CORRECTIVE ACTION PLAN
SIGNAL PEAK RANGER STATION
YAKIMA COUNTY, WASHINGTON

August 11, 2015

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This Corrective Action Plan (CAP) for the Signal Peak Ranger Station, Yakima County, Washington, has been prepared by Ahtna Environmental, Inc. (AEI) under Contract A14PX01088.

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ACRONYMS AND ABBREVIATIONS

AEI.....Ahtna Environmental, Inc.
amsl.....above mean sea level
AOC.....Administrative Order on Consent
AST.....aboveground storage tank
bgs.....below ground surface
BIA.....Bureau of Indian Affairs
CAP.....Corrective Action Plan
Cherokee .....Cherokee General Corporation
COI.....contaminants of interest
CSM.....Conceptual Site Model
CULs.....cleanup levels
cy.....cubic yards
DCA.....disproportionate cost analysis
EPA.....US Environmental Protection Agency
FFS.....focused feasibility study
HASP .....Health and Safety Plan
MTCA.....Washington Model Toxics Control Act
NWTPH .....Northwest Total Petroleum Hydrocarbons; Dx, Diesel; Gx, Gasoline
PAH.....polynuclear aromatic hydrocarbons
PCS .....petroleum-contaminated soil
PID.....photoionization detector
ORC .....oxygen release compound
site.....Signal Peak Ranger Station
SPRO.....Southern Plains Regional Office
TEE .....terrestrial ecological evaluation
TPH.....total petroleum hydrocarbons
UST.....underground storage tank

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1.0 INTRODUCTION

This document presents the Corrective Action Plan (CAP) to address petroleum hydrocarbon contamination in soil and groundwater at the Signal Peak Ranger Station (Site), located southwest of Toppenish, Washington on the Yakama Indian Reservation. (Figure 1). This work was completed under Ahtna Environmental, Inc. (AEI) Contract A14PX01088 with the Bureau of Indian Affairs Southern Plains Regional Office (SPRO).

The Bureau of Indian Affairs (BIA) entered into an Administrative Order on Consent (AOC) with the US Environmental Protection Agency (EPA) in June 2014 for environmental compliance work at the Signal Peak Ranger Station, Yakima County, Washington. The negotiated AOC listed required environmental investigation and corrective actions that are to be completed in accordance with a prescribed timeline, including the following requirements: 1) develop and submit to the EPA a Site Assessment Plan to determine the nature and extent of the release of petroleum constituents from underground storage tanks (USTs) at the site; 2) complete the Site Assessment and submit a Site Assessment Report that describes the results; 3) develop and submit CAP to identify and evaluate corrective action alternatives and select the preferred alternative necessary to prevent or mitigate any migration or releases of petroleum constituents at or from the site, including a schedule for implementing the CAP; and 4) implement the CAP at the site as approved or modified by EPA. This report is intended to satisfy requirement number 3 above.

1.1 Purpose

The purpose of this CAP is to present a plan for completing remedial actions at the Site to the level required to achieve determination of closure status by the EPA. Specifically, this CAP has been prepared to:

- Describe the site background and current conditions including an overview of the site history and environmental conditions.
- Identify the media of concern and site-specific cleanup levels.
- Identify the current and future land use for the site.
- Describe the remedial actions based on the conceptual site model (CSM).
- Describe the justification for the cleanup action for the site.
- Identify applicable State and Federal laws pertaining to the remedial actions.

The following sections describe the current site conditions and the site history. Also presented are the proposed remedial actions for soil and groundwater containing concentrations of petroleum hydrocarbons at concentrations greater than cleanup levels.

1.2 Report Organization

This Report is organized as follows:

- Section 1.0 introduces the document with a brief description of the site, and the objective and organization of the CAP;
- Section 2.0 describes the site history, general environmental setting and past investigation activities performed at the site;
- Section 3.0 presents the CSM for the site;
- Section 4.0 presents the components of the Feasibility Study for the site;
- Section 5.0 presents the components of the CAP;
- Section 6.0 presents the performance monitoring requirements; and
- Section 7.0 presents the references used in preparing this CAP.

2.0 SUMMARY OF SITE AND BACKGROUND CONDITIONS

2.1 Site Description

The site is located in Township 9 North, Range 13 East, Section 25 in Yakima County, Washington, on the Yakama Indian Reservation approximately 24 miles north-northeast of Glenwood, Washington, and is accessed by Signal Peak Road (Road BIA 140) (Figure 1). The site is located at the base of the north flank of Signal Peak, a remnant volcanic peak approximately 17 miles east of Mt. Adams and at an elevation of approximately 4,000 feet above mean sea level (amsl).

