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March 1, 2010

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Re: Response to EPA Review of Comment Responses to the  
EPA December 14, 2009, Comment Letter Regarding the Draft Work Plan;  
Gasco Site, Portland, Oregon; Administrative Settlement Agreement and Order on  
Consent for Removal Action EPA Region 10, Docket No. CERCLA 10-2009-0255  
Gasco Sediments Site within the Portland Harbor Superfund Site

Project Number: 000029-02.23

Dear Sean:

The following letter presents a summary of NW Natural's and Siltronic Corporation's (Siltronic) responses to the U.S. Environmental Protection Agency's (EPA) January 31, 2010, comment letter, regarding their review of NW Natural and Siltronic's January 13, 2010, responses to EPA's December 14, 2009, comment letter on the October 9, 2009, Draft Work Plan. For easier reference, the response list identifies the original comment in bold, the NW Natural and Siltronic response in standard type, the review of the NW Natural and Siltronic response in italics, and NW Natural and Siltronic's response to that review in standard type again.

If you have any questions or concerns, please contact me at (206) 287-9130 or [rbarth@anchorqea.com](mailto:rbarth@anchorqea.com).

Regards,

Ryan Barth, P.E.  
Anchor QEA, LLC

**cc (via email):**

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## NW NATURAL RESPONSES TO EPA'S GENERAL WORK PLAN COMMENTS

### Section 1: Background

Comment GC-1: "Remedial" should be qualified up front in the Draft Work Plan as being one preferred outcome; though a significant hot spot removal could be handled under removal authorities. As such, the Engineering Evaluation/Cost Analysis (EE/CA) could be put out for public comment, should the proposed plan be substantially delayed, for example. A Statement of Work (SOW) reference to removal/remedial preferences may be all that is required. Timing of the design work also needs to be discussed (Figure 1.2-2). Design for a final remedy would not be allowed without a Record of Decision (ROD). The schedule and Work Plan should acknowledge the need to track the Remedial Investigation/Feasibility Study (RI/FS) process and be flexible in scope if substantial delay in the ROD process occurs. Specifically, the work plan should acknowledge and plan for both an EE/CA for public comment for significant hot spot removal and drafting the Feasibility Study (FS) analysis of a final remedy for this area tracking the progress of the FS. Please note that if an EE/CA for removal work proceeds first, supplemental EE/CA or Feasibility Study work (at NW Natural/Siltronic's risk should public comments require the cleanup to go in another direction), would be allowable to leverage the pace of cleanup post ROD.

NW Natural and Siltronic Response: NW Natural and Siltronic acknowledge that:

1. EPA retains the authority to require a removal action if the ROD is significantly delayed, and that such a delay may affect the schedules proposed in the Work Plan.
2. Remedial design cannot be finalized until the ROD is signed, and the draft final design to be prepared under the Gasco Statement of Work may require revision based upon EPA's consideration of public comments on the Portland Harbor Site proposed plan.

No revisions have been made to the Final Work Plan.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-2, Section 1.2.1: NW Natural indicates, “There are no specific expectations with regard to remediation ...” Oregon Department of Environmental Quality (DEQ) notes that while this may be strictly true, the second paragraph of the SOW states the Gasco sediment remedial action will include a preference for “removal” of in-river materials containing substantial product and tar.**

NW Natural and Siltronic Response: NW Natural and Siltronic will follow the requirements set forth in the Statement of Work.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## **Section 2 – Summary of Existing Information**

**Comment GC-3: Various vertical datum are referenced throughout the document based on the source investigations. A single project reference vertical datum, consistent with the Harborwide vertical datum, should be selected moving forward and, if feasible, all datum converted to the project datum throughout the document.**

NW Natural and Siltronic Response: The Draft Work Plan excerpted compiled historical information from a variety of documents that used different datum. Revising all these historical summaries into a single datum in the Draft Work Plan would be very time consuming and likely not helpful to the reader, given the nature of the document. Data sets that are developed in future Statement of Work submittals (i.e., compiled figures and tables developed by NW Natural and/or Siltronic that include historical data) will include a single consistent vertical datum as necessary to support the objectives of the submittal.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-4, Section 2.1.2: This section of the Draft Work Plan should be revised to include specific information regarding the topography of the Siltronic property (e.g., elevation ranges of the site and identified topographic features). A comparison of elevations to the NW Natural property should also be provided.**

NW Natural and Siltronic Response: Section 2.1.2 has been revised to include the general elevation observed on the Siltronic property.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-5, Section 2.2.1: The geology and hydrogeology of the NW Natural and Siltronic properties are discussed in a general sense in this section of the Draft Work Plan. As indicated by NW Natural, subsurface cross-sections depicted by figures 2.2.1-3 through 2.2.1-7 have been recently prepared to support uplands source control measures (SCMs) planning and design work. In addition, new interpretations regarding the hydrostratigraphy of the alluvial water bearing zone (WBZ) are provided in Section 2.2.1.2. NW Natural should be advised DEQ considers the information and figures presented in the Draft Work Plan to be preliminary and subject to our review and approval of recently submitted source control documents, including the Segment 2 Test Plan and Interim Design Report.**

NW Natural and Siltronic Response: The referenced text was developed in accordance with the requirements set forth in the Statement of Work based on NW Natural and Siltronic's current understanding and interpretation of Gasco and Siltronic property conditions. Because both the sediments remedial investigation and upland source control efforts are being conducted concurrently, NW Natural and Siltronic recognize and anticipate that information associated with upland source control issues presented in the Work Plan and future Statement of Work deliverables may need to be revised as new information becomes available and through additional coordination with DEQ. Furthermore, technical details specifically associated with upland source control investigations and design will be presented only in the Statement of Work deliverables as necessary to support the objectives of each submittal.

Consistent with the Statement of Work, the Draft Work Plan and subsequent submittals required by the Statement of Work are also being completed concurrently with the Portland Harbor Site risk assessment and Feasibility Study (FS) process. Some later EPA comments relate to integration of this Portland Harbor process with the Statement of Work required submittals. Each submittal will be drafted to develop a remedial design for the Project Area that is consistent and fully integrated with the Portland Harbor Site process at the time of each submittal development. NW Natural and Siltronic will continue to re-evaluate the status of the Portland Harbor Site risk assessment and FS process during development of each Statement of Work submittal and make any changes necessary to maintain consistency with these processes.

No revisions have been made to the Final Work Plan based on Comment GC-5.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-6, Section 2.2.1.1 (Alluvial Deposits): DEQ notes the silt unit directly underlying the surficial fill is not mentioned. The silt unit comprises the upper-most material of the alluvium. Not mentioning the silt unit appears to be an oversight as NW Natural and DEQ acknowledge the silt unit influences the nature and extent of contamination in the surficial fill, including the distribution of dense non-aqueous phase liquids (DNAPLs).**

NW Natural and Siltronic Response: NW Natural concurs that there is generally a silt interbed present near the top of the alluvial WBZ. This shallow alluvial silt is shown on all of the subsurface profiles provided as Figures 2.2.1-2 through 2.2.1.6. The text in Section 2.2.1.1 has been revised to reference these figures rather than the previously provided generalized geologic cross-section provided as Figure 2.2.1-1 in the Draft Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-7, Section 2.2.1.2 (Surficial Fill WBZ):** Although not indicated in the Draft Work Plan, the LNG tank basin represents a local influence on the direction of groundwater movement in the surficial fill WBZ. According to the Gasco Property RI Report, the elevation of the water table in the surficial fill WBZ is typically above the bottom of the basin. Given these conditions and as required by the Public Utility Commission, NW Natural dewateres the basin for health and safety reasons.

NW Natural and Siltronic Response: NW Natural continues to support the findings presented in the RI Report and confirms the LNG tank basin is dewatered as required by the Public Utility Commission. Because this is a detail of the upland site conditions covered by the RI, the text of this section has not been revised.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-8, Section 2.2.1.2 (Alluvial WBZ):** The silt unit mentioned in Comment GC-6 is also not discussed here. From a hydrogeologic standpoint the silt unit is considered the boundary between the surficial fill WBZ and the alluvial WBZ. The configuration of the top of the silt unit, as well as its thickness and hydraulic properties influence the horizontal movement of manufactured gas plant (MGP) DNAPL and shallow groundwater in the surficial fill WBZ, and the vertical migration of DNAPL and groundwater from the surficial fill WBZ into the alluvial WBZ.

NW Natural and Siltronic Response: See response to GC-6.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-9, Section 2.2.1.2 (Relationship between Groundwater and Fill Elevations/Groundwater discharge to the Project Area):** NW Natural indicates the alluvial WBZ is the principal hydrostratigraphic unit discharging to the Willamette River. NW Natural further suggests contributions from the surficial fill WBZ are seasonally dependant and impeded by a silt layer that provides a, "...degree of isolation between the fill and the Lower Willamette River." In addition, based on observations made during quarterly riverbank inspections NW Natural does not consider shallow groundwater seepage through the riverbank to be active. Volumetrically, DEQ agrees the alluvial WBZ represents a larger source of groundwater discharge to the river than the surficial fill WBZ. However, to date the surficial fill WBZ has not been subject to the same types of technical evaluations as the alluvial WBZ. As such, DEQ considers NW Natural's interpretations regarding the connection and contribution of the surficial fill WBZ to the river to be premature based on available information. For example, the Gasco Property RI Report indicates that during 2005, on an average daily basis 20,000 gallons of contaminated groundwater from the surficial fill WBZ was pumped out of the LNG tank basin, treated using granulated activated carbon, and discharged to the City of Portland publically-owned treatment works (POTW). Based on this information and the magnitude of contamination in the surficial fill near the river, DEQ required NW Natural to develop SCMs to control and contain groundwater in the surficial fill WBZ. NW Natural should be advised that if the information is not already included in the Interim Design Report, DEQ will expect detailed evaluations of the surficial fill WBZ to be conducted during future uplands SCMs planning investigations.

NW Natural and Siltronic Response: See response to GC-5.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-10, Section 2.2.4.2: This section indicates three outfalls are located on the Siltronic property. For clarification, three outfalls discharge combined effluent and stormwater (WR-66) or stormwater (WR-67, WR-287) to the Willamette River directly. Stormwater is also discharged from the Administration Building parking lot to the river via a connection to the City's outfall OF-22C.**

NW Natural and Siltronic Response: NW Natural and Siltronic concur with the clarification, and this text has been added to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-11, Section 2.6.2: For clarification, the principal historic MGP waste placement areas on the Siltronic property were the effluent overflow pond(s) and spent oxide pile. Both features were located along the boundary between the NW Natural and Siltronic properties. However, waste placement also occurred at an excavation/depression located under what is now the southern end of Siltronic's Fab 1 Building.**

NW Natural and Siltronic Response: NW Natural and Siltronic concur with the clarification. Because this detail is addressed in current upland documents, no revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-12, Section 2.6.3: DEQ understands the tug refueling dock referenced in the first sentence of the second paragraph was formerly located in the “southeastern” corner of the Siltronic property.**

NW Natural and Siltronic Response: DEQ’s understanding is generally correct: the former tug refueling facility was located near the upstream end of the Siltronic property, near the existing Administration Building.

EPA Review: *This updated information should be included in the revised text.*

NW Natural and Siltronic Response to Review: The updated information has been included in the Final Work Plan.

**Comment GC-13, Section 2.7.2.2: NW Natural provides an overview of the status of uplands source control work being done under DEQ oversight in this section of the Draft Work Plan. For clarification and completeness, regarding the surficial fill WBZ, DEQ informed NW Natural via correspondence and during meetings that:**

- **Controlling and containing groundwater in the surficial fill WBZ should be included in planning and design of the vertical barrier (i.e., engineering controls on the upland side of the barrier to prevent DNAPL and/or contaminated groundwater from moving over or around the barrier); and**
- **Absent information, data, and/or analysis indicating the alluvial WBZ extraction wells will control/contain groundwater in the surficial fill WBZ, evaluations of riverbank remedial alternatives should include this as a remedial action objective.**

To date, NW Natural has not provided information, data, and/or analysis regarding the capability of extraction wells in the alluvial WBZ to control/contain shallow groundwater in the surficial fill WBZ.

In the last paragraph of the section NW Natural indicates DEQ required a vertical barrier as a component of uplands groundwater source control. For clarification, the vertical barrier SCM is an outcome of a focused feasibility study (FFS) conducted by NW Natural. The Groundwater/DNAPL FFS completed in November 2007<sup>4</sup> presents NW Natural’s evaluation of SCMs alternatives and recommends SCMs to mitigate migration of DNAPL and

contaminated groundwater to the Willamette River. The Groundwater/DNAPL FFS determined that of the SCM alternatives carried forward into the detailed evaluation, the vertical barrier and hydraulic control/containment (HC&C) combination scored highest overall. Notably the combination scored higher than HC&C alone in four of the five "Effectiveness" sub-categories, primarily because the vertical barrier physically blocks DNAPL migrating to the river. NW Natural recommended a SCMs alternative combining HC&C along shoreline segments 1 and 2 with a vertical barrier along the northern portion Segment 1 (i.e., the southern portion of the NW Natural Property). DEQ approved NW Natural's recommendation subject to conditions and comments.

NW Natural and Siltronic Response: See response to GC-5.

EPA Review: *No further Work Plan revisions are necessary.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-14, Section 2.8.1.2 (Stormwater Discharge):** NW Natural indicates some portions of the property are not vegetated and undeveloped (e.g., southeastern portion of the site). NW Natural has acknowledged heavy rains could cause stormwater from these uplands areas to flow overland into the Willamette River. DEQ expects the overland contaminant transport pathway in minimally vegetated undeveloped portions of the riverbank to be fully evaluated and addressed during planning and design of riverbank removal/remedial action(s).

