/16/10 03:03	
Zinc	ug/L	<1.3	5.0	04/16/10 03:03	

LABORATORY CONTROL SAMPLE: 773113

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	78.6	98	85-115	
Chromium	ug/L	80	80.8	101	85-115	
Copper	ug/L	80	82.3	103	85-115	
Zinc	ug/L	80	82.6	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773114 773115

Parameter	Units	20774761 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	8.6	80	80	79.6	88.6	89	100	75-125	11	20	
Chromium	ug/L	0.73	80	80	69.4	79.0	86	98	75-125	13	20	
Copper	ug/L	ND	80	80	70.8	79.6	88	99	75-125	12	20	
Zinc	ug/L	ND	80	80	69.4	78.8	86	97	75-125	13	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: MPRP/19967 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET
Associated Lab Samples: 10126348005

METHOD BLANK: 773504 | Matrix: Water
Associated Lab Samples: 10126348005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/21/10 12:52	
Chromium	ug/L	<0.24	0.50	04/21/10 12:52	
Copper	ug/L	<0.20	0.50	04/21/10 12:52	
Zinc	ug/L	<1.3	5.0	04/21/10 12:52	

LABORATORY CONTROL SAMPLE: 773505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	80.7	101	85-115	
Copper	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	82.3	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773506 773507

Parameter	Units	10126413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	80	80	79.8	80.0	99	100	75-125	0	20	
Chromium	ug/L	0.90	80	80	81.0	82.0	100	101	75-125	1	20	
Copper	ug/L	1.4	80	80	84.6	85.0	104	105	75-125	0	20	
Zinc	ug/L	3.5J	80	80	84.3	84.7	101	101	75-125	0	20	

MATRIX SPIKE SAMPLE: 773508

Parameter	Units	10126413011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	79.3	99	75-125	
Chromium	ug/L	0.66	80	80.1	99	75-125	
Copper	ug/L	1.5	80	83.3	102	75-125	
Zinc	ug/L	4.5J	80	86.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: MPRP/19966 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348006

METHOD BLANK: 773499 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/16/10 14:26	
Chromium, Dissolved	ug/L	<0.24	0.50	04/16/10 14:26	
Copper, Dissolved	ug/L	<0.20	0.50	04/16/10 14:26	
Zinc, Dissolved	ug/L	<1.3	5.0	04/16/10 14:26	

LABORATORY CONTROL SAMPLE: 773500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.0	103	85-115	
Chromium, Dissolved	ug/L	80	81.3	102	85-115	
Copper, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	83.6	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773501 773502

Parameter	Units	10126348001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.16J	80	80	81.4	83.2	101	104	75-125	2	20	
Chromium, Dissolved	ug/L	0.36J	80	80	81.1	82.1	101	102	75-125	1	20	
Copper, Dissolved	ug/L	0.72	80	80	86.3	86.4	107	107	75-125	0	20	
Zinc, Dissolved	ug/L	1.9J	80	80	86.1	85.6	105	105	75-125	1	20	

MATRIX SPIKE SAMPLE: 773503

Parameter	Units	10126413004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.18J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	79.2	99	75-125	
Copper, Dissolved	ug/L	0.59	80	83.7	104	75-125	
Zinc, Dissolved	ug/L	2.1J	80	83.6	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: OEXT/12703 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126348001, 10126348002, 10126348003

METHOD BLANK: 773520 | Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 13:43	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 13:43	
Anthracene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 13:43	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Chrysene	ug/L	<0.0030	0.040	04/20/10 13:43	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluorene	ug/L	<0.0030	0.040	04/20/10 13:43	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 13:43	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 13:43	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 13:43	
Pyrene	ug/L	<0.0060	0.040	04/20/10 13:43	
2-Fluorobiphenyl (S)	%	75	58-125	04/20/10 13:43	
Terphenyl-d14 (S)	%	88	57-134	04/20/10 13:43	

LABORATORY CONTROL SAMPLE & LCSD: 773521 773522

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	1	20	
Acenaphthylene	ug/L	1	0.82	0.81	82	81	51-125	1	20	
Anthracene	ug/L	1	1.0	0.96	100	96	58-125	4	20	
Benzo(a)anthracene	ug/L	1	0.86	0.83	86	83	61-125	3	20	
Benzo(a)pyrene	ug/L	1	0.90	0.88	90	88	56-125	2	20	
Benzo(b)fluoranthene	ug/L	1	0.86	0.80	86	80	54-125	7	20	
Benzo(g,h,i)perylene	ug/L	1	0.86	0.86	86	86	42-125	1	20	
Benzo(k)fluoranthene	ug/L	1	0.97	0.98	97	98	60-125	1	20	
Chrysene	ug/L	1	0.95	0.95	95	95	64-125	0	20	
Dibenz(a,h)anthracene	ug/L	1	0.86	0.86	86	86	46-125	1	20	
Fluoranthene	ug/L	1	0.92	0.87	92	87	54-125	5	20	
Fluorene	ug/L	1	0.82	0.81	82	81	55-125	2	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.85	0.85	85	85	46-125	0	20	
Naphthalene	ug/L	1	0.73	0.79	73	79	47-125	7	20	
Phenanthrene	ug/L	1	0.87	0.81	87	81	55-125	7	20	
Pyrene	ug/L	1	0.98	0.97	98	97	57-125	1	20	
2-Fluorobiphenyl (S)	%				72	73	58-125			
Terphenyl-d14 (S)	%				87	87	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: OEXT/12706 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126348004, 10126348005

METHOD BLANK: 773748 | Matrix: Water
Associated Lab Samples: 10126348004, 10126348005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/21/10 15:55	
Acenaphthylene	ug/L	<0.0040	0.040	04/21/10 15:55	
Anthracene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/21/10 15:55	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Chrysene	ug/L	<0.0030	0.040	04/21/10 15:55	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluoranthene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluorene	ug/L	<0.0030	0.040	04/21/10 15:55	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/21/10 15:55	
Naphthalene	ug/L	<0.0050	0.040	04/21/10 15:55	
Phenanthrene	ug/L	<0.0060	0.040	04/21/10 15:55	
Pyrene	ug/L	<0.0060	0.040	04/21/10 15:55	
2-Fluorobiphenyl (S)	%	84	58-125	04/21/10 15:55	
Terphenyl-d14 (S)	%	98	57-134	04/21/10 15:55	

LABORATORY CONTROL SAMPLE & LCSD: 773749 773750

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	2	20	
Acenaphthylene	ug/L	1	0.81	0.82	81	82	51-125	2	20	
Anthracene	ug/L	1	1.1	1.1	108	108	58-125	0	20	
Benzo(a)anthracene	ug/L	1	0.79	0.80	79	80	61-125	2	20	
Benzo(a)pyrene	ug/L	1	0.97	0.97	97	97	56-125	1	20	
Benzo(b)fluoranthene	ug/L	1	0.81	0.84	81	84	54-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.47	0.53	47	53	42-125	11	20	
Benzo(k)fluoranthene	ug/L	1	1.2	1.2	123	120	60-125	2	20	
Chrysene	ug/L	1	1.0	1.0	103	104	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.49	0.54	49	54	46-125	9	20	
Fluoranthene	ug/L	1	0.89	0.90	89	90	54-125	1	20	
Fluorene	ug/L	1	0.83	0.82	83	82	55-125	1	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.58	0.61	58	61	46-125	5	20	
Naphthalene	ug/L	1	0.74	0.77	74	77	47-125	4	20	
Phenanthrene	ug/L	1	0.83	0.83	83	83	55-125	1	20	
Pyrene	ug/L	1	1.0	1.0	101	102	57-125	1	20	
2-Fluorobiphenyl (S)	%				75	76	58-125			
Terphenyl-d14 (S)	%				94	94	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: OEXT/12705 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348005

METHOD BLANK: 773677 — Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 12:15	
2,4,6-Tribromophenol (S)	%	91	30-150	04/20/10 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 773678 773679

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.90	0.93	90	93	41-137	3	20	
2,4,6-Tribromophenol (S)	%				96	95	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: WET/18749 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

METHOD BLANK: 773529 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/14/10 17:51	

LABORATORY CONTROL SAMPLE: 773530

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	25.0	109	80-120	

SAMPLE DUPLICATE: 773531

Parameter	Units	10126195006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	899	903	0	20	

SAMPLE DUPLICATE: 773532

Parameter	Units	10126195015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	73.0	72.0	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: WET/18751 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

METHOD BLANK: 773540 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.8J	2.0	04/14/10 18:04	

METHOD BLANK: 773543 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.2J	2.0	04/14/10 18:04	

LABORATORY CONTROL SAMPLE & LCSD: 773541 773542

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	33.7	27.1	118	95	80-120	22	20	R1

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: WET/18751

[1] LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.

Batch: MSSV/5447

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5451

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5456

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

R1	RPD value was outside control limits.
Z2	Analyte present in the associated method blank above the detection limit.

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126348001	**MBSW0410-01**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348002	**MBSW0410-14**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348003	**MBIA0410-14**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348004	**MBSA0410-14**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348005	**MBIA0410-14R**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126348001	**MBSW0410-01**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348002	**MBSW0410-14**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348003	**MBIA0410-14**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348004	**MBSA0410-14**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348006	**MBFF0410-0409**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348001	**MBSW0410-01**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126348002	**MBSW0410-14**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126348003	**MBIA0410-14**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126348004	**MBSA0410-14**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126348005	**MBIA0410-14R**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126348001	**MBSW0410-01**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348002	**MBSW0410-14**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348003	**MBIA0410-14**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348004	**MBSA0410-14**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348005	**MBIA0410-14R**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348001	**MBSW0410-01**	SM 2540C	WET/18749		
10126348002	**MBSW0410-14**	SM 2540C	WET/18749		
10126348003	**MBIA0410-14**	SM 2540C	WET/18749		
10126348004	**MBSA0410-14**	SM 2540C	WET/18749		
10126348001	**MBSW0410-01**	SM 2540D	WET/18751		
10126348002	**MBSW0410-14**	SM 2540D	WET/18751		
10126348003	**MBIA0410-14**	SM 2540D	WET/18751		
10126348004	**MBSA0410-14**	SM 2540D	WET/18751		

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1D126348

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
				Sample Preservative: None	None	HNO3-	HNO3-	None	None		
MBSW0410-01	4-9-10/1226	Water	8	X	X	X	X	X	X		001
MBSW0410-14	4-9-10/0838	Water	8	X	X	X	X	X	X		002
MBIA0410-14	4-9-10/0838	Water	8	X	X	X	X	X	X		003
MBSA0410-14	4-9-10/0945	Water	8	X	X	X	X	X	X		004
MBIA0410-14R	4-9-10/1335	Water	5	X	X	X					005
MBFF0410-0409	4-9-10/1337	Water	1				X				006
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Ryan Neitzel	Pace
Signature:	Time & Date: 4/12/10 0845	Signature:	Time & Date: 4/13/10 1000

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T-2.4°C, 0.6, 3.2°

[redacted]

Pace Analytical

Client Name: Hart crowser **Project #** 10-8MJ00

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7955 3472 9140, 8717 9843 0810 8717 9843 0820

Custody Seal on Cooler/Box Present: ☐ yes ☐ no **Seals intact:** ☑ yes ☐ no

[redacted]

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ☑ **No** _____

Thermometer Used 80344042 or 179425 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.4, 0.6, 3.2 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: 4/13/10

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☐Yes	☑No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-includes date/time/ID/Analysis Matrix: wt				
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes	☐No	☐N/A	13. ☑ HNO3 2/2 ☐ H2SO4 1/1 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	Samp # #1-#4 #5, #6
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	☑No		Initial when completed ☑ Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMO **Date:** 4-13-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina Office, Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

January 04, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 13, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126348001	**MBSW0410-01**	Water	04/09/10 12:26	04/13/10 10:00
10126348002	**MBSW0410-14**	Water	04/09/10 08:58	04/13/10 10:00
10126348003	**MBIA0410-14**	Water	04/09/10 09:38	04/13/10 10:00
10126348004	**MBSA0410-14**	Water	04/09/10 09:45	04/13/10 10:00
10126348005	**MBIA0410-14R**	Water	04/09/10 13:35	04/13/10 10:00
10126348006	**MBFF0410-0409**	Water	04/09/10 13:33	04/13/10 10:00

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126348001	**MBSW0410-01**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348002	**MBSW0410-14**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348003	**MBIA0410-14**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348004	**MBSA0410-14**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126348005	**MBIA0410-14R**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10126348006	**MBFF0410-0409**	EPA 6020	CJS	4	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 04, 2011

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 04, 2011

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5451

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSSV/5456

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5447

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 04, 2011

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 04, 2011

General Information:
4 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: WET/18751

R1: RPD value was outside control limits.
- LCSD (Lab ID: 773542)
  - Total Suspended Solids

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Batch Comments:

LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.
- QC Batch: WET / 18751

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBSW0410-01 **Lab ID: 10126348001** Collected: 04/09/10 12:26 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.48J**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:10	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:10	7440-47-3	
Copper	**2.6**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:10	7440-50-8	
Zinc	**3.6J**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:10	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.16J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 14:35	7440-38-2	
Chromium, Dissolved	**0.36J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 14:35	7440-47-3	
Copper, Dissolved	**0.72**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 14:35	7440-50-8	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 14:35	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 02:57	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 02:57	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 02:57	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 02:57	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 02:57	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 02:57	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 02:57	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/14/10 16:04	04/21/10 02:57	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 02:57	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 17:08	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 17:08	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**61.0**	mg/L	10.0	5.0	1		04/14/10 17:55		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**12.8**	mg/L	2.0	1.0	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBSW0410-14 **Lab ID: 10126348002** Collected: 04/09/10 08:58 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:14	7440-38-2	
Chromium	**0.78**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:14	7440-47-3	
Copper	**1.5**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:14	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:14	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.23J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 14:51	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 14:51	7440-47-3	
Copper, Dissolved	**0.70**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 14:51	7440-50-8	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 14:51	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 03:16	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 03:16	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 03:16	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 03:16	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/21/10 03:16	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 03:16	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 03:16	129-00-0	
2-Fluorobiphenyl (S)	65	%	58-125		1	04/14/10 16:04	04/21/10 03:16	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/21/10 03:16	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 17:21	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/14/10 16:53	04/20/10 17:21	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**57.0**	mg/L	10.0	5.0	1		04/14/10 17:55		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**12.3**	mg/L	2.0	1.0	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBIA0410-14 **Lab ID: 10126348003** Collected: 04/09/10 09:38 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.7**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:18	7440-38-2	
Chromium	**1.5**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:18	7440-47-3	
Copper	**3.0**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:18	7440-50-8	
Zinc	**8.0**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:18	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**2.3**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 14:55	7440-38-2	
Chromium, Dissolved	**0.67**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 14:55	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 14:55	7440-50-8	
Zinc, Dissolved	**4.9J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 14:55	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 03:35	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/21/10 03:35	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/21/10 03:35	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 03:35	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/21/10 03:35	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 03:35	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 03:35	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	04/14/10 16:04	04/21/10 03:35	321-60-8	
Terphenyl-d14 (S)	81	%	57-134		1	04/14/10 16:04	04/21/10 03:35	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 17:35	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/14/10 16:53	04/20/10 17:35	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**83.0**	mg/L	10.0	5.0	1		04/14/10 17:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**65.6**	mg/L	2.1	1.0	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBSA0410-14 **Lab ID: 10126348004** Collected: 04/09/10 09:45 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**4.8**	ug/L	0.50	0.062	1	04/14/10 14:21	04/16/10 04:22	7440-38-2	
Chromium	**6.1**	ug/L	0.50	0.24	1	04/14/10 14:21	04/16/10 04:22	7440-47-3	
Copper	**9.5**	ug/L	0.50	0.20	1	04/14/10 14:21	04/16/10 04:22	7440-50-8	
Zinc	**23.2**	ug/L	5.0	1.3	1	04/14/10 14:21	04/16/10 04:22	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.6**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:00	7440-38-2	
Chromium, Dissolved	**0.32J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:00	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:00	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:00	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/21/10 16:52	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/15/10 16:56	04/21/10 16:52	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/15/10 16:56	04/21/10 16:52	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/15/10 16:56	04/21/10 16:52	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/15/10 16:56	04/21/10 16:52	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/21/10 16:52	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/15/10 16:56	04/21/10 16:52	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/15/10 16:56	04/21/10 16:52	321-60-8	
Terphenyl-d14 (S)	94	%	57-134		1	04/15/10 16:56	04/21/10 16:52	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/14/10 16:53	04/20/10 17:49	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/14/10 16:53	04/20/10 17:49	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**98.0**	mg/L	10.0	5.0	1		04/14/10 17:56		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**102**	mg/L	4.0	2.0	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBIA0410-14R **Lab ID: 10126348005** Collected: 04/09/10 13:35 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:54	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:54	7440-47-3	
Copper	**0.36J**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:54	7440-50-8	
Zinc	**1.7J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/21/10 17:10	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/15/10 16:56	04/21/10 17:10	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/15/10 16:56	04/21/10 17:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/15/10 16:56	04/21/10 17:10	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/15/10 16:56	04/21/10 17:10	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/21/10 17:10	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/15/10 16:56	04/21/10 17:10	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/15/10 16:56	04/21/10 17:10	321-60-8	
Terphenyl-d14 (S)	90	%	57-134		1	04/15/10 16:56	04/21/10 17:10	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 18:03	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/14/10 16:53	04/20/10 18:03	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Sample: MBFF0410-0409 **Lab ID: 10126348006** Collected: 04/09/10 13:33 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:16	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:16	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:16	7440-50-8	
Zinc, Dissolved	**1.7J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:16	7440-66-6	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: MPRP/19950 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

METHOD BLANK: 773112 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/16/10 03:03	
Chromium	ug/L	<0.24	0.50	04/16/10 03:03	
Copper	ug/L	<0.20	0.50	04/16/10 03:03	
Zinc	ug/L	<1.3	5.0	04/16/10 03:03	

LABORATORY CONTROL SAMPLE: 773113

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	78.6	98	85-115	
Chromium	ug/L	80	80.8	101	85-115	
Copper	ug/L	80	82.3	103	85-115	
Zinc	ug/L	80	82.6	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773114 773115

Parameter	Units	20774761 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	8.6	80	80	79.6	88.6	89	100	75-125	11	20	
Chromium	ug/L	0.73	80	80	69.4	79.0	86	98	75-125	13	20	
Copper	ug/L	ND	80	80	70.8	79.6	88	99	75-125	12	20	
Zinc	ug/L	ND	80	80	69.4	78.8	86	97	75-125	13	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: MPRP/19967 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET
Associated Lab Samples: 10126348005

METHOD BLANK: 773504 | Matrix: Water
Associated Lab Samples: 10126348005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/21/10 12:52	
Chromium	ug/L	<0.24	0.50	04/21/10 12:52	
Copper	ug/L	<0.20	0.50	04/21/10 12:52	
Zinc	ug/L	<1.3	5.0	04/21/10 12:52	

LABORATORY CONTROL SAMPLE: 773505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	80.7	101	85-115	
Copper	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	82.3	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773506 773507

Parameter	Units	10126413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	80	80	79.8	80.0	99	100	75-125	.4	20	
Chromium	ug/L	0.90	80	80	81.0	82.0	100	101	75-125	1	20	
Copper	ug/L	1.4	80	80	84.6	85.0	104	105	75-125	.5	20	
Zinc	ug/L	3.5J	80	80	84.3	84.7	101	101	75-125	.5	20	

MATRIX SPIKE SAMPLE: 773508

Parameter	Units	10126413011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	79.3	99	75-125	
Chromium	ug/L	0.66	80	80.1	99	75-125	
Copper	ug/L	1.5	80	83.3	102	75-125	
Zinc	ug/L	4.5J	80	86.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: MPRP/19966 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348006

METHOD BLANK: 773499 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/16/10 14:26	
Chromium, Dissolved	ug/L	<0.24	0.50	04/16/10 14:26	
Copper, Dissolved	ug/L	<0.20	0.50	04/16/10 14:26	
Zinc, Dissolved	ug/L	<1.3	5.0	04/16/10 14:26	

LABORATORY CONTROL SAMPLE: 773500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.0	103	85-115	
Chromium, Dissolved	ug/L	80	81.3	102	85-115	
Copper, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	83.6	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773501 773502

Parameter	Units	10126348001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.16J	80	80	81.4	83.2	101	104	75-125	2	20	
Chromium, Dissolved	ug/L	0.36J	80	80	81.1	82.1	101	102	75-125	1	20	
Copper, Dissolved	ug/L	0.72	80	80	86.3	86.4	107	107	75-125	.1	20	
Zinc, Dissolved	ug/L	1.9J	80	80	86.1	85.6	105	105	75-125	.6	20	

MATRIX SPIKE SAMPLE: 773503

Parameter	Units	10126413004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.18J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	79.2	99	75-125	
Copper, Dissolved	ug/L	0.59	80	83.7	104	75-125	
Zinc, Dissolved	ug/L	2.1J	80	83.6	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: OEXT/12703 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126348001, 10126348002, 10126348003

METHOD BLANK: 773520 | Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 13:43	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 13:43	
Anthracene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 13:43	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Chrysene	ug/L	<0.0030	0.040	04/20/10 13:43	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluorene	ug/L	<0.0030	0.040	04/20/10 13:43	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 13:43	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 13:43	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 13:43	
Pyrene	ug/L	<0.0060	0.040	04/20/10 13:43	
2-Fluorobiphenyl (S)	%	75	58-125	04/20/10 13:43	
Terphenyl-d14 (S)	%	88	57-134	04/20/10 13:43	

LABORATORY CONTROL SAMPLE & LCSD: 773521 773522

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	.9	20	
Acenaphthylene	ug/L	1	0.82	0.81	82	81	51-125	.9	20	
Anthracene	ug/L	1	1.0	0.96	100	96	58-125	4	20	
Benzo(a)anthracene	ug/L	1	0.86	0.83	86	83	61-125	3	20	
Benzo(a)pyrene	ug/L	1	0.90	0.88	90	88	56-125	2	20	
Benzo(b)fluoranthene	ug/L	1	0.86	0.80	86	80	54-125	7	20	
Benzo(g,h,i)perylene	ug/L	1	0.86	0.86	86	86	42-125	.8	20	
Benzo(k)fluoranthene	ug/L	1	0.97	0.98	97	98	60-125	.8	20	
Chrysene	ug/L	1	0.95	0.95	95	95	64-125	.4	20	
Dibenz(a,h)anthracene	ug/L	1	0.86	0.86	86	86	46-125	.5	20	
Fluoranthene	ug/L	1	0.92	0.87	92	87	54-125	5	20	
Fluorene	ug/L	1	0.82	0.81	82	81	55-125	2	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.85	0.85	85	85	46-125	.02	20	
Naphthalene	ug/L	1	0.73	0.79	73	79	47-125	7	20	
Phenanthrene	ug/L	1	0.87	0.81	87	81	55-125	7	20	
Pyrene	ug/L	1	0.98	0.97	98	97	57-125	1	20	
2-Fluorobiphenyl (S)	%				72	73	58-125			
Terphenyl-d14 (S)	%				87	87	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: OEXT/12706 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126348004, 10126348005

METHOD BLANK: 773748 | Matrix: Water
Associated Lab Samples: 10126348004, 10126348005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/21/10 15:55	
Acenaphthylene	ug/L	<0.0040	0.040	04/21/10 15:55	
Anthracene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/21/10 15:55	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/21/10 15:55	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/21/10 15:55	
Chrysene	ug/L	<0.0030	0.040	04/21/10 15:55	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluoranthene	ug/L	<0.0040	0.040	04/21/10 15:55	
Fluorene	ug/L	<0.0030	0.040	04/21/10 15:55	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/21/10 15:55	
Naphthalene	ug/L	<0.0050	0.040	04/21/10 15:55	
Phenanthrene	ug/L	<0.0060	0.040	04/21/10 15:55	
Pyrene	ug/L	<0.0060	0.040	04/21/10 15:55	
2-Fluorobiphenyl (S)	%	84	58-125	04/21/10 15:55	
Terphenyl-d14 (S)	%	98	57-134	04/21/10 15:55	

LABORATORY CONTROL SAMPLE & LCSD: 773749 773750

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	2	20	
Acenaphthylene	ug/L	1	0.81	0.82	81	82	51-125	2	20	
Anthracene	ug/L	1	1.1	1.1	108	108	58-125	.3	20	
Benzo(a)anthracene	ug/L	1	0.79	0.80	79	80	61-125	2	20	
Benzo(a)pyrene	ug/L	1	0.97	0.97	97	97	56-125	.7	20	
Benzo(b)fluoranthene	ug/L	1	0.81	0.84	81	84	54-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.47	0.53	47	53	42-125	11	20	
Benzo(k)fluoranthene	ug/L	1	1.2	1.2	123	120	60-125	2	20	
Chrysene	ug/L	1	1.0	1.0	103	104	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.49	0.54	49	54	46-125	9	20	
Fluoranthene	ug/L	1	0.89	0.90	89	90	54-125	1	20	
Fluorene	ug/L	1	0.83	0.82	83	82	55-125	1	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.58	0.61	58	61	46-125	5	20	
Naphthalene	ug/L	1	0.74	0.77	74	77	47-125	4	20	
Phenanthrene	ug/L	1	0.83	0.83	83	83	55-125	.6	20	
Pyrene	ug/L	1	1.0	1.0	101	102	57-125	.5	20	
2-Fluorobiphenyl (S)	%				75	76	58-125			
Terphenyl-d14 (S)	%				94	94	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: OEXT/12705 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348005

METHOD BLANK: 773677 — Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004, 10126348005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 12:15	
2,4,6-Tribromophenol (S)	%	91	30-150	04/20/10 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 773678 773679

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.90	0.93	90	93	41-137	3	20	
2,4,6-Tribromophenol (S)	%				96	95	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: WET/18749 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

METHOD BLANK: 773529 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/14/10 17:51	

LABORATORY CONTROL SAMPLE: 773530

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	25.0	109	80-120	

SAMPLE DUPLICATE: 773531

Parameter	Units	10126195006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	899	903	.4	20	

SAMPLE DUPLICATE: 773532

Parameter	Units	10126195015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	73.0	72.0	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

QC Batch: WET/18751 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

METHOD BLANK: 773540 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/14/10 18:04	

METHOD BLANK: 773543 Matrix: Water
Associated Lab Samples: 10126348001, 10126348002, 10126348003, 10126348004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/14/10 18:04	

LABORATORY CONTROL SAMPLE & LCSD: 773541 773542

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	33.7	27.1	118	95	80-120	22	20	R1

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: WET/18751

[1] LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.

Batch: MSSV/5447

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5451

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5456

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126348

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126348001	**MBSW0410-01**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348002	**MBSW0410-14**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348003	**MBIA0410-14**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348004	**MBSA0410-14**	EPA 3020	MPRP/19950	EPA 6020	ICPM/8190
10126348005	**MBIA0410-14R**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126348001	**MBSW0410-01**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348002	**MBSW0410-14**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348003	**MBIA0410-14**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348004	**MBSA0410-14**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348006	**MBFF0410-0409**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126348001	**MBSW0410-01**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126348002	**MBSW0410-14**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126348003	**MBIA0410-14**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126348004	**MBSA0410-14**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126348005	**MBIA0410-14R**	EPA 3510	OEXT/12706	EPA 8270 by SIM	MSSV/5456
10126348001	**MBSW0410-01**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348002	**MBSW0410-14**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348003	**MBIA0410-14**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348004	**MBSA0410-14**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348005	**MBIA0410-14R**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126348001	**MBSW0410-01**	SM 2540C	WET/18749		
10126348002	**MBSW0410-14**	SM 2540C	WET/18749		
10126348003	**MBIA0410-14**	SM 2540C	WET/18749		
10126348004	**MBSA0410-14**	SM 2540C	WET/18749		
10126348001	**MBSW0410-01**	SM 2540D	WET/18751		
10126348002	**MBSW0410-14**	SM 2540D	WET/18751		
10126348003	**MBIA0410-14**	SM 2540D	WET/18751		
10126348004	**MBSA0410-14**	SM 2540D	WET/18751		

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TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

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Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

1D126348

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3-	HNO3-	None	None		
MBSW0410-01	4-9-10/1226	Water	8	X	X	X	X	X	X		001
MBSW0410-14	4-9-10/0838	Water	8	X	X	X	X	X	X		002
MBIA0410-14	4-9-10/0838	Water	8	X	X	X	X	X	X		003
MBSA0410-14	4-9-10/0945	Water	8	X	X	X	X	X	X		004
MBIA0410-14R	4-9-10/1335	Water	5	X	X	X					005
MBFF0410-0409	4-9-10/1337	Water	1				X				006
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Ryan Neitzel	Pace
Signature:	Time & Date: 4/12/10 0845	Signature:	Time & Date: 4/13/10 1000

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T-2.4°C, 0.6, 3.2°

[redacted]

Pace Analytical

Client Name: Hart crowser **Project #** 10-8MJ00

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7955 3472 9140, 8717 9843 0810 8717 9843 0820

Custody Seal on Cooler/Box Present: ☐ yes ☐ no **Seals intact:** ☑ yes ☐ no

[redacted]

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ☑ **No** _____

Thermometer Used 80344042 or 179425 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.4, 0.6, 3.2 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: 4/13/10

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☐Yes	☑No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-includes date/time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes	☐No	☐N/A	13. ☑ HNO3 2/2 ☐ H2SO4 1/1 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	Samp # #1-#4 #5, #6
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	☑No		Initial when completed ☑ Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMO **Date:** 4-13-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina Office, Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
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(612)607-1700

April 23, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory between April 10, 2010 and April 13, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126195001	**MBSW0410-04**	Water	04/08/10 13:40	04/10/10 11:03
10126195002	**MBIA0410-04**	Water	04/08/10 14:05	04/10/10 11:03
10126195003	**MBSA0410 -04**	Water	04/08/10 14:10	04/10/10 11:03
10126195004	**MBSW0410 -05**	Water	04/08/10 12:03	04/10/10 11:03
10126195005	**MBIA0410 -05**	Water	04/08/10 12:35	04/10/10 11:03
10126195006	**MBSA0410 -05**	Water	04/08/10 12:45	04/10/10 11:03
10126195007	**MBSW0410 -07**	Water	04/08/10 08:30	04/10/10 11:03
10126195008	**MBIA0410 -07**	Water	04/08/10 09:08	04/10/10 11:03
10126195009	**MBIA0410 -08**	Water	04/08/10 18:55	04/10/10 11:03
10126195010	**MBSA0410 -08**	Water	04/08/10 11:06	04/10/10 11:03
10126195011	**MBSW0410 -11**	Water	04/08/10 15:45	04/10/10 11:03
10126195012	**MBIA0410 -11**	Water	04/08/10 16:18	04/10/10 11:03
10126195013	**MBSA0410 -11**	Water	04/08/10 16:30	04/10/10 11:03
10126195014	**MBSA0410-07**	Water	04/08/10 09:14	04/13/10 10:00
10126195015	**MBSW0410-08**	Water	04/08/10 10:13	04/13/10 10:00

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126195001	**MBSW0410-04**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195002	**MBIA0410-04**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195003	**MBSA0410 -04**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195004	**MBSW0410 -05**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195005	**MBIA0410 -05**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195006	**MBSA0410 -05**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195007	**MBSW0410 -07**	EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195008	**MBIA0410 -07**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195009	**MBIA0410 -08**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195010	**MBSA0410 -08**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195011	**MBSW0410 -11**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195012	**MBIA0410 -11**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195013	**MBSA0410 -11**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195014	**MBSA0410-07**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195015	**MBSW0410-08**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: April 23, 2010

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: April 23, 2010

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 23, 2010

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5451

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 23, 2010

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5446

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSSV/5447

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: April 23, 2010

General Information:
15 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 23, 2010

General Information:
15 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBIA0410 -05 (Lab ID: 10126195005)
- MBIA0410 -07 (Lab ID: 10126195008)
- MBIA0410 -08 (Lab ID: 10126195009)
- MBIA0410 -11 (Lab ID: 10126195012)
- MBIA0410-04 (Lab ID: 10126195002)
- MBSA0410 -04 (Lab ID: 10126195003)
- MBSA0410 -05 (Lab ID: 10126195006)
- MBSA0410 -08 (Lab ID: 10126195010)
- MBSA0410 -11 (Lab ID: 10126195013)
- MBSA0410-07 (Lab ID: 10126195014)
- MBSW0410 -05 (Lab ID: 10126195004)
- MBSW0410 -07 (Lab ID: 10126195007)
- MBSW0410 -11 (Lab ID: 10126195011)
- MBSW0410-04 (Lab ID: 10126195001)
- MBSW0410-08 (Lab ID: 10126195015)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: WET/18751

R1: RPD value was outside control limits.
- LCSD (Lab ID: 773542)
  - Total Suspended Solids

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Batch Comments:

LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.
- QC Batch: WET / 18751

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 23, 2010

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410-04 **Lab ID: 10126195001** Collected: 04/08/10 13:40 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.38J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:07	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:07	7440-47-3	
Copper	**1.6**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:07	7440-50-8	
Zinc	**3.4J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:07	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.24J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 18:45	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 18:45	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 18:45	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 18:45	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:13	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/20/10 22:13	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:13	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:13	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/14/10 16:04	04/20/10 22:13	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/14/10 16:04	04/20/10 22:13	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 07:28	87-86-5	
2,4,6-Tribromophenol (S)	97	%	30-150		1	04/12/10 13:21	04/20/10 07:28	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**54.0**	mg/L	10.0	5.0	1		04/13/10 14:31		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**55.5**	mg/L	2.1	1.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410-04 **Lab ID: 10126195002** Collected: 04/08/10 14:05 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.51**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 18:50	7440-38-2	
Chromium	**1.4**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 18:50	7440-47-3	
Copper	**2.3**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 18:50	7440-50-8	
Zinc	**4.8J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 18:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.25J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:02	7440-38-2	
Chromium, Dissolved	**0.39J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:02	7440-47-3	
Copper, Dissolved	**1.0**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:02	7440-50-8	
Zinc, Dissolved	**2.7J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:02	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:32	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/20/10 22:32	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:32	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:32	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/14/10 16:04	04/20/10 22:32	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/20/10 22:32	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/12/10 13:21	04/20/10 07:42	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 07:42	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**53.0**	mg/L	10.0	5.0	1		04/13/10 14:32		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**196**	mg/L	2.1	1.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -04 **Lab ID: 10126195003** Collected: 04/08/10 14:10 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**8.9**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 18:54	7440-38-2	
Chromium	**0.70**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 18:54	7440-47-3	
Copper	**1.6**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 18:54	7440-50-8	
Zinc	**4.2J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 18:54	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**9.0**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:06	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:06	7440-47-3	
Copper, Dissolved	**0.27J**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:06	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:06	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.61**	ug/L	0.043	0.0065	1	04/14/10 16:04	04/20/10 22:51	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/14/10 16:04	04/20/10 22:51	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	53-70-3	
Fluoranthene	**0.076**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	206-44-0	
Fluorene	**0.25**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	91-20-3	
Phenanthrene	**0.25**	ug/L	0.043	0.0065	1	04/14/10 16:04	04/20/10 22:51	85-01-8	
Pyrene	**0.050**	ug/L	0.043	0.0065	1	04/14/10 16:04	04/20/10 22:51	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/14/10 16:04	04/20/10 22:51	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/14/10 16:04	04/20/10 22:51	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/12/10 13:21	04/20/10 07:56	87-86-5	
2,4,6-Tribromophenol (S)	104	%	30-150		1	04/12/10 13:21	04/20/10 07:56	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**266**	mg/L	10.0	5.0	1		04/13/10 14:32		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**326**	mg/L	10.0	5.0	1		04/13/10 14:04		Z2

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410 -05 **Lab ID: 10126195004** Collected: 04/08/10 12.03 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.46J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 18:59	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 18:59	7440-47-3	
Copper	**2.0**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 18:59	7440-50-8	
Zinc	**3.6J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 18:59	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.22J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:10	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:10	7440-47-3	
Copper, Dissolved	**0.74**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:10	7440-50-8	
Zinc, Dissolved	1.7J	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:10	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/14/10 16:04	04/20/10 23:10	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/14/10 16:04	04/20/10 23:10	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	207-08-9	
Chrysene	**<0.0031**	ug/L	0 041	0.0031	1	04/14/10 16:04	04/20/10 23:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0 0041	1	04/14/10 16:04	04/20/10 23:10	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/14/10 16:04	04/20/10 23:10	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/14/10 16:04	04/20/10 23:10	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/14/10 16:04	04/20/10 23:10	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/20/10 23:10	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 08:09	87-86-5	
2,4,6-Tribromophenol (S)	97	%	30-150		1	04/12/10 13:21	04/20/10 08:09	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/13/10 14:33		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**72.0**	mg/L	2.1	1.0	1		04/13/10 14:04		

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -05 Lab ID: **10126195005** Collected: 04/08/10 12:35 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.60**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:03	7440-38-2	
Chromium	**1.8**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:03	7440-47-3	
Copper	**3.8**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:03	7440-50-8	
Zinc	**8.0**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:03	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:27	7440-38-2	
Chromium, Dissolved	**0.36J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:27	7440-47-3	
Copper, Dissolved	**1.3**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:27	7440-50-8	
Zinc, Dissolved	**3.5J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:27	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 23:29	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/20/10 23:29	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	53-70-3	
Fluoranthene	**0.014J**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 23:29	85-01-8	
Pyrene	**0.011J**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 23:29	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/14/10 16:04	04/20/10 23:29	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/20/10 23:29	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 08:23	87-86-5	
2,4,6-Tribromophenol (S)	102	%	30-150		1	04/12/10 13:21	04/20/10 08:23	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/13/10 14:33		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**195**	mg/L	2.1	1.0	1		04/13/10 14:04		~~22~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.. 10126195

Sample: MBSA0410 -05 **Lab ID: 10126195006** Collected: 04/08/10 12:45 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method. EPA 6020 Preparation Method: EPA 3020								
Arsenic	**23.5**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:36	7440-38-2	
Chromium	**0.48J**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:36	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:36	7440-50-8	
Zinc	**10.4**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:36	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method. EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**23.5**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:31	7440-38-2	
Chromium, Dissolved	**0.25J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:31	7440-47-3	
Copper, Dissolved	**0.30J**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:31	7440-50-8	
Zinc, Dissolved	**10.6**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:31	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.47**	ug/L	0.045	0.0067	1	04/14/10 16:04	04/20/10 23:48	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	208-96-8	
Anthracene	**0.017J**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	50-32-8	
Benzo(b)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.045	0.0022	1	04/14/10 16:04	04/20/10 23:48	191-24-2	
Benzo(k)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	53-70-3	
Fluoranthene	**0.060**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	206-44-0	
Fluorene	**0.11**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	193-39-5	
Naphthalene	**0.12**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	91-20-3	
Phenanthrene	**0.049**	ug/L	0.045	0.0067	1	04/14/10 16:04	04/20/10 23:48	85-01-8	
Pyrene	**0.042J**	ug/L	0.045	0.0067	1	04/14/10 16:04	04/20/10 23:48	129-00-0	
2-Fluorobiphenyl (S)	80	%	58-125		1	04/14/10 16:04	04/20/10 23:48	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/14/10 16:04	04/20/10 23:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.16**	ug/L	0.56	0.16	1	04/12/10 13:21	04/20/10 08:37	87-86-5	
2,4,6-Tribromophenol (S)	107	%	30-150		1	04/12/10 13:21	04/20/10 08:37	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**899**	mg/L	10.0	5.0	1		04/14/10 17:51		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**1700**	mg/L	20.0	10.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410 -07 **Lab ID: 10126195007** Collected: 04/08/10 08:30 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.48J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:41	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:41	7440-47-3	
Copper	**1.5**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:41	7440-50-8	
Zinc	**4.2J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:41	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.25J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:35	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:35	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:35	7440-50-8	
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:35	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:07	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 00:07	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:07	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:07	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/14/10 16:04	04/21/10 00:07	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/14/10 16:04	04/21/10 00:07	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/12/10 13:21	04/20/10 08:50	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/12/10 13:21	04/20/10 08:50	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**85.0**	mg/L	10.0	5.0	1		04/14/10 17:52		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**55.0**	mg/L	2.0	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -07 **Lab ID: 10126195008** Collected: 04/08/10 09:08 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.0**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:45	7440-38-2	
Chromium	**5.7**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:45	7440-47-3	
Copper	**9.2**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:45	7440-50-8	
Zinc	**22.1**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:45	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.28J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:39	7440-38-2	
Chromium, Dissolved	**0.35J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:39	7440-47-3	
Copper, Dissolved	**1.8**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:39	7440-50-8	
Zinc, Dissolved	**4.1J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:39	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:26	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 00:26	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:26	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:26	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/14/10 16:04	04/21/10 00:26	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 00:26	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/14/10 16:53	04/20/10 15:18	87-86-5	
2,4,6-Tribromophenol (S)	83	%	30-150		1	04/14/10 16:53	04/20/10 15:18	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**81.0**	mg/L	10.0	5.0	1		04/14/10 17:52		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**974**	mg/L	10.0	5.0	1		04/14/10 18:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -08 **Lab ID: 10126195009** Collected: 04/08/10 18:55 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.65**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:49	7440-38-2	
Chromium	**1.7**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:49	7440-47-3	
Copper	**3.0**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:49	7440-50-8	
Zinc	**7.3**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:49	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.26J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:44	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:44	7440-47-3	
Copper, Dissolved	**2.2**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:44	7440-50-8	
Zinc, Dissolved	**4.8J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:44	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 00:45	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 00:45	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 00:45	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 00:45	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/14/10 16:04	04/21/10 00:45	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 00:45	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/14/10 16:53	04/20/10 15:32	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/14/10 16:53	04/20/10 15:32	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**58.0**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**336**	mg/L	5.0	2.5	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -08 **Lab ID: 10126195010** Collected: 04/08/10 11:06 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**11.1**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:53	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:53	7440-47-3	
Copper	**0.20J**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:53	7440-50-8	
Zinc	**10.0**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:53	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**11.0**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:48	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:48	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:48	7440-50-8	
Zinc, Dissolved	8.3	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:48	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**2.7**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:04	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 01:04	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	53-70-3	
Fluoranthene	**0.46**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	206-44-0	
Fluorene	**0.11**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:04	85-01-8	
Pyrene	**0.24**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:04	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/14/10 16:04	04/21/10 01:04	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/14/10 16:04	04/21/10 01:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 15:45	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 15:45	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**335**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**104**	mg/L	3.3	1.7	1		04/14/10 18:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410 -11 **Lab ID: 10126195011** Collected: 04/08/10 15:45 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.41J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:57	7440-38-2	
Chromium	**0.93**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:57	7440-47-3	
Copper	**1.6**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:57	7440-50-8	
Zinc	**3.2J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:57	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.23J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:52	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:52	7440-47-3	
Copper, Dissolved	**0.87**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:52	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:52	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:23	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 01:23	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:23	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:23	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	04/14/10 16:04	04/21/10 01:23	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/21/10 01:23	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 15:59	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/14/10 16:53	04/20/10 15:59	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**65.0**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**57.5**	mg/L	2.2	1.1	1		04/14/10 18:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -11 **Lab ID: 10126195012** Collected: 04/08/10 16:18 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.41J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 20:01	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 20:01	7440-47-3	
Copper	**3.1**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 20:01	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 20:01	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.23J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:56	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:56	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:56	7440-50-8	
Zinc, Dissolved	**2.5J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:56	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 01:41	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/21/10 01:41	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 01:41	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 01:41	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	04/14/10 16:04	04/21/10 01:41	321-60-8	
Terphenyl-d14 (S)	79	%	57-134		1	04/14/10 16:04	04/21/10 01:41	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 16:13	87-86-5	
2,4,6-Tribromophenol (S)	84	%	30-150		1	04/14/10 16:53	04/20/10 16:13	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**59.6**	mg/L	2.1	1.1	1		04/14/10 18:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -11 **Lab ID: 10126195013** Collected: 04/08/10 16:30 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.5**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 20:06	7440-38-2	
Chromium	**2.9**	ug/L	0.50	0 24	1	04/13/10 14:21	04/14/10 20:06	7440-47-3	
Copper	**6.0**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 20:06	7440-50-8	
Zinc	**11.7**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 20:06	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.9**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 20:00	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 20:00	7440-47-3	
Copper, Dissolved	**0.61**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 20:00	7440-50-8	
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 20:00	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.31**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:00	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 02:00	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	206-44-0	
Fluorene	**0.041J**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:00	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:00	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/14/10 16:04	04/21/10 02:00	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 02:00	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/14/10 16:53	04/20/10 16:27	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 16:27	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**128**	mg/L	10.0	5.0	1		04/14/10 17:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**415**	mg/L	2.1	1.1	1		04/14/10 18:04		~~22~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410-07 **Lab ID: 10126195014** Collected: 04/08/10 09:14 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.8**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:58	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:58	7440-47-3	
Copper	**0.34J**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:58	7440-50-8	
Zinc	**16.5**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:58	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.7**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:21	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:21	7440-47-3	
Copper, Dissolved	**0.54**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:21	7440-50-8	
Zinc, Dissolved	**15.7**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:21	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**38.5**	ug/L	0.21	0.032	5	04/14/10 16:04	04/21/10 15:17	83-32-9	
Acenaphthylene	**0.29**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:19	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:19	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 02:19	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:19	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	53-70-3	
Fluoranthene	**0.10**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	206-44-0	
Fluorene	**10.4**	ug/L	0.21	0.016	5	04/14/10 16:04	04/21/10 15:17	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	193-39-5	
Naphthalene	**2.6**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	91-20-3	
Phenanthrene	**10.4**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:19	85-01-8	
Pyrene	**0.043**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:19	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/14/10 16:04	04/21/10 02:19	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/14/10 16:04	04/21/10 02:19	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/14/10 16:53	04/20/10 16:40	87-86-5	
2,4,6-Tribromophenol (S)	105	%	30-150		1	04/14/10 16:53	04/20/10 16:40	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**437**	mg/L	10.0	5.0	1		04/14/10 17:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**54.9**	mg/L	2.0	1.0	1		04/14/10 18:04		

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410-08 **Lab ID: 10126195015** Collected: 04/08/10 10:13 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.33J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 20:02	7440-38-2	
Chromium	**0.80**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 20:02	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 20:02	7440-50-8	
Zinc	**3.2J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 20:02	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.13J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:25	7440-38-2	
Chromium, Dissolved	**0.24J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:25	7440-47-3	
Copper, Dissolved	**0.83**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:25	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:25	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0067**	ug/L	0.044	0.0067	1	04/14/10 16:04	04/21/10 02:38	83-32-9	
Acenaphthylene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	208-96-8	
Anthracene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	50-32-8	
Benzo(b)fluoranthene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.044	0.0022	1	04/14/10 16:04	04/21/10 02:38	191-24-2	
Benzo(k)fluoranthene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	207-08-9	
Chrysene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	218-01-9	
Dibenz(a,h)anthracene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	53-70-3	
Fluoranthene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	206-44-0	
Fluorene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	193-39-5	
Naphthalene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	91-20-3	
Phenanthrene	**<0.0067**	ug/L	0.044	0.0067	1	04/14/10 16:04	04/21/10 02:38	85-01-8	
Pyrene	**<0.0067**	ug/L	0.044	0.0067	1	04/14/10 16:04	04/21/10 02:38	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	04/14/10 16:04	04/21/10 02:38	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 02:38	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/14/10 16:53	04/20/10 16 54	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 16:54	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**73.0**	mg/L	10.0	5.0	1		04/14/10 17:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**59.7**	mg/L	2.1	1.0	1		04/14/10 18:04		~~Z2~~

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19918 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

METHOD BLANK: 772027 — Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/14/10 18:42	
Chromium	ug/L	<0.24	0.50	04/14/10 18:42	
Copper	ug/L	<0.20	0.50	04/14/10 18:42	
Zinc	ug/L	<1.3	5.0	04/14/10 18:42	

LABORATORY CONTROL SAMPLE: 772028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	78.9	99	85-115	
Chromium	ug/L	80	79.1	99	85-115	
Copper	ug/L	80	81.2	101	85-115	
Zinc	ug/L	80	83.2	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 772029 772030

Parameter	Units	10126195001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.38J	80	80	81.8	81.7	102	102	75-125	0	20	
Chromium	ug/L	1.1	80	80	83.5	84.2	103	104	75-125	1	20	
Copper	ug/L	1.6	80	80	86.9	87.0	107	107	75-125	0	20	
Zinc	ug/L	3.4J	80	80	87.3	88.3	105	106	75-125	1	20	

MATRIX SPIKE SAMPLE: 772031

Parameter	Units	10126195013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	2.5	80	84.2	102	75-125	
Chromium	ug/L	2.9	80	86.2	104	75-125	
Copper	ug/L	6.0	80	89.4	104	75-125	
Zinc	ug/L	11.7	80	96.9	106	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19967 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET
Associated Lab Samples: 10126195014, 10126195015

METHOD BLANK: 773504 | Matrix: Water
Associated Lab Samples: 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/21/10 12:52	
Chromium	ug/L	<0.24	0.50	04/21/10 12:52	
Copper	ug/L	<0.20	0.50	04/21/10 12:52	
Zinc	ug/L	<1.3	5.0	04/21/10 12:52	

LABORATORY CONTROL SAMPLE: 773505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	80.7	101	85-115	
Copper	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	82.3	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773506 773507

Parameter	Units	10126413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	80	80	79.8	80.0	99	100	75-125	0	20	
Chromium	ug/L	0.90	80	80	81.0	82.0	100	101	75-125	1	20	
Copper	ug/L	1.4	80	80	84.6	85.0	104	105	75-125	0	20	
Zinc	ug/L	3.5J	80	80	84.3	84.7	101	101	75-125	0	20	

MATRIX SPIKE SAMPLE: 773508

Parameter	Units	10126413011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	79.3	99	75-125	
Chromium	ug/L	0.66	80	80.1	99	75-125	
Copper	ug/L	1.5	80	83.3	102	75-125	
Zinc	ug/L	4.5J	80	86.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19916 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

METHOD BLANK: 772015 | Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/15/10 17:43	
Chromium, Dissolved	ug/L	<0.24	0.50	04/15/10 17:43	
Copper, Dissolved	ug/L	<0.20	0.50	04/15/10 17:43	
Zinc, Dissolved	ug/L	<1.3	5.0	04/15/10 17:43	

LABORATORY CONTROL SAMPLE: 772016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	80.1	100	85-115	
Chromium, Dissolved	ug/L	80	78.8	99	85-115	
Copper, Dissolved	ug/L	80	80.9	101	85-115	
Zinc, Dissolved	ug/L	80	81.6	102	85-115	

MATRIX SPIKE SAMPLE: 772017

Parameter	Units	20774394 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	4.4	80	84.7	100	75-125	
Chromium, Dissolved	ug/L	0.68	80	77.5	96	75-125	
Copper, Dissolved	ug/L	0.53	80	78.1	97	75-125	
Zinc, Dissolved	ug/L	ND	80	79.4	94	75-125	

MATRIX SPIKE SAMPLE: 772018

Parameter	Units	10126195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.24J	80	81.9	102	75-125	
Chromium, Dissolved	ug/L	0.27J	80	81.7	102	75-125	
Copper, Dissolved	ug/L	1.1	80	84.2	104	75-125	
Zinc, Dissolved	ug/L	1.6J	80	83.9	103	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19966 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126195014, 10126195015

METHOD BLANK: 773499 | Matrix: Water
Associated Lab Samples: 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/16/10 14:26	
Chromium, Dissolved	ug/L	<0.24	0.50	04/16/10 14:26	
Copper, Dissolved	ug/L	<0.20	0.50	04/16/10 14:26	
Zinc, Dissolved	ug/L	<1.3	5.0	04/16/10 14:26	

LABORATORY CONTROL SAMPLE: 773500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.0	103	85-115	
Chromium, Dissolved	ug/L	80	81.3	102	85-115	
Copper, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	83.6	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773501 773502

Parameter	Units	10126348001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.16J	80	80	81.4	83.2	101	104	75-125	2	20	
Chromium, Dissolved	ug/L	0.36J	80	80	81.1	82.1	101	102	75-125	1	20	
Copper, Dissolved	ug/L	0.72	80	80	86.3	86.4	107	107	75-125	0	20	
Zinc, Dissolved	ug/L	1.9J	80	80	86.1	85.6	105	105	75-125	1	20	

MATRIX SPIKE SAMPLE: 773503

Parameter	Units	10126413004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.18J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	79.2	99	75-125	
Copper, Dissolved	ug/L	0.59	80	83.7	104	75-125	
Zinc, Dissolved	ug/L	2.1J	80	83.6	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: OEXT/12703 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773520 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 13:43	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 13:43	
Anthracene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 13:43	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Chrysene	ug/L	<0.0030	0.040	04/20/10 13:43	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluorene	ug/L	<0.0030	0.040	04/20/10 13:43	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 13:43	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 13:43	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 13:43	
Pyrene	ug/L	<0.0060	0.040	04/20/10 13:43	
2-Fluorobiphenyl (S)	%	75	58-125	04/20/10 13:43	
Terphenyl-d14 (S)	%	88	57-134	04/20/10 13:43	

LABORATORY CONTROL SAMPLE & LCSD: 773521 773522

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	1	20	
Acenaphthylene	ug/L	1	0.82	0.81	82	81	51-125	1	20	
Anthracene	ug/L	1	1.0	0.96	100	96	58-125	4	20	
Benzo(a)anthracene	ug/L	1	0.86	0.83	86	83	61-125	3	20	
Benzo(a)pyrene	ug/L	1	0.90	0.88	90	88	56-125	2	20	
Benzo(b)fluoranthene	ug/L	1	0.86	0.80	86	80	54-125	7	20	
Benzo(g,h,i)perylene	ug/L	1	0.86	0.86	86	86	42-125	1	20	
Benzo(k)fluoranthene	ug/L	1	0.97	0.98	97	98	60-125	1	20	
Chrysene	ug/L	1	0.95	0.95	95	95	64-125	0	20	
Dibenz(a,h)anthracene	ug/L	1	0.86	0.86	86	86	46-125	1	20	
Fluoranthene	ug/L	1	0.92	0.87	92	87	54-125	5	20	
Fluorene	ug/L	1	0.82	0.81	82	81	55-125	2	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.85	0.85	85	85	46-125	0	20	
Naphthalene	ug/L	1	0.73	0.79	73	79	47-125	7	20	
Phenanthrene	ug/L	1	0.87	0.81	87	81	55-125	7	20	
Pyrene	ug/L	1	0.98	0.97	98	97	57-125	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

LABORATORY CONTROL SAMPLE & LCSD: 773521 773522

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
2-Fluorobiphenyl (S)	%				72	73	58-125			
Terphenyl-d14 (S)	%				87	87	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: OEXT/12671 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

METHOD BLANK: 772061 — Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 03:50	
2,4,6-Tribromophenol (S)	%	98	30-150	04/20/10 03:50	

LABORATORY CONTROL SAMPLE & LCSD: 772062 772063

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	1.1	1.0	108	105	41-137	3	20	
2,4,6-Tribromophenol (S)	%				103	100	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: OEXT/12705 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773677 — Matrix: Water
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 12:15	
2,4,6-Tribromophenol (S)	%	91	30-150	04/20/10 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 773678 773679

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.90	0.93	90	93	41-137	3	20	
2,4,6-Tribromophenol (S)	%				96	95	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18737 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005

METHOD BLANK: 772441 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/13/10 14:24	

LABORATORY CONTROL SAMPLE: 772442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	23.0	100	80-120	

SAMPLE DUPLICATE: 772443

Parameter	Units	10126041001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	565	579	2	20	

SAMPLE DUPLICATE: 772444

Parameter	Units	10126106001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	109	117	7	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18749 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773529 — Matrix: Water
Associated Lab Samples: 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/14/10 17:51	

LABORATORY CONTROL SAMPLE: 773530

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	25.0	109	80-120	

SAMPLE DUPLICATE: 773531

Parameter	Units	10126195006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	899	903	0	20	

SAMPLE DUPLICATE: 773532

Parameter	Units	10126195015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	73.0	72.0	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18736 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

METHOD BLANK: 772436 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.4J	2.0	04/13/10 14:04	

METHOD BLANK: 772439 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/13/10 14:04	

LABORATORY CONTROL SAMPLE & LCSD: 772437 772438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	32.9	33.8	115	118	80-120	3	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18751 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773540 Matrix: Water
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.8J	2.0	04/14/10 18:04	

METHOD BLANK: 773543 Matrix: Water
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.2J	2.0	04/14/10 18:04	

LABORATORY CONTROL SAMPLE & LCSD: 773541 773542

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	33.7	27.1	118	95	80-120	22	20	R1

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: WET/18751

[1] LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.

Batch: MSSV/5446

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5447

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5451

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

R1	RPD value was outside control limits.
Z2	Analyte present in the associated method blank above the detection limit.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126195001	**MBSW0410-04**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195002	**MBIA0410-04**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195003	**MBSA0410 -04**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195004	**MBSW0410 -05**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195005	**MBIA0410 -05**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195006	**MBSA0410 -05**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195007	**MBSW0410 -07**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195008	**MBIA0410 -07**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195009	**MBIA0410 -08**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195010	**MBSA0410 -08**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195011	**MBSW0410 -11**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195012	**MBIA0410 -11**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195013	**MBSA0410 -11**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195014	**MBSA0410-07**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126195015	**MBSW0410-08**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126195001	**MBSW0410-04**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195002	**MBIA0410-04**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195003	**MBSA0410 -04**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195004	**MBSW0410 -05**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195005	**MBIA0410 -05**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195006	**MBSA0410 -05**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195007	**MBSW0410 -07**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195008	**MBIA0410 -07**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195009	**MBIA0410 -08**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195010	**MBSA0410 -08**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195011	**MBSW0410 -11**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195012	**MBIA0410 -11**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195013	**MBSA0410 -11**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195014	**MBSA0410-07**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126195015	**MBSW0410-08**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126195001	**MBSW0410-04**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195002	**MBIA0410-04**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195003	**MBSA0410 -04**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195004	**MBSW0410 -05**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195005	**MBIA0410 -05**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195006	**MBSA0410 -05**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195007	**MBSW0410 -07**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195008	**MBIA0410 -07**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195009	**MBIA0410 -08**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195010	**MBSA0410 -08**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195011	**MBSW0410 -11**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195012	**MBIA0410 -11**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195013	**MBSA0410 -11**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195014	**MBSA0410-07**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195015	**MBSW0410-08**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195001	**MBSW0410-04**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126195002	**MBIA0410-04**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195003	**MBSA0410 -04**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195004	**MBSW0410 -05**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195005	**MBIA0410 -05**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195006	**MBSA0410 -05**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195007	**MBSW0410 -07**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195008	**MBIA0410 -07**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195009	**MBIA0410 -08**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195010	**MBSA0410 -08**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195011	**MBSW0410 -11**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195012	**MBIA0410 -11**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195013	**MBSA0410 -11**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195014	**MBSA0410-07**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195015	**MBSW0410-08**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195001	**MBSW0410-04**	SM 2540C	WET/18737		
10126195002	**MBIA0410-04**	SM 2540C	WET/18737		
10126195003	**MBSA0410 -04**	SM 2540C	WET/18737		
10126195004	**MBSW0410 -05**	SM 2540C	WET/18737		
10126195005	**MBIA0410 -05**	SM 2540C	WET/18737		
10126195006	**MBSA0410 -05**	SM 2540C	WET/18749		
10126195007	**MBSW0410 -07**	SM 2540C	WET/18749		
10126195008	**MBIA0410 -07**	SM 2540C	WET/18749		
10126195009	**MBIA0410 -08**	SM 2540C	WET/18749		
10126195010	**MBSA0410 -08**	SM 2540C	WET/18749		
10126195011	**MBSW0410 -11**	SM 2540C	WET/18749		
10126195012	**MBIA0410 -11**	SM 2540C	WET/18749		
10126195013	**MBSA0410 -11**	SM 2540C	WET/18749		
10126195014	**MBSA0410-07**	SM 2540C	WET/18749		
10126195015	**MBSW0410-08**	SM 2540C	WET/18749		
10126195001	**MBSW0410-04**	SM 2540D	WET/18736		
10126195002	**MBIA0410-04**	SM 2540D	WET/18736		
10126195003	**MBSA0410 -04**	SM 2540D	WET/18736		
10126195004	**MBSW0410 -05**	SM 2540D	WET/18736		
10126195005	**MBIA0410 -05**	SM 2540D	WET/18736		
10126195006	**MBSA0410 -05**	SM 2540D	WET/18736		
10126195007	**MBSW0410 -07**	SM 2540D	WET/18736		
10126195008	**MBIA0410 -07**	SM 2540D	WET/18751		
10126195009	**MBIA0410 -08**	SM 2540D	WET/18751		
10126195010	**MBSA0410 -08**	SM 2540D	WET/18751		
10126195011	**MBSW0410 -11**	SM 2540D	WET/18751		
10126195012	**MBIA0410 -11**	SM 2540D	WET/18751		
10126195013	**MBSA0410 -11**	SM 2540D	WET/18751		
10126195014	**MBSA0410-07**	SM 2540D	WET/18751		
10126195015	**MBSW0410-08**	SM 2540D	WET/18751		

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2 Carts in C-10 1012 6145

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
			Sample Preservative	None	None	HNO3	HNO3	None	None		
MBSW0410-04	4/8/10 1340	Water	8	X	X	X	X	X	X		001
MBIA0410-04	4-8-10/1405	Water	8	X	X	X	X	X	X		002
MBSA0410-04	4-8-10/140	Water	8	X	X	X	X	X	X		003
MBSW0410-05	4-8-10/1203	Water	8	X	X	X	X	X	X		004
MBIA0410-05	4-8-10/1235	Water	8	X	X	X	X	X	X		005
MBSA0410-05	4-8-10/1245	Water	8	X	X	X	X	X	X		006
[illegible]10-07	4-8-10/0830	Water	8	X	X	X	X	X	X		007
[illegible]10-07	4-8-10/0808	Water	8	X	X	X	X	X	X		008
[illegible]A0410-07	4-8-10/0914	Water	8	X	X	X	X	X	X		014
MBSW0410-08	4-8-10/1013	Water	8	X	X	X	X	X	X		015
MBIA0410-08	4-8-10/1055	Water	8	X	X	X	X	X	X		009

Requested Analyses

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	[illegible]	
Signature: [illegible]	Time & Date: 4/9/10 0730	Signature:	Time & Date: 4/10/10 1103

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

1012695

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other _____

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments
				Sample Preservative							
				None	None	HNO3	HNO3	None	None		
				Requested Analyses							
MBSA0410-08	4-8-10	Water	8	X	X	X	X	X	X		J10
MBSW0410-11	4-8-10/1545	Water	8	X	X	X	X	X	X		J11
MBIA0410-11	4-8-10/1618	Water	8	X	X	X	X	X	X		J12
MBSA0410-11	4-8-10/1630	Water	8	X	X	X	X	X	X		J13
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Comments
* low level PAHs and PCP;
** Field filtered 0.45 um filter

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By:	Agency/Agent:
Signature:	Time & Date: 4-9-10 0730	Signature:	Time & Date: 4/6/10 1653

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

[redacted]

Pace Analytical

Client Name: Hart Crowser **Project #** 10126195

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: See back

[redacted]

Custody Seal on Cooler/Box Present: ☐ yes ☒ no **Seals intact:** ☐ yes ☒ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** X **No** _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.7°C/2.7°C/2.3°C/2.3°C/3.9°C/1.7°C/2.5°C **Biological Tissue is Frozen:** Yes No

Date and initials of person examining contents: SD 4-10-10

Temp should be above freezing to 6°C **Comments:**

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☒No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8. * Except Spilled Container MBIM0410-08 TSS
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☐Yes ☒No ☐N/A	10. Dropped & Spilled most of MBIM0410-08 TSS; Replaced Cap
Filtered volume received for Dissolved tests	☒Yes ☐No ☐N/A	11.
Sample Labels match COC:	☐Yes ☒No ☐N/A	12. missing all samples for MBSA0410-07 and MBSW0410-08
-includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☒Yes ☐No ☐N/A	13. ☒ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	Samp # 1-15 MBSW0410-04 — MBSA0410-11
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☒No	Initial when completed SD / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☒No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: Tim Strotzki **Date/Time:** 4-12-10 10:43A email

Comments/ Resolution:

MBSA0410-08 collected 4-8-10 11:06 AM

TSS for MBSA0410-08 spilled - use other bottle for both TSS-TDS.

Missing cooler arrived 4-13 8.6°C - Analyze per field B.