The site was originally built by the Civil Conservation Corps in the 1930's and additional buildings and structures were constructed by 1962. The site is currently comprised of less than a dozen buildings of various ages; three structures (Buildings 407, 415, and 427) are referred to herein as the "main compound" area (Figure 2). The remaining portions of the site consist of gravel access roads, parking, and storage areas. The site is bounded by forest land and wilderness areas and Signal Peak to the south. Surveyors Creek, a tributary to the Klickitat River, flows from east to west through the site. There is a small pond located to the east of the main compound that was used to fill water trucks during fire season. Former residences are located to the south, north, and east. The local area is undeveloped wilderness.

2.2 Background

Several phases of environmental investigation and cleanup activities have been conducted at the site. Details of these activities, including soil, groundwater, surface water and sediment chemical analytical data are presented in the reports and letters listed in the reference section of this document. A brief summary is presented below. Previous sample locations are shown in Figures 3 and 4.

2.2.1 Historical Environmental Investigations

- The presence of two federally regulated USTs was documented at the site during environmental site assessments conducted in 2003, 2006, and 2008. UST-1 was located adjacent to Building 415 and was used to dispose of used oil from generator maintenance. UST-1 was removed during field activities in September 2008. UST-2 was discovered at the southwest corner of Building 407 during the 2008 field activities.
- In October 2006, BIA contractor, Cherokee General Corporation (Cherokee), conducted an initial site characterization at the site and identified at least eight areas of recognized environmental concern.
- During the 2006 site characterization, the contents of UST-1 were pumped out and five borings were advanced in the vicinity of the UST. Soil and groundwater analytical results indicated concentrations of total petroleum hydrocarbons (TPH) above Washington Model Toxics Control Act (MTCA) cleanup levels (CULs) (Figures 3 and 4). EPA uses MTCA cleanup levels as a guide for determining appropriate cleanup levels for petroleum releases on Tribal Lands in Washington State.

- In September 2008, Cherokee performed additional site characterization and cleanup actions. Building 415 was razed, and approximately 590 cubic yards (cy) of petroleum contaminated soil (PCS) were excavated near UST-1. PCS excavation was halted to avoid compromising the structural integrity of Building 407; however, sampling results indicated that PCS extended beneath Building 407.
- During the 2008 field work, UST-2 was discovered during removal of conveyance piping associated with an aboveground storage tank (AST) located near Building 427. Four test pits were excavated near UST-2 to determine the presence of petroleum contamination in the area.
- On July 23, 2014, UST-2 was sampled and the fluids were subsequently disposed of at an off-site recycling facility.

2.2.2 2014 Site Assessment

In 2014, AEI completed a Site Assessment that included; 1) the removal of UST-2; 2) the collection of soil, groundwater, sediment and surface water samples, and 3) the preparation of a Site Assessment Report. The following summary and conclusions are based on the chemical analytical results of the 2014 Site Assessment activities.

2.2.2.1 Soil Results

Contaminants of interest (COI) associated with petroleum hydrocarbons were detected in 18 soil samples (historical and current) at concentrations that exceeded MTCA CULs. Figure 3 shows the location of the soil samples that exceed CULs. In general, the soils with elevated COI are located beneath the footprint of Building 407, near the former USTs and piping runs or at the base and southern wall of the previous soil excavation located on the north side. The highest concentrations appear to remain along the southern wall of the 2008 excavation.

The bulk of the residual contamination is located as shallow as 5 feet below ground surface (bgs) under Building 407, at the bottom and the side-walls of the 2014 UST excavation and along the former piping trench on the western side of Building 407. Elevated petroleum concentrations in the 2008 excavation on the north side of Building 407 primarily remain from 6.5 to 15 feet bgs. The TPH concentrations detected during the 2014 investigation were lower than the results obtained in 2006. It is likely that this decrease in TPH concentrations is due to the removal of the majority of the PCS in 2006 and natural attenuation.

2.2.2.2 Groundwater Results

Petroleum-related COI were detected in five grab groundwater samples (GB-2, GB-4, GB-11, GB-12 and Test Pit #3) above MTCA Method A or B values. Figure 4 shows the location of the grab groundwater samples that exceed CULs. The elevated petroleum hydrocarbons in groundwater were found in the grab groundwater samples located to the south of the 2008 excavation. With the exception of MW-8, which exhibited diesel-range hydrocarbons above the MTCA Method A CULs in the January and April 2015 sampling events, no other monitoring wells have exhibited COI concentrations above CULs.