NW Natural and Siltronic Response: NW Natural will fully evaluate the overland transport pathway during design of the riverbank remedial action(s). No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-15, Section 2.8.1.2 (Groundwater):** Regarding NW Natural's conclusion that the surficial fill WBZ, "...is not likely a major contamination migration pathway," see Comment GC-8. In addition, DEQ disagrees with NW Natural's conclusion about the distribution of MGP DNAPL in river sediment presented in this section. NW Natural indicates DNAPL is only present in sediments at relatively shallow depths indicative of historical direct discharge to the river surface and direct placement." Based on DEQ's review of the Offshore Investigation Report, evidence exists that MGP DNAPL has migrated from uplands source areas out under the river. For example, observations and measurements made during drilling of nearshore boring GS-09 indicate the presence of residual DNAPL approximately 10 feet deeper than the bottom of MGP material reasonably interpreted as resulting from direct discharge/placement (see Figure 7 of the Preliminary Design Report).

NW Natural and Siltronic Response: NW Natural has already presented the evidence and stated the above conclusions in the February 2008 Offshore Investigation Report. Historical research showed that deep rearrangements of soils and sediment occurred in this location due to extensive shoreline reconfiguration, and that this was an area of active MGP byproduct surface discharge. NW Natural's position on these conclusions has not changed, and DEQ has not provided comments on these conclusions in the February 2008 report.

Also see response to Comment GC-5. No revisions have been made to the Final Work Plan.

EPA Review: *No further Work Plan revisions are necessary; however, EPA and DEQ do not subscribe to the stated mechanism to explain MGP waste presence in the area of boring GC-09. NW Natural should provide specific references to the section(s) of the February 2008 Offshore Investigation Report, or citations to historical research documenting "...deep rearrangements of soils and sediment occurred..." 30 feet riverward from the edge of the fill unit shown in cross-section, and 30 to 35 feet below mudline (i.e., the deepest evidence of MGP waste observed at the GS-09 boring location).*

NW Natural and Siltronic Response to Review: As shown on Figure 6 of the *Remedial Investigation Report* (HAI 2007), two features in the area of nearshore boring GS-09 affected the depth of DNAPL in nearshore sediments. During the period of MGP operations, the river shoreline near GS-09 was also the discharge point of a tributary channel that entered the Willamette River at that location. That same area of shoreline was also the location of periodic overflow from the former tar ponds. These features and their history are also described in the 2007 *Remedial Investigation Report*. The presence of the tributary channel and the tar pond

overflow are believed to have resulted in DNAPL being present in nearshore sediments at somewhat lower elevation near boring GS-09 than has been found in nearshore sediments along the rest of the shoreline. The following text from Section 1.2.2.2 of the *Offshore Investigation Report* (Anchor QEA 2008) relates to this issue.

“The very high concentrations in sediments are mostly likely due to historical discharge of MGP residuals to the river across the shoreline. Also, given the extensive dredge, fill, and movement of soils/sediments of this shoreline over time (see RI; HAI 2007), these materials may have been relocated to varying sediment depths. The NAPL and NAPL/water mixtures identified in the sediments may have infiltrated downward into the shallow river sediments following discharge, particularly when the mudline was exposed during low tide periods.”

The following text from Section 2.1 of the *Groundwater Source Control Interim Design Report* (Anchor QEA 2009) also addresses the issue:

“The profiles on Figures 2-12a and b also show that DNAPL was detected in shallow river sediment in several of the borings. DNAPL was not detected in any of the borings below an elevation of about -17 feet City of Portland (COP) datum. However, DNAPL has been detected in the upland alluvial WBZ at elevations down to -70 feet COP datum. The offshore investigation findings indicate that DNAPL has not migrated from the upland alluvium into river sediments. The investigations also found that DNAPL in river sediments shown on Figures 2.12a and b is sourced from direct discharge of MGP residuals from upland waste management areas into the river, not from DNAPL migration from the upland Alluvium WBZ.”

Resolution of this issue is not critical to finalizing the Work Plan, which is the subject of EPA’s comments. We recommend that this issue be further addressed through the review process after DEQ provides NW Natural with comments on the 2007 *Remedial Investigation Report*, the 2008 *Offshore Investigation Report*, and the 2009 *Groundwater Source Control Interim Design Report*.

**Comment GC-16, Section 2.8.2.2 (Riverbank Erosion):** DEQ agrees with NW Natural that further characterization of potential soil and groundwater contamination near and/or on the riverbank is a data gap for the Siltronic property. The DEQ-approved work plan for NW Natural's ongoing RI of MGP waste and contamination on the Siltronic property includes pushprobe drilling and soil/groundwater sampling to assess potential sources of contamination along the top of the riverbank. This information will be used to further assess the riverbank as a potential source of contamination to the river and plan additional investigations.

NW Natural and Siltronic Response: Completion of the DEQ-approved work plan for NW Natural's ongoing RI of MGP waste and contamination on the Siltronic property will further assess potential sources of contamination along the top of the riverbank on the Siltronic property.

Also, see response to Comment GC-5. No revisions have been made to the Final Work Plan.

EPA Review: *NW Natural and Siltronic agree data from the ongoing MGP RI of the Siltronic Property will be used to further assess potential sources of contamination along the top of the riverbank. For clarification, the referenced work includes drilling and sampling to the base of the fill WBZ. As such, the results of the work will provide soil and shallow groundwater data very near the riverbank. Sampling data could indicate sources of contamination in the uplands and upgradient have the potential to contribute to or cause riverbank contamination. Until this data is reviewed in the context of planning the sediment project, it is premature to remove risk management tools 2, 3, and 4 for the Siltronic riverbank (see Section 4.6.3.10 of the Work Plan) as NW Natural and Siltronic recommend in the response to CommentSC-62.*

NW Natural and Siltronic Response to Review: All but the first sentence of this paragraph have been removed from Section 4.6.3.10 of the Final Work Plan, such that all listed criteria will be evaluated in this area.

Comment GC-17, Section 2.9.2: NW Natural appears to rely on lines of evidence from the Portland Harbor Site RI/FS to identify the initial Gasco sediment project area and data gaps. Although Section 4.6.3.9 of the work plan indicates the Portland Harbor Baseline Ecological Risk Assessment (BERA) will be, "...reviewed to determine any additional lines of evidence that may be relevant to the Project Area," DEQ notes the BERA drops out many lines of evidence (e.g., transition zone water, surface water peristaltic pump samples) and chemicals of interest (COIs) in the risk analysis. Although some of these media were described earlier in the document, it is unclear if comparison of transition zone water (TZW) for example, to appropriate surface water quality criteria would be a line of evidence used by NW Natural during "interim project area identification." It is also not clear if all project-specific chemicals of concern (COCs) will be screened (e.g., cyanide, total PAHs). DEQ presumes any substantive decisions regarding planning and design of the sediment remedy will involve evaluations of all project-specific COCs whether they appear on the list of Portland Harbor COCs or not.

Cyanide is identified as an MGP COC for uplands investigations and the in-water project. Historically, groundwater and surface water samples have been analyzed for total and free forms of cyanide. In addition, analytical data for cyanide in forms amenable to chlorination have also been collected. Throughout the Draft Work Plan, NW Natural emphasizes "free cyanide" is the bioavailable and toxic form of cyanide and the most significant form in terms of assessing potential impacts to the Willamette River. For clarification, NW Natural is referring to concentrations of free cyanide determined using the ASTM D4282 analytical method.

In general DEQ concurs with NW Natural regarding free cyanide bioavailability and toxicity; however, DEQ does not consider free cyanide data alone to be adequate for assessing potential impacts to the river. As part of planning and designing the treatment system for the groundwater SCMs, DEQ requested NW Natural to expand the suite of cyanide analyses to include "available" and "weak-acid dissociable" forms. Cyanide in these forms has the potential to convert to free cyanide in the river environment. The evaluation of potentially convertible forms of cyanide is ongoing. The results of the evaluation will provide the basis for: 1) further assessing the nature and extent of cyanide in groundwater (including treated groundwater) and surface water; and 2) selecting cyanide analytical methods for future water sample testing. As such, DEQ considers NW Natural's interpretations regarding the distribution of free cyanide in groundwater to be preliminary and subject to change pending

**the outcome the cyanide evaluation. This comment is especially relevant to discussions of cyanide in shallow groundwater beneath the river, TZW, and surface water.**

NW Natural and Siltronic Response: Consistent with our response to Comment GC-5, the Statement of Work requires NW Natural to rely on lines of evidence from the Portland Harbor Site risk assessment and FS process to identify the initial Gasco sediment Project Area and data gaps for project area delineation and remedial design needs. Therefore, the Project Area Identification Report and Data Gaps Quality Assurance Project Plan (the next submittal required under the Statement of Work) will screen all media consistent with the Portland Harbor Site draft risk assessment for all COCs identified in the draft risk assessment and as subsequently revised through the EPA comment and LWG revisions process. Similarly, substantive decisions regarding planning and design of the sediment remedy will involve evaluations of the COCs identified in the Portland Harbor Site draft risk assessment and as subsequently revised.

With regards to source control evaluations for cyanide impacts to the Willamette River, see response to GC-5. NW Natural disagrees that any form of cyanide other than free cyanide measured at the actual point of exposure where organisms exist in surface water and TZW is indicative of in-water impacts, given that free cyanide is the true measure of actual bioavailable (and toxic) cyanide concentrations. DEQ's comment implies that the measurements of cyanide forms in the actual media of exposure (surface water and TZW) are somehow not indicative of actual site conditions and actual organism exposures to free cyanide. We are unclear as to why DEQ would assume that other forms of cyanide are potentially being converted to free cyanide at concentrations other than those directly supported by site-specific measurements.

EPA Review: Based on a discussion during the Gasco Sediments Site Quarterly Teleconference held on January 28, 2010, it is understood that NW Natural will provide clarification regarding the response to Comment GC-17.

*Regarding cyanide, DEQ's comment to the draft Work Plan provides sufficient explanation as to why cyanide in forms other than "free cyanide" should be included as chemicals of interest for the project. The basis for the comment is not an assumption that other forms of cyanide are potentially being converted, but lack of data regarding the presence of other forms and whether conversion is occurring, or could occur.*

NW Natural and Siltronic Response to Review: NW Natural provided clarification regarding the response to GC-17 in a February 23, 2010, letter. The clarification included the following text revisions, shown here in bold italics:

*“Therefore, the Project Area Identification Report and Data Gaps Quality Assurance Project Plan (the next submittal required under the Statement of Work) will screen all media consistent with the Portland Harbor Site draft risk assessment (or as subsequently revised and available in time for inclusion in the Project Area Identification Report and Data Gaps Quality Assurance Project Plan) for all Gasco Sediment SOW COCs. Similarly, substantive decisions regarding planning and design of the sediment remedy will involve evaluations of the SOW COCs identified in the Portland Harbor Site draft risk assessment and as subsequently revised.”*

We are still not entirely clear on EPA’s assertion regarding the importance of other forms of cyanide in TZW and surface water. However, we agree that—as required by the SOW—available, total and free cyanide data will be presented in the Project Area Identification Report and screened against the relevant cyanide screening levels.

**Comment GC-18, Section 2.9.3: For purposes of compiling data in the Draft Work Plan, NW Natural defines sediment samples collected from between 0-40 centimeters (cm) below mudline (bml) as “surface sediment”. DEQ notes the Portland Harbor RI uses 30 cm in its definition. The Portland Harbor definition and influence, if any, on NW Natural’s interpretations regarding the nature and extent of sediment contamination should be discussed in the work plan. This information may factor into planning future sediment sampling work, as evaluations risk may rely on samples collected from the 0-30cm depth interval.**

NW Natural and Siltronic Response: The Portland Harbor Site RI uses a 0 to 30 cm sediment depth interval to define the risk assessment exposure but includes a database query rule of 0 to 40 cm to be representative of the 0 to 30 cm exposure depth. The Draft Work Plan maintains consistency with these definitions for surface sediment. Section 2.9.3 of the Final Work Plan has been revised to further clarify the rationale for the use of 0 to 40 cm for surface sediments data presentation.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-19, Section 2.9.3.2: In addition to individual PAHs, total PAHs, and diesel-range and residual-range hydrocarbons, DEQ recommends future sediment data compilations such as those provided in Appendix A include plots of total concentrations of heavy molecular weight PAHs (HPAHs) and light molecular weight PAHs (LPAHs) for completeness and comparison purposes.**

NW Natural and Siltronic Response: Consistent with the Statement of Work, future sediment data compilations and screening will maintain consistency with the Portland Harbor Site draft risk assessment (and as subsequently revised) and screen PAH COCs with toxicity screening levels and plot this information if necessary to support the objectives of the submittal. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-20, Section 2.9.3.3: Given this section discusses cyanide sediment data, DEQ presumes NW Natural is referring to “total” cyanide concentrations. This should be clarified in the revised version of the work plan. In general, regardless of the media it is more informative to indicate the form of cyanide analyzed and being discussed.**

NW Natural and Siltronic Response: There is only one measurement method for cyanide in solid matrices (e.g., soils or sediments). This method essentially measures all forms of cyanide detectable by the method. Therefore, inclusion of the term “total” cyanide when discussing sediment data is potentially misleading and would imply that other forms of cyanide data exist for this media. No revisions have been made to the Final Work Plan.

EPA Review: *The original comment still requires clarification in the Work Plan text.*

NW Natural and Siltronic Response to Review: The Final Work Plan has been revised to include an explanation consistent with our response. The explanation is included at the first mention of cyanide in sediments. Subsequent references to cyanide in sediments do not include the term “total,” based on the explanation provided.

**Comment GC-21, Section 2.9.4: NW Natural indicates interpretations regarding the presence of “substantial product” are based on reviews of sediment boring logs. It should be noted, nearshore and off-shore drilling and sediment logging was completed prior to the substantial product criteria being developed. As such, the information discussed in this section and compiled on Figure 2.9.4-1 is limited by the criteria not being available when sediment cores were collected and logged in the field.**

**In compiling substantial product on Figure 2.9.4-1, NW Natural color coded the figure based on the deepest interpreted occurrence of substantial product at each drilling location. For clarification and based on review of sediment logs, DEQ understands substantial product criteria apply to sediment down to the depth interval indicated.**

NW Natural and Siltronic Response: The substantial product definitions in the SOW were developed with the understanding that existing core information would be used in comparison to these definitions. Measurements or methods that would not routinely be available through standard core logging procedures were specifically avoided. The use of the SOW product definitions with existing core data is entirely consistent with intent of the definitions. Therefore, we disagree that the information discussed in this section is in anyway limited by the criteria not being available when sediment cores were collected and logged in the field.