Project Manager Review: DRD **Date:** 4-13-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

Pace Analytical Services, Inc.
1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

[redacted]

Pace Analytical

Client Name: Hart Crowser **Project #** _____

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 871798430901

[redacted]

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☑ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 80944042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 8.6 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4/13/10

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-includes date/time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes	☐No	☐N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl Samp # 2/2 #07, #08
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	Initial when completed: [illegible] Lot # of added preservative
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	☑No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Heidi Blindke Date/Time: 4-13-10 email

Comments/ Resolution: missing cooler arrived 4-13-10 8.6°C
analyze even though > 6°C AN these
2 samples

MBSA-0410-07
MBSW-0410-08

Project Manager Review: OAO **Date:** 4-13-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 04, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory between April 10, 2010 and April 13, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126195001	**MBSW0410-04**	Water	04/08/10 13:40	04/10/10 11:03
10126195002	**MBIA0410-04**	Water	04/08/10 14:05	04/10/10 11:03
10126195003	**MBSA0410 -04**	Water	04/08/10 14:10	04/10/10 11:03
10126195004	**MBSW0410 -05**	Water	04/08/10 12:03	04/10/10 11:03
10126195005	**MBIA0410 -05**	Water	04/08/10 12:35	04/10/10 11:03
10126195006	**MBSA0410 -05**	Water	04/08/10 12:45	04/10/10 11:03
10126195007	**MBSW0410 -07**	Water	04/08/10 08:30	04/10/10 11:03
10126195008	**MBIA0410 -07**	Water	04/08/10 09:08	04/10/10 11:03
10126195009	**MBIA0410 -08**	Water	04/08/10 18:55	04/10/10 11:03
10126195010	**MBSA0410 -08**	Water	04/08/10 11:06	04/10/10 11:03
10126195011	**MBSW0410 -11**	Water	04/08/10 15:45	04/10/10 11:03
10126195012	**MBIA0410 -11**	Water	04/08/10 16:18	04/10/10 11:03
10126195013	**MBSA0410 -11**	Water	04/08/10 16:30	04/10/10 11:03
10126195014	**MBSA0410-07**	Water	04/08/10 09:14	04/13/10 10:00
10126195015	**MBSW0410-08**	Water	04/08/10 10:13	04/13/10 10:00

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126195001	**MBSW0410-04**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195002	**MBIA0410-04**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195003	**MBSA0410 -04**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195004	**MBSW0410 -05**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195005	**MBIA0410 -05**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195006	**MBSA0410 -05**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195007	**MBSW0410 -07**	EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195008	**MBIA0410 -07**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195009	**MBIA0410 -08**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195010	**MBSA0410 -08**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195011	**MBSW0410 -11**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195012	**MBIA0410 -11**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195013	**MBSA0410 -11**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195014	**MBSA0410-07**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126195015	**MBSW0410-08**	EPA 6020	RJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5451

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5446

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSSV/5447

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 04, 2011

General Information:
15 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: WET/18751

R1: RPD value was outside control limits.
- LCSD (Lab ID: 773542)
  - Total Suspended Solids

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Batch Comments:

LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.
- QC Batch: WET / 18751

Analyte Comments:

QC Batch: WET/18751

- MBIA0410 -07 (Lab ID: 10126195008)
  - Total Suspended Solids
- MBIA0410 -08 (Lab ID: 10126195009)
  - Total Suspended Solids

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410-04 **Lab ID: 10126195001** Collected: 04/08/10 13:40 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.38J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:07	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:07	7440-47-3	
Copper	**1.6**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:07	7440-50-8	
Zinc	**3.4J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:07	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.24J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 18:45	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 18:45	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 18:45	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 18:45	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:13	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/20/10 22:13	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 22:13	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:13	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 22:13	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:13	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:13	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/14/10 16:04	04/20/10 22:13	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/14/10 16:04	04/20/10 22:13	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 07:28	87-86-5	
2,4,6-Tribromophenol (S)	97	%	30-150		1	04/12/10 13:21	04/20/10 07:28	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**54.0**	mg/L	10.0	5.0	1		04/13/10 14:31		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**11.1**	mg/L	2.1	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410-04 **Lab ID: 10126195002** Collected: 04/08/10 14:05 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.51**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 18:50	7440-38-2	
Chromium	**1.4**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 18:50	7440-47-3	
Copper	**2.3**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 18:50	7440-50-8	
Zinc	**4.8J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 18:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.25J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:02	7440-38-2	
Chromium, Dissolved	**0.39J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:02	7440-47-3	
Copper, Dissolved	**1.0**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:02	7440-50-8	
Zinc, Dissolved	**2.7J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:02	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:32	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/20/10 22:32	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/20/10 22:32	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 22:32	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/20/10 22:32	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:32	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 22:32	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/14/10 16:04	04/20/10 22:32	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/20/10 22:32	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/12/10 13:21	04/20/10 07:42	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 07:42	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**53.0**	mg/L	10.0	5.0	1		04/13/10 14:32		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**39.2**	mg/L	2.1	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -04 **Lab ID: 10126195003** Collected: 04/08/10 14:10 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**8.9**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 18:54	7440-38-2	
Chromium	**0.70**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 18:54	7440-47-3	
Copper	**1.6**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 18:54	7440-50-8	
Zinc	**4.2J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 18:54	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**9.0**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:06	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:06	7440-47-3	
Copper, Dissolved	**0.27J**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:06	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:06	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.61**	ug/L	0.043	0.0065	1	04/14/10 16:04	04/20/10 22:51	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/14/10 16:04	04/20/10 22:51	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	53-70-3	
Fluoranthene	**0.076**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	206-44-0	
Fluorene	**0.25**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/20/10 22:51	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/20/10 22:51	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/14/10 16:04	04/20/10 22:51	91-20-3	
Phenanthrene	**0.25**	ug/L	0.043	0.0065	1	04/14/10 16:04	04/20/10 22:51	85-01-8	
Pyrene	**0.050**	ug/L	0.043	0.0065	1	04/14/10 16:04	04/20/10 22:51	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/14/10 16:04	04/20/10 22:51	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/14/10 16:04	04/20/10 22:51	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/12/10 13:21	04/20/10 07:56	87-86-5	
2,4,6-Tribromophenol (S)	104	%	30-150		1	04/12/10 13:21	04/20/10 07:56	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**266**	mg/L	10.0	5.0	1		04/13/10 14:32		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**65.1**	mg/L	10.0	5.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410 -05 **Lab ID: 10126195004** Collected: 04/08/10 12:03 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.46J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 18:59	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 18:59	7440-47-3	
Copper	**2.0**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 18:59	7440-50-8	
Zinc	**3.6J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 18:59	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.22J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:10	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:10	7440-47-3	
Copper, Dissolved	**0.74**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:10	7440-50-8	
Zinc, Dissolved	**1.7J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:10	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/14/10 16:04	04/20/10 23:10	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/14/10 16:04	04/20/10 23:10	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/20/10 23:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/20/10 23:10	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/14/10 16:04	04/20/10 23:10	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/14/10 16:04	04/20/10 23:10	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/14/10 16:04	04/20/10 23:10	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/14/10 16:04	04/20/10 23:10	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/20/10 23:10	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 08:09	87-86-5	
2,4,6-Tribromophenol (S)	97	%	30-150		1	04/12/10 13:21	04/20/10 08:09	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/13/10 14:33		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**14.4**	mg/L	2.1	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -05 **Lab ID: 10126195005** Collected: 04/08/10 12:35 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.60**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:03	7440-38-2	
Chromium	**1.8**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:03	7440-47-3	
Copper	**3.8**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:03	7440-50-8	
Zinc	**8.0**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:03	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:27	7440-38-2	
Chromium, Dissolved	**0.36J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:27	7440-47-3	
Copper, Dissolved	**1.3**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:27	7440-50-8	
Zinc, Dissolved	**3.5J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:27	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 23:29	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/20/10 23:29	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	53-70-3	
Fluoranthene	**0.014J**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/14/10 16:04	04/20/10 23:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/20/10 23:29	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/14/10 16:04	04/20/10 23:29	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 23:29	85-01-8	
Pyrene	**0.011J**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/20/10 23:29	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/14/10 16:04	04/20/10 23:29	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/20/10 23:29	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 08:23	87-86-5	
2,4,6-Tribromophenol (S)	102	%	30-150		1	04/12/10 13:21	04/20/10 08:23	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/13/10 14:33		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**39.1**	mg/L	2.1	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -05 **Lab ID: 10126195006** Collected: 04/08/10 12:45 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**23.5**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:36	7440-38-2	
Chromium	**0.48J**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:36	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:36	7440-50-8	
Zinc	**10.4**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:36	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**23.5**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:31	7440-38-2	
Chromium, Dissolved	**0.25J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:31	7440-47-3	
Copper, Dissolved	**0.30J**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:31	7440-50-8	
Zinc, Dissolved	**10.6**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:31	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.47**	ug/L	0.045	0.0067	1	04/14/10 16:04	04/20/10 23:48	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	208-96-8	
Anthracene	**0.017J**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	50-32-8	
Benzo(b)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.045	0.0022	1	04/14/10 16:04	04/20/10 23:48	191-24-2	
Benzo(k)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	53-70-3	
Fluoranthene	**0.060**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	206-44-0	
Fluorene	**0.11**	ug/L	0.045	0.0034	1	04/14/10 16:04	04/20/10 23:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/14/10 16:04	04/20/10 23:48	193-39-5	
Naphthalene	**0.12**	ug/L	0.045	0.0056	1	04/14/10 16:04	04/20/10 23:48	91-20-3	
Phenanthrene	**0.049**	ug/L	0.045	0.0067	1	04/14/10 16:04	04/20/10 23:48	85-01-8	
Pyrene	**0.042J**	ug/L	0.045	0.0067	1	04/14/10 16:04	04/20/10 23:48	129-00-0	
2-Fluorobiphenyl (S)	80	%	58-125		1	04/14/10 16:04	04/20/10 23:48	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/14/10 16:04	04/20/10 23:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.16**	ug/L	0.56	0.16	1	04/12/10 13:21	04/20/10 08:37	87-86-5	
2,4,6-Tribromophenol (S)	107	%	30-150		1	04/12/10 13:21	04/20/10 08:37	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**899**	mg/L	10.0	5.0	1		04/14/10 17:51		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**341**	mg/L	20.0	10.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410 -07 **Lab ID: 10126195007** Collected: 04/08/10 08:30 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.48J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:41	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:41	7440-47-3	
Copper	**1.5**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:41	7440-50-8	
Zinc	**4.2J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:41	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.25J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:35	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:35	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:35	7440-50-8	
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:35	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:07	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 00:07	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:07	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:07	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:07	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:07	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:07	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/14/10 16:04	04/21/10 00:07	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/14/10 16:04	04/21/10 00:07	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/12/10 13:21	04/20/10 08:50	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/12/10 13:21	04/20/10 08:50	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**85.0**	mg/L	10.0	5.0	1		04/14/10 17:52		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**11.0**	mg/L	2.0	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -07 **Lab ID: 10126195008** Collected: 04/08/10 09:08 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.0**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:45	7440-38-2	
Chromium	**5.7**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:45	7440-47-3	
Copper	**9.2**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:45	7440-50-8	
Zinc	**22.1**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:45	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.28J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:39	7440-38-2	
Chromium, Dissolved	**0.35J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:39	7440-47-3	
Copper, Dissolved	**1.8**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:39	7440-50-8	
Zinc, Dissolved	**4.1J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:39	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:26	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 00:26	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 00:26	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 00:26	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 00:26	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:26	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 00:26	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/14/10 16:04	04/21/10 00:26	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 00:26	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/14/10 16:53	04/20/10 15:18	87-86-5	
2,4,6-Tribromophenol (S)	83	%	30-150		1	04/14/10 16:53	04/20/10 15:18	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**81.0**	mg/L	10.0	5.0	1		04/14/10 17:52		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**195**	mg/L	10.0	5.0	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -08 **Lab ID: 10126195009** Collected: 04/08/10 18:55 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.65**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:49	7440-38-2	
Chromium	**1.7**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:49	7440-47-3	
Copper	**3.0**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:49	7440-50-8	
Zinc	**7.3**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:49	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.26J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:44	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:44	7440-47-3	
Copper, Dissolved	**2.2**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:44	7440-50-8	
Zinc, Dissolved	**4.8J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:44	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 00:45	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 00:45	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 00:45	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 00:45	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 00:45	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 00:45	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 00:45	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/14/10 16:04	04/21/10 00:45	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 00:45	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/14/10 16:53	04/20/10 15:32	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/14/10 16:53	04/20/10 15:32	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**58.0**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**67.1**	mg/L	5.0	2.5	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -08 **Lab ID: 10126195010** Collected: 04/08/10 11:06 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**11.1**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:53	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:53	7440-47-3	
Copper	**0.20J**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:53	7440-50-8	
Zinc	**10.0**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:53	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**11.0**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:48	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:48	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:48	7440-50-8	
Zinc, Dissolved	**8.3**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:48	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**2.7**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:04	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 01:04	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	53-70-3	
Fluoranthene	**0.46**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	206-44-0	
Fluorene	**0.11**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:04	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:04	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:04	85-01-8	
Pyrene	**0.24**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:04	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/14/10 16:04	04/21/10 01:04	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/14/10 16:04	04/21/10 01:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/14/10 16:53	04/20/10 15:45	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 15:45	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**335**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**20.8**	mg/L	3.3	1.7	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410 -11 **Lab ID: 10126195011** Collected: 04/08/10 15:45 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.41J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 19:57	7440-38-2	
Chromium	**0.93**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 19:57	7440-47-3	
Copper	**1.6**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 19:57	7440-50-8	
Zinc	**3.2J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 19:57	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.23J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:52	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:52	7440-47-3	
Copper, Dissolved	**0.87**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:52	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:52	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:23	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/14/10 16:04	04/21/10 01:23	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/14/10 16:04	04/21/10 01:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/14/10 16:04	04/21/10 01:23	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/14/10 16:04	04/21/10 01:23	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:23	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/14/10 16:04	04/21/10 01:23	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	04/14/10 16:04	04/21/10 01:23	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/14/10 16:04	04/21/10 01:23	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 15:59	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/14/10 16:53	04/20/10 15:59	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**65.0**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**11.5**	mg/L	2.2	1.1	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBIA0410 -11 **Lab ID: 10126195012** Collected: 04/08/10 16:18 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.41J**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 20:01	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 20:01	7440-47-3	
Copper	**3.1**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 20:01	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 20:01	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.23J**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 19:56	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 19:56	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 19:56	7440-50-8	
Zinc, Dissolved	**2.5J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 19:56	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 01:41	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/14/10 16:04	04/21/10 01:41	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/14/10 16:04	04/21/10 01:41	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/14/10 16:04	04/21/10 01:41	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/14/10 16:04	04/21/10 01:41	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 01:41	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/14/10 16:04	04/21/10 01:41	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	04/14/10 16:04	04/21/10 01:41	321-60-8	
Terphenyl-d14 (S)	79	%	57-134		1	04/14/10 16:04	04/21/10 01:41	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/14/10 16:53	04/20/10 16:13	87-86-5	
2,4,6-Tribromophenol (S)	84	%	30-150		1	04/14/10 16:53	04/20/10 16:13	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/14/10 17:53		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**11.9**	mg/L	2.1	1.1	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410 -11 **Lab ID: 10126195013** Collected: 04/08/10 16:30 Received: 04/10/10 11:03 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**2.5**	ug/L	0.50	0.062	1	04/13/10 14:21	04/14/10 20:06	7440-38-2	
Chromium	**2.9**	ug/L	0.50	0.24	1	04/13/10 14:21	04/14/10 20:06	7440-47-3	
Copper	**6.0**	ug/L	0.50	0.20	1	04/13/10 14:21	04/14/10 20:06	7440-50-8	
Zinc	**11.7**	ug/L	5.0	1.3	1	04/13/10 14:21	04/14/10 20:06	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.9**	ug/L	0.50	0.062	1	04/14/10 14:30	04/15/10 20:00	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/14/10 14:30	04/15/10 20:00	7440-47-3	
Copper, Dissolved	**0.61**	ug/L	0.50	0.20	1	04/14/10 14:30	04/15/10 20:00	7440-50-8	
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	04/14/10 14:30	04/15/10 20:00	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.31**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:00	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 02:00	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	206-44-0	
Fluorene	**0.041J**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:00	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:00	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:00	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:00	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:00	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/14/10 16:04	04/21/10 02:00	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 02:00	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/14/10 16:53	04/20/10 16:27	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 16:27	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**128**	mg/L	10.0	5.0	1		04/14/10 17:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**83.1**	mg/L	2.1	1.1	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSA0410-07 **Lab ID: 10126195014** Collected: 04/08/10 09:14 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.8**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 19:58	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 19:58	7440-47-3	
Copper	**0.34J**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 19:58	7440-50-8	
Zinc	**16.5**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 19:58	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.7**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:21	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:21	7440-47-3	
Copper, Dissolved	**0.54**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:21	7440-50-8	
Zinc, Dissolved	**15.7**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:21	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**38.5**	ug/L	0.21	0.032	5	04/14/10 16:04	04/21/10 15:17	83-32-9	
Acenaphthylene	**0.29**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:19	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:19	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/14/10 16:04	04/21/10 02:19	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/14/10 16:04	04/21/10 02:19	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	53-70-3	
Fluoranthene	**0.10**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	206-44-0	
Fluorene	**10.4**	ug/L	0.21	0.016	5	04/14/10 16:04	04/21/10 15:17	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/14/10 16:04	04/21/10 02:19	193-39-5	
Naphthalene	**2.6**	ug/L	0.043	0.0053	1	04/14/10 16:04	04/21/10 02:19	91-20-3	
Phenanthrene	**10.4**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:19	85-01-8	
Pyrene	**0.043**	ug/L	0.043	0.0064	1	04/14/10 16:04	04/21/10 02:19	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/14/10 16:04	04/21/10 02:19	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/14/10 16:04	04/21/10 02:19	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/14/10 16:53	04/20/10 16:40	87-86-5	
2,4,6-Tribromophenol (S)	105	%	30-150		1	04/14/10 16:53	04/20/10 16:40	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**437**	mg/L	10.0	5.0	1		04/14/10 17:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**11.0**	mg/L	2.0	1.0	1		04/14/10 18:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Sample: MBSW0410-08 **Lab ID: 10126195015** Collected: 04/08/10 10:13 Received: 04/13/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.33J**	ug/L	0.50	0.062	1	04/16/10 14:08	04/20/10 20:02	7440-38-2	
Chromium	**0.80**	ug/L	0.50	0.24	1	04/16/10 14:08	04/20/10 20:02	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 14:08	04/20/10 20:02	7440-50-8	
Zinc	**3.2J**	ug/L	5.0	1.3	1	04/16/10 14:08	04/20/10 20:02	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.13J**	ug/L	0.50	0.062	1	04/15/10 16:33	04/16/10 15:25	7440-38-2	
Chromium, Dissolved	**0.24J**	ug/L	0.50	0.24	1	04/15/10 16:33	04/16/10 15:25	7440-47-3	
Copper, Dissolved	**0.83**	ug/L	0.50	0.20	1	04/15/10 16:33	04/16/10 15:25	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/15/10 16:33	04/16/10 15:25	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0067**	ug/L	0.044	0.0067	1	04/14/10 16:04	04/21/10 02:38	83-32-9	
Acenaphthylene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	208-96-8	
Anthracene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	50-32-8	
Benzo(b)fluoranthene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.044	0.0022	1	04/14/10 16:04	04/21/10 02:38	191-24-2	
Benzo(k)fluoranthene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	207-08-9	
Chrysene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	218-01-9	
Dibenz(a,h)anthracene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	53-70-3	
Fluoranthene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	206-44-0	
Fluorene	**<0.0033**	ug/L	0.044	0.0033	1	04/14/10 16:04	04/21/10 02:38	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0044**	ug/L	0.044	0.0044	1	04/14/10 16:04	04/21/10 02:38	193-39-5	
Naphthalene	**<0.0056**	ug/L	0.044	0.0056	1	04/14/10 16:04	04/21/10 02:38	91-20-3	
Phenanthrene	**<0.0067**	ug/L	0.044	0.0067	1	04/14/10 16:04	04/21/10 02:38	85-01-8	
Pyrene	**<0.0067**	ug/L	0.044	0.0067	1	04/14/10 16:04	04/21/10 02:38	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	04/14/10 16:04	04/21/10 02:38	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/14/10 16:04	04/21/10 02:38	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/14/10 16:53	04/20/10 16:54	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/14/10 16:53	04/20/10 16:54	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**73.0**	mg/L	10.0	5.0	1		04/14/10 17:54		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**11.9**	mg/L	2.1	1.0	1		04/14/10 18:04		

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19918 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

METHOD BLANK: 772027 — Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/14/10 18:42	
Chromium	ug/L	<0.24	0.50	04/14/10 18:42	
Copper	ug/L	<0.20	0.50	04/14/10 18:42	
Zinc	ug/L	<1.3	5.0	04/14/10 18:42	

LABORATORY CONTROL SAMPLE: 772028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	78.9	99	85-115	
Chromium	ug/L	80	79.1	99	85-115	
Copper	ug/L	80	81.2	101	85-115	
Zinc	ug/L	80	83.2	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 772029 772030

Parameter	Units	10126195001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.38J	80	80	81.8	81.7	102	102	75-125	.05	20	
Chromium	ug/L	1.1	80	80	83.5	84.2	103	104	75-125	.9	20	
Copper	ug/L	1.6	80	80	86.9	87.0	107	107	75-125	.2	20	
Zinc	ug/L	3.4J	80	80	87.3	88.3	105	106	75-125	1	20	

MATRIX SPIKE SAMPLE: 772031

Parameter	Units	10126195013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	2.5	80	84.2	102	75-125	
Chromium	ug/L	2.9	80	86.2	104	75-125	
Copper	ug/L	6.0	80	89.4	104	75-125	
Zinc	ug/L	11.7	80	96.9	106	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19967 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126195014, 10126195015

METHOD BLANK: 773504 Matrix: Water
Associated Lab Samples: 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/21/10 12:52	
Chromium	ug/L	<0.24	0.50	04/21/10 12:52	
Copper	ug/L	<0.20	0.50	04/21/10 12:52	
Zinc	ug/L	<1.3	5.0	04/21/10 12:52	

LABORATORY CONTROL SAMPLE: 773505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	80.7	101	85-115	
Copper	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	82.3	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773506 773507

Parameter	Units	10126413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.34J	80	80	79.8	80.0	99	100	75-125	.4	20	
Chromium	ug/L	0.90	80	80	81.0	82.0	100	101	75-125	1	20	
Copper	ug/L	1.4	80	80	84.6	85.0	104	105	75-125	.5	20	
Zinc	ug/L	3.5J	80	80	84.3	84.7	101	101	75-125	.5	20	

MATRIX SPIKE SAMPLE: 773508

Parameter	Units	10126413011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	79.3	99	75-125	
Chromium	ug/L	0.66	80	80.1	99	75-125	
Copper	ug/L	1.5	80	83.3	102	75-125	
Zinc	ug/L	4.5J	80	86.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19916 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

METHOD BLANK: 772015 | Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/15/10 17:43	
Chromium, Dissolved	ug/L	<0.24	0.50	04/15/10 17:43	
Copper, Dissolved	ug/L	<0.20	0.50	04/15/10 17:43	
Zinc, Dissolved	ug/L	<1.3	5.0	04/15/10 17:43	

LABORATORY CONTROL SAMPLE: 772016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	80.1	100	85-115	
Chromium, Dissolved	ug/L	80	78.8	99	85-115	
Copper, Dissolved	ug/L	80	80.9	101	85-115	
Zinc, Dissolved	ug/L	80	81.6	102	85-115	

MATRIX SPIKE SAMPLE: 772017

Parameter	Units	20774394 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	4.4	80	84.7	100	75-125	
Chromium, Dissolved	ug/L	0.68	80	77.5	96	75-125	
Copper, Dissolved	ug/L	0.53	80	78.1	97	75-125	
Zinc, Dissolved	ug/L	ND	80	79.4	94	75-125	

MATRIX SPIKE SAMPLE: 772018

Parameter	Units	10126195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.24J	80	81.9	102	75-125	
Chromium, Dissolved	ug/L	0.27J	80	81.7	102	75-125	
Copper, Dissolved	ug/L	1.1	80	84.2	104	75-125	
Zinc, Dissolved	ug/L	1.6J	80	83.9	103	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: MPRP/19966 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126195014, 10126195015

METHOD BLANK: 773499 | Matrix: Water
Associated Lab Samples: 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/16/10 14:26	
Chromium, Dissolved	ug/L	<0.24	0.50	04/16/10 14:26	
Copper, Dissolved	ug/L	<0.20	0.50	04/16/10 14:26	
Zinc, Dissolved	ug/L	<1.3	5.0	04/16/10 14:26	

LABORATORY CONTROL SAMPLE: 773500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.0	103	85-115	
Chromium, Dissolved	ug/L	80	81.3	102	85-115	
Copper, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	83.6	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 773501 773502

Parameter	Units	10126348001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.16J	80	80	81.4	83.2	101	104	75-125	2	20	
Chromium, Dissolved	ug/L	0.36J	80	80	81.1	82.1	101	102	75-125	1	20	
Copper, Dissolved	ug/L	0.72	80	80	86.3	86.4	107	107	75-125	.1	20	
Zinc, Dissolved	ug/L	1.9J	80	80	86.1	85.6	105	105	75-125	.6	20	

MATRIX SPIKE SAMPLE: 773503

Parameter	Units	10126413004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.18J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	79.2	99	75-125	
Copper, Dissolved	ug/L	0.59	80	83.7	104	75-125	
Zinc, Dissolved	ug/L	2.1J	80	83.6	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: OEXT/12703 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773520 | Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 13:43	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 13:43	
Anthracene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 13:43	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 13:43	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 13:43	
Chrysene	ug/L	<0.0030	0.040	04/20/10 13:43	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 13:43	
Fluorene	ug/L	<0.0030	0.040	04/20/10 13:43	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 13:43	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 13:43	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 13:43	
Pyrene	ug/L	<0.0060	0.040	04/20/10 13:43	
2-Fluorobiphenyl (S)	%	75	58-125	04/20/10 13:43	
Terphenyl-d14 (S)	%	88	57-134	04/20/10 13:43	

LABORATORY CONTROL SAMPLE & LCSD: 773521 773522

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.81	80	81	56-125	.9	20	
Acenaphthylene	ug/L	1	0.82	0.81	82	81	51-125	.9	20	
Anthracene	ug/L	1	1.0	0.96	100	96	58-125	4	20	
Benzo(a)anthracene	ug/L	1	0.86	0.83	86	83	61-125	3	20	
Benzo(a)pyrene	ug/L	1	0.90	0.88	90	88	56-125	2	20	
Benzo(b)fluoranthene	ug/L	1	0.86	0.80	86	80	54-125	7	20	
Benzo(g,h,i)perylene	ug/L	1	0.86	0.86	86	86	42-125	.8	20	
Benzo(k)fluoranthene	ug/L	1	0.97	0.98	97	98	60-125	.8	20	
Chrysene	ug/L	1	0.95	0.95	95	95	64-125	.4	20	
Dibenz(a,h)anthracene	ug/L	1	0.86	0.86	86	86	46-125	.5	20	
Fluoranthene	ug/L	1	0.92	0.87	92	87	54-125	5	20	
Fluorene	ug/L	1	0.82	0.81	82	81	55-125	2	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.85	0.85	85	85	46-125	.02	20	
Naphthalene	ug/L	1	0.73	0.79	73	79	47-125	7	20	
Phenanthrene	ug/L	1	0.87	0.81	87	81	55-125	7	20	
Pyrene	ug/L	1	0.98	0.97	98	97	57-125	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

LABORATORY CONTROL SAMPLE & LCSD: 773521 773522

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
2-Fluorobiphenyl (S)	%				72	73	58-125			
Terphenyl-d14 (S)	%				87	87	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: OEXT/12671 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

METHOD BLANK: 772061 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 03:50	
2,4,6-Tribromophenol (S)	%	98	30-150	04/20/10 03:50	

LABORATORY CONTROL SAMPLE & LCSD: 772062 772063

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	1.1	1.0	108	105	41-137	3	20	
2,4,6-Tribromophenol (S)	%				103	100	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: OEXT/12705 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773677 — Matrix: Water
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 12:15	
2,4,6-Tribromophenol (S)	%	91	30-150	04/20/10 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 773678 773679

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.90	0.93	90	93	41-137	3	20	
2,4,6-Tribromophenol (S)	%				96	95	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18737 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005

METHOD BLANK: 772441 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/13/10 14:24	

LABORATORY CONTROL SAMPLE: 772442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	23.0	100	80-120	

SAMPLE DUPLICATE: 772443

Parameter	Units	10126041001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	565	579	2	20	

SAMPLE DUPLICATE: 772444

Parameter	Units	10126106001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	109	117	7	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18749 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773529 — Matrix: Water
Associated Lab Samples: 10126195006, 10126195007, 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/14/10 17:51	

LABORATORY CONTROL SAMPLE: 773530

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	25.0	109	80-120	

SAMPLE DUPLICATE: 773531

Parameter	Units	10126195006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	899	903	.4	20	

SAMPLE DUPLICATE: 773532

Parameter	Units	10126195015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	73.0	72.0	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18736 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

METHOD BLANK: 772436 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/13/10 14:04	

METHOD BLANK: 772439 Matrix: Water
Associated Lab Samples: 10126195001, 10126195002, 10126195003, 10126195004, 10126195005, 10126195006, 10126195007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/13/10 14:04	

LABORATORY CONTROL SAMPLE & LCSD: 772437 772438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	32.9	33.8	115	118	80-120	3	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

QC Batch: WET/18751 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

METHOD BLANK: 773540 Matrix: Water
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/14/10 18:04	

METHOD BLANK: 773543 Matrix: Water
Associated Lab Samples: 10126195008, 10126195009, 10126195010, 10126195011, 10126195012, 10126195013, 10126195014, 10126195015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/14/10 18:04	

LABORATORY CONTROL SAMPLE & LCSD: 773541 773542

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	33.7	27.1	118	95	80-120	22	20	R1

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: WET/18751

[1] LCSD failed RPD but passed recovery. Unable to rerun due to sample availability.

Batch: MSSV/5446

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5447

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5451

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126195001	**MBSW0410-04**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195002	**MBIA0410-04**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195003	**MBSA0410 -04**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195004	**MBSW0410 -05**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195005	**MBIA0410 -05**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195006	**MBSA0410 -05**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195007	**MBSW0410 -07**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195008	**MBIA0410 -07**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195009	**MBIA0410 -08**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195010	**MBSA0410 -08**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195011	**MBSW0410 -11**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195012	**MBIA0410 -11**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195013	**MBSA0410 -11**	EPA 3020	MPRP/19918	EPA 6020	ICPM/8179
10126195014	**MBSA0410-07**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126195015	**MBSW0410-08**	EPA 3020	MPRP/19967	EPA 6020	ICPM/8205
10126195001	**MBSW0410-04**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195002	**MBIA0410-04**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195003	**MBSA0410 -04**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195004	**MBSW0410 -05**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195005	**MBIA0410 -05**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195006	**MBSA0410 -05**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195007	**MBSW0410 -07**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195008	**MBIA0410 -07**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195009	**MBIA0410 -08**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195010	**MBSA0410 -08**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195011	**MBSW0410 -11**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195012	**MBIA0410 -11**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195013	**MBSA0410 -11**	EPA 3020	MPRP/19916	EPA 6020	ICPM/8188
10126195014	**MBSA0410-07**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126195015	**MBSW0410-08**	EPA 3020	MPRP/19966	EPA 6020	ICPM/8197
10126195001	**MBSW0410-04**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195002	**MBIA0410-04**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195003	**MBSA0410 -04**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195004	**MBSW0410 -05**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195005	**MBIA0410 -05**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195006	**MBSA0410 -05**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195007	**MBSW0410 -07**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195008	**MBIA0410 -07**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195009	**MBIA0410 -08**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195010	**MBSA0410 -08**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195011	**MBSW0410 -11**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195012	**MBIA0410 -11**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195013	**MBSA0410 -11**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195014	**MBSA0410-07**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195015	**MBSW0410-08**	EPA 3510	OEXT/12703	EPA 8270 by SIM	MSSV/5451
10126195001	**MBSW0410-04**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126195002	**MBIA0410-04**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195003	**MBSA0410 -04**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195004	**MBSW0410 -05**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195005	**MBIA0410 -05**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195006	**MBSA0410 -05**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195007	**MBSW0410 -07**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126195008	**MBIA0410 -07**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195009	**MBIA0410 -08**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195010	**MBSA0410 -08**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195011	**MBSW0410 -11**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195012	**MBIA0410 -11**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195013	**MBSA0410 -11**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195014	**MBSA0410-07**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195015	**MBSW0410-08**	EPA 3510	OEXT/12705	EPA 8270 by SIM	MSSV/5447
10126195001	**MBSW0410-04**	SM 2540C	WET/18737		
10126195002	**MBIA0410-04**	SM 2540C	WET/18737		
10126195003	**MBSA0410 -04**	SM 2540C	WET/18737		
10126195004	**MBSW0410 -05**	SM 2540C	WET/18737		
10126195005	**MBIA0410 -05**	SM 2540C	WET/18737		
10126195006	**MBSA0410 -05**	SM 2540C	WET/18749		
10126195007	**MBSW0410 -07**	SM 2540C	WET/18749		
10126195008	**MBIA0410 -07**	SM 2540C	WET/18749		
10126195009	**MBIA0410 -08**	SM 2540C	WET/18749		
10126195010	**MBSA0410 -08**	SM 2540C	WET/18749		
10126195011	**MBSW0410 -11**	SM 2540C	WET/18749		
10126195012	**MBIA0410 -11**	SM 2540C	WET/18749		
10126195013	**MBSA0410 -11**	SM 2540C	WET/18749		
10126195014	**MBSA0410-07**	SM 2540C	WET/18749		
10126195015	**MBSW0410-08**	SM 2540C	WET/18749		
10126195001	**MBSW0410-04**	SM 2540D	WET/18736		
10126195002	**MBIA0410-04**	SM 2540D	WET/18736		
10126195003	**MBSA0410 -04**	SM 2540D	WET/18736		
10126195004	**MBSW0410 -05**	SM 2540D	WET/18736		
10126195005	**MBIA0410 -05**	SM 2540D	WET/18736		
10126195006	**MBSA0410 -05**	SM 2540D	WET/18736		
10126195007	**MBSW0410 -07**	SM 2540D	WET/18736		
10126195008	**MBIA0410 -07**	SM 2540D	WET/18751		
10126195009	**MBIA0410 -08**	SM 2540D	WET/18751		
10126195010	**MBSA0410 -08**	SM 2540D	WET/18751		
10126195011	**MBSW0410 -11**	SM 2540D	WET/18751		
10126195012	**MBIA0410 -11**	SM 2540D	WET/18751		
10126195013	**MBSA0410 -11**	SM 2540D	WET/18751		
10126195014	**MBSA0410-07**	SM 2540D	WET/18751		
10126195015	**MBSW0410-08**	SM 2540D	WET/18751		

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TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

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Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

2 Carts in C-10 1012 6145

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
				None	None	HNO3	HNO3	None	None		
MBSW0410-04	4/8/10 1340	Water	8	X	X	X	X	X	X		001
MBIA0410-04	4-8-10/1405	Water	8	X	X	X	X	X	X		002
MBSA0410-04	4-8-10/140	Water	8	X	X	X	X	X	X		003
MBSW0410-05	4-8-10/1203	Water	8	X	X	X	X	X	X		004
MBIA0410-05	4-8-10/1235	Water	8	X	X	X	X	X	X		005
MBSA0410-05	4-8-10/1245	Water	8	X	X	X	X	X	X		006
[illegible]10-07	4-8-10/0830	Water	8	X	X	X	X	X	X		007
[illegible]10-07	4-8-10/0808	Water	8	X	X	X	X	X	X		008
[illegible]A0410-07	4-8-10/0914	Water	8	X	X	X	X	X	X		014
MBSW0410-08	4-8-10/1013	Water	8	X	X	X	X	X	X		015
MBIA0410-08	4-8-10/1055	Water	8	X	X	X	X	X	X		009

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By: [illegible]	Agency/Agent:
Signature: [illegible]	Time & Date: 4/9/10 0730	Signature:	Time & Date: 4/10/10 1103

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

1012695

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other _____

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments
				Sample Preservative							
				None	None	HNO3	HNO3	None	None		
				Requested Analyses							
MBSA0410-08	4-8-10	Water	8	X	X	X	X	X	X		J10
MBSW0410-11	4-8-10/1545	Water	8	X	X	X	X	X	X		J11
MBIA0410-11	4-8-10/1618	Water	8	X	X	X	X	X	X		J12
MBSA0410-11	4-8-10/1630	Water	8	X	X	X	X	X	X		J13
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Comments
* low level PAHs and PCP;
** Field filtered 0.45 um filter

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By:	Agency/Agent:
Signature:	Time & Date: 4-9-10 0730	Signature:	Time & Date: 4/6/10 1653

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

[redacted]

Pace Analytical

Client Name: Hart Crowser **Project #** 10126195

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: See back

[redacted]

Custody Seal on Cooler/Box Present: ☐ yes ☒ no **Seals intact:** ☐ yes ☒ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ **Temp Blank:** Yes X No _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.7°C/2.7°C/2.3°C/2.3°C/3.9°C/1.7°C/2.5°C **Biological Tissue is Frozen:** Yes No

Date and initials of person examining contents: SD 4-10-10

Temp should be above freezing to 6°C **Comments:**

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☒No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8. * Except Spilled Containers MBIM0410-08 TSS
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☐Yes ☒No ☐N/A	10. Dropped & Spilled most of MBIM0410-08 TSS; Replaced Cap
Filtered volume received for Dissolved tests	☒Yes ☐No ☐N/A	11.
Sample Labels match COC:	☐Yes ☒No ☐N/A	12. missing all samples for MBSA0410-07 and MBSW0410-08
-includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☒Yes ☐No ☐N/A	13. ☒ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	Samp # 1-15 MBSW0410-04 — MBSA0410-11
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☒No	Initial when completed SD / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☒No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: Tim Strotzki **Date/Time:** 4-12-10 10:43A email

Comments/ Resolution:

MBSA0410-08 collected 4-8-10 11:06 AM

TSS for MBSA0410-08 spilled - use other bottle for both TSS-TDS.

Missing cooler arrived 4-13 8.6°C - Analyze per field B.

Project Manager Review: DRD **Date:** 4-13-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

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1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

[redacted]

Pace Analytical

Client Name: Hart Crowser **Project #** _____

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 871798430901

[redacted]

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☑ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 80944042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 8.6 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4/13/10

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-includes date/time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes	☐No	☐N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl Samp # 2/2 #07, #08
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	Initial when completed: [illegible] Lot # of added preservative
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	☑No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Heidi Blisdike Date/Time: 4-13-10 email

Comments/ Resolution: missing cooler arrived 4-13-10 8.6°C
analyze even though > 6°C AN these
2 samples

MBSA-0410-07
MBSW-0410-08

Project Manager Review: OAO **Date:** 4-13-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR. Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 26, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126069001	**MBSW0410-09**	Water	04/07/10 13:36	04/09/10 09:50
10126069002	**MBIA0410-09**	Water	04/07/10 14:18	04/09/10 09:50
10126069003	**MBSA0410-09**	Water	04/07/10 14:30	04/09/10 09:50
10126069004	**MBSW0410-10**	Water	04/07/10 08:55	04/09/10 09:50
10126069005	**MBIA0410-10**	Water	04/07/10 10:18	04/09/10 09:50
10126069006	**MBSA0410-10**	Water	04/07/10 10:30	04/09/10 09:50
10126069007	**MBSW0410-15**	Water	04/07/10 15:34	04/09/10 09:50
10126069008	**MBIA0410-15**	Water	04/07/10 16:01	04/09/10 09:50
10126069009	**MBSA0410-15**	Water	04/07/10 16:10	04/09/10 09:50
10126069010	**MBSW0410-20**	Water	04/07/10 11:07	04/09/10 09:50
10126069011	**MBIA0410-20**	Water	04/07/10 11:45	04/09/10 09:50
10126069012	**MBSA0410-20**	Water	04/07/10 11:58	04/09/10 09:50
10126069013	**MBSA0410-15R**	Water	04/07/10 17:39	04/09/10 09:50
10126069014	**MBFF0410-0407**	Water	04/07/10 17:31	04/09/10 09:50
10126069015	**MBSW0410-09 re-extaction**	Water	04/07/10 13:36	04/09/10 09:50

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126069001	**MBSW0410-09**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069002	**MBIA0410-09**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069003	**MBSA0410-09**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069004	**MBSW0410-10**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069005	**MBIA0410-10**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069006	**MBSA0410-10**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069007	**MBSW0410-15**	EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069008	**MBIA0410-15**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069009	**MBSA0410-15**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069010	**MBSW0410-20**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069011	**MBIA0410-20**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069012	**MBSA0410-20**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069013	**MBSA0410-15R**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	2	PASI-M
10126069014	**MBFF0410-0407**	EPA 6020	RJS	4	PASI-M
10126069015	**MBSW0410-09 re-extaction**	EPA 8270 by SIM	HRG	2	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: April 26, 2010

General Information:
13 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: April 26, 2010

General Information:
13 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 26, 2010

General Information:
13 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5432

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 26, 2010

General Information:
14 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5446

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSSV/5464

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 26, 2010

Analyte Comments:

QC Batch: OEXT/12671

3M: Surrogate recovery outside control limits due to matrix interferences.

- MBSW0410-09 (Lab ID: 10126069001)
  - 2,4,6-Tribromophenol (S)

QC Batch: OEXT/12747

1M: J-flag hit detected in method blank.

- BLANK (Lab ID: 777370)
  - Pentachlorophenol
- MBSW0410-09 re-extaction (Lab ID: 10126069015)
  - Pentachlorophenol

2M: Re-extracted out of hold per QAPP.

- MBSW0410-09 re-extaction (Lab ID: 10126069015)
  - 2,4,6-Tribromophenol (S)

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: April 26, 2010

General Information:
12 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 26, 2010

General Information:
12 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBIA0410-09 (Lab ID: 10126069002)
- MBIA0410-10 (Lab ID: 10126069005)
- MBIA0410-15 (Lab ID: 10126069008)
- MBIA0410-20 (Lab ID: 10126069011)
- MBSA0410-09 (Lab ID: 10126069003)
- MBSA0410-10 (Lab ID: 10126069006)
- MBSA0410-15 (Lab ID: 10126069009)
- MBSA0410-20 (Lab ID: 10126069012)
- MBSW0410-09 (Lab ID: 10126069001)
- MBSW0410-10 (Lab ID: 10126069004)
- MBSW0410-15 (Lab ID: 10126069007)
- MBSW0410-20 (Lab ID: 10126069010)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-09 **Lab ID: 10126069001** Collected: 04/07/10 13:36 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.40J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 02:40	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 02:40	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 02:40	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 02:40	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.24J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:29	7440-38-2	
Chromium, Dissolved	**0.36J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:29	7440-47-3	
Copper, Dissolved	**0.69**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:29	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:29	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.040	0.0061	1	04/12/10 16:08	04/16/10 23:51	83-32-9	
Acenaphthylene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	208-96-8	
Anthracene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.040	0.0020	1	04/12/10 16:08	04/16/10 23:51	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	207-08-9	
Chrysene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	218-01-9	
Dibenz(a,h)anthracene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	53-70-3	
Fluoranthene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	206-44-0	
Fluorene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.040	0.0061	1	04/12/10 16:08	04/16/10 23:51	85-01-8	
Pyrene	**<0.0061**	ug/L	0.040	0.0061	1	04/12/10 16:08	04/16/10 23:51	129-00-0	
2-Fluorobiphenyl (S)	65	%	58-125		1	04/12/10 16:08	04/16/10 23:51	321-60-8	
Terphenyl-d14 (S)	70	%	57-134		1	04/12/10 16:08	04/16/10 23:51	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 04:31	87-86-5	R
2,4,6-Tribromophenol (S)	24	%	30-150		1	04/12/10 13:21	04/20/10 04:31	118-79-6	~~3M~~
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/12/10 15:02		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**64.8**	mg/L	2.0	1.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-09 **Lab ID: 10126069002** Collected: 04/07/10 14:18 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.68**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 02:57	7440-38-2	
Chromium	**1.9**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 02:57	7440-47-3	
Copper	**3.5**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 02:57	7440-50-8	
Zinc	**8.6**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 02:57	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.32J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:46	7440-38-2	
Chromium, Dissolved	**0.43J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:46	7440-47-3	
Copper, Dissolved	**1.3**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:46	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:46	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 00:10	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/12/10 16:08	04/17/10 00:10	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 00:10	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 00:10	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/12/10 16:08	04/17/10 00:10	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/12/10 16:08	04/17/10 00:10	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 04:44	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/12/10 13:21	04/20/10 04:44	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**68.0**	mg/L	10.0	5.0	1		04/12/10 15:02		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**322**	mg/L	5.0	2.5	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-09 **Lab ID: 10126069003** Collected: 04/07/10 14:30 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.8**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:01	7440-38-2	
Chromium	**2.2**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:01	7440-47-3	
Copper	**4.0**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:01	7440-50-8	
Zinc	**11.1**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:01	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.3**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:50	7440-38-2	
Chromium, Dissolved	**0.26J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:50	7440-47-3	
Copper, Dissolved	**0.67**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:50	7440-50-8	
Zinc, Dissolved	**3.2J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:50	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.78**	ug/L	0.045	0.0068	1	04/12/10 16:08	04/17/10 00:29	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	208-96-8	
Anthracene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	50-32-8	
Benzo(b)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	205-99-2	
Benzo(g,h,i)perylene	**<0.0023**	ug/L	0.045	0.0023	1	04/12/10 16:08	04/17/10 00:29	191-24-2	
Benzo(k)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	53-70-3	
Fluoranthene	**0.053**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	206-44-0	
Fluorene	**0.35**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	193-39-5	
Naphthalene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	91-20-3	
Phenanthrene	**0.019J**	ug/L	0.045	0.0068	1	04/12/10 16:08	04/17/10 00:29	85-01-8	
Pyrene	**0.031J**	ug/L	0.045	0.0068	1	04/12/10 16:08	04/17/10 00:29	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/12/10 16:08	04/17/10 00:29	321-60-8	
Terphenyl-d14 (S)	63	%	57-134		1	04/12/10 16:08	04/17/10 00:29	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 04:58	87-86-5	
2,4,6-Tribromophenol (S)	99	%	30-150		1	04/12/10 13:21	04/20/10 04:58	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**67.0**	mg/L	10.0	5.0	1		04/12/10 15:03		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**151**	mg/L	2.1	1.1	1		04/13/10 14:04		

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-10 **Lab ID: 10126069004** Collected: 04/07/10 08:55 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.41J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:05	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:05	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:05	7440-50-8	
Zinc	**6.2**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:05	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.26J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:54	7440-38-2	
Chromium, Dissolved	**0.35J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:54	7440-47-3	
Copper, Dissolved	**0.95**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:54	7440-50-8	
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 00:48	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 00:48	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 00:48	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 00:48	129-00-0	
2-Fluorobiphenyl (S)	62	%	58-125		1	04/12/10 16:08	04/17/10 00:48	321-60-8	
Terphenyl-d14 (S)	66	%	57-134		1	04/12/10 16:08	04/17/10 00:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/12/10 13:21	04/20/10 05:12	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/12/10 13:21	04/20/10 05:12	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/12/10 15:03		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**74.2**	mg/L	2.0	1.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-10 **Lab ID: 10126069005** Collected: 04/07/10 10:18 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.0**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:09	7440-38-2	
Chromium	**13.4**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:09	7440-47-3	
Copper	**22.0**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:09	7440-50-8	
Zinc	**52.3**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:09	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.30J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:59	7440-38-2	
Chromium, Dissolved	**0.82**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:59	7440-47-3	
Copper, Dissolved	**1.7**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:59	7440-50-8	
Zinc, Dissolved	**3.7J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:59	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:07	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 01:07	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	53-70-3	
Fluoranthene	**0.014J**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	91-20-3	
Phenanthrene	**0.018J**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:07	85-01-8	
Pyrene	**0.012J**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:07	129-00-0	
2-Fluorobiphenyl (S)	62	%	58-125		1	04/12/10 16:08	04/17/10 01:07	321-60-8	
Terphenyl-d14 (S)	66	%	57-134		1	04/12/10 16:08	04/17/10 01:07	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/12/10 13:21	04/20/10 05:25	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 05:25	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**65.0**	mg/L	10.0	5.0	1		04/12/10 15:03		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**1500**	mg/L	10.0	5.0	1		04/13/10 14:04		~~72~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-10 **Lab ID: 10126069006** Collected: 04/07/10 10.30 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**11.2**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:26	7440-38-2	
Chromium	**0.43J**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:26	7440-47-3	
Copper	**0.49J**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:26	7440-50-8	
Zinc	**6.0**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:26	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**11.1**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:15	7440-38-2	
Chromium, Dissolved	**0.33J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:15	7440-47-3	
Copper, Dissolved	**0.20J**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:15	7440-50-8	
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:15	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**9.0**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:25	83-32-9	
Acenaphthylene	**0.035J**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	208-96-8	
Anthracene	**0.047**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 01:25	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	207-08-9	
Chrysene	**0.012J**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	53-70-3	
Fluoranthene	**0.15**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	206-44-0	
Fluorene	**2.5**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	193-39-5	
Naphthalene	**2.8**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	91-20-3	
Phenanthrene	**0.18**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:25	85-01-8	
Pyrene	**0.10**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:25	129-00-0	
2-Fluorobiphenyl (S)	65	%	58-125		1	04/12/10 16:08	04/17/10 01:25	321-60-8	
Terphenyl-d14 (S)	67	%	57-134		1	04/12/10 16:08	04/17/10 01:25	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/12/10 13:21	04/20/10 05:39	87-86-5	
2,4,6-Tribromophenol (S)	104	%	30-150		1	04/12/10 13:21	04/20/10 05:39	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**138**	mg/L	10.0	5.0	1		04/12/10 15:04		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**190**	mg/L	10.0	5.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-15 Lab ID: **10126069007** Collected: 04/07/10 15.34 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:30	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:30	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:30	7440-50-8	
Zinc	**4.0J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:30	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.16J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:20	7440-38-2	
Chromium, Dissolved	**0.28J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:20	7440-47-3	
Copper, Dissolved	**1.5**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:20	7440-50-8	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:20	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 01:44	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/12/10 16:08	04/17/10 01:44	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 01:44	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 01:44	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/12/10 16:08	04/17/10 01:44	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/12/10 16:08	04/17/10 01:44	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 05:53	87-86-5	
2,4,6-Tribromophenol (S)	96	%	30-150		1	04/12/10 13:21	04/20/10 05:53	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/12/10 15:04		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**71.0**	mg/L	2.1	1.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-15 Lab ID: **10126069008** Collected: 04/07/10 16:01 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.6**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:34	7440-38-2	
Chromium	**4.7**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:34	7440-47-3	
Copper	**9.4**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:34	7440-50-8	
Zinc	**21.3**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:34	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.22J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:24	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:24	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:24	7440-50-8	
Zinc, Dissolved	**2.9J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:24	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:03	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/12/10 16:08	04/17/10 02:03	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:03	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:03	129-00-0	
2-Fluorobiphenyl (S)	58	%	58-125		1	04/12/10 16:08	04/17/10 02:03	321-60-8	
Terphenyl-d14 (S)	64	%	57-134		1	04/12/10 16:08	04/17/10 02:03	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/12/10 13:21	04/20/10 06:06	87-86-5	
2,4,6-Tribromophenol (S)	99	%	30-150		1	04/12/10 13:21	04/20/10 06:06	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**80.0**	mg/L	10.0	5.0	1		04/12/10 15:05		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**952**	mg/L	10.0	5.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-15 **Lab ID: 10126069009** Collected: 04/07/10 16:10 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.6**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:39	7440-38-2	
Chromium	**0.84**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:39	7440-47-3	
Copper	**1.9**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:39	7440-50-8	
Zinc	**9.5**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:39	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.2**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:28	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:28	7440-47-3	
Copper, Dissolved	**0.39J**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:28	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:28	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.36**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:22	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/12/10 16:08	04/17/10 02:22	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	206-44-0	
Fluorene	**0.15**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:22	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:22	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/12/10 16:08	04/17/10 02:22	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/12/10 16:08	04/17/10 02:22	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.55	0.15	1	04/12/10 13:21	04/20/10 06:20	87-86-5	
2,4,6-Tribromophenol (S)	94	%	30-150		1	04/12/10 13:21	04/20/10 06:20	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**75.0**	mg/L	10.0	5.0	1		04/12/10 15:05		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**166**	mg/L	2.0	1.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-20 Lab ID: **10126069010** Collected: 04/07/10 11:07 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.34J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:43	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:43	7440-47-3	
Copper	**2.5**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:43	7440-50-8	
Zinc	**3.7J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:43	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.29J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:32	7440-38-2	
Chromium, Dissolved	**0.32J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:32	7440-47-3	
Copper, Dissolved	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:32	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:32	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/12/10 16:08	04/17/10 02:41	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/12/10 16:08	04/17/10 02:41	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/12/10 16:08	04/17/10 02:41	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/12/10 16:08	04/17/10 02:41	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/12/10 16:08	04/17/10 02:41	321-60-8	
Terphenyl-d14 (S)	64	%	57-134		1	04/12/10 16:08	04/17/10 02:41	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/12/10 13:21	04/20/10 06:34	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 06:34	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/12/10 15:05		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**106**	mg/L	2.1	1.1	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-20 **Lab ID: 10126069011** Collected: 04/07/10 11:45 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.79**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:47	7440-38-2	
Chromium	**2.8**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:47	7440-47-3	
Copper	**5.3**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:47	7440-50-8	
Zinc	**11.8**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:47	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.29J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:36	7440-38-2	
Chromium, Dissolved	**0.48J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:36	7440-47-3	
Copper, Dissolved	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:36	7440-50-8	
Zinc, Dissolved	**4.5J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:36	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 03:00	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 03:00	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 03:00	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 03:00	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/12/10 16:08	04/17/10 03:00	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/12/10 16:08	04/17/10 03:00	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 06:47	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 06:47	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**63.0**	mg/L	10.0	5.0	1		04/12/10 15:06		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**456**	mg/L	4.0	2.0	1		04/13/10 14:04		~~Z2~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-20 **Lab ID: 10126069012** Collected: 04/07/10 11:58 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.1**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 04:00	7440-38-2	
Chromium	**0.50**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 04:00	7440-47-3	
Copper	**5.2**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 04:00	7440-50-8	
Zinc	**4.4J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 04:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.95**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:49	7440-38-2	
Chromium, Dissolved	**0.28J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:49	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:49	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:49	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.42**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 03:18	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/12/10 16:08	04/17/10 03:18	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	206-44-0	
Fluorene	**0.12**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 03:18	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 03:18	129-00-0	
2-Fluorobiphenyl (S)	58	%	58-125		1	04/12/10 16:08	04/17/10 03:18	321-60-8	
Terphenyl-d14 (S)	63	%	57-134		1	04/12/10 16:08	04/17/10 03:18	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 07:01	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 07:01	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**88.0**	mg/L	10.0	5.0	1		04/13/10 14:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**1040**	mg/L	2.0	1.0	1		04/13/10 14:04		~~22~~

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-15R **Lab ID: 10126069013** Collected: 04/07/10 17:39 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 04:04	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 04:04	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 04:04	7440-50-8	
Zinc	**<1.3**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 04:04	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/12/10 16:08	04/17/10 03:37	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/12/10 16:08	04/17/10 03:37	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/12/10 16:08	04/17/10 03:37	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/12/10 16:08	04/17/10 03:37	129-00-0	
2-Fluorobiphenyl (S)	64	%	58-125		1	04/12/10 16:08	04/17/10 03:37	321-60-8	
Terphenyl-d14 (S)	71	%	57-134		1	04/12/10 16:08	04/17/10 03:37	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 07:15	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/12/10 13:21	04/20/10 07:15	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBFF0410-0407 **Lab ID: 10126069014** Collected: 04/07/10 17:31 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:53	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:53	7440-47-3	
Copper, Dissolved	**0.32J**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:53	7440-50-8	
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:53	7440-66-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-09 re-extaction **Lab ID: 10126069015** Collected: 04/07/10 13:36 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.32J**	ug/L	0.52	0.14	1	04/21/10 16:33	04/26/10 11:30	87-86-5	~~1M~~ J
2,4,6-Tribromophenol (S)	83	%	30-150		1	04/21/10 16:33	04/26/10 11:30	118-79-6	~~2M~~

A 6/3/10

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: MPRP/19904 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

METHOD BLANK: 771318 Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/14/10 02:31	
Chromium	ug/L	<0.24	0.50	04/14/10 02:31	
Copper	ug/L	<0.20	0.50	04/14/10 02:31	
Zinc	ug/L	<1.3	5.0	04/14/10 02:31	

LABORATORY CONTROL SAMPLE: 771319

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	81.3	102	85-115	
Chromium	ug/L	80	84.8	106	85-115	
Copper	ug/L	80	85.0	106	85-115	
Zinc	ug/L	80	82.5	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 771320 771321

Parameter	Units	10126069001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.40J	80	80	81.8	82.2	102	102	75-125	0	20	
Chromium	ug/L	1.0	80	80	86.1	86.6	106	107	75-125	1	20	
Copper	ug/L	1.7	80	80	88.3	89.1	108	109	75-125	1	20	
Zinc	ug/L	3.8J	80	80	86.0	87.7	103	105	75-125	2	20	

MATRIX SPIKE SAMPLE: 771322

Parameter	Units	10126069011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.79	80	82.9	103	75-125	
Chromium	ug/L	2.8	80	87.2	106	75-125	
Copper	ug/L	5.3	80	92.5	109	75-125	
Zinc	ug/L	11.8	80	98.5	108	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: MPRP/19905 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069014

METHOD BLANK: 771323 | Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/14/10 04:21	
Chromium, Dissolved	ug/L	<0.24	0.50	04/14/10 04:21	
Copper, Dissolved	ug/L	<0.20	0.50	04/14/10 04:21	
Zinc, Dissolved	ug/L	<1.3	5.0	04/14/10 04:21	

LABORATORY CONTROL SAMPLE: 771324

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	81.3	102	85-115	
Chromium, Dissolved	ug/L	80	82.8	103	85-115	
Copper, Dissolved	ug/L	80	84.6	106	85-115	
Zinc, Dissolved	ug/L	80	82.9	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 771325 771326

Parameter	Units	10126069001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.24J	80	80	80.1	84.9	100	106	75-125	6	20	
Chromium, Dissolved	ug/L	0.36J	80	80	84.3	83.2	105	104	75-125	1	20	
Copper, Dissolved	ug/L	0.69	80	80	86.2	86.2	107	107	75-125	0	20	
Zinc, Dissolved	ug/L	1.5J	80	80	84.1	84.7	103	104	75-125	1	20	

MATRIX SPIKE SAMPLE: 771327

Parameter	Units	10126069011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.29J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	0.48J	80	84.4	105	75-125	
Copper, Dissolved	ug/L	1.8	80	87.5	107	75-125	
Zinc, Dissolved	ug/L	4.5J	80	87.0	103	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: OEXT/12670 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

METHOD BLANK: 771825 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/15/10 11:56	
Acenaphthylene	ug/L	<0.0040	0.040	04/15/10 11:56	
Anthracene	ug/L	<0.0050	0.040	04/15/10 11:56	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/15/10 11:56	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/15/10 11:56	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/15/10 11:56	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/15/10 11:56	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/15/10 11:56	
Chrysene	ug/L	<0.0030	0.040	04/15/10 11:56	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/15/10 11:56	
Fluoranthene	ug/L	<0.0040	0.040	04/15/10 11:56	
Fluorene	ug/L	<0.0030	0.040	04/15/10 11:56	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/15/10 11:56	
Naphthalene	ug/L	<0.0050	0.040	04/15/10 11:56	
Phenanthrene	ug/L	<0.0060	0.040	04/15/10 11:56	
Pyrene	ug/L	<0.0060	0.040	04/15/10 11:56	
2-Fluorobiphenyl (S)	%	61	58-125	04/15/10 11:56	
Terphenyl-d14 (S)	%	66	57-134	04/15/10 11:56	

LABORATORY CONTROL SAMPLE & LCSD: 771826 771827

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.66	0.76	66	76	56-125	14	20	
Acenaphthylene	ug/L	1	0.69	0.78	69	78	51-125	13	20	
Anthracene	ug/L	1	0.70	0.78	70	78	58-125	11	20	
Benzo(a)anthracene	ug/L	1	0.74	0.79	74	79	61-125	7	20	
Benzo(a)pyrene	ug/L	1	0.74	0.81	74	81	56-125	9	20	
Benzo(b)fluoranthene	ug/L	1	0.85	0.93	85	93	54-125	9	20	
Benzo(g,h,i)perylene	ug/L	1	0.71	0.77	71	77	42-125	9	20	
Benzo(k)fluoranthene	ug/L	1	0.72	0.77	72	77	60-125	7	20	
Chrysene	ug/L	1	0.69	0.76	69	76	64-125	10	20	
Dibenz(a,h)anthracene	ug/L	1	0.72	0.79	72	79	46-125	8	20	
Fluoranthene	ug/L	1	0.72	0.80	72	80	54-125	11	20	
Fluorene	ug/L	1	0.69	0.78	69	78	55-125	13	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.70	0.78	70	78	46-125	10	20	
Naphthalene	ug/L	1	0.66	0.76	66	76	47-125	14	20	
Phenanthrene	ug/L	1	0.71	0.79	71	79	55-125	11	20	
Pyrene	ug/L	1	0.76	0.82	76	82	57-125	8	20	
2-Fluorobiphenyl (S)	%				59	68	58-125			
Terphenyl-d14 (S)	%				68	73	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: OEXT/12671 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

METHOD BLANK: 772061 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 03:50	
2,4,6-Tribromophenol (S)	%	98	30-150	04/20/10 03:50	

LABORATORY CONTROL SAMPLE & LCSD: 772062 772063

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	1.1	1.0	108	105	41-137	3	20	
2,4,6-Tribromophenol (S)	%				103	100	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: OEXT/12747 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126069015

METHOD BLANK: 777370 | Matrix: Water
Associated Lab Samples: 10126069015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.31J	0.50	04/26/10 10:49	1M
2,4,6-Tribromophenol (S)	%	67	30-150	04/26/10 10:49	

LABORATORY CONTROL SAMPLE & LCSD: 777371 777372

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.55	0.60	55	60	41-137	9	20	
2,4,6-Tribromophenol (S)	%				66	68	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: WET/18732 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011

METHOD BLANK: 771909 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/12/10 14:56	

LABORATORY CONTROL SAMPLE: 771910

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	19.7	22.0	112	80-120	

SAMPLE DUPLICATE: 771911

Parameter	Units	10126031017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	105	103	2	20	

SAMPLE DUPLICATE: 771912

Parameter	Units	10126031007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	89.0	103	15	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: WET/18737 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126069012

METHOD BLANK: 772441 | Matrix: Water
Associated Lab Samples: 10126069012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/13/10 14:24	

LABORATORY CONTROL SAMPLE: 772442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	23.0	100	80-120	

SAMPLE DUPLICATE: 772443

Parameter	Units	10126041001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	565	579	2	20	

SAMPLE DUPLICATE: 772444

Parameter	Units	10126106001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	109	117	7	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: WET/18736 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012

METHOD BLANK: 772436 Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.4J	2.0	04/13/10 14:04	

METHOD BLANK: 772439 Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/13/10 14:04	

LABORATORY CONTROL SAMPLE & LCSD: 772437 772438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	32.9	33.8	115	118	80-120	3	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5432

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5446

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5464

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	J-flag hit detected in method blank.
2M	Re-extracted out of hold per QAPP.
3M	Surrogate recovery outside control limits due to matrix interferences.
Z2	Analyte present in the associated method blank above the detection limit.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126069001	**MBSW0410-09**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069002	**MBIA0410-09**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069003	**MBSA0410-09**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069004	**MBSW0410-10**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069005	**MBIA0410-10**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069006	**MBSA0410-10**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069007	**MBSW0410-15**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069008	**MBIA0410-15**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069009	**MBSA0410-15**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069010	**MBSW0410-20**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069011	**MBIA0410-20**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069012	**MBSA0410-20**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069013	**MBSA0410-15R**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069001	**MBSW0410-09**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069002	**MBIA0410-09**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069003	**MBSA0410-09**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069004	**MBSW0410-10**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069005	**MBIA0410-10**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069006	**MBSA0410-10**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069007	**MBSW0410-15**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069008	**MBIA0410-15**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069009	**MBSA0410-15**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069010	**MBSW0410-20**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069011	**MBIA0410-20**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069012	**MBSA0410-20**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069014	**MBFF0410-0407**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069001	**MBSW0410-09**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069002	**MBIA0410-09**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069003	**MBSA0410-09**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069004	**MBSW0410-10**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069005	**MBIA0410-10**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069006	**MBSA0410-10**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069007	**MBSW0410-15**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069008	**MBIA0410-15**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069009	**MBSA0410-15**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069010	**MBSW0410-20**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069011	**MBIA0410-20**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069012	**MBSA0410-20**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069013	**MBSA0410-15R**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069001	**MBSW0410-09**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069002	**MBIA0410-09**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069003	**MBSA0410-09**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069004	**MBSW0410-10**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069005	**MBIA0410-10**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069006	**MBSA0410-10**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069007	**MBSW0410-15**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069008	**MBIA0410-15**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126069009	**MBSA0410-15**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069010	**MBSW0410-20**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069011	**MBIA0410-20**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069012	**MBSA0410-20**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069013	**MBSA0410-15R**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069015	**MBSW0410-09 re-extaction**	EPA 3510	OEXT/12747	EPA 8270 by SIM	MSSV/5464
10126069001	**MBSW0410-09**	SM 2540C	WET/18732		
10126069002	**MBIA0410-09**	SM 2540C	WET/18732		
10126069003	**MBSA0410-09**	SM 2540C	WET/18732		
10126069004	**MBSW0410-10**	SM 2540C	WET/18732		
10126069005	**MBIA0410-10**	SM 2540C	WET/18732		
10126069006	**MBSA0410-10**	SM 2540C	WET/18732		
10126069007	**MBSW0410-15**	SM 2540C	WET/18732		
10126069008	**MBIA0410-15**	SM 2540C	WET/18732		
10126069009	**MBSA0410-15**	SM 2540C	WET/18732		
10126069010	**MBSW0410-20**	SM 2540C	WET/18732		
10126069011	**MBIA0410-20**	SM 2540C	WET/18732		
10126069012	**MBSA0410-20**	SM 2540C	WET/18737		
10126069001	**MBSW0410-09**	SM 2540D	WET/18736		
10126069002	**MBIA0410-09**	SM 2540D	WET/18736		
10126069003	**MBSA0410-09**	SM 2540D	WET/18736		
10126069004	**MBSW0410-10**	SM 2540D	WET/18736		
10126069005	**MBIA0410-10**	SM 2540D	WET/18736		
10126069006	**MBSA0410-10**	SM 2540D	WET/18736		
10126069007	**MBSW0410-15**	SM 2540D	WET/18736		
10126069008	**MBIA0410-15**	SM 2540D	WET/18736		
10126069009	**MBSA0410-15**	SM 2540D	WET/18736		
10126069010	**MBSW0410-20**	SM 2540D	WET/18736		
10126069011	**MBIA0410-20**	SM 2540D	WET/18736		
10126069012	**MBSA0410-20**	SM 2540D	WET/18736		

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State of Oregon Chain of Custody

1126069

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3-	HNO3-	None	None		
MBSW0410-09	4-7-10/1536	Water	8	X	X	X	X	X	X		W1
MBIA0410-09	4-7-10/1418	Water	8	X	X	X	X	X	X		W2
MBSA0410-09	4-7-10/1430	Water	8	X	X	X	X	X	X		W3
MBSW0410-10	4-7-10/0855	Water	8	X	X	X	X	X	X		W4
MBIA0410-10	4-7-10/1018	Water	8	X	X	X	X	X	X		W5
MBSA0410-10	4-7-10/1030	Water	8	X	X	X	X	X	X		W6
MBSW0410-15	4-7-10/1539	Water	8	X	X	X	X	X	X		W7
MBIA0410-15	4-7-10/1601	Water	8	X	X	X	X	X	X		W8
MBSA0410-15	4-7-10/1610	Water	8	X	X	X	X	X	X		W9
MBSW0410-20	4-7-10/1107	Water	8	X	X	X	X	X	X		W10
MBIA0410-20	4-7-10/1145	Water	8	X	X	X	X	X	X		W11

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By:	Agency/Agent:
Signature:	Time & Date: 0738 4/8/10	Signature:	Time & Date: 0950 4-9-10

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

r: 1.4/1.2/3.8/2.2/5.4/3.6

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Sample Preservative

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments
				None	None	HNO3-	HNO3-	None	None		
MBSA0410-20	4-7-10/1158	Water	8	X	X	X	X	X	X		02
MBSA0410-15R	4-7-10/1159	Water	5	X	X	X					03
MBFF0410-0407	4-7-10/1731	Water	1				X				04
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Requested Analyses

* low level PAHs and PCP;
** Field filtered 0.45 um filter

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser		
Signature:	Time & Date: 0730 4/8/10	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T = 1.4/1.2/3.8/2.2/3.4/3.2

[redacted]

Pace Analytical

Client Name: Dept Env. Quality **Project #** 1012668

7955 3467 0644

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 7955-3467-0633 / 7955-3467-0655 / 7955-3467-0677 / 7955-3467-0644 / 8717 7843-0956

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ✓ **No** _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.4/1.2/3.8/2.2/4/3.6 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4/8/10

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # 001-014
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water	☐Yes ☑No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DMO **Date:** 4-9-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR.