The substantial product depths identified on Figure 2.9.4-1 are the deepest depth of substantial product identified at each sampling station. The figure should not be interpreted as demonstrating that substantial product necessarily exists at any depth above the noted depths, although in some cases this may be possible. No revisions have been made to the Final Work Plan.

EPA Review: *No further Work Plan revisions are necessary. NW Natural and Siltronic should use the substantial product criteria as part of the field logging procedure during future in-water investigations and transfer the information to boring logs generated as part of related submittals.*

NW Natural and Siltronic Response to Review: Future in-water and riverbank investigations will include observations of substantial product on the core/boring logs. No revisions have been made to the Final Work Plan.

**Comment GC-22, Section 2.9.5.1: It should be noted this section of the Draft Work Plan describes the interpretation of empirical and predictive toxicity results that were not completed according to EPA direction. DEQ understands a new version of the bioassay interpretation is currently being reviewed to replace the corresponding sections in the Portland Harbor BERA. DEQ anticipates the revised version of this work plan will reflect the newer version of the interpretations.**

NW Natural and Siltronic Response: Consistent with the Statement of Work, interpretation of empirical and predictive toxicity results was conducted consistent with the Portland Harbor Site BERA at the time the Draft Work Plan was submitted. A subsequent benthic toxicity memo submitted by LWG also recommends the use of the BERA methods. EPA provided preliminary comments on the LWG recommended methods on December 23, 2008 (“Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments”). The LWG is currently reviewing EPA’s preliminary comments. No revisions have been made to the Final Work Plan. Future SOW submittals will incorporate any revised interpretations as appropriate as described in response to Comment GC-5.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-23, Section 2.9.6.2.2: The figures prepared to support this section of the Draft Work Plan are incomplete. Figures 2.9.6.8 through 2.9.6.11 depict in plan-view NW Natural’s interpretation of the lateral extent of selected MGP COI in the alluvial WBZ; however, isoconcentration contours are restricted to the uplands. Work completed in the nearshore area and offshore from the NW Natural documents groundwater contamination in the alluvial WBZ migrates from the upland out to and under the river. Although the data is compiled in crosssectional views (see figures 2.9.6-19 through 2.9.6-38), for consistency with**

**figures prepared for the Siltronic property and completeness, this information should be provided for the NW Natural property.**

NW Natural and Siltronic Response: The figures presented in the Draft Work Plan were excerpted from existing reports and these reports do not provide isoconcentration contours in plan view developed offshore of the Gasco property. If the additional data presentation is necessary to support the area identification process and sediment remedy evaluation process, it will be developed and provided in future SOW deliverables. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-24, Section 2.9.7: NW Natural indicates only seeps above the “Lower Willamette River Water Line” will be identified. DEQ requests this phrase be defined. For clarification, DEQ expects any seeps observed on the riverbank and/or exposed beach areas to be identified and plotted on a figure. The locations of seeps provide useful information for mapping shallow groundwater discharge areas regardless of where they are observed.**

NW Natural and Siltronic Response: Section 2.9.7 in the Draft Work Plan presents a summary of existing information for seeps. No effort with regards to seep identification was conducted as part of the Draft Work Plan. No revisions have been made to the Final Work Plan.

EPA Review: *This comment may be addressed in future SOW deliverables given that field efforts were not undertaken to generate the Work Plan*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-25, Section 2.9.7.1: DEQ understands discussions of TZW data and contamination nature and extent presented in this section rely on figures from selected documents. However, figures 2.9.7-9 through 2.9.7-12 do not include the results of TZW samples collected and analyzed during the Offshore Investigation along in-water transects B, C, and D (see Figure 2.9.6-19 of the Draft Work Plan). More than 20 TZW samples were collected along these three transects using methods consistent with those used by Siltronic. Siltronic TZW data are included in the figures 2.9.7-9 through 2.9.7-12 as “Non-LWG Push Probe Samples.” In-water transects B, C, and D provide TZW data; 1) to bridge the gap between Siltronic samples and the downstream LWG samples; and 2) on approximate 175 to 250 foot centers out over 500 feet into the river channel. Adding TZW from transects B, C, and D would add considerable information to the figures for purposes of depicting the distribution of analytes in TZW offshore of the NW Natural property.**

NW Natural and Siltronic Response: The TZW data for the identified MGP-related COCs (i.e., benzene, naphthalene, free cyanide and total cyanide) are described in detail in Section 2.9.6.5. The concentrations along transects B, C, and D for each COI are presented in Figures 2.9.6-23 through 2.9.6-38. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-26, Section 2.9.7.1 (Total Cyanide in TZW): DEQ notes analysis of TZW samples collected along in-water transects B, C, and D included free cyanide.**

NW Natural and Siltronic Response: A discussion of the free cyanide results is provided in Section 2.9.6.5. Figures showing the subsurface free cyanide concentrations for TZW samples collected along transects B, C and D are provided as Figures 2.9.6-31 through 2.9.6-34. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

### **Section 3 – Project Remedial Action Objectives and ARARs**

**Comment GC-27: Assessment of the developed alternatives against the Remedial Action Objectives (RAOs) for Portland Harbor may need to include a provision for rating achievement of Principal Threat Material (PTM) only objectives to inform decision makers of the potential to implement alternatives that may meet PTM removal goals without achieving full site RAOs.**

NW Natural and Siltronic Response: EPA has recently commented (EPA Comments on the Remedial Action Alternatives Development and Screening Evaluation for the Portland Harbor Site, December 18, 2009) on an approach for identifying PTM material in Portland Harbor. These comments do not propose any alterations to the RAOs as currently drafted, and therefore the Work Plan RAOs have not been revised. However, we agree that the methods for identifying and evaluating PTM, as commented by EPA and as subsequently incorporated into Portland Harbor FS process after LWG addresses those comments, will be followed for this project, consistent with the SOW and our response to Comment GC-5.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-28: RAOs for this work need to be reconciled with the current Harborwide EPA approved RAOs. Revisions should quote these RAOs, and note any clarifications for ease of review.**

NW Natural and Siltronic Response: The Draft Work Plan includes the most recent version of RAO's presented in EPA's letter to LWG, dated September 30, 2009, and as accepted by LWG in a letter dated October 7, 2009. No revisions have been made to the Final Work Plan.

EPA Review: *No further Work Plan revisions are required.*

NW Natural and Siltronic Response to Review: No additional response needed.

## Section 4 – Work to Be Performed

**Comment GC-29:** Please explain how the work will look into more sustainable ("greener") cleanup approaches where possible, such as efforts to lower emissions through use of green power, shipping material by rail, tailpipe retrofits, and cleaner fuels (i.e. throughout, and in sections such as 4.6.5.5.1 and 4.6.7.2, "short term impacts" ), and in any other ways. For more general information, please see:

<http://yosemite.epa.gov/R10/extaff.nsf/programs/greencleanups>

NW Natural and Siltronic Response: Additional text regarding the evaluation of sustainable cleanup approaches has been added to Sections 4.6.5.5.1, 4.6.5.6, and 4.6.7.2.

EPA Review: *Response is acceptable. In addition to the text revisions made, EPA asks that these steps also be integrated into the site investigation process, where practical, e.g. recycling and composting of wastes generated during investigations.*

NW Natural and Siltronic Response to Review: Where practicable, attempts will be made to increase the sustainability of the investigation and cleanup approaches. No revisions have been made to the Final Work Plan.

**Comment GC-30:** Please explain further the process and timeframe for how access issues and other landowner concerns for remedy implementation with Department of State Lands will be worked out between NWN/Siltronic and the State such that one or more of the alternatives analyzed may be judged implementable.

NW Natural and Siltronic Response: Text has been added to Section 4.6.7.2 describing the process and timeframe for coordinating with the Department of State Lands regarding the implementability of identified remedial alternatives.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-31, Section 4.6.3.3: The text states, "...toxicity model definitions and sediment chemical thresholds defined by the Portland Harbor Site process will be used." DEQ considers the use of thresholds based on the current Portland Harbor model to have a great deal of uncertainty based on our understanding of the Lower Willamette Group (LWG) models. In addition, the LWG models may not be capable of producing sediment quality guidelines (SQGs) for all contamination. For example, the current LWG model does not produce a total PAH SQG. A better approach may be to use standard SQGs (e.g. probable effects concentrations) for purposes of interim project area identification.**

NW Natural and Siltronic Response: See response to comment GC-17. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## **Section 5 – Project Schedule**

**No general comments on Work Plan project schedule.**

NW Natural and Siltronic Response: NA

## **List of Tables**

**No general comments on Work Plan tables.**

NW Natural and Siltronic Response: NA

## List of Figures

**Comment GC-32: Please check the applicable figures to ensure consistency between the contaminant name in the body of the figure and the figure title; e.g. Figure 2.9.6-20 shows Free Cyanide in the body of the figure and Benzene in the figure title.**

NW Natural and Siltronic Response: The figure titles for Figures 2.9.6-20 through 2.9.6-22 have been revised.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## Appendix A - Surface Sediment Quality

**No general comments on Work Plan Appendix A.**

NW Natural and Siltronic Response: NA

## Appendix B – Cultural Resources Work Plan

**Comment GC-33: While no additional cultural or archeological field testing is anticipated to be needed, the Yakama Nation recommends monitoring during the cleanup work.**

NW Natural and Siltronic Response: The potential need and requirement for monitoring during completion of the remedial activities and any associated monitoring scope of work will be determined during the consultation process with the Tribes and State Historic Preservation Office (SHPO). NW Natural and Siltronic defer any decisions on the need for monitoring until the consultation process is complete but at this time are aware of no information to suggest that monitoring during the cleanup work is necessary.

EPA Review: *Response is acceptable. EPA would like to emphasize, however, that the Yakama Nation has recommended that monitoring occur and is on the record with that request.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-34: The draft Cultural Resources (CR) work plan should describe how consultation will be initiated. The draft CR work plan briefly describes a consultation process and then concludes that no survey or monitoring work is needed. Prior to consultation, these conclusions are premature. The consultation process would include providing the tribes and the State Historic Preservation Officer (SHPO) with a map of the proposed Area of Potential Effect (APE) for concurrence, a project description, information on prior surveys, studies, and the results of prior monitoring. This packet of information provided at the start of consultation could include recommendations that no further survey work is needed and that any monitoring during cleanup would be of limited value. However, the recommendations should address the concerns listed below and provide a more detailed explanation of why monitoring during the cleanup work would provide limited opportunities to observe cultural resources.**

NW Natural and Siltronic Response: Section 4.2 and Appendix B (i.e., The Draft Cultural Resources Work Plan) has been revised to include more information on the consultation process with the Tribes and SHPO.

EPA Review: *Response is acceptable. However, EPA would like to clarify that the requirements of Section 106 of the National Historic Preservation Act will be followed in conducting any consultation on cultural resources. Project proponents will need to provide suitable documentation to EPA to initiate and conduct consultation according to the requirements of 36 CFR 800.*

NW Natural and Siltronic Response to Review: Comment noted.

**Comment GC-35: The draft CR work plan describes the proposed APE but does not include a process of receiving concurrence on the APE from either the SHPO or the tribes. This step should be described in the CR work plan.**

NW Natural and Siltronic Response: Appendix B (i.e., The Draft Cultural Resources Work Plan) has been revised to indicate that concurrence of the proposed APE will occur via the consultation process.

EPA Review: *Response is acceptable. The work plan provides a guide for addressing cultural resources; however, EPA would like to clarify that it will follow the requirements of Section 106 of the National*

*Historic Preservation Act in conducting any consultation on cultural resources. Identification and resolution of potential effects will be conducted according to 36 CFR Part 800 Subpart B.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

**Comment GC-36: The CR work plan should include a map of the proposed APE. The draft CR work plan describes the APE as including all areas of ground disturbance and that these areas are all contained within the Project Area. However, the Project Area maps in the Draft Sediments Cleanup Action Work Plan do not clearly show the areas of potential ground disturbance. Therefore, a figure showing the proposed cultural resources APE would be a valuable addition to the work plan.**

NW Natural and Siltronic Response: The proposed APE will be determined based on design evaluations to be conducted in subsequent deliverables under the Statement of Work. At the current time, the areas of potential ground disturbance are most conservatively estimated as the Project Area designated in the Draft Work Plan. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable. However, EPA will follow the requirements of 36 CFR Part 800.4(a)(1) to determine and document the area of potential effects.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

**Comment GC-37: The draft CR work plan correctly describes a process of contacting the tribes to obtain information about the site and identify any issues that they may have about the site and the proposed work. The draft work plan also reaches a conclusion that the area has a low probability for cultural resources based on a 2004 study. This 2004 study (Ellis and Baker), as described in the draft work plan, does not appear to have included any formal consultation with tribes. The consultation process may identify issues of which will need to be accounted. Therefore, a conclusion based on the 2004 study may be premature. The draft CR work plan should describe a process for addressing potential concerns.**

NW Natural and Siltronic Response: See response to comment GC-34.

*EPA Review: Response is acceptable. EPA will conduct consultation as required by Section 106 of the National Historic Preservation Act and will consult with tribal governments regarding the potential for effects on cultural resources as required by 36 CFR 800.2. EPA will consider the prior work described in the Ellis and Baker (2004) study, but since that study was focused on only a portion of the likely APE, is six years old, and did not include tribal consultation, EPA will not rely solely on that study in making determinations about potential effects on cultural resources from the current action.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

**Comment GC-38: The draft CR work plan references a 2004 study by Ellis and Baker prepared for the 2005 tar body removal work. Monitoring conducted during the removal work also did not observe cultural resources. The draft CR work plan then appears to reach the conclusion that future work at the Gasco site will not affect cultural resources. Since the planned cleanup would likely disturb different areas and depths than were affected in the tar body removal work, the current proposal should not rely on the 2004 study recommendations. The conclusion that the proposed work will not affect cultural resources is not adequately supported by the draft CR work plan. Furthermore, the conclusion that monitoring will be of limited value because cultural resources were not observed during the tar body removal work is not adequately supported in the draft CR work plan.**

NW Natural and Siltronic Response: See response to comment GC-33.

*EPA Review: Response is acceptable. EPA will conduct consultation as required by Section 106 of the National Historic Preservation Act and will consult with tribal governments regarding the potential for effects on cultural resources as required by 36 CFR 800.2. EPA will consider the prior work described in the Ellis and Baker (2004) study, but since that study was focused on only a portion of the likely APE, is six years old, and did not include tribal consultation, EPA will not rely solely on that study in making determinations about potential effects on cultural resources from the current action. EPA would like to clarify that since consultation has not yet occurred, it is premature to draw any conclusions regarding the potential for effects on cultural resources or the potential value of monitoring. Finally, the Yakama Nation, a consulting party, has requested monitoring during cleanup work as mitigation for potential effects to cultural resources.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

**Comment GC-39: It is not clear whether the current action would employ the same methods as the tar body removal project. Again, the draft CR work plan appears to rely on the 2004 study recommendation that the method employed would exclude the possibility of monitoring during cleanup. This conclusion is not supported in the draft CR work plan.**

NW Natural and Siltronic Response: See response to comment GC-33.

*EPA Review: Response is acceptable. EPA will conduct consultation as required by Section 106 of the National Historic Preservation Act and will consult with tribal governments regarding the potential for effects on cultural resources as required by 36 CFR 800.2. EPA will consider the prior work described in the Ellis and Baker (2004) study, but since that study was focused on only a portion of the likely APE, is six years old, and did not include tribal consultation, EPA will not rely solely on that study in making determinations about potential effects on cultural resources from the current action.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

**Comment GC-40: The Yakama Nation has requested that monitoring during cleanup work be conducted. Before monitoring work is conducted it should be described in greater detail so that concerned parties such as the tribes and the SHPO can review and comment on proposed monitoring. The draft CR work plan should provide more detail either on the proposed monitoring or on the process for developing a monitoring plan and incorporating the appropriate review and comment on that plan. Depending on the level of detail available about the proposed action, the CR work plan might include descriptions of: a) activities that would be monitored; b) where monitors would be located; c) how many monitors would likely be needed; d) actions to be taken if cultural resources are observed; and e) actions to be taken if cultural resources are recovered. At a minimum, the draft CR work plan should indicate that a proposal will be developed for review and comment that details these activities.**

NW Natural and Siltronic Response: See response to comments GC-33 and GC-34.

*EPA Review: Response is acceptable. EPA will conduct consultation as required by Section 106 of the National Historic Preservation Act and will consult with tribal governments regarding the potential for effects on cultural resources as required by 36 CFR 800.2. The Yakama Nation, a consulting party, has*

*requested monitoring during cleanup work as mitigation for potential effects to cultural resources. This request will be given significant consideration in the final determination of effects and mitigation measures.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

**Comment GC-41: The draft CR draft work plan should describe how the results of consultation will be documented, including responses from the tribes about potential cultural resources on or near the site, concurrence on the APE, and concurrence with the proposed plan of action.**

NW Natural and Siltronic Response: See response to comment GC-34.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment GC-42: The draft CR work plan should describe a process for resolving concerns if any of the parties do not agree with the conclusions and recommendations.**

NW Natural and Siltronic Response: Any disagreements will be resolved through the processes described in the Order and Statement of Work; these issues will be resolved similar to any other technical issues on the project. The Cultural Resources Work Plan has been revised to note this.

EPA Review: *NW Natural and Siltronic should be aware that EPA will conduct consultation as required by Section 106 of the National Historic Preservation Act and will consult with tribal governments regarding the potential for effects on cultural resources as required by 36 CFR 800.2. Differences will be resolved according to 36 CFR Part 800 Subpart B.*

NW Natural and Siltronic Response to Review: See response to review comment for GC-34.

## NW NATURAL RESPONSE TO EPA SPECIFIC COMMENTS

### Section 1 – Background

**Comment SC-1, Section 1 (Background), page 1, 2nd paragraph: This paragraph should add the concept of an Action Memo being prepared to implement a removal should the Harbor-wide ROD/Proposed Plan be delayed.**

NW Natural and Siltronic Response: See response to comment GC-1.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-2, Section 1 (Background), page 2, 1st complete paragraph: The final sentence with respect to marine operations/waterfront use needs to be restated as an important consideration rather than a prohibition. Temporary or permanent impacts may be required, reasonable and acceptable to all parties when detailed alternatives are considered. The current wording implies a right of unilateral screening of potential technologies by NW Natural/Siltronic.**

NW Natural and Siltronic Response: The word “prevent” has been replaced with “minimized” in the noted sentence.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-3, Section 1.3 (Risk Management Framework), Page 6, first sentence: The phrase “key human” should be replaced by “human health,” and the phrase “public health” should be replaced by “human health”. The phrase “...cost-effectively in consideration...” should be eliminated as it denotes that only those remedies that are financially acceptable to NW Natural/Siltronic will be considered.**

NW Natural and Siltronic Response: The noted phrases are pulled directly from the Statement of Work issued by EPA. Therefore, no revisions have been made to the Final Work Plan. With regards to elimination of the phrase “...cost-effectively in consideration...” the evaluation of cost effectiveness is required by CERCLA guidance (i.e., a balance of an effective remedy at a reasonable cost for the risk reduction provided) and does not imply the remedy has to be financially acceptable to NW Natural and Siltronic.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-4, Section 1.3 (Risk Management Framework), page 6, bullet #1: The Harborwide BERA may not be approved in total, yet still have elements that all parties can agree to serve as the basis for defining the boundary of this project. The following rewording is suggested: “The Project Area cleanup boundary will be consistent with the draft or final Portland Harbor BERA with respect to those sections that EPA has approved for this project if the entire document is not final and approved.”**

NW Natural and Siltronic Response: The text has been revised to state: “The Project Area cleanup boundary will be consistent with the Portland Harbor BERA.”

EPA Review: *Response is acceptable; however, EPA’s position on the BERA stated in this comment stands.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-5, Section 1.3 (Risk Management Framework), page 7, bullet #6: “i.e.” should be replaced with “e.g.” for all occurrences.**

NW Natural and Siltronic Response: The requested revision has been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-6, Section 1.3 (Risk Management Framework), page 7, bullet #7 (Because the level of some of the risk...): Please clarify sentence wording/punctuation.**

NW Natural and Siltronic Response: The language has been revised in the Final Work Plan to clarify the sentence.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## **Section 2 – Summary of Existing Information**

**Comment SC-7, Section 2.2.1.2 (Confined Columbia Basalt Aquifer), Page 18: Given the potential presence of DNAPL, reasons and references for not considering Confined Columbia River Basalt Aquifer should be documented (upward gradient? known effective aquitard [characteristics and thickness]). Is the gravel zone above Columbia River Basalt Aquifer part of the lower alluvial WBZ? Recognition of a preferential transport path should be introduced here, and the implications for DNAPL fate and transport should be addressed in the appropriate subsequent sections.**

NW Natural and Siltronic Response: Fate and transport investigations of upland contamination are being coordinated under the DEQ process (see response to comment GC-5). NW Natural has no information indicating the potential presence of DNAPL in the Confined Columbia River Basalt Aquifer as the comment implies. Existing upland monitoring wells installed in the deep alluvium just above the Confined Columbia River Basalt Aquifer show only trace chemical

concentrations (Interim Design Report, Anchor QEA, November 2009). These data indicate that the source of these trace chemical concentrations is from surface releases and in fact suggest that DNAPL is not present in bedrock. Given this data, DEQ has agreed that monitoring wells need not be installed in the Confined Columbia River Basalt Aquifer as part of the upland remedial investigation or the ongoing source control investigations. No revisions were made to the Final Work Plan.

*EPA Review: The response provided is incomplete. NW Natural indicates sampling and analytical data support conclusions DNAPL has not migrated to/into the Columbia River Basalt (CRB), and that DEQ has not required monitoring wells in this unit. However, the comment requests information regarding the hydrogeologic conditions that would tend to reduce the potential for DNAPL to migrate to/into the CRB. This is an important consideration if site data provides evidence DNAPL is mobile and migrating. As such, the potential exists for DNAPL to migrate to/into the CRB in the future. Furthermore, the response does not address questions regarding the basal gravel of lower alluvial water-bearing zone. Please provide the requested information.*

NW Natural and Siltronic Response to Review: Several phases of upland remedial investigations and source control investigations have been conducted for NW Natural by Hahn Associates, Inc., and Anchor QEA. These investigations have characterized the nature and extent of MGP DNAPL at the Gasco and Siltronic properties. The findings of these investigations resulted in the DNAPL maps and subsurface profiles provided in the Final Work Plan.

The TarGost exploration method has been used at the site to delineate the depth and lateral extent of DNAPL. This method uses fluorescence technology to accurately explore the subsurface for the presence of MGP DNAPL and has been successfully used at numerous MGP sites in the US for the purpose of delineating the extent of MGP DNAPL. In addition to the TarGost exploration, soil and sediment cores obtained from borings completed during RI and source control investigations have been examined under ultraviolet light to check for the presence of NAPL. The information from the TarGost investigations and the UV examination of soil cores have been combined to prepare the DNAPL information shown on the maps and subsurface profiles in this report.

The maps on Figures 2.9.6-1 through 2.9.6-3 show the lateral extent of DNAPL at various depths at the site. The subsurface profiles on Figures 2.2.1-2 through 2.2.1-6 show the depth and lateral

extent of DNAPL that has been detected. The subsurface profiles show that DNAPL is generally limited to the fill and upper alluvium and has not been detected below the silt aquitard that exists across the site at approximate elevation -100 to -110 feet. Based on the trace to very low groundwater concentrations of MGP-related COIs in the deepest alluvial monitoring wells at the site, and on the DNAPL mapping that has been completed; DNAPL has not migrated down to the base of the alluvium and there is no evidence that DNAPL is currently migrating deeper into the alluvium. It should also be noted that there is a slight upward groundwater hydraulic gradient from the deep alluvium to the shallow alluvium. The effect of this gradient has been described to the DEQ in DNAPL modeling study reports (Anchor QEA October, 2008 and March, 2009). The gravels that have been mapped on top of the basalt bedrock are considered to be part of the alluvium.

**Comment SC-8, Section 2.2.1.2 (Groundwater Discharge to the Project Area), Page 19, 1st paragraph, last sentence: If the discharge is seasonal then there is no basis for saying that it is no longer active.**

NW Natural and Siltronic Response: The Final Work Plan has been revised to state, "Groundwater seepage discharge has not been observed in either location during quarterly riverbank inspections, suggesting that discharge is seasonal or was historical, but is no longer frequent enough to be considered an active pathway (HAI 2007a)."

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-9, Section 2.2.2 (Regional Datum), Page 21, (and Figure 2.2.2-1): An example benchmark would be useful and reported in all datums to clearly show conversion. Again, only one datum should be presented moving forward, consistent with the Harbor-wide datum. A table of Ordinary High/Low Water, Mean High/Low Water, minimum and maximum, and FEMA flood elevations in the Harbor-wide datum would be useful in this section, along with elevation of significant river features, (e.g. shelf elevation and river thalweg).**

NW Natural and Siltronic Response: Figure 2.2.2-1 clearly shows the conversions between the various datums encountered during the summary of available information compilation. As discussed in response to comment GC-3, data sets that are developed in future Statement of Work submittals (i.e., compiled figures and tables developed by NW Natural and/or Siltronic that include historical data) will include a single consistent vertical datum and show significant river features in that datum as necessary to support the objectives of the submittal.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-10, Section 2.2.3.2 (Sediment Stability), page 24: It should be noted that the net depositional environment may be somewhat or completely dependent on existing dock structures and side channel debris remaining in place, in addition to being “temporal” as noted in the text. If either are removed, the tar body observed depositions could change somewhat or drastically.**

NW Natural and Siltronic Response: NW Natural and Siltronic agree that the depositional environment in the Project Area may also be dependent on existing structures and locations of side channel debris. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-11, Section 2.2.4.1 (Shoreline Sediment Erosion/Accretion), page 27: The first paragraph appears to end in the middle of a sentence. The section should be reviewed and revised as appropriate.**

NW Natural and Siltronic Response: The referenced sentence has been revised in the Final Work Plan.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-12, Section 2.2.4.1 (Shoreline Structures), page 28: The last paragraph seems to imply outfall WR-107 is used, in part, to discharge groundwater removed from the LNG tank basin to the Willamette River. NW Natural also indicates water from the LNG basin is treated and discharged to the POTW. DEQ understands the second scenario is correct, and NW Natural should review the paragraph and provide information to clarify how water from the LNG basin is managed.**

NW Natural and Siltronic Response: Section 2.2.4.1 has been revised to clarify discharges through Outfall WR-107 and the POTW.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-13, Section 2.2.5 (Climatology), Page 30, 1st paragraph: State the averaging time (daily?) for average wind speeds cited.**

NW Natural and Siltronic Response: The text has been revised to indicate an hourly averaging duration.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-14, Section 2.2.5 (Site-Specific Wind Direction and Speed), Page 30: Please update weather station data from 2005 to present as part of next appropriate deliverable, if still operational.**

NW Natural and Siltronic Response: This update will be presented as necessary to achieve future deliverable objectives. No revisions have been made to the Final Work Plan.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-15, Section 2.3.1.1 (Open-Water Habitat), Page 31, 2nd paragraph: Is 20 feet Columbia River Datum (CRD) the appropriate habitat depth to separate shallow from deep habitats? What is this depth relative to Ordinary/Mean High and Low Water levels?**