F-L213Rev.00, 05Aug2009

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 05, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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(612)607-1700

SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126069001	**MBSW0410-09**	Water	04/07/10 13:36	04/09/10 09:50
10126069002	**MBIA0410-09**	Water	04/07/10 14:18	04/09/10 09:50
10126069003	**MBSA0410-09**	Water	04/07/10 14:30	04/09/10 09:50
10126069004	**MBSW0410-10**	Water	04/07/10 08:55	04/09/10 09:50
10126069005	**MBIA0410-10**	Water	04/07/10 10:18	04/09/10 09:50
10126069006	**MBSA0410-10**	Water	04/07/10 10:30	04/09/10 09:50
10126069007	**MBSW0410-15**	Water	04/07/10 15:34	04/09/10 09:50
10126069008	**MBIA0410-15**	Water	04/07/10 16:01	04/09/10 09:50
10126069009	**MBSA0410-15**	Water	04/07/10 16:10	04/09/10 09:50
10126069010	**MBSW0410-20**	Water	04/07/10 11:07	04/09/10 09:50
10126069011	**MBIA0410-20**	Water	04/07/10 11:45	04/09/10 09:50
10126069012	**MBSA0410-20**	Water	04/07/10 11:58	04/09/10 09:50
10126069013	**MBSA0410-15R**	Water	04/07/10 17:39	04/09/10 09:50
10126069014	**MBFF0410-0407**	Water	04/07/10 17:31	04/09/10 09:50
10126069015	**MBSW0410-09 re-extaction**	Water	04/07/10 13:36	04/09/10 09:50

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126069001	**MBSW0410-09**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069002	**MBIA0410-09**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069003	**MBSA0410-09**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069004	**MBSW0410-10**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069005	**MBIA0410-10**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069006	**MBSA0410-10**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069007	**MBSW0410-15**	EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069008	**MBIA0410-15**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069009	**MBSA0410-15**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069010	**MBSW0410-20**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069011	**MBIA0410-20**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069012	**MBSA0410-20**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126069013	**MBSA0410-15R**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	2	PASI-M
10126069014	**MBFF0410-0407**	EPA 6020	RJS	4	PASI-M
10126069015	**MBSW0410-09 re-extaction**	EPA 8270 by SIM	HRG	2	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 05, 2011

General Information:
13 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 05, 2011

General Information:
13 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 05, 2011

General Information:
13 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5432

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 05, 2011

General Information:
14 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5446

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSSV/5464

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 05, 2011

Analyte Comments:

QC Batch: OEXT/12671

3M: Surrogate recovery outside control limits due to matrix interferences.

- MBSW0410-09 (Lab ID: 10126069001)
  - 2,4,6-Tribromophenol (S)

QC Batch: OEXT/12747

1M: J-flag hit detected in method blank.

- BLANK (Lab ID: 777370)
  - Pentachlorophenol
- MBSW0410-09 re-extaction (Lab ID: 10126069015)
  - Pentachlorophenol

2M: Re-extracted out of hold per QAPP.

- MBSW0410-09 re-extaction (Lab ID: 10126069015)
  - 2,4,6-Tribromophenol (S)

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 05, 2011

General Information:
12 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 05, 2011

General Information:
12 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBSW0410-15 (Lab ID: 10126069007)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-09 **Lab ID: 10126069001** Collected: 04/07/10 13:36 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.40J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 02:40	7440-38-2	
Chromium	**1.0**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 02:40	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 02:40	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 02:40	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.24J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:29	7440-38-2	
Chromium, Dissolved	**0.36J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:29	7440-47-3	
Copper, Dissolved	**0.69**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:29	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:29	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.040	0.0061	1	04/12/10 16:08	04/16/10 23:51	83-32-9	
Acenaphthylene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	208-96-8	
Anthracene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.040	0.0020	1	04/12/10 16:08	04/16/10 23:51	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	207-08-9	
Chrysene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	218-01-9	
Dibenz(a,h)anthracene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	53-70-3	
Fluoranthene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	206-44-0	
Fluorene	**<0.0030**	ug/L	0.040	0.0030	1	04/12/10 16:08	04/16/10 23:51	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0040**	ug/L	0.040	0.0040	1	04/12/10 16:08	04/16/10 23:51	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.040	0.0051	1	04/12/10 16:08	04/16/10 23:51	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.040	0.0061	1	04/12/10 16:08	04/16/10 23:51	85-01-8	
Pyrene	**<0.0061**	ug/L	0.040	0.0061	1	04/12/10 16:08	04/16/10 23:51	129-00-0	
2-Fluorobiphenyl (S)	65	%	58-125		1	04/12/10 16:08	04/16/10 23:51	321-60-8	
Terphenyl-d14 (S)	70	%	57-134		1	04/12/10 16:08	04/16/10 23:51	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 04:31	87-86-5	
2,4,6-Tribromophenol (S)	24	%	30-150		1	04/12/10 13:21	04/20/10 04:31	118-79-6	3M
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/12/10 15:02		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**13.0**	mg/L	2.0	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-09 **Lab ID: 10126069002** Collected: 04/07/10 14:18 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.68**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 02:57	7440-38-2	
Chromium	**1.9**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 02:57	7440-47-3	
Copper	**3.5**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 02:57	7440-50-8	
Zinc	**8.6**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 02:57	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.32J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:46	7440-38-2	
Chromium, Dissolved	**0.43J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:46	7440-47-3	
Copper, Dissolved	**1.3**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:46	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:46	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 00:10	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/12/10 16:08	04/17/10 00:10	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 00:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 00:10	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 00:10	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 00:10	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 00:10	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/12/10 16:08	04/17/10 00:10	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/12/10 16:08	04/17/10 00:10	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 04:44	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/12/10 13:21	04/20/10 04:44	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**68.0**	mg/L	10.0	5.0	1		04/12/10 15:02		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**64.5**	mg/L	5.0	2.5	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-09 **Lab ID: 10126069003** Collected: 04/07/10 14:30 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.8**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:01	7440-38-2	
Chromium	**2.2**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:01	7440-47-3	
Copper	**4.0**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:01	7440-50-8	
Zinc	**11.1**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:01	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.3**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:50	7440-38-2	
Chromium, Dissolved	**0.26J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:50	7440-47-3	
Copper, Dissolved	**0.67**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:50	7440-50-8	
Zinc, Dissolved	**3.2J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:50	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.78**	ug/L	0.045	0.0068	1	04/12/10 16:08	04/17/10 00:29	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	208-96-8	
Anthracene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	50-32-8	
Benzo(b)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	205-99-2	
Benzo(g,h,i)perylene	**<0.0023**	ug/L	0.045	0.0023	1	04/12/10 16:08	04/17/10 00:29	191-24-2	
Benzo(k)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	53-70-3	
Fluoranthene	**0.053**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	206-44-0	
Fluorene	**0.35**	ug/L	0.045	0.0034	1	04/12/10 16:08	04/17/10 00:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/12/10 16:08	04/17/10 00:29	193-39-5	
Naphthalene	**<0.0057**	ug/L	0.045	0.0057	1	04/12/10 16:08	04/17/10 00:29	91-20-3	
Phenanthrene	**0.019J**	ug/L	0.045	0.0068	1	04/12/10 16:08	04/17/10 00:29	85-01-8	
Pyrene	**0.031J**	ug/L	0.045	0.0068	1	04/12/10 16:08	04/17/10 00:29	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/12/10 16:08	04/17/10 00:29	321-60-8	
Terphenyl-d14 (S)	63	%	57-134		1	04/12/10 16:08	04/17/10 00:29	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 04:58	87-86-5	
2,4,6-Tribromophenol (S)	99	%	30-150		1	04/12/10 13:21	04/20/10 04:58	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**67.0**	mg/L	10.0	5.0	1		04/12/10 15:03		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**30.2**	mg/L	2.1	1.1	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-10 **Lab ID: 10126069004** Collected: 04/07/10 08:55 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.41J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:05	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:05	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:05	7440-50-8	
Zinc	**6.2**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:05	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.26J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:54	7440-38-2	
Chromium, Dissolved	**0.35J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:54	7440-47-3	
Copper, Dissolved	**0.95**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:54	7440-50-8	
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 00:48	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 00:48	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 00:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 00:48	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 00:48	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 00:48	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 00:48	129-00-0	
2-Fluorobiphenyl (S)	62	%	58-125		1	04/12/10 16:08	04/17/10 00:48	321-60-8	
Terphenyl-d14 (S)	66	%	57-134		1	04/12/10 16:08	04/17/10 00:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/12/10 13:21	04/20/10 05:12	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/12/10 13:21	04/20/10 05:12	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/12/10 15:03		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**14.8**	mg/L	2.0	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-10 **Lab ID: 10126069005** Collected: 04/07/10 10:18 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.0**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:09	7440-38-2	
Chromium	**13.4**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:09	7440-47-3	
Copper	**22.0**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:09	7440-50-8	
Zinc	**52.3**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:09	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.30J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 04:59	7440-38-2	
Chromium, Dissolved	**0.82**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 04:59	7440-47-3	
Copper, Dissolved	**1.7**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 04:59	7440-50-8	
Zinc, Dissolved	**3.7J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 04:59	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:07	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 01:07	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	53-70-3	
Fluoranthene	**0.014J**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 01:07	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:07	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 01:07	91-20-3	
Phenanthrene	**0.018J**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:07	85-01-8	
Pyrene	**0.012J**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:07	129-00-0	
2-Fluorobiphenyl (S)	62	%	58-125		1	04/12/10 16:08	04/17/10 01:07	321-60-8	
Terphenyl-d14 (S)	66	%	57-134		1	04/12/10 16:08	04/17/10 01:07	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/12/10 13:21	04/20/10 05:25	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 05:25	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**65.0**	mg/L	10.0	5.0	1		04/12/10 15:03		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**300**	mg/L	10.0	5.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-10 **Lab ID: 10126069006** Collected: 04/07/10 10:30 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**11.2**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:26	7440-38-2	
Chromium	**0.43J**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:26	7440-47-3	
Copper	**0.49J**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:26	7440-50-8	
Zinc	**6.0**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:26	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**11.1**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:15	7440-38-2	
Chromium, Dissolved	**0.33J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:15	7440-47-3	
Copper, Dissolved	**0.20J**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:15	7440-50-8	
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:15	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**9.0**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:25	83-32-9	
Acenaphthylene	**0.035J**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	208-96-8	
Anthracene	**0.047**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 01:25	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	207-08-9	
Chrysene	**0.012J**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	53-70-3	
Fluoranthene	**0.15**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	206-44-0	
Fluorene	**2.5**	ug/L	0.042	0.0031	1	04/12/10 16:08	04/17/10 01:25	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 01:25	193-39-5	
Naphthalene	**2.8**	ug/L	0.042	0.0052	1	04/12/10 16:08	04/17/10 01:25	91-20-3	
Phenanthrene	**0.18**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:25	85-01-8	
Pyrene	**0.10**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 01:25	129-00-0	
2-Fluorobiphenyl (S)	65	%	58-125		1	04/12/10 16:08	04/17/10 01:25	321-60-8	
Terphenyl-d14 (S)	67	%	57-134		1	04/12/10 16:08	04/17/10 01:25	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/12/10 13:21	04/20/10 05:39	87-86-5	
2,4,6-Tribromophenol (S)	104	%	30-150		1	04/12/10 13:21	04/20/10 05:39	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**138**	mg/L	10.0	5.0	1		04/12/10 15:04		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**38.1**	mg/L	10.0	5.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-15 **Lab ID: 10126069007** Collected: 04/07/10 15:34 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:30	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:30	7440-47-3	
Copper	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:30	7440-50-8	
Zinc	**4.0J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:30	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.16J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:20	7440-38-2	
Chromium, Dissolved	**0.28J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:20	7440-47-3	
Copper, Dissolved	**1.5**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:20	7440-50-8	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:20	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 01:44	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/12/10 16:08	04/17/10 01:44	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 01:44	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 01:44	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 01:44	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 01:44	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 01:44	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/12/10 16:08	04/17/10 01:44	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/12/10 16:08	04/17/10 01:44	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 05:53	87-86-5	
2,4,6-Tribromophenol (S)	96	%	30-150		1	04/12/10 13:21	04/20/10 05:53	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/12/10 15:04		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**14.2**	mg/L	2.1	1.0	1		04/13/10 14:04		Z2

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-15 **Lab ID: 10126069008** Collected: 04/07/10 16:01 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.6**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:34	7440-38-2	
Chromium	**4.7**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:34	7440-47-3	
Copper	**9.4**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:34	7440-50-8	
Zinc	**21.3**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:34	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.22J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:24	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:24	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:24	7440-50-8	
Zinc, Dissolved	**2.9J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:24	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:03	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/12/10 16:08	04/17/10 02:03	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:03	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:03	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/12/10 16:08	04/17/10 02:03	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:03	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:03	129-00-0	
2-Fluorobiphenyl (S)	58	%	58-125		1	04/12/10 16:08	04/17/10 02:03	321-60-8	
Terphenyl-d14 (S)	64	%	57-134		1	04/12/10 16:08	04/17/10 02:03	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/12/10 13:21	04/20/10 06:06	87-86-5	
2,4,6-Tribromophenol (S)	99	%	30-150		1	04/12/10 13:21	04/20/10 06:06	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**80.0**	mg/L	10.0	5.0	1		04/12/10 15:05		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**190**	mg/L	10.0	5.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-15 **Lab ID: 10126069009** Collected: 04/07/10 16:10 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.6**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:39	7440-38-2	
Chromium	**0.84**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:39	7440-47-3	
Copper	**1.9**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:39	7440-50-8	
Zinc	**9.5**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:39	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**1.2**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:28	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:28	7440-47-3	
Copper, Dissolved	**0.39J**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:28	7440-50-8	
Zinc, Dissolved	**2.1J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:28	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.36**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:22	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/12/10 16:08	04/17/10 02:22	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	206-44-0	
Fluorene	**0.15**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:22	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:22	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:22	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:22	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/12/10 16:08	04/17/10 02:22	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/12/10 16:08	04/17/10 02:22	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/12/10 16:08	04/17/10 02:22	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.55	0.15	1	04/12/10 13:21	04/20/10 06:20	87-86-5	
2,4,6-Tribromophenol (S)	94	%	30-150		1	04/12/10 13:21	04/20/10 06:20	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**75.0**	mg/L	10.0	5.0	1		04/12/10 15:05		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**33.2**	mg/L	2.0	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-20 **Lab ID: 10126069010** Collected: 04/07/10 11:07 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.34J**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:43	7440-38-2	
Chromium	**1.1**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:43	7440-47-3	
Copper	**2.5**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:43	7440-50-8	
Zinc	**3.7J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:43	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.29J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:32	7440-38-2	
Chromium, Dissolved	**0.32J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:32	7440-47-3	
Copper, Dissolved	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:32	7440-50-8	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:32	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/12/10 16:08	04/17/10 02:41	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/12/10 16:08	04/17/10 02:41	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/12/10 16:08	04/17/10 02:41	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/12/10 16:08	04/17/10 02:41	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/12/10 16:08	04/17/10 02:41	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/12/10 16:08	04/17/10 02:41	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/12/10 16:08	04/17/10 02:41	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/12/10 16:08	04/17/10 02:41	321-60-8	
Terphenyl-d14 (S)	64	%	57-134		1	04/12/10 16:08	04/17/10 02:41	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/12/10 13:21	04/20/10 06:34	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 06:34	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**62.0**	mg/L	10.0	5.0	1		04/12/10 15:05		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**21.2**	mg/L	2.1	1.1	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBIA0410-20 **Lab ID: 10126069011** Collected: 04/07/10 11:45 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.79**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 03:47	7440-38-2	
Chromium	**2.8**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 03:47	7440-47-3	
Copper	**5.3**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 03:47	7440-50-8	
Zinc	**11.8**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 03:47	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.29J**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:36	7440-38-2	
Chromium, Dissolved	**0.48J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:36	7440-47-3	
Copper, Dissolved	**1.8**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:36	7440-50-8	
Zinc, Dissolved	**4.5J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:36	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 03:00	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/12/10 16:08	04/17/10 03:00	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/12/10 16:08	04/17/10 03:00	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/12/10 16:08	04/17/10 03:00	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/12/10 16:08	04/17/10 03:00	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 03:00	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/12/10 16:08	04/17/10 03:00	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/12/10 16:08	04/17/10 03:00	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/12/10 16:08	04/17/10 03:00	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 06:47	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 06:47	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**63.0**	mg/L	10.0	5.0	1		04/12/10 15:06		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**91.2**	mg/L	4.0	2.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-20 **Lab ID: 10126069012** Collected: 04/07/10 11:58 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**1.1**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 04:00	7440-38-2	
Chromium	**0.50**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 04:00	7440-47-3	
Copper	**5.2**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 04:00	7440-50-8	
Zinc	**4.4J**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 04:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.95**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:49	7440-38-2	
Chromium, Dissolved	**0.28J**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:49	7440-47-3	
Copper, Dissolved	**1.2**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:49	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:49	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.42**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 03:18	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/12/10 16:08	04/17/10 03:18	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	206-44-0	
Fluorene	**0.12**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:18	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:18	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/12/10 16:08	04/17/10 03:18	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 03:18	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/12/10 16:08	04/17/10 03:18	129-00-0	
2-Fluorobiphenyl (S)	58	%	58-125		1	04/12/10 16:08	04/17/10 03:18	321-60-8	
Terphenyl-d14 (S)	63	%	57-134		1	04/12/10 16:08	04/17/10 03:18	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/12/10 13:21	04/20/10 07:01	87-86-5	
2,4,6-Tribromophenol (S)	100	%	30-150		1	04/12/10 13:21	04/20/10 07:01	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**88.0**	mg/L	10.0	5.0	1		04/13/10 14:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**208**	mg/L	2.0	1.0	1		04/13/10 14:04		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSA0410-15R **Lab ID: 10126069013** Collected: 04/07/10 17:39 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/12/10 18:15	04/14/10 04:04	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:15	04/14/10 04:04	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	04/12/10 18:15	04/14/10 04:04	7440-50-8	
Zinc	**<1.3**	ug/L	5.0	1.3	1	04/12/10 18:15	04/14/10 04:04	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/12/10 16:08	04/17/10 03:37	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/12/10 16:08	04/17/10 03:37	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/12/10 16:08	04/17/10 03:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/12/10 16:08	04/17/10 03:37	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/12/10 16:08	04/17/10 03:37	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/12/10 16:08	04/17/10 03:37	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/12/10 16:08	04/17/10 03:37	129-00-0	
2-Fluorobiphenyl (S)	64	%	58-125		1	04/12/10 16:08	04/17/10 03:37	321-60-8	
Terphenyl-d14 (S)	71	%	57-134		1	04/12/10 16:08	04/17/10 03:37	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/12/10 13:21	04/20/10 07:15	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/12/10 13:21	04/20/10 07:15	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBFF0410-0407 **Lab ID: 10126069014** Collected: 04/07/10 17:31 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/12/10 18:14	04/14/10 05:53	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/12/10 18:14	04/14/10 05:53	7440-47-3	
Copper, Dissolved	**0.32J**	ug/L	0.50	0.20	1	04/12/10 18:14	04/14/10 05:53	7440-50-8	
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/12/10 18:14	04/14/10 05:53	7440-66-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Sample: MBSW0410-09 re-extaction **Lab ID: 10126069015** Collected: 04/07/10 13:36 Received: 04/09/10 09:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.32J**	ug/L	0.52	0.14	1	04/21/10 16:33	04/26/10 11:30	87-86-5	1M
2,4,6-Tribromophenol (S)	83	%	30-150		1	04/21/10 16:33	04/26/10 11:30	118-79-6	2M

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: MPRP/19904 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

METHOD BLANK: 771318 Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/14/10 02:31	
Chromium	ug/L	<0.24	0.50	04/14/10 02:31	
Copper	ug/L	<0.20	0.50	04/14/10 02:31	
Zinc	ug/L	<1.3	5.0	04/14/10 02:31	

LABORATORY CONTROL SAMPLE: 771319

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	81.3	102	85-115	
Chromium	ug/L	80	84.8	106	85-115	
Copper	ug/L	80	85.0	106	85-115	
Zinc	ug/L	80	82.5	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 771320 771321

Parameter	Units	10126069001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.40J	80	80	81.8	82.2	102	102	75-125	.5	20	
Chromium	ug/L	1.0	80	80	86.1	86.6	106	107	75-125	.6	20	
Copper	ug/L	1.7	80	80	88.3	89.1	108	109	75-125	.9	20	
Zinc	ug/L	3.8J	80	80	86.0	87.7	103	105	75-125	2	20	

MATRIX SPIKE SAMPLE: 771322

Parameter	Units	10126069011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.79	80	82.9	103	75-125	
Chromium	ug/L	2.8	80	87.2	106	75-125	
Copper	ug/L	5.3	80	92.5	109	75-125	
Zinc	ug/L	11.8	80	98.5	108	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: MPRP/19905 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069014

METHOD BLANK: 771323 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/14/10 04:21	
Chromium, Dissolved	ug/L	<0.24	0.50	04/14/10 04:21	
Copper, Dissolved	ug/L	<0.20	0.50	04/14/10 04:21	
Zinc, Dissolved	ug/L	<1.3	5.0	04/14/10 04:21	

LABORATORY CONTROL SAMPLE: 771324

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	81.3	102	85-115	
Chromium, Dissolved	ug/L	80	82.8	103	85-115	
Copper, Dissolved	ug/L	80	84.6	106	85-115	
Zinc, Dissolved	ug/L	80	82.9	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 771325 771326

Parameter	Units	10126069001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.24J	80	80	80.1	84.9	100	106	75-125	6	20	
Chromium, Dissolved	ug/L	0.36J	80	80	84.3	83.2	105	104	75-125	1	20	
Copper, Dissolved	ug/L	0.69	80	80	86.2	86.2	107	107	75-125	0	20	
Zinc, Dissolved	ug/L	1.5J	80	80	84.1	84.7	103	104	75-125	.7	20	

MATRIX SPIKE SAMPLE: 771327

Parameter	Units	10126069011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	0.29J	80	81.8	102	75-125	
Chromium, Dissolved	ug/L	0.48J	80	84.4	105	75-125	
Copper, Dissolved	ug/L	1.8	80	87.5	107	75-125	
Zinc, Dissolved	ug/L	4.5J	80	87.0	103	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: OEXT/12670 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

METHOD BLANK: 771825 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/15/10 11:56	
Acenaphthylene	ug/L	<0.0040	0.040	04/15/10 11:56	
Anthracene	ug/L	<0.0050	0.040	04/15/10 11:56	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/15/10 11:56	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/15/10 11:56	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/15/10 11:56	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/15/10 11:56	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/15/10 11:56	
Chrysene	ug/L	<0.0030	0.040	04/15/10 11:56	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/15/10 11:56	
Fluoranthene	ug/L	<0.0040	0.040	04/15/10 11:56	
Fluorene	ug/L	<0.0030	0.040	04/15/10 11:56	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/15/10 11:56	
Naphthalene	ug/L	<0.0050	0.040	04/15/10 11:56	
Phenanthrene	ug/L	<0.0060	0.040	04/15/10 11:56	
Pyrene	ug/L	<0.0060	0.040	04/15/10 11:56	
2-Fluorobiphenyl (S)	%	61	58-125	04/15/10 11:56	
Terphenyl-d14 (S)	%	66	57-134	04/15/10 11:56	

LABORATORY CONTROL SAMPLE & LCSD: 771826 771827

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.66	0.76	66	76	56-125	14	20	
Acenaphthylene	ug/L	1	0.69	0.78	69	78	51-125	13	20	
Anthracene	ug/L	1	0.70	0.78	70	78	58-125	11	20	
Benzo(a)anthracene	ug/L	1	0.74	0.79	74	79	61-125	7	20	
Benzo(a)pyrene	ug/L	1	0.74	0.81	74	81	56-125	9	20	
Benzo(b)fluoranthene	ug/L	1	0.85	0.93	85	93	54-125	9	20	
Benzo(g,h,i)perylene	ug/L	1	0.71	0.77	71	77	42-125	9	20	
Benzo(k)fluoranthene	ug/L	1	0.72	0.77	72	77	60-125	7	20	
Chrysene	ug/L	1	0.69	0.76	69	76	64-125	10	20	
Dibenz(a,h)anthracene	ug/L	1	0.72	0.79	72	79	46-125	8	20	
Fluoranthene	ug/L	1	0.72	0.80	72	80	54-125	11	20	
Fluorene	ug/L	1	0.69	0.78	69	78	55-125	13	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.70	0.78	70	78	46-125	10	20	
Naphthalene	ug/L	1	0.66	0.76	66	76	47-125	14	20	
Phenanthrene	ug/L	1	0.71	0.79	71	79	55-125	11	20	
Pyrene	ug/L	1	0.76	0.82	76	82	57-125	8	20	
2-Fluorobiphenyl (S)	%				59	68	58-125			
Terphenyl-d14 (S)	%				68	73	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: OEXT/12671 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

METHOD BLANK: 772061 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012, 10126069013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/20/10 03:50	
2,4,6-Tribromophenol (S)	%	98	30-150	04/20/10 03:50	

LABORATORY CONTROL SAMPLE & LCSD: 772062 772063

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	1.1	1.0	108	105	41-137	3	20	
2,4,6-Tribromophenol (S)	%				103	100	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: OEXT/12747 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126069015

METHOD BLANK: 777370 | Matrix: Water
Associated Lab Samples: 10126069015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.31J	0.50	04/26/10 10:49	1M
2,4,6-Tribromophenol (S)	%	67	30-150	04/26/10 10:49	

LABORATORY CONTROL SAMPLE & LCSD: 777371 777372

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.55	0.60	55	60	41-137	9	20	
2,4,6-Tribromophenol (S)	%				66	68	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: WET/18732 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011

METHOD BLANK: 771909 — Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/12/10 14:56	

LABORATORY CONTROL SAMPLE: 771910

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	19.7	22.0	112	80-120	

SAMPLE DUPLICATE: 771911

Parameter	Units	10126031017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	105	103	2	20	

SAMPLE DUPLICATE: 771912

Parameter	Units	10126031007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	89.0	103	15	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: WET/18737 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126069012

METHOD BLANK: 772441 | Matrix: Water
Associated Lab Samples: 10126069012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/13/10 14:24	

LABORATORY CONTROL SAMPLE: 772442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	22.9	23.0	100	80-120	

SAMPLE DUPLICATE: 772443

Parameter	Units	10126041001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	565	579	2	20	

SAMPLE DUPLICATE: 772444

Parameter	Units	10126106001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	109	117	7	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

QC Batch: WET/18736 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012

METHOD BLANK: 772436 Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/13/10 14:04	

METHOD BLANK: 772439 Matrix: Water
Associated Lab Samples: 10126069001, 10126069002, 10126069003, 10126069004, 10126069005, 10126069006, 10126069007, 10126069008, 10126069009, 10126069010, 10126069011, 10126069012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/13/10 14:04	

LABORATORY CONTROL SAMPLE & LCSD: 772437 772438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	28.6	32.9	33.8	115	118	80-120	3	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5432

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5446

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5464

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	J-flag hit detected in method blank.
2M	Re-extracted out of hold per QAPP.
3M	Surrogate recovery outside control limits due to matrix interferences.
Z2	Analyte present in the associated method blank above the detection limit.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126069001	**MBSW0410-09**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069002	**MBIA0410-09**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069003	**MBSA0410-09**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069004	**MBSW0410-10**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069005	**MBIA0410-10**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069006	**MBSA0410-10**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069007	**MBSW0410-15**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069008	**MBIA0410-15**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069009	**MBSA0410-15**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069010	**MBSW0410-20**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069011	**MBIA0410-20**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069012	**MBSA0410-20**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069013	**MBSA0410-15R**	EPA 3020	MPRP/19904	EPA 6020	ICPM/8170
10126069001	**MBSW0410-09**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069002	**MBIA0410-09**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069003	**MBSA0410-09**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069004	**MBSW0410-10**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069005	**MBIA0410-10**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069006	**MBSA0410-10**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069007	**MBSW0410-15**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069008	**MBIA0410-15**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069009	**MBSA0410-15**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069010	**MBSW0410-20**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069011	**MBIA0410-20**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069012	**MBSA0410-20**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069014	**MBFF0410-0407**	EPA 3020	MPRP/19905	EPA 6020	ICPM/8169
10126069001	**MBSW0410-09**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069002	**MBIA0410-09**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069003	**MBSA0410-09**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069004	**MBSW0410-10**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069005	**MBIA0410-10**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069006	**MBSA0410-10**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069007	**MBSW0410-15**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069008	**MBIA0410-15**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069009	**MBSA0410-15**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069010	**MBSW0410-20**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069011	**MBIA0410-20**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069012	**MBSA0410-20**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069013	**MBSA0410-15R**	EPA 3510	OEXT/12670	EPA 8270 by SIM	MSSV/5432
10126069001	**MBSW0410-09**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069002	**MBIA0410-09**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069003	**MBSA0410-09**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069004	**MBSW0410-10**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069005	**MBIA0410-10**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069006	**MBSA0410-10**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069007	**MBSW0410-15**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069008	**MBIA0410-15**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126069

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126069009	**MBSA0410-15**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069010	**MBSW0410-20**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069011	**MBIA0410-20**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069012	**MBSA0410-20**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069013	**MBSA0410-15R**	EPA 3510	OEXT/12671	EPA 8270 by SIM	MSSV/5446
10126069015	**MBSW0410-09 re-extaction**	EPA 3510	OEXT/12747	EPA 8270 by SIM	MSSV/5464
10126069001	**MBSW0410-09**	SM 2540C	WET/18732		
10126069002	**MBIA0410-09**	SM 2540C	WET/18732		
10126069003	**MBSA0410-09**	SM 2540C	WET/18732		
10126069004	**MBSW0410-10**	SM 2540C	WET/18732		
10126069005	**MBIA0410-10**	SM 2540C	WET/18732		
10126069006	**MBSA0410-10**	SM 2540C	WET/18732		
10126069007	**MBSW0410-15**	SM 2540C	WET/18732		
10126069008	**MBIA0410-15**	SM 2540C	WET/18732		
10126069009	**MBSA0410-15**	SM 2540C	WET/18732		
10126069010	**MBSW0410-20**	SM 2540C	WET/18732		
10126069011	**MBIA0410-20**	SM 2540C	WET/18732		
10126069012	**MBSA0410-20**	SM 2540C	WET/18737		
10126069001	**MBSW0410-09**	SM 2540D	WET/18736		
10126069002	**MBIA0410-09**	SM 2540D	WET/18736		
10126069003	**MBSA0410-09**	SM 2540D	WET/18736		
10126069004	**MBSW0410-10**	SM 2540D	WET/18736		
10126069005	**MBIA0410-10**	SM 2540D	WET/18736		
10126069006	**MBSA0410-10**	SM 2540D	WET/18736		
10126069007	**MBSW0410-15**	SM 2540D	WET/18736		
10126069008	**MBIA0410-15**	SM 2540D	WET/18736		
10126069009	**MBSA0410-15**	SM 2540D	WET/18736		
10126069010	**MBSW0410-20**	SM 2540D	WET/18736		
10126069011	**MBIA0410-20**	SM 2540D	WET/18736		
10126069012	**MBSA0410-20**	SM 2540D	WET/18736		

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TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

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Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

State of Oregon Chain of Custody

1126069

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3-	HNO3-	None	None		
MBSW0410-09	4-7-10/1536	Water	8	X	X	X	X	X	X		001
MBIA0410-09	4-7-10/1418	Water	8	X	X	X	X	X	X		002
MBSA0410-09	4-7-10/1430	Water	8	X	X	X	X	X	X		003
MBSW0410-10	4-7-10/0855	Water	8	X	X	X	X	X	X		004
MBIA0410-10	4-7-10/1018	Water	8	X	X	X	X	X	X		005
MBSA0410-10	4-7-10/1030	Water	8	X	X	X	X	X	X		006
MBSW0410-15	4-7-10/1539	Water	8	X	X	X	X	X	X		007
MBIA0410-15	4-7-10/1601	Water	8	X	X	X	X	X	X		008
MBSA0410-15	4-7-10/1610	Water	8	X	X	X	X	X	X		009
MBSW0410-20	4-7-10/1107	Water	8	X	X	X	X	X	X		010
MBIA0410-20	4-7-10/1145	Water	8	X	X	X	X	X	X		011

Relinquished By: Jason Miles
Signature: Jason Miles
Agency/Agent: Hart Crowser
Time & Date: 0738 4/8/10

Received By: [illegible]
Signature:
Agency/Agent:
Time & Date: 0950 4-9-10

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

r: 1.4/1.2/3.8/2.2/5.4/3.6

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
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GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Sample Preservative

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments
				None	None	HNO3-	HNO3-	None	None		
MBSA0410-20	4-7-10/1158	Water	8	X	X	X	X	X	X		02
MBSA0410-15R	4-7-10/1159	Water	5	X	X	X					03
MBFF0410-0407	4-7-10/1731	Water	1				X				04
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Requested Analyses

* low level PAHs and PCP;
** Field filtered 0.45 um filter

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser		
Signature:	Time & Date: 0730 4/8/10	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T = 1.4/1.2/3.8/2.2/3.4/3.2

[redacted]

Pace Analytical

Client Name: Dept Env. Quality **Project #** 1012668

7955 3467 0644

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 7955-3467-0633 / 7955-3467-0655 / 7955-3467-0677 / 7955-3467-0644 / 8717 7843-0956

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ✓ **No** _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ **Samples on ice, cooling process has begun**

Cooler Temperature 1.4/1.2/3.8/2.2/4/3.6 **Biological Tissue is Frozen:** Yes No

Date and initials of person examining contents: 4/8/10

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # 001-014
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water	☐Yes ☑No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DMO **Date:** 4-9-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 20, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10125960001	**MBSW0410-16**	Water	04/06/10 09:13	04/08/10 09:57
10125960002	**MBIA0410-16**	Water	04/06/10 10:23	04/08/10 09:57
10125960003	**MBSA0410-16**	Water	04/06/10 10:40	04/08/10 09:57
10125960004	**MBSW0410-06**	Water	04/06/10 12:17	04/08/10 09:57
10125960005	**MBIA0410-06**	Water	04/06/10 17:01	04/08/10 09:57
10125960006	**MBSA0410-06**	Water	04/06/10 16:53	04/08/10 09:57
10125960007	**MBSA0410-06D**	Water	04/06/10 16:53	04/08/10 09:57
10125960008	**MBIA0410-06R**	Water	04/06/10 19:43	04/08/10 09:57
10125960009	**MBFF0410-0406**	Water	04/06/10 19:40	04/08/10 09:57

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10125960001	**MBSW0410-16**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960002	**MBIA0410-16**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960003	**MBSA0410-16**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960004	**MBSW0410-06**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960005	**MBIA0410-06**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125960006	**MBSA0410-06**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960007	**MBSA0410-06D**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960008	**MBIA0410-06R**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125960009	**MBFF0410-0406**	EPA 6020	RJS	4	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: April 20, 2010

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: April 20, 2010

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 20, 2010

General Information:
8 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/12646

R1: RPD value was outside control limits.

- LCSD (Lab ID: 770318)
  - Benzo(g,h,i)perylene
  - Dibenz(a,h)anthracene
  - Indeno(1,2,3-cd)pyrene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5430

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 20, 2010

General Information:
8 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5450

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/12655

1M: J-flag hit detected in method blank.

- BLANK (Lab ID: 770778)
  - Pentachlorophenol

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: April 20, 2010

General Information:
6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 20, 2010

General Information:
6 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBSW0410-16 **Lab ID: 10125960001** Collected: 04/06/10 09:13 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.52**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:13	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:13	7440-47-3	
Copper	**2.4**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:13	7440-50-8	
Zinc	**5.3**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:13	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.18J**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:20	7440-38-2	
Chromium, Dissolved	**0.28J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:20	7440-47-3	
Copper, Dissolved	**0.92**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:20	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:20	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/08/10 13:32	04/16/10 19:46	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/08/10 13:32	04/16/10 19:46	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/08/10 13:32	04/16/10 19:46	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/08/10 13:32	04/16/10 19:46	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	04/08/10 13:32	04/16/10 19:46	321-60-8	
Terphenyl-d14 (S)	72	%	57-134		1	04/08/10 13:32	04/16/10 19:46	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.16**	ug/L	0.56	0.16	1	04/08/10 16:44	04/20/10 02:00	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/08/10 16:44	04/20/10 02:00	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**72.0**	mg/L	10.0	5.0	1		04/09/10 13:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**74.3**	mg/L	2.1	1.1	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBIA0410-16 **Lab ID: 10125960002** Collected: 04/06/10 10:23 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.69**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:30	7440-38-2	
Chromium	**2.7**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:30	7440-47-3	
Copper	**4.2**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:30	7440-50-8	
Zinc	**9.0**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:30	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.21J**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:50	7440-38-2	
Chromium, Dissolved	**0.49J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:50	7440-47-3	
Copper, Dissolved	**1.9**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:50	7440-50-8	
Zinc, Dissolved	**2.5J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:50	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:05	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 20:05	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	206-44-0	
Fluorene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:05	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:05	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/08/10 13:32	04/16/10 20:05	321-60-8	
Terphenyl-d14 (S)	78	%	57-134		1	04/08/10 13:32	04/16/10 20:05	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/08/10 16:44	04/20/10 02:14	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/08/10 16:44	04/20/10 02:14	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**75.0**	mg/L	10.0	5.0	1		04/09/10 13:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**293**	mg/L	4.0	2.0	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBSA0410-16 **Lab ID: 10125960003** Collected: 04/06/10 10:40 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**20.0**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:34	7440-38-2	
Chromium	**0.46J**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:34	7440-47-3	
Copper	**0.50**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:34	7440-50-8	
Zinc	**6.0**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:34	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**20.1**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:54	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:54	7440-47-3	
Copper, Dissolved	**0.21J**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:54	7440-50-8	
Zinc, Dissolved	**6.1**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**20.1**	ug/L	0.22	0.033	5	04/08/10 13:32	04/19/10 14:34	83-32-9	
Acenaphthylene	**0.039J**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	208-96-8	
Anthracene	**0.022J**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:24	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:24	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 20:24	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:24	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	53-70-3	
Fluoranthene	**0.020J**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	206-44-0	
Fluorene	**0.77**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	193-39-5	
Naphthalene	**2.0**	ug/L	0.22	0.027	5	04/08/10 13:32	04/19/10 14:34	91-20-3	
Phenanthrene	**0.087**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:24	85-01-8	
Pyrene	**0.012J**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:24	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	04/08/10 13:32	04/16/10 20:24	321-60-8	
Terphenyl-d14 (S)	71	%	57-134		1	04/08/10 13:32	04/16/10 20:24	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 02:28	87-86-5	
2,4,6-Tribromophenol (S)	105	%	30-150		1	04/08/10 16:44	04/20/10 02:28	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**595**	mg/L	10.0	5.0	1		04/09/10 13:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**592**	mg/L	5.0	2.5	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBSW0410-06 **Lab ID: 10125960004** Collected: 04/06/10 12:17 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.43J**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:38	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:38	7440-47-3	
Copper	**1.9**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:38	7440-50-8	
Zinc	**3.5J**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:38	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.36J**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:58	7440-38-2	
Chromium, Dissolved	**0.40J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:58	7440-47-3	
Copper, Dissolved	**1.3**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:58	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:58	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 20:43	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/08/10 13:32	04/16/10 20:43	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 20:43	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 20:43	129-00-0	
2-Fluorobiphenyl (S)	63	%	58-125		1	04/08/10 13:32	04/16/10 20:43	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/08/10 13:32	04/16/10 20:43	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/08/10 16:44	04/20/10 02:41	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/08/10 16:44	04/20/10 02:41	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/09/10 13:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**69.4**	mg/L	2.1	1.0	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBIA0410-06 **Lab ID: 10125960005** Collected: 04/06/10 17:01 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**10.5**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:43	7440-38-2	
Chromium	**47.0**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:43	7440-47-3	
Copper	**75.1**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:43	7440-50-8	
Zinc	**162**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:43	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**7.7**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:02	7440-38-2	
Chromium, Dissolved	**0.24J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:02	7440-47-3	
Copper, Dissolved	**2.8**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:02	7440-50-8	
Zinc, Dissolved	**3.3J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:02	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 21:02	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/08/10 13:32	04/16/10 21:02	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 21:02	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 21:02	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/08/10 13:32	04/16/10 21:02	321-60-8	
Terphenyl-d14 (S)	66	%	57-134		1	04/08/10 13:32	04/16/10 21:02	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 02:55	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/08/10 16:44	04/20/10 02:55	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBSA0410-06 **Lab ID: 10125960006** Collected: 04/06/10 16:53 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**7.3**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:59	7440-38-2	
Chromium	**1.5**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:59	7440-47-3	
Copper	**2.6**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:59	7440-50-8	
Zinc	**6.6**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:59	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**7.9**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:06	7440-38-2	
Chromium, Dissolved	**0.33J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:06	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:06	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:06	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**1.1**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:21	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	208-96-8	
Anthracene	**0.014J**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/08/10 13:32	04/16/10 21:21	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	53-70-3	
Fluoranthene	**0.041J**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	206-44-0	
Fluorene	**0.36**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	91-20-3	
Phenanthrene	**0.071**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:21	85-01-8	
Pyrene	**0.029J**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:21	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	04/08/10 13:32	04/16/10 21:21	321-60-8	
Terphenyl-d14 (S)	73	%	57-134		1	04/08/10 13:32	04/16/10 21:21	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.50	0.14	1	04/08/10 16:44	04/20/10 03:09	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/08/10 16:44	04/20/10 03:09	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**121**	mg/L	10.0	5.0	1		04/09/10 13:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**282**	mg/L	4.0	2.0	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBSA0410-06D **Lab ID: 10125960007** Collected: 04/06/10 16:53 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**7.9**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 01:04	7440-38-2	
Chromium	**1.4**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 01:04	7440-47-3	
Copper	**2.0**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 01:04	7440-50-8	
Zinc	**7.0**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 01:04	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**7.8**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:11	7440-38-2	
Chromium, Dissolved	**0.29J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:11	7440-47-3	
Copper, Dissolved	**0.50**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:11	7440-50-8	
Zinc, Dissolved	**1.4J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:11	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.88**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:39	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	208-96-8	
Anthracene	**0.012J**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/08/10 13:32	04/16/10 21:39	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	53-70-3	
Fluoranthene	**0.038J**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	206-44-0	
Fluorene	**0.32**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	91-20-3	
Phenanthrene	**0.066**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:39	85-01-8	
Pyrene	**0.026J**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:39	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/08/10 13:32	04/16/10 21:39	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/08/10 13:32	04/16/10 21:39	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 03:22	87-86-5	
2,4,6-Tribromophenol (S)	96	%	30-150		1	04/08/10 16:44	04/20/10 03:22	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**119**	mg/L	10.0	5.0	1		04/09/10 13:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**367**	mg/L	5.0	2.5	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBIA0410-06R **Lab ID: 10125960008** Collected: 04/06/10 19:43 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 01:08	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 01:08	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 01:08	7440-50-8	
Zinc	**1.4J**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 01:08	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 21:58	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 21:58	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 21:58	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 21:58	129-00-0	
2-Fluorobiphenyl (S)	62	%	58-125		1	04/08/10 13:32	04/16/10 21:58	321-60-8	
Terphenyl-d14 (S)	67	%	57-134		1	04/08/10 13:32	04/16/10 21:58	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/08/10 16:44	04/20/10 03:36	87-86-5	
2,4,6-Tribromophenol (S)	94	%	30-150		1	04/08/10 16:44	04/20/10 03:36	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Sample: MBFF0410-0406 **Lab ID: 10125960009** Collected: 04/06/10 19:40 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:15	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:15	7440-47-3	
Copper, Dissolved	**0.24J**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:15	7440-50-8	
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:15	7440-66-6	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

QC Batch: MPRP/19889 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

METHOD BLANK: 770912 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/14/10 12:02	
Chromium	ug/L	<0.24	0.50	04/14/10 12:02	
Copper	ug/L	<0.20	0.50	04/14/10 12:02	
Zinc	ug/L	<1.3	5.0	04/14/10 12:02	

LABORATORY CONTROL SAMPLE: 770913

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.2	99	85-115	
Chromium	ug/L	80	87.6	110	85-115	
Copper	ug/L	80	88.6	111	85-115	
Zinc	ug/L	80	87.4	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770914 770915

Parameter	Units	10125960001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.52	80	80	80.3	80.4	100	100	75-125	0	20	
Chromium	ug/L	1.2	80	80	83.0	84.6	102	104	75-125	2	20	
Copper	ug/L	2.4	80	80	85.1	86.2	103	105	75-125	1	20	
Zinc	ug/L	5.3	80	80	84.7	86.1	99	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

QC Batch: MPRP/19882 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960009

METHOD BLANK: 770688 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/14/10 01:12	
Chromium, Dissolved	ug/L	<0.24	0.50	04/14/10 01:12	
Copper, Dissolved	ug/L	<0.20	0.50	04/14/10 01:12	
Zinc, Dissolved	ug/L	<1.3	5.0	04/14/10 01:12	

LABORATORY CONTROL SAMPLE: 770689

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	80.1	100	85-115	
Chromium, Dissolved	ug/L	80	83.0	104	85-115	
Copper, Dissolved	ug/L	80	83.3	104	85-115	
Zinc, Dissolved	ug/L	80	81.6	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770690 770691

Parameter	Units	10125960001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.18J	80	80	82.4	81.6	103	102	75-125	1	20	
Chromium, Dissolved	ug/L	0.28J	80	80	84.0	83.8	105	104	75-125	0	20	
Copper, Dissolved	ug/L	0.92	80	80	86.4	85.7	107	106	75-125	1	20	
Zinc, Dissolved	ug/L	1.6J	80	80	84.3	83.8	103	103	75-125	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

QC Batch: OEXT/12646 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

METHOD BLANK: 770316 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/14/10 22:38	
Acenaphthylene	ug/L	<0.0040	0.040	04/14/10 22:38	
Anthracene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/14/10 22:38	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Chrysene	ug/L	<0.0030	0.040	04/14/10 22:38	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluoranthene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluorene	ug/L	<0.0030	0.040	04/14/10 22:38	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/14/10 22:38	
Naphthalene	ug/L	<0.0050	0.040	04/14/10 22:38	
Phenanthrene	ug/L	<0.0060	0.040	04/14/10 22:38	
Pyrene	ug/L	<0.0060	0.040	04/14/10 22:38	
2-Fluorobiphenyl (S)	%	74	58-125	04/14/10 22:38	
Terphenyl-d14 (S)	%	77	57-134	04/14/10 22:38	

LABORATORY CONTROL SAMPLE & LCSD: 770317 770318

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.85	80	85	56-125	5	20	
Acenaphthylene	ug/L	1	0.80	0.87	80	87	51-125	8	20	
Anthracene	ug/L	1	0.84	0.90	84	90	58-125	6	20	
Benzo(a)anthracene	ug/L	1	0.85	0.90	85	90	61-125	6	20	
Benzo(a)pyrene	ug/L	1	0.87	0.93	87	93	56-125	7	20	
Benzo(b)fluoranthene	ug/L	1	0.95	1.1	95	108	54-125	13	20	
Benzo(g,h,i)perylene	ug/L	1	0.78	0.43	78	43	42-125	58	20	R1
Benzo(k)fluoranthene	ug/L	1	0.83	0.97	83	97	60-125	16	20	
Chrysene	ug/L	1	0.84	0.85	84	85	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.79	0.52	79	52	46-125	40	20	R1
Fluoranthene	ug/L	1	0.85	0.90	85	90	54-125	6	20	
Fluorene	ug/L	1	0.83	0.89	83	89	55-125	6	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.79	0.50	79	50	46-125	44	20	R1
Naphthalene	ug/L	1	0.77	0.84	77	84	47-125	8	20	
Phenanthrene	ug/L	1	0.83	0.87	83	87	55-125	4	20	
Pyrene	ug/L	1	0.87	0.94	87	94	57-125	7	20	
2-Fluorobiphenyl (S)	%				71	76	58-125			
Terphenyl-d14 (S)	%				79	83	57-134			

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(612)607-1700

QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

QC Batch: OEXT/12655 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

METHOD BLANK: 770778 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.39J	0.50	04/19/10 23:02	1M
2,4,6-Tribromophenol (S)	%	94	30-150	04/19/10 23:02	

LABORATORY CONTROL SAMPLE & LCSD: 770779 770780

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.91	0.90	91	90	41-137	1	20	
2,4,6-Tribromophenol (S)	%				92	90	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

QC Batch: WET/18708 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

METHOD BLANK: 770991 Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/09/10 13:21	

LABORATORY CONTROL SAMPLE: 770990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	19.7	17.0	86	80-120	

SAMPLE DUPLICATE: 770992

Parameter	Units	10126031005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	170	155	9	20	

SAMPLE DUPLICATE: 770993

Parameter	Units	10126031009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	96.0	91.0	5	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

QC Batch: WET/18694 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

METHOD BLANK: 770368 Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

METHOD BLANK: 771088 Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

LABORATORY CONTROL SAMPLE: 770369

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	24.6	20.9	85	80-120	

SAMPLE DUPLICATE: 770402

Parameter	Units	10125856001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	1820	1810	1	20	

SAMPLE DUPLICATE: 770552

Parameter	Units	10125952001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	394	396	1	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5430

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5450

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	J-flag hit detected in method blank.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125960

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10125960001	**MBSW0410-16**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960002	**MBIA0410-16**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960003	**MBSA0410-16**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960004	**MBSW0410-06**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960005	**MBIA0410-06**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960006	**MBSA0410-06**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960007	**MBSA0410-06D**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960008	**MBIA0410-06R**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960001	**MBSW0410-16**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960002	**MBIA0410-16**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960003	**MBSA0410-16**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960004	**MBSW0410-06**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960005	**MBIA0410-06**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960006	**MBSA0410-06**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960007	**MBSA0410-06D**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960009	**MBFF0410-0406**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960001	**MBSW0410-16**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960002	**MBIA0410-16**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960003	**MBSA0410-16**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960004	**MBSW0410-06**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960005	**MBIA0410-06**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960006	**MBSA0410-06**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960007	**MBSA0410-06D**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960008	**MBIA0410-06R**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960001	**MBSW0410-16**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960002	**MBIA0410-16**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960003	**MBSA0410-16**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960004	**MBSW0410-06**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960005	**MBIA0410-06**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960006	**MBSA0410-06**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960007	**MBSA0410-06D**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960008	**MBIA0410-06R**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960001	**MBSW0410-16**	SM 2540C	WET/18708		
10125960002	**MBIA0410-16**	SM 2540C	WET/18708		
10125960003	**MBSA0410-16**	SM 2540C	WET/18708		
10125960004	**MBSW0410-06**	SM 2540C	WET/18708		
10125960006	**MBSA0410-06**	SM 2540C	WET/18708		
10125960007	**MBSA0410-06D**	SM 2540C	WET/18708		
10125960001	**MBSW0410-16**	SM 2540D	WET/18694		
10125960002	**MBIA0410-16**	SM 2540D	WET/18694		
10125960003	**MBSA0410-16**	SM 2540D	WET/18694		
10125960004	**MBSW0410-06**	SM 2540D	WET/18694		
10125960006	**MBSA0410-06**	SM 2540D	WET/18694		
10125960007	**MBSA0410-06D**	SM 2540D	WET/18694		

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State of Oregon Chain of Custody

1156-1159 10125960

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3-	HNO3-	None	None		
MBSW0410-16	4-6-10/0913	Water	8	X	X	X	X	X	X		10125960001
MBIA0410-16	4-6-10/1023	Water	8	X	X	X	X	X	X		002
MBSA0410-16	4-6-10/1040	Water	8	X	X	X	X	X	X		003
MBSW0410-06	4-6-10/1217	Water	~~8~~ 7	X	X	X	X	X	X		004
MBIA0410-06	4-6-10/1701	Water	4	X	X	X	X	X	X		Analyze for TDS and TSS if there is enough volume after other analyses 005
MBSA0410-06	4-6-10/1653	Water	8	X	X	X	X	X	X		006
MBSA0410-06D	4-6-10/1653	Water	8	X	X	X	X	X	X		007
MBIA0410-06R	4-6-10/1943	Water	5	X	X	X					008
MBFF0410-0406	4-6-10/1940	Water	1				X				009
		Water									
		Water									

Relinquished By: Jason R. Miles	Agency/Agent: Hart Crowser	Received By: Pace	Agency/Agent:
Signature:	Time & Date: 0730 4/7/2010	Signature: Pace	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8810]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

JM

4810 0957

[redacted]

Pace Analytical

Client Name: State of Oregon **Project #** 10125960

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 871798430761, 871798430750 871798430772 871798430783

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.5, 2.3, 3.3, 0.8 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4810

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☐Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # 2/2 1/1 H1-H8 H9
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DMO **Date:** 4-8-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR. Inc.

F-L213Rev.00, 05Aug2009

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 05, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10125960001	**MBSW0410-16**	Water	04/06/10 09:13	04/08/10 09:57
10125960002	**MBIA0410-16**	Water	04/06/10 10:23	04/08/10 09:57
10125960003	**MBSA0410-16**	Water	04/06/10 10:40	04/08/10 09:57
10125960004	**MBSW0410-06**	Water	04/06/10 12:17	04/08/10 09:57
10125960005	**MBIA0410-06**	Water	04/06/10 17:01	04/08/10 09:57
10125960006	**MBSA0410-06**	Water	04/06/10 16:53	04/08/10 09:57
10125960007	**MBSA0410-06D**	Water	04/06/10 16:53	04/08/10 09:57
10125960008	**MBIA0410-06R**	Water	04/06/10 19:43	04/08/10 09:57
10125960009	**MBFF0410-0406**	Water	04/06/10 19:40	04/08/10 09:57

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SAMPLE ANALYTE COUNT

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10125960001	**MBSW0410-16**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960002	**MBIA0410-16**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960003	**MBSA0410-16**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960004	**MBSW0410-06**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960005	**MBIA0410-06**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125960006	**MBSA0410-06**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960007	**MBSA0410-06D**	EPA 6020	RJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125960008	**MBIA0410-06R**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125960009	**MBFF0410-0406**	EPA 6020	RJS	4	PASI-M

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/12646

R1: RPD value was outside control limits.

- LCSD (Lab ID: 770318)
  - Benzo(g,h,i)perylene
  - Dibenz(a,h)anthracene
  - Indeno(1,2,3-cd)pyrene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5430

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5450

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/12655

1M: J-flag hit detected in method blank.

- BLANK (Lab ID: 770778)
  - Pentachlorophenol

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 05, 2011

General Information:
6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 05, 2011

General Information:
6 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBSW0410-16 **Lab ID: 10125960001** Collected: 04/06/10 09:13 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.52**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:13	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:13	7440-47-3	
Copper	**2.4**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:13	7440-50-8	
Zinc	**5.3**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:13	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.18J**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:20	7440-38-2	
Chromium, Dissolved	**0.28J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:20	7440-47-3	
Copper, Dissolved	**0.92**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:20	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:20	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0064**	ug/L	0.043	0.0064	1	04/08/10 13:32	04/16/10 19:46	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	208-96-8	
Anthracene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.043	0.0021	1	04/08/10 13:32	04/16/10 19:46	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:46	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:46	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.043	0.0053	1	04/08/10 13:32	04/16/10 19:46	91-20-3	
Phenanthrene	**<0.0064**	ug/L	0.043	0.0064	1	04/08/10 13:32	04/16/10 19:46	85-01-8	
Pyrene	**<0.0064**	ug/L	0.043	0.0064	1	04/08/10 13:32	04/16/10 19:46	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	04/08/10 13:32	04/16/10 19:46	321-60-8	
Terphenyl-d14 (S)	72	%	57-134		1	04/08/10 13:32	04/16/10 19:46	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.16**	ug/L	0.56	0.16	1	04/08/10 16:44	04/20/10 02:00	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/08/10 16:44	04/20/10 02:00	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**72.0**	mg/L	10.0	5.0	1		04/09/10 13:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**14.9**	mg/L	2.1	1.1	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBIA0410-16 **Lab ID: 10125960002** Collected: 04/06/10 10:23 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.69**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:30	7440-38-2	
Chromium	**2.7**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:30	7440-47-3	
Copper	**4.2**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:30	7440-50-8	
Zinc	**9.0**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:30	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.21J**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:50	7440-38-2	
Chromium, Dissolved	**0.49J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:50	7440-47-3	
Copper, Dissolved	**1.9**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:50	7440-50-8	
Zinc, Dissolved	**2.5J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:50	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:05	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 20:05	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	206-44-0	
Fluorene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:05	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:05	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:05	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:05	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:05	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/08/10 13:32	04/16/10 20:05	321-60-8	
Terphenyl-d14 (S)	78	%	57-134		1	04/08/10 13:32	04/16/10 20:05	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/08/10 16:44	04/20/10 02:14	87-86-5	
2,4,6-Tribromophenol (S)	95	%	30-150		1	04/08/10 16:44	04/20/10 02:14	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**75.0**	mg/L	10.0	5.0	1		04/09/10 13:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**58.6**	mg/L	4.0	2.0	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBSA0410-16 **Lab ID: 10125960003** Collected: 04/06/10 10:40 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**20.0**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:34	7440-38-2	
Chromium	**0.46J**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:34	7440-47-3	
Copper	**0.50**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:34	7440-50-8	
Zinc	**6.0**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:34	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**20.1**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:54	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:54	7440-47-3	
Copper, Dissolved	**0.21J**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:54	7440-50-8	
Zinc, Dissolved	**6.1**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**20.1**	ug/L	0.22	0.033	5	04/08/10 13:32	04/19/10 14:34	83-32-9	
Acenaphthylene	**0.039J**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	208-96-8	
Anthracene	**0.022J**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:24	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:24	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 20:24	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 20:24	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	53-70-3	
Fluoranthene	**0.020J**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	206-44-0	
Fluorene	**0.77**	ug/L	0.043	0.0033	1	04/08/10 13:32	04/16/10 20:24	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 20:24	193-39-5	
Naphthalene	**2.0**	ug/L	0.22	0.027	5	04/08/10 13:32	04/19/10 14:34	91-20-3	
Phenanthrene	**0.087**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:24	85-01-8	
Pyrene	**0.012J**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 20:24	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	04/08/10 13:32	04/16/10 20:24	321-60-8	
Terphenyl-d14 (S)	71	%	57-134		1	04/08/10 13:32	04/16/10 20:24	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 02:28	87-86-5	
2,4,6-Tribromophenol (S)	105	%	30-150		1	04/08/10 16:44	04/20/10 02:28	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**595**	mg/L	10.0	5.0	1		04/09/10 13:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**118**	mg/L	5.0	2.5	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBSW0410-06 **Lab ID: 10125960004** Collected: 04/06/10 12:17 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.43J**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:38	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:38	7440-47-3	
Copper	**1.9**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:38	7440-50-8	
Zinc	**3.5J**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:38	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.36J**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 01:58	7440-38-2	
Chromium, Dissolved	**0.40J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 01:58	7440-47-3	
Copper, Dissolved	**1.3**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 01:58	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 01:58	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 20:43	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/08/10 13:32	04/16/10 20:43	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/08/10 13:32	04/16/10 20:43	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 20:43	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/08/10 13:32	04/16/10 20:43	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 20:43	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 20:43	129-00-0	
2-Fluorobiphenyl (S)	63	%	58-125		1	04/08/10 13:32	04/16/10 20:43	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/08/10 13:32	04/16/10 20:43	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/08/10 16:44	04/20/10 02:41	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/08/10 16:44	04/20/10 02:41	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/09/10 13:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**13.9**	mg/L	2.1	1.0	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBIA0410-06 **Lab ID: 10125960005** Collected: 04/06/10 17:01 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**10.5**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:43	7440-38-2	
Chromium	**47.0**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:43	7440-47-3	
Copper	**75.1**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:43	7440-50-8	
Zinc	**162**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:43	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**7.7**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:02	7440-38-2	
Chromium, Dissolved	**0.24J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:02	7440-47-3	
Copper, Dissolved	**2.8**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:02	7440-50-8	
Zinc, Dissolved	**3.3J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:02	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 21:02	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/08/10 13:32	04/16/10 21:02	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 21:02	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 21:02	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 21:02	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 21:02	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 21:02	129-00-0	
2-Fluorobiphenyl (S)	61	%	58-125		1	04/08/10 13:32	04/16/10 21:02	321-60-8	
Terphenyl-d14 (S)	66	%	57-134		1	04/08/10 13:32	04/16/10 21:02	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 02:55	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/08/10 16:44	04/20/10 02:55	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBSA0410-06 **Lab ID: 10125960006** Collected: 04/06/10 16:53 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**7.3**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 00:59	7440-38-2	
Chromium	**1.5**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 00:59	7440-47-3	
Copper	**2.6**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 00:59	7440-50-8	
Zinc	**6.6**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 00:59	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**7.9**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:06	7440-38-2	
Chromium, Dissolved	**0.33J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:06	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:06	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:06	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**1.1**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:21	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	208-96-8	
Anthracene	**0.014J**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/08/10 13:32	04/16/10 21:21	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	53-70-3	
Fluoranthene	**0.041J**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	206-44-0	
Fluorene	**0.36**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:21	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:21	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:21	91-20-3	
Phenanthrene	**0.071**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:21	85-01-8	
Pyrene	**0.029J**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:21	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	04/08/10 13:32	04/16/10 21:21	321-60-8	
Terphenyl-d14 (S)	73	%	57-134		1	04/08/10 13:32	04/16/10 21:21	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.50	0.14	1	04/08/10 16:44	04/20/10 03:09	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/08/10 16:44	04/20/10 03:09	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**121**	mg/L	10.0	5.0	1		04/09/10 13:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**56.5**	mg/L	4.0	2.0	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBSA0410-06D **Lab ID: 10125960007** Collected: 04/06/10 16:53 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**7.9**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 01:04	7440-38-2	
Chromium	**1.4**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 01:04	7440-47-3	
Copper	**2.0**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 01:04	7440-50-8	
Zinc	**7.0**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 01:04	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**7.8**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:11	7440-38-2	
Chromium, Dissolved	**0.29J**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:11	7440-47-3	
Copper, Dissolved	**0.50**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:11	7440-50-8	
Zinc, Dissolved	**1.4J**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:11	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.88**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:39	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	208-96-8	
Anthracene	**0.012J**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/08/10 13:32	04/16/10 21:39	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	53-70-3	
Fluoranthene	**0.038J**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	206-44-0	
Fluorene	**0.32**	ug/L	0.042	0.0031	1	04/08/10 13:32	04/16/10 21:39	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/08/10 13:32	04/16/10 21:39	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/08/10 13:32	04/16/10 21:39	91-20-3	
Phenanthrene	**0.066**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:39	85-01-8	
Pyrene	**0.026J**	ug/L	0.042	0.0063	1	04/08/10 13:32	04/16/10 21:39	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/08/10 13:32	04/16/10 21:39	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/08/10 13:32	04/16/10 21:39	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 03:22	87-86-5	
2,4,6-Tribromophenol (S)	96	%	30-150		1	04/08/10 16:44	04/20/10 03:22	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**119**	mg/L	10.0	5.0	1		04/09/10 13:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**73.4**	mg/L	5.0	2.5	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBIA0410-06R **Lab ID: 10125960008** Collected: 04/06/10 19:43 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/09/10 12:49	04/14/10 01:08	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/09/10 12:49	04/14/10 01:08	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	04/09/10 12:49	04/14/10 01:08	7440-50-8	
Zinc	**1.4J**	ug/L	5.0	1.3	1	04/09/10 12:49	04/14/10 01:08	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 21:58	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 21:58	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 21:58	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 21:58	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 21:58	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 21:58	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 21:58	129-00-0	
2-Fluorobiphenyl (S)	62	%	58-125		1	04/08/10 13:32	04/16/10 21:58	321-60-8	
Terphenyl-d14 (S)	67	%	57-134		1	04/08/10 13:32	04/16/10 21:58	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/08/10 16:44	04/20/10 03:36	87-86-5	
2,4,6-Tribromophenol (S)	94	%	30-150		1	04/08/10 16:44	04/20/10 03:36	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Sample: MBFF0410-0406 **Lab ID: 10125960009** Collected: 04/06/10 19:40 Received: 04/08/10 09:57 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/09/10 13:05	04/14/10 02:15	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/09/10 13:05	04/14/10 02:15	7440-47-3	
Copper, Dissolved	**0.24J**	ug/L	0.50	0.20	1	04/09/10 13:05	04/14/10 02:15	7440-50-8	
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/09/10 13:05	04/14/10 02:15	7440-66-6	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

QC Batch: MPRP/19889 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

METHOD BLANK: 770912 | Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/14/10 12:02	
Chromium	ug/L	<0.24	0.50	04/14/10 12:02	
Copper	ug/L	<0.20	0.50	04/14/10 12:02	
Zinc	ug/L	<1.3	5.0	04/14/10 12:02	

LABORATORY CONTROL SAMPLE: 770913

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.2	99	85-115	
Chromium	ug/L	80	87.6	110	85-115	
Copper	ug/L	80	88.6	111	85-115	
Zinc	ug/L	80	87.4	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770914 770915

Parameter	Units	10125960001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.52	80	80	80.3	80.4	100	100	75-125	.02	20	
Chromium	ug/L	1.2	80	80	83.0	84.6	102	104	75-125	2	20	
Copper	ug/L	2.4	80	80	85.1	86.2	103	105	75-125	1	20	
Zinc	ug/L	5.3	80	80	84.7	86.1	99	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

QC Batch: MPRP/19882 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960009

METHOD BLANK: 770688 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/14/10 01:12	
Chromium, Dissolved	ug/L	<0.24	0.50	04/14/10 01:12	
Copper, Dissolved	ug/L	<0.20	0.50	04/14/10 01:12	
Zinc, Dissolved	ug/L	<1.3	5.0	04/14/10 01:12	

LABORATORY CONTROL SAMPLE: 770689

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	80.1	100	85-115	
Chromium, Dissolved	ug/L	80	83.0	104	85-115	
Copper, Dissolved	ug/L	80	83.3	104	85-115	
Zinc, Dissolved	ug/L	80	81.6	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770690 770691

Parameter	Units	10125960001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.18J	80	80	82.4	81.6	103	102	75-125	.9	20	
Chromium, Dissolved	ug/L	0.28J	80	80	84.0	83.8	105	104	75-125	.2	20	
Copper, Dissolved	ug/L	0.92	80	80	86.4	85.7	107	106	75-125	.8	20	
Zinc, Dissolved	ug/L	1.6J	80	80	84.3	83.8	103	103	75-125	.6	20	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

QC Batch: OEXT/12646 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

METHOD BLANK: 770316 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/14/10 22:38	
Acenaphthylene	ug/L	<0.0040	0.040	04/14/10 22:38	
Anthracene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/14/10 22:38	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Chrysene	ug/L	<0.0030	0.040	04/14/10 22:38	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluoranthene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluorene	ug/L	<0.0030	0.040	04/14/10 22:38	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/14/10 22:38	
Naphthalene	ug/L	<0.0050	0.040	04/14/10 22:38	
Phenanthrene	ug/L	<0.0060	0.040	04/14/10 22:38	
Pyrene	ug/L	<0.0060	0.040	04/14/10 22:38	
2-Fluorobiphenyl (S)	%	74	58-125	04/14/10 22:38	
Terphenyl-d14 (S)	%	77	57-134	04/14/10 22:38	

LABORATORY CONTROL SAMPLE & LCSD: 770317 770318

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.85	80	85	56-125	5	20	
Acenaphthylene	ug/L	1	0.80	0.87	80	87	51-125	8	20	
Anthracene	ug/L	1	0.84	0.90	84	90	58-125	6	20	
Benzo(a)anthracene	ug/L	1	0.85	0.90	85	90	61-125	6	20	
Benzo(a)pyrene	ug/L	1	0.87	0.93	87	93	56-125	7	20	
Benzo(b)fluoranthene	ug/L	1	0.95	1.1	95	108	54-125	13	20	
Benzo(g,h,i)perylene	ug/L	1	0.78	0.43	78	43	42-125	58	20	R1
Benzo(k)fluoranthene	ug/L	1	0.83	0.97	83	97	60-125	16	20	
Chrysene	ug/L	1	0.84	0.85	84	85	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.79	0.52	79	52	46-125	40	20	R1
Fluoranthene	ug/L	1	0.85	0.90	85	90	54-125	6	20	
Fluorene	ug/L	1	0.83	0.89	83	89	55-125	6	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.79	0.50	79	50	46-125	44	20	R1
Naphthalene	ug/L	1	0.77	0.84	77	84	47-125	8	20	
Phenanthrene	ug/L	1	0.83	0.87	83	87	55-125	4	20	
Pyrene	ug/L	1	0.87	0.94	87	94	57-125	7	20	
2-Fluorobiphenyl (S)	%				71	76	58-125			
Terphenyl-d14 (S)	%				79	83	57-134			

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

QC Batch: OEXT/12655 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

METHOD BLANK: 770778 — Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960005, 10125960006, 10125960007, 10125960008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.39J	0.50	04/19/10 23:02	1M
2,4,6-Tribromophenol (S)	%	94	30-150	04/19/10 23:02	

LABORATORY CONTROL SAMPLE & LCSD: 770779 770780

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.91	0.90	91	90	41-137	.9	20	
2,4,6-Tribromophenol (S)	%				92	90	30-150			

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

QC Batch: WET/18708 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

METHOD BLANK: 770991 Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/09/10 13:21	

LABORATORY CONTROL SAMPLE: 770990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	19.7	17.0	86	80-120	

SAMPLE DUPLICATE: 770992

Parameter	Units	10126031005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	170	155	9	20	

SAMPLE DUPLICATE: 770993

Parameter	Units	10126031009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	96.0	91.0	5	20	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

QC Batch: WET/18694 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: TSS, Low Level
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

METHOD BLANK: 770368 Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

METHOD BLANK: 771088 Matrix: Water
Associated Lab Samples: 10125960001, 10125960002, 10125960003, 10125960004, 10125960006, 10125960007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

LABORATORY CONTROL SAMPLE: 770369

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	24.6	20.9	85	80-120	

SAMPLE DUPLICATE: 770402

Parameter	Units	10125856001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	364	362	.6	20	

SAMPLE DUPLICATE: 770552

Parameter	Units	10125952001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	78.7	79.2	.6	20	

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QUALIFIERS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5430

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5450

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M J-flag hit detected in method blank.