NW Natural and Siltronic Response: NW Natural requests clarification on this comment. The referenced text was excerpted from the Draft BERA and states: “2) unconsolidated sediments in water depths less than 20 feet CRD in gently sloping nearshore areas (e.g., beaches and benches) and on the upper channel slopes;...” It does not imply that 20 feet CRD is the depth which separates shallow from deep habitats. No revisions have been made to the Final Work Plan.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-16, Section 2.4 (Human Access and Use), p.34: The last sentence in the last paragraph should be revised to clarify that access to the shoreline and dock structures from the uplands is controlled. The shoreline of the properties can be accessed via the river.**

NW Natural and Siltronic Response: The sentence has been revised in the Final Work Plan to clarify that access is controlled from the uplands.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-17, Section 2.6.1 (LWG Navigation Channel History), Page 37: Change “LWG” to “LWR” in the section title.**

NW Natural and Siltronic Response: The section title has been revised in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-18, Section 2.6.1 (LWG Navigation Channel History), Page 37, 2nd paragraph: What is the datum for the authorized navigation depths and what are the current elevations of sediment in the authorized navigation channel? What are the desired/current sediment elevations for the dock areas?**

NW Natural and Siltronic Response: A reference to the bathymetry in the Project Area as depicted on Figure 2.2.3-1 was added to this paragraph.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-19, Section 2.7.2.3 (Gasco Early Action and Long-Term Monitoring), Page 44: Lessons learned from the first tar body removal conducted in 2005 should be referenced in this section of the Draft Work Plan. These lessons learned should be used in later EE/CA work.**

NW Natural and Siltronic Response: NW Natural and Siltronic concur that these lessons learned should help inform the actions taken during future cleanup activities. Section 2.7.2.3 has been revised to indicate that construction activities evaluation presented by NW Natural in the *Removal Action Completion Report* (Anchor 2006) and by EPA in the *Gasco Early Removal Action Construction Oversight Report* (Parametrix 2006) will be considered during development of the EE/CA.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-20, Section 2.8.1.1 (Historical Discharges and Source Pathways), Page 47, 1st complete paragraph, 1st sentence: The CDM reference is not in the References section.**

NW Natural and Siltronic Response: The reference has been added to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-21, Sections 2.8.1.2 (Current Discharges and Source Pathways), 2.8.2.2 (Current Discharges and Source Pathways), and 2.8.3 (Rhone-Poulenc Property), Page 49-56: A map/summary of stormwater catchment/drainage areas and perviousness should be made to evaluate stormwater source and quantities with respect to the contaminant data presented in Section 2.9.10. The drainage areas should be tied to their respective outfalls and the outfalls located on the map. This can be a work item in the subsequent EE/CA if not readily available for incorporation into the Draft Work Plan.**

NW Natural and Siltronic Response: The information presented in the Draft Work Plan was selective and did not include the requested level of detail because it was beyond the scope of the document. This information does exist, is being considered, and is detailed in the Gasco Source Control Data Gaps Evaluation (Anchor 2006) and in the Source Control Data Gaps Work Plan, Section 2: Catch Basin Sediment and Stormwater Sample Collection, Processing, and Analysis Procedures (Anchor 2007). As necessary, the requested information will be included in future deliverables under the Statement of Work.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-22, Section 2.8.2.1 (Olympic Pipeline Petroleum Release(s)), Page 53: The text should describe the diameter of piping replaced, method of abandonment (including removal of product), any estimates of spilled quantity by product type/grade, and historic/current methods of leak detection.**

NW Natural and Siltronic Response: The requested information is not readily available from the source documents. No revisions have been made to the Final Work Plan.

EPA Review: Response is acceptable.

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-23, Section 2.8.2.1 (Filling Activities), Page 53: The full reference title for PDC 1985 should be stated here or in the References section and not a citation of a citation.**

NW Natural and Siltronic Response: The reference was added to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-24, Section 2.9.2 (Chemical of Concern), page 58: The list of COCs identified in this section is relatively long. One objective of future work should be to narrow this list to a more manageable size while still adequately defining the Project Area. See also Comment SC- 51. Also, the use of the term COC here is confusing. COCs are typically those chemicals that will drive remedy selection. At this point, it is not clear which of the listed chemicals will be important for remedy selection in the EE/CA. A more typical use of terms would be to identify chemicals of interest (COI) at this point, refine this list to chemicals of potential concern (COPC) during the data evaluation step, then arrive at a list of COCs in the EE/CA once the field characterization phase is complete.**

NW Natural and Siltronic Response: The list of COCs identified in the Draft Work Plan was excerpted directly from the Statement of Work and is consistent with the Portland Harbor Site risk assessment. A site-specific risk assessment will not be conducted for this project; therefore, site-specific COCs will not be developed. NW Natural and Siltronic concur that future submittals should narrow the full list of COCs to chemicals that will govern the Project Area identification and will attempt to do so where the Statement of Work does not require data presentation for the full list of COCs.

EPA Review: *The comment does not imply that a risk assessment will be undertaken. COC only refers to chemicals that drive remedy not necessarily to chemicals identified in a risk assessment. Narrowing of the list of "COC" will, however, likely use risk-based values as one, and perhaps the primary, means of reducing the "COC" list (data evaluation). The response is acceptable as is despite the atypical use of terms.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-25, Section 2.9.2 (Chemicals of Concern), page 58-59: The individual PAH constituents should be listed initially. BHCs should be defined. The test method or carbon number range for diesel and residual range hydrocarbons should also be provided. Has methyl tertiary butyl ether (MTBE) been evaluated and eliminated as a COC?**

NW Natural and Siltronic Response: The full list of PAHs has been listed, and BHCs are now defined in Section 2.9.2 of the Final Work Plan. The test method for diesel and residual range hydrocarbons is EPA Method NWTPHDx. This method has not been added to the Final Work Plan text because the methods for the other COCs were not identified. Industrial manufacturing or handling of gasoline has never been conducted on the Gasco or Siltronic properties coincident with the use of MTBE as a fuel oxygenate, so MTBE was not identified as a site-specific upland COC or as a COC in the Portland Harbor Site risk assessment. Therefore, MTBE was not identified as a COC for the Gasco Sediments Site.

MTBE has been detected in deep groundwater at the Siltronic property at low concentrations and is likely sourced to the Kinder Morgan pipeline pumping station located upgradient of the Siltronic property (MFA 2007). Based upon the absence of detections in the TZW data set and upland groundwater data set (i.e., for groundwater likely to discharge to the Willamette River), MTBE is not a COC for the Gasco Sediments Site.

*EPA Review: NW Natural indicates analysis of diesel-range and oil-range petroleum hydrocarbons will rely on laboratory methods typically used to evaluate concentrations of petroleum fuel hydrocarbons (e.g., gasoline, diesel, and motor oil). However, the composition and character of MGP waste does not correspond to any generic petroleum fuel products. The State of Oregon has established protocols for characterizing material such as MGP waste using total petroleum hydrocarbon (TPH) fraction analyses. Additionally, toxicity reference values for TPH fractions have been developed by EPA for use in the Portland Harbor baseline ecological risk assessment. Based on this information, river sediments impacted by MGP waste should be further analyzed for TPH fractions. While no further Work Plan revisions are necessary, this topic will be revisited during agency review of the Data Gaps Quality Assurance Project Plan submittal.*

NW Natural and Siltronic Response to Review: We agree to discuss any TPH method requirements with EPA once comments are received from EPA on the Project Area Identification Report and Data Gaps QAPP.

**Comment SC-26, Section 2.9.2 (Chemicals of Concern), page 58-59 bullet list: The list of COCs does not include chlorinated dioxins and furans. The Arkema facility immediately upstream from the Project Area appears to be the largest source of these chemicals in the Lower Willamette River (LWR) based on current residual sediment contamination. These chemicals fall in the same category as DDx (sum of DDT, DDD, and DDE isomers), which are also contaminants associated with Arkema and which are appropriately identified as COCs for Project Area definition for Gasco/Siltronics sediments. Dioxins/furans, as TCDD TEQ, should be added as COCs to the list. Concentrations of dioxins/furans along the Gasco/Siltronics shoreline appear to be low relative to those reported in sediments at Arkema. However, the data base is relatively small and depths of samples are difficult to discern from the data summary provided. Inclusion of dioxins/furans at this stage will allow available data to be rigorously analyzed, data gaps identified, if any, and dioxins/furans carried forward if warranted.**

NW Natural and Siltronic Response: The Statement of Work does not identify dioxins/furans as a COC because these compounds are not currently identified as a COC for this portion of the Portland Harbor Site in the harbor-wide risk assessment. NW Natural and Siltronic understand that detected dioxin/furan sediment concentrations sourced from Arkema are fully contained within a larger sediment area with detected concentrations of DDx, which is a COC for the Gasco Sediments Site. NW Natural and Siltronic requested verbal clarification from EPA during the December monthly coordination meeting, and EPA did not direct the addition of these COCs. No revisions have been made to the Final Work Plan.

*EPA Review: While dioxins/furans are not currently identified as a COC for this portion of the Portland Harbor Site, EPA has an expectation that some sediment samples be obtained to evaluate whether these compounds need to be a COC, either from a harborwide or site specific perspective.*

NW Natural and Siltronic Response to Review: Unless directed by EPA, NW Natural and Siltronic will not propose the collection and analysis of sediment samples for dioxin/furan analysis given the rationale presented above in our initial response to this comment. No revisions have been made to the Final Work Plan.

**Comment SC-27, Section 2.9.4 (Product Observation Summary) through 2.9.10 (Stormwater Quality), page 66-91: A summary table for each of these sections should be presented, as was prepared for the sediment sections. This would be useful to review minimum, maximum, detection limit, and percent detection issues for each COC/COI by media.**

NW Natural and Siltronic Response: The data for each of these other media could not be prepared within the document development timeline. The statistics for other media of concern will be prepared in future submittals as necessary to support the objectives of those submittals. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-28, Section 2.9.6.2.3 (Basalt Water-Bearing Zone), page 71: Given the presence of trichloroethene (TCE), has the basalt water-bearing zone been so thoroughly characterized as to justify elimination of this monitoring? The statement that no DNAPL constituents exist at the lowermost water bearing unit is not surprising and irrelevant. DNAPL detections are a more relevant statement.**

NW Natural and Siltronic Response: As discussed in the response to comment GC-5, upland source control investigations including the fate and transport of upland contamination are being coordinated under the DEQ process. Investigations under this process have shown that existing upland monitoring wells installed in the deep alluvium just above the Confined Columbia River Basalt Aquifer show only trace MGP-related and CVOC chemical concentrations. DEQ has not required monitoring wells be installed in the Confined Columbia River Basalt Aquifer as part of the upland remedial investigation or the ongoing source control investigations. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-29, Section 2.9.6.3 (Siltronic Property Groundwater Quality) and 2.9.6.4 (Rhône-Poulenc Property Groundwater Quality), page 71-74: Parallel discussions of these water bearing zones should be made as done in Section 2.9.6.2 as relevant based on the existence of these zones.**

NW Natural and Siltronic Response: The information presented in Section 2.9.6.2, 2.9.6.3, and 2.9.6.4 were developed based on information excerpted from a number of different reports that did not facilitate description of the results using the parallel discussion presented in Section 2.9.6.2. Attempting to revise the text in Sections 2.9.6.3 and 2.9.6.4 to include the parallel discussion would take considerable time and effort and would not provide additional information to the reader. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-30, Section 2.9.7.1 (PAHs in TZW), page 79: State the specific constituents of LPAH and HPAH.**

NW Natural and Siltronic Response: The specific constituents have been added to Section 2.9.7.1 of the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-31, Section 2.9.11 (Suspended Sediment Quality), page 92, 4th paragraph: Temperature and season should also be recognized as potential variables impacting concentration, in addition to flow.**

NW Natural and Siltronic Response: Although NW Natural and Siltronic agree that temperature and season are variables that potentially impact suspended sediment quality, this information has not been included in Section 2.9.11 because the intent of this paragraph was to

introduce that data was available to evaluate the potential affects of river flow given this data was collected. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-32, Section 2.10.2 (Riverbank Erosion), Page 95, first sentence: If riverbank erosion is considered a potential pathway (see Section 2.8.1.2) then it should not be defined as an incomplete pathway in this section. The word “minor” should be deleted from the first sentence.**

NW Natural and Siltronic Response: Section 2.8.1.2 is specific to the potential for riverbank erosion adjacent to the Gasco property and states, “Currently, there is some potential for erosion of soils from the shoreline to the river.” Section 2.10.2 states, “...riverbank erosion is currently a potential minor pathway and incomplete pathway adjacent to the Gasco and Siltronic properties, respectively.” This statement is consistent with Section 2.8.1.2 and correctly identifies this pathway as a potentially complete pathway for the Gasco property (and correctly identifies that this pathway is incomplete adjacent to the Siltronic property). The word “minor” is used because the zones of shoreline that are not armored are vegetated, and ongoing visual monitoring of the shoreline has not identified riverbank erosion. No revisions have been made to the Final Work Plan.

EPA Review: Directed Comment: *the word “minor” shall be deleted from the first sentence in Section 2.10.2.*

NW Natural and Siltronic Response to Review: Per EPA’s direction, the word “minor” has been deleted from the noted section.

**Comment SC-33, Section 2.10.3 (Groundwater Pathway), page 96, 1st complete paragraph: The discussion on free cyanide versus total cyanide is well taken; however, it seems to appear repeatedly, and the point should be made once and then referred to. Also, the discussion should be expanded to include the threshold criterion concentration and the**

**achievable detection limit with an emphasis on whether the detection limit was consistently below the threshold criterion.**

NW Natural and Siltronic Response: Section 2.10.3 presents a summary of the media results identified in previous sections of the Draft Work Plan. Therefore, the discussion of free cyanide and total cyanide with respect to toxicity is repeated to reiterate the important difference in these forms of cyanide. Per EPA's comment, additional text was added to the section to include the threshold criterion concentration and the achievable detection limit, with an emphasis on whether the detection limit was consistently below the threshold criterion.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

### **Section 3 – Project Remedial Action Objectives and Arars**

**Comment SC-34, Section 3.1 (SOW Remedial Action Objectives), Page 99, 1st Bullet: The first bullet presents an RAO specific for the EE/CA. This RAO indicates a preference for removal, unless costs from this action are disproportionately large compared with risk reduction that can be attained through other means. The concept of risk reduction in the context of an EE/CA removal will need further discussion. Since the Project Area for the EE/CA will be identified based on substantial amounts of product, an EE/CA removal is unlikely to attain anything close to risk-based remediation goals for sediment for most of the off-shore area adjacent to Siltronics/Gasco. The concept of risk reduction, based on PRGs, would seem to be more appropriately addressed during evaluation of alternatives for the Area of Potential Concern (AOPC) that encompasses the Siltronics/Gasco site. Thus, will risk in this sense be defined in some other way, such as reduction of recontamination potential via source removal? Also, the term used – “clearly disproportionate” – will have different interpretations among stakeholders. Some discussion of this concept and how it will be applied in the EE/CA will be needed.**

NW Natural and Siltronic Response: This comment raises the question of how risk reduction would be assessed. We agree that, in the context of product containing materials, risk reduction is a more complex concept than calculation of a risk level associated with a chemical concentration. Per guidance, RAOs are normally refined as the project progresses. We propose

that the definition of “risk reduction” (as well as “clearly disproportionate”) requires additional discussions between NW Natural, Siltronic, and EPA prior to and during development of the EE/CA. As appropriate, the RAOs can be refined as needed later in the project process after these discussions take place.

The third sentence in the comment is inconsistent with the SOW (“Since the Project Area for the EE/CA will be identified based on substantial amounts of product, an EE/CA removal is unlikely to attain anything close to risk-based remediation goals for sediment for most of the off-shore area adjacent to Siltronics/Gasco.”) The Project Area will be identified in an iterative fashion through evaluation of all of the lines of evidence used in the Portland Harbor Site risk assessment process in addition to the presence of substantial product, as described in detail in Sections 2.1, 3.4.1.2, 3.4.1.3, 3.6.2, and 3.7 of the SOW. Based upon these complete lines of evidence evaluation, the final Project Area will be equivalent to the Gasco/Siltronic AOPC identified in the Final Portland Harbor Site FS (see edits in Section 4.4.1.2 made in response to Comment SC-51). Further, the SOW clearly states that “The project goal is the further characterization, studies, analysis, and design for a final remedy at the Site,...” and that “...EPA and Respondents intend that remedial design for these areas will be consistent with the Harbor-wide Remedial Investigation and Feasibility Study (RI/FS) and Record of Decision (ROD), except as may otherwise be required under this SOW.” The remedial design described in the EE/CA will attain risk-based remediation goals to achieve the goal of a final remedy.

With regards to “clearly disproportionate,” the Statement of Work includes the following clarifying text on the cost-effectiveness evaluation: “Also, as noted in RAO #1 in Section 3.2, substantial product shall be removed unless it can be shown that the **costs of such removal are clearly disproportionate** to the degree of risk reduction to be attained through physical removal as compared to other remedial options for the same material. If substantial product will not be removed, it must be shown that alternative approaches are **substantially less costly** as well as equally if not more effective at meeting all of the other RAOs, particularly those that relate to creating acceptable sediment risk and preventing downstream migration of contaminants.”

*EPA Review: Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-35, Section 3.2 (Current Draft Portland Harbor RAOs), Page 101: The Draft Work Plan should include the three management goals developed by EPA in conjunction with the RAOs for Portland Harbor.**

NW Natural and Siltronic Response: These management goals have been added, including the concepts that these are general goals for the overall harbor, are not specific RAO requirements, and that, in some cases, may not have specific application to a particular AOPC (such as in the Project Area).

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-36, Section 3.2 (Current Draft Portland Harbor RAOs), page 103-104: The header for two of the RAO's seem to be missing their RAO #, for easy correlation to the SOW: "RAO – Human Health Groundwater: Reduce to acceptable levels human health risks resulting from direct exposure to contaminated groundwater and indirect exposure to contaminated groundwater through fish and shellfish consumption, and comply with identified ARARs." And "RAO – Ecological Groundwater: Reduce to acceptable levels the risks to ecological receptors resulting from the ingestion of and direct contact with contaminated groundwater and indirect exposures through ingestion of prey via bioaccumulation pathways from groundwater, and comply with identified ARARs".**

NW Natural and Siltronic Response: The Draft Work Plan includes the most recent version of RAOs, presented in EPA's letter to LWG dated September 30, 2009, and as accepted by LWG in a letter dated October 7, 2009. The numbering scheme—or lack thereof—is consistent with that document, and we recommend maintaining that consistency with the Portland Harbor process until the Portland Harbor RAOs are renumbered, to avoid confusion. No revisions have been made to the Final Work Plan.

EPA Review: *No further Work Plan Revisions are necessary.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-37, Section 3.3 (RAO Performance Goals and Measurement Methods), page 105:**  
**The headers of the various RAOs substantially reinterprets them for the purposes of the performance standard measurement. The RAOs should be quoted from the SOW throughout this section (unless updated by final RAOs from the Harborwide process), to avoid changing their meaning.**

NW Natural and Siltronic Response: The exact quote of each RAO has been included in the headers of the various RAOs.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-38, Section 3.3 (RAO1. Preference for Removal of Substantial Product), page 105, 3rd sentence: Costs were not considered or discussed in RAOs for the Portland Harbor Superfund Site.**

NW Natural and Siltronic Response: The text has been revised to replace "...except where there is a disproportionate cost for such removal per the **RAO**" to "except where there is a disproportionate cost for such removal per the **SOW**".

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-39, Section 3.3 (RAO 2. Human Health Risks via Sediments), page 106, 2nd complete paragraph, 3rd sentence: Please provide the basis for identifying the "...0 to 30 cm depth layer..." as a reasonable exposure depth for people. Also, the RAO specifies a 0 to 30 cm comparison layer, yet the sediment depth data categories specify a 0 to 40 cm sediment layer as "surface" (Section 2.9.3). The RAO and the surface sediment data category should be on the same vertical interval.**

NW Natural and Siltronic Response: See response to comment GC-18.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-40, Section 3.3 (RAO 3. Human Health Risks via Fish and Shellfish), page 106, 2nd paragraph, 2nd sentence: Reference to a back calculated PRG (10<sup>-4</sup> cancer risk level) should not be included, but instead it should be stated that PRGs from the final BHHRA will be used.**

NW Natural and Siltronic Response: In a letter dated June 23, 2009, EPA directed LWG to use the Small Mouth Bass Total PCB PRG at a 10<sup>-4</sup> cancer risk level using the by-river mile hill topping approach for AOPC delineation. In the absence of any more comprehensive risk management framework from EPA in Portland Harbor, this is the best indication we have at this time of the bioaccumulative risk level that will be the focus of active remediation in Portland Harbor. It should also be considered that many other PRGs, including those at 10<sup>-4</sup> risk level using other consumption rate assumptions, result in the entire Portland Harbor Site being identified as requiring clean up. Thus, identifying a wide range of PRGs provides no method for delineating the project area. Further, given that some PRGs calculated by the LWG consistent with the BHHRA result in values of less than 0, simply indicating that PRGs from the final BHHRA will be used does not provide any indication of the performance goals and measurement methods, which is the purpose of the section. Finally, it should be noted that the BHHRA does not and will not in the future contain any PRGs. The PRGs are being presented in the Portland Harbor Site FS. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-41, Section 3.3 (RAO 3. Human Health Risks via Fish and Shellfish and RAO 5. Ecological Risks via Sediments or Prey), pages 106 and 108: It should be noted that EPA may require biological sampling for these RAOs on a project specific, or Harborwide basis to "groundtruth" model predictions from the BHHRA.**

NW Natural and Siltronic Response: Comment noted.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-42, Section 3.3 (RAO7. Reduce Chemical Migration from Project Area), page 109, 2nd paragraph: The "reasonable range" of river flow conditions should be stated as thresholds in hydrologic terms (e.g. 0.2, 1, 10, 50, 90, 99, and 99.8 percent exceedances).**

NW Natural and Siltronic Response: We agree that these should be defined further; however, we have not yet conducted sufficient analysis to define this range quantitatively. We think the level of detail provided by this section is consistent with the level of detail in the other sections and understand that in many cases these performance goals and measurement methods will require further detail and quantitation moving forward. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-43, Section 3.3 (RAO 8. Minimize Recontamination via Flux Through Sediments), page 109:** This section should include discussion of ARARs comparison, as well as risk based levels. As noted in Comment SC-41, the wording of the title is misleading. Measurement of concentrations would also be necessary for this RAO, which is not exclusively focused on flux. This RAO should be updated with piezometer measurements as a performance measure, as well as the data gaps potentially.

NW Natural and Siltronic Response: We are unclear on what basis EPA states that RAO 8 is not exclusively focused on flux. To review, the complete RAO is: "Reduce COC fluxes through Project Area sediments so that recontamination of Project Area sediments to unacceptable levels does not occur." The RAO specifically relates the flux to levels in sediments. EPA's *Preliminary Identification of ARARs at the Portland Harbor Site*, dated January 6, 2001, does not identify numeric ARARs for sediments. Consequently, if EPA has a substantially different interpretation of this RAO, this would require further discussion before the performance goals and measurement methods for this RAO can be accurately described. No revisions have been made to the Final Work Plan.

EPA Review: *No further Work Plan revisions are necessary at this time. As performance standards are developed for the Harbor relative to concentrations of porewater COCs, those will be applied to the Gasco Sediments Site.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-44, Section 3.4, Table 3.1.1: Why was Toxic Substance Control Act (TSCA) 40 CFR Part 761 not included as an ARAR for consideration when dealing with PCB waste disposal?**

NW Natural and Siltronic Response: This table was consistent with the LWG's submittal to EPA, which EPA had not yet commented on prior to submittal of the Draft Work Plan. The revised ARARs issued by EPA on January 6, 2010 were received too late to incorporate into the Final Work Plan. The ARAR table will be updated in the Draft EE/CA.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-45, Section 3.4, page 110: It should be noted that a separate list of ARARs will not be developed for the Gasco/Siltronic site. Instead EPA will rely on Harborwide ARARs for evaluating remedial technologies.**

NW Natural and Siltronic Response: NW Natural and Siltronic concur that this project will rely on the ARARs developed for the Portland Harbor Site. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

#### **Section 4 – Work To Be Performed**

**Comment SC-46, Section 4.1 (Work to be Performed), page 111: The proposal related to Area 1, where this work is totally separated from other SOW work does not seem workable. For example, Area 1 material may be best managed through containment that is contiguous with non-Area 1 work. EPA would not make a biological assessment proposal to National Marine Fisheries Service (NMFS) that result in additional short term harm to the environment due to this artificial delineation. Please expound on this section as to how investigation, design, and work implementation elements will be better integrated with respect to Area 1 to eliminate any additive short term impact. Additive short term impact means those extra short term impacts that would result from work taking place in the same relative geographic area two times, such as the deployment of rigid containment twice where one larger containment structure could accomplish Area 1 and other more tar related work at the same time. Added short term impact could also result from two separate sets of contractors doing work, having to relearn site specific lessons on best management practices (BMPs). These additional impacts due to artificial project role delineations would not be acceptable in any case.**

NW Natural and Siltronic Response: The following text has been added to Section 4.1.2:

“Applicable cleanup activities performed in Area 1 by Siltronic are anticipated to be conducted concurrent and integrated with cleanup activities conducted by NW Natural throughout the remainder of the Project Area so the design and cleanup is effectively conducted as a single project. This is true to the extent that the remedies selected for various conditions at the Project Area (i.e., a dissolved CVOC plume versus MGP product containing sediments) are technically

compatible in time span and type of remedies and contractors involved. For example, a natural attenuation remedy for the Area 1 CVOC plume in the navigation channel might extend over time longer than an active removal remedy for MGP contamination. Regardless of these technical compatibility issues, the intent is to design and implement a comprehensive project that addresses all of the project RAOs. Completion of all remediation within the Project Area as a single project will avoid the additional potential short term impacts noted in the comment."

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-47, Section 4.1.2 (Siltronic), page 111, 1st paragraph, 2nd sentence: "...and prepare reports associated their data collection." This is an incomplete sentence.**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-48, Section 4.2 (Ongoing Coordination), page 112, 3rd paragraph: With regards to NMFS coordination, the sentence, "NW Natural and Siltronic will engage with NMFS as follows:" should be revised to "NW Natural and Siltronic will engage with NMFS through EPA as follows:"**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan as noted.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-49, Section 4.2 (Ongoing Coordination), page 112: With regards to NMFS coordination, another bullet should be added to include final design coordination with NMFS, as needed.**

NW Natural and Siltronic Response: This bullet has been added to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-50, Section 4.2 (Ongoing Coordination), page 112, 2nd paragraph, 4th sentence: "...the plan..." should be referred to the Work Plan to be consistent and less confusing.**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan as noted.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-51, Section 4.4.1.1, Page 115, 2nd Paragraph and Bullets: It appears the initial Project Area would best be described by the known lateral extent of substantial product and the uncertainty in the current definition of this extent. That is, the initial Project Area would be defined conservatively and data collected to reduce this area by reducing uncertainty in defining lateral extent of substantial product. Application of PRGs, background and other screening levels would seem to be most appropriate for defining the vertical extent of contamination based on a "one-and-done" approach. That is, the vertical extent would be defined by the extent of contamination above PRGs or other criteria and would include an evaluation of all COCs. This process is likely to narrow the list of COCs for the project, since only some subset of the list of COCs in Section 2.9.2 of the Draft Work Plan is likely to be important for vertical extent. It is not clear how PRGs and other criteria would be used otherwise in defining the initial Project Area.**

NW Natural and Siltronic Response: We agree that the Project Area identification will address many of the concepts raised here, but we do not agree with many of the specific methods that

are proposed here. To further clarify how these lines of evidence will be used to identify the initial Project Area, text has been added to Section 4.4.1.2.