R1 RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125960

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10125960001	**MBSW0410-16**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960002	**MBIA0410-16**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960003	**MBSA0410-16**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960004	**MBSW0410-06**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960005	**MBIA0410-06**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960006	**MBSA0410-06**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960007	**MBSA0410-06D**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960008	**MBIA0410-06R**	EPA 3020	MPRP/19889	EPA 6020	ICPM/8171
10125960001	**MBSW0410-16**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960002	**MBIA0410-16**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960003	**MBSA0410-16**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960004	**MBSW0410-06**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960005	**MBIA0410-06**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960006	**MBSA0410-06**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960007	**MBSA0410-06D**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960009	**MBFF0410-0406**	EPA 3020	MPRP/19882	EPA 6020	ICPM/8172
10125960001	**MBSW0410-16**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960002	**MBIA0410-16**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960003	**MBSA0410-16**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960004	**MBSW0410-06**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960005	**MBIA0410-06**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960006	**MBSA0410-06**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960007	**MBSA0410-06D**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960008	**MBIA0410-06R**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125960001	**MBSW0410-16**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960002	**MBIA0410-16**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960003	**MBSA0410-16**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960004	**MBSW0410-06**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960005	**MBIA0410-06**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960006	**MBSA0410-06**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960007	**MBSA0410-06D**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960008	**MBIA0410-06R**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125960001	**MBSW0410-16**	SM 2540C	WET/18708		
10125960002	**MBIA0410-16**	SM 2540C	WET/18708		
10125960003	**MBSA0410-16**	SM 2540C	WET/18708		
10125960004	**MBSW0410-06**	SM 2540C	WET/18708		
10125960006	**MBSA0410-06**	SM 2540C	WET/18708		
10125960007	**MBSA0410-06D**	SM 2540C	WET/18708		
10125960001	**MBSW0410-16**	SM 2540D	WET/18694		
10125960002	**MBIA0410-16**	SM 2540D	WET/18694		
10125960003	**MBSA0410-16**	SM 2540D	WET/18694		
10125960004	**MBSW0410-06**	SM 2540D	WET/18694		
10125960006	**MBSA0410-06**	SM 2540D	WET/18694		
10125960007	**MBSA0410-06D**	SM 2540D	WET/18694		

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Phone: 612.607.1700
Fax: 612.607.6444

TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

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Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

State of Oregon Chain of Custody

1156-1159 10125960

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3-	HNO3-	None	None		
MBSW0410-16	4-6-10/0913	Water	8	X	X	X	X	X	X		10125960001
MBIA0410-16	4-6-10/1023	Water	8	X	X	X	X	X	X		002
MBSA0410-16	4-6-10/1040	Water	8	X	X	X	X	X	X		003
MBSW0410-06	4-6-10/1217	Water	~~8~~ 7	X	X	X	X	X	X		004
MBIA0410-06	4-6-10/1701	Water	4	X	X	X	X	X	X		Analyze for TDS and TSS if there is enough volume after other analyses 005
MBSA0410-06	4-6-10/1653	Water	8	X	X	X	X	X	X		006
MBSA0410-06D	4-6-10/1653	Water	8	X	X	X	X	X	X		007
MBIA0410-06R	4-6-10/1943	Water	5	X	X	X					008
MBFF0410-0406	4-6-10/1940	Water	1				X				009
		Water									
		Water									

Relinquished By: Jason R. Miles	Agency/Agent: Hart Crowser	Received By: Pace	Agency/Agent:
Signature:	Time & Date: 0730 4/7/2010	Signature: Pace	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8810]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

JM

4810 0957

[redacted]

Pace Analytical

Client Name: State of Oregon **Project #** 10125960

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 871798430761, 871798430750 871798430772 871798430783

[redacted]

Custody Seal on Cooler/Box Present: ☒ yes ☐ no **Seals intact:** ☒ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.5, 2.3, 3.3, 0.8 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4810

Comments:

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☒No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☐Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☐N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☒Yes ☐No ☐N/A	13. ☒ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	Samp # 2/2 1/1 H1-H8 H9
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☒No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☐No ☒N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DMO **Date:** 4-8-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR. Inc.

F-L213Rev.00, 05Aug2009

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

April 23, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 07, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10125889001	**MBSW0410-27**	Water	04/05/10 09:10	04/07/10 10:00
10125889002	**MBSA0410-ACB-1a**	Water	04/05/10 10:40	04/07/10 10:00
10125889003	**MBSA0410-ACB-1b**	Water	04/05/10 11:36	04/07/10 10:00
10125889004	**MBSA0410-ACB-1c**	Water	04/05/10 12:06	04/07/10 10:00
10125889005	**MBSA0410-ACB-2a**	Water	04/05/10 13:43	04/07/10 10:00
10125889006	**MBSA0410-ACB-2b**	Water	04/05/10 14:20	04/07/10 10:00
10125889007	**MBSA0410-ACB-2c**	Water	04/05/10 15:22	04/07/10 10:00
10125889008	**MBSA0410-ACB-2aR**	Water	04/05/10 16:53	04/07/10 10:00
10125889009	**MBFF0410-0405**	Water	04/05/10 17:00	04/07/10 10:00
10125889010	**MBSA0410-ACB-2b reextract**	Water	04/05/10 14:20	04/07/10 10:00
10125889011	**MBSA0410-ACB-2c reextract**	Water	04/05/10 15:22	04/07/10 10:00

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10125889001	**MBSW0410-27**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125889002	**MBSA0410-ACB-1a**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889003	**MBSA0410-ACB-1b**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889004	**MBSA0410-ACB-1c**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889005	**MBSA0410-ACB-2a**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889006	**MBSA0410-ACB-2b**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889007	**MBSA0410-ACB-2c**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889008	**MBSA0410-ACB-2aR**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889009	**MBFF0410-0405**	EPA 6020	CJS	4	PASI-M
10125889010	**MBSA0410-ACB-2b reextract**	EPA 8270 by SIM	HRG	18	PASI-M
10125889011	**MBSA0410-ACB-2c reextract**	EPA 8270 by SIM	HRG	18	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: April 23, 2010

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBSA0410-ACB-2aR (Lab ID: 10125889008)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/19869

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10125803006,10125889008

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
- MS (Lab ID: 770295)
  - Calcium
  - Magnesium
- MSD (Lab ID: 770296)
  - Calcium
  - Magnesium

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: April 23, 2010

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBFF0410-0405 (Lab ID: 10125889009)
- MBSA0410-ACB-1a (Lab ID: 10125889002)
- MBSA0410-ACB-1b (Lab ID: 10125889003)
- MBSA0410-ACB-1c (Lab ID: 10125889004)
- MBSA0410-ACB-2a (Lab ID: 10125889005)
- MBSA0410-ACB-2b (Lab ID: 10125889006)
- MBSA0410-ACB-2c (Lab ID: 10125889007)
- MBSW0410-27 (Lab ID: 10125889001)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 23, 2010

General Information:
10 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/12646

R1: RPD value was outside control limits.

- LCSD (Lab ID: 770318)
  - Benzo(g,h,i)perylene
  - Dibenz(a,h)anthracene
  - Indeno(1,2,3-cd)pyrene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5430

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 23, 2010

Analyte Comments:

QC Batch: OEXT/12646

3M: Surrogate recovery outside control limits due to matrix interferences.

- MBSA0410-ACB-2b (Lab ID: 10125889006)
  - Terphenyl-d14 (S)
- MBSA0410-ACB-2c (Lab ID: 10125889007)
  - 2-Fluorobiphenyl (S)
  - Terphenyl-d14 (S)

QC Batch: OEXT/12737

2M: Re-extracted out of hold per QAPP.

- MBSA0410-ACB-2b reextract (Lab ID: 10125889010)
  - 2-Fluorobiphenyl (S)
- MBSA0410-ACB-2c reextract (Lab ID: 10125889011)
  - 2-Fluorobiphenyl (S)

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 23, 2010

General Information:
8 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5450

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/12655

1M: J-flag hit detected in method blank.

- BLANK (Lab ID: 770778)
  - Pentachlorophenol

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 23, 2010

Analyte Comments:

QC Batch: OEXT/12655

1M: J-flag hit detected in method blank.

- MBSA0410-ACB-1a (Lab ID: 10125889002)
  - Pentachlorophenol
- MBSA0410-ACB-1b (Lab ID: 10125889003)
  - Pentachlorophenol
- MBSA0410-ACB-1c (Lab ID: 10125889004)
  - Pentachlorophenol
- MBSA0410-ACB-2a (Lab ID: 10125889005)
  - Pentachlorophenol
- MBSA0410-ACB-2b (Lab ID: 10125889006)
  - Pentachlorophenol
- MBSA0410-ACB-2c (Lab ID: 10125889007)
  - Pentachlorophenol
- MBSW0410-27 (Lab ID: 10125889001)
  - Pentachlorophenol

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: April 23, 2010

General Information:
1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 23, 2010

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSW0410-27 **Lab ID: 10125889001** Collected: 04/05/10 09:10 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.43J**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:10	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:10	7440-47-3	
Copper	**2.1**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:10	7440-50-8	
Zinc	**4.4J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:10	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 17:59	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 17:59	7440-47-3	
Copper, Dissolved	**0.87**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 17:59	7440-50-8	~~ZC~~ U
Zinc, Dissolved	5.0 ~~**1.6J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 17:59	7440-66-6	~~ZZ~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:15	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 17:15	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:15	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:15	129-00-0	
2-Fluorobiphenyl (S)	60	%	58-125		1	04/08/10 13:32	04/16/10 17:15	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/08/10 13:32	04/16/10 17:15	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.52 ~~**0.27J**~~	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 00:11	87-86-5	~~1M~~ U
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/08/10 16:44	04/20/10 00:11	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**50.0**	mg/L	10.0	5.0	1		04/09/10 13:21		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**81.6**	mg/L	2.1	1.1	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-1a **Lab ID: 10125889002** Collected: 04/05/10 10:40 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**6.1**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:14	7440-38-2	
Chromium	**0.36J**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:14	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:14	7440-50-8	
Zinc	**7.0**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:14	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.9**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:03	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:03	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:03	7440-50-8	~~Z2~~
Zinc, Dissolved	5.0 ~~**2.5J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:03	7440-66-6	~~Z2~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.20**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:34	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 17:34	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0 0041	1	04/08/10 13:32	04/16/10 17:34	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	91-20-3	
Phenanthrene	**0.025J**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:34	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:34	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	04/08/10 13:32	04/16/10 17:34	321-60-8	
Terphenyl-d14 (S)	72	%	57-134		1	04/08/10 13:32	04/16/10 17:34	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.52 ~~**0.27J**~~	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 00:25	87-86-5	~~1M~~ U
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/08/10 16:44	04/20/10 00:25	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-1b **Lab ID: 10125889003** Collected: 04/05/10 11:36 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.3**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:43	7440-38-2	
Chromium	**0.47J**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:43	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:43	7440-50-8	
Zinc	**10.4**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:43	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.4**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:08	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:08	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:08	7440-50-8	~~Z2~~
Zinc, Dissolved	5.0 ~~**1.6J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:08	7440-66-6	~~Z2~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.096**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:53	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 17:53	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	91-20-3	
Phenanthrene	**0.29**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:53	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:53	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/08/10 13:32	04/16/10 17:53	321-60-8	
Terphenyl-d14 (S)	73	%	57-134		1	04/08/10 13:32	04/16/10 17:53	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.51 ~~**0.26J**~~	ug/L	0.51	0.14	1	04/08/10 16:44	04/20/10 00:38	87-86-5	~~IM~~ U
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/08/10 16:44	04/20/10 00:38	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-1c **Lab ID: 10125889004** Collected: 04/05/10 12:06 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.5**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:47	7440-38-2	
Chromium	**0.26J**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:47	7440-47-3	
Copper	**0.29J**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:47	7440-50-8	
Zinc	**3.7J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:47	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.3**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:45	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:45	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:45	7440-50-8	~~Z2~~
Zinc, Dissolved	5.0 ~~**1.4J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:45	7440-66-6	~~Z2~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.059**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 18:12	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/08/10 13:32	04/16/10 18:12	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	207-08-9	
Chrysene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	206-44-0	
Fluorene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	91-20-3	
Phenanthrene	**0.023J**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 18:12	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 18:12	129-00-0	
2-Fluorobiphenyl (S)	60	%	58-125		1	04/08/10 13:32	04/16/10 18:12	321-60-8	
Terphenyl-d14 (S)	67	%	57-134		1	04/08/10 13:32	04/16/10 18:12	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.51 ~~**0.26J**~~	ug/L	0.51	0.14	1	04/08/10 16:44	04/20/10 00:52	87-86-5	~~1M~~ U
2,4,6-Tribromophenol (S)	96	%	30-150		1	04/08/10 16:44	04/20/10 00:52	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2a **Lab ID: 10125889005** Collected: 04/05/10 13:43 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.9**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:51	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:51	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:51	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:51	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.9**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:49	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:49	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:49	7440-50-8	~~Z2~~
Zinc, Dissolved	5.0 ~~**2.0J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:49	7440-66-6	~~Z2~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.064**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 18:31	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 18:31	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	206-44-0	
Fluorene	**0.013J**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	193-39-5	
Naphthalene	**1.4**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 18:31	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 18:31	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	04/08/10 13:32	04/16/10 18:31	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/08/10 13:32	04/16/10 18:31	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.51 ~~**0.27J**~~	ug/L	0.51	0.14	1	04/08/10 16:44	04/20/10 01:05	87-86-5	~~M1~~ U
2,4,6-Tribromophenol (S)	110	%	30-150		1	04/08/10 16:44	04/20/10 01:05	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2b **Lab ID: 10125889006** Collected: 04/05/10 14:20 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**19.8**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:56	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:56	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:56	7440-50-8	
Zinc	**6.1**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:56	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**20.1**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:53	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:53	7440-47-3	
Copper, Dissolved	0.5 ~~**0.40J**~~	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:53	7440-50-8	~~Z2~~ U
Zinc, Dissolved	5.0 ~~**4.7J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:53	7440-66-6	~~Z2~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.042J**	ug/L	0.044	0.0066	1	04/08/10 13:32	04/16/10 18:50	83-32-9	R
Acenaphthylene	**0.017J**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	208-96-8	
Anthracene	**0.012J**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	50-32-8	
Benzo(b)fluoranthene	**0.012J**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.044	0.0022	1	04/08/10 13:32	04/16/10 18:50	191-24-2	
Benzo(k)fluoranthene	**<0.0055**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	207-08-9	
Chrysene	**<0.0033**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	218-01-9	
Dibenz(a,h)anthracene	**<0.0044**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	53-70-3	
Fluoranthene	**0.015J**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	206-44-0	
Fluorene	**0.021J**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0044**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	193-39-5	
Naphthalene	**<0.0055**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	91-20-3	
Phenanthrene	**0.029J**	ug/L	0.044	0.0066	1	04/08/10 13:32	04/16/10 18:50	85-01-8	
Pyrene	**0.018J**	ug/L	0.044	0.0066	1	04/08/10 13:32	04/16/10 18:50	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/08/10 13:32	04/16/10 18:50	321-60-8	
Terphenyl-d14 (S)	48	%	57-134		1	04/08/10 13:32	04/16/10 18:50	1718-51-0	~~3M~~
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.57 ~~**0.30J**~~	ug/L	0.57	0.16	1	04/08/10 16:44	04/20/10 01:19	87-86-5	~~1M~~ U
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/08/10 16:44	04/20/10 01:19	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2c **Lab ID: 10125889007** Collected: 04/05/10 15:22 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**15.5**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 15:00	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 15:00	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 15:00	7440-50-8	
Zinc	**6.4**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 15:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**15.5**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:58	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:58	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:58	7440-50-8	~~Z2~~
Zinc, Dissolved	5.0 ~~**4.4J**~~	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:58	7440-66-6	~~Z2~~ U
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.035J**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 19:08	83-32-9	R
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 19:08	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	206-44-0	
Fluorene	**0.022J**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	193-39-5	
Naphthalene	**0.59**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	91-20-3	
Phenanthrene	**0.029J**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 19:08	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 19:08	129-00-0	
2-Fluorobiphenyl (S)	57	%	58-125		1	04/08/10 13:32	04/16/10 19:08	321-60-8	~~3M~~
Terphenyl-d14 (S)	47	%	57-134		1	04/08/10 13:32	04/16/10 19:08	1718-51-0	~~3M~~
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	0.55 ~~**0.29J**~~	ug/L	0.55	0.15	1	04/08/10 16:44	04/20/10 01:33	87-86-5	~~1M~~ U
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/08/10 16:44	04/20/10 01:33	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2aR **Lab ID: 10125889008** Collected: 04/05/10 16:53 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:18	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:18	7440-47-3	
Copper	**0.92**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:18	7440-50-8	
Zinc	**1.4J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:18	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0067**	ug/L	0.045	0.0067	1	04/08/10 13:32	04/16/10 19:27	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	208-96-8	
Anthracene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	50-32-8	
Benzo(b)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.045	0.0022	1	04/08/10 13:32	04/16/10 19:27	191-24-2	
Benzo(k)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	53-70-3	
Fluoranthene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	206-44-0	
Fluorene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	193-39-5	
Naphthalene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	91-20-3	
Phenanthrene	**<0.0067**	ug/L	0.045	0.0067	1	04/08/10 13:32	04/16/10 19:27	85-01-8	
Pyrene	**<0.0067**	ug/L	0.045	0.0067	1	04/08/10 13:32	04/16/10 19:27	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/08/10 13:32	04/16/10 19:27	321-60-8	
Terphenyl-d14 (S)	76	%	57-134		1	04/08/10 13:32	04/16/10 19:27	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.16**	ug/L	0.56	0.16	1	04/08/10 16:44	04/20/10 01:47	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/08/10 16:44	04/20/10 01:47	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBFF0410-0405 **Lab ID: 10125889009** Collected: 04/05/10 17:00 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 17:09	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 17:09	7440-47-3	
Copper, Dissolved	0.5 ~~**0.23J**~~	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 17:09	7440-50-8	~~Z2~~ U
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 17:09	7440-66-6	~~Z2~~

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2b reextract **Lab ID: 10125889010** Collected: 04/05/10 14:20 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.048**	ug/L	0.045	0.0068	1	04/20/10 12:57	04/21/10 22:13	83-32-9	J
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	208-96-8	
Anthracene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	50-32-8	
Benzo(b)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	205-99-2	
Benzo(g,h,i)perylene	**<0.0023**	ug/L	0.045	0.0023	1	04/20/10 12:57	04/21/10 22:13	191-24-2	
Benzo(k)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	53-70-3	
Fluoranthene	**0.012J**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	206-44-0	
Fluorene	**0.017J**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	193-39-5	
Naphthalene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	91-20-3	
Phenanthrene	**0.027J**	ug/L	0.045	0.0068	1	04/20/10 12:57	04/21/10 22:13	85-01-8	
Pyrene	**0.011J**	ug/L	0.045	0.0068	1	04/20/10 12:57	04/21/10 22:13	129-00-0	
2-Fluorobiphenyl (S)	85	%	58-125		1	04/20/10 12:57	04/21/10 22:13	321-60-8	~~2M~~
Terphenyl-d14 (S)	100	%	57-134		1	04/20/10 12:57	04/21/10 22:13	1718-51-0	

A 6/3/10

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2c reextract **Lab ID: 10125889011** Collected: 04/05/10 15:22 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.033J**	ug/L	0.041	0.0062	1	04/20/10 12:57	04/22/10 12:24	83-32-9	J
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	208-96-8	
Anthracene	**0.0078J**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	56-55-3	
Benzo(a)pyrene	**0.0082J**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/20/10 12:57	04/22/10 12:24	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	53-70-3	
Fluoranthene	**0.012J**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	206-44-0	
Fluorene	**0.021J**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	193-39-5	
Naphthalene	**0.24**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	91-20-3	
Phenanthrene	**0.034J**	ug/L	0.041	0.0062	1	04/20/10 12:57	04/22/10 12:24	85-01-8	
Pyrene	**0.013J**	ug/L	0.041	0.0062	1	04/20/10 12:57	04/22/10 12:24	129-00-0	
2-Fluorobiphenyl (S)	85	%	58-125		1	04/20/10 12:57	04/22/10 12:24	321-60-8	~~2M~~
Terphenyl-d14 (S)	99	%	57-134		1	04/20/10 12:57	04/22/10 12:24	1718-51-0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: MPRP/19869 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

METHOD BLANK: 770293 Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/09/10 12:46	
Chromium	ug/L	<0.24	0.50	04/09/10 12:46	
Copper	ug/L	<0.20	0.50	04/09/10 12:46	
Zinc	ug/L	<1.3	5.0	04/09/10 12:46	

LABORATORY CONTROL SAMPLE: 770294

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	81.6	102	85-115	
Chromium	ug/L	80	81.6	102	85-115	
Copper	ug/L	80	84.8	106	85-115	
Zinc	ug/L	80	83.6	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770295 770296

Parameter	Units	10125803006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	80	80	93.2	89.2	116	111	75-125	4	20	
Chromium	ug/L	1.1	80	80	93.6	91.2	116	113	75-125	3	20	
Copper	ug/L	ND	80	80	96.2	93.9	120	117	75-125	2	20	
Zinc	ug/L	ND	80	80	94.6	91.9	116	113	75-125	3	20	

MATRIX SPIKE SAMPLE: 770297

Parameter	Units	10125889008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.062	80	82.0	102	75-125	
Chromium	ug/L	<0.24	80	81.8	102	75-125	
Copper	ug/L	0.92	80	86.4	107	75-125	
Zinc	ug/L	1.4J	80	84.6	104	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: MPRP/19868 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889009

METHOD BLANK: 770288 — Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/09/10 17:34	
Chromium, Dissolved	ug/L	<0.24	0.50	04/09/10 17:34	
Copper, Dissolved	ug/L	0.23J	0.50	04/09/10 17:34	
Zinc, Dissolved	ug/L	2.0J	5.0	04/09/10 17:34	

LABORATORY CONTROL SAMPLE: 770289

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.6	103	85-115	
Chromium, Dissolved	ug/L	80	81.6	102	85-115	
Copper, Dissolved	ug/L	80	85.5	107	85-115	
Zinc, Dissolved	ug/L	80	84.1	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770290 770291

Parameter	Units	10125803006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	80	80	81.3	83.9	101	105	75-125	3	20	
Chromium, Dissolved	ug/L	0.57	80	80	80.4	83.0	100	103	75-125	3	20	
Copper, Dissolved	ug/L	ND	80	80	82.5	85.2	103	106	75-125	3	20	
Zinc, Dissolved	ug/L	ND	80	80	83.2	84.8	102	104	75-125	2	20	

MATRIX SPIKE SAMPLE: 770292

Parameter	Units	10125889009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	80	81.6	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	80.3	100	75-125	
Copper, Dissolved	ug/L	0.23J	80	84.7	106	75-125	
Zinc, Dissolved	ug/L	<1.3	80	84.1	104	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: OEXT/12646 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

METHOD BLANK: 770316 | Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/14/10 22:38	
Acenaphthylene	ug/L	<0.0040	0.040	04/14/10 22:38	
Anthracene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/14/10 22:38	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Chrysene	ug/L	<0.0030	0.040	04/14/10 22:38	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluoranthene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluorene	ug/L	<0.0030	0.040	04/14/10 22:38	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/14/10 22:38	
Naphthalene	ug/L	<0.0050	0.040	04/14/10 22:38	
Phenanthrene	ug/L	<0.0060	0.040	04/14/10 22:38	
Pyrene	ug/L	<0.0060	0.040	04/14/10 22:38	
2-Fluorobiphenyl (S)	%	74	58-125	04/14/10 22:38	
Terphenyl-d14 (S)	%	77	57-134	04/14/10 22:38	

LABORATORY CONTROL SAMPLE & LCSD: 770317 770318

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.85	80	85	56-125	5	20	
Acenaphthylene	ug/L	1	0.80	0.87	80	87	51-125	8	20	
Anthracene	ug/L	1	0.84	0.90	84	90	58-125	6	20	
Benzo(a)anthracene	ug/L	1	0.85	0.90	85	90	61-125	6	20	
Benzo(a)pyrene	ug/L	1	0.87	0.93	87	93	56-125	7	20	
Benzo(b)fluoranthene	ug/L	1	0.95	1.1	95	108	54-125	13	20	
Benzo(g,h,i)perylene	ug/L	1	0.78	0.43	78	43	42-125	58	20	R1
Benzo(k)fluoranthene	ug/L	1	0.83	0.97	83	97	60-125	16	20	
Chrysene	ug/L	1	0.84	0.85	84	85	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.79	0.52	79	52	46-125	40	20	R1
Fluoranthene	ug/L	1	0.85	0.90	85	90	54-125	6	20	
Fluorene	ug/L	1	0.83	0.89	83	89	55-125	6	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.79	0.50	79	50	46-125	44	20	R1
Naphthalene	ug/L	1	0.77	0.84	77	84	47-125	8	20	
Phenanthrene	ug/L	1	0.83	0.87	83	87	55-125	4	20	
Pyrene	ug/L	1	0.87	0.94	87	94	57-125	7	20	
2-Fluorobiphenyl (S)	%				71	76	58-125			
Terphenyl-d14 (S)	%				79	83	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: OEXT/12737 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10125889010, 10125889011

METHOD BLANK: 776058 | Matrix: Water
Associated Lab Samples: 10125889010, 10125889011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/21/10 21:36	
Acenaphthylene	ug/L	<0.0040	0.040	04/21/10 21:36	
Anthracene	ug/L	<0.0050	0.040	04/21/10 21:36	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/21/10 21:36	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/21/10 21:36	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/21/10 21:36	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/21/10 21:36	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/21/10 21:36	
Chrysene	ug/L	<0.0030	0.040	04/21/10 21:36	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/21/10 21:36	
Fluoranthene	ug/L	<0.0040	0.040	04/21/10 21:36	
Fluorene	ug/L	<0.0030	0.040	04/21/10 21:36	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/21/10 21:36	
Naphthalene	ug/L	<0.0050	0.040	04/21/10 21:36	
Phenanthrene	ug/L	<0.0060	0.040	04/21/10 21:36	
Pyrene	ug/L	<0.0060	0.040	04/21/10 21:36	
2-Fluorobiphenyl (S)	%	96	58-125	04/21/10 21:36	
Terphenyl-d14 (S)	%	105	57-134	04/21/10 21:36	

LABORATORY CONTROL SAMPLE: 776059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.74	74	56-125	
Acenaphthylene	ug/L	1	0.72	72	51-125	
Anthracene	ug/L	1	1.0	100	58-125	
Benzo(a)anthracene	ug/L	1	0.82	82	61-125	
Benzo(a)pyrene	ug/L	1	0.91	91	56-125	
Benzo(b)fluoranthene	ug/L	1	0.87	87	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.49	49	42-125	
Benzo(k)fluoranthene	ug/L	1	1.1	106	60-125	
Chrysene	ug/L	1	0.93	93	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.60	60	46-125	
Fluoranthene	ug/L	1	0.83	83	54-125	
Fluorene	ug/L	1	0.74	74	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.57	57	46-125	
Naphthalene	ug/L	1	0.67	67	47-125	
Phenanthrene	ug/L	1	0.77	77	55-125	
Pyrene	ug/L	1	0.96	96	57-125	
2-Fluorobiphenyl (S)	%			87	58-125	
Terphenyl-d14 (S)	%			114	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 776060 776061

Parameter	Units	10126655001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	ND	1.2	1	0.87	0.75	74	73	56-125	15	30	
Acenaphthylene	ug/L	ND	1.2	1	0.89	0.77	77	75	51-125	15	30	
Anthracene	ug/L	ND	1.2	1	1.2	1.0	101	101	58-125	13	30	
Benzo(a)anthracene	ug/L	ND	1.2	1	1.1	0.81	92	79	61-125	27	30	
Benzo(a)pyrene	ug/L	ND	1.2	1	1.1	0.91	91	88	56-125	15	30	
Benzo(b)fluoranthene	ug/L	ND	1.2	1	0.85	0.89	73	87	54-125	5	30	
Benzo(g,h,i)perylene	ug/L	ND	1.2	1	0.95	0.82	82	80	41-125	15	30	
Benzo(k)fluoranthene	ug/L	ND	1.2	1	1.2	0.94	102	91	60-125	24	30	
Chrysene	ug/L	ND	1.2	1	1.1	1.0	93	99	64-125	6	30	
Dibenz(a,h)anthracene	ug/L	ND	1.2	1	0.96	0.83	83	81	46-125	15	30	
Fluoranthene	ug/L	ND	1.2	1	1.1	0.92	92	90	51-125	14	30	
Fluorene	ug/L	ND	1.2	1	0.91	0.80	78	78	55-125	12	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	1.2	1	0.96	0.82	82	80	46-125	15	30	
Naphthalene	ug/L	ND	1.2	1	0.84	0.71	72	69	34-125	17	30	
Phenanthrene	ug/L	ND	1.2	1	1.0	0.89	86	87	55-125	11	30	
Pyrene	ug/L	ND	1.2	1	1.2	1.0	103	102	50-127	14	30	
2-Fluorobiphenyl (S)	%						90	85	58-125			
Terphenyl-d14 (S)	%						114	110	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: OEXT/12655 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

METHOD BLANK: 770778 Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.39J	0.50	04/19/10 23:02	1M
2,4,6-Tribromophenol (S)	%	94	30-150	04/19/10 23:02	

LABORATORY CONTROL SAMPLE & LCSD: 770779 770780

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.91	0.90	91	90	41-137	1	20	
2,4,6-Tribromophenol (S)	%				92	90	30-150			

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(612)607-1700

QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: WET/18708 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10125889001

METHOD BLANK: 770991 | Matrix: Water
Associated Lab Samples: 10125889001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/09/10 13:21	

LABORATORY CONTROL SAMPLE: 770990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	19.7	17.0	86	80-120	

SAMPLE DUPLICATE: 770992

Parameter	Units	10126031005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	170	155	9	20	

SAMPLE DUPLICATE: 770993

Parameter	Units	10126031009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	96.0	91.0	5	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

QC Batch: WET/18694 | Analysis Method: SM 2540D
QC Batch Method: SM 2540D | Analysis Description: TSS, Low Level
Associated Lab Samples: 10125889001

METHOD BLANK: 770368 | Matrix: Water
Associated Lab Samples: 10125889001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

METHOD BLANK: 771088 | Matrix: Water
Associated Lab Samples: 10125889001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

LABORATORY CONTROL SAMPLE: 770369

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	24.6	20.9	85	80-120	

SAMPLE DUPLICATE: 770402

Parameter	Units	10125856001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	1820	1810	1	20	

SAMPLE DUPLICATE: 770552

Parameter	Units	10125952001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	394	396	1	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5430

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5450

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	J-flag hit detected in method blank.
2M	Re-extracted out of hold per QAPP.
3M	Surrogate recovery outside control limits due to matrix interferences.
R1	RPD value was outside control limits.
Z2	Analyte present in the associated method blank above the detection limit.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10125889

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10125889001	**MBSW0410-27**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889002	**MBSA0410-ACB-1a**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889003	**MBSA0410-ACB-1b**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889004	**MBSA0410-ACB-1c**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889005	**MBSA0410-ACB-2a**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889006	**MBSA0410-ACB-2b**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889007	**MBSA0410-ACB-2c**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889008	**MBSA0410-ACB-2aR**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889001	**MBSW0410-27**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889002	**MBSA0410-ACB-1a**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889003	**MBSA0410-ACB-1b**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889004	**MBSA0410-ACB-1c**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889005	**MBSA0410-ACB-2a**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889006	**MBSA0410-ACB-2b**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889007	**MBSA0410-ACB-2c**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889009	**MBFF0410-0405**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889001	**MBSW0410-27**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889002	**MBSA0410-ACB-1a**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889003	**MBSA0410-ACB-1b**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889004	**MBSA0410-ACB-1c**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889005	**MBSA0410-ACB-2a**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889006	**MBSA0410-ACB-2b**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889007	**MBSA0410-ACB-2c**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889008	**MBSA0410-ACB-2aR**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889010	**MBSA0410-ACB-2b reextract**	EPA 3510	OEXT/12737	EPA 8270 by SIM	MSSV/5457
10125889011	**MBSA0410-ACB-2c reextract**	EPA 3510	OEXT/12737	EPA 8270 by SIM	MSSV/5457
10125889001	**MBSW0410-27**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889002	**MBSA0410-ACB-1a**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889003	**MBSA0410-ACB-1b**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889004	**MBSA0410-ACB-1c**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889005	**MBSA0410-ACB-2a**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889006	**MBSA0410-ACB-2b**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889007	**MBSA0410-ACB-2c**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889008	**MBSA0410-ACB-2aR**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889001	**MBSW0410-27**	SM 2540C	WET/18708		
10125889001	**MBSW0410-27**	SM 2540D	WET/18694		

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10125889

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample Preservative

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM (None)	*PCP EPA Method 8270-SIM (None)	Total Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	Total Suspended Solids (None)	Total Dissolved Solids (None)	Comments
MBSW0410-27	4-5-10/0910	Water	8	X	X	X	X	X	X	001
MBSA0410-ACB-1a	04-5-10/1040	Water	6	X	X	X	X			002
MBSA0410-ACB-1b	04-5-10/1130	Water	6	X	X	X	X			003
MBSA0410-ACB-1C	04-5-10/1206	Water	6	X	X	X	X			004
MBSA0410-ACB-2a	04-5-10/1343	Water	6	X	X	X	X			005
MBSA0410-ACB-2b	04-5-10/1420	Water	6	X	X	X	X			006
MBSA0410-ACB-2C	04-5-10/1522	Water	6	X	X	X	X			007
MBSA0410-ACB-2aR	04/5/10/1653	Water	5	X	X	X				008
MBFF0410-0405	04/9/10/1700	Water	1				X			009
		Water								
		Water								

Requested Analyses

Comments
* low level PAHs and PCP;
** Field filtered 0.45 um filter

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason R. Miles	Hart Crowser	Pace MN	Pace MN
Signature:	Time & Date: 0745 04/06/2010	Signature:	Time & Date: 4/7/10 1000

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

JM

T=2.0, 0.4 °C
7.0, 1.1

Sample Condition Upon Receipt

Pace Analytical

Client Name: Dept. Env. Quality **Project #** 1012 5889

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7957-5297-1573/7957-5297-1562/7957-5297-1551 8743-5843-0989

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ___/ **No** ___

Thermometer Used 80344042 or 179428 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.0/1.0/0.4/1.4 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4/7/10

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☐No	☑N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes	☐No	☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	Samp # 001-009
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	☑No		Initial when completed: ___ Lot # of added preservative:
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DRM **Date:** 4-7-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 05, 2011

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 07, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report was revised to include corrected Total Suspended Solids data. Please reference the attached narrative for additional information.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10125889001	**MBSW0410-27**	Water	04/05/10 09:10	04/07/10 10:00
10125889002	**MBSA0410-ACB-1a**	Water	04/05/10 10:40	04/07/10 10:00
10125889003	**MBSA0410-ACB-1b**	Water	04/05/10 11:36	04/07/10 10:00
10125889004	**MBSA0410-ACB-1c**	Water	04/05/10 12:06	04/07/10 10:00
10125889005	**MBSA0410-ACB-2a**	Water	04/05/10 13:43	04/07/10 10:00
10125889006	**MBSA0410-ACB-2b**	Water	04/05/10 14:20	04/07/10 10:00
10125889007	**MBSA0410-ACB-2c**	Water	04/05/10 15:22	04/07/10 10:00
10125889008	**MBSA0410-ACB-2aR**	Water	04/05/10 16:53	04/07/10 10:00
10125889009	**MBFF0410-0405**	Water	04/05/10 17:00	04/07/10 10:00
10125889010	**MBSA0410-ACB-2b reextract**	Water	04/05/10 14:20	04/07/10 10:00
10125889011	**MBSA0410-ACB-2c reextract**	Water	04/05/10 15:22	04/07/10 10:00

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SAMPLE ANALYTE COUNT

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10125889001	**MBSW0410-27**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10125889002	**MBSA0410-ACB-1a**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889003	**MBSA0410-ACB-1b**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889004	**MBSA0410-ACB-1c**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889005	**MBSA0410-ACB-2a**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889006	**MBSA0410-ACB-2b**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889007	**MBSA0410-ACB-2c**	EPA 6020	CJS	4	PASI-M
		EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889008	**MBSA0410-ACB-2aR**	EPA 6020	CJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
10125889009	**MBFF0410-0405**	EPA 6020	CJS	4	PASI-M
10125889010	**MBSA0410-ACB-2b reextract**	EPA 8270 by SIM	HRG	18	PASI-M
10125889011	**MBSA0410-ACB-2c reextract**	EPA 8270 by SIM	HRG	18	PASI-M

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBSA0410-ACB-2aR (Lab ID: 10125889008)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Z2: Analyte present in the associated method blank above the detection limit.
- MBFF0410-0405 (Lab ID: 10125889009)
- MBSA0410-ACB-1a (Lab ID: 10125889002)
- MBSA0410-ACB-1b (Lab ID: 10125889003)
- MBSA0410-ACB-1c (Lab ID: 10125889004)
- MBSA0410-ACB-2a (Lab ID: 10125889005)
- MBSA0410-ACB-2b (Lab ID: 10125889006)
- MBSA0410-ACB-2c (Lab ID: 10125889007)
- MBSW0410-27 (Lab ID: 10125889001)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 05, 2011

General Information:
10 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/12646

R1: RPD value was outside control limits.

- LCSD (Lab ID: 770318)
  - Benzo(g,h,i)perylene
  - Dibenz(a,h)anthracene
  - Indeno(1,2,3-cd)pyrene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5430

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: January 05, 2011

Analyte Comments:

QC Batch: OEXT/12646

3M: Surrogate recovery outside control limits due to matrix interferences.

- MBSA0410-ACB-2b (Lab ID: 10125889006)
  - Terphenyl-d14 (S)
- MBSA0410-ACB-2c (Lab ID: 10125889007)
  - 2-Fluorobiphenyl (S)
  - Terphenyl-d14 (S)

QC Batch: OEXT/12737

2M: Re-extracted out of hold per QAPP.

- MBSA0410-ACB-2b reextract (Lab ID: 10125889010)
  - 2-Fluorobiphenyl (S)
- MBSA0410-ACB-2c reextract (Lab ID: 10125889011)
  - 2-Fluorobiphenyl (S)

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 05, 2011

General Information:
8 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5450

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/12655

1M: J-flag hit detected in method blank.

- BLANK (Lab ID: 770778)
  - Pentachlorophenol

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: January 05, 2011

Analyte Comments:

QC Batch: OEXT/12655

1M: J-flag hit detected in method blank.

- MBSA0410-ACB-1a (Lab ID: 10125889002)
  - Pentachlorophenol
- MBSA0410-ACB-1b (Lab ID: 10125889003)
  - Pentachlorophenol
- MBSA0410-ACB-1c (Lab ID: 10125889004)
  - Pentachlorophenol
- MBSA0410-ACB-2a (Lab ID: 10125889005)
  - Pentachlorophenol
- MBSA0410-ACB-2b (Lab ID: 10125889006)
  - Pentachlorophenol
- MBSA0410-ACB-2c (Lab ID: 10125889007)
  - Pentachlorophenol
- MBSW0410-27 (Lab ID: 10125889001)
  - Pentachlorophenol

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: January 05, 2011

General Information:
1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: January 05, 2011

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSW0410-27 **Lab ID: 10125889001** Collected: 04/05/10 09:10 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.43J**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:10	7440-38-2	
Chromium	**1.3**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:10	7440-47-3	
Copper	**2.1**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:10	7440-50-8	
Zinc	**4.4J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:10	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 17:59	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 17:59	7440-47-3	
Copper, Dissolved	**0.87**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 17:59	7440-50-8	Z2
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 17:59	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:15	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 17:15	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:15	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:15	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:15	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:15	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:15	129-00-0	
2-Fluorobiphenyl (S)	60	%	58-125		1	04/08/10 13:32	04/16/10 17:15	321-60-8	
Terphenyl-d14 (S)	65	%	57-134		1	04/08/10 13:32	04/16/10 17:15	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.27J**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 00:11	87-86-5	1M
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/08/10 16:44	04/20/10 00:11	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**50.0**	mg/L	10.0	5.0	1		04/09/10 13:21		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**16.3**	mg/L	2.1	1.1	1		04/08/10 15:47		

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-1a **Lab ID: 10125889002** Collected: 04/05/10 10:40 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**6.1**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:14	7440-38-2	
Chromium	**0.36J**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:14	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:14	7440-50-8	
Zinc	**7.0**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:14	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.9**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:03	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:03	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:03	7440-50-8	Z2
Zinc, Dissolved	**2.5J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:03	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.20**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:34	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 17:34	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:34	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:34	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 17:34	91-20-3	
Phenanthrene	**0.025J**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:34	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:34	129-00-0	
2-Fluorobiphenyl (S)	67	%	58-125		1	04/08/10 13:32	04/16/10 17:34	321-60-8	
Terphenyl-d14 (S)	72	%	57-134		1	04/08/10 13:32	04/16/10 17:34	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.27J**	ug/L	0.52	0.14	1	04/08/10 16:44	04/20/10 00:25	87-86-5	1M
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/08/10 16:44	04/20/10 00:25	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-1b **Lab ID: 10125889003** Collected: 04/05/10 11:36 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.3**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:43	7440-38-2	
Chromium	**0.47J**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:43	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:43	7440-50-8	
Zinc	**10.4**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:43	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.4**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:08	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:08	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:08	7440-50-8	Z2
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:08	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.096**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:53	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 17:53	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 17:53	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 17:53	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/08/10 13:32	04/16/10 17:53	91-20-3	
Phenanthrene	**0.29**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:53	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 17:53	129-00-0	
2-Fluorobiphenyl (S)	68	%	58-125		1	04/08/10 13:32	04/16/10 17:53	321-60-8	
Terphenyl-d14 (S)	73	%	57-134		1	04/08/10 13:32	04/16/10 17:53	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.26J**	ug/L	0.51	0.14	1	04/08/10 16:44	04/20/10 00:38	87-86-5	1M
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/08/10 16:44	04/20/10 00:38	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-1c **Lab ID: 10125889004** Collected: 04/05/10 12:06 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.5**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:47	7440-38-2	
Chromium	**0.26J**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:47	7440-47-3	
Copper	**0.29J**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:47	7440-50-8	
Zinc	**3.7J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:47	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.3**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:45	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:45	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:45	7440-50-8	Z2
Zinc, Dissolved	**1.4J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:45	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.059**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 18:12	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/08/10 13:32	04/16/10 18:12	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	207-08-9	
Chrysene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	206-44-0	
Fluorene	**<0.0030**	ug/L	0.041	0.0030	1	04/08/10 13:32	04/16/10 18:12	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:12	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:12	91-20-3	
Phenanthrene	**0.023J**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 18:12	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/08/10 13:32	04/16/10 18:12	129-00-0	
2-Fluorobiphenyl (S)	60	%	58-125		1	04/08/10 13:32	04/16/10 18:12	321-60-8	
Terphenyl-d14 (S)	67	%	57-134		1	04/08/10 13:32	04/16/10 18:12	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.26J**	ug/L	0.51	0.14	1	04/08/10 16:44	04/20/10 00:52	87-86-5	1M
2,4,6-Tribromophenol (S)	96	%	30-150		1	04/08/10 16:44	04/20/10 00:52	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2a **Lab ID: 10125889005** Collected: 04/05/10 13:43 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.9**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:51	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:51	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:51	7440-50-8	
Zinc	**3.8J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:51	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.9**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:49	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:49	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:49	7440-50-8	Z2
Zinc, Dissolved	**2.0J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:49	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.064**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 18:31	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/08/10 13:32	04/16/10 18:31	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	206-44-0	
Fluorene	**0.013J**	ug/L	0.041	0.0031	1	04/08/10 13:32	04/16/10 18:31	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/08/10 13:32	04/16/10 18:31	193-39-5	
Naphthalene	**1.4**	ug/L	0.041	0.0051	1	04/08/10 13:32	04/16/10 18:31	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 18:31	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/08/10 13:32	04/16/10 18:31	129-00-0	
2-Fluorobiphenyl (S)	66	%	58-125		1	04/08/10 13:32	04/16/10 18:31	321-60-8	
Terphenyl-d14 (S)	68	%	57-134		1	04/08/10 13:32	04/16/10 18:31	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.27J**	ug/L	0.51	0.14	1	04/08/10 16:44	04/20/10 01:05	87-86-5	1M
2,4,6-Tribromophenol (S)	110	%	30-150		1	04/08/10 16:44	04/20/10 01:05	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2b **Lab ID: 10125889006** Collected: 04/05/10 14:20 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**19.8**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:56	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:56	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:56	7440-50-8	
Zinc	**6.1**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:56	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**20.1**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:53	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:53	7440-47-3	
Copper, Dissolved	**0.40J**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:53	7440-50-8	Z2
Zinc, Dissolved	**4.7J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:53	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.042J**	ug/L	0.044	0.0066	1	04/08/10 13:32	04/16/10 18:50	83-32-9	
Acenaphthylene	**0.017J**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	208-96-8	
Anthracene	**0.012J**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	50-32-8	
Benzo(b)fluoranthene	**0.012J**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.044	0.0022	1	04/08/10 13:32	04/16/10 18:50	191-24-2	
Benzo(k)fluoranthene	**<0.0055**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	207-08-9	
Chrysene	**<0.0033**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	218-01-9	
Dibenz(a,h)anthracene	**<0.0044**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	53-70-3	
Fluoranthene	**0.015J**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	206-44-0	
Fluorene	**0.021J**	ug/L	0.044	0.0033	1	04/08/10 13:32	04/16/10 18:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0044**	ug/L	0.044	0.0044	1	04/08/10 13:32	04/16/10 18:50	193-39-5	
Naphthalene	**<0.0055**	ug/L	0.044	0.0055	1	04/08/10 13:32	04/16/10 18:50	91-20-3	
Phenanthrene	**0.029J**	ug/L	0.044	0.0066	1	04/08/10 13:32	04/16/10 18:50	85-01-8	
Pyrene	**0.018J**	ug/L	0.044	0.0066	1	04/08/10 13:32	04/16/10 18:50	129-00-0	
2-Fluorobiphenyl (S)	59	%	58-125		1	04/08/10 13:32	04/16/10 18:50	321-60-8	
Terphenyl-d14 (S)	48	%	57-134		1	04/08/10 13:32	04/16/10 18:50	1718-51-0	3M
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.30J**	ug/L	0.57	0.16	1	04/08/10 16:44	04/20/10 01:19	87-86-5	1M
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/08/10 16:44	04/20/10 01:19	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2c **Lab ID: 10125889007** Collected: 04/05/10 15:22 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**15.5**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 15:00	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 15:00	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 15:00	7440-50-8	
Zinc	**6.4**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 15:00	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**15.5**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 18:58	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 18:58	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 18:58	7440-50-8	Z2
Zinc, Dissolved	**4.4J**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 18:58	7440-66-6	Z2
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.035J**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 19:08	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/08/10 13:32	04/16/10 19:08	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	206-44-0	
Fluorene	**0.022J**	ug/L	0.043	0.0032	1	04/08/10 13:32	04/16/10 19:08	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/08/10 13:32	04/16/10 19:08	193-39-5	
Naphthalene	**0.59**	ug/L	0.043	0.0054	1	04/08/10 13:32	04/16/10 19:08	91-20-3	
Phenanthrene	**0.029J**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 19:08	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/08/10 13:32	04/16/10 19:08	129-00-0	
2-Fluorobiphenyl (S)	57	%	58-125		1	04/08/10 13:32	04/16/10 19:08	321-60-8	3M
Terphenyl-d14 (S)	47	%	57-134		1	04/08/10 13:32	04/16/10 19:08	1718-51-0	3M
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**0.29J**	ug/L	0.55	0.15	1	04/08/10 16:44	04/20/10 01:33	87-86-5	1M
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/08/10 16:44	04/20/10 01:33	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2aR **Lab ID: 10125889008** Collected: 04/05/10 16:53 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**<0.062**	ug/L	0.50	0.062	1	04/08/10 16:26	04/09/10 14:18	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:26	04/09/10 14:18	7440-47-3	
Copper	**0.92**	ug/L	0.50	0.20	1	04/08/10 16:26	04/09/10 14:18	7440-50-8	
Zinc	**1.4J**	ug/L	5.0	1.3	1	04/08/10 16:26	04/09/10 14:18	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0067**	ug/L	0.045	0.0067	1	04/08/10 13:32	04/16/10 19:27	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	208-96-8	
Anthracene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	50-32-8	
Benzo(b)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.045	0.0022	1	04/08/10 13:32	04/16/10 19:27	191-24-2	
Benzo(k)fluoranthene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	53-70-3	
Fluoranthene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	206-44-0	
Fluorene	**<0.0034**	ug/L	0.045	0.0034	1	04/08/10 13:32	04/16/10 19:27	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/08/10 13:32	04/16/10 19:27	193-39-5	
Naphthalene	**<0.0056**	ug/L	0.045	0.0056	1	04/08/10 13:32	04/16/10 19:27	91-20-3	
Phenanthrene	**<0.0067**	ug/L	0.045	0.0067	1	04/08/10 13:32	04/16/10 19:27	85-01-8	
Pyrene	**<0.0067**	ug/L	0.045	0.0067	1	04/08/10 13:32	04/16/10 19:27	129-00-0	
2-Fluorobiphenyl (S)	75	%	58-125		1	04/08/10 13:32	04/16/10 19:27	321-60-8	
Terphenyl-d14 (S)	76	%	57-134		1	04/08/10 13:32	04/16/10 19:27	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.16**	ug/L	0.56	0.16	1	04/08/10 16:44	04/20/10 01:47	87-86-5	
2,4,6-Tribromophenol (S)	92	%	30-150		1	04/08/10 16:44	04/20/10 01:47	118-79-6	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBFF0410-0405 **Lab ID: 10125889009** Collected: 04/05/10 17:00 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**<0.062**	ug/L	0.50	0.062	1	04/08/10 16:27	04/09/10 17:09	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/08/10 16:27	04/09/10 17:09	7440-47-3	
Copper, Dissolved	**0.23J**	ug/L	0.50	0.20	1	04/08/10 16:27	04/09/10 17:09	7440-50-8	Z2
Zinc, Dissolved	**<1.3**	ug/L	5.0	1.3	1	04/08/10 16:27	04/09/10 17:09	7440-66-6	Z2

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2b reextract **Lab ID: 10125889010** Collected: 04/05/10 14:20 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.048**	ug/L	0.045	0.0068	1	04/20/10 12:57	04/21/10 22:13	83-32-9	
Acenaphthylene	**<0.0045**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	208-96-8	
Anthracene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	120-12-7	
Benzo(a)anthracene	**<0.0034**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	56-55-3	
Benzo(a)pyrene	**<0.0034**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	50-32-8	
Benzo(b)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	205-99-2	
Benzo(g,h,i)perylene	**<0.0023**	ug/L	0.045	0.0023	1	04/20/10 12:57	04/21/10 22:13	191-24-2	
Benzo(k)fluoranthene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	207-08-9	
Chrysene	**<0.0034**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	218-01-9	
Dibenz(a,h)anthracene	**<0.0045**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	53-70-3	
Fluoranthene	**0.012J**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	206-44-0	
Fluorene	**0.017J**	ug/L	0.045	0.0034	1	04/20/10 12:57	04/21/10 22:13	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0045**	ug/L	0.045	0.0045	1	04/20/10 12:57	04/21/10 22:13	193-39-5	
Naphthalene	**<0.0057**	ug/L	0.045	0.0057	1	04/20/10 12:57	04/21/10 22:13	91-20-3	
Phenanthrene	**0.027J**	ug/L	0.045	0.0068	1	04/20/10 12:57	04/21/10 22:13	85-01-8	
Pyrene	**0.011J**	ug/L	0.045	0.0068	1	04/20/10 12:57	04/21/10 22:13	129-00-0	
2-Fluorobiphenyl (S)	85	%	58-125		1	04/20/10 12:57	04/21/10 22:13	321-60-8	2M
Terphenyl-d14 (S)	100	%	57-134		1	04/20/10 12:57	04/21/10 22:13	1718-51-0	

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ANALYTICAL RESULTS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Sample: MBSA0410-ACB-2c reextract **Lab ID: 10125889011** Collected: 04/05/10 15:22 Received: 04/07/10 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.033J**	ug/L	0.041	0.0062	1	04/20/10 12:57	04/22/10 12:24	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	208-96-8	
Anthracene	**0.0078J**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	56-55-3	
Benzo(a)pyrene	**0.0082J**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/20/10 12:57	04/22/10 12:24	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	53-70-3	
Fluoranthene	**0.012J**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	206-44-0	
Fluorene	**0.021J**	ug/L	0.041	0.0031	1	04/20/10 12:57	04/22/10 12:24	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/20/10 12:57	04/22/10 12:24	193-39-5	
Naphthalene	**0.24**	ug/L	0.041	0.0051	1	04/20/10 12:57	04/22/10 12:24	91-20-3	
Phenanthrene	**0.034J**	ug/L	0.041	0.0062	1	04/20/10 12:57	04/22/10 12:24	85-01-8	
Pyrene	**0.013J**	ug/L	0.041	0.0062	1	04/20/10 12:57	04/22/10 12:24	129-00-0	
2-Fluorobiphenyl (S)	85	%	58-125		1	04/20/10 12:57	04/22/10 12:24	321-60-8	2M
Terphenyl-d14 (S)	99	%	57-134		1	04/20/10 12:57	04/22/10 12:24	1718-51-0	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: MPRP/19869 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

METHOD BLANK: 770293 Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/09/10 12:46	
Chromium	ug/L	<0.24	0.50	04/09/10 12:46	
Copper	ug/L	<0.20	0.50	04/09/10 12:46	
Zinc	ug/L	<1.3	5.0	04/09/10 12:46	

LABORATORY CONTROL SAMPLE: 770294

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	81.6	102	85-115	
Chromium	ug/L	80	81.6	102	85-115	
Copper	ug/L	80	84.8	106	85-115	
Zinc	ug/L	80	83.6	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770295 770296

Parameter	Units	10125803006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	80	80	93.2	89.2	116	111	75-125	4	20	
Chromium	ug/L	1.1	80	80	93.6	91.2	116	113	75-125	3	20	
Copper	ug/L	ND	80	80	96.2	93.9	120	117	75-125	2	20	
Zinc	ug/L	ND	80	80	94.6	91.9	116	113	75-125	3	20	

MATRIX SPIKE SAMPLE: 770297

Parameter	Units	10125889008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<0.062	80	82.0	102	75-125	
Chromium	ug/L	<0.24	80	81.8	102	75-125	
Copper	ug/L	0.92	80	86.4	107	75-125	
Zinc	ug/L	1.4J	80	84.6	104	75-125	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: MPRP/19868 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889009

METHOD BLANK: 770288 — Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/09/10 17:34	
Chromium, Dissolved	ug/L	<0.24	0.50	04/09/10 17:34	
Copper, Dissolved	ug/L	0.23J	0.50	04/09/10 17:34	
Zinc, Dissolved	ug/L	2.0J	5.0	04/09/10 17:34	

LABORATORY CONTROL SAMPLE: 770289

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.6	103	85-115	
Chromium, Dissolved	ug/L	80	81.6	102	85-115	
Copper, Dissolved	ug/L	80	85.5	107	85-115	
Zinc, Dissolved	ug/L	80	84.1	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 770290 770291

Parameter	Units	10125803006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	80	80	81.3	83.9	101	105	75-125	3	20	
Chromium, Dissolved	ug/L	0.57	80	80	80.4	83.0	100	103	75-125	3	20	
Copper, Dissolved	ug/L	ND	80	80	82.5	85.2	103	106	75-125	3	20	
Zinc, Dissolved	ug/L	ND	80	80	83.2	84.8	102	104	75-125	2	20	

MATRIX SPIKE SAMPLE: 770292

Parameter	Units	10125889009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	80	81.6	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	80.3	100	75-125	
Copper, Dissolved	ug/L	0.23J	80	84.7	106	75-125	
Zinc, Dissolved	ug/L	<1.3	80	84.1	104	75-125	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: OEXT/12646 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

METHOD BLANK: 770316 — Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/14/10 22:38	
Acenaphthylene	ug/L	<0.0040	0.040	04/14/10 22:38	
Anthracene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/14/10 22:38	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/14/10 22:38	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/14/10 22:38	
Chrysene	ug/L	<0.0030	0.040	04/14/10 22:38	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluoranthene	ug/L	<0.0040	0.040	04/14/10 22:38	
Fluorene	ug/L	<0.0030	0.040	04/14/10 22:38	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/14/10 22:38	
Naphthalene	ug/L	<0.0050	0.040	04/14/10 22:38	
Phenanthrene	ug/L	<0.0060	0.040	04/14/10 22:38	
Pyrene	ug/L	<0.0060	0.040	04/14/10 22:38	
2-Fluorobiphenyl (S)	%	74	58-125	04/14/10 22:38	
Terphenyl-d14 (S)	%	77	57-134	04/14/10 22:38	

LABORATORY CONTROL SAMPLE & LCSD: 770317 770318

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.80	0.85	80	85	56-125	5	20	
Acenaphthylene	ug/L	1	0.80	0.87	80	87	51-125	8	20	
Anthracene	ug/L	1	0.84	0.90	84	90	58-125	6	20	
Benzo(a)anthracene	ug/L	1	0.85	0.90	85	90	61-125	6	20	
Benzo(a)pyrene	ug/L	1	0.87	0.93	87	93	56-125	7	20	
Benzo(b)fluoranthene	ug/L	1	0.95	1.1	95	108	54-125	13	20	
Benzo(g,h,i)perylene	ug/L	1	0.78	0.43	78	43	42-125	58	20	R1
Benzo(k)fluoranthene	ug/L	1	0.83	0.97	83	97	60-125	16	20	
Chrysene	ug/L	1	0.84	0.85	84	85	64-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.79	0.52	79	52	46-125	40	20	R1
Fluoranthene	ug/L	1	0.85	0.90	85	90	54-125	6	20	
Fluorene	ug/L	1	0.83	0.89	83	89	55-125	6	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.79	0.50	79	50	46-125	44	20	R1
Naphthalene	ug/L	1	0.77	0.84	77	84	47-125	8	20	
Phenanthrene	ug/L	1	0.83	0.87	83	87	55-125	4	20	
Pyrene	ug/L	1	0.87	0.94	87	94	57-125	7	20	
2-Fluorobiphenyl (S)	%				71	76	58-125			
Terphenyl-d14 (S)	%				79	83	57-134			

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: OEXT/12737 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10125889010, 10125889011

METHOD BLANK: 776058 | Matrix: Water
Associated Lab Samples: 10125889010, 10125889011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/21/10 21:36	
Acenaphthylene	ug/L	<0.0040	0.040	04/21/10 21:36	
Anthracene	ug/L	<0.0050	0.040	04/21/10 21:36	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/21/10 21:36	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/21/10 21:36	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/21/10 21:36	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/21/10 21:36	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/21/10 21:36	
Chrysene	ug/L	<0.0030	0.040	04/21/10 21:36	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/21/10 21:36	
Fluoranthene	ug/L	<0.0040	0.040	04/21/10 21:36	
Fluorene	ug/L	<0.0030	0.040	04/21/10 21:36	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/21/10 21:36	
Naphthalene	ug/L	<0.0050	0.040	04/21/10 21:36	
Phenanthrene	ug/L	<0.0060	0.040	04/21/10 21:36	
Pyrene	ug/L	<0.0060	0.040	04/21/10 21:36	
2-Fluorobiphenyl (S)	%	96	58-125	04/21/10 21:36	
Terphenyl-d14 (S)	%	105	57-134	04/21/10 21:36	

LABORATORY CONTROL SAMPLE: 776059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.74	74	56-125	
Acenaphthylene	ug/L	1	0.72	72	51-125	
Anthracene	ug/L	1	1.0	100	58-125	
Benzo(a)anthracene	ug/L	1	0.82	82	61-125	
Benzo(a)pyrene	ug/L	1	0.91	91	56-125	
Benzo(b)fluoranthene	ug/L	1	0.87	87	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.49	49	42-125	
Benzo(k)fluoranthene	ug/L	1	1.1	106	60-125	
Chrysene	ug/L	1	0.93	93	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.60	60	46-125	
Fluoranthene	ug/L	1	0.83	83	54-125	
Fluorene	ug/L	1	0.74	74	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.57	57	46-125	
Naphthalene	ug/L	1	0.67	67	47-125	
Phenanthrene	ug/L	1	0.77	77	55-125	
Pyrene	ug/L	1	0.96	96	57-125	
2-Fluorobiphenyl (S)	%			87	58-125	
Terphenyl-d14 (S)	%			114	57-134	

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 776060 776061

Parameter	Units	10126655001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	ND	1.2	1	0.87	0.75	74	73	56-125	15	30	
Acenaphthylene	ug/L	ND	1.2	1	0.89	0.77	77	75	51-125	15	30	
Anthracene	ug/L	ND	1.2	1	1.2	1.0	101	101	58-125	13	30	
Benzo(a)anthracene	ug/L	ND	1.2	1	1.1	0.81	92	79	61-125	27	30	
Benzo(a)pyrene	ug/L	ND	1.2	1	1.1	0.91	91	88	56-125	15	30	
Benzo(b)fluoranthene	ug/L	ND	1.2	1	0.85	0.89	73	87	54-125	5	30	
Benzo(g,h,i)perylene	ug/L	ND	1.2	1	0.95	0.82	82	80	41-125	15	30	
Benzo(k)fluoranthene	ug/L	ND	1.2	1	1.2	0.94	102	91	60-125	24	30	
Chrysene	ug/L	ND	1.2	1	1.1	1.0	93	99	64-125	6	30	
Dibenz(a,h)anthracene	ug/L	ND	1.2	1	0.96	0.83	83	81	46-125	15	30	
Fluoranthene	ug/L	ND	1.2	1	1.1	0.92	92	90	51-125	14	30	
Fluorene	ug/L	ND	1.2	1	0.91	0.80	78	78	55-125	12	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	1.2	1	0.96	0.82	82	80	46-125	15	30	
Naphthalene	ug/L	ND	1.2	1	0.84	0.71	72	69	34-125	17	30	
Phenanthrene	ug/L	ND	1.2	1	1.0	0.89	86	87	55-125	11	30	
Pyrene	ug/L	ND	1.2	1	1.2	1.0	103	102	50-127	14	30	
2-Fluorobiphenyl (S)	%						90	85	58-125			
Terphenyl-d14 (S)	%						114	110	57-134			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 776062 776063

Parameter	Units	10126655002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	ND	1	1.1	0.72	0.77	70	69	56-125	7	30	
Acenaphthylene	ug/L	ND	1	1.1	0.70	0.75	69	68	51-125	7	30	
Anthracene	ug/L	ND	1	1.1	0.94	1.1	92	99	58-125	15	30	
Benzo(a)anthracene	ug/L	ND	1	1.1	0.72	0.87	70	78	61-125	19	30	
Benzo(a)pyrene	ug/L	ND	1	1.1	0.84	0.95	82	86	56-125	13	30	
Benzo(b)fluoranthene	ug/L	ND	1	1.1	0.73	0.85	71	77	54-125	16	30	
Benzo(g,h,i)perylene	ug/L	ND	1	1.1	0.76	0.87	74	79	41-125	14	30	
Benzo(k)fluoranthene	ug/L	ND	1	1.1	0.90	1.0	88	90	60-125	10	30	
Chrysene	ug/L	ND	1	1.1	0.90	1.0	88	91	64-125	11	30	
Dibenz(a,h)anthracene	ug/L	ND	1	1.1	0.78	0.89	76	80	46-125	13	30	
Fluoranthene	ug/L	ND	1	1.1	0.81	0.93	79	84	51-125	14	30	
Fluorene	ug/L	ND	1	1.1	0.79	0.80	78	72	55-125	.5	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	1	1.1	0.77	0.87	75	79	46-125	13	30	
Naphthalene	ug/L	ND	1	1.1	0.67	0.72	65	65	34-125	8	30	
Phenanthrene	ug/L	ND	1	1.1	0.76	0.89	74	80	55-125	17	30	
Pyrene	ug/L	ND	1	1.1	0.89	1.0	87	92	50-127	15	30	
2-Fluorobiphenyl (S)	%						83	81	58-125			
Terphenyl-d14 (S)	%						98	103	57-134			

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: OEXT/12655 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

METHOD BLANK: 770778 — Matrix: Water
Associated Lab Samples: 10125889001, 10125889002, 10125889003, 10125889004, 10125889005, 10125889006, 10125889007, 10125889008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.39J	0.50	04/19/10 23:02	1M
2,4,6-Tribromophenol (S)	%	94	30-150	04/19/10 23:02	

LABORATORY CONTROL SAMPLE & LCSD: 770779 770780

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	1	0.91	0.90	91	90	41-137	.9	20	
2,4,6-Tribromophenol (S)	%				92	90	30-150			

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: WET/18708 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10125889001

METHOD BLANK: 770991 | Matrix: Water
Associated Lab Samples: 10125889001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/09/10 13:21	

LABORATORY CONTROL SAMPLE: 770990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	19.7	17.0	86	80-120	

SAMPLE DUPLICATE: 770992

Parameter	Units	10126031005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	170	155	9	20	

SAMPLE DUPLICATE: 770993

Parameter	Units	10126031009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	96.0	91.0	5	20	

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QUALITY CONTROL DATA

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

QC Batch: WET/18694 | Analysis Method: SM 2540D
QC Batch Method: SM 2540D | Analysis Description: TSS, Low Level
Associated Lab Samples: 10125889001

METHOD BLANK: 770368 | Matrix: Water
Associated Lab Samples: 10125889001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

METHOD BLANK: 771088 | Matrix: Water
Associated Lab Samples: 10125889001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/08/10 15:47	

LABORATORY CONTROL SAMPLE: 770369

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	24.6	20.9	85	80-120	

SAMPLE DUPLICATE: 770402

Parameter	Units	10125856001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	364	362	.6	20	

SAMPLE DUPLICATE: 770552

Parameter	Units	10125952001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	78.7	79.2	.6	20	

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QUALIFIERS

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5430

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/5450

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	J-flag hit detected in method blank.
2M	Re-extracted out of hold per QAPP.
3M	Surrogate recovery outside control limits due to matrix interferences.
R1	RPD value was outside control limits.
Z2	Analyte present in the associated method blank above the detection limit.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05TASK4MCCORMICK&BAXTREV
Pace Project No.: 10125889

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10125889001	**MBSW0410-27**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889002	**MBSA0410-ACB-1a**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889003	**MBSA0410-ACB-1b**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889004	**MBSA0410-ACB-1c**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889005	**MBSA0410-ACB-2a**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889006	**MBSA0410-ACB-2b**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889007	**MBSA0410-ACB-2c**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889008	**MBSA0410-ACB-2aR**	EPA 3020	MPRP/19869	EPA 6020	ICPM/8153
10125889001	**MBSW0410-27**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889002	**MBSA0410-ACB-1a**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889003	**MBSA0410-ACB-1b**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889004	**MBSA0410-ACB-1c**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889005	**MBSA0410-ACB-2a**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889006	**MBSA0410-ACB-2b**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889007	**MBSA0410-ACB-2c**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889009	**MBFF0410-0405**	EPA 3020	MPRP/19868	EPA 6020	ICPM/8152
10125889001	**MBSW0410-27**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889002	**MBSA0410-ACB-1a**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889003	**MBSA0410-ACB-1b**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889004	**MBSA0410-ACB-1c**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889005	**MBSA0410-ACB-2a**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889006	**MBSA0410-ACB-2b**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889007	**MBSA0410-ACB-2c**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889008	**MBSA0410-ACB-2aR**	EPA 3510	OEXT/12646	EPA 8270 by SIM	MSSV/5430
10125889010	**MBSA0410-ACB-2b reextract**	EPA 3510	OEXT/12737	EPA 8270 by SIM	MSSV/5457
10125889011	**MBSA0410-ACB-2c reextract**	EPA 3510	OEXT/12737	EPA 8270 by SIM	MSSV/5457
10125889001	**MBSW0410-27**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889002	**MBSA0410-ACB-1a**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889003	**MBSA0410-ACB-1b**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889004	**MBSA0410-ACB-1c**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889005	**MBSA0410-ACB-2a**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889006	**MBSA0410-ACB-2b**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889007	**MBSA0410-ACB-2c**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889008	**MBSA0410-ACB-2aR**	EPA 3510	OEXT/12655	EPA 8270 by SIM	MSSV/5450
10125889001	**MBSW0410-27**	SM 2540C	WET/18708		
10125889001	**MBSW0410-27**	SM 2540D	WET/18694		

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TOTAL SUSPENDED SOLIDS CASE NARRATIVE

STANDARD METHOD 2540D

On December 2, 2010, Pace Analytical Services, Inc - Minneapolis identified an error in the reported results for Low-Level Total Suspended Solids during a routine QA data review. The laboratories Quality Assurance Department launched a formal investigation on December 3, 2010 and it was determined that results reported for total suspended solids when a reporting limit of <10ppm is required by Standard Method 2540D were incorrectly calculated and reported at a value 5x greater than the actual result. This error does not impact all Total Suspended Solids (TSS) reported by Pace Analytical, just those reported by the low-level test code.