*EPA Review: Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-52, Section 4.4.2 (Identify Data Gaps), page 117, 2nd paragraph, bullet #1: The bullet text seems to indicate that an objective of data gaps identification and subsequent additional field characterization is to “determine spatial and volumetric extents of contamination posing unacceptable risk”. Given that the horizontal extent of the initial Project Area will be defined by “substantial product” and that this area will therefore define only part of the extent of unacceptable risks, is this objective really pertinent? Would the objective be better defined as defining the volumetric extent of contamination within the area of substantial product?**

NW Natural and Siltronic Response: See response to comment GC-34.

*EPA Review: This response seems to be in error. The response to comment GC-34 addresses draft Cultural Resources work plan concerns and the process for consultation with the tribes, not the definition of data gaps. Please clarify, revise and resubmit a response to this comment*

NW Natural and Siltronic Response to Review: We believe the original comment misinterprets the proposed methods for defining the project area. Although we agree that substantial product is only one criterion that will be used to define this area, it may be a relevant determining factor contributing to the determination of spatial extent, and particularly vertical depths. Given that risks do not generally occur at depth—because people and organisms are not exposed to deeper sediments—substantial product will be particularly relevant to volume determinations but it is not the only criterion involved.

**Comment SC-53, Section 4.4.2 (Identify Data Gaps), page 117, 2nd paragraph, bullet #5: The bullet text seems to indicate that a risk assessment will be part of the EE/CA. Typically, risk analysis to support an EE/CA is limited and the availability of a site-wide risk assessment would seem to make additional analysis of risks unnecessary. Will anything more than comparison with PRGs and perhaps other criteria be involved in evaluation of health and ecological risks for the EE/CA?**

NW Natural and Siltronic Response: The comment is generally correct. We are relying on the Portland Harbor Site process and the understanding of the spatial extent of risks provided by that process. However, this may involve more than comparison to PRGs or other criteria in some cases (e.g., evaluation of actual bioassay toxicity results).

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-54, Section 4.4.2 (Identify Data Gaps), page 117, 2nd paragraph, bullet #8: Please insert "and removal" after "sheetpile installation."**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-55, Section 4.4.2 (Identify Data Gaps), page 118, 3rd complete paragraph, 2<sup>nd</sup> sentence: Does the statement "Because of the difficulty of sampling under docks..." apply to the Gasco site or dock areas in general? Not all dock areas are difficult to sample. If the Gasco dock area is difficult to sample, please state the reason why (e.g. water level too low to get sampling crew under docks, etc.).**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-56, Section 4.4.2 (Identify Data Gaps), page 118, 4th complete paragraph:** The text indicates that the “overall objective driving spatial gap identification is whether ... additional information would change ... the preferred alternative”. This objective seems too narrow. An objective should be whether collection of additional data will allow better definition of horizontal extent of substantial product and vertical extent of contamination above PRG or other criteria. While this information may impact choice of a remedial alternative, it may also simply be necessary to achieve appropriately bounded cost estimates. These data may also allow evaluation of risks, if any, implied by residual contamination left outside of the final removal area.

**Statistical and/or visual examination of data may be very useful in evaluating data gaps. Some appropriate methods should be considered for this effort.**

NW Natural and Siltronic Response: This objective was excerpted directly from the Statement of Work. We disagree with much of the comment. Collection of more data will always allow “better definition of...extent of substantial product.” Thus, such an objective never provides a means to decide when to stop collecting data. Further, if the cost estimates (based on volume refinements) are not expected to change the outcome of the alternatives analysis, there is no purpose to refine those cost estimates further. Thus, the core objective remains as stated in the Draft Work Plan. We also disagree that data gaps for this project will be to evaluate risks outside the Project Area. Such risks, if they exist, are being addressed through the Portland Harbor Site process. No changes have been made to the Final Work Plan.

EPA Review: *The response seems to suggest that having no data would be appropriate if cost and volume estimates were the only concern. EPA disagrees, but does not feel this issue should hold up progress. Data gaps analysis will be the subject of further discussion as the project moves forward.*

NW Natural and Siltronic Response to Review: We are unclear on the basis of EPA’s disagreement, and we are also unclear on what purpose data collection with no impact on the preferred alternative would have under the SOW, given that this is a cleanup alternatives

analysis and design project. We agree to discuss this further once we have received EPA's comments on the Project Area Identification Report and Data Gaps QAPP. No revisions have been made to the Final Work Plan.

**Comment SC-57, Section 4.6.3.1 (Substantial Presence of Product), page 123, 1st paragraph, the 4 bullets: Please add clarification that the SOW is the source of this information.**

NW Natural and Siltronic Response: The text, "As described in the SOW..." has been added to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-58, Section 4.6.3.4 (Human Health Shellfish Consumption), page 124: The Portland Harbor risk assessments did not use BSAFs. Instead, a complex food web model was developed and used to provide estimates of the association between fish/shellfish tissue and sediments. The text in this section suggests that BSAFs will be used to back-calculate target sediment concentrations. Does this text imply that a separate set of PRGs from those PRGs developed for the Portland Harbor FS will be calculated and used in the EE/CA? If so, what is the justification for this approach?**

NW Natural and Siltronic Response: The text has been revised to clarify that both BSAFs and Food Web Model relationships were developed by the LWG and used for the Portland Harbor Site process. We are not suggesting that anything different than the BSAFs and Food Web Model relationships developed through the Portland Harbor Site process will be used (i.e., the PRGs from Portland Harbor Site process will be used).

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-59, Section 4.6.3.10 (Riverbank Remedy and Source Control Determination), Pages 125-127: From an administrative efficiency/efficacy standpoint, it should be noted in the riverbank evaluation section that for EPA to review and oversee riverbank alternative implementation, these need to be included as part of EPA's EE/CA, Action Memo and/or Harborwide proposed plan process. Though it may later be convenient to have EPA oversee more riverbank area, alternatives must be evaluated for this to be possible under the NTCRA or remedial processes.**

NW Natural and Siltronic Response: The following text has been added: "EPA has stated that for EPA to review and oversee riverbank alternative implementation, these alternatives need to be included as part of EPA's EE/CA, Action Memo and/or Portland Harbor Site proposed plan process."

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-60, Section 4.6.3.10 (Riverbank Remedy and Source Control Determination), Page 126, risk management tool criterion No. 1, 3rd sentence: It should be acknowledged that any capping of riverbank sediments would consider a "habitat friendly" cap, if appropriate.**

NW Natural and Siltronic Response: The term "habitat friendly" has been added to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-61, Section 4.6.3.10 (Riverbank Remedy and Source Control Determination), Page 126, risk management tool criterion No. 2: The term “substantial” should be defined or omitted. Please clarify the difference between risk management tool criteria Nos. 2 and 4. Are these criteria differentiated based on whether the material is erosional or whether the soil is located on the shoreline or upland (i.e., being managed as part of the in-river versus the upland remedy)?**

NW Natural and Siltronic Response: A portion of the text including the word “substantial” has been removed from Item No. 2. Item No. 2 refers to the specific pathway of soil erosion, while Item No. 4 refers to all potential source pathways from (and through) the bank material.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-62, Section 4.6.3.10 (Riverbank Remedy and Source Control Determination), page 127, last paragraph in section: NW Natural/Siltronic’s desire to remove criteria 2, 3 and 4 from consideration for the Siltronic property seems inconsistent and arbitrary. Perhaps additional wordsmithing or the addition of the phrase “...to the extent practicable” to criteria 2, 3 and 4 on page 126-127 will alleviate the need for this paragraph.**

NW Natural and Siltronic Response: The removal of criterion 2, 3, and 4 is consistent with the conceptual site model findings for riverbank erosion presented in Section 2.10. No revisions have been made to the Final Work Plan.

EPA Review: *Please see directed comment for Comment SC-32 with reference to removal of the word “minor” regarding the riverbank erosion pathway. EPA would like to evaluate this pathway against a full set of remedial alternatives. Please revise the text as requested.*

NW Natural and Siltronic Response to Review: The word “minor” has been removed per comment SC-32 and all but the first sentence of the last paragraph in Section 4.6.3.10 have been removed, such that all listed criteria will be evaluated in this area.

**Comment SC-63, Section 4.6.4.1 (Material Disposal Requirements), Page 128, First bullet, second sub-bullet: Please confirm that waste characterization samples submitted for toxicity characteristic leaching procedure (TCLP) analysis will be analyzed for a full suite of chemicals not limited to the four MGP-associated chemicals listed.**

NW Natural and Siltronic Response: This text is specifically from the SOW and was the subject of prolonged negotiation. We would prefer to keep the text consistent with the SOW unless EPA can indicate an over riding reason to change this text. However, we can agree that TCLP testing will be done for the full list of parameters. Decision-making will focus on the chemicals as described in the SOW and Work Plan text.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-64, Section 4.6.4.1 (Material Disposal Requirements), Page 129, first full paragraph: It is suggested that the phrase “at an appropriate Subtitle C facility” be replaced with “at an appropriately-permitted Subtitle C facility”.**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-65, Section 4.6.4.1.2 (Testing Process), page 132, 2nd paragraph: Testing Tier 1: Please provide a volume comparison between the volume of a “barge load” to the 5 to 10 thousand cubic yard “smallest reasonable unit” identified in the Northwest Regional Sediment Evaluation Framework.**

NW Natural and Siltronic Response: The text has been revised in the Final Work Plan to indicate that barge loads are anticipated to hold 1,000 to 2,500 cubic yards of sediment.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-66, Section 4.6.4.1.4 (Decontamination and Prevention of Material Loss), page 133: "Should significant increases in chemical concentrations occur, those areas represented by elevated samples will have material removed and replaced (e.g., gravel shoulders, catchments)." Please define what the term "significantly" means here--i.e. in specific statistical terms and sample numbers. If this is not appropriate for this Work Plan, please propose a specific technical memorandum and schedule for its delivery. This information is needed before results are presented that EPA will need to decide upon.**

NW Natural and Siltronic Response: Details regarding sampling at the transload facility and the Project Area itself to ensure material loss or movement from non-designated areas has not occurred and will be provided in the interim, preliminary, and final design documents. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable; the term "significant will be discussed and defined in later project deliverables.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-67, Section 4.6.4.1.4 (Decontamination and Prevention of Material Loss), page 133: It should also be pointed out that EPA may require improvements to the site, transload facility, or landfill to ensure material tracking and redistribution is controlled. For example, curbs and a gutter may be required for the transload area, as it was for the T4 phase I work, to better control potentially contaminated storm runoff from the transload truck pad area.**

NW Natural and Siltronic Response: NW Natural and Siltronic understand that the details regarding material tracking and redistribution will be finalized in coordination with EPA.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-68, Section 4.6.4.2 (Dock Removal and Usage Evaluations), page 134, 1st paragraph: The basis for “costs of lost business” will be difficult to verify/agree to. Rather than risk engaging in lengthy debate, it may be best to simply roll up costs with and without this cost to determine if the relative ranking of any alternatives is modified.**

NW Natural and Siltronic Response: We agree that an analysis of costs—with and without this factor included—can be estimated to determine the impact on alternative relative ranking. However, we do not agree that the cost of lost business will be difficult to verify or agree to. We plan to focus on major cost issues that are readily understood and verifiable related to the currently operating businesses on the properties.

EPA Review: *Response is acceptable. Costs issues will require discussion/consultation with EPA and other interested parties.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-69, Section 4.6.5 (Screening of Technologies), page 135: While the SOW refers to an EE/CA and the removal process, the Work Plan needs to define how this process can be followed, yet feed appropriate, RI/FS guidance compliant information into the Harborwide process. The text already points out how both processes can be followed for alternative screening, which is good. Additional detail could be added for alternatives analysis. For example, this will involve a full 7 criteria analysis potentially, to ensure both EE/CA and RI/FS data needs are met.**

NW Natural and Siltronic Response: We believe the text already covers this issue. For example, Section 4.6.7 describes in detail the concept that the EE/CA will assess each alternative against the nine CERCLA criteria. Overall, the text is very clear that we will follow the removal action process and call the document an EE/CA but we intend that the evaluation contained in that EE/CA will meet the requirements of an FS.

EPA Review: *No further Work Plan revisions are necessary.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-70, Section 4.6.5.1 (Monitored Natural Recovery), page 136, 1st complete paragraph:** While the chemical fate and transport model may be a supporting line of evidence for this project, it is unlikely that the scale of the model will be sufficiently fine to be directly applicable to the EE/CA alternatives analysis. Conceptually simplified analytical approaches may also need to be developed to support the alternatives analysis.

NW Natural and Siltronic Response: NW Natural and Siltronic concur that a multiple lines of evidence approach will best support the alternatives analysis. However, we do not agree that the Portland Harbor Site model is of insufficient scale to support these determinations for the Gasco Sediments Site Project Area. The Portland Harbor Site QEA Fate model is being developed specifically to help assist in AOPC-level MNR determinations and future remedial design at individual AOPCs. The current model is substantially superior in this respect to the model previous proposed for the Portland Harbor Site. No revisions have been made to the Final Work Plan.

*EPA Review: Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-71, Section 4.6.5.4 (Water Quality Controls), page 138, 1st paragraph:** Dewatering of dredged material should be addressed in this section.

NW Natural and Siltronic Response: Additional text was added indicating that the screening of water quality controls will include an evaluation of the type of dewatering technology use and location of dewatering (i.e., upland or on a barge).

*EPA Review: Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-72, Section 4.6.5.5.1 (Transportation Technologies), page 139, 1st paragraph: "Permitting" should be included as an important factor; both for landfill disposal and water treatment/disposal (either back to river or to POTW).**

NW Natural and Siltronic Response: A bullet titled, "Substantive Requirements of Permits," has been added to the Final Work Plan.

EPA Review: *NW Natural and Siltronic should acknowledge that while onsite issues will involve substantive compliance, landfill issues will require the actual permits and not just the substantive compliance.*

NW Natural and Siltronic Response to Review: The bullet titled "Substantive Requirements of Permits" has been removed and replaced with "Disposal site permits" in the Final Work Plan.

**Comment SC-73, Section 4.6.6 (Development and Screening of Alternatives), page 141, 3rd paragraph: The short list of alternatives to be evaluated is appropriate for an EE/CA; please remove "or deleted" from this sentence.**

NW Natural and Siltronic Response: We disagree that it is appropriate to determine the minimal list of alternatives at this time without the benefit of the additional information that will be gained and evaluated between now and the EE/CA process. To retain a technically reasonable range of possible future alternatives and maintain consistency with the Portland Harbor Site process, the words "or deleted" should be retained in the text. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-74, Section 4.6.6 (Development and Screening of Alternatives), page 142, 1st complete paragraph, 3rd bullet (Cost): Factoring “other financial considerations” may be controversial. One potential path forward is to roll costs with and without these costs to determine if the alternative relative ranking is shifted.**

NW Natural and Siltronic Response: See response to Comment SC-68.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-75, Section 4.6.7.2 (Primary Criteria), Page 145, Cost: The evaluation of costs associated with “risk management” and “marine and upland operations interruptions” may be difficult for the government team to evaluate or verify. In addition, the cost of mitigation should be included in the analysis.**

NW Natural and Siltronic Response: See response to comment SC-68 regarding costs of operations. Also, the cost of mitigation was added as an additional financial consideration in the analysis.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-76, Section 4.6.9 (Biological Assessment and Clean Water Act Analysis), page 146: The schedule needs to allow for ample time to coordinate the referenced draft 404 memorandum with appropriate agencies, and the Biological Assessment (BA) with NMFS and U.S Fish and Wildlife Service (USFWS), as needed. Mention should also be made of how these documents can/should be integrated to their partner Harborwide documents.**

NW Natural and Siltronic Response: Although the schedule is aggressive, we believe it does allow a reasonable timeframe for these consultations. The following text has been added to the Final Work Plan: “The memorandum will discuss and summarize the content and progress of

similar evaluations being conducted for the Portland Harbor Site process, including any progress that has been made between LWG, EPA, and NMFS on the methods and requirements for determining a consistent compliance with ESA and resulting mitigation requirements throughout the harbor. The ramifications of those methods and requirements as specifically applied to the Gasco Sediments Site will be presented and discussed as support for specific proposed elements of the project.”

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-77, Section 4.7 (Design Reports), Page 149, first full paragraph: Regardless of the procurement process used by the Owner, detailed plans and specifications (or performance specification) will be needed.**

NW Natural and Siltronic Response: If NW Natural and Siltronic choose to use a design/build approach, detailed design documents may take the place of plans and specifications required for a design/bid process. As noted in the current text, “Regardless, the design submittals will be of sufficient detail to adequately describe all aspects of the proposed construction process...” No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-78, Section 4.7.2 (Interim Design), page 155: The substantial interaction between the Construction Quality Assurance Plan (CQAP) and Biological Opinion (BiOP) terms and conditions should be noted, for schedule logistical purposes, as well as sampling issues, such as turnaround time.**

NW Natural and Siltronic Response: The following text has been added to the CQAP requirements section of the Final Work Plan: “Any requirements necessitated by the Biological

Opinion (BiOP) terms and conditions as it relates to schedule logistical, sampling issues, turn around times or any other relevant terms or conditions of the BiOP.”

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-79, Section 4.7.2 (Interim Design), page 155: It should be noted that “greening” aspects of the cleanup will be looked at in the EE/CA, and further refined here to include descriptions of how emissions will be curtailed from various sources employed by the project.**

NW Natural and Siltronic Response: See response to comment GC-29.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-80, Section 4.7.3 (Final Design), Page 156: The final design should include the mitigation requirements and a mitigation monitoring and performance plan.**

NW Natural and Siltronic Response: Text has been added to the Final Work Plan indicating that the final design will include any mitigation elements determined through the prior process.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## Section 5 – Project Schedule

No specific comments on Work Plan project schedule

NW Natural and Siltronic Response: NA

### List of Tables

**Comment SC-81, Table 3.1-1: The ARAR table should be subdivided to show the following categories: Chemical-Specific Requirements; Action-Specific Requirements; and, Location-Specific Requirements.**

NW Natural and Siltronic Response: Each of the requested categories is designated in the column labeled “Applicability/Relevance and Appropriateness.” No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-82, Table 3.1-1: The row beginning with “State ARARs” should be retained as a placeholder and used as needed for project-specific COCs not carried forward into the Portland Harbor FS.**

NW Natural and Siltronic Response: See response to comment GC-17.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## List of Figures

**Comment SC-83, Figure 2.1.1-1: For consistency with Figure 2.1.2-1, the figure should be revised to include historical site features, particularly MGP waste placement areas (e.g., northern spent oxide pile, lampblack area, former effluent ponds). DEQ notes this information appears to be included on Figure 2.6.2-1.**

NW Natural and Siltronic Response: It should be noted for all figure comments, that the most relevant figures were excerpted directly from existing documents. Because of the copious amounts of information available in the project area, use of existing figures was preferred to allow rapid development of the Work Plan as required by the SOW schedule. If EPA desires for some specific reason related to future Work Plan submittals a revised figure, NW Natural can prepare one. Also, the objective of Figure 2.1.1-1 was to show existing Gasco property uses and features. Figure 2.1.2-1 shared the same objective for the Siltronic property but the only existing figure available showed both the overlaid historical and current property uses and features. Because Figure 2.6.2-1 shows the historical Gasco property features, no figure revisions were made.

EPA Review: *Response is acceptable. No further Work Plan revisions are necessary.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-84, Figure 2.1.2-1. The colored area described as the “Former Lowland (1913-1971),” corresponds to the historic lampblack placement area and should be labeled accordingly.**

NW Natural and Siltronic Response: The legend entry for this area has been revised in the Final Work Plan to “Former Effluent Discharge/Lowland Area” to maintain consistency with the historical features descriptions provided in Figure 2.6.2-1.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-85, Figure 2.2.1-1. The figure should be revised so nomenclature is consistent with the text (e.g., replace “Artificial Fill” with “Surficial Fill”). The figure should also include the principal stratigraphic (e.g., upper and intermediate depth silt units, alluvium) and hydrostratigraphic features (e.g., upper and intermediate depth aquitards, alluvial WBZ) discussed in Section 2.2. In addition, the figure should depict NW Natural’s interpretation(s) of the direction of hydraulic gradients between and within hydrostratigraphic units discussed in Section 2.2.1.2. Please also replace “Columbia River” with “Willamette River”.**

NW Natural and Siltronic Response: The generalized cross-section shown in Figure 2.2.1-1 has been removed in the Final Work Plan and Section 2.2.1 has been revised to reference the actual detailed cross-sections shown in Figures 2.2.1-2 through 2.2.1-6.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-86, Figure 2.2.1-2. Monitoring well MW-15-66 is missing from the figure and should be added for completeness.**

NW Natural and Siltronic Response: The monitoring well has been added to the noted figure in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-87, Figures 2.2.1-3a, b, c through 2.2.1-7: These figures appear to rely on: 1) geologic observations made during the most recently completed geotechnical drilling and monitoring well installation work; and 2) DNAPL intervals identified during Targost® logging work. Regarding DNAPL occurrence, at a number of monitoring well locations (e.g., WS-14), sheen observed during drilling preceded DNAPL entering the installation. As such, DEQ considers observations of sheen as being suggestive of the presence of DNAPL. The figures should be revised to include depths intervals where evidence of DNAPL (e.g., sheen)**

was observed during all uplands drilling work completed in the areas shown in cross-section, including but not limited to borings B-29, B-31, B-55, B-58, and B-59.

NW Natural and Siltronic Response: Please see the response to comment GC-5 and SC-83. The zones of DNAPL mapped on the referenced figures are taken directly from DNAPL mapping completed during the upland remedial investigation and source control related investigations. Potential modifications to these maps should be evaluated in the context of the upland remedial investigation or source control efforts in coordination with DEQ which is beyond the scope of the Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-88, Figure 2.2.1-9. The figure should be revised to illustrate the influence of dewatering the LNG tank basin on the configuration of the surficial fill WBZ equipotential surface (i.e., the water table).**

NW Natural and Siltronic Response: Please see the response to comment SC-83. The figure was excerpted from an existing report prepared by others based on monitoring data from December 4, 2008. The monitoring data and interpretation did not identify an influence by dewatering of the LNG tank basin. No revisions have been made to the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-89, Figures 2.2.1-10 through 2.2.1-12. DEQ considers these figures to be incomplete without equipotential contours for the Siltronic property being shown. NW Natural should revise the figures accordingly.**

NW Natural and Siltronic Response: The groundwater monitoring was not performed on the Siltronic property during the December 4, 2008 groundwater sampling so the equipotential

contours could not be shown. Available documents also do not currently exist providing the equipotential contours on the Siltronic property on dates in close proximity to the December 4, 2008, event. No revisions have been made to the Final Work Plan.

*EPA Review: No further Work Plan revisions are necessary.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-90, Figure 2.2.2-2. The scale should be smaller so one can see when seasonal peaks are occurring; consider presenting 10-year time increments on each page.**

NW Natural and Siltronic Response: Please see the response to comment SC-83.

*EPA Review: Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-91, Figures 2.2.3-5, 2.3.1-1, and 2.4.1. The information these figures are supposed to communicate is obscured by the "Gasco Sediments Site Area of Interest" outline and should be revised accordingly.**

NW Natural and Siltronic Response: The figures have been revised in the Final Work Plan to attempt to minimize overlaying of the Gasco Sediments Site Area of Interest and the underlying figure designations.

*EPA Review: Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-92, Figure 2.6.2-1. Historic features associated with the former Gasco MGP should be shown in the northern portion of the Siltronic property for completeness (see Figure 2.1.2-1).**

NW Natural and Siltronic Response: Figure 2.6.2-1 has been revised in the Final Work Plan to include the "Former Lowland Poned Area Filled by 1971" and "Spent Oxide Storage (1952-1966)."

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-93, Figure 2.9.4-1. The "Gasco Sediments Site Area of Interest" shown on previous figures should be added for reference.**

NW Natural and Siltronic Response: The "Gasco Sediment Site Area of Interest" has been added to the figure in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-94, Figures 2.9.6-6, 2.9.6-7, 2.9.6-10, and 2.9.6-11. Free cyanide and total cyanide concentrations plotted on the figures are in parts per million (ppm, or milligrams per liter), not parts per billion (ppb, or micrograms per liter) as indicated in the legend.**

NW Natural and Siltronic Response: The units have been changed to parts per million in each of the referenced figures in the Final Work Plan.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-95, Figure 2.9.6-27. NW Natural should confirm the concentrations of naphthalene shown for the upper two water samples (i.e., collected from 4-6 feet and 9-11 feet) collected at the GS-07 boring location. The data shown should be for total concentrations of naphthalene. Source data in Table 3 of Appendix A of the Offshore Investigation Report suggest the figure is correct; however the table indicates dissolved phase concentrations of PAHs are greater than total concentrations in the two samples. This information is inconsistent with PAH data compiled for other borings and suggests the dissolved and total PAH data for the two samples may be transposed in the table. NW Natural should review and revise the figure as appropriate.**

NW Natural and Siltronic Response: Re-evaluation of the concentration data confirmed that the shown concentrations identified within the two depth intervals are correct. The field data sheets for both the 4 to 6 feet and 9 to 11 feet intervals indicate free product/oil droplets and sheen were observed in the water samples. The observed difference in total versus dissolved phase concentrations may be explained by the aliquot designated for total naphthalene only containing sheen, while an oil droplet was present in the aliquot designated for dissolved phase analysis. It is also possible that one aliquot contained more sheen than the other. The PAH samples were laboratory filtered, so there was time for the dissolved portion to equilibrate in the sample bottles before filtering.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

**Comment SC-96, Figure 2.9.9-1. Section 2.9.9 of the Draft Work Plan references documents containing analytical data for riverbank sampling work completed previously. Figure 2.9.9-1 summarizes sampling data for a subset of surface soil samples collected at the top, on, and at the base of the NW Natural property riverbank. Besides surface soil samples the evaluation of the riverbank should compile data in plan-view and cross-section to determine whether sufficient data are available for planning uplands investigations and/or source control evaluations. In addition, the relationship between groundwater levels in the surficial fill WBZ to the riverbank will need to be examined. This comparison is needed to document whether there is the potential for groundwater in the surficial fill WBZ to cause erosion by discharging onto the riverbank.**

NW Natural and Siltronic Response: The intent of Section 2.9.9 was to summarize nearshore soils quality along the sloped area of the bank where erodible soils could be transported directly to the Lower Willamette River. The Project Area Identification Report and Data Gaps Quality Assurance Project Plan (the next deliverable) will consider to what extent these data are adequate and if any data gaps exist. This may include preparation of additional figures similar to the ones noted to illustrate the identified data gaps. This evaluation will also consider to what extent existing information is sufficient (and identify necessary data gaps) regarding groundwater or stormwater to potentially infiltrate through bank soils and leach contaminants to the river.

EPA Review: *Response is acceptable.*

NW Natural and Siltronic Response to Review: No additional response needed.

## **Appendix A - Surface Sediment Quality**

**No specific comments on Work Plan Appendix A.**

NW Natural and Siltronic Response: NA

## **Appendix B – Cultural Resources Work Plan**

**No specific comments on Work Plan Appendix B.**

NW Natural and Siltronic Response: NA