The laboratory has subsequently identified the source of the calculation error, the first instance of the event, the reason for the propagation of the error, and the root cause that led to the error.

Source of Error
The source of the error was determined to be an incorrect formula programmed into the LimsLink upload software. This software is a spreadsheet used to transfer the raw values generated during sample testing to the laboratory information system (LIMS) for final calculation and reporting and is related to a particular LIMS test code which is used to report sample results. This error caused all reported results to be biased high by a factor of five.

Root Cause Analysis
By reviewing laboratory data, Pace determined that the first instance of the error occurred September 25, 2009 and was due to the new low-level TSS test code that was created which was inadvertently not programmed to transfer all necessary preparation information into the spreadsheet from the test code. Per Pace policy, all test codes and spreadsheets created are reviewed and tested to ensure they are working correctly. However in this case, the entire transfer process was not tested, as the new low-level test code was simply a name/description change to report the Standard Methods reference instead of the EPA method reference that had previously been reported. It was assumed that the testing and validation of the original test code would still be applicable to the re-named test code.

Therefore, the root cause has been determined to be the failure to completely test and validate the entire process for this test code from data entry to final reporting.

Error Propagation
When daily data verifications were performed with each batch of samples, it was assumed that the LimsLink spreadsheet was correct by the lab staff so the verification was simply a review of the posted value to match that of the spreadsheet and then verifying the calculation of the posted value with the volumes indicated on the validation report. As indicated in the root cause analysis, the spreadsheet had previously been validated and locked down from edits.

Impact
Because of the manner in which the error was made, all results calculated were at values five times higher than their true value.

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Corrective Actions
The LimsLink spreadsheet that had the error has been corrected and was tested by the laboratory on 12/7/10. All methods will be reviewed to create a master list of test code and LimsLink combinations by the end of 2010. All LimsLink methods will be reviewed to insure no other methods are impacted with a similar error by the end of Q1 2011. Annual monitoring will occur as part of routine QA data review going forward.

In addition, all standard operating procedures governing the testing and validation of software will be reviewed and revised as necessary to reinforce the requirement to test the entire calculation process from the measured value to the final report for all new and edited software. Laboratories will also extend the requirement for periodic PTs to include modified methods in order to have continued confidence in all software that Pace uses to calculate analytical results that are reported to our clients.

Narrative Prepared By: Melanie Ollila, Quality Manager

10125889

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample Preservative

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM (None)	*PCP EPA Method 8270-SIM (None)	Total Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020 (HNO3)	Total Suspended Solids (None)	Total Dissolved Solids (None)	Comments
MBSW0410-27	4-5-10/0910	Water	8	X	X	X	X	X	X	001
MBSA0410-ACB-1a	04-5-10/1040	Water	6	X	X	X	X			002
MBSA0410-ACB-1b	04-5-10/1130	Water	6	X	X	X	X			003
MBSA0410-ACB-1C	04-5-10/1206	Water	6	X	X	X	X			004
MBSA0410-ACB-2a	04-5-10/1343	Water	6	X	X	X	X			005
MBSA0410-ACB-2b	04-5-10/1420	Water	6	X	X	X	X			006
MBSA0410-ACB-2C	04-5-10/1522	Water	6	X	X	X	X			007
MBSA0410-ACB-2aR	04/5/10/1653	Water	5	X	X	X				008
MBFF0410-0405	04/9/10/1700	Water	1				X			009
		Water								
		Water								

Requested Analyses

Comments
* low level PAHs and PCP;
** Field filtered 0.45 um filter

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason R. Miles	Hart Crowser	Pace MN	Pace MN
Signature:	Time & Date: 0745 04/06/2010	Signature:	Time & Date: 4/7/10 1000

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

JM

T=2.0, 0.4 °C
7h.14

Sample Condition Upon Receipt

Pace Analytical

Client Name: Dept. Env. Quality **Project #** 1012 5889

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7957-5297-1573/7957-5297-1562/7957-5297-1551 8473-5843-0989

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ___/ **No** ___

Thermometer Used 80344042 or 179428 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.0/1.0/0.4/1.1 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4/7/10

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☐No	☑N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes	☐No	☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	Samp # 001-009
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	☑No		Initial when completed: ___ Lot # of added preservative:
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DRM **Date:** 4-7-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

Pace Analytical Services, Inc.
1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 27, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10126496001	**MBSW0410-12**	Water	04/13/10 14:00	04/15/10 09:49
10126496002	**MBIA0410-12**	Water	04/13/10 14:30	04/15/10 09:49
10126496003	**MBSA0410-12**	Water	04/13/10 14:48	04/15/10 09:49
10126496004	**MBSW0410-13**	Water	04/13/10 16:15	04/15/10 09:49
10126496005	**MBSW0410-13D**	Water	04/13/10 16:15	04/15/10 09:49
10126496008	**MBIA0410-13**	Water	04/13/10 16:25	04/15/10 09:49
10126496009	**MBIA0410-13D**	Water	04/13/10 16:25	04/15/10 09:49
10126496012	**MBSA0410-13**	Water	04/13/10 17:09	04/15/10 09:49
10126496013	**MBSA0410-13D**	Water	04/13/10 17:09	04/15/10 09:49
10126496016	**MBSW0410-18**	Water	04/13/10 12:48	04/15/10 09:49
10126496017	**MBIA0410-18**	Water	04/13/10 13:15	04/15/10 09:49
10126496018	**MBSA0410-18**	Water	04/13/10 13:18	04/15/10 09:49
10126496019	**MBSW0410-25**	Water	04/13/10 09:05	04/15/10 09:49
10126496020	**MBIA0410-25**	Water	04/13/10 09:30	04/15/10 09:49
10126496021	**MBSA0410-25**	Water	04/13/10 09:40	04/15/10 09:49
10126496022	**MBSW0410-26**	Water	04/13/10 10:28	04/15/10 09:49
10126496023	**MBIA0410-26**	Water	04/13/10 11:05	04/15/10 09:49
10126496024	**MBSA0410-26**	Water	04/13/10 11:13	04/15/10 09:49

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10126496001	**MBSW0410-12**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496002	**MBIA0410-12**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496003	**MBSA0410-12**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496004	**MBSW0410-13**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496005	**MBSW0410-13D**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496008	**MBIA0410-13**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496009	**MBIA0410-13D**	EPA 6020	CJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496012	**MBSA0410-13**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496013	**MBSA0410-13D**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496016	**MBSW0410-18**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496017	**MBIA0410-18**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496018	**MBSA0410-18**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496019	**MBSW0410-25**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	ACH	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496020	**MBIA0410-25**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496021	**MBSA0410-25**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496022	**MBSW0410-26**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496023	**MBIA0410-26**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M
10126496024	**MBSA0410-26**	EPA 6020	CJS	4	PASI-M
		EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	HRG	18	PASI-M
		EPA 8270 by SIM	HRG	2	PASI-M
		SM 2540C	MJS	1	PASI-M
		SM 2540D	MJS	1	PASI-M

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: April 27, 2010

General Information:
18 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: Oregon DEQ
Date: April 27, 2010

General Information:
18 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: April 27, 2010

General Information:
18 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PCP by SIM
Client: Oregon DEQ
Date: April 27, 2010

General Information:
18 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Oregon DEQ
Date: April 27, 2010

General Information:
18 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: April 27, 2010

General Information:
18 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-12 **Lab ID: 10126496001** Collected: 04/13/10 14:00 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:30	7440-38-2	
Chromium	**0.83**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:30	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:30	7440-50-8	
Zinc	**2.4J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:30	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.14J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:50	7440-38-2	
Chromium, Dissolved	**0.40J**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:50	7440-47-3	
Copper, Dissolved	**0.70**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:50	7440-50-8	
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:50	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.33**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:48	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 17:48	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	53-70-3	
Fluoranthene	**0.021J**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	206-44-0	
Fluorene	**0.090**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 17:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 17:48	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 17:48	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:48	85-01-8	
Pyrene	**0.016J**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 17:48	129-00-0	
2-Fluorobiphenyl (S)	79	%	58-125		1	04/16/10 16:51	04/21/10 17:48	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/16/10 16:51	04/21/10 17:48	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 14:28	87-86-5	
2,4,6-Tribromophenol (S)	87	%	30-150		1	04/15/10 16:06	04/26/10 14:28	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**52.0**	mg/L	10.0	5.0	1		04/16/10 15:22		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**37.2**	mg/L	2.0	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-12 **Lab ID: 10126496002** Collected: 04/13/10 14:30 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.30J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:34	7440-38-2	
Chromium	**0.83**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:34	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:34	7440-50-8	
Zinc	**9.9**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:34	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.13J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:54	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:54	7440-47-3	
Copper, Dissolved	**0.91**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:54	7440-50-8	
Zinc, Dissolved	**3.1J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:54	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.56**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 18:07	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 18:07	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	206-44-0	
Fluorene	**0.12**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:07	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:07	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:07	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 18:07	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 18:07	129-00-0	
2-Fluorobiphenyl (S)	85	%	58-125		1	04/16/10 16:51	04/21/10 18:07	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/16/10 16:51	04/21/10 18:07	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 14:42	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/15/10 16:06	04/26/10 14:42	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**71.0**	mg/L	10.0	5.0	1		04/16/10 15:23		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**37.7**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-12 **Lab ID: 10126496003** Collected: 04/13/10 14:48 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**8.2**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:51	7440-38-2	
Chromium	**0.26J**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:51	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:51	7440-50-8	
Zinc	**1.6J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:51	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**8.1**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:58	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:58	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:58	7440-50-8	
Zinc, Dissolved	**3.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:58	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**61.5**	ug/L	0.41	0.061	10	04/16/10 16:51	04/22/10 13:39	83-32-9	
Acenaphthylene	**0.40**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	208-96-8	
Anthracene	**0.16**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	120-12-7	
Benzo(a)anthracene	**0.030J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:26	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:26	50-32-8	
Benzo(b)fluoranthene	**0.022J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/16/10 16:51	04/21/10 18:26	191-24-2	
Benzo(k)fluoranthene	**0.014J**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	207-08-9	
Chrysene	**0.024J**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:26	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	53-70-3	
Fluoranthene	**0.12**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	206-44-0	
Fluorene	**12.9**	ug/L	0.41	0.031	10	04/16/10 16:51	04/22/10 13:39	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:26	193-39-5	
Naphthalene	**0.80**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:26	91-20-3	
Phenanthrene	**0.42**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:26	85-01-8	
Pyrene	**0.13**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:26	129-00-0	
2-Fluorobiphenyl (S)	84	%	58-125		1	04/16/10 16:51	04/21/10 18:26	321-60-8	
Terphenyl-d14 (S)	93	%	57-134		1	04/16/10 16:51	04/21/10 18:26	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 14:56	87-86-5	
2,4,6-Tribromophenol (S)	102	%	30-150		1	04/15/10 16:06	04/26/10 14:56	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**275**	mg/L	10.0	5.0	1		04/16/10 15:23		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**389**	mg/L	5.0	2.5	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-13 **Lab ID: 10126496004** Collected: 04/13/10 16:15 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.31J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 17:55	7440-38-2	
Chromium	**0.69**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 17:55	7440-47-3	
Copper	**0.94**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 17:55	7440-50-8	
Zinc	**2.6J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 17:55	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.15J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:02	7440-38-2	
Chromium, Dissolved	**0.48J**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:02	7440-47-3	
Copper, Dissolved	**0.93**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:02	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:02	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 05:09	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 16:51	04/21/10 05:09	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 05:09	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 05:09	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 16:51	04/21/10 05:09	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 05:09	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 16:51	04/21/10 05:09	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/16/10 16:51	04/21/10 05:09	321-60-8	
Terphenyl-d14 (S)	86	%	57-134		1	04/16/10 16:51	04/21/10 05:09	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 15:09	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/15/10 16:06	04/26/10 15:09	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**79.0**	mg/L	10.0	5.0	1		04/16/10 15:24		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**29.8**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-13D **Lab ID: 10126496005** Collected: 04/13/10 16:15 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.15J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:12	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:12	7440-47-3	
Copper	**0.56**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:12	7440-50-8	
Zinc	**2.7J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:12	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.10J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:19	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:19	7440-47-3	
Copper, Dissolved	**0.69**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:19	7440-50-8	
Zinc, Dissolved	**2.0J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:19	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:45	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/16/10 16:51	04/21/10 18:45	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	53-70-3	
Fluoranthene	**0.015J**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 16:51	04/21/10 18:45	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 16:51	04/21/10 18:45	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 16:51	04/21/10 18:45	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:45	85-01-8	
Pyrene	**0.010J**	ug/L	0.041	0.0061	1	04/16/10 16:51	04/21/10 18:45	129-00-0	
2-Fluorobiphenyl (S)	69	%	58-125		1	04/16/10 16:51	04/21/10 18:45	321-60-8	
Terphenyl-d14 (S)	87	%	57-134		1	04/16/10 16:51	04/21/10 18:45	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/15/10 16:06	04/26/10 15:51	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 15:51	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**81.0**	mg/L	10.0	5.0	1		04/16/10 15:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**29.1**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-13 **Lab ID: 10126496008** Collected: 04/13/10 16:25 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.17J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:16	7440-38-2	
Chromium	**0.32J**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:16	7440-47-3	
Copper	**0.91**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:16	7440-50-8	
Zinc	**2.0J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:16	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:36	7440-38-2	
Chromium, Dissolved	**0.47J**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:36	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:36	7440-50-8	
Zinc, Dissolved	**2.7J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:36	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0066**	ug/L	0.044	0.0066	1	04/16/10 14:18	04/27/10 12:31	83-32-9	
Acenaphthylene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	208-96-8	
Anthracene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	50-32-8	
Benzo(b)fluoranthene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.044	0.0022	1	04/16/10 14:18	04/27/10 12:31	191-24-2	
Benzo(k)fluoranthene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	207-08-9	
Chrysene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	218-01-9	
Dibenz(a,h)anthracene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	53-70-3	
Fluoranthene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	206-44-0	
Fluorene	**<0.0033**	ug/L	0.044	0.0033	1	04/16/10 14:18	04/27/10 12:31	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0044**	ug/L	0.044	0.0044	1	04/16/10 14:18	04/27/10 12:31	193-39-5	
Naphthalene	**<0.0055**	ug/L	0.044	0.0055	1	04/16/10 14:18	04/27/10 12:31	91-20-3	
Phenanthrene	**<0.0066**	ug/L	0.044	0.0066	1	04/16/10 14:18	04/27/10 12:31	85-01-8	
Pyrene	**<0.0066**	ug/L	0.044	0.0066	1	04/16/10 14:18	04/27/10 12:31	129-00-0	
2-Fluorobiphenyl (S)	71	%	58-125		1	04/16/10 14:18	04/27/10 12:31	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/16/10 14:18	04/27/10 12:31	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/16/10 16:49	04/26/10 17:27	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/16/10 16:49	04/26/10 17:27	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**76.0**	mg/L	10.0	5.0	1		04/16/10 15:25		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**25.7**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-13D **Lab ID: 10126496009** Collected: 04/13/10 16:25 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:29	7440-38-2	
Chromium	**0.55**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:29	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:29	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:29	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.084J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:40	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:40	7440-47-3	
Copper, Dissolved	**0.59**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:40	7440-50-8	
Zinc, Dissolved	**1.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:40	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:04	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 16:51	04/21/10 19:04	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 16:51	04/21/10 19:04	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:04	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 16:51	04/21/10 19:04	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:04	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:04	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 16:51	04/21/10 19:04	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 16:51	04/21/10 19:04	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/15/10 16:06	04/26/10 16:04	87-86-5	
2,4,6-Tribromophenol (S)	93	%	30-150		1	04/15/10 16:06	04/26/10 16:04	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**63.0**	mg/L	10.0	5.0	1		04/16/10 15:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**24.4**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-13 **Lab ID: 10126496012** Collected: 04/13/10 17:09 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.0**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:45	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:45	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:45	7440-50-8	
Zinc	**2.9J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:45	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.1**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:44	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:44	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:44	7440-50-8	
Zinc, Dissolved	**2.9J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:44	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 14:18	04/27/10 13:28	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	120-12-7	
Benzo(a)anthracene	**<0.0030**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	205-99-2	
Benzo(g,h,i)perylene	**<0.0020**	ug/L	0.041	0.0020	1	04/16/10 14:18	04/27/10 13:28	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	207-08-9	
Chrysene	**<0.0030**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	206-44-0	
Fluorene	**0.011J**	ug/L	0.041	0.0030	1	04/16/10 14:18	04/27/10 13:28	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 13:28	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 13:28	91-20-3	
Phenanthrene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 14:18	04/27/10 13:28	85-01-8	
Pyrene	**<0.0061**	ug/L	0.041	0.0061	1	04/16/10 14:18	04/27/10 13:28	129-00-0	
2-Fluorobiphenyl (S)	77	%	58-125		1	04/16/10 14:18	04/27/10 13:28	321-60-8	
Terphenyl-d14 (S)	81	%	57-134		1	04/16/10 14:18	04/27/10 13:28	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/16/10 16:49	04/26/10 18:08	87-86-5	
2,4,6-Tribromophenol (S)	112	%	30-150		1	04/16/10 16:49	04/26/10 18:08	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**248**	mg/L	10.0	5.0	1		04/16/10 15:26		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**260**	mg/L	5.0	2.5	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-13D **Lab ID: 10126496013** Collected: 04/13/10 17:09 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**3.0**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:50	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:50	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:50	7440-50-8	
Zinc	**2.9J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**3.1**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 02:57	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 02:57	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 02:57	7440-50-8	
Zinc, Dissolved	**3.2J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 02:57	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.039J**	ug/L	0.043	0.0065	1	04/16/10 16:51	04/21/10 19:23	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	120-12-7	
Benzo(a)anthracene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	56-55-3	
Benzo(a)pyrene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/16/10 16:51	04/21/10 19:23	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	207-08-9	
Chrysene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	206-44-0	
Fluorene	**<0.0033**	ug/L	0.043	0.0033	1	04/16/10 16:51	04/21/10 19:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 16:51	04/21/10 19:23	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 16:51	04/21/10 19:23	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 16:51	04/21/10 19:23	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 16:51	04/21/10 19:23	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/16/10 16:51	04/21/10 19:23	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 16:51	04/21/10 19:23	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.55	0.15	1	04/15/10 16:06	04/26/10 16:18	87-86-5	
2,4,6-Tribromophenol (S)	98	%	30-150		1	04/15/10 16:06	04/26/10 16:18	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**254**	mg/L	10.0	5.0	1		04/16/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**236**	mg/L	5.0	2.5	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-18 **Lab ID: 10126496016** Collected: 04/13/10 12:48 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:54	7440-38-2	
Chromium	**0.74**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:54	7440-47-3	
Copper	**1.0**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:54	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:54	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.13J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:01	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:01	7440-47-3	
Copper, Dissolved	**1.7**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:01	7440-50-8	
Zinc, Dissolved	**1.6J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:01	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:42	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	208-96-8	
Anthracene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 16:51	04/21/10 19:42	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	207-08-9	
Chrysene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	206-44-0	
Fluorene	**<0.0031**	ug/L	0.042	0.0031	1	04/16/10 16:51	04/21/10 19:42	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 16:51	04/21/10 19:42	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.042	0.0052	1	04/16/10 16:51	04/21/10 19:42	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:42	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 16:51	04/21/10 19:42	129-00-0	
2-Fluorobiphenyl (S)	72	%	58-125		1	04/16/10 16:51	04/21/10 19:42	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 16:51	04/21/10 19:42	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.52	0.15	1	04/15/10 16:06	04/26/10 16:32	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/15/10 16:06	04/26/10 16:32	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**75.0**	mg/L	10.0	5.0	1		04/16/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**34.9**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-18 **Lab ID: 10126496017** Collected: 04/13/10 13:15 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.26J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 18:58	7440-38-2	
Chromium	**0.82**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 18:58	7440-47-3	
Copper	**4.5**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 18:58	7440-50-8	
Zinc	**5.6**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 18:58	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.12J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:05	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:05	7440-47-3	
Copper, Dissolved	**0.75**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:05	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:05	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:25	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 14:25	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:25	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:25	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:25	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:25	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:25	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	04/16/10 14:18	04/27/10 14:25	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/16/10 14:18	04/27/10 14:25	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/15/10 16:06	04/26/10 16:46	87-86-5	
2,4,6-Tribromophenol (S)	89	%	30-150		1	04/15/10 16:06	04/26/10 16:46	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**80.0**	mg/L	10.0	5.0	1		04/16/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**75.4**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-18 **Lab ID: 10126496018** Collected: 04/13/10 13:18 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.43J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:02	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:02	7440-47-3	
Copper	**0.33J**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:02	7440-50-8	
Zinc	**2.1J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:02	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.27J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:09	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:09	7440-47-3	
Copper, Dissolved	**0.32J**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:09	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:09	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:44	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:44	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:44	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 14:44	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 14:44	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 14:44	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 14:44	193-39-5	
Naphthalene	**13.9**	ug/L	0.21	0.026	5	04/16/10 14:18	04/27/10 16:56	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:44	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 14:44	129-00-0	
2-Fluorobiphenyl (S)	76	%	58-125		1	04/16/10 14:18	04/27/10 14:44	321-60-8	
Terphenyl-d14 (S)	82	%	57-134		1	04/16/10 14:18	04/27/10 14:44	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/16/10 16:49	04/26/10 18:50	87-86-5	
2,4,6-Tribromophenol (S)	86	%	30-150		1	04/16/10 16:49	04/26/10 18:50	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**72.0**	mg/L	10.0	5.0	1		04/16/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.6**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-25 **Lab ID: 10126496019** Collected: 04/13/10 09:05 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.25J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:06	7440-38-2	
Chromium	**0.67**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:06	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:06	7440-50-8	
Zinc	**2.5J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:06	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.070J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 03:14	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 03:14	7440-47-3	
Copper, Dissolved	**0.86**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 03:14	7440-50-8	
Zinc, Dissolved	**2.0J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 03:14	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**0.012J**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:03	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 15:03	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	53-70-3	
Fluoranthene	**0.013J**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	206-44-0	
Fluorene	**0.0061J**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:03	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:03	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:03	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:03	85-01-8	
Pyrene	**0.014J**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:03	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 14:18	04/27/10 15:03	321-60-8	
Terphenyl-d14 (S)	83	%	57-134		1	04/16/10 14:18	04/27/10 15:03	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/16/10 16:49	04/26/10 19:04	87-86-5	
2,4,6-Tribromophenol (S)	79	%	30-150		1	04/16/10 16:49	04/26/10 19:04	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**70.0**	mg/L	10.0	5.0	1		04/16/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**29.3**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-25 **Lab ID: 10126496020** Collected: 04/13/10 09:30 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:10	7440-38-2	
Chromium	**1.2**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:10	7440-47-3	
Copper	**2.4**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:10	7440-50-8	
Zinc	**6.6**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:10	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.098J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:08	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:08	7440-47-3	
Copper, Dissolved	**1.5**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:08	7440-50-8	
Zinc, Dissolved	**2.4J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:08	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:21	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	208-96-8	
Anthracene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	50-32-8	
Benzo(b)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 15:21	191-24-2	
Benzo(k)fluoranthene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:21	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:21	193-39-5	
Naphthalene	**<0.0051**	ug/L	0.041	0.0051	1	04/16/10 14:18	04/27/10 15:21	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:21	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:21	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 14:18	04/27/10 15:21	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/16/10 14:18	04/27/10 15:21	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/16/10 16:49	04/26/10 19:17	87-86-5	
2,4,6-Tribromophenol (S)	90	%	30-150		1	04/16/10 16:49	04/26/10 19:17	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**50.0**	mg/L	10.0	5.0	1		04/20/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**119**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-25 **Lab ID: 10126496021** Collected: 04/13/10 09:40 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.39J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:15	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:15	7440-47-3	
Copper	**1.7**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:15	7440-50-8	
Zinc	**2.7J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:15	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.34J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:12	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:12	7440-47-3	
Copper, Dissolved	**1.5**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:12	7440-50-8	
Zinc, Dissolved	**3.6J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:12	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 15:40	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 14:18	04/27/10 15:40	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 15:40	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 15:40	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 15:40	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 15:40	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 15:40	129-00-0	
2-Fluorobiphenyl (S)	74	%	58-125		1	04/16/10 14:18	04/27/10 15:40	321-60-8	
Terphenyl-d14 (S)	85	%	57-134		1	04/16/10 14:18	04/27/10 15:40	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.53	0.15	1	04/16/10 16:49	04/26/10 19:31	87-86-5	
2,4,6-Tribromophenol (S)	88	%	30-150		1	04/16/10 16:49	04/26/10 19:31	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**65.0**	mg/L	10.0	5.0	1		04/20/10 15:27		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**35.2**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSW0410-26 **Lab ID: 10126496022** Collected: 04/13/10 10:28 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.23J**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:19	7440-38-2	
Chromium	**0.64**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:19	7440-47-3	
Copper	**1.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:19	7440-50-8	
Zinc	**3.6J**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:19	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.088J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:16	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:16	7440-47-3	
Copper, Dissolved	**0.61**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:16	7440-50-8	
Zinc, Dissolved	**1.3J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:16	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:59	83-32-9	
Acenaphthylene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	208-96-8	
Anthracene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	120-12-7	
Benzo(a)anthracene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	56-55-3	
Benzo(a)pyrene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	50-32-8	
Benzo(b)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.041	0.0021	1	04/16/10 14:18	04/27/10 15:59	191-24-2	
Benzo(k)fluoranthene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	207-08-9	
Chrysene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	218-01-9	
Dibenz(a,h)anthracene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	53-70-3	
Fluoranthene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	206-44-0	
Fluorene	**<0.0031**	ug/L	0.041	0.0031	1	04/16/10 14:18	04/27/10 15:59	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0041**	ug/L	0.041	0.0041	1	04/16/10 14:18	04/27/10 15:59	193-39-5	
Naphthalene	**<0.0052**	ug/L	0.041	0.0052	1	04/16/10 14:18	04/27/10 15:59	91-20-3	
Phenanthrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:59	85-01-8	
Pyrene	**<0.0062**	ug/L	0.041	0.0062	1	04/16/10 14:18	04/27/10 15:59	129-00-0	
2-Fluorobiphenyl (S)	83	%	58-125		1	04/16/10 14:18	04/27/10 15:59	321-60-8	
Terphenyl-d14 (S)	88	%	57-134		1	04/16/10 14:18	04/27/10 15:59	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.51	0.14	1	04/16/10 16:49	04/26/10 19:45	87-86-5	
2,4,6-Tribromophenol (S)	83	%	30-150		1	04/16/10 16:49	04/26/10 19:45	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**61.0**	mg/L	10.0	5.0	1		04/20/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**46.4**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBIA0410-26 **Lab ID: 10126496023** Collected: 04/13/10 11:05 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**0.82**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:23	7440-38-2	
Chromium	**3.6**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:23	7440-47-3	
Copper	**6.2**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:23	7440-50-8	
Zinc	**15.3**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:23	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**0.090J**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:20	7440-38-2	
Chromium, Dissolved	**0.86**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:20	7440-47-3	
Copper, Dissolved	**0.81**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:20	7440-50-8	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:20	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 16:18	83-32-9	
Acenaphthylene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	208-96-8	
Anthracene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	205-99-2	
Benzo(g,h,i)perylene	**<0.0021**	ug/L	0.042	0.0021	1	04/16/10 14:18	04/27/10 16:18	191-24-2	
Benzo(k)fluoranthene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	207-08-9	
Chrysene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	218-01-9	
Dibenz(a,h)anthracene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	53-70-3	
Fluoranthene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	206-44-0	
Fluorene	**<0.0032**	ug/L	0.042	0.0032	1	04/16/10 14:18	04/27/10 16:18	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.042	0.0042	1	04/16/10 14:18	04/27/10 16:18	193-39-5	
Naphthalene	**<0.0053**	ug/L	0.042	0.0053	1	04/16/10 14:18	04/27/10 16:18	91-20-3	
Phenanthrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 16:18	85-01-8	
Pyrene	**<0.0063**	ug/L	0.042	0.0063	1	04/16/10 14:18	04/27/10 16:18	129-00-0	
2-Fluorobiphenyl (S)	73	%	58-125		1	04/16/10 14:18	04/27/10 16:18	321-60-8	
Terphenyl-d14 (S)	80	%	57-134		1	04/16/10 14:18	04/27/10 16:18	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.14**	ug/L	0.52	0.14	1	04/16/10 16:49	04/26/10 19:59	87-86-5	
2,4,6-Tribromophenol (S)	75	%	30-150		1	04/16/10 16:49	04/26/10 19:59	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**52.0**	mg/L	10.0	5.0	1		04/20/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**5.3**	mg/L	2.1	1.0	1		04/20/10 13:14		

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Sample: MBSA0410-26 **Lab ID: 10126496024** Collected: 04/13/10 11:13 Received: 04/15/10 09:49 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**5.7**	ug/L	0.50	0.062	1	04/16/10 11:16	04/16/10 19:48	7440-38-2	
Chromium	**<0.24**	ug/L	0.50	0.24	1	04/16/10 11:16	04/16/10 19:48	7440-47-3	
Copper	**<0.20**	ug/L	0.50	0.20	1	04/16/10 11:16	04/16/10 19:48	7440-50-8	
Zinc	**<1.3**	ug/L	5.0	1.3	1	04/16/10 11:16	04/16/10 19:48	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic, Dissolved	**5.9**	ug/L	0.50	0.062	1	04/16/10 10:46	04/21/10 01:25	7440-38-2	
Chromium, Dissolved	**<0.24**	ug/L	0.50	0.24	1	04/16/10 10:46	04/21/10 01:25	7440-47-3	
Copper, Dissolved	**<0.20**	ug/L	0.50	0.20	1	04/16/10 10:46	04/21/10 01:25	7440-50-8	
Zinc, Dissolved	**1.5J**	ug/L	5.0	1.3	1	04/16/10 10:46	04/21/10 01:25	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 14:18	04/27/10 16:37	83-32-9	
Acenaphthylene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	208-96-8	
Anthracene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	120-12-7	
Benzo(a)anthracene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	56-55-3	
Benzo(a)pyrene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	50-32-8	
Benzo(b)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	205-99-2	
Benzo(g,h,i)perylene	**<0.0022**	ug/L	0.043	0.0022	1	04/16/10 14:18	04/27/10 16:37	191-24-2	
Benzo(k)fluoranthene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	207-08-9	
Chrysene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	218-01-9	
Dibenz(a,h)anthracene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	53-70-3	
Fluoranthene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	206-44-0	
Fluorene	**<0.0032**	ug/L	0.043	0.0032	1	04/16/10 14:18	04/27/10 16:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0043**	ug/L	0.043	0.0043	1	04/16/10 14:18	04/27/10 16:37	193-39-5	
Naphthalene	**<0.0054**	ug/L	0.043	0.0054	1	04/16/10 14:18	04/27/10 16:37	91-20-3	
Phenanthrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 14:18	04/27/10 16:37	85-01-8	
Pyrene	**<0.0065**	ug/L	0.043	0.0065	1	04/16/10 14:18	04/27/10 16:37	129-00-0	
2-Fluorobiphenyl (S)	70	%	58-125		1	04/16/10 14:18	04/27/10 16:37	321-60-8	
Terphenyl-d14 (S)	84	%	57-134		1	04/16/10 14:18	04/27/10 16:37	1718-51-0	
8270 MSSV PCP by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Pentachlorophenol	**<0.15**	ug/L	0.54	0.15	1	04/16/10 16:49	04/26/10 20:13	87-86-5	
2,4,6-Tribromophenol (S)	81	%	30-150		1	04/16/10 16:49	04/26/10 20:13	118-79-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**86.0**	mg/L	10.0	5.0	1		04/20/10 15:28		
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**334**	mg/L	3.3	1.7	1		04/20/10 13:14		

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: MPRP/19990 Analysis Method: EPA 6020
QC Batch Method: EPA 3020 Analysis Description: 6020 MET
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774456 Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	04/16/10 17:22	
Chromium	ug/L	<0.24	0.50	04/16/10 17:22	
Copper	ug/L	<0.20	0.50	04/16/10 17:22	
Zinc	ug/L	<1.3	5.0	04/16/10 17:22	

LABORATORY CONTROL SAMPLE: 774457

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.8	100	85-115	
Chromium	ug/L	80	79.2	99	85-115	
Copper	ug/L	80	83.8	105	85-115	
Zinc	ug/L	80	82.9	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774458 774459

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.31J	80	80	81.0	80.6	101	100	75-125	0	20	
Chromium	ug/L	0.69	80	80	81.4	82.3	101	102	75-125	1	20	
Copper	ug/L	0.94	80	80	85.7	86.3	106	107	75-125	1	20	
Zinc	ug/L	2.6J	80	80	85.4	85.6	103	104	75-125	0	20	

MATRIX SPIKE SAMPLE: 774460

Parameter	Units	10126496008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.17J	80	80.9	101	75-125	
Chromium	ug/L	0.32J	80	81.6	102	75-125	
Copper	ug/L	0.91	80	86.1	106	75-125	
Zinc	ug/L	2.0J	80	85.5	104	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: MPRP/19988 — Analysis Method: EPA 6020
QC Batch Method: EPA 3020 — Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774447 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	0.50	04/21/10 01:41	
Chromium, Dissolved	ug/L	<0.24	0.50	04/21/10 01:41	
Copper, Dissolved	ug/L	<0.20	0.50	04/21/10 01:41	
Zinc, Dissolved	ug/L	<1.3	5.0	04/21/10 01:41	

LABORATORY CONTROL SAMPLE: 774448

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.1	103	85-115	
Chromium, Dissolved	ug/L	80	81.2	101	85-115	
Copper, Dissolved	ug/L	80	83.8	105	85-115	
Zinc, Dissolved	ug/L	80	82.4	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774449 774450

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.15J	80	80	82.0	81.2	102	101	75-125	1	20	
Chromium, Dissolved	ug/L	0.48J	80	80	82.1	81.8	102	102	75-125	0	20	
Copper, Dissolved	ug/L	0.93	80	80	85.2	84.4	105	104	75-125	1	20	
Zinc, Dissolved	ug/L	2.4J	80	80	82.9	81.8	101	99	75-125	1	20	

MATRIX SPIKE SAMPLE: 774451

Parameter	Units	10126496012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	3.1	80	84.6	102	75-125	
Chromium, Dissolved	ug/L	<0.24	80	82.0	103	75-125	
Copper, Dissolved	ug/L	<0.20	80	84.0	105	75-125	
Zinc, Dissolved	ug/L	2.9J	80	84.1	102	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12716 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016

METHOD BLANK: 774461 | Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/20/10 21:35	
Acenaphthylene	ug/L	<0.0040	0.040	04/20/10 21:35	
Anthracene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/20/10 21:35	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/20/10 21:35	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/20/10 21:35	
Chrysene	ug/L	<0.0030	0.040	04/20/10 21:35	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluoranthene	ug/L	<0.0040	0.040	04/20/10 21:35	
Fluorene	ug/L	<0.0030	0.040	04/20/10 21:35	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/20/10 21:35	
Naphthalene	ug/L	<0.0050	0.040	04/20/10 21:35	
Phenanthrene	ug/L	<0.0060	0.040	04/20/10 21:35	
Pyrene	ug/L	<0.0060	0.040	04/20/10 21:35	
2-Fluorobiphenyl (S)	%	88	58-125	04/20/10 21:35	
Terphenyl-d14 (S)	%	90	57-134	04/20/10 21:35	

LABORATORY CONTROL SAMPLE: 774462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.90	90	56-125	
Acenaphthylene	ug/L	1	0.93	93	51-125	
Anthracene	ug/L	1	1.1	108	58-125	
Benzo(a)anthracene	ug/L	1	0.89	89	61-125	
Benzo(a)pyrene	ug/L	1	0.92	92	56-125	
Benzo(b)fluoranthene	ug/L	1	0.86	86	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.87	87	42-125	
Benzo(k)fluoranthene	ug/L	1	1.0	103	60-125	
Chrysene	ug/L	1	0.96	96	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.87	87	46-125	
Fluoranthene	ug/L	1	0.93	93	54-125	
Fluorene	ug/L	1	0.94	94	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.87	87	46-125	
Naphthalene	ug/L	1	0.81	81	47-125	
Phenanthrene	ug/L	1	0.87	87	55-125	
Pyrene	ug/L	1	1.0	101	57-125	
2-Fluorobiphenyl (S)	%			86	58-125	
Terphenyl-d14 (S)	%			92	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774463 774464

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0062	1	1	0.92	0.88	90	85	56-125	4	30	
Acenaphthylene	ug/L	<0.0041	1	1	0.90	0.85	88	82	51-125	5	30	
Anthracene	ug/L	<0.0052	1	1	1.1	1.1	108	104	58-125	3	30	
Benzo(a)anthracene	ug/L	<0.0031	1	1	0.80	0.78	78	75	61-125	3	30	
Benzo(a)pyrene	ug/L	<0.0031	1	1	0.91	0.91	89	87	56-125	0	30	
Benzo(b)fluoranthene	ug/L	<0.0052	1	1	0.93	0.92	90	88	54-125	1	30	
Benzo(g,h,i)perylene	ug/L	<0.0021	1	1	0.77	0.81	75	77	41-125	5	30	
Benzo(k)fluoranthene	ug/L	<0.0052	1	1	0.94	0.95	91	91	60-125	1	30	
Chrysene	ug/L	<0.0031	1	1	1.0	1.1	99	101	64-125	3	30	
Dibenz(a,h)anthracene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	0	30	
Fluoranthene	ug/L	<0.0041	1	1	0.92	0.91	90	88	51-125	1	30	
Fluorene	ug/L	<0.0031	1	1	0.90	0.90	88	86	55-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0041	1	1	0.79	0.80	77	77	46-125	1	30	
Naphthalene	ug/L	<0.0052	1	1	0.84	0.80	82	77	34-125	5	30	
Phenanthrene	ug/L	<0.0062	1	1	0.89	0.88	87	85	55-125	1	30	
Pyrene	ug/L	<0.0062	1	1	1.0	1.0	100	98	50-127	0	30	
2-Fluorobiphenyl (S)	%						84	76	58-125			
Terphenyl-d14 (S)	%						87	85	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12722 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10126496008, 10126496012, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774820 | Matrix: Water
Associated Lab Samples: 10126496008, 10126496012, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0060	0.040	04/27/10 11:53	
Acenaphthylene	ug/L	<0.0040	0.040	04/27/10 11:53	
Anthracene	ug/L	<0.0050	0.040	04/27/10 11:53	
Benzo(a)anthracene	ug/L	<0.0030	0.040	04/27/10 11:53	
Benzo(a)pyrene	ug/L	<0.0030	0.040	04/27/10 11:53	
Benzo(b)fluoranthene	ug/L	<0.0050	0.040	04/27/10 11:53	
Benzo(g,h,i)perylene	ug/L	<0.0020	0.040	04/27/10 11:53	
Benzo(k)fluoranthene	ug/L	<0.0050	0.040	04/27/10 11:53	
Chrysene	ug/L	<0.0030	0.040	04/27/10 11:53	
Dibenz(a,h)anthracene	ug/L	<0.0040	0.040	04/27/10 11:53	
Fluoranthene	ug/L	<0.0040	0.040	04/27/10 11:53	
Fluorene	ug/L	<0.0030	0.040	04/27/10 11:53	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0040	0.040	04/27/10 11:53	
Naphthalene	ug/L	<0.0050	0.040	04/27/10 11:53	
Phenanthrene	ug/L	<0.0060	0.040	04/27/10 11:53	
Pyrene	ug/L	<0.0060	0.040	04/27/10 11:53	
2-Fluorobiphenyl (S)	%	77	58-125	04/27/10 11:53	
Terphenyl-d14 (S)	%	88	57-134	04/27/10 11:53	

LABORATORY CONTROL SAMPLE: 774821

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.84	84	56-125	
Acenaphthylene	ug/L	1	0.82	82	51-125	
Anthracene	ug/L	1	0.92	92	58-125	
Benzo(a)anthracene	ug/L	1	0.80	80	61-125	
Benzo(a)pyrene	ug/L	1	0.90	90	56-125	
Benzo(b)fluoranthene	ug/L	1	0.85	85	54-125	
Benzo(g,h,i)perylene	ug/L	1	0.85	85	42-125	
Benzo(k)fluoranthene	ug/L	1	0.91	91	60-125	
Chrysene	ug/L	1	0.89	89	64-125	
Dibenz(a,h)anthracene	ug/L	1	0.80	80	46-125	
Fluoranthene	ug/L	1	0.95	95	54-125	
Fluorene	ug/L	1	0.88	88	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.83	83	46-125	
Naphthalene	ug/L	1	0.77	77	47-125	
Phenanthrene	ug/L	1	0.87	87	55-125	
Pyrene	ug/L	1	0.86	86	57-125	
2-Fluorobiphenyl (S)	%			75	58-125	
Terphenyl-d14 (S)	%			82	57-134	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774822 774823

Parameter	Units	10126496008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0066	1	1	0.83	0.90	81	86	56-125	7	30	
Acenaphthylene	ug/L	<0.0044	1	1	0.82	0.88	80	85	51-125	8	30	
Anthracene	ug/L	<0.0055	1	1	0.95	1.0	93	96	58-125	5	30	
Benzo(a)anthracene	ug/L	<0.0033	1	1	0.86	0.87	83	84	61-125	2	30	
Benzo(a)pyrene	ug/L	<0.0033	1	1	0.91	0.94	89	91	56-125	3	30	
Benzo(b)fluoranthene	ug/L	<0.0055	1	1	0.90	0.93	87	89	54-125	4	30	
Benzo(g,h,i)perylene	ug/L	<0.0022	1	1	0.90	0.92	88	88	41-125	3	30	
Benzo(k)fluoranthene	ug/L	<0.0055	1	1	0.91	0.93	89	89	60-125	2	30	
Chrysene	ug/L	<0.0033	1	1	0.91	0.94	89	90	64-125	4	30	
Dibenz(a,h)anthracene	ug/L	<0.0044	1	1	0.85	0.90	83	86	46-125	5	30	
Fluoranthene	ug/L	<0.0044	1	1	0.98	1.0	96	97	51-125	2	30	
Fluorene	ug/L	<0.0033	1	1	0.91	0.94	88	90	55-125	3	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0044	1	1	0.86	0.90	83	86	46-125	5	30	
Naphthalene	ug/L	<0.0055	1	1	0.74	0.78	72	75	34-125	5	30	
Phenanthrene	ug/L	<0.0066	1	1	0.90	0.93	88	89	55-125	3	30	
Pyrene	ug/L	<0.0066	1	1	0.90	0.91	87	87	50-127	1	30	
2-Fluorobiphenyl (S)	%						70	75	58-125			
Terphenyl-d14 (S)	%						82	84	57-134			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774824 774825

Parameter	Units	10126496012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	<0.0061	1.1	1	0.99	0.98	93	96	56-125	1	30	
Acenaphthylene	ug/L	<0.0041	1.1	1	0.99	0.97	93	95	51-125	2	30	
Anthracene	ug/L	<0.0051	1.1	1	1.0	0.98	96	96	58-125	4	30	
Benzo(a)anthracene	ug/L	<0.0030	1.1	1	0.92	0.90	86	89	61-125	1	30	
Benzo(a)pyrene	ug/L	<0.0030	1.1	1	0.85	0.82	80	81	56-125	4	30	
Benzo(b)fluoranthene	ug/L	<0.0051	1.1	1	0.91	0.90	86	89	54-125	1	30	
Benzo(g,h,i)perylene	ug/L	<0.0020	1.1	1	0.82	0.80	77	79	41-125	2	30	
Benzo(k)fluoranthene	ug/L	<0.0051	1.1	1	0.92	0.88	86	86	60-125	5	30	
Chrysene	ug/L	<0.0030	1.1	1	0.94	0.89	88	88	64-125	5	30	
Dibenz(a,h)anthracene	ug/L	<0.0041	1.1	1	0.76	0.73	72	72	46-125	5	30	
Fluoranthene	ug/L	<0.0041	1.1	1	1.0	1.0	98	99	51-125	3	30	
Fluorene	ug/L	0.011J	1.1	1	1.0	0.96	95	94	55-125	5	30	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0041	1.1	1	0.78	0.73	73	72	46-125	6	30	
Naphthalene	ug/L	<0.0051	1.1	1	0.94	0.97	89	95	34-125	3	30	
Phenanthrene	ug/L	<0.0061	1.1	1	1.0	0.98	96	97	55-125	4	30	
Pyrene	ug/L	<0.0061	1.1	1	0.95	0.92	89	91	50-127	3	30	
2-Fluorobiphenyl (S)	%						78	79	58-125			
Terphenyl-d14 (S)	%						83	84	57-134			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12714 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016, 10126496017

METHOD BLANK: 774206 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496009, 10126496013, 10126496016, 10126496017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/26/10 11:43	
2,4,6-Tribromophenol (S)	%	85	30-150	04/26/10 11:43	

LABORATORY CONTROL SAMPLE: 774207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.66	66	41-137	
2,4,6-Tribromophenol (S)	%			87	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774208 774209

Parameter	Units	10126496004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1.1	1	0.58	0.50J	55	49	30-150		30	
2,4,6-Tribromophenol (S)	%						87	85	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: OEXT/12721 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PCP MSSV
Associated Lab Samples: 10126496008, 10126496012, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 774724 — Matrix: Water
Associated Lab Samples: 10126496008, 10126496012, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.14	0.50	04/26/10 17:00	
2,4,6-Tribromophenol (S)	%	91	30-150	04/26/10 17:00	

LABORATORY CONTROL SAMPLE: 774725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/L	1	0.89	89	41-137	
2,4,6-Tribromophenol (S)	%			94	30-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774726 774727

Parameter	Units	10126496008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1	1	0.52	0.52	50	52	30-150		30	
2,4,6-Tribromophenol (S)	%						82	90	30-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 774728 774729

Parameter	Units	10126496012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	<0.15	1.1	1.1	1.2	1.0	110	96	30-150	13	30	
2,4,6-Tribromophenol (S)	%						107	100	30-150			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: WET/18790 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019

METHOD BLANK: 774703 Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/16/10 15:19	

LABORATORY CONTROL SAMPLE: 774704

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	20.9	24.0	115	80-120	

SAMPLE DUPLICATE: 774705

Parameter	Units	10126496004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	79.0	74.0	7	20	

SAMPLE DUPLICATE: 774706

Parameter	Units	10126496012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	248	251	1	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: WET/18813 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 775961 Matrix: Water
Associated Lab Samples: 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	04/20/10 15:24	

LABORATORY CONTROL SAMPLE: 775962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	21.6	21.0	97	80-120	

SAMPLE DUPLICATE: 775963

Parameter	Units	10126534001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	226	236	4	20	

SAMPLE DUPLICATE: 775964

Parameter	Units	10126534009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	188	198	5	20	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

QC Batch: WET/18815 — Analysis Method: SM 2540D
QC Batch Method: SM 2540D — Analysis Description: TSS, Low Level
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

METHOD BLANK: 775970 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/20/10 13:14	

METHOD BLANK: 775973 — Matrix: Water
Associated Lab Samples: 10126496001, 10126496002, 10126496003, 10126496004, 10126496005, 10126496008, 10126496009, 10126496012, 10126496013, 10126496016, 10126496017, 10126496018, 10126496019, 10126496020, 10126496021, 10126496022, 10126496023, 10126496024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	04/20/10 13:14	

LABORATORY CONTROL SAMPLE & LCSD: 775971 775972

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	26.2	23.6	24.1	90	92	80-120	2	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126496001	**MBSW0410-12**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496002	**MBIA0410-12**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496003	**MBSA0410-12**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496004	**MBSW0410-13**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496005	**MBSW0410-13D**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496008	**MBIA0410-13**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496009	**MBIA0410-13D**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496012	**MBSA0410-13**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496013	**MBSA0410-13D**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496016	**MBSW0410-18**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496017	**MBIA0410-18**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496018	**MBSA0410-18**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496019	**MBSW0410-25**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496020	**MBIA0410-25**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496021	**MBSA0410-25**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496022	**MBSW0410-26**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496023	**MBIA0410-26**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496024	**MBSA0410-26**	EPA 3020	MPRP/19990	EPA 6020	ICPM/8199
10126496001	**MBSW0410-12**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496002	**MBIA0410-12**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496003	**MBSA0410-12**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496004	**MBSW0410-13**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496005	**MBSW0410-13D**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496008	**MBIA0410-13**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496009	**MBIA0410-13D**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496012	**MBSA0410-13**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496013	**MBSA0410-13D**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496016	**MBSW0410-18**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496017	**MBIA0410-18**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496018	**MBSA0410-18**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496019	**MBSW0410-25**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496020	**MBIA0410-25**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496021	**MBSA0410-25**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496022	**MBSW0410-26**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496023	**MBIA0410-26**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496024	**MBSA0410-26**	EPA 3020	MPRP/19988	EPA 6020	ICPM/8206
10126496001	**MBSW0410-12**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496002	**MBIA0410-12**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496003	**MBSA0410-12**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496004	**MBSW0410-13**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496005	**MBSW0410-13D**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496008	**MBIA0410-13**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496009	**MBIA0410-13D**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496012	**MBSA0410-13**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496013	**MBSA0410-13D**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452
10126496016	**MBSW0410-18**	EPA 3510	OEXT/12716	EPA 8270 by SIM	MSSV/5452

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126496017	**MBIA0410-18**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496018	**MBSA0410-18**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496019	**MBSW0410-25**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496020	**MBIA0410-25**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496021	**MBSA0410-25**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496022	**MBSW0410-26**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496023	**MBIA0410-26**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496024	**MBSA0410-26**	EPA 3510	OEXT/12722	EPA 8270 by SIM	MSSV/5466
10126496001	**MBSW0410-12**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496002	**MBIA0410-12**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496003	**MBSA0410-12**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496004	**MBSW0410-13**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496005	**MBSW0410-13D**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496008	**MBIA0410-13**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496009	**MBIA0410-13D**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496012	**MBSA0410-13**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496013	**MBSA0410-13D**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496016	**MBSW0410-18**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496017	**MBIA0410-18**	EPA 3510	OEXT/12714	EPA 8270 by SIM	MSSV/5448
10126496018	**MBSA0410-18**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496019	**MBSW0410-25**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496020	**MBIA0410-25**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496021	**MBSA0410-25**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496022	**MBSW0410-26**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496023	**MBIA0410-26**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496024	**MBSA0410-26**	EPA 3510	OEXT/12721	EPA 8270 by SIM	MSSV/5449
10126496001	**MBSW0410-12**	SM 2540C	WET/18790		
10126496002	**MBIA0410-12**	SM 2540C	WET/18790		
10126496003	**MBSA0410-12**	SM 2540C	WET/18790		
10126496004	**MBSW0410-13**	SM 2540C	WET/18790		
10126496005	**MBSW0410-13D**	SM 2540C	WET/18790		
10126496008	**MBIA0410-13**	SM 2540C	WET/18790		
10126496009	**MBIA0410-13D**	SM 2540C	WET/18790		
10126496012	**MBSA0410-13**	SM 2540C	WET/18790		
10126496013	**MBSA0410-13D**	SM 2540C	WET/18790		
10126496016	**MBSW0410-18**	SM 2540C	WET/18790		
10126496017	**MBIA0410-18**	SM 2540C	WET/18790		
10126496018	**MBSA0410-18**	SM 2540C	WET/18790		
10126496019	**MBSW0410-25**	SM 2540C	WET/18790		
10126496020	**MBIA0410-25**	SM 2540C	WET/18813		
10126496021	**MBSA0410-25**	SM 2540C	WET/18813		
10126496022	**MBSW0410-26**	SM 2540C	WET/18813		
10126496023	**MBIA0410-26**	SM 2540C	WET/18813		
10126496024	**MBSA0410-26**	SM 2540C	WET/18813		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10126496

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10126496001	**MBSW0410-12**	SM 2540D	WET/18815		
10126496002	**MBIA0410-12**	SM 2540D	WET/18815		
10126496003	**MBSA0410-12**	SM 2540D	WET/18815		
10126496004	**MBSW0410-13**	SM 2540D	WET/18815		
10126496005	**MBSW0410-13D**	SM 2540D	WET/18815		
10126496008	**MBIA0410-13**	SM 2540D	WET/18815		
10126496009	**MBIA0410-13D**	SM 2540D	WET/18815		
10126496012	**MBSA0410-13**	SM 2540D	WET/18815		
10126496013	**MBSA0410-13D**	SM 2540D	WET/18815		
10126496016	**MBSW0410-18**	SM 2540D	WET/18815		
10126496017	**MBIA0410-18**	SM 2540D	WET/18815		
10126496018	**MBSA0410-18**	SM 2540D	WET/18815		
10126496019	**MBSW0410-25**	SM 2540D	WET/18815		
10126496020	**MBIA0410-25**	SM 2540D	WET/18815		
10126496021	**MBSA0410-25**	SM 2540D	WET/18815		
10126496022	**MBSW0410-26**	SM 2540D	WET/18815		
10126496023	**MBIA0410-26**	SM 2540D	WET/18815		
10126496024	**MBSA0410-26**	SM 2540D	WET/18815		

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State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other ____

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
Sample Preservative				None	None	HNO3	HNO3	None	None		
MBSW0410-12	4-13-10/14:00	Water	8	X	X	X	X	X	X		1012649 6001
MBIA0410-12	4-13-10/14:30	Water	8	X	X	X	X	X	X		002
MBSA0410-12	4-13-10/14:48	Water	8	X	X	X	X	X	X		003
MBSW0410-13	4-13-10/16:15	Water	8	X	X	X	X	X	X		004
MBSW0410-13D	4-13-10/16:15	Water	8	X	X	X	X	X	X		005
MBSW0410-13M	4-13-10/16:18	Water	4	X	X						~~006~~ 004
MBSW0410-13MD	4-13-10/16:18	Water	4	X	X						~~007~~ 004
MBIA0410-13	4-13-10/16:25	Water	8	X	X	X	X	X	X		008
MBIA0410-13D	4-13-10/16:25	Water	8	X	X	X	X	X	X		009
MBIA0410-13M	4-13-10/16:35	Water	4	X	X						~~010~~ 008
MBIA0410-13MD	4-13-10/16:25	Water	4	X	X						~~011~~ 008

CMD 4/15/10
CMD 4/15/10

Relinquished By: Jason Miles	Agency/Agent: Hart Crowser	Received By: Alex Kulzer	Agency/Agent: Pace MN
Signature:	Time & Date: 4/14/10 0800	Signature:	Time & Date: 4.15.10 0949

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

T=0.7, 0.6, 1.5, 2.6, 1.4, 0.9, 2.6, 2.8, 0.9, 1.4, 0.9, 1.2°

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
Tel. #: 503-229-6748

Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 nm filter)
				Sample Preservative: None	None	HNO3	HNO3	None	None		
MBSA0410-13	4-13-10/17:07	Water	8	X	X	X	X	X	X		012
MBSA0410-13D	4-13-10/17:07	Water	8	X	X	X	X	X	X		013
MBSA0410-13M	4-13-10/17:07	Water	4	X	X						~~014~~ 012
MBSA 0410-13MD	4-13-10/17:07	Water	4	X	X						~~015~~ 012
MBSW0410-18	4-13-10/12:48	Water	8	X	X	X	X	X	X		016
MBIA0410-18	4-13-10/13:15	Water	8	X	X	X	X	X	X		017
MBSA0410-18	4-13-10/13:18	Water	8	X	X	X	X	X	X		018
MBSW0410-25	4-13-10/08:05	Water	8	X	X	X	X	X	X		019
MBIA0410-25	4-13-10/08:30	Water	8	X	X	X	X	X	X		020
MBSA0410-25	4-13-10/08:40	Water	8	X	X	X	X	X	X		021
MBSW 0410-26	4-13-10/10:28	Water	8	X	X	X	X	X	X		022

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Alex Kutzer	Pace MN
Signature:	Time & Date: 0800 4/14/10	Signature:	Time & Date: 4-15-10 0949

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T=0.7,0.0,1.5,2.6,1.4,0.9,1.4,0.0,1.2°

3M

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Scott Manzano/Department of Environmental Quality

Send Lab Report To:
Address: Heidi Blischke
GSI Water Solutions; 55 SW Yamhill
Suite 400; Portland, Oregon 97204
Tel. #: 503-239-8799 x114
E-mail: hblischke@gsiwatersolutions.com

Contract Laboratory Name:
Pace Analytical

Lab Batch #:

Invoice To: Delia Chadwick/DEQ
Address: Accounts Payable
811 SW 6th Ave.;
Portland, OR, 97204
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Lab Selection Criteria:
- ☐ Proximity (if TAT < 48 hrs)
- X Prior work on same project
- ☐ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

Turn Around Time:
- X 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other _____

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
				Sample Preservative: None	None	HNO3	HNO3	None	None		
MBIA0410-26	4-13-10/11:05	Water	8	X	X	X	X	X	X		023
MBSA0410-26	4-13-10/11:13	Water	8	X	X	X	X	X	X		024
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason Miles	Hart Crowser	Alex Kelzer	Pace MN
Signature: [signature]	Time & Date: 0800 4/14/10	Signature: [signature]	Time & Date: 4/15/10 0949

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T= 0.7, 0.0, 1.5, 2.6, 1.4, 0.9, 1.4, 0.0, 1.2°

[redacted]

Pace Analytical

Client Name: Oregon DEQ **Project #** 10124494

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

[redacted]

Custody Seal on Cooler/Box Present: ☑ yes ☐ no **Seals intact:** ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ✓ **No** _____

Thermometer Used 80344043 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature _____ **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4-15-10

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # W1-024
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water	☐Yes ☑No	Initial when completed ✓ Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

"M" and "MD" samples are for MS/MSD

Project Manager Review: _____ **Date:** 4-15-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

8706-8063-9215 - 0.7c"
8706-8063-9226 - 0.0c"
8706-8063-8870 - 1.5c"
8706-8063-9237 - 2.6c"
8706-8063-9270 - 1.4c"
8706-8063-9248 - 0.9c"
8706-8063-8859 - 2.6c"
8706-8063-8881 - 2.8c"
8706-8063-8848 - 0.9c"
8706-8063-9259 - 1.4c"
8706-8063-8860 - 0.0c"
8706-8063-9260 - 1.2c"

ATTACHMENT D
EPA SPRING AND FALL 2010 DIVE REPORTS

Included only on the O&M Report DVD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

DIVE REPORT – April 9, 2010

version 12-01-2008

From: **Sean Sheldrake, Divemaster, Unit Diving Officer** **Dates of dives: April 5-9, 2010**

To: **Nancy Harney, RPM**
Scott Manzano, ODEQ
Mark Filippini, Dive Team Sponsor
Joyce Kelly, OEA Director

Project: **McCormick and Baxter Superfund Site**
Requested by: **USEPA, Region 10 Environmental Cleanup Office**

Site Acct code: 302DD2C 10P9RA00
OSHA work dive: ☐ **or, OSHA Scientific Exemption: X**
Local Waterbody: Willamette River
General Location: lat= N45.57619; long= W122.73887

Purpose: Supported Superfund in collecting transition zone groundwater samples to gauge the effectiveness of the cap and other cleanup at the McCormick and Baxter site within the Portland Harbor Superfund Site.

Summary of Work Performed**:** Both piezometer (Henry sampler) and inter-armoring (inter-armoring sampling device) data were collected with diver assistance. These data will be used to evaluate the performance effectiveness of the cap at the McCormick and Baxter Superfund site (M&B).

Dive Details: (also see Summary Table below): Divers collected data from a total of 14 sites. A fifteenth site was visited, but no samples could be collected from it due to a lack of break from the armoring at the current river stage (ACB 3/M&B C). Weather was a constant factor throughout the week, with shifting strong winds with substantial gusts of up to 26 mph. These winds made anchoring on station and staying anchored a constant challenge.

Personnel:
Divers: Rob Rau (RR), Sean Sheldrake (SS), Chad Schulze (CS)
Boat Operators: Brent Richmond, Doc Thompson, Joe Goulet
Other Field Support Personnel: Chris Martin, Jason Miles, Hart Crowser

Hazards and Hazard Management: Line management was a constant factor, with a number of lines in the water. Diver briefings emphasized the choreography of the dive, to ensure that lines were kept separated so that sampling data could be obtained, and the diver could avoid entanglement.

Exposures: (Temperature/Chemical/Biological): RR and SS had suit leaks which could result in bacterial exposure due to nearly constant combined sewer overflow events on the Willamette River. Drysuit underwear will be laundered and suits cleaned/repaired. Divers emphasized the importance of pre-dive checks of the suit.

Diver /Equipment Issues: Due to the varying nature and strong gusts of wind, anchoring on site was a constant issue. Use of a marker buoy may assist in better adjusting anchor position, but this may also add an entanglement hazard for the diver. Preparation of the diver for up to 12 dives per day required vigilant attention to preparation details. Some dives involved entanglements of the sampling gear and diver tether. On one dive, one diver became entangled with the tether on the dive mask, momentarily shutting off the AGA positive pressure 2nd stage.

Checking of Kirby Morgan emergency gas supply knob should be not only performed at the preparation of each dive, but during each pressure check while underwater as well, to ensure if the valve is turned that is returned to its primary tank position of fully clockwise. Choreography of dive details greatly assisted in minimizing entanglement issues, where diver tether and sampling lines might cross. Three point anchoring generally worked well. The "grappling hook" type stern anchor was very useful in maintaining a solid stern position, along with ample bow anchor scope.

First Aid Supplies Expended: None.

Decontamination: Freshwater rinse used for bacterial CSO contaminants as well as Superfund site contaminants, such as PAHs, PCBs, pthalates, dioxins, and metals.

Follow-up to Issues (diver initials then task**)**:

1. Tank fills: RR to complete
2. AGA reassembly: CS
3. Viking suit leak on SS suit—SS to repair before ASARCO dives.
4. Dive prep. Checklist-CS to complete
5. Purchase additional cards for Hummingbird chart plotter and find way to convert garmin database files into a hummingbird compatible format to be able to download targets to the larger display on the Monitor-TS

Dive Summaries (WK=work dive)

Dive Type	Date	Dive #	Diver	Depth	Start Time	End Time	Dive Time	Description
WK	4/5/2010	1	CS	5	10:09	10:31	22	MB A 1 of 3 piezometer installation; computer controlled dive for all M&B dives.
WK	4/5/2010	2	CS	5	11:08	11:19	11	MB A 2&3 piezometer installations out of 3, video of piezometer #2. Area sampled was 5 foot diameter.
WK	4/5/2010	3	CS	5	11:40	11:55	15	Redeploy 3rd piezometer at MB-A due to tubing pull-out.
WK	4/5/2010	4	CS	5	12:26	12:29	3	Retrieve 3 piezometers at MB-A
WK	4/5/2010	5	RR	3	13:12	13:30	18	Place piezometers 1&2 at MB-B.
WK	4/5/2010	6	RR	3	14:50	15:15	25	MB-B piezometers 1&2 retrieval, #3 installation. ACB gap is 6 inches wide and 6 feet long.
WK	4/5/2010	7	RR	3	15:45	15:50	5	Piezometer #3 retrieval at MB-B location.
WK	4/6/2010	8	SS	36	10:03	10:37	34	Place piezometer and seepage meter at MB-16. Bottom was 3 inch rock overlying 3/4 inch gravel. Brown material on fins. Brown algae?
WK	4/6/2010	9	SS	35	11:24	11:30	6	MB-16 retrieval.
WK	4/6/2010	10	SS	24	12:38	12:51	13	MB-6 placement. Sampling lines pulled out during wind gust.
WK	4/6/2010	11	RR	19	15:00	16:00	60	Redeployment of MB-6 piezometer and seepage meter. Diver entanglement, lines pulled out.
WK	4/6/2010	12	RR	16	16:30	16:52	22	Redeployment of MB-6 piezometer and seepage meter. Bottom consisted of 8 inches of silt over gravel and sand. Henry 6 inches into sand, Seepage meter just above mudline. Diver entanglement, but samples obtained.
WK	4/6/2010	13	RR	16	18:08	18:11	3	Retrieval of MB 6 equipment. Diver reports out of air at surface, likely mask entanglement.
WK	4/7/2010	14	CS	27	9:20	9:27	7	MB-10 deployment; anchor slippage-aborted installation.
WK	4/7/2010	15	CS	26	10:03	10:19	16	MB-10 deployment; 2 inch gravel substrate. 8 inches of rock to sand.
WK	4/7/2010	16	CS	26	11:07	11:11	4	MB-10 retrieval.
WK	4/7/2010	17	CS	18	11:28	11:39	11	MB-20 deployment. 4 inches of gravel on 30 degree slope. Went downslope to find boulder free area. Sand bottom. 1 inch bivalves found surrounding sample site.
WK	4/7/2010	18	SS	18	12:27	12:30	3	MB-20 retrieval.
WK	4/7/2010	19	SS	23	13:53	14:17	24	MB-9 deployment. 3 inch rock fairly deep. Landed on large boulders, moved off to find good sampling location. Silt mixed with 3 inch rock at least 12 inches deep. Piezometer 10 inches deep into silt/rock. Flux buried with 2 inch freeboard.
WK	4/7/2010	20	SS	23	14:56	15:01	5	MB-9 retrieval.
WK	4/7/2010	21	SS	31	15:48	16:00	12	MB-15 deployment. 6 inches of sand over 3 inch rock.
WK	4/7/2010	22	SS	31	16:34	16:39	5	MB-15 retrieval.
WK	4/8/2010	23	CS	19	8:45	9:05	20	MB-7 deployment. Seepage meter 6 inches below mudline. Bottom 5 inch gravel 6 inches thick mixed with silt. Henry sampler placed 14" below mudline.
WK	4/8/2010	24	CS	19	9:37	9:41	4	MB-7 retrieval.
WK	4/8/2010	25	CS	17	10:37	10:47	17	MB-8 placement. Thin layer of silt over 4 inch gravel, 6 inches thick. Below this 2 inch gravel present. Piezometer placed at 10 inch mark into silty gravel. Fresh water clams seen near site.
WK	4/8/2010	26	CS	15	11:15	11:17	2	MB-8 retrieval.
WK	4/8/2010	27	RR	9	12:18	12:28	10	MB-5 placement. 6 inches of silt on top of 6 inch rock. Kirby valve issue for diver.
WK	4/8/2010	28	RR	7	13:00	13:04	4	MB-5 retrieval.
WK	4/8/2010	29	RR	6	13:50	14:01	11	MB-4 placement. 6 inch of silt over boulders. Piezometer placed 10 inches down from mudline.
WK	4/8/2010	30	RR	6	14:33	14:36	3	MB-4 retrieval.
WK	4/8/2010	31	RR	14	16:06	16:19	13	MB-11 placement. Rock 8 inches in size on bottom mixed with some silt. Henry placed 9 inches below mudline.
WK	4/8/2010	32	RR	14	16:48	16:51	3	MB-11 recovery.
WK	4/9/2010	33	SS	27	9:24	9:36	12	MB-14 placement. 3 inches of silt on top of 4 inch rock. Placed chamber on top of silt/no excavation. Henry placed to 10 inch depth below mudline.
WK	4/9/2010	34	SS	27	10:07	10:11	4	MB-14 recovery.
WK	4/9/2010	35	SS	5	10:41	11:00	19	ACB-3/MB-C piezometer placement search. No ACB ridges or valleys could be located in diving compatible depths (to 18" of water). In 5 feet of water, over 1 foot of silt over ACB, making a flat bottom. No ridges or valleys in ACB could be located. No samples taken.

Diver Chad Schulze being prepped to go in Willamette Cove.

Diver placing piezometers (Henry samplers) in Willamette Cove with helmet camera on. Test video was taken in Willamette Cove, but later discontinued as visibility was zero, or near zero.

Tender/standby diver Chad Schulze sorting out piezometer lines/piezometers in his right hand to hand to the diver in the water, while tending the diver tether line in his left hand.

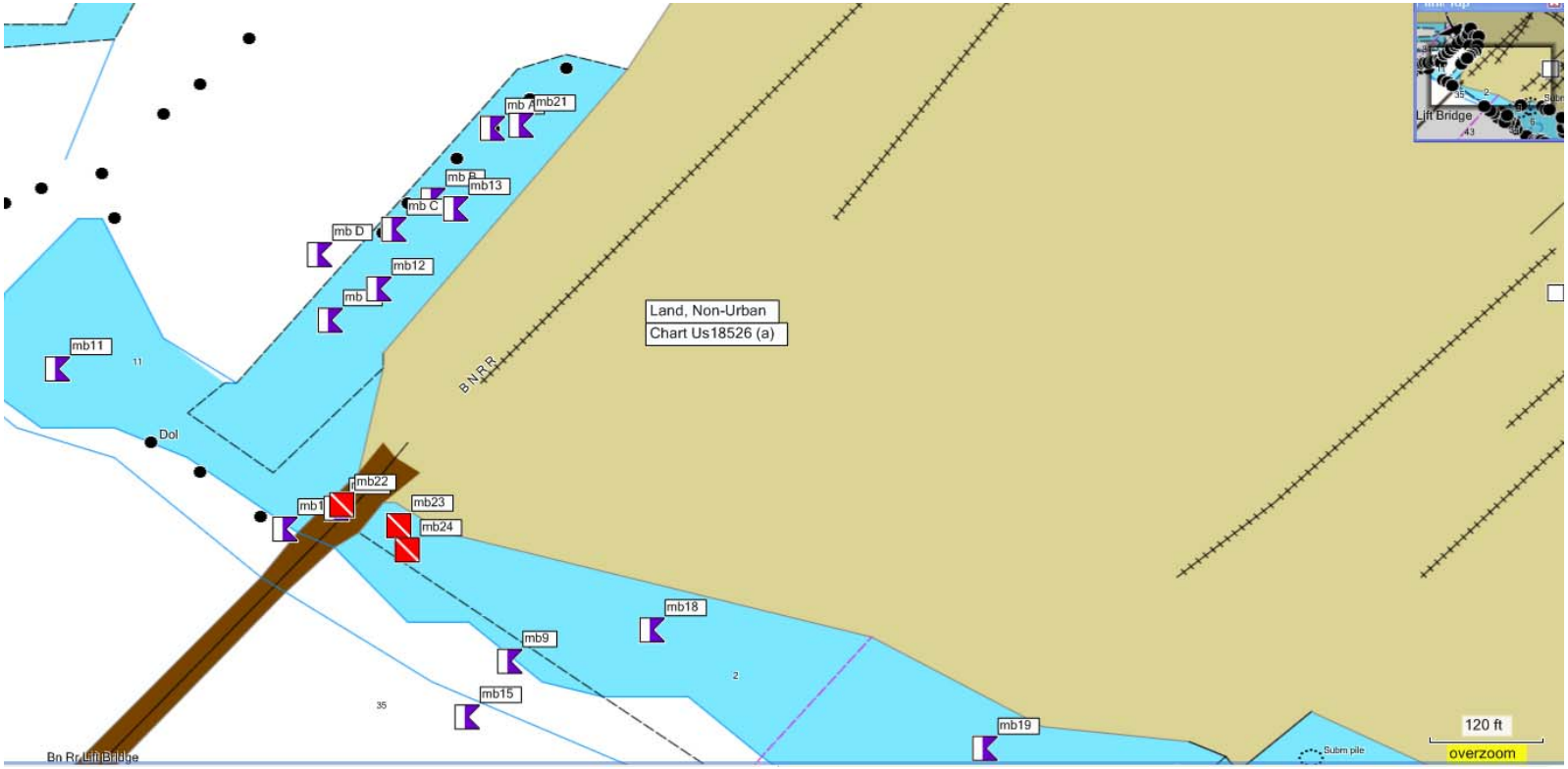
Coolers of sampling gear being loaded onto the Wooldive vessel by Hart Crowser sampling personnel.

Freshwater clam found at MB-20 site.

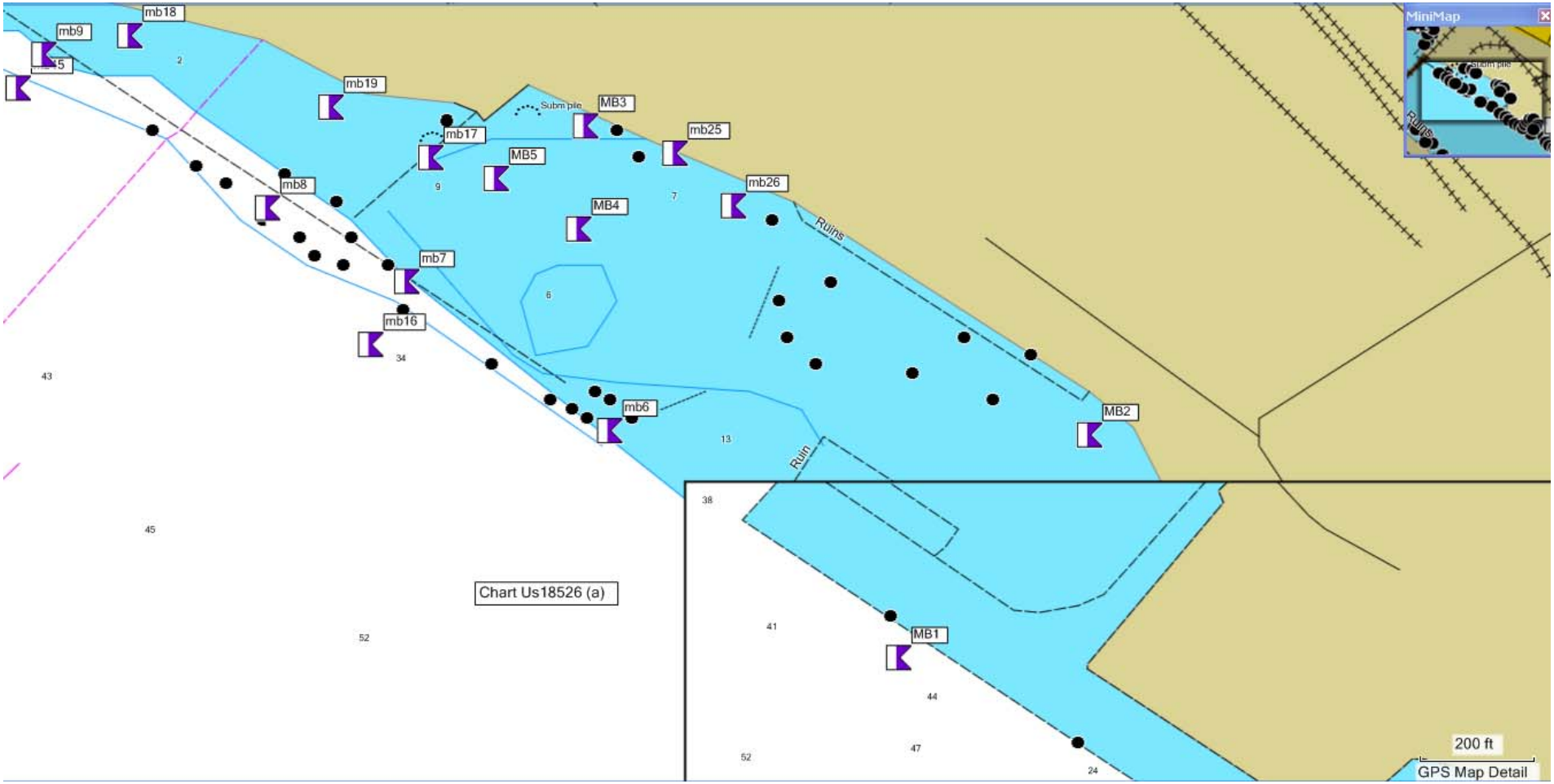
Divemaster viewing helmet camera feed on a diver laptop/recording output directly to the hard drive. Video feed was unusable due to low visibility conditions.

Figures: Dive Locations

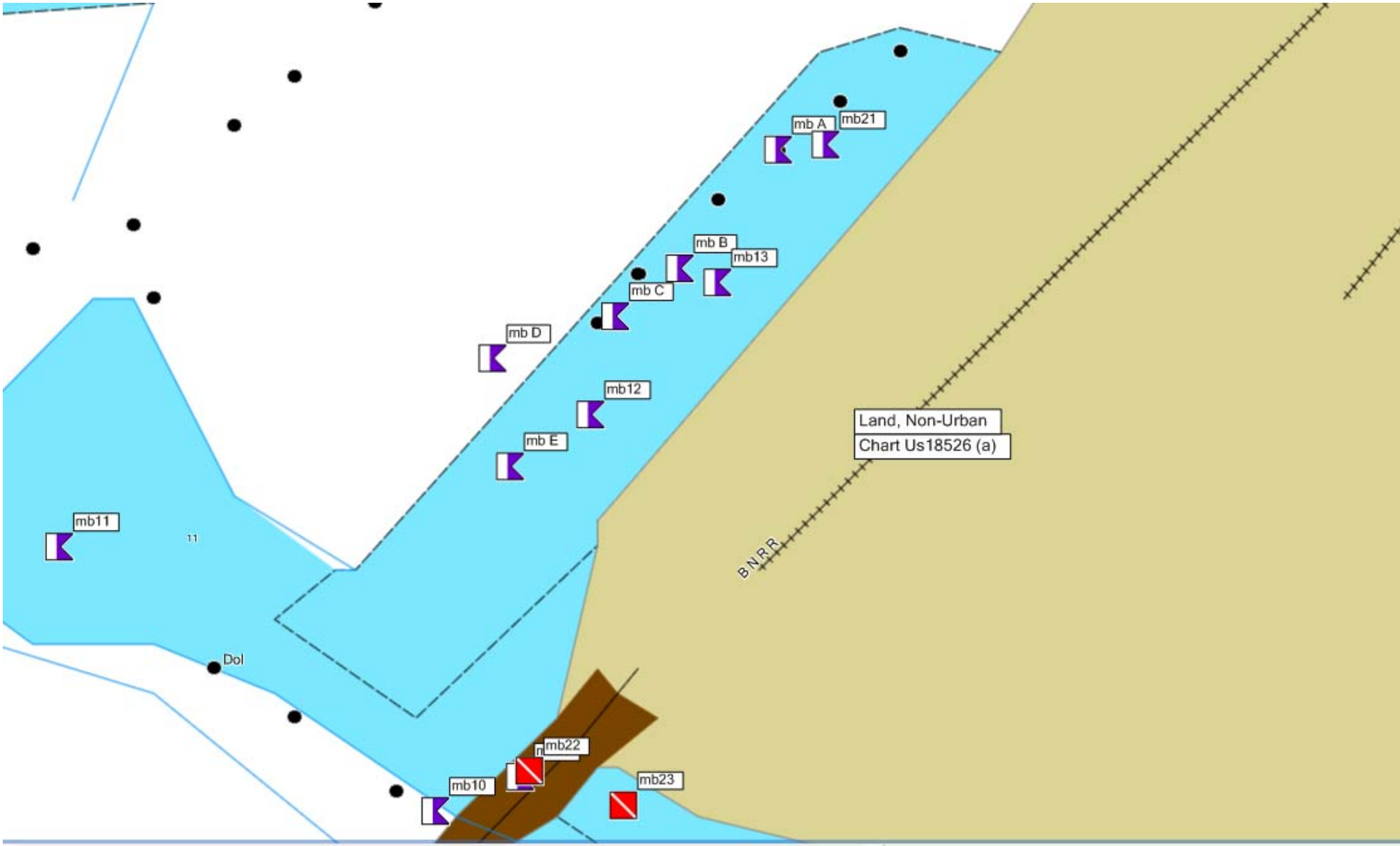
Willamette Cove, Railroad Bridge and vicinity



Area in front of M&B site, upstream of the Railroad Bridge



Downstream of the Railroad Bridge area site detail



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

DIVE REPORT – October 15, 2010

version 12-01-2008

From: **Sean Sheldrake, Divemaster, Unit Diving Officer** **Dates of dives: October 11-13, 2010**

To: **Nancy Harney, RPM**
Scott Manzano, ODEQ
Mark Filippini, Dive Team Sponsor
Joyce Kelly, OEA Director

Project: **McCormick and Baxter Superfund Site**
Requested by: **USEPA, Region 10 Environmental Cleanup Office**

Site Acct code: 302DD2C 10P9RA00
Local Waterbody: Willamette River
General Location: lat= N45.57619; long= W122.73887

Scientific Diving Purpose: The Region 10 Dive Unit supported Superfund in deploying solid phase microextraction devices (SPMEs) to gauge the effectiveness of the cap and other cleanup at the McCormick and Baxter site within the Portland Harbor Superfund Site. Conducted cap inspections at several locations.

Summary of Scientific Diving Work Performed: SPMEs were installed at 12 locations that required diving. Six locations were inspected for cap armor thickness, and one dive (4 transects) was devoted to looking for buckling (creating relief in concrete blocks where they would otherwise lay flat) in armored concrete blocks (ACB) cap material.

These data will be used to evaluate the performance effectiveness of the cap at the McCormick and Baxter Superfund site (M&B).

Dive Details: (also see Summary Table below): River levels, though higher at the beginning of the week, fell throughout the week to very low levels, allowing/requiring many sites to be sampled by shore personnel. Divers could not install sites out of the water due to the weight of their diving rig (over 125 pounds out of the water).

Cap inspection. Divers inspected six locations for cap armor thickness, digging two holes per location generally (see dive details below). Depths of armor rock were found to be 8-14 inches, well within expected variability for cap armor placement.

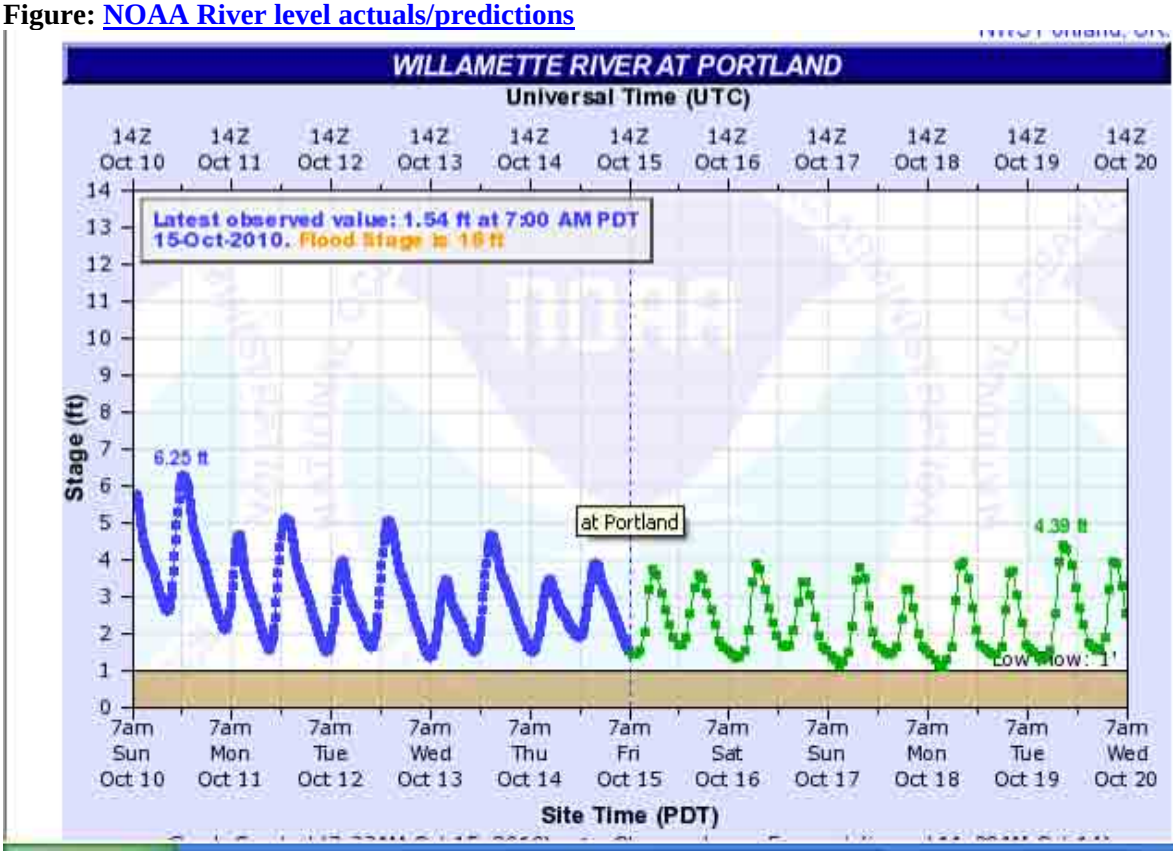
ACB (buckling) inspection. A diver swam two transects in each direction in Willamette Cove from waypoint 13 (See Figure below)—one as shallow as he could reasonably swim (18") as well as one deeper transect (4-5' of water). Only one buckling location was found that couldn't be seen from the vessel. (See dive details below).

SPME installation. SPMEs were installed at twelve locations. These were installed after clearing armor cap (approximately one foot thick—see dive details below), then penetrating the SPME one foot into the underlying sand cap. Lastly, the armor rock was replaced around the SPME to retain cap integrity. SPMEs were installed to the required 2 foot depth at all locations. Specific details may be found below on cap materials and thicknesses.

Figure: Dive Locations

mb12
MB F
mb20
mb10
C
MB E
mb18
MB D
mb9
mb15
mb19
MB3
mb17
mb5
mb25
mb8
mb26
MB4
mb7
mb16
mb6
© 2010 Europa Technologies
© 2010 Google
©2009 Google
425 ft
Imagery Date: Aug 15, 2010
45°34'36.60" N 122°44'28.14" W elev 13 ft
Eye alt 1566 ft

Figure: [NOAA River level actuals/predictions]



Personnel:
Divers: Rob Rau (RR), Sean Sheldrake (SS), Alan Humphrey (AH)
Boat Operators: Brent Richmond, Doc Thompson
Other Field Support Personnel: Heidi Blischke, GSI, Troy Fowler, Hart Crowser, Danny Reible, University of Texas

Hazards and Hazard Management: Line management was a constant factor, with a number of lines in the water. Diver briefings emphasized the choreography of the dive, to ensure that lines were kept separated so that sampling data could be obtained, and the diver could avoid entanglement. Surface crews emphasized to the diver when they saw pulling on the float attached to the SPME, which could indicate diver entanglement. Surface crews also helped the diver recognize directions to egress the sample site once work was completed at each site to preserve the sample integrity as well as ensure the diver stays clear of entanglements.

Exposures: (Temperature/Chemical/Biological): All three divers had glove leaks—which was followed by a thorough hand washing. This was remedied by changing nitrile glove size/type for SS. A larger gauntlet over glove will be investigated for future scientific diving work at M&B as a means to minimize potential exposure. Due to the construction of Viking drygloves, glove leaks do not compromise the integrity of the overall suit and leakage is limited to the hand area.

Diver /Equipment Issues: "Gardening" type rubber over gloves were used over nitrile drygloves to protect the gloves from puncture. Surface supply could be considered at this site to allow the diver to better maneuver in shallow water and stand if necessary, though this would require a 4 person dive crew rather than the 3 person crew for tethered SCUBA, increasing travel costs. The surface supply rig is only approximately 50 pounds on the diver. RR's latex hood liner may need trimming, and/or use of a hood liner to take up excess material. During dives, transition of the AGA full face mask off the black latex material to the red rubber material created a small

to medium size air leakage point. Care should also be taken by the tender to inspect these transition areas to minimize potential air leakage space.

First Aid Supplies Expended: None.

Decontamination: Freshwater rinse used for microbial combined sewer overflow (CSO) contaminants as well as Superfund site contaminants, such as PAHs, PCBs, pthalates, dioxins, and metals. Heavy rains over the past weekend resulted in CSOs.

Follow-up to Issues (diver initials then task**)**:

1. Tank fills: RR/SS to complete
2. AGA reassembly: RR
3. Viking cuff repair-RR to complete
4. Buy more large over gloves-RR
5. Get more #10 gloves from MEL-SS
6. Obtain PVC pipe sections from MEL for Viking drysuit neck and wrist cutting--RR

Dive Summaries (WK=work dive)

Project		Date	Dive Sequence	Diver	Max Depth	Start Time	End Time	Bottom Time	Dive Description	
McCormick & Baxter	WK	10/13/2010	16	SS	28	12:16	12:45	29	MB #14 SPME installation, 2" of silt on cap armor rock, 3" diameter cap armor, 12-14" of armor thickness on top of black gravel. Test SPME installed 15' away. The test SPME, though thoroughly buried beyond two feet, was easily retrieved from the Wooldive.	Sheldrake
McCormick & Baxter	WK	10/13/2010	15	SS	21	11:51	12:02	11	MB #11 SPME installation; 2" of silt on cap armor (3-6" diameter rock), 10 degree slope, 12-14" of cap armor thickness to black gravel.	Sheldrake
McCormick & Baxter	WK	10/13/2010	14	SS	16	10:58	11:09	16	MB #20 SPME installation, just downstream of RR bridge, 6-24" rock diameter, unknown thickness, 20 degree slope, rocks locked in on slope. Excavated 1' deep hole, inserted SPME to 1' depth in pore spaces, backfilled to full SPME depth.	Sheldrake
McCormick & Baxter	WK	10/13/2010	13	SS	6	10:12	10:31	19	MB #4 SPME installation, 14" armor thickness, 8" diameter rock on top ranging to 3" diameter with depth--shallow water/difficult vessel maneuvering. MB #5 SPME installation, 2" of silt on top of 8-10" diameter rock, unknown thickness. Large armor rocks suctioned into bottom in silt. SPME inserted in one foot deep hole excavation, backfilled to full SPME depth.	Sheldrake
McCormick & Baxter	WK	10/13/2010	12	SS	24	9:23	9:46	23	MB #10 SPME installation, 12" armor (3" rock) over mixed sand/gravel.	Sheldrake
McCormick & Baxter	WK	10/12/2010	11	AH	33	13:15	14:08	53	MB #15 and #8 SPME installations; 10" of rock and 12" of rock over sand, respectively--attempted to install test SPME for demonstration retrieval; aborted due to low air. Successful test was performed near MB #14, above.	Humphrey
McCormick & Baxter	WK	10/12/2010	10	AH	28	11:53	12:10	17	MB #8 SPME installation; 10" of rock over sand; fresh water clam shells visible.	Humphrey
McCormick & Baxter	WK	10/12/2010	9	AH	36	11:17	11:34	17	MB #16 SPME installation, 8" of rock over sand.	Humphrey
McCormick & Baxter	WK	10/12/2010	8	AH	33	10:26	10:52	26	MB #7 SPME installation; 2" of silt on top of rock; 12" of rock over sand.	Humphrey
McCormick & Baxter	WK	10/12/2010	7	AH	25	9:47	10:06	19	MB #6 SPME installation; 12" of rock on top of compact sand.	Humphrey
McCormick & Baxter	WK	10/11/2010	6	RR	4	14:12	14:46	33	WPT MB G (MB G); Buckle search in Willamette Cove - 1 found and marked, 200 feet searched parallel to shore in both directions.	Rau
McCormick & Baxter	WK	10/11/2010	5	RR	21	13:14	13:31	17	WPT A + SPME test--Hole #1 6" or rock or more, refusal, compacted rock; Hole #2, no Penetration, 6" to refusal. SPME insertion aborted; Cap inspection at waypoint--refusal, 12" of armor rock, 100% rock cover; 5" of silt inshore of waypoint on top of armor, 6" of silt 30 inshore/downstream of waypoint (WPT E not dived, on shore).	Rau
McCormick & Baxter	WK	10/11/2010	4	RR	16	12:29	12:41	12	WPT B- 5' visibility, rock throughout range visibility; Hole #1, 10-12" of rock armor, hole #2, 8-10" rock armor to sand	Rau
McCormick & Baxter	WK	10/11/2010	3	RR	15	11:40	11:47	7	WPT F-Hole #1, 10-12" depth of rock.	Rau
McCormick & Baxter	WK	10/11/2010	2	RR	40	11:03	11:19	16	WPT C--Hole #1, 8-10" of rock to cap sand. Hole #2 15' downstream of Hole #1, 6-8" depth of rock.	Rau
McCormick & Baxter	WK	10/11/2010	1	RR	35	10:26	10:43	17	WPT D--Rock 3-6" diameter; hole 1 10" thick layer to sand cap, Hole #2, 30' upstream of waypoint, 12" of rock, then cap sand. Holes refilled.	Rau

Photos

Hart Crowser and GSI personnel preparing an SPME (below green bar) attached to a concrete block and float for deployment. Boat driver Brent Richmond, EPA at right.

Diver Rob Rau inspecting ACB capped areas for “buckling.” The diver found one area during the survey while the surface crew found one other.

Buckle survey, looking towards the main channel and Railroad bridge

Close up of diver Alan Humphrey using LED head mounted lights to illuminate his cap work. Bottom visibilities ranged from 0 to 5 feet during the operation, with very little natural light on the bottom.

Sean Sheldrake tending tethered SCUBA divers. Having the headset loose around the neck allows other deck personnel to hear what the diver is saying during the sampling efforts. If the diver volume is turned up too loud however, this can be uncomfortable to the diver.

Diver Sean Sheldrake at the surface with Nite rider head mount.

Diver Alan Humphrey prepping Sean Sheldrake for dives on October 13, 2010.

Diver Sean Sheldrake swimming towards MB #4

ATTACHMENT E
DRAFT UNIVERSITY OF TEXAS SPME METHODOLOGY AND RESULTS REPORT

Solid-Phase Microextraction Field Deployment and Analysis at McCormick and Baxter Superfund Site

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March 18, 2011

Summary of Results

Solid phase micro-extraction (SPME) passive samplers containing polydimethylsiloxane (PDMS) sorbent were deployed at 22 locations and 2 surface water sites in the McCormick and Baxter Superfund Site (Site) in Portland, Oregon, to measure contaminant concentrations and monitor performance of the sediment cap. The passive samplers were designed to sample pore water to a depth of 2 feet below the sediment cap-water (cap) interface. After 7 days of exposure, 23 of the 24 samplers were successfully retrieved and fibers were processed and preserved in acetonitrile immediately after retrieval. The samples were shipped to the University of Texas overnight and analyzed by high-performance liquid chromatography (HPLC) (EPA Method 8310) within 1 month of receipt.

Low molecular weight polynuclear aromatic hydrocarbons (PAH) were detected more frequently than high molecular weight PAHs (chrysene, benz[a]anthracene, benzo[b]floranthene, benzo[b]floranthene and benzo[a]pyrene). The three most hydrophobic compounds (dibenz[a,h]anthracene, and benzo[ghi] perylene+indeno[1,2,3-cd]pyrene) were not detected in any of the samples. Only low molecular weight PAHs were detected at low concentrations in the two background surface water samples.

In-situ pore water PAH concentrations derived by SPME were compared to National Recommended Water Quality Criteria (NRWQC; see Section 4.4), and analyzed for vertical concentration profiles and intrasite variability. Consistent with previous observations, two types of concentration profiles were observed in 2010 sampling. Uniform concentration profiles were present in samples located along the shoreline apparently the result of tidal action. Pronounced concentration gradients were observed in offshore locations suggesting more limited vertical mixing of contaminants. Concentrations were compared to NRWQC although the measurements were of pore water and not surface water; one exceedance of the NRWQC (18 nanograms/liter [ng/L]) was observed for chrysene (35 ng/L) at 21 inches below the cap-water interface. A duplicate at 22 inches detected a concentration of only 5 ng/L. Benz[a]anthracene reached 80 percent of NRWQC at Location 5 and 60 percent of NRWQC at Location 16, both at the bottom

of the cap layer. Other PAHs at all sample locations sites and depths were well below the NRWQC. Thus, the sampling provided no evidence of contaminant migration through the McCormick and Baxter Superfund cap at levels of concern.

Concentrations from 2010 sampling were compared directly to the concentrations measured in 2009. Locations 5 and 16 show higher concentrations in 2010 compared to 2009, while other locations exhibited similar or lower concentrations in 2010 compared to measurements in 2009. It is unclear at this point as to whether there has been any change at Locations 5 and 16 or whether this simply represents spatial variability in the sampling. It should be emphasized that no concentrations exceeded NWRQC except a single deep sample for chrysene at Location 5. Additional sampling would be required to identify the significance, if any, of the increased concentrations at Location 5.

In summary, the work to-date continues to show that the McCormick and Baxter cap remains effective and there is no evidence of significant contaminant breakthrough to the near surface environment.

1. Introduction

Pore water or interstitial water concentrations in sediments provide a direct indication of contaminants that can migrate with ground water as well as a measure of the bioavailable fraction of contaminants (Lu et al., 2006). Passive sampling using solid phase micro extraction (SPME) is an excellent means of detecting interstitial or pore water concentrations of hydrophobic contaminants in that it provides a measure of truly dissolved concentration with high spatial resolution and low detection limits (Lu et al., 2011). The passive samplers employed at the McCormick and Baxter Superfund Site (Site) in Portland, Oregon, are fibers consisting of a thin layer of the sorbent polydimethylsiloxane (PDMS). The particular fibers used are approximately 35.5 micrometers (µm) in thickness surrounding a glass core with a thickness of 1,000 µm. Limited samples were also collected using PDMS in a 10-µm layer on a 210-µm glass core to test the kinetics of sorption uptake. SPME is a demonstrated technology for measuring temporal and vertical contamination trends in sediment caps (Reible et al., 2008). SPME was deployed in August 2009 at the Site at 13 sample locations co-located with conventional samples. In October 2010, SPME samplers were deployed in all 22 sediment cap and 2 background surface water locations. No conventional sampling was conducted. The samplers loaded with PDMS fibers were deployed in 22 locations along the shoreline and in the Willamette River within the sediment cap footprint to evaluate the cap performance and to determine if dissolved-phase contaminants impact surface water quality at the Site.

The PDMS coated glass fibers were cleaned with solvent, deployed via divers, retrieved, processed, and analyzed for polycyclic aromatic hydrocarbons (PAH). The PAH concentration sorbed onto the PDMS was converted to an equivalent pore water concentration and compared to surface water quality criteria. Vertical profiles were evaluated for trends in concentration that might suggest migration from the sediment below.

1.1 Objectives of Water Quality Monitoring and Use of SPMEs

- The objective of water quality monitoring from the sub-armoring and inter-armoring portion of the sediment cap is to determine whether surface water is protected to ambient water quality standards. Previously surface water sampling was also conducted (11 events over 5 years). Sampling demonstrated that surface water performance standards from the ROD were met, in addition to EPA's 2007 national water quality standards.
- The objective of replacing the conventional sampling technique with the SPME sampling is to provide the ability to monitor for trends in PAHs, provide an early warning system for monitoring sediment cap performance, and with lower detection limits be able to compare against the ROD performance standard for carcinogenic PAHs (cPAHs). The conventional analytical method has significantly higher detection limits for PAHs, especially the higher molecular weight PAHs. This resulted in a situation where conventional analysis of the water from most sampling locations was below the detection limit and while the detection limits were generally below ambient water quality standards for individual PAHs, the cumulative requirement for cPAHs was exceeded when summing ½ of the nondetected values. Therefore, it was uncertain whether the water quality was meeting the cumulative cPAH performance standard. In addition, with the

higher detection limits, it was difficult to assess data trends that would provide an indicator of potential sediment cap performance issues and allow for inference of causes and potential solutions. Another issue with conventional sampling is obtaining a vertical sample that is representative of that horizon. Conventional monitoring requires pumping water which pulls water from above and below the sampling point resulting in a sample that is derived from a larger depth interval. In the case of the inter-armoring sample which has mimicked the surface water samples closely, it was uncertain whether the sampling device was adequately isolating the inter-armoring water. The SPME measure depth discrete intervals that provide a vertical profile which provides information on whether PAHs are migrating upward through the cap (or if there is surface contamination that may be adversely affecting the upper portion of the sediment cap water quality).

An additional benefit of using in situ SPME sampling is the reduction in field effort required to deploy and retrieve the samplers which is a cost savings for the field effort. The samples can be analyzed directly without large volumes of water and extraction with solvents.

1.2 Specific Objectives

Data Quality Objective (DQO) #1: Determine whether exceedances of performance standards from the record of decision and/or comparison criteria of more recent water quality criteria from EPA have occurred at any of the locations sampled. For this objective to be successful, low level detection limits for carcinogenic PAHs are necessary.

DQO #2: Assess concentration gradients between near surface and at depth. For this objective to be successful, samples from discrete intervals within the vertical sediment cap profile are required.

DQO #3: Define trends in interstitial water concentrations that may provide early warning signs of potentially significant contaminant migration through a cap (i.e. migration that may lead to exceedances of performance standards in the near future). For this objective to be successful, detection limits must be sufficiently low to detect PAHs to identify trends.

2. Project Background

The McCormick and Baxter Creosoting Company operated between 1944 and 1991, treating wood products with creosote, pentachlorophenol, and inorganic (arsenic, copper, chromium, and zinc) preservative solutions. Historically, process wastewaters were discharged directly to the Willamette River, and other process wastes were discharged to ground surface in several areas of the Site. As a result, significant concentrations of wood-treating chemicals were found in soil and groundwater at the Site, and in river sediments adjacent to the Site. The Site includes approximately 40 acres of land and approximately 22 acres of sediments beneath the Willamette River.

The Oregon Department of Environmental Quality (DEQ) implemented several removal measures, including plant demolition, sludge and soil removals, and extraction of creosote from the groundwater. Creosote is currently being recovered by manual methods; approximately 6,300 gallons have been recovered since 1996. Implementation of the soil remedy began in March 1999 with the removal of 33,000 tons of highly contaminated soil and debris, and was completed by capping the entire site with several feet of clean soil in 2005.

An impermeable subsurface barrier wall was installed surrounding 18 acres of the Site in 2003 to contain a large portion of the primary source areas of groundwater contamination, and minimize horizontal seepage of creosote into the Willamette River. In 2004, a protective cap was placed over approximately 22 acres of contaminated river sediments that posed an unacceptable risk to human health and the environment. In 2005, the sediment cap was completed for a remaining acre of contaminated sediment. Also in 2005, 24,000 square feet of organoclay matting were placed in two locations on the cap to mitigate ebullition-induced sheen observed on surface water above the cap.

DEQ has conducted water quality sampling twice per year in water above the sediment cap and in pore water within the sediment cap since the construction complete determination was made by the U.S. Environmental Protection Agency (EPA) and DEQ in September 2005. In 2006, 2008, and 2009, the University of Texas (UT) conducted laboratory studies on core samples collected from granular organoclay, placed during the sediment cap construction in 2004. Samples of reactive core mat (RCM) also were collected in 2006 and 2008. The UT studies concluded that both the organoclay and RCM continue to have sufficient capacity to absorb potential creosote releases from the sediment cap. In 2008, additional sediment cap performance monitoring was conducted by the UT using SPME sampling to assess the potential origin and significance of sheens observed on the shoreline near the locations of the granular organoclay. The sampling results support the conclusions made by DEQ's consultant team of Hart Crowser/GSI Water Solutions (HC/GSI) that the observed sheens are not likely the result of nonaqueous-phase liquid (NAPL) migrating through the sediment cap. In the fall of 2009, UT conducted SPME sampling in conjunction at approximately one-half of the biannual sediment cap water sample collection locations to determine the utility of SPME technology for long-term performance monitoring of the sediment cap. In addition, organoclay cores were collected and laboratory tested to determine the long-term effectiveness of the capping material.

In the fall of 2010, UT conducted SPME analyses at 22 sediment cap locations and 2 background locations. The objective was to monitor and evaluate the performance of the sediment cap at the Site and further develop a long-term performance monitoring strategy for the Site.

3. Procedures and Methods

This work was conducted in accordance with the October 2010 Sampling and Analysis Plan (Reible, 2010).

3.1 Predeployment Preparation

The PDMS samplers used in this deployment have the same design as those used in 2009, with a slotted inner rod and an outside tubular sheath penetrated at regular intervals with holes for water exchange. Before loading the SPME fibers onto the slotted inner rod, the sampling devices were dissembled and scrubbed with Alconox detergent and hot water, then cleaned by a sequential rinsing with hexane, acetonitrile, and distilled water, and dried in an oven. After cleaning, 3 milliliters (ml) of clean acetonitrile was introduced into the inner rod of an assembled sampler. The acetonitrile was collected and analyzed to check for PAH residue. If necessary, the cleaning procedure was repeated until no PAHs were detected.

The fibers used in this deployment were obtained from Poly Micro Industries (Phoenix, Arizona, USA) with 35.5 µm PDMS coating on a 1,000-µm-diameter core. The fibers are described as 1000/1071 in this report, and the volume of PDMS is 115.5 microliters/meter (µL/m). Some samplers were loaded with 1,000-µm glass core fibers with a 30-µm layer, which contained 97.1 µL/m PDMS. For the purposes of this project, these fibers are effectively identical although the slightly smaller volume must be accounted for when calculating the pore water concentration. The fibers were clean upon receipt, but were further processed by soaking in acetonitrile solvent and then rinsed with distilled water and blotted dry with Kimwipes. The clean fibers were laid into the groove of the inner rod of the modified sampler and affixed with approximately 1 centimeter (cm) of waterproof caulk (hydrocarbon-free silicon) at both ends. Silicon serves to hold the fiber in place and also can be used to fill any gaps at the ends of the insertion tool to eliminate any water movement vertically. After the caulk dried, the inner rod with the fiber was then inserted into the outer sheath with groove and fiber aligned with the screened side of the sheath. The handles on both inner grooved rod and sheath were then wrapped together to maintain orientation of the fiber to the screened section of the outer sheath. The length of fiber that was loaded into each of the insertion tools was documented. The samplers were labeled via waterproof marker; 25 SPME samplers with 3-foot-long and 2-foot-long working lengths were prepared.

Five 1-foot-long working length samplers were prepared, in case the 3-foot-long samplers could not be deployed successfully to establish uptake kinetics and provide water column samples. The 1-foot-long samplers were grooved on both sides; one groove was loaded with the thick fiber (1000/1060), and the other groove was loaded with thin fiber (210/230; 210 µm inner diameter and 230 µm outer diameter). Because the uptake kinetics of the two different size fibers are different, the ratio of concentrations in the two different fibers at any given time allows inference of the external transport characteristics that control fiber uptake and can be used to evaluate the extent of steady state achieved. In previous deployments, equilibrium uptake was assumed as a result of the relatively permeable nature of the cap and armoring materials and the substantial tides in the river during deployment. The two different size fibers were deployed in an attempt to test and/or demonstrate this equilibrium. As will be described later, however, the retrieved samples did not show significant PAH concentrations and any deviation from equilibrium could not be inferred.

3.2 Deployment

3.2.1 Sampling Locations

SPMEs samplers were deployed in 22 sediment cap locations and 2 background locations at the Site as indicated in Figure 1. The cap in the sampled area generally includes an armoring layer, an underlying sand layer, and in some locations, an organoclay layer, over contaminated sediment. An SPME-loaded insertion tool was placed at each location. Target sample depths were: 6 inches below the top of the 12-inch-thick armoring layer; 6 inches into the sand cap; and 12 inches into the sand cap. After emplacement of the SPME insertion tool, the armoring rock (where present) was replaced to 1 foot above the cap sand layer. Where articulated concrete block (ACB) armoring was present, the sampling devices were pushed to the appropriate depth, approximately 2 feet into the sediment cap as measured from the top of the ACB. The actual sampler depths are slightly different from the initial plan and the actual insertion depths are shown in Figure 2. The SPME rod was left in place for a minimum of 1 week (expected to be sufficient time for approximate equilibrium with pore water concentrations in the permeable cap materials with tidal pumping).

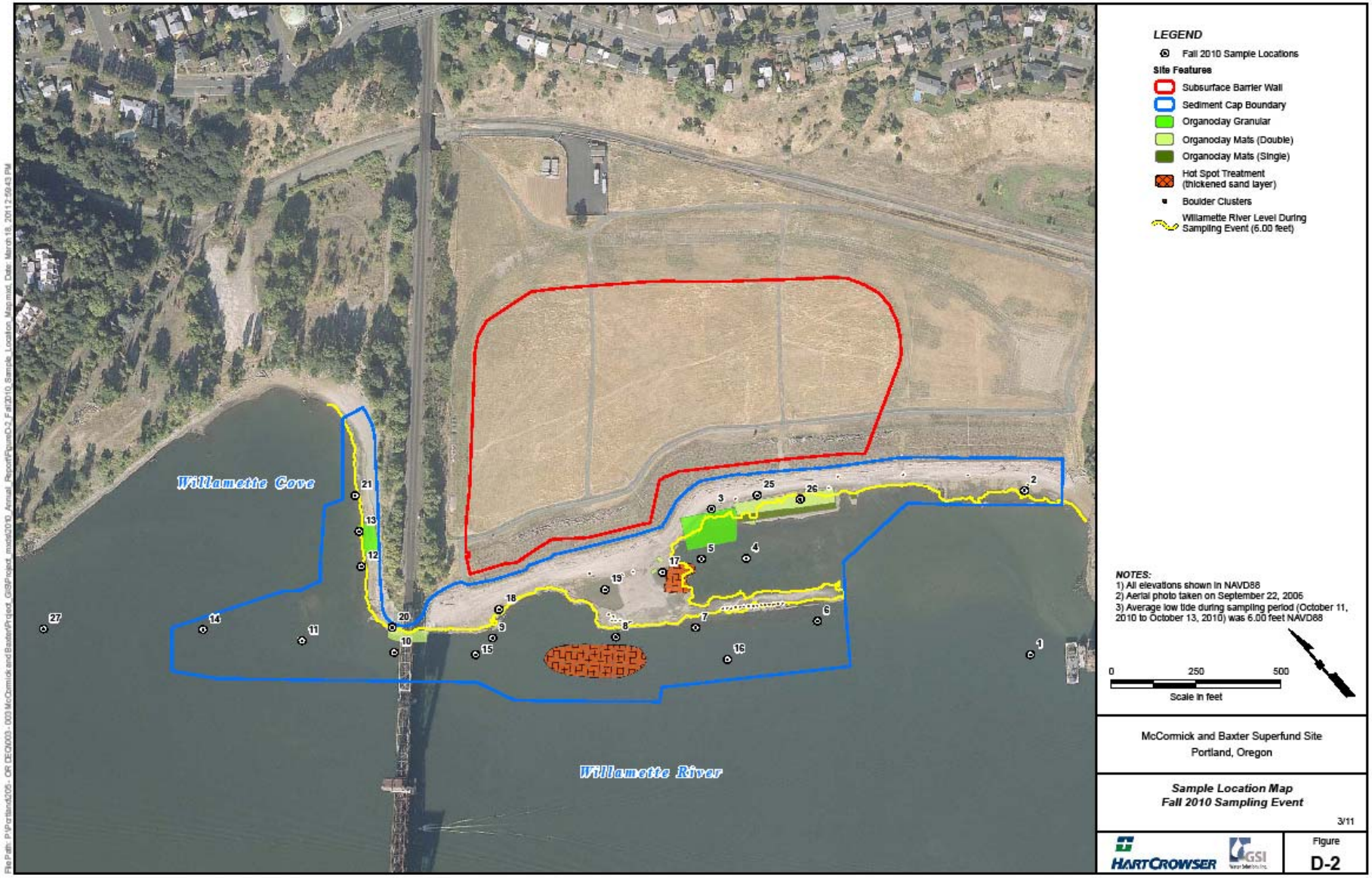

Figure 1. Study area showing sampling locations

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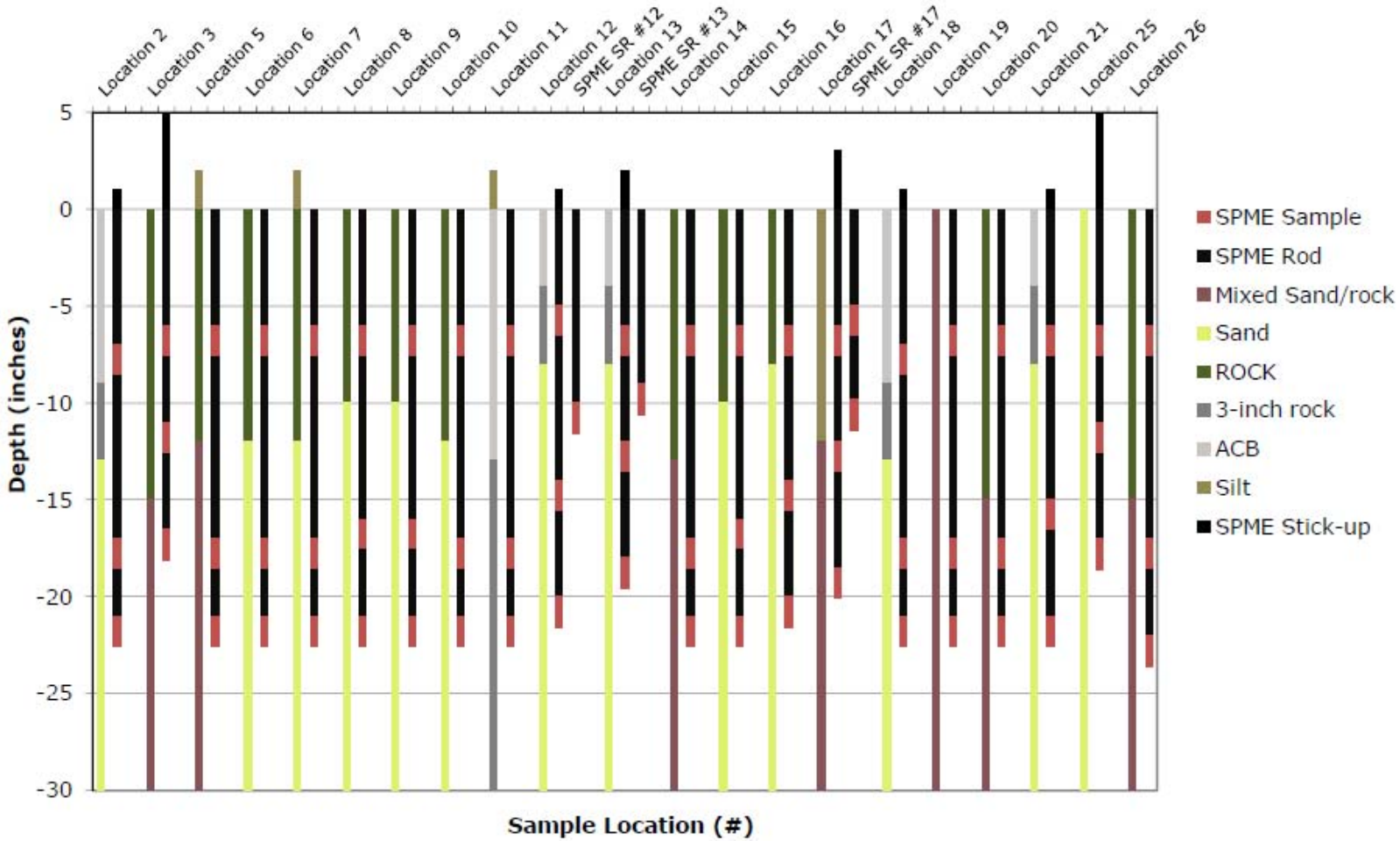

Figure 2. SPME deployment locations and sampling depths. Subsurface material is based on nearby borings into the sediment cap where available, diver report for armoring thickness, and sediment cap design.

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3.2.2 Deployment Method

The insertion tools were inserted to the top of the SPME fiber (point marked on the outer sheath), and were inserted perpendicular to the sediment surface so a profile could be achieved. Samplers were deployed by EPA divers provided by the project sponsor. The location of one end of the cording was marked at the surface with flagging or buoys for retrieval. Twenty-two 2-foot samplers were deployed into the sediment and two 1-foot samplers were deployed to measure background surface water concentrations at locations describe above. An additional three 1-foot double-loaded samplers were deployed adjacent to the 2-foot samplers at Locations 12, 13, and 17 to estimate uptake kinetics to the fiber. One 2-foot sampler was left onsite to serve as a field blank.

3.3 Retrieval

The fibers were equilibrated for 7 days before retrieval. This time was chosen as a balance between using short times to minimize sample disturbance or vandalism and the time required to achieve equilibration. The time required to achieve full equilibration depends on the hydrophobicity of the compound being analyzed, the dimensions of the PDMS sorbent, and the mixing characteristics within the sediment. During retrieval, the SPME fibers were withdrawn from the sediment and immediately processed to reduce evaporative or other losses from the fiber. Onshore samplers were retrieved and processed immediately on shore. Dismantling and processing of the fiber generally required 3 to 4 minutes. The rapid processing time was an effort to retain as much naphthalene as possible. The volatility of other PAHs is too low to have significant losses such that onsite processing is required. Field notes documented variances from expected or design conditions as well as locations of the field deployable SPME insertion tools and sample identification (ID). Variances from the Sampling and Analysis Plan were as follows:

- Samplers at Locations 2, 3, 12, 13, 17, 18, 21, and 25 could not be pushed to their total planned depth due to refusal. Actual depths where the samples were collected is shown in Figure 2. An attempt was made to collect the correct depth sample for the inter-armoring and shallow sub-armoring sample as shown in Figure 2.
- No sample was obtain at Location 4. The sampler deployed at Location 4 was absent during retrieval.

The insertion tools were dismantled and the fibers were removed from the inner rod and wiped with damp Kimwipe tissue to remove sediment particles. Fibers were sampled from top to bottom at three levels, as described above, and two adjacent 2-cm fibers were sampled from each location as noted. Details of actual fiber sampling depths and positions are shown in Figure 2. The fibers were added to 2-mL amber auto-sampling vials prefilled with 230 µL of acetonitrile and an internal standard (benzo[a]fluorene). Sectioned samples were shipped overnight to UT at 4 degrees Centigrade (C) and were subsequently stored in a freezer at -10 degrees C until

analysis. All samples were analyzed within 1 month of receipt. Field blanks and field control samples (calibration standards) were processed identically to the Site samples.

The 210/230 fiber in the 1-foot samplers also was retrieved and processed. Because of their low sorbent volumes, two 8-cm fibers were sampled from each sampler and extracted with 100 µL of acetonitrile.

3.4 Sample Analysis

The 16 PAH priority pollutants were analyzed with a high performance liquid chromatography (HPLC) (Waters 2690 HPLC) with UV-Diode array detector and fluorescence detector by EPA method 8310 (EPA method 8310; SW-846 3rd edition, 1986). Calibration curves of fluorescence and ultraviolet (UV) detectors are listed in Appendix B, Tables B1 and B2. Acenapthylene is not detectable by fluorescent detector, and benzo(g,h,i) perylene and indeno(1,2,3-cd) pyrene are expected to coelute.

3.5 Data Analysis

Pore water concentrations are calculated as fiber concentrations divided by the fiber-water partition coefficients.

$$C_w = C_f / K_{f-w}$$

Details for how to get fiber concentrations from the extract solvent concentrations are described in the 2009 report. Fiber-water partition coefficients are estimated from a correlation with octanol-water partition coefficients generated in a calibration study (Reible, 2010). Fiber-water partition coefficients of the studied PAHs are presented in Appendix B, Table B3.

$$Log(K_{fw}) = 0.839 \times Log(K_{ow}) + 0.117$$

4. Results

Twenty one of the twenty two 2-foot samplers were retrieved after 7 days, and fibers inside the samplers were successfully sampled and preserved in acetonitrile. One sampler at Location 4 was not located and retrieved. Both thin fiber (210/230) and thick fiber (1000/1060) were retrieved from the 1-foot samplers, although some thin fibers were broken. Broken fibers were not used in the analysis of the kinetic uptake. No fibers from the twenty one retrieved 2-foot samplers were broken. Samples were analyzed and results are discussed in the following section.

Pore water concentrations from the 21 locations as well as the surface water concentrations from 2 background sites as measured by SPME are listed in Appendix A, Tables A1 and A2. The data

was reviewed consistent with EPA's validation guidelines. Concentrations that are under the detection limit are labeled as "ND". Concentrations that are detected, but lower than the practical quantitation limits (PQL) are estimated values and are labeled as "J". Only three low molecular PAHs (naphthalene, acenaphthane, and phenanthrene) were detected in the field blanks. The average concentrations of these three compounds, however, are lower than or essentially equal to the corresponding PQLs with a maximum concentration marginally higher than the PQL. Therefore, the data were not further categorized on the basis of field blanks in this report.

4.1 Contaminant Detection Frequency by SPME

There were 126 fiber samples collected from the Site. Pore water concentrations from these samples, as well as the frequency of detection of all compounds, are shown in Table 1. The three most hydrophobic compounds (dibenz[a,h]anthracene, and benzo[ghi]perylene+indeno[1,2,3-cd]pyrene) were not detected in any of the samples, which is consistent with the sampling in 2009. Acenaphthane and phenanthrene were consistently detected in all samples and more than half of the concentrations were above the PQL and the field blank. This result is consistent with past sampling of the Site. Another low molecular weight PAH, fluorene exhibited a much lower detection frequency because of an inability to accurately measure low concentrations caused by an interference peak in the chromatography. Fluorene was accurately quantified when the interference peak was negligible (e.g., at Locations 5, 9, 15, and 16). Anthracene was detected at very low frequency (<10 percent). Detection frequency of other high molecular weight compounds, such as chrysene, benz[a]anthracene, benzo[b]floranthene, benzo[b]floranthene and benzo[a]pyrene, were also low because of their slow migration in the sediment cap and potentially low pore water concentrations.

Table 1. Detection Frequency of Contaminants in Collected Samples.

	Detection Frequency	Detection Frequency >PQL	Maximum Conc	PQL (µg/L)		NRWQC (EPA, 2007)
	(%)	(%)	(µg/L)	1000/1071	1000/1060	µg/L
Naphthalene	60	15	735.6	5.60E-02	6.70E-02	
Fluorene	19	17	40.18	2.37E-02	2.81E-02	5300
Acenaphthene	100	84	95.75	1.96E-02	2.33E-02	990
Phenanthrene	100	68	12.12	5.57E-03	6.63E-03	-
Anthracene	9	7	1.41	5.90E-03	7.02E-03	40000
Fluoranthene	33	24	0.62	1.59E-03	1.89E-03	140
Pyrene	52	50	0.33	3.43E-04	4.08E-04	4000
Chrysene	21	18	3.53E-02	9.22E-05	1.10E-04	0.018
B[a]A	18	18	1.37E-02	4.18E-05	4.98E-05	0.018
B[b]F	17	17	4.18E-03	5.17E-05	6.16E-05	0.018
B[k]F	24	11	8.99E-04	3.52E-05	4.18E-05	0.018

B[a]P	17	12	1.30E-03	3.25E-05	3.87E-05	0.018
Dibenz[a,h]anthracene	0	0		8.26E-06	9.83E-06	0.018
Benzo[ghi]+Indeno	0	0		1.77E-05	2.11E-05	0.018
Total	41	32				

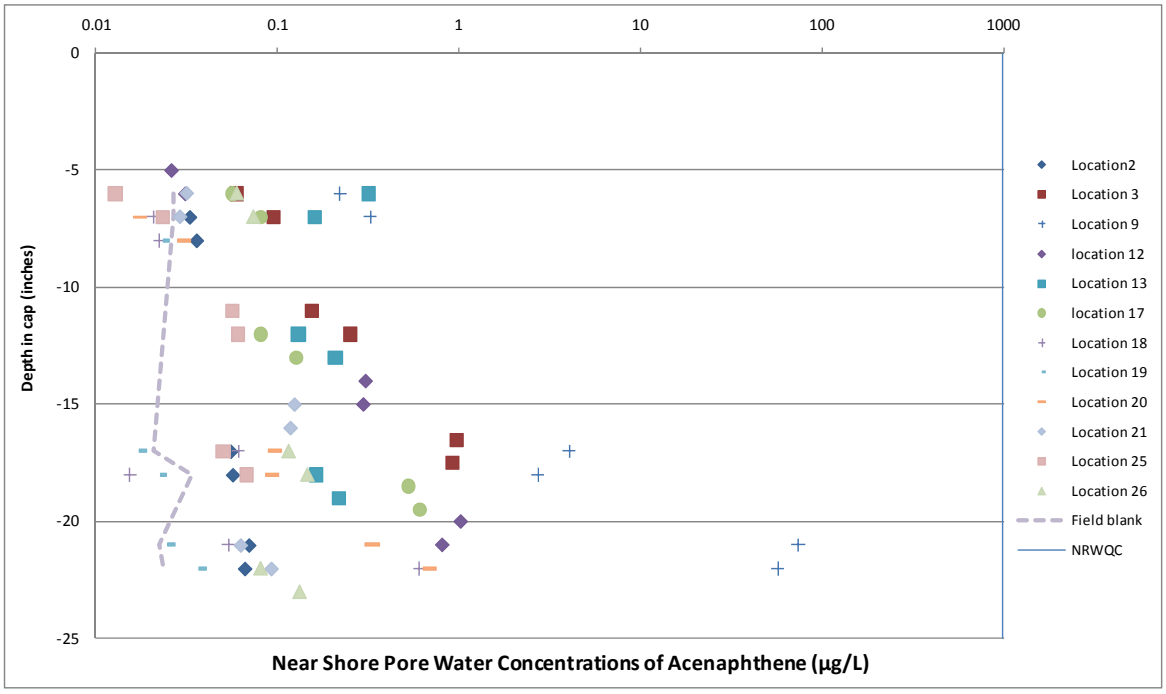
PQL = practical quantitation limits

µg/L = micrograms per liter

Per the Sampling and Analysis Plan, acenaphthylene is only reported if present in sufficiently high concentrations to be detectable by UV detection (~10 ug/L) and benzo[g,h,i] perylene and indenopyrene are reported as a sum because the method does not adequately separate them.

4.2 Concentration Variation Across Site

All concentrations measured for acenaphthene (a representative low molecular weight PAH), pyrene (a representative medium molecular weight PAH) and B[a]P (representative high molecular weight PAHs) are shown in Figures 3A, 3B, and 3C. Field blank and surface water concentrations of acenaphthene also are plotted for comparison. Most concentrations are higher than these reference concentrations. However, no medium and high molecular compounds were detected in either field blank or surface water samples. Concentrations of these three compounds, although low, are relatively higher, at Location 5 at the bottom of the rock and sand mixing layer. Acenaphthene and pyrene showed relatively high concentrations at the bottom of the sand layer in Locations 9 and 16. However, relatively high concentrations of benzo[a]pyrene were observed in the bottom layer in Location 12. The concentrations of these three compounds, however, are below the corresponding NRWQC.



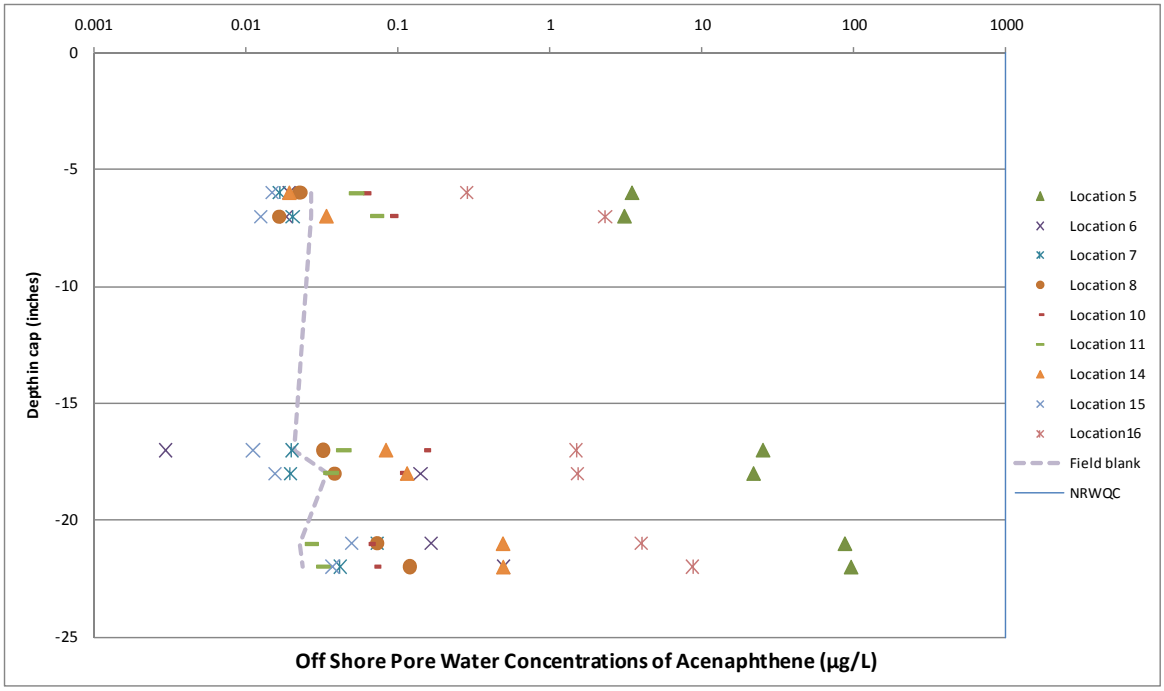
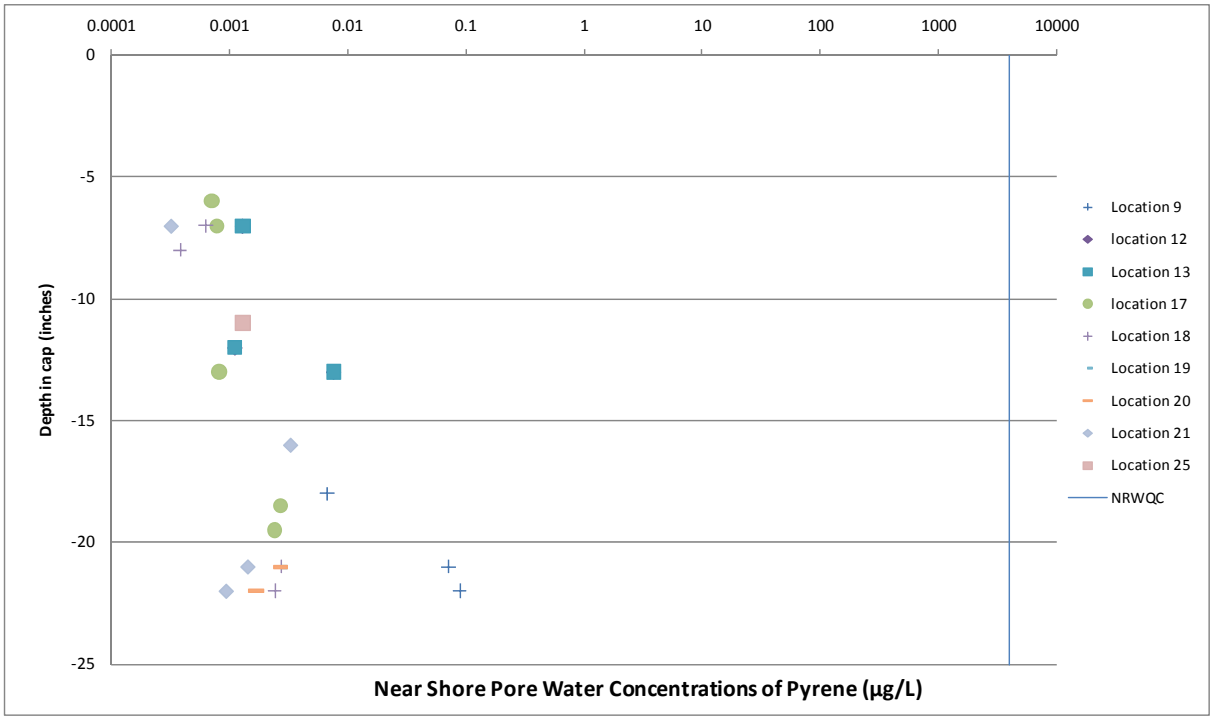


Figure 3A. Pore water concentrations of Acenaphthene in near shore (above) and off-shore (below) locations.



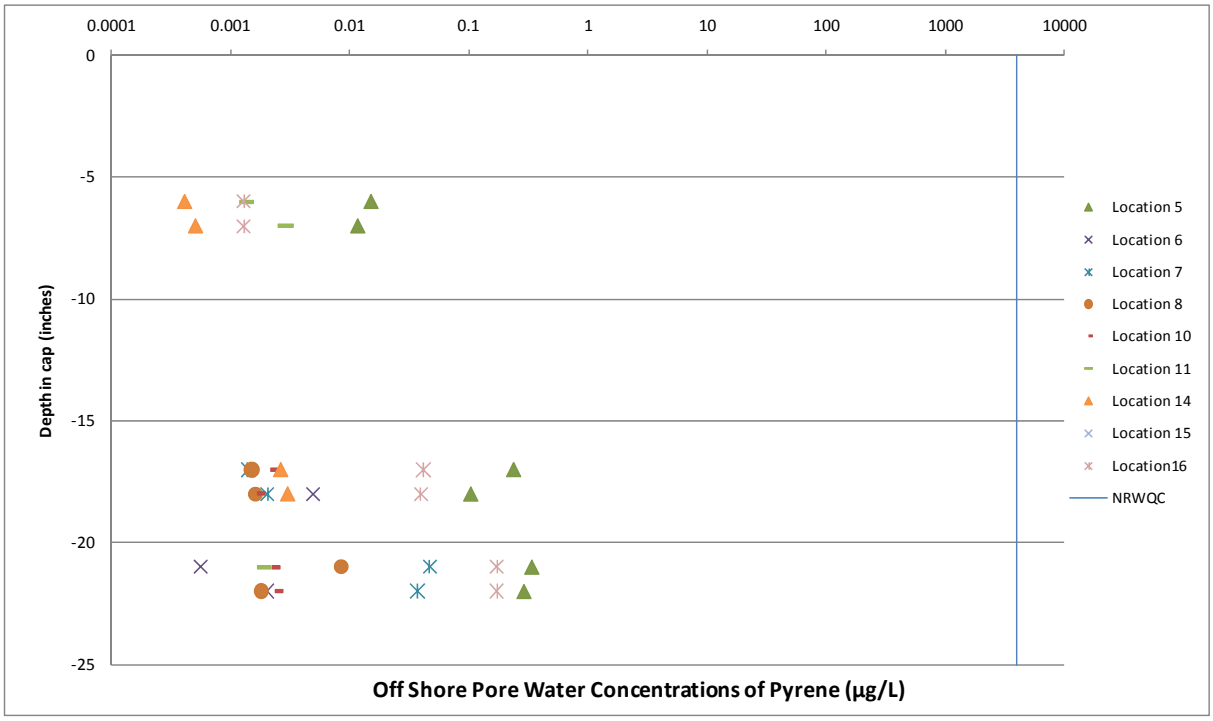
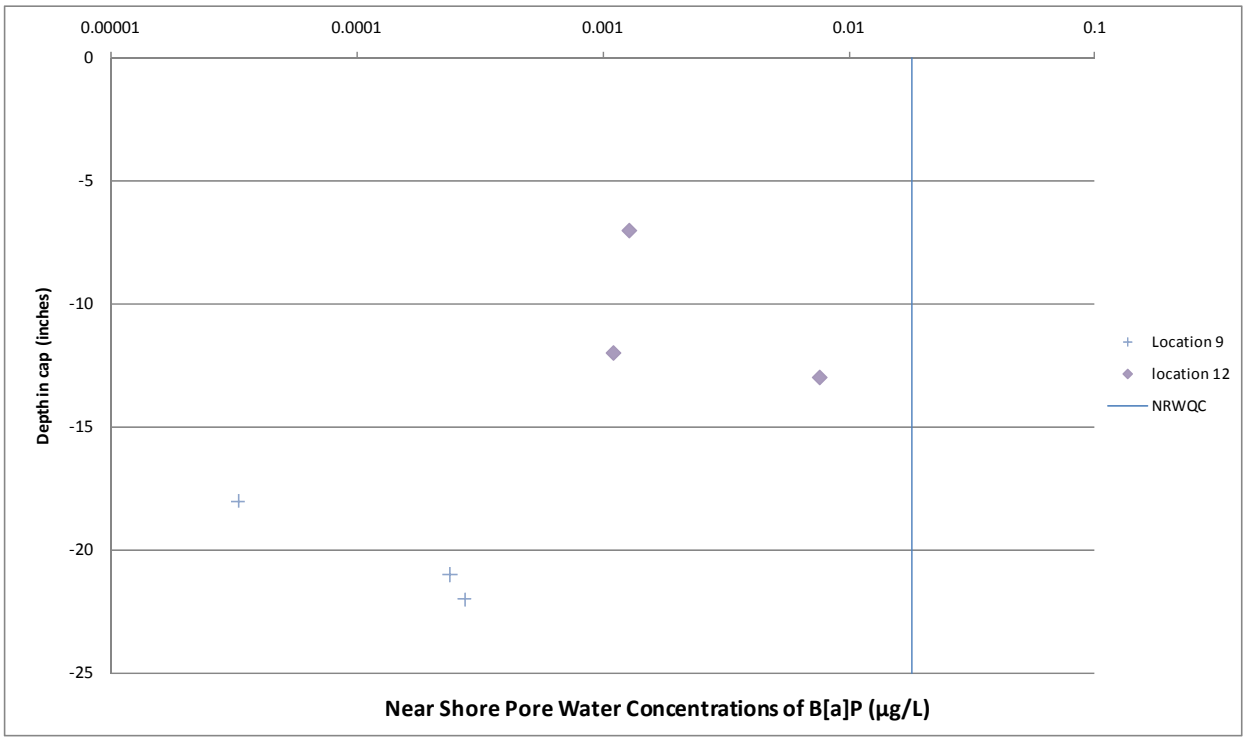


Figure 3B. Pore water concentrations of Pyrene in near-shore (above) and off-shore (below) locations.



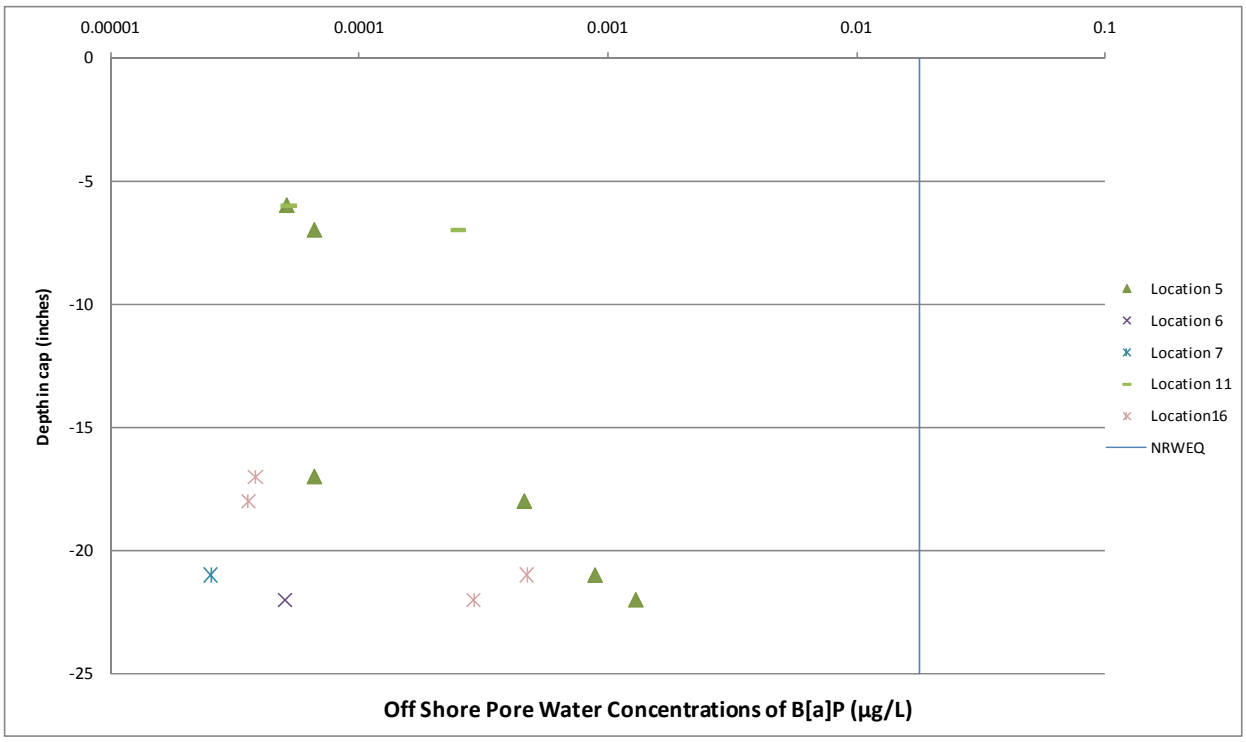


Figure 3C. Pore water concentrations of Benzo(a)pyrene in near-shore (above) and off-shore (below) locations.

4.3 Vertical Migration Through the Cap

PAH concentration profiles through the cap were evaluated at five locations with relatively high detection frequencies (i.e., Locations 5, 9, 11, 12 and 16 as shown in Figures 4A through 4E). Similar to the observations in 2009, pronounced concentration gradients (increasing from cap to water surface) were observed in the river samples at Locations 5, 9, and 16. The concentrations in the surface layer are significantly lower than those in bottom layers. Shore samples, such as Location 12, exhibited uniform concentrations across the sand cap. The active tidal mixing across the sand cap may account for the uniform concentration distribution through the cap. However, concentrations of acenaphthene showed a clear increase toward the cap. The reason for this abnormal behavior from other compounds is not clear. Although Location 11 is not on shore, low molecular compounds, such as naphthalene, acenaphthene and phenanthrene, showed uniform concentrations although a pronounced gradient was observed for fluoranthene, and high molecular compounds were observed only at the surface.

4.4 Comparison to Comparison Criteria

Chronic National Recommended Water Quality Criteria (NRWQC[1]; EPA, 2009) were used as surface water screening criteria, where available, to evaluate pore water concentrations (see Table 1). Pore water concentrations would need to be considerably elevated before a measurable exceedance of surface water criteria is likely to be observed in the overlying water. Use of the surface water criteria is a convenient, but very conservative comparison, to pore water concentrations. All measured concentrations were divided by the NRWQC for each compound and plotted in Figure 5. One exceedance of the NRWQC was observed (ratio>1) for chrysene near the bottom of the profile at Location 5 with a maximum concentration of 35 ng/L. However, the adjacent sample reached only 30 percent of NRWQC. Benz[a]anthracene reached 80 percent of NRWQC at Location 5 and 60 percent of NRWQC at Location 16, both at the bottom of cap layer. Other compounds at all sites and all compounds at the surface of the caps are well below the NRWQC.

None of the collected data suggests that there has been significant migration through the cap at the Site.

[1] Screening criteria were based on NRWQC for organism only [i.e., non-drinking water] exposures.

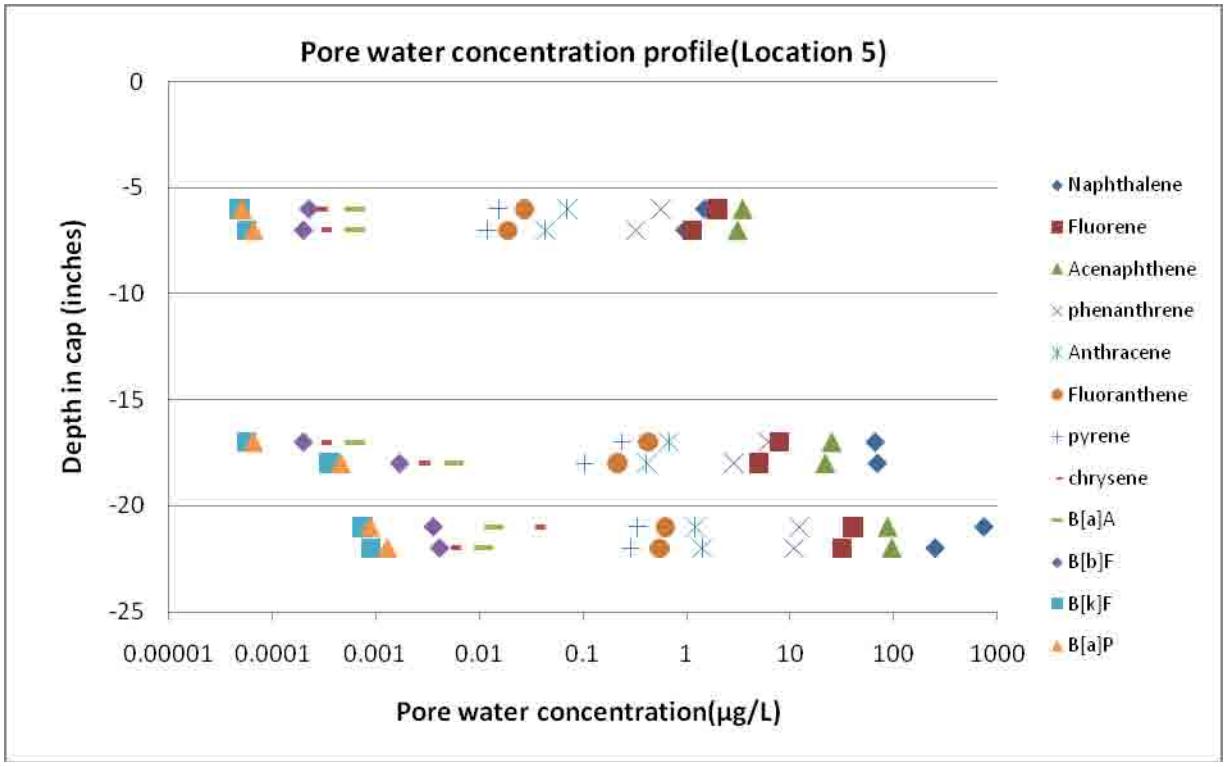


Figure 4A. PAH concentration profiles through the cap at Location 5.

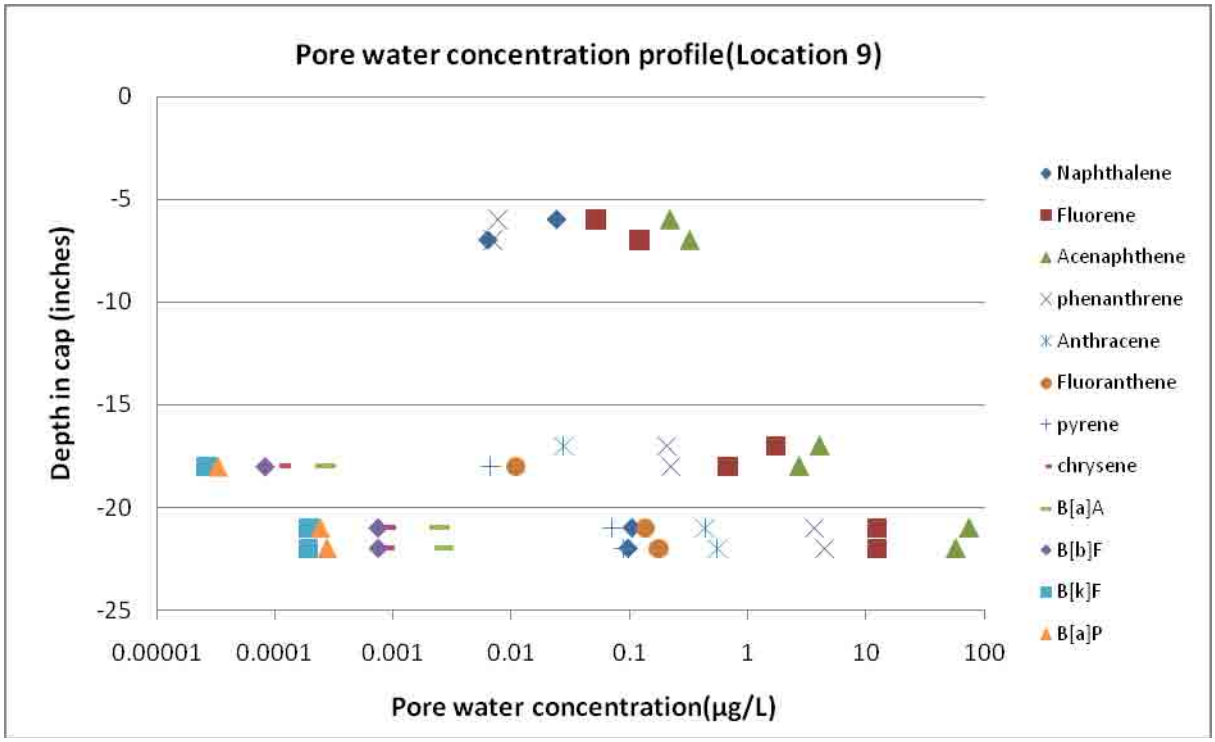


Figure 4B. PAH concentration profiles through the cap at Location 9.

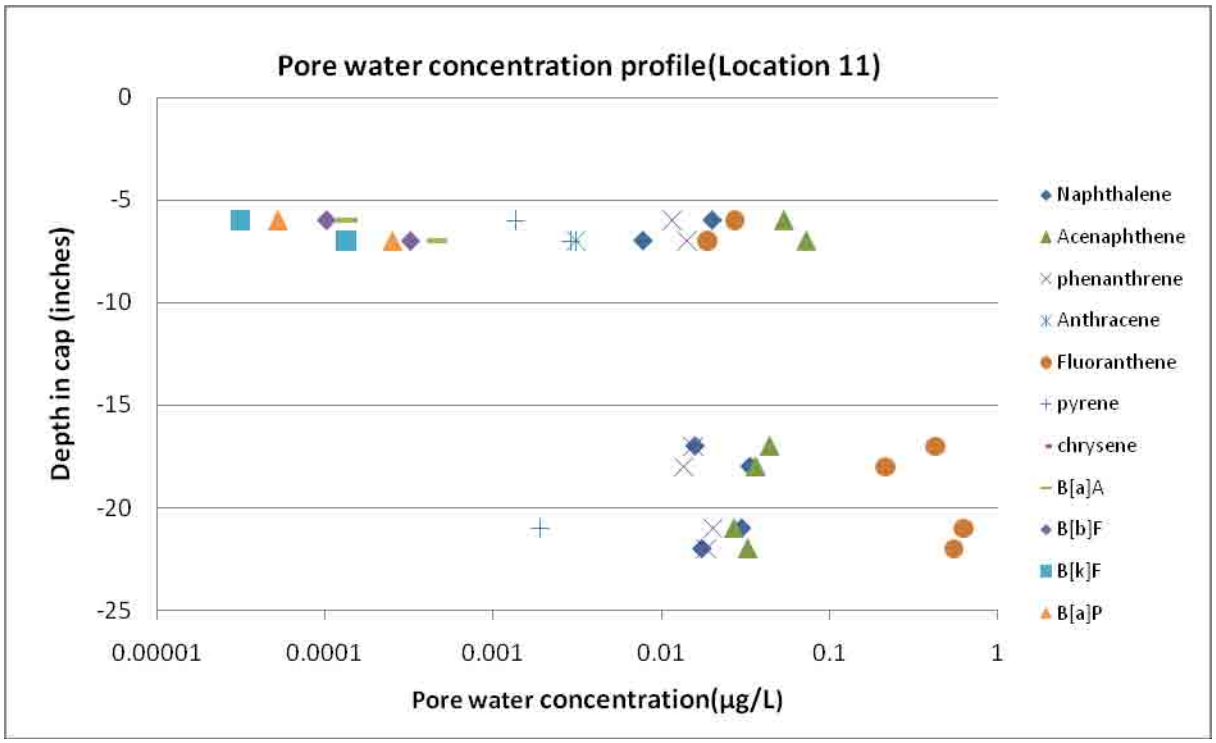


Figure 4C. PAH concentration profiles through the cap at Location 11.

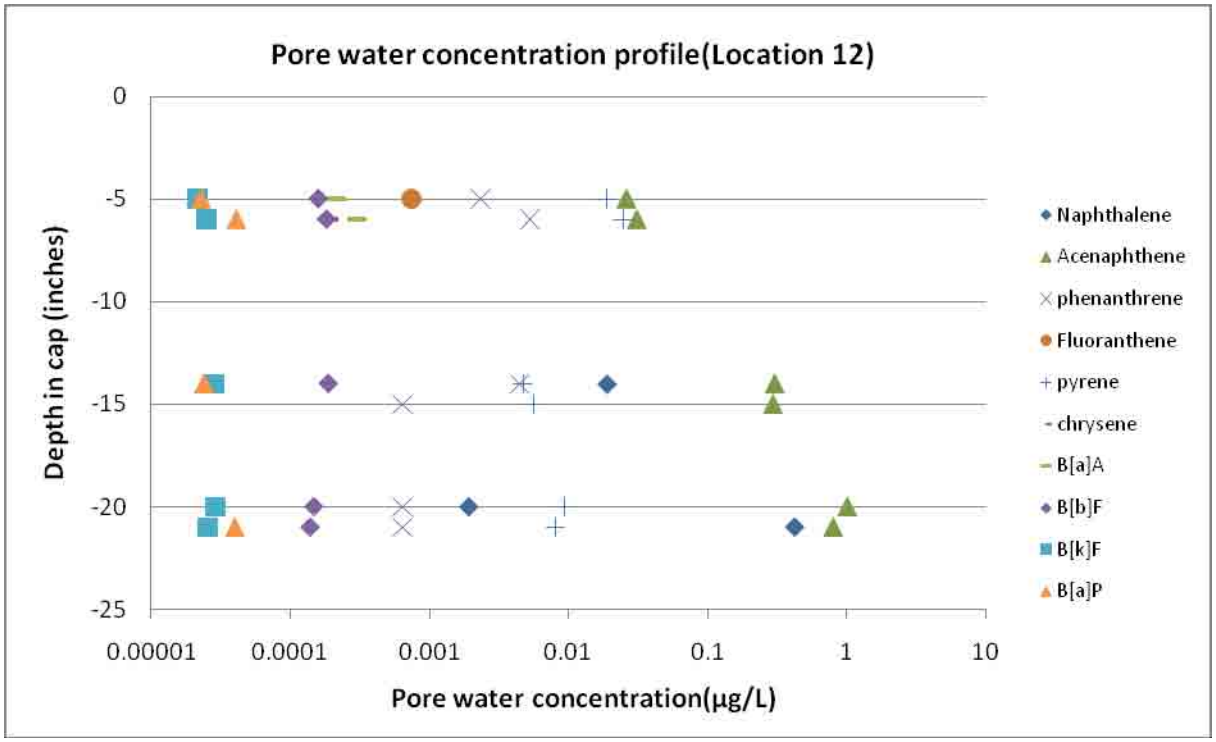


Figure 4D. PAH concentration profiles through the cap at Location 12.

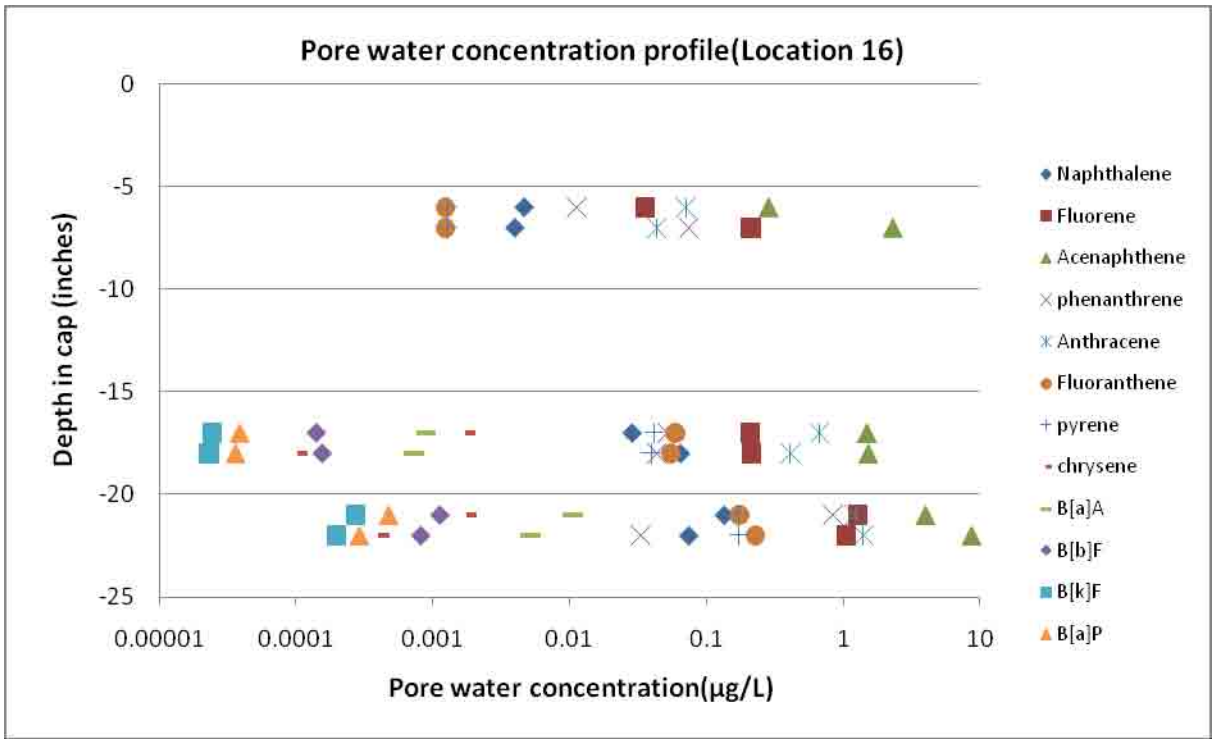


Figure 4E. PAH concentration profiles through the cap at Location 16.

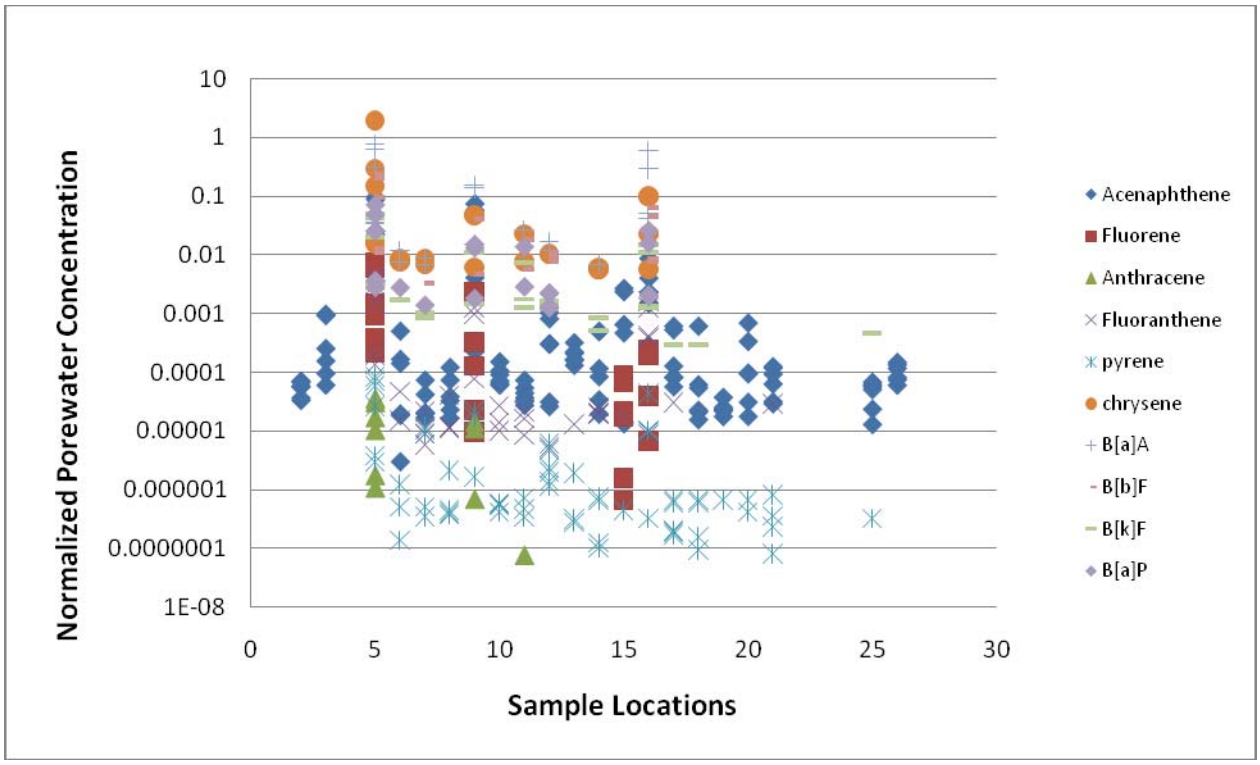


Figure 5. Summary of the ratio of measured concentrations to NRWQC by Location (Note: only includes those compounds with a NRWQC)

4.5 Uptake Kinetics Considerations

The sorbent fibers deployed are expected to be at steady state after 7 days of exposure based on the SPME/PDMS Calibration Study (Reible, 2010) and because of the permeability of the cap layers and the motion induced by the tides. Samplers with two different size fibers were deployed to test this assumption. The ratio of concentrations in the two different fibers (210/230 and 1000/1060) at any given time allows inference of the external transport characteristics that control fiber uptake and can be used to evaluate the extent of steady state achieved. Unfortunately, two of the 1-foot double-loaded samplers were deployed at the locations with very low concentrations and no concentrations were detected except acenaphthane and phenanthrene, which are not expected to have kinetics issues. The sampler deployed at Location 12 showed significant concentrations of PAHs, however, the analysis of the fibers from the 1-foot sampler were delayed; the results were inconsistent and could not be used to evaluate uptake kinetics.

Note that although the assumption of equilibrium remains unconfirmed, the samples collected in 2010 can be compared directly to samples in previous years, which also were not corrected for any potential deviation from equilibrium.

4.6 Comparison to SPME Sampling in 2009

A direct comparison of the detected pore water concentrations of all compounds is shown in Figures 6A, 6B, 6C, and 6D for Locations 5,9,12, and 16. In each figure, a best fit linear line is shown as well as a 1:1 line (shown in red). Data above the 1:1 line suggest that 2010 samples are higher in concentration than was detected in 2009. This was observed at Location 5. Concentrations at Locations 9, 12, and 16 in 2010 were approximately equal to or less than those observed in 2009. The higher concentrations noted at Locations 5 and 16 in 2010 may be the result of changes over time or simply may reflect insertion of the sampling tool into a higher concentration zone. Because the concentrations remain below the NRWQC, the changes are not currently significant. Additional sampling would be necessary in the future to assess whether these concentrations ultimately cause exceedances of the NRWQC.

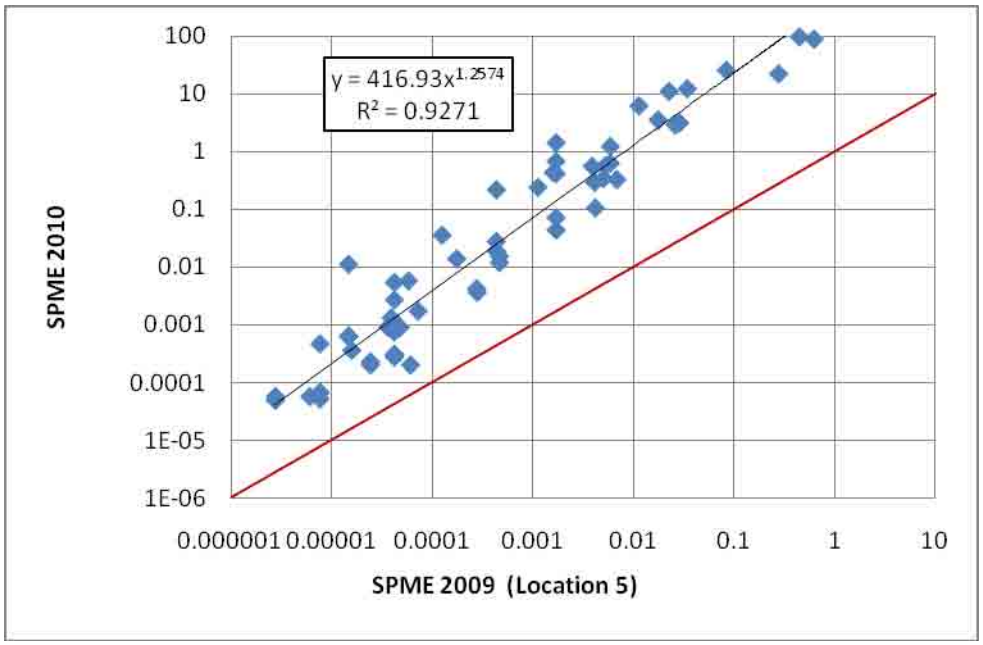


Figure 6A. Direct comparison of SPME sampling in 2010 to 2009 at Location 5

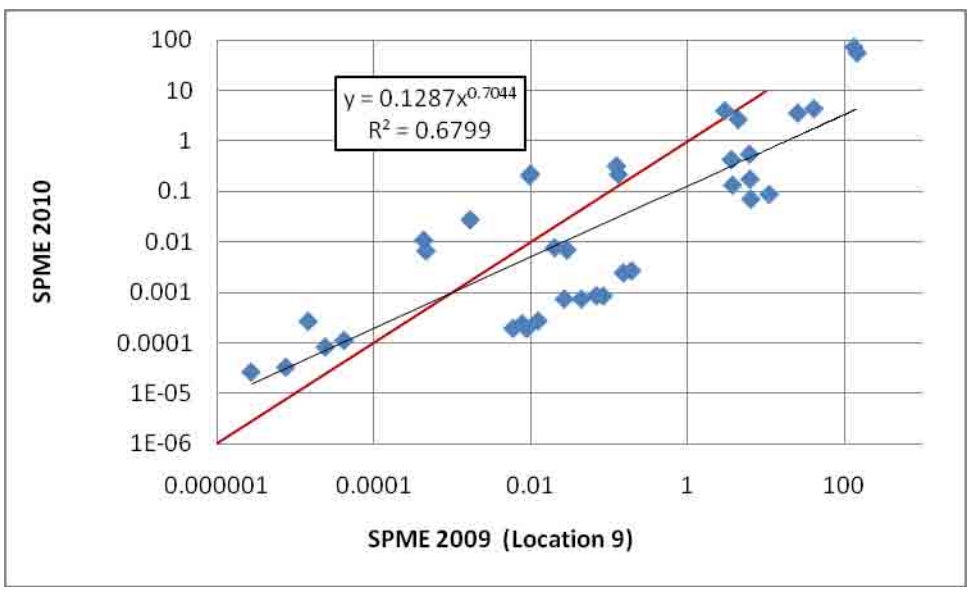


Figure 6B. Direct comparison of SPME sampling in 2010 to 2009 at Location 9.

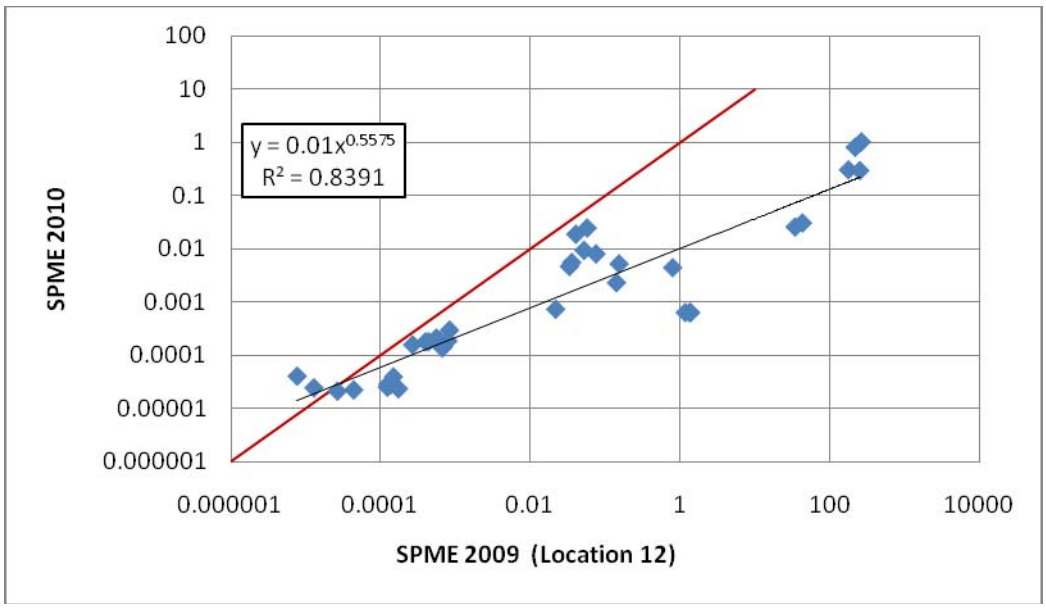


Figure 6C. Direct comparison of SPME sampling in 2010 to 2009 at Location 12.

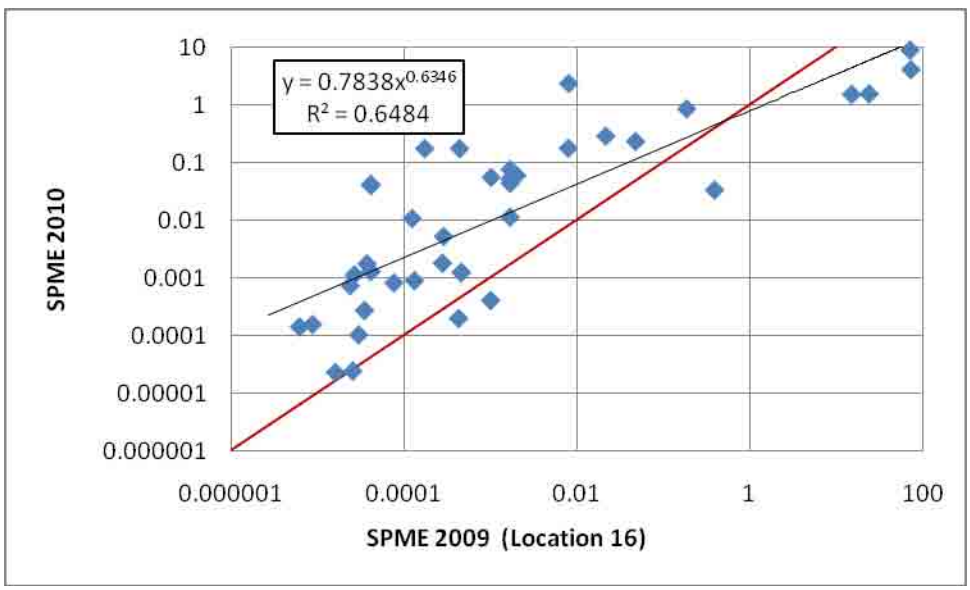


Figure 6D. Direct comparison of SPME sampling in 2010 to 2009 at Location 16.

5. Quality Control

5.1 Instrument Calibration

Calibration of the fluorescence detectors in full range and low range concentrations and calibration of UV detector are presented in Appendix B, Tables B1 and B2.

5.2 Method Detection Limits (MDL) and Practical Quantitation Limits (PQL)

Methods to determine the equipment MDL, and MDL and PQL for SPME measurements can be found in Appendix B. The equipment MDL and PQL for direct injection are listed in Appendix B, Table B3.

5.3 Continuous calibration verification

The 5 µg/L calibration standard with all 16 PAHs was analyzed at the beginning of each batch analysis to check if instrument response was reliable and if the new response deviates from the initial calibration. This 5 µg/L standard was then continuously analyzed every 10 samples or after one group of data (no more than 12 samples) and are presented in Appendix B, Table B4. The deviations of the measured concentrations from 5µg/L are within 15 percent for all compounds with occasional variations primarily with fluorene. A persistent interfering peak was noted with fluorene. For the purposes of the current work, its area was added to that of fluorene which may account for the occasional positive deviations from the standard.

5.4 Field Control Samples, Internal Standard and Field Blanks

The field control samples are effectively calibration standards, but were treated identically as other samples. The field control samples were 0.5, 5, 5, 5, and 20 µg/L concentrations of the various PAHs. The field control samples were stable during transition and treatment, and the deviations from the expected concentrations are within 15 percent for most compounds, except fluorene as discussed in the previous section. As the response peak of fluorene is significantly higher than the interference peak, the interference is negligible as shown by samples in Location 5. Appendix B, Table B5 summarizes the concentration changes noted in the field control samples.

The internal standard used in this field deployment is benzo[a]fluorene, whose peak falls in the middle of the chromatography of all PAHs. The internal standard was stable (±15 percent), in field blanks and 80 percent of samples, which indicates that solvent volumes were stable during transitions from the laboratory to the field and then to laboratory. However, the concentration of internal standard in some samples was significantly higher, especially at locations with higher PAH concentrations, such as Location 5, which implied that the internal standard existed in some locations of the sampling site. The stability of the internal standard in low concentration field samples (where any interference would be negligible) suggested that correcting concentrations with the internal standard was unnecessary and no correction was incorporated.

6. Recommendations

An attempt was made, using 1-foot samplers loaded with 2 fiber sizes (210/230 μm and 1000/1060 μm) deployed at 3 locations where PAHs were expected to be observed, to evaluate the uptake kinetics and determine whether the sorbent fibers were at steady state after 7 days. Two of these did not give meaningful information due to concentrations below the PQL and the third location was not processed in a timely manner leading to inconsistent results. Although based on the permeability and tidal flushing, it is expected that the fibers were at steady state, during the next SPME deployment 3-5 samplers should include two fiber sizes to evaluate the uptake kinetics. These fibers should be deployed to a depth of 1 foot into the sand cap layer using a 2 foot sampler instead of deploying a 1-foot sampler which is measuring pore water within the armoring layer.

References

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Reible D, Lu XX, Liz Kuriakose, Patrick Dunlap. 2010. Report for 2009 Deployment at McCormick and Baxter Superfund Site. 2010. University of Texas, Austin, TX 78712; prepared for the Oregon Department of Environmental Quality.

Appendix A

Table A1. Pore water concentrations (µg/L) measured by SPME.

Location 2(µg/L)							
Depth in cap (inches)	-7	-8	-17	-18	-21	-22	PQL
Naphthalene	ND	ND	ND	ND	ND	ND	6.70E-02
Fluorene	Interference peak						2.81E-02
Acenaphthene	3.30E-02	3.60E-02	5.57E-02	5.72E-02	7.03E-02	6.67E-02	2.33E-02
Phenanthrene	2.62E-03 J	2.57E-03 J	6.04E-03 J	6.16E-03 J	6.58E-03 J	6.54E-03 J	6.63E-03
Anthracene	ND	ND	ND	ND	ND	ND	7.02E-03
Fluoranthene	ND	ND	ND	ND	ND	ND	1.89E-03
Pyrene	ND	ND	ND	ND	ND	ND	4.08E-04
Chrysene	ND	ND	ND	ND	ND	ND	1.10E-04
B[a]A	ND	ND	ND	ND	ND	ND	4.98E-05
B[b]F	ND	ND	ND	ND	ND	ND	6.16E-05
B[k]F	ND	ND	ND	ND	ND	ND	4.18E-05
B[a]P	ND	ND	ND	ND	ND	ND	3.87E-05
Location 3(µg/L)							
Depth in cap (inches)	-6	-7	-11	-12	-16.5	-17.5	PQL
Naphthalene	ND	2.59E-02 J	ND	ND	5.30E-02 J	1.02E-01	6.70E-02
Fluorene	Interference peak						2.81E-02
Acenaphthene	5.97E-02	9.46E-02	1.54E-01	2.51E-01	9.70E-01	9.14E-01	2.33E-02
Phenanthrene	5.01E-03 J	5.34E-03 J	2.66E-02	1.59E-02	2.42E-02	2.61E-02	6.63E-03
Anthracene	ND	ND	ND	ND	ND	ND	7.02E-03
Fluoranthene	ND	ND	ND	ND	ND	ND	1.89E-03
Pyrene	ND	ND	ND	ND	ND	ND	4.08E-04
Chrysene	ND	ND	ND	ND	ND	ND	1.10E-04
B[a]A	ND	ND	ND	ND	ND	ND	4.98E-05
B[b]F	ND	ND	ND	ND	ND	ND	6.16E-05
B[k]F	ND	ND	ND	ND	ND	ND	4.18E-05
B[a]P	ND	ND	ND	ND	ND	ND	3.87E-05
Location 5(µg/L)							
Depth in cap (inches)	-6	-7	-17	-18	-21	-22	PQL
Naphthalene	1.48E+00	9.60E-01	6.57E+01	6.90E+01	7.36E+02	2.49E+02	5.60E-02
Fluorene	1.98E+00	1.13E+00	7.85E+00	5.01E+00	4.02E+01	3.16E+01	2.37E-02
Acenaphthene	3.49E+00	3.11E+00	2.53E+01	2.19E+01	8.72E+01	9.58E+01	1.96E-02
Phenanthrene	5.61E-01	3.24E-01	6.13E+00	2.87E+00	1.21E+01	1.09E+01	5.57E-03
Anthracene	7.05E-02	4.33E-02	6.70E-01	4.11E-01	1.22E+00	1.41E+00	5.90E-03
Fluoranthene	2.74E-02	1.87E-02	4.28E-01	2.16E-01	6.24E-01	5.49E-01	1.59E-03
Pyrene	1.52E-02	1.18E-02	2.38E-01	1.04E-01	3.38E-01	2.90E-01	3.43E-04
Chrysene	2.73E-04	3.02E-04	3.02E-04	2.67E-03	3.53E-02	5.34E-03	9.22E-05
B[a]A	6.31E-04	6.22E-04	6.22E-04	5.69E-03	1.37E-02	1.10E-02	4.18E-05
B[b]F	2.25E-04	1.99E-04	1.99E-04	1.71E-03	3.61E-03	4.18E-03	5.17E-05
B[k]F	4.85E-05	5.67E-05	5.67E-05	3.56E-04	7.48E-04	8.99E-04	3.52E-05
B[a]P	5.11E-05	6.60E-05	6.60E-05	4.62E-04	8.91E-04	1.30E-03	3.25E-05
Location 6(µg/L)							
Depth in cap (inches)	-6	-7	-17	-18	-21	-22	PQL
Naphthalene	ND	ND	ND	1.15E-01	1.02E-01	9.80E-02	6.70E-02
Fluorene	Interference peak						2.81E-02
Acenaphthene	1.93E-02 J	1.83E-02 J	2.96E-03 J	1.40E-01	1.65E-01	4.97E-01	2.33E-02
Phenanthrene	7.12E-03	6.94E-03	5.40E-04 J	1.74E-02	8.18E-03	2.19E-02	6.63E-03
Anthracene	ND	ND	ND	ND	ND	ND	7.02E-03
Fluoranthene	ND	ND	ND	6.57E-03	ND	2.13E-03	1.89E-03
Pyrene	ND	ND	ND	4.91E-03	5.57E-04	2.03E-03	4.08E-04
Chrysene	ND	ND	ND	1.42E-04	1.53E-04	1.39E-04	1.10E-04
B[a]A	ND	ND	ND	2.12E-04	ND	1.38E-04	4.98E-05
B[b]F	ND	ND	ND	ND	ND	ND	6.16E-05
B[k]F	ND	ND	ND	ND	ND	3.11E-05 J	4.18E-05
B[a]P	ND	ND	ND	ND	ND	5.05E-05	3.87E-05

Table A1. Pore water concentrations (µg/L) measured by SPME.

				Location 7(µg/L)									
Depth in cap (inches)	-6		-7	J	-17		-18		-21		-22		PQL
Naphthalene	2.95E-02	J	2.92E-02	J	3.85E-02	J	2.40E-02	J	1.18E-01		2.56E-02	J	6.70E-02
Fluorene					Interference peak								2.81E-02
Acenaphthene	1.66E-02	J	2.03E-02	J	1.99E-02	J	1.95E-02	J	7.28E-02		4.15E-02		2.33E-02
Phenanthrene	5.40E-04	J	5.76E-03	J	1.23E-02		1.30E-02		8.18E-03		1.22E-02		6.63E-03
Anthracene	ND		3.26E-03	J	ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		1.51E-03	J	8.14E-04	J	ND		1.26E-03	J	3.02E-03		1.89E-03
Pyrene	ND		ND		1.39E-03		2.04E-03		4.68E-02		3.70E-02		4.08E-04
Chrysene	ND		ND		ND		ND		1.59E-04		1.22E-04		1.10E-04
B[a]A	ND		ND		ND		ND		3.51E-04		2.68E-04		4.98E-05
B[b]F	ND		ND		ND		ND		ND		5.89E-05	J	6.16E-05
B[k]F	ND		ND		ND		ND		1.83E-05	J	1.49E-05	J	4.18E-05
B[a]P	ND		ND		ND		ND		2.53E-05	J	ND		3.87E-05
				Location 8(µg/L)									
Depth in cap (inches)	-6	J	-7	J	-17		-18		-21		-22		PQL
Naphthalene	6.00E-02	J	3.53E-02	J	5.69E-02	J	2.93E-02	J	1.18E-01		3.17E-02	J	6.70E-02
Fluorene					Interference peak								2.81E-02
Acenaphthene	2.26E-02	J	1.65E-02	J	3.24E-02		3.81E-02		7.28E-02		1.20E-01		2.33E-02
Phenanthrene	5.90E-03	J	3.72E-03	J	1.09E-02		1.07E-02		1.38E-02		1.20E-02		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		1.59E-03	J	1.61E-03	J	5.66E-03		1.63E-03	J	1.89E-03
Pyrene	ND		ND		1.50E-03		1.62E-03		8.45E-03		1.81E-03		4.08E-04
Chrysene	ND		ND		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	ND		ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05
				Location 9(µg/L)									
Depth in cap (inches)	-6		-7		-17		-18		-21		-22		PQL
Naphthalene	0.023988	J	0.006318	J	ND		ND		0.10438		0.096723		6.70E-02
Fluorene	0.051762		0.121492		1.7258		0.677664		12.376		12.39313		2.81E-02
Acenaphthene	0.221329		0.324668		4.04783		2.719303		73.7052		56.9526		2.33E-02
Phenanthrene	0.007736		0.006979		0.20798		0.224316		3.63977		4.455285		6.63E-03
Anthracene	ND		ND		0.02781		ND		0.43492		0.555195		7.02E-03
Fluoranthene	ND		ND		ND		0.010887		0.13586		0.177124		1.89E-03
Pyrene	ND		ND		ND		0.006672		0.07149		0.088757		4.08E-04
Chrysene	ND		ND		ND		0.000112		0.00086		0.000857		1.10E-04
B[a]A	ND		ND		ND		0.000268		0.00247		0.002702		4.98E-05
B[b]F	ND		ND		ND		8.28E-05		0.00074		0.000747		6.16E-05
B[k]F	ND		ND		ND		2.64E-05	J	0.00019		0.000192		4.18E-05
B[a]P	ND		ND		ND		3.3E-05	J	0.00024		0.000274		3.87E-05
				Location 10(µg/L)									
Depth in cap (inches)	-6		-7		-17		-18		-21		-22		PQL
Naphthalene	7.20E-03	J	9.25E-03	J	ND		1.00E-02	J	1.40E-01		5.82E-03	J	6.70E-02
Fluorene					Interference peak								2.81E-02
Acenaphthene	6.00E-02		9.00E-02		1.49E-01		1.04E-01		6.43E-02		7.03E-02		2.33E-02
Phenanthrene	7.22E-03		6.30E-03	J	3.63E-03	J	5.81E-03	J	5.67E-03	J	6.72E-03		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		1.44E-03	J	1.98E-03		1.42E-03	J	3.80E-03		1.89E-03
Pyrene	ND		ND		2.17E-03		1.67E-03		2.27E-03		2.36E-03		4.08E-04
Chrysene	ND		ND		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	ND		ND		ND		ND		1.1E-05	J	ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05

Table A1. Pore water concentrations (µg/L) measured by SPME.

Location 11(µg/L)							
Depth in cap (inches)	-6	-7	-17	-18	-21	-22	PQL
Naphthalene	2.02E-02 J	7.78E-03 J	1.59E-02 J	3.39E-02 J	3.02E-02 J	1.75E-02 J	6.70E-02
Fluorene			Interference peak				2.81E-02
Acenaphthene	5.34E-02	7.25E-02	4.38E-02	3.64E-02			2.33E-02
Phenanthrene	1.16E-02	1.42E-02	1.55E-02	1.35E-02	2.04E-02	1.84E-02	6.63E-03
Anthracene	ND	3.10E-03 J	ND	ND	ND	ND	7.02E-03
Fluoranthene	2.29E-03	3.05E-03	ND	ND	1.19E-03 J	ND	1.89E-03
Pyrene	1.36E-03	2.90E-03	ND	ND	1.91E-03	ND	4.08E-04
Chrysene	1.38E-04	4.12E-04	ND	ND	ND	ND	1.10E-04
B[a]A	1.34E-04	4.64E-04	ND	ND	ND	ND	4.98E-05
B[b]F	1.02E-04	3.25E-04	ND	ND	ND	ND	6.16E-05
B[k]F	3.15E-05 J	1.34E-04	ND	2.26E-05 J	ND	ND	4.18E-05
B[a]P	5.22E-05	2.51E-04	ND	ND	ND	ND	3.87E-05
Location 12(µg/L)							
Depth in cap (inches)	-5	-6	-14	-15	-20	-21	PQL
Naphthalene	ND	ND	1.89E-02 J	ND	1.92E-03 J	4.22E-01	6.70E-02
Fluorene			Interference peak				2.81E-02
Acenaphthene	2.59E-02	3.08E-02	3.05E-01	2.96E-01	1.02E+00	8.07E-01	2.33E-02
Phenanthrene	2.33E-03 J	5.26E-03 J	4.46E-03 J	6.42E-04 J	6.42E-04 J	6.42E-04 J	6.63E-03
Anthracene	ND	ND	ND	ND	ND	ND	7.02E-03
Fluoranthene	7.40E-04 J	ND	ND	ND	ND	ND	1.89E-03
Pyrene	1.89E-02	2.47E-02	4.71E-03	5.58E-03	9.42E-03	8.09E-03	4.08E-04
Chrysene	1.81E-04	1.90E-04	ND	ND	ND	ND	1.10E-04
B[a]A	2.13E-04	3.00E-04	ND	ND	ND	ND	4.98E-05
B[b]F	1.59E-04	1.82E-04	1.88E-04	ND	1.48E-04	1.39E-04	6.16E-05
B[k]F	2.15E-05 J	2.49E-05 J	2.82E-05 J	ND	2.89E-05 J	2.56E-05 J	4.18E-05
B[a]P	2.28E-05 J	4.11E-05	2.40E-05 J	ND	ND	4.01E-05	3.87E-05
Location 13(µg/L)							
Depth in cap (inches)	-6	-7	-12	-13	-18	-19	PQL
Naphthalene	6.87E-02	1.91E-01	1.61E+00	6.15E-01	1.48E-01	1.10E-01	6.70E-02
Fluorene			Interference peak				2.81E-02
Acenaphthene	3.18E-01	1.60E-01	1.30E-01	2.08E-01	1.62E-01	2.18E-01	2.33E-02
Phenanthrene	2.27E-02	2.95E-02	1.73E-02	6.42E-04 J	2.04E-02	1.80E-02	6.63E-03
Anthracene	ND	ND	ND	ND	ND	ND	7.02E-03
Fluoranthene	ND	1.81E-03 J	ND	ND	ND	ND	1.89E-03
Pyrene	ND	1.29E-03	1.11E-03	7.65E-03	ND	ND	4.08E-04
Chrysene	ND	ND	ND	ND	ND	ND	1.10E-04
B[a]A	ND	ND	ND	ND	ND	ND	4.98E-05
B[b]F	ND	ND	ND	ND	ND	ND	6.16E-05
B[k]F	ND	ND	ND	ND	ND	ND	4.18E-05
B[a]P	ND	ND	ND	ND	ND	ND	3.87E-05
Location 14(µg/L)							
Depth in cap (inches)	-6	-7	-17	-18	-21	-22	PQL
Naphthalene	3.51E-03 J	6.05E-02 J	2.63E-02 J	2.32E-02 J	7.08E-03 J	1.17E-02 J	6.70E-02
Fluorene			Interference peak				2.81E-02
Acenaphthene	1.92E-02 J	3.36E-02	8.31E-02	1.15E-01	4.92E-01	4.94E-01	2.33E-02
Phenanthrene	9.96E-03	1.04E-02	1.44E-02	1.45E-02	3.43E-02	2.97E-02	6.63E-03
Anthracene	ND	ND	ND	ND	ND	ND	7.02E-03
Fluoranthene	ND	2.75E-03	2.90E-03	3.63E-03	ND	ND	1.89E-03
Pyrene	4.09E-04	5.04E-04	2.61E-03	2.98E-03	ND	ND	4.08E-04
Chrysene	1.11E-04	ND	1.01E-04 J	1.02E-04 J	ND	ND	1.10E-04
B[a]A	ND	ND	1.22E-04	1.25E-04	ND	ND	4.98E-05
B[b]F	ND	ND	ND	ND	ND	ND	6.16E-05
B[k]F	9.28E-06 J	ND	ND	1.49E-05 J	ND	ND	4.18E-05
B[a]P	ND	ND	ND	ND	ND	ND	3.87E-05

Table A1. Pore water concentrations (µg/L) measured by SPME.

	Location 15(µg/L)												
Depth in cap (inches)	-6		-7		-17		-18		-21	J	-22		PQL
Naphthalene	3.41E-02	J	2.08E-02	J	6.78E-02		5.66E-02	J	3.18E-02	J	2.62E-03	J	6.70E-02
Fluorene	3.45E-03	J	8.40E-03	J	9.22E-02		1.18E-01		4.60E-01		3.58E-01		2.81E-02
Acenaphthene	1.31E-02	J	1.42E-02	J	4.63E-01		6.44E-01		2.66E+00		2.34E+00		2.33E-02
Phenanthrene	1.24E-02		1.05E-02		9.34E-03		1.31E-02		4.17E-02		3.12E-02		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		ND		ND		2.55E-03		2.55E-03		1.89E-03
Pyrene	ND		ND		ND		ND		1.82E-03		1.82E-03		4.08E-04
Chrysene	ND		ND		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	ND		ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05
	Location 16(µg/L)												
Depth in cap (inches)	-6		-7		-17		-18		-21				PQL
Naphthalene	4.67E-03	J	3.99E-03	J	2.86E-02	J	6.46E-02	J	1.35E-01		7.42E-02		6.70E-02
Fluorene	3.57E-02		2.11E-01		2.09E-01		2.13E-01		1.28E+00		1.05E+00		2.81E-02
Acenaphthene	2.83E-01		2.30E+00		1.48E+00		1.52E+00		3.99E+00		8.67E+00		2.33E-02
Phenanthrene	1.12E-02		7.43E-02		5.14E-02		4.31E-02		8.36E-01		3.30E-02		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	1.23E-03	J	1.23E-03	J	5.88E-02		5.47E-02		1.74E-01		2.29E-01		1.89E-03
Pyrene	1.29E-03		1.29E-03		4.14E-02		3.94E-02		1.72E-01		1.72E-01		4.08E-04
Chrysene	ND		ND		1.75E-03		1.03E-04	J	1.79E-03		4.05E-04		1.10E-04
B[a]A	ND		ND		8.95E-04		7.30E-04		1.06E-02		5.21E-03		4.98E-05
B[b]F	ND		ND		1.41E-04		1.56E-04		1.13E-03		8.16E-04		6.16E-05
B[k]F	ND		ND		2.4E-05	J	2.31E-05	J	0.00027		0.000198		4.18E-05
B[a]P	ND		ND		3.8E-05	J	3.58E-05	J	0.00047		0.000288		3.87E-05
	Location 17(µg/L)												
Depth in cap (inches)	-6		-7		-12		-13		-18.5		-19.5		PQL
Naphthalene	6.81E-03	J	1.53E-02	J	7.52E-02		6.41E-02	J	5.19E-02	J	6.79E-02		6.70E-02
Fluorene	Interference peak											J	2.81E-02
Acenaphthene	5.61E-02		8.11E-02		8.08E-02		1.26E-01		5.23E-01		6.04E-01		2.33E-02
Phenanthrene	5.68E-03	J	6.31E-03	J	1.22E-02		9.57E-03		1.64E-02		1.60E-02		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		ND		4.32E-03		ND		ND		1.89E-03
Pyrene	7.00E-04		7.75E-04		ND		8.12E-04		2.70E-03		2.40E-03		4.08E-04
Chrysene	ND		ND		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	5.2E-06	J	ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05
	Location 18(µg/L)												
Depth in cap (inches)	-7		-8		-17		-18		-21		-22		PQL
Naphthalene	ND		ND		3.12E-03	J	ND		5.19E-02	J	ND		6.70E-02
Fluorene	Interference peak												2.81E-02
Acenaphthene	0.020804	J	0.022	J	0.0608		0.0154	J	0.054		0.06		2.33E-02
Phenanthrene	5.46E-03	J	4.36E-03	J	6.42E-04	J	2.83E-03	J	3.05E-03	J	1.83E-02		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		ND		ND		ND		ND		1.89E-03
Pyrene	6.25E-04		3.78E-04	J	ND		ND		2.70E-03		2.40E-03		4.08E-04
Chrysene	ND		9.81E-05	J	ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	5.2E-06	J	ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05

Table A1. Pore water concentrations (µg/L) measured by SPME.

Location 19(µg/L)													
Depth in cap (inches)	-7		-8		-17		-18		-21	J	-22	J	PQL
Naphthalene	1.28E-02	J	3.56E-03	J	1.10E-02	J	2.58E-02	J	3.69E-02	J	4.81E-02	J	6.70E-02
Fluorene	Interference peak											J	2.81E-02
Acenaphthene	2.18E-02	J	2.34E-02		1.75E-02	J	2.26E-02	J	2.48E-02		3.70E-02		2.33E-02
Phenanthrene	6.01E-03	J	4.63E-03	J	4.73E-03	J	8.68E-03		8.70E-03		8.38E-03		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		ND		ND		ND		ND		1.89E-03
Pyrene	ND		ND		ND		ND		2.70E-03		ND		4.08E-04
Chrysene	ND		ND		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	ND		ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05

Location 20(µg/L)													
Depth in cap (inches)	-7		-8		-17		-18		-21		-22		PQL
Naphthalene	ND		1.98E-02	J	2.90E-02	J	1.43E-02	J	1.85E-02	J	2.03E-02	J	6.70E-02
Fluorene	Interference peak											J	2.81E-02
Acenaphthene	1.74E-02	J	3.06E-02		9.65E-02		9.28E-02		3.32E-01		6.86E-01		2.33E-02
Phenanthrene	2.40E-03	J	3.35E-03	J	5.49E-03	J	6.53E-03	J	1.13E-02		1.12E-02		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		ND		ND		ND		2.84E-03		1.89E-03
Pyrene	ND		ND		ND		ND		2.70E-03		1.68E-03		4.08E-04
Chrysene	ND		ND		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	ND		ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05

Location 21(µg/L)													
Depth in cap (inches)	-6				-15		-16		-21		-22		PQL
Naphthalene	ND		1.98E-02	J	5.50E-03	J	ND		ND		2.03E-02	J	6.70E-02
Fluorene	Interference peak											J	2.81E-02
Acenaphthene	3.13E-02		2.88E-02		1.24E-01		1.17E-01		6.24E-02		9.22E-02		2.33E-02
Phenanthrene	2.36E-03	J	2.55E-03	J	1.05E-02		1.07E-02		1.08E-02		9.78E-03		6.63E-03
Anthracene	ND		ND		ND		ND		ND		ND		7.02E-03
Fluoranthene	ND		ND		ND		4.04E-03		ND		ND		1.89E-03
Pyrene	ND		3.23E-04	J	ND		3.31E-03		1.44E-03		9.43E-04		4.08E-04
Chrysene	ND		1.27E-04		ND		ND		ND		ND		1.10E-04
B[a]A	ND		ND		ND		ND		ND		ND		4.98E-05
B[b]F	ND		ND		ND		ND		ND		ND		6.16E-05
B[k]F	ND		ND		ND		ND		ND		ND		4.18E-05
B[a]P	ND		ND		ND		ND		ND		ND		3.87E-05

Table A1. Pore water concentrations (µg/L) measured by SPME.

Location 25(µg/L)									
Depth in cap (inches)	-6	J	-7		-11		-12	-17	-18		PQL
Naphthalene	7.92E-02		1.07E-01		8.27E-02		1.03E-01	8.92E-02	1.26E-01		6.70E-02
Fluorene	Interference peak									J	2.81E-02
Acenaphthene	1.28E-02	J	2.33E-02		5.61E-02		6.07E-02	5.02E-02	6.73E-02		2.33E-02
Phenanthrene	7.50E-03		6.49E-03	J	7.50E-03		7.94E-03	9.89E-03	1.33E-02		6.63E-03
Anthracene	ND		ND		ND		ND	ND	ND		7.02E-03
Fluoranthene	ND		ND		ND		ND	ND	ND		1.89E-03
Pyrene	ND		ND		1.29E-03		ND	ND	ND		4.08E-04
Chrysene	ND		ND		ND		ND	ND	ND		1.10E-04
B[a]A	ND		ND		ND		ND	ND	ND		4.98E-05
B[b]F	ND		ND		ND		ND	ND	ND		6.16E-05
B[k]F	ND		ND		8.26E-06	J	ND	ND	ND		4.18E-05
B[a]P	ND		ND		ND		ND	ND	ND		3.87E-05

Location 26(µg/L)									
Depth in cap (inches)	-6		-7		-17	-18	-22	-23		PQL
Naphthalene	2.30E-03	J	2.46E-02	J	1.36E-01	1.58E-01	2.03E-01	2.67E-01		6.70E-02
Fluorene	Interference peak								J	2.81E-02
Acenaphthene	5.97E-02		7.36E-02		1.15E-01	1.46E-01	8.06E-02	1.32E-01		2.33E-02
Phenanthrene	6.37E-03	J	7.09E-03		1.32E-02	1.38E-02	1.27E-02	2.32E-02		6.63E-03
Anthracene	ND		ND		ND	ND	ND	ND		7.02E-03
Fluoranthene	ND		ND		ND	ND	ND	ND		1.89E-03
Pyrene	ND		ND		ND	ND	ND	ND		4.08E-04
Chrysene	ND		ND		ND	ND	ND	ND		1.10E-04
B[a]A	ND		ND		ND	ND	ND	ND		4.98E-05
B[b]F	ND		ND		ND	ND	ND	ND		6.16E-05
B[k]F	ND		ND		ND	ND	ND	ND		4.18E-05
B[a]P	ND		ND		ND	ND	ND	ND		3.87E-05

Table A2. Surface water concentrations (µg/L) by SPME

Sampler 1	Surface water (µg/L)				average	PQL
Naphthalene	8.99E-03 J	3.34E-03 J	2.74E-02 J	2.89E-02 J	1.71E-02	6.70E-02
Fluorene						2.81E-02
Acenaphthene	1.89E-02 J	2.66E-02	2.09E-02 J	3.40E-02	2.51E-02	2.33E-02
Phenanthrene	5.96E-03 J	3.54E-03 J	4.98E-03 J	6.78E-03	5.32E-03	6.63E-03
Anthracene	ND	ND	ND	ND		7.02E-03
Fluoranthene	ND	ND	ND	ND		1.89E-03
Pyrene	ND	2.71E-04 J	ND	ND		4.08E-04
Chrysene	ND	1.07E-04 J	ND	ND		1.10E-04
B[a]A	ND	ND	ND	ND		4.98E-05
B[b]F	ND	ND	ND	ND		6.16E-05
B[k]F	ND	ND	ND	ND		4.18E-05
B[a]P	ND	ND	ND	ND		3.87E-05
Sampler 27						
Naphthalene	3.99E-02 J	3.82E-02 J	ND	5.43E-02 J	4.41E-02 J	6.70E-02
Fluorene						2.81E-02
Acenaphthene	3.27E-02	3.03E-02	3.70E-02	2.88E-02	3.22E-02	2.33E-02
Phenanthrene	4.56E-03 J	4.89E-03 J	5.36E-03 J	5.89E-03 J	5.17E-03 J	6.63E-03
Anthracene	ND	ND	ND	ND		7.02E-03
Fluoranthene	ND	ND	ND	ND		1.89E-03
Pyrene	ND	ND	ND	ND		4.08E-04
Chrysene	ND	ND	ND	ND		1.10E-04
B[a]A	ND	ND	ND	ND		4.98E-05
B[b]F	ND	ND	ND	ND		6.16E-05
B[k]F	ND	ND	ND	ND		4.18E-05
B[a]P	ND	ND	ND	ND		3.87E-05

Appendix B

Detector Calibration

The calibration standard was obtained from Ultra Scientific Inc, the standard contains 16 PAHs with identical concentrations of each compound. The calibration results (fluorescence detector) are listed in the following table.

Table B1. Initial calibration for 16 PAHs HPLC FLD

Conc(µg/L)	full range	100	50	20	5	1	0.5	0.1	0.05	regression		
Compounds	**RT**									slope	ntercep	R2
Naphthalene	7.431		1399804	604148	152193	40440	20590			3.58E-05	-0.588	0.999
Fluorene	10.17	1146739	583335	249635	87155	23057				8.89E-05	-1.943	1.000
Acenaphthene	10.512		1426074	578010	156669	32828	15124			3.52E-05	-0.244	1.000
Phenanthrene	11.05		1956478	875589	225026	42414	23424			2.55E-05	-0.618	0.997
Anthracene	11.789		432445	178101	46285	8697	3967			0.00012	0	1.000
Fluoranthene	13.71		533407	210898	53785	9424	4593			9.4E-05	0	1.000
Pyrene	14.847		1150641	452279	118438	21758	12450	2627		4.4E-05	0	1.000
Chrysene	18.246		2396809	1165678	270680	51919	25436	4517		2E-05	0	0.992
B[a]A	18.81		3962911	2153204	568894	1E+05	59842	10066	6120	9.3E-06	0	1.000
B[b]F	24.318			1703193	419927	87810	44144	10125	4537	1.2E-05	0	1.000
B[k]F	25.267				3939929	9E+05	418685	82163	40858	1.3E-06	0	1.000
B[a]P	26.582			3238966	838065	2E+05	95435	18609	7910	6.2E-06	0	1.000
Dibenz[a,h]A	32.13				401131	79725	44073	8945	4031	1.2E-05	0	1.000
Benzo[ghi]+Inden	35.517			2478576	638967	1E+05	68510	12492	10319	1.6E-05	0	1.000

Conc(µg/L)	low arnge	5	4	2	1	0.5			regression		
Compounds	RT								slope	intercep	R2
Naphthalene	7.431	152193	108594	62106	40440	20590			3.6E-05	-0.27	0.986
Fluorene	10.17	87155	583335	249635	23057				9.5E-05	-0.58	0.992
Acenaphthene	10.512	156669	1426074	578010	32828	15124			3.3E-05	0.076	0.988
Phenanthrene	11.05	225026	1956478	875589	42414	23424			2.3E-05	0.048	0.99

Table B2. Initial calibration for 16 PAHs HPLC UV

Component	RT(min)	1000ppb	500	200	100	*50*	20	RSF (ppb/area)	R^2
Naphthalene	7.36	29109	15263	6263	3013	1381	896	0.033	0.999
Acenaphthylene	8.227	19889	8976	4429	1998	1446	1185	0.05	0.993
Fluorene	10.066	141937	70098	25533	12476	6561	3556	0.0071	0.999
Acenaphthene	10.321	9623	5391	2000	950	450		0.101	0.995
Phenanthrene	10.96	351608	177480	68148	34567	17156	7336	0.0028	1
Anthracene	11.7	853279	432358	169825	82571	41199	17160	0.0012	0.999
Fluroanthene	13.639	85905	42914	17280	8553	4710	1541	0.011	1
Pyrene	14.767	66040	34711	14315	6677	3392	2082	0.014	0.998
Chrysene	18.161	315271	156561	63909	31345	14431	6509	0.0032	1
Benzo(a)anthracene	18.705	205837	106004	41294	20826	10182	4212	0.0048	1
Benzo (b)fluoranthene	24.225	237371	119537	48721	23839	12154	4572	0.0042	1
Benzo (k) fluoranthene	25.18	161653	82426	33438	16428	9118	3499	0.0062	1
Benzo (a) pyrene	26.465	226507	115001	47023	21406	12103	3657	0.0044	1
Dibenz (a,h) anthracene	32.073	42991	24614	9481	4824	2474		0.022	0.993
Benzo(ghi) + Indeno	35.387	273068	141493	55678	27216	12617	6160	0.0073	1
		2000ppb	1000	400	200	100	40		

Method detection limit (MDL) and Practical quantitation limit (PQL)

The equipment method detection limits of PAHs by HPLC were determined by repeatedly measuring a standard whose concentration is one to five times of the practical detection limit with seven replicates. The method detection limit can then be estimated by minimum concentration that can be determined to be nonzero with 99% confidence.

$$MDL=SD*t_{0.99}$$

Where,

MDL is the method detection limit

SD is standard deviation of the measurements of the low concentration standard.

$t_{0.99,}$ is the t-distribution table value corresponding to 99% confidence with the degree of freedom (n-1). Here t is 3.143.

The practical quantitation limit represents the value for which the laboratory has demonstrated the ability to reliably quantitate target compounds and elements within prescribed performance criteria for the method performed. Operationally, the PQL is equivalent to the concentration of the lowest calibration standard in the initial calibration curve.

Due to the strong sorption by PDMS, the corresponding quantitation limits by SPME are orders smaller and it depends on the fiber-water partition coefficients of the compound, volume of the PDMD and the volume of the solvent used to extract fiber.

$$C_{\det\, water\, by\, SPME} = \frac{C_{\det \mathrm{SPME}}}{K_{f-w}} = \frac{n_{\mathrm{detection}}}{V_{PDMS} * K_{f-w}} = \frac{C_{\det} * V_{solvent}}{V_{PDMS} * K_{f-w}}$$

$C_{\text{det, water by SPME}}$ is the detection limit of water by SPME

$C_{\text{det,SPME}}$ is the detection limit of fiber concentration

$K_{\text{f-w}}$ is fiber-water partition coefficient

$n_{\text{detection}}$ is the mass of contaminant detected

V_{PDMS} is the volume of PDMS coating

V_{PDMS}=PDMS coating concentration (uL/m) * length of fiber (cm)

V_{solevnt} is the volume of solvent used to extract SPME, here is 230 uL

$C_{\text{det, water by DI}}$ is the detection limit of water by direct injection, which is the measured MDL.
If measured PQL is used, then the equation will give the PQL of water by SPME

Table B3. Method detection limit and Practical quantitation limit

	log Kow	predicted log *K*f	MDL (µg/L)	PQL (µg/L)	MDL by SPME, ng/L		PQL by SPME, ng/L	
Naphthalene	3.37	2.944	0.427	0.5	48.327[a]	57.485[b]	56.579[a]	67.300[b]
DBF	4.3	3.725	0.186	0.5	3.497	4.159	9.384	11.162
2-MNP	3.9	3.389	0.102	0.5	4.145	4.931	20.323	24.174
Fluorene	4.18	3.624	0.866	1	20.493	24.377	23.664	28.149
Acenaphthene	3.92	3.406	0.355	0.5	13.867	16.495	19.553	23.258
Phenanthrene	4.57	3.951	0.222	0.5	2.477	2.946	5.570	6.625
Anthracene	4.54	3.926	0.418	0.5	4.934	5.869	5.902	7.021
Fluoranthene	5.22	4.497	0.210	0.5	0.665	0.791	1.587	1.887
Pyrene	5.18	4.463	0.0556	0.1	0.1905	0.227	0.343	0.408
Chrysene	5.86	5.034	0.0478	0.1	0.0441	0.052	0.092	0.110
B[a]A	5.91	5.075	0.0225	0.05	0.0188	0.022	0.042	0.050
B[b]F	5.8	4.983	0.0417	0.05	0.0432	0.051	0.052	0.062
B[k]F	6	5.151	0.0087	0.05	0.0061	0.007	0.035	0.042
B[a]P	6.04	5.185	0.0315	0.05	0.0205	0.024	0.033	0.039
Dibenz[a,h]Anthracene	6.75	5.780	0.0541	0.05	0.0089	0.011	0.008	0.010
Benzo[ghi]+Indeno	6.5	5.750	0.0553	0.1	0.0098	0.012	0.018	0.021

[a] Fiber 1000/1071 [b] Fiber 1000/1060

Table B4. Continuous calibration verification

	5 ppb standard				Fluorescence detector			
	11/1/2010				11/3/2010			
	Initial measurement		End of measurement		Initial measurement		between samples	
compounds	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)
Naphthalene	4.13	-17.44	4.20	-16.02	4.09	-18.29	4.45	-11.04
Fluorene	4.40	-12.08	5.20	3.99	4.73	-5.30	8.88	77.69
Acenaphthene	4.24	-15.22	5.29	5.88	4.09	-18.27	4.41	-11.76
Phenanthrene	4.41	-11.73	4.90	-2.09	4.24	-15.12	4.93	-1.47
Anthracene	4.61	-7.86	4.63	-7.31	4.32	-13.56	4.92	-1.67
Fluoranthene	4.33	-13.49	4.08	-18.39	4.05	-18.93	4.85	-2.93
Pyrene	4.14	-17.17	4.00	-20.05	3.99	-20.16	4.42	-11.68
Chrysene	4.73	-5.35	4.93	-1.37	4.47	-10.62	5.20	3.96
B[a]A	5.10	1.90	5.38	7.55	5.38	7.64	5.61	12.25
B[b]F	4.73	-5.42	4.88	-2.48	4.72	-5.51	5.07	1.44
B[k]F	4.76	-4.83	4.87	-2.50	4.75	-5.00	4.95	-0.95
B[a]P	4.78	-4.46	5.27	5.42	5.20	4.09	5.55	11.06
Dibenz[a,h]anthracene	4.88	-2.49	4.98	-0.36	4.68	-6.43	5.20	4.09
Benzo[ghi]+Indeno	9.52	-4.76	9.56	-4.38	9.50	-5.00	10.30	3.01

	11/3/2010				11/5/2010			
	End of measurement		Initial measurement		between samples		between samples	
compounds	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)
Naphthalene	4.61	-7.81	5.25	5.02	4.31	-13.90	4.93	-1.38
Fluorene	5.20	4.07	6.18	23.50	8.35	67.10	9.83	96.62
Acenaphthene	5.03	0.58	5.27	5.44	4.43	-11.42	4.71	-5.73
Phenanthrene	4.69	-6.11	5.58	11.59	4.73	-5.44	4.97	-0.68
Anthracene	4.91	-1.79	5.25	5.03	4.75	-4.98	5.25	4.96
Fluoranthene	4.66	-6.76	4.88	-2.49	4.68	-6.34	4.86	-2.83
Pyrene	4.15	-17.10	4.72	-5.61	4.61	-7.75	4.69	-6.21
Chrysene	5.01	0.17	5.76	15.21	5.25	4.91	5.48	9.59
B[a]A	5.78	15.62	5.34	6.77	5.88	17.55	5.62	12.47
B[b]F	5.17	3.49	5.54	10.83	5.25	4.92	5.33	6.51
B[k]F	5.01	0.11	5.15	2.95	4.99	-0.13	5.16	3.16
B[a]P	5.57	11.33	5.68	13.57	5.87	17.39	5.59	11.87
Dibenz[a,h]anthracene	5.19	3.73	5.19	3.83	5.32	6.45	5.53	10.64
Benzo[ghi]+Indeno	10.54	5.41	10.59	5.86	11.00	9.96	11.09	10.85

	11/5/2010				11/8/2010			
	End of measurement		Initial measurement		between samples		End of measurement	
compounds	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)
Naphthalene	4.90	-2.05	4.38	-12.38	4.62	-7.61	4.40	-11.93
Fluorene	5.82	16.48	6.35	27.02	6.83	36.50	6.47	29.34
Acenaphthene	5.62	12.32	4.78	-4.40	4.59	-8.29	5.42	8.44
Phenanthrene	5.13	2.52	4.67	-6.62	4.57	-8.61	4.89	-2.10
Anthracene	4.72	-5.66	5.17	3.45	5.42	8.42	5.26	5.13

Fluoranthene	4.25	-14.95	4.69	-6.14	4.85	-3.02	4.76	-4.77
Pyrene	4.41	-11.84	4.63	-7.32	4.53	-9.32	4.63	-7.45
Chrysene	5.38	7.50	5.07	1.34	5.21	4.29	5.19	3.80
B[a]A	5.58	11.53	5.14	2.80	5.00	-0.06	4.98	-0.43
B[b]F	5.35	6.96	4.86	-2.76	4.95	-1.08	5.03	0.64
B[k]F	5.16	3.26	4.96	-0.76	5.02	0.33	5.04	0.87
B[a]P	5.75	15.08	5.05	1.00	5.12	2.49	5.19	3.78
Dibenz[a,h]anthracene	5.50	9.94	4.73	-5.36	4.95	-1.01	4.96	-0.71
Benzo[ghi]+Indeno	10.94	9.44	9.44	-5.59	9.82	-1.79	9.92	-0.80

11/9/2010

	Initial measurement		between samples		End of measurement		Initial measurement	
compounds	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)	Measured Conc	Diff(%)
Naphthalene	4.54	-9.23	4.38	-12.41	4.22	-15.57	4.36	-12.86
Fluorene	5.66	13.16	6.71	34.27	5.83	16.69	5.80	16.00
Acenaphthene	5.15	2.92	4.96	-0.89	4.73	-5.50	5.32	6.36
Phenanthrene	5.03	0.53	4.76	-4.81	4.39	-12.25	4.64	-7.26
Anthracene	5.45	8.98	5.35	7.08	5.22	4.37	4.74	-5.16
Fluoranthene	4.84	-3.12	4.79	-4.16	4.71	-5.90	4.58	-8.39
Pyrene	4.80	-3.90	4.59	-8.19	4.48	-10.35	4.53	-9.38
Chrysene	5.36	7.16	5.22	4.39	5.13	2.57	4.92	-1.56
B[a]A	5.08	1.58	4.96	-0.87	5.08	1.60	4.83	-3.45
B[b]F	4.81	-3.76	4.69	-6.18	4.65	-7.05	4.79	-4.18
B[k]F	5.07	1.43	4.91	-1.77	4.95	-0.92	4.92	-1.65
B[a]P	5.21	4.17	5.04	0.87	4.85	-3.04	4.91	-1.80
Dibenz[a,h]anthracene	4.91	-1.79	4.77	-4.53	4.66	-6.84	4.75	-5.08
Benzo[ghi]+Indeno	9.94	-0.56	9.51	-4.85	9.68	-3.19	9.34	-6.61

Table B5. Concentration changes of field control samples

compounds	0.5 ppb Measured Conc	Diff(%)	5ppb Measured Conc	Diff(%)	5ppb Measured Conc	Diff(%)	5ppb Measured Conc	Diff(%)	20ppb Measured Conc	Diff(%)
Naphthalene	0.52	3.85	4.62	-7.52	4.77	-4.59	4.65	-7.09	18.84	-5.80
Fluorene	2.81	461.44	9.82	96.39	7.43	48.56	8.72	74.49	21.48	7.40
Acenaphthene	0.60	19.91	4.72	-5.67	4.86	-2.88	4.41	-11.76	17.85	-10.74
Phenanthrene	0.48	-4.54	4.48	-10.39	4.73	-5.44	4.39	-12.17	19.01	-4.93
Anthracene	0.46	-7.03	4.85	-3.05	5.43	8.55	5.38	7.70	20.94	4.69
Fluoranthene	0.45	-9.61	4.46	-10.88	4.69	-6.16	4.69	-6.23	19.46	-2.68
Pyrene	0.40	-20.37	4.31	-13.71	4.48	-10.33	4.58	-8.31	17.78	-11.10
Chrysene	0.48	-4.78	5.12	2.38	5.15	3.02	5.26	5.16	20.27	1.35
B[a]A	0.44	-12.18	4.78	-4.48	4.80	-3.93	4.94	-1.26	19.27	-3.64
B[b]F	0.48	-4.72	4.55	-9.08	4.65	-6.94	4.75	-4.96	18.49	-7.56
B[k]F	0.51	1.30	4.84	-3.29	4.86	-2.84	4.91	-1.79	Saturated	
B[a]P	0.49	-2.59	4.80	-4.09	4.91	-1.75	4.83	-3.39	19.31	-3.43
D[a,h]A	0.43	-14.37	4.63	-7.35	4.62	-7.63	4.72	-5.66	18.72	-6.41
Benzo[ghi]+Indeno	0.89	-10.58	9.11	-8.93	8.89	-11.09	9.31	-6.86	36.45	-8.88

APPENDIX E
INFILTRATION POND MW-59s
GROUNDWATER QUALITY ASSESSMENT

OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010

Hart Crowser/GSI
15670-05/Task 7 May 20, 2011

APPENDIX E
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E-1 Groundwater Monitoring Well MW-59s and Infiltration Pond Location Map

E-2 MW-59s Groundwater Quality Data

ATTACHMENT

A Data Quality Review, Field Notes, and Laboratory Analytical Report for MW-59s Sampling (DVD only)

ACRONYMS

ACL	Alternate Concentration Limits
COC	contaminant of concern
CPAH	carcinogenic polynuclear aromatic hydrocarbons
DEQ	Oregon Department of Environmental Quality
DO	Dissolved Oxygen
EC	Electrical Conductance
E&E	Ecology & Environment, Inc.
EPA	U.S. Environmental Protection Agency
HPAH	high molecular weight polynuclear aromatic hydrocarbons
LPAH	low molecular weight polynuclear aromatic hydrocarbons
lpm	liters per minute
McCormick and Baxter	McCormick and Baxter Creosoting Company
MCL	Primary Drinking Water Standard Maximum Contaminant Levels
mg/L	milligram per liter
mS/cm	milliSiemens/centimeter
NAPL	nonaqueous phase liquid
O&M	Operation and Maintenance
ORP	oxidation-reduction potential
PAH	polynuclear aromatic hydrocarbons
PCP	pentachlorophenol
ROD	Record of Decision
Site	McCormick and Baxter Superfund Site
TSS	Total Suspended Solids
µg/L	microgram per liter

APPENDIX E
INFILTRATION POND GROUNDWATER QUALITY ASSESSMENT
OPERATION AND MAINTENANCE REPORT
JANUARY 2010 THROUGH DECEMBER 2010
MCCORMICK AND BAXTER SUPERFUND SITE

1.0 INTRODUCTION

This Appendix to the *January 2010 through December 2010 Operation and Maintenance (O&M) Report* summarizes the October 2010 groundwater sampling activities and analytical results for the sampling of monitoring well MW-59s at the McCormick and Baxter Superfund Site (Site). The location of the Site, the Site layout, and surface elevations are shown on Figures 1 through 3 in the main section of the O&M Report.

In 2005, a soil cap was installed at the Site as part of the remedial action. One component of the soil cap is an infiltration pond constructed at the southeast corner of the Site to collect surface water runoff from the Site. A groundwater monitoring well, MW-59s, was installed downgradient from the infiltration pond to monitor contaminant levels in groundwater. Figure E-1 shows the location of monitoring well MW-59s relative to the infiltration pond and the drainage ditch leading to the infiltration pond. During storm events, stormwater from the upland soil cap, excluding the area within the barrier wall, drains to the infiltration pond. During typical precipitation events, stormwater infiltrates directly without appreciable runoff reaching the infiltration pond.

In accordance with the Site *O&M Plan* (DEQ, 2007) groundwater samples were collected from MW-59s to evaluate the potential for subsurface contaminants to be mobilized by the infiltration pond. Six groundwater sampling events were conducted between April 2006 and August 2009 (April 2006, November 2006, February 2007, October 2007, August 2008, and August 2009). Although concentrations from these events are below EPA's maximum contaminant levels (MCLs) with the exception of arsenic which is at background levels, concentrations appeared to be increasing between 2007 and 2009. Therefore, the decision to continue to sample MW-59s annually was made during the July 2010 technical team meeting. The well was sampled on October 7, 2010.

In October 2010, the sample from MW-59s was analyzed for the groundwater contaminants of concern (COCs) excluding pentachlorophenol (PCP) as identified in the *Record of Decision* (ROD) (EPA, 1996). COCs analyzed include:

- Metals (arsenic, chromium, copper, and zinc); and
- Polynuclear aromatic hydrocarbons (PAH).

PCP in groundwater from MW-59s was below low level detection limits for the four events between November 2006 and August 2008. Therefore, the DEQ made the decision to discontinue PCP analysis in 2009.

2.0 SAMPLING METHODOLOGY, HANDLING, AND ANALYSIS

This section describes the methodology for sampling monitoring well MW-59s. Ecology and Environment, Inc. (E&E), conducted sampling prior to the August 2008 sampling event. The methods for these sampling events, between April 2006 and October 2007, are described in Attachment I of the *Operation and Maintenance Report October 2005 through December 2006* (E&E, 2007). During those first four sampling events, a submersible pump was employed using a low-flow sampling approach. Since February 2008, Hart Crowser has been the consultant in charge of the O&M procedures at the Site and has used the sampling methodology, sample handling procedures, and laboratory analyses described below.

2.1 Sample Methodology

Groundwater samples were collected from monitoring well MW-59s using a variable-speed peristaltic pump. Pump tubing was lowered to the screened interval of the well. This ensures water slowly withdrawn could be pulled in from the surrounding aquifer and was representative of the groundwater. The pumping rate was set at no more than 0.5 liter per minute (lpm). Care was taken to monitor drawdown in the well so that it did not exceed four inches. A water quality meter equipped with a flow-through cell was used to monitor the following water quality parameters: pH, electrical conductance (EC), temperature, oxidation-reduction potential (ORP), and dissolved oxygen (DO). A turbidity sensor was not available during the October 2010 sampling event and as a result turbidity measurements were not collected.

Disposable polyethylene tubing was used to collect the groundwater samples. A minimum of one liter was purged before recording the initial water quality parameters. Field water quality parameters were recorded in approximately 3-minute intervals for the remainder of the purge. The final field water quality parameters are included in Table E-1.

Purge water was collected in a 5-gallon bucket and transferred to a 55-gallon steel drum containing other Site purge water for proper disposal. Sample

collection proceeded after water quality parameters had stabilized to within the following criteria: pH ±0.1 pH units, EC ±3% milliSiemens/centimeter (mS/cm), ORP ±10 millivolts, and DO to 10%. Although turbidity was not measured during purging, visual observations indicated groundwater during sampling was semi-turbid to clear with small amounts of visible sediment. After parameters had stabilized, groundwater samples were collected directly from the pump tubing into laboratory-supplied sample containers. Turbidity measurements at the time of sampling are important to understanding the relationship between analyte concentrations and suspended solids in the groundwater sample. Since turbidity could not be measured in the field, an additional volume of groundwater sample was collected and analyzed for total suspended solids.

2.2 Sample Handling and Analysis

Upon collection, samples were labeled, sealed in plastic bags, and immediately placed on ice in a cooler for transport to the contract laboratory. Analytical services were provided by Pace Analytical of Seattle, Washington, under contract to the Oregon Department of Environmental Quality (DEQ). Proper chain-of-custody procedures were followed from sample collection to analysis. Groundwater samples were analyzed using the following methods:

- Total metals (arsenic, copper, chromium, and zinc) by EPA Method 6020;
- PAHs by EPA Method 8270-SIM; and
- Total Suspended Solids (TSS) by SM 2540D.

3.0 SAMPLING RESULTS

This section describes the analytical results for groundwater samples collected from MW-59s for the seven sampling events. The complete laboratory report from October 2010 is provided in Attachment A. Field notes and a data quality review for this sampling event can also be found in Attachment A. A summary of analytical results from the October 2010 and all previous sampling events are presented in Table E-1. Figure E-2 plots the COC concentrations since sampling began at MW-59s.

Alternate Concentration Limits (ACLs) were established in the *Record of Decision* (EPA, 1996) as protective cleanup levels for groundwater at the Site as the result of the technical impracticability of restoring groundwater to drinking water standards. However, as described in the *Second Five-Year Review* (DEQ, 2006), the EPA has determined that ACLs are not valid as substitutes for Primary Drinking Water Standard MCLs in groundwater at the Site. Therefore, MCLs are

provided as a "point of reference" in Table E-1 until the ROD is amended with appropriate protective levels for groundwater at the Site.

3.1 Total Metals

Groundwater from MW-59s was analyzed for total arsenic, chromium, copper, and zinc by EPA Method 6020. The results for October 2010 are summarized below.

In October 2010 the total arsenic concentration in MW-59s was reported as 0.0302 mg/L. During the Spring 2006 site-wide groundwater sampling event, arsenic was detected in 72 of the 79 Site wells at concentrations ranging from 0.000664 to 0.145 mg/L (DEQ, 2006). As part of the third Five-Year Review (the third Five-Year Review document will be completed in Fall 2011 by DEQ/EPA) in Spring 2010, arsenic was detected in all ten wells at concentrations ranging from 0.00062 to 0.0388 mg/L. Spring 2010 groundwater monitoring results are included in Appendix D Groundwater and NAPL Monitoring. Spring 2010 results indicate site-wide arsenic concentrations remain consistent; however, total arsenic in MW-59s has gradually increased since Spring 2006, but appears to have stabilized around 0.03 mg/L since 2008. Arsenic concentrations are consistently above the MCL of 0.01 mg/L.

The total chromium concentration in MW-59s was detected at an estimated 0.00048 mg/L. The concentration was estimated because the concentration was below the method reporting limit of 0.00050 mg/L, but above the method detection limit of the lab equipment. During the Spring 2006 site-wide groundwater sampling, chromium was detected in groundwater from 72 of the 79 Site wells with concentrations ranging from 0.0006 to 0.0635 mg/L (DEQ, 2006). In Spring 2010, chromium was detected in groundwater from 9 of 10 Site wells with concentrations ranging from 0.00041 to 0.00250 mg/L (Appendix D). Total chromium in groundwater from MW-59s and other Site wells has remained consistent and is well below the MCL for chromium of 0.10 mg/L.

In October 2010 the total copper concentration in MW-59s was reported as 0.00066 mg/L. During the Spring 2006 site-wide groundwater sampling, copper was detected in 67 of the 79 Site wells at concentrations ranging from 0.0003 to 0.023 mg/L (DEQ, 2006). In Spring 2010, copper was detected in 9 of 10 Site wells at concentrations ranging from 0.00120 to 0.00710 mg/L (Appendix D). Results in 2009 and 2010 indicate higher concentrations of total copper (0.0584 mg/L) in August 2008 are likely due to the high turbidity during the 2008 sampling event. Results are consistently below the MCL of 1.30 mg/L.

Total zinc concentrations in MW-59s were reported as 0.0081 mg/L. During the Spring 2006 site-wide groundwater sampling, zinc was detected in 49 of the 79 Site wells at concentrations ranging from 0.0014 to 0.034 mg/L. In Spring 2010, zinc was detected in 9 of 10 Site wells at concentrations ranging from 0.002 to 0.0341 mg/L (Appendix D). Similar to copper, a higher level of total zinc (0.140 mg/L) was detected in August 2008 likely due to high turbidity during sampling. Results are consistently below the MCL of 5.00 mg/L.

3.2 Polynuclear Aromatic Hydrocarbons

Groundwater samples were analyzed for PAHs by EPA Method 8270-SIM. The method reporting limits for PAHs ranged from 0.0023 to 0.02 µg/L.

During the October 2010 sampling event, two low-molecular weight PAHs (LPAHs) were detected, anthracene at 0.039 µg/L and phenanthrene at 0.048 µg/L. Total LPAH concentrations (0.087 µg/L) were less than the total LPAHs from the last sampling event in August 2009 (0.217 µg/L).

Two high-molecular weight PAHs (HPAHs) were detected, fluoranthene and pyrene at concentrations of 0.031 µg/L and 0.020 µg/L, respectively. Carcinogenic PAHs (CPAHs) were not detected.

Due to lower detection limits used since the sampling event in October 2007, more PAHs are now routinely being detected at lower concentrations. Although more PAHs are detected, PAH concentrations have stabilized at low levels in MW-59s since 2007. Similarly, groundwater data collected for the third Five-Year Review in Spring 2010 (Appendix D) indicates total PAH concentrations in Site wells are consistent with concentrations in 2006 (DEQ, 2006).

3.3 Total Suspended Solids

TSS were analyzed in October 2010 to understand whether total metals concentrations are associated with particulates present in the dissolved phase. TSS results (257 mg/L) indicated semi-turbid sampling conditions in October 2010. Despite elevated TSS conditions, elevated concentrations of metals were not detected in groundwater.

4.0 SUMMARY

During 2010, concentrations for chromium, copper, and zinc decreased for the second year in a row. Arsenic concentrations have remained constant since August 2008. Two LPAHs and two HPAHs were detected at low levels in

October 2010 with no CPAHs detected. PAHs were not detected during the first three sampling events; however, the detection limits for PAHs were higher during these events. Since lowering the detection limits, trace amounts of PAHs have been recorded in every sample. As total metals, PCP, and PAH concentrations have stabilized at low levels, there does not appear to be a risk of subsurface contaminant mobilization by the infiltration pond. We recommend discontinuing sampling of MW-59s.

5.0 REFERENCES

E&E, 2007. *Operation and Maintenance Report (October 2005 through December 2006), McCormick & Baxter Creosoting Company, Portland, Oregon.* March 2007.

DEQ, 2006. *Second Five-Year Review, McCormick and Baxter Creosoting Company Superfund Site, Portland, Oregon.* September 2006.

DEQ, 2007. *Draft Final Operation and Maintenance Plan, McCormick and Baxter Creosoting Company Superfund Site, Portland, Oregon*. March 2007.

EPA, 1996. *Record of Decision, McCormick and Baxter Creosoting Company, Portland, Oregon.* March 1996.

Table E-1 - Groundwater Analytical Results: MW-59s
McCormick and Baxter Superfund Site
Portland, Oregon

SAMPLE LOCATION		EPA Primary Drinking Water Standard Maximum Contaminant Levels (for reference only)	MW-59s (2nd Quarter 2006)	MW-59s (4th Quarter 2006)	MW-59s (1st Quarter 2007)	MW-59s (3rd Quarter 2007)	MW-59s (3rd Quarter 2008)	MW-59s (3rd Quarter 2009)	MW-59s (4th Quarter 2010)
Sample Date			4/26/2006	11/3/2006	2/28/2007	10/3/2007	8/21/2008	8/31/2009	10/7/2010
Sample Time			18:01	14:47	12:00	9:58	9:50	17:19	14:52
Well Depth			shallow	shallow	shallow	shallow	shallow	shallow	shallow
CONTAMINANT OF CONCERN		MCL							
Total Metals (mg/L)									
Arsenic		0.01	**0.0080**	**0.0197**	**0.0122**	**0.0225**	**0.0301**	**0.0301**	**0.0302**
Chromium		0.10	**0.0011**	**0.0015**	**0.00319**	**0.00474**	**0.0466**	**0.00073**	**0.00048** J
Copper		1.30	**0.0005** J	**0.0011** J	**0.000520** J	**0.00107** J	**0.0584**	**0.0011**	**0.00066**
Iron		NA	NA	NA	NA	NA	NA	**52.6**	NA
Zinc		5.00	**0.0056**	**0.0075**	**0.00707**	**0.00845**	**0.140**	**0.0102**	**0.0081**
PAHs (µg/L)									
Acenaphthene	L		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0476 U	0.019 U	0.0032 U
Acenaphthylene	L		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0476 U	0.019 U	0.0030 U
Anthracene	L		0.0472 U	0.0500 U	0.0495 U	**0.0121** J	**0.0397**	**0.064**	**0.039** J
Benz (a) anthracene	H, C		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	**0.033**	0.0023 U
Benzo (a) pyrene	H, C	0.2	0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	0.078 U	0.0030 U
Benzo (b) fluoranthene	H, C		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	0.11 U	0.020 U
Benzo (k) fluoranthene	H, C		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	**0.021**	0.0039 U
Benzo (ghi) perylene	H, C		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	**0.035**	0.0055 U
Chrysene	H, C		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	**0.033**	0.0032 U
Dibenzo (a,h) anthracene	H, C		0.0943 U	0.1000 U	0.0990 U	0.0238 U	0.0238 U	0.019 U	0.0076 U
Fluoranthene	H		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	**0.041**	**0.031** J
Fluorene	L		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0476 U	**0.026**	0.0034 U
Indeno (1,2,3-cd) pyrene	H, C		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	0.064 U	0.0062 U
Naphthalene	L		0.0472 U	0.0500 U	0.0495 U	**0.257**	0.0119 U	**0.042** J	0.0057 U
Pentachlorophenol	L	1	NA	1.0000 U	0.9900 U	0.238 U	0.238 U	NA	NA
Phenanthrene	L		0.0472 U	0.0500 U	0.0495 U	**0.0259**	**0.0357**	**0.085**	**0.048**
Pyrene	H		0.0472 U	0.0500 U	0.0495 U	0.0119 U	0.0119 U	**0.032**	**0.020** J
Total LPAHs			0.1416 U	0.6500 U	0.6435 U	**0.2950** J	**0.0754**	**0.217** J	**0.087** J
Total HPAHs			0.2596 U	0.2750 U	0.2723 U	0.0655 U	0.0655 U	**0.195**	**0.051** J
Total Carcinogenic PAHs			0.2124 U	0.2250 U	0.2228 U	0.0536 U	0.0536 U	**0.122**	0.0259 U
Total PAHs			0.4012 U	0.9250 U	0.9158 U	**0.2950** J	**0.0754**	**0.412** J	**0.138** J
FIELD PARAMETERS									
Groundwater Elevation (ft NAVD88)			**17.10**	**12.01**	**16.52**	**23.73**	**14.63**	**13.06**	**22.90**
Temperature (°C)			**14.60**	**14.02**	**10.51**	**14.43**	**15.21**	**17.4**	**14.71**
Oxidation-Reduction Potential (mV)			**-20.00**	**13.60**	**44.7**	**-19.50**	**-15.69**	**-33**	**11.6**
pH			**5.94**	**5.77**	**5.89**	**5.90**	**6.09**	**6.23**	**6.00**
Specific Conductance (mS/cm)			**0.54**	**0.36**	**0.264**	**0.52**	**0.559**	**0.480**	**0.441**
Turbidity (NTU)			**40.80**	**11.60**	**3.42**	**9.15**	**78.70**	NA	NA
Total Suspended Solids (mg/L)			NA	NA	NA	NA	NA	NA	**257**
Dissolved Oxygen (mg/L)			NA	**0.40**	**0.7**	**0.32**	**0.78**	NA	**0.39**

Notes:

MCL = Primary Drinking Water Standard Maximum Contaminant Level
bold = Indicates the analyte was detected above MDL
bold and shaded = Indicates the analyte was detected in excess of MCL
J = Estimated Value
U = Value Below MDL (value represents MDL)
L = Low Molecular Weight PAH (LPAH)
H = High Molecular Weight PAH (HPAH)
PAH = polynuclear aromatic hydrocarbon
NA = Not available

H = High Molecular Weight PAH (HPAH)
C = Carcinogenic PAH
µg/L = micrograms per liter
mg/L = milligrams per liter
mS/cm = milliSiemens/centimeter
mV = millivolts
NTU = nephelometric turbidity unit

LEGEND

- Groundwater Monitoring Wells
- Infiltration Pond
- Subsurface Barrier Wall
- Drainage Swale Flow Direction Arrow

NOTE: Aerial photo taken on September 22, 2006

0 200 400

Scale in feet

McCormick and Baxter Superfund Site
Portland, Oregon

Groundwater Monitoring Well MW-59s and Infiltration Pond Location Map

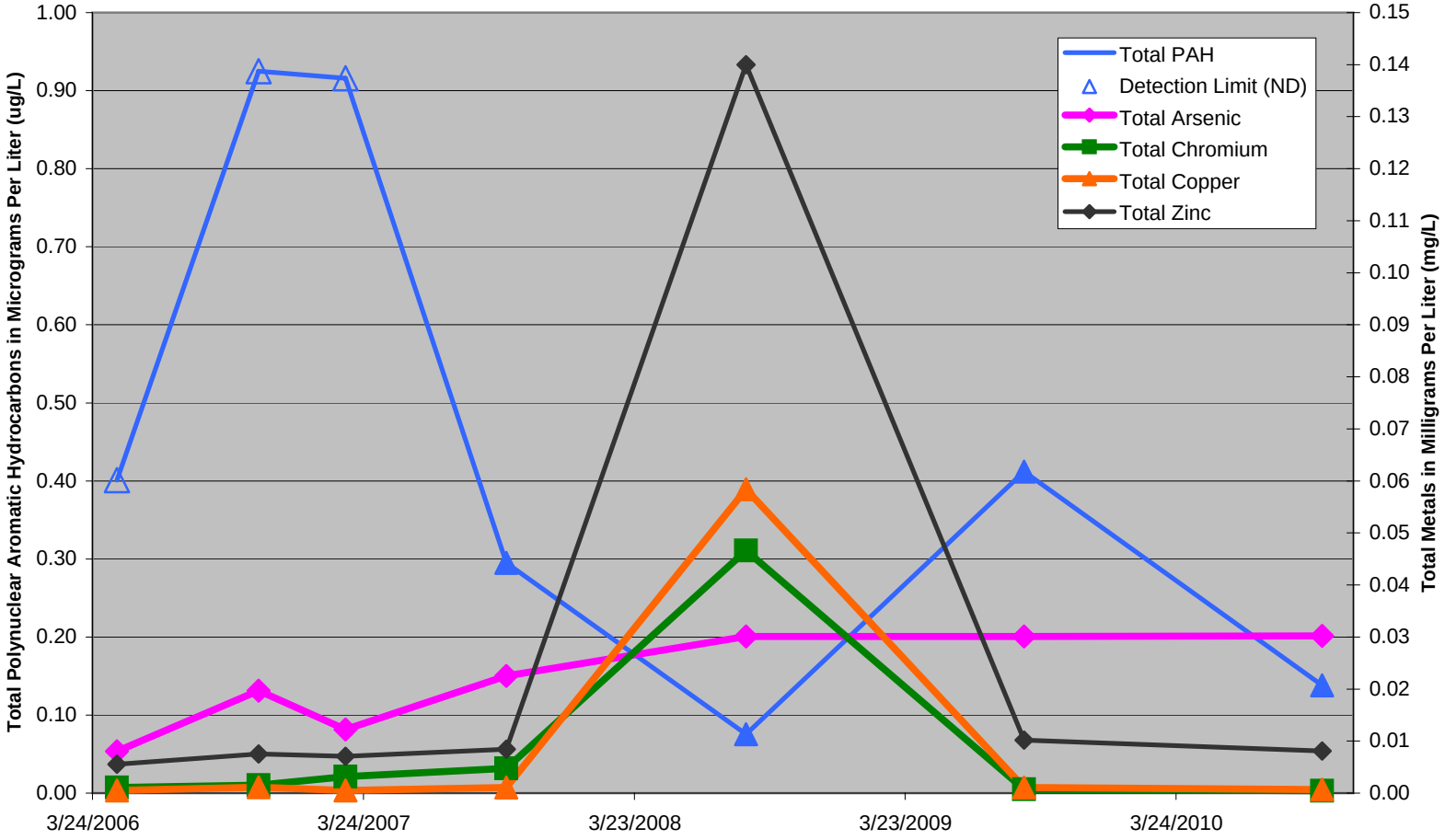
5/11

HARTCROWSER GSI Water Solutions, Inc.

Figure

E-1

File Path: P:\Portland\205 - OR DEQ\003 - 003 McCormick and Baxter\Project_GIS\Project_mxds\2010_Annual_Report\FigureE-1_GW_Monitoring_Well_MW-59s_Location_Map.mxd, Date: April 27, 2011 3:47:01 PM



McCormick and Baxter Superfund Site
Portland, Oregon

MW-59s Groundwater Quality Data

5/11

Figure

E-2

HARTCROWSER

GSI Water Solutions, Inc.

ATTACHMENT A
DATA QUALITY REVIEW, FIELD NOTES, AND LABORATORY ANALYTICAL REPORT FOR MW-59S SAMPLING

Included only on the O&M Report DVD

DATA QUALITY REVIEW

Job Number: 15670-05/Task 04 **Review Date:** 12/21/2010

Project: McCormick and Baxter **Reviewer:** C. Martin

Laboratory: Pace Analytical **Laboratory Job ID#:** 10140146

Analysis: EPA 6020 - Total As, Cr, Cu, Zn **Matrix:** Water

Sample ID Numbers:
MW59s-100710

Sampling Date: 10/07/2010 **Extraction Date:** 10/14/2010

Analysis Date: 10/19/2010

Holding Times and Reporting Limits:
Holding times are acceptable. RL acceptable. Temperatures were below the 2-6°C recommended temperature. Results not qualified, as low temperatures will not affect metals.

Method, Trip, and Field Blanks:
Method Blank is Non-Detect.

Laboratory Control Samples (LCS):
Within control limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
MS within control limits.

Laboratory Duplicate:
NA

Field Duplicate:
NA

ICAL and CCV:
Within control.

Qualification Summary:
Not qualified.

DATA QUALITY REVIEW

Job Number: 15670-05/Task 04 **Review Date:** 12/21/2010

Project: McCormick and Baxter **Reviewer:** C. Martin

Laboratory: Pace Analytical **Laboratory Job ID#:** 10140146

Analysis: EPA 8270C-SIM - PAHs **Matrix:** Water

Sample ID Numbers:
MW59s-100710

Sampling Date: 10/07/2010 **Extraction Date:** 10/12/2010

Analysis Date: 10/20/2010

Holding Times and Reporting Limits:
Holding times are acceptable for initial extraction. Temperatures were below the 2-6°C recommended temperature. Results not qualified, as low temperatures will not significantly affect SVOCs.

Method, Trip, and Field Blanks:
Method Blank is Non-Detect.

Laboratory Control Samples (LCS):
Within laboratory control limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
MS within control limits.

Field Duplicate:
NA

Internal Standards:
Within acceptance criteria.

ICAL and CCV:
Per case narrative, within method requirements.

Qualification Summary:
Not qualified.

DATA QUALITY REVIEW

Job Number: 15670-05/Task 04 **Review Date:** 12/21/2010

Project: McCormick and Baxter **Reviewer:** C. Martin

Laboratory: Pace Analytical **Laboratory Job ID#:** 10140146

Analysis: SM 2540D - TSS **Matrix:** Water

Sample ID Numbers:
MW59s-100710

Sampling Date: 10/07/2010 **Extraction Date:** NA

Analysis Date: 10/12/2010

Holding Times and Reporting Limits:
Holding times are acceptable for initial extraction. Temperatures were below the 2-6°C recommended temperature. Results not qualified, as low temperatures will not significantly affect TSS.

Method, Trip, and Field Blanks:
Method Blank is Non-Detect.

Laboratory Control Samples (LCS):
Within laboratory control limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
MS within control limits.

Field Duplicate:
NA

Qualification Summary:
Not qualified.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

October 22, 2010

Heidi Blischke
GSI Water Solutions, Inc.
88 SW Yamhill Street
Suite 400
Portland, OR 97204

RE: Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Dear Heidi Blischke:
Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10140146001	**MW59S-100710**	Water	10/07/10 14:52	10/09/10 08:07

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SAMPLE ANALYTE COUNT

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10140146001	**MW59S-100710**	EPA 6020	RJS	4	PASI-M
		EPA 8270 by SIM	JRH	18	PASI-M
		SM 2540D	CAP	1	PASI-M

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Oregon DEQ
Date: October 22, 2010

General Information:
1 sample was analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: October 22, 2010

General Information:
1 sample was analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/5963

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/13991

D2: Samples evaluated to 1/2 the reporting limit.

- BLANK (Lab ID: 869191)
  - 2-Fluorobiphenyl (S)

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1700 Elm Street - Suite 200
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(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Oregon DEQ
Date: October 22, 2010

Analyte Comments:

QC Batch: OEXT/13991

D2: Samples evaluated to 1/2 the reporting limit.

- MW59S-100710 (Lab ID: 10140146001)
  - 2-Fluorobiphenyl (S)

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Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Method: **SM 2540D**
Description: TSS, Low Level
Client: Oregon DEQ
Date: October 22, 2010

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Sample: MW59S-100710 **Lab ID: 10140146001** Collected: 10/07/10 14:52 Received: 10/09/10 08:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3020								
Arsenic	**30.2**	ug/L	0.50	0.062	1	10/14/10 13:10	10/19/10 06:14	7440-38-2	
Chromium	**0.48J**	ug/L	0.50	0.24	1	10/14/10 13:10	10/19/10 06:14	7440-47-3	
Copper	**0.66**	ug/L	0.50	0.20	1	10/14/10 13:10	10/19/10 06:14	7440-50-8	
Zinc	**8.1**	ug/L	5.0	1.3	1	10/14/10 13:10	10/19/10 06:14	7440-66-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Acenaphthene	**<0.0032**	ug/L	0.040	0.0032	1	10/12/10 08:10	10/20/10 14:50	83-32-9	
Acenaphthylene	**<0.0030**	ug/L	0.040	0.0030	1	10/12/10 08:10	10/20/10 14:50	208-96-8	
Anthracene	**0.039J**	ug/L	0.040	0.0068	1	10/12/10 08:10	10/20/10 14:50	120-12-7	
Benzo(a)anthracene	**<0.0023**	ug/L	0.040	0.0023	1	10/12/10 08:10	10/20/10 14:50	56-55-3	
Benzo(a)pyrene	**<0.0030**	ug/L	0.040	0.0030	1	10/12/10 08:10	10/20/10 14:50	50-32-8	
Benzo(b)fluoranthene	**<0.020**	ug/L	0.040	0.020	1	10/12/10 08:10	10/20/10 14:50	205-99-2	
Benzo(g,h,i)perylene	**<0.0055**	ug/L	0.040	0.0055	1	10/12/10 08:10	10/20/10 14:50	191-24-2	
Benzo(k)fluoranthene	**<0.0039**	ug/L	0.040	0.0039	1	10/12/10 08:10	10/20/10 14:50	207-08-9	
Chrysene	**<0.0032**	ug/L	0.040	0.0032	1	10/12/10 08:10	10/20/10 14:50	218-01-9	
Dibenz(a,h)anthracene	**<0.0076**	ug/L	0.040	0.0076	1	10/12/10 08:10	10/20/10 14:50	53-70-3	
Fluoranthene	**0.031J**	ug/L	0.040	0.0037	1	10/12/10 08:10	10/20/10 14:50	206-44-0	
Fluorene	**<0.0034**	ug/L	0.040	0.0034	1	10/12/10 08:10	10/20/10 14:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0062**	ug/L	0.040	0.0062	1	10/12/10 08:10	10/20/10 14:50	193-39-5	
Naphthalene	**<0.0057**	ug/L	0.040	0.0057	1	10/12/10 08:10	10/20/10 14:50	91-20-3	
Phenanthrene	**0.048**	ug/L	0.040	0.0054	1	10/12/10 08:10	10/20/10 14:50	85-01-8	
Pyrene	**0.020J**	ug/L	0.040	0.0051	1	10/12/10 08:10	10/20/10 14:50	129-00-0	
2-Fluorobiphenyl (S)	58	%	43-125		1	10/12/10 08:10	10/20/10 14:50	321-60-8	D2
Terphenyl-d14 (S)	78	%	34-136		1	10/12/10 08:10	10/20/10 14:50	1718-51-0	
TSS, Low Level	Analytical Method: SM 2540D								
Total Suspended Solids	**257**	mg/L	4.0	2.0	1		10/12/10 09:43		

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

QC Batch: MPRP/22843 | Analysis Method: EPA 6020
QC Batch Method: EPA 3020 | Analysis Description: 6020 MET
Associated Lab Samples: 10140146001

METHOD BLANK: 870183 | Matrix: Water
Associated Lab Samples: 10140146001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<0.062	0.50	10/19/10 01:39	
Chromium	ug/L	<0.24	0.50	10/19/10 01:39	
Copper	ug/L	<0.20	0.50	10/19/10 01:39	
Zinc	ug/L	<1.3	5.0	10/19/10 01:39	

LABORATORY CONTROL SAMPLE: 870184

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	80.8	101	80-120	
Chromium	ug/L	80	81.2	102	80-120	
Copper	ug/L	80	82.1	103	80-120	
Zinc	ug/L	80	82.7	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 870185 870186

Parameter	Units	9279311006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.12J	80	80	81.4	83.0	102	104	75-125	2	20	
Chromium	ug/L	3.6	80	80	92.0	92.6	110	111	75-125	.8	20	
Copper	ug/L	4.1	80	80	91.1	92.9	109	111	75-125	2	20	
Zinc	ug/L	12.4	80	80	99.9	102	109	112	75-125	2	20	

MATRIX SPIKE SAMPLE: 870187

Parameter	Units	9279333007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1.1	80	85.0	105	75-125	
Chromium	ug/L	0.27J	80	85.4	106	75-125	
Copper	ug/L	ND	80	88.4	110	75-125	
Zinc	ug/L	2.6J	80	87.8	107	75-125	

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

QC Batch: OEXT/13991 | Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10140146001

METHOD BLANK: 869191 | Matrix: Water
Associated Lab Samples: 10140146001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0032	0.040	10/20/10 12:11	
Acenaphthylene	ug/L	<0.0030	0.040	10/20/10 12:11	
Anthracene	ug/L	<0.0067	0.040	10/20/10 12:11	
Benzo(a)anthracene	ug/L	<0.0023	0.040	10/20/10 12:11	
Benzo(a)pyrene	ug/L	<0.0030	0.040	10/20/10 12:11	
Benzo(b)fluoranthene	ug/L	<0.020	0.040	10/20/10 12:11	
Benzo(g,h,i)perylene	ug/L	<0.0054	0.040	10/20/10 12:11	
Benzo(k)fluoranthene	ug/L	<0.0039	0.040	10/20/10 12:11	
Chrysene	ug/L	<0.0032	0.040	10/20/10 12:11	
Dibenz(a,h)anthracene	ug/L	<0.0075	0.040	10/20/10 12:11	
Fluoranthene	ug/L	<0.0037	0.040	10/20/10 12:11	
Fluorene	ug/L	<0.0034	0.040	10/20/10 12:11	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0061	0.040	10/20/10 12:11	
Naphthalene	ug/L	<0.0056	0.040	10/20/10 12:11	
Phenanthrene	ug/L	<0.0053	0.040	10/20/10 12:11	
Pyrene	ug/L	<0.0050	0.040	10/20/10 12:11	
2-Fluorobiphenyl (S)	%	71	43-125	10/20/10 12:11	D2
Terphenyl-d14 (S)	%	80	34-136	10/20/10 12:11	

LABORATORY CONTROL SAMPLE & LCSD: 869192 869193

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.75	0.71	75	71	49-125	6	20	
Acenaphthylene	ug/L	1	0.77	0.74	77	74	48-125	5	20	
Anthracene	ug/L	1	0.82	0.82	82	82	49-130	.8	20	
Benzo(a)anthracene	ug/L	1	0.90	0.90	90	90	50-125	.07	20	
Benzo(a)pyrene	ug/L	1	0.87	0.90	87	90	48-131	4	20	
Benzo(b)fluoranthene	ug/L	1	0.88	0.91	88	91	48-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.86	0.85	86	85	34-136	1	20	
Benzo(k)fluoranthene	ug/L	1	0.84	0.84	84	84	46-142	1	20	
Chrysene	ug/L	1	0.85	0.89	85	89	39-150	5	20	
Dibenz(a,h)anthracene	ug/L	1	0.87	0.86	87	86	42-127	1	20	
Fluoranthene	ug/L	1	0.89	0.88	89	88	51-130	1	20	
Fluorene	ug/L	1	0.79	0.75	79	75	51-125	5	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.88	0.88	88	88	43-125	.7	20	
Naphthalene	ug/L	1	0.73	0.71	73	71	44-125	3	20	
Phenanthrene	ug/L	1	0.79	0.79	79	79	51-125	.7	20	
Pyrene	ug/L	1	0.87	0.87	87	87	38-149	.3	20	
2-Fluorobiphenyl (S)	%				69	66	43-125			
Terphenyl-d14 (S)	%				82	81	34-136			

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QUALITY CONTROL DATA

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

QC Batch: WET/20425 | Analysis Method: SM 2540D
QC Batch Method: SM 2540D | Analysis Description: TSS, Low Level
Associated Lab Samples: 10140146001

METHOD BLANK: 869254 | Matrix: Water
Associated Lab Samples: 10140146001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	10/12/10 09:43	

METHOD BLANK: 869257 | Matrix: Water
Associated Lab Samples: 10140146001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<1.0	2.0	10/12/10 09:43	

LABORATORY CONTROL SAMPLE: 869255

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	454	424	93	80-120	

SAMPLE DUPLICATE: 869256

Parameter	Units	10139959001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	6.2	6.8	9	20	

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QUALIFIERS

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSSV/5963

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D2 Samples evaluated to 1/2 the reporting limit.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15670-05 TASK 4 MCCORMICK&BAXT
Pace Project No.: 10140146

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10140146001	**MW59S-100710**	EPA 3020	MPRP/22843	EPA 6020	ICPM/9344
10140146001	**MW59S-100710**	EPA 3510	OEXT/13991	EPA 8270 by SIM	MSSV/5963
10140146001	**MW59S-100710**	SM 2540D	WET/20425		

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State of Oregon Chain of Custody

10140146

Agency, Authorized Purchaser or Agent:	Contract Laboratory Name:	Lab Selection Criteria:	Turn Around Time:
Scott Manzano/Department of Environmental Quality	Pace Analytical	☐ Proximity (if TAT < 48 hrs)	X 10 days (std.)
Send Lab Report To:	**Lab Batch #:**	X Prior work on same project	☐ 5 days
Address: Heidi Blischke, GSI Water Solutions; 55 SW Yamhill, Suite 400; Portland, Oregon 97204	**Invoice To:** Delia Chadwick/DEQ	☐ Cost (for anticipated analyses)	☐ 72 hours
Tel. #: 503-239-8799 x114	Address: Accounts Payable, 811 SW 6th Ave.; Portland, OR, 97204	☐ Other labs disqualified or unable to perform requested services	☐ 48 hours
E-mail: hblischke@gsiwatersolutions.com	Tel. #: 503-229-6748	☐ Emergency work	☐ 24 hours
			☐ Other

Project Name: McCormick & Baxter
Project #: 15670-05 Task 4
Sampler Name: Jason Miles

Sample ID#	Collection Date/Time	Matrix	Number of Containers	*PAHs EPA Method 8270-SIM	*PCP EPA Method 8270-SIM	Total Metals (As, Cr, Cu, Zn) Method 6010/6020	**Dissolved Metals (As, Cr, Cu, Zn) Method 6010/6020	Total Suspended Solids	Total Dissolved Solids		Comments (* low level PAHs and PCP; ** Field filtered 0.45 um filter)
			Sample Preservative	None	None	HNO3	HNO3	None	None		
MW595-100710	10-7-10/1452	Water	8	X		X		X			Hold all bottles for possible analysis
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									
		Water									

001

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Jason B. Miles	Hart Crowser	Carl Ledbetter	
Signature:	Time & Date: 0807 10-8-10	Signature: Carl Ledbetter	Time & Date: 10/8/10 0807

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [8910]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Page 1 of 2

Nicole Roy / Pace NW 10/9/10 0915

T= 5.2°

15 of 16

Sample Condition Upon Receipt

Pace Analytical

Client Name: Department of Enviro Quality **Project #** 10140146

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 9 723 1355 0007 10/9/10 MSP

Custody Seal on Cooler/Box Present: ☐ yes ☑ no **Seals intact:** ☐ yes ☑ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ **Temp Blank: Yes** ✓ **No** _____

Thermometer Used 80344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.2 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 10/9/10 MSP

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☑Yes ☐No ☐N/A	13. 1/2 2/2 ☑ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	Samp # MW595-10070
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water	☐Yes ☑No	Initial when completed MSP / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: Tim Skrotzki Date/Time: 10/11/10

Comments/ Resolution: run tests as shown on COC

Project Manager Review: [illegible] **Date:** 10/11/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

F-L213Rev.00, 05Aug2009

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Table 11.2
Example Water Quality Parameter Form
McCormick and Baxter Creosoting Company
Portland, Oregon

GROUNDWATER MEASUREMENT DATA SHEET

SITE NAME: McCormick and Baxter WELL No.: MW595-100710 DATE: 10/07/0

1. FIELD OBSERVATION AND MEASUREMENTS

a. Field Personnel: Jason Miles
b. Visitors at Site: N/A
c. Type of Well: GW Monitoring Well
d. Well Measurements:
Depth to Water (DTW): 22.90
Measuring Point (circle): Top of casing / Ground surface
NAPL present? (circle): DNAPL / LNAPL / Both
Total Depth of Well (TD): 36.29
Diameter of Well (circle): 2-inch / 4-inch / 6-inch / 8-inch
Water Column (TD – DTW): 3m ~~36.29~~ 13.39
Calculated Required Purge Volume: 3m ~~13.39~~ 1.6 gal
e. Purging/Sampling Method (circle): Low Flow / 2" Grundfos / 12V KVA Pump / Bailer

2. PURGING PARAMETERS Sample Time 1452

Time	Volume Purged (gal.)	Temp (F°/°C)	ORP	pH	Cond. (Ms/cm)	Turbidity (NTU)	D.O. (m-g-/L)	Pump Speed	SWL	Description of Water
1439	0.13	14.76	78.8	6.07	0.464	Not Sampled	0.61	0.2L/min	22.91	Slightly cloudy
1437	0.4	14.70	51.0	6.00	0.454		0.51		22.91	Several bubbles.
1440	0.7	14.72	34.3	5.99	0.449		0.48		22.91	No odor or Sheen
1443	1.0	14.72	24.3	5.99	0.445		0.44		22.91	Very little small
1446	1.3	14.71	15.5	5.99	0.443		0.40		22.91	sediment
1449	1.6	14.71	16.6	6.00	0.441		0.37		22.91	
Final										

3. SAMPLE COLLECTION SUMMARY Sample Time: 1452

ANALYSES AND SAMPLE NUMBERS							
Sample	VOC's (8260)	SVOC's (8270)	PCB's (8082)	NWTPH-Gx	NWTPH-Dx	Total Metals	PCP / Dios Furans
		X				X	X

VOLUME OF WATER IN CASING			
Casing Diameter (inches)	Gallons per foot of Depth	Cubic Feet per Foot of Depth	Liters per Meter of Depth
2	0.163	0.0218	2.024
4	0.653	0.0873	8.11
8	2.611	0.3491	32.43
12	5.81	0.7767	65.97

1 Cubic Foot = 7.48 gallons or 28.32 liters, 1 Gallon = 3.785 liters or 0.1337 cubic feet

As, ~~Cd~~, Cr, Cu, Zn