2.2.2.3 Surface Water and Sediment Results

Petroleum hydrocarbons and total lead were detected in the creek sediment samples, however the concentrations were well below MTCA and terrestrial ecological evaluation (TEE) screening levels. No COI were detected in the three surface water samples. Based on the lack of COI above CULs and screening levels, the surface water and sediment exposure pathways are not complete.

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3.0 CONCEPTUAL SITE MODEL AND POINTS OF COMPLIANCE

Based on the findings of site characterization activities, soil and groundwater at the site was contaminated by historic undocumented release(s) of petroleum hydrocarbons. Petroleum-contaminated groundwater likely resulted from groundwater contacting contaminated soil during seasonal fluctuations.

3.1 Geology and Hydrogeology

Soils observed at the site consist of silts, silts with gravels and silts with sands underlain by basalt. Local variations and thin lens of gravels or clays have been observed in borings and excavations. The basalt contact has been encountered at depths ranging from 8 to 31 feet bgs. Perched groundwater has been encountered in temporary borings during drilling at depths ranging from 7.9 to 14 feet bgs and in the eight monitoring wells at depths ranging from 5.75 to 8.25 feet bgs. The inferred site-wide groundwater flow direction is to the south. Based on the boring log from the nearby water well, static groundwater is approximately 170 feet bgs.

3.2 Exposure Pathways and Receptor Summary

An exposure pathway is considered complete if a human or ecological receptor can be exposed to a contaminant via that pathway. This subsection describes the exposure pathways for contaminants in soil, groundwater, and air (soil gas), as presented in the 2014 Site Assessment Report.

Potential exposure pathways for soil are: direct contact including inhalation and ingestion; migration of soil vapor to indoor/outdoor air; and leaching from soil to groundwater beneath the site. Potential exposure pathways for groundwater include: dermal contact and ingestion of groundwater; and contaminant volatilization to indoor/outdoor air. Based on the lack of COI above CULs and screening levels, the surface water and sediment exposure pathways are not complete.

3.3 Points of Compliance

The contaminants are contained within the site and therefore exposure pathways do not extend beyond the property. The points of compliance for groundwater beneath the site are at the locations of the existing onsite monitoring wells within and beyond the impacted area. The BIA has determined that the placement of a restrictive covenant (land use restrictions) for the site is not viable. As such, the point of compliance is all soils throughout the site. (MTCA 173.340.740(6)(b). The proposed corrective action involves the removal of Building 407 and as such, no point of compliance for indoor air is required.

3.4 Cleanup Levels

MTCA Method A and B CULs were used to evaluate soil and groundwater site characterization data. These cleanup levels are included on the summary analytical tables (Tables 1 through 6). In addition, soil screening levels based on the protection of ecological receptors were obtained from MTCA 173-340-900 (Table 749-2) in accordance with the process for simplified TEEs.

Ecological screening values for soil have been included in Tables 1 and 3. The detected volatile organic compounds (Table 2) do not have ecological screening values.

Based on our observations, shallow groundwater occurs as a perched aquifer. Shallow bedrock, minimal saturated thickness and a lack of permeability suggest that the first-encountered groundwater has minimal beneficial use as a water supply. However, without a formal deed restriction that eliminates future groundwater use, MTCA Method A and B groundwater cleanup levels must be evaluated.

3.5 Current and Future Land Use

Planned future land use for the subject property is not known. The proposed remedial action for the site includes the removal of Building 407 and as such, the project site will most likely be used for continued parking of equipment, as needed.

4.0 FOCUSED FEASIBILITY STUDY

This focused feasibility study (FFS) identifies and evaluates cleanup action alternatives for the gasoline- and diesel-range petroleum hydrocarbons in soil and groundwater at the site. The FFS supports a remedy selection, which will be the preferred cleanup alternative that reasonably meets the BIAs cleanup objectives and MTCA requirements for cleanup actions described in WAC 173-340-360. Cleanup action objectives, screening of remedial alternatives, and selection of the most permanent practicable remedial method are presented in the following sections.

4.1 CLEANUP ACTION OBJECTIVES

The objectives of the cleanup are:

- To complete a remedial action that is protective of human health and the environment and is permanent to the maximum extent practicable.
- To complete a remedial action during late summer/early fall 2015 when precipitation levels are lowest and corresponding to the time of the lowest groundwater levels at the site.
- Implement a remedial action that will provide the BIA with the ability to transfer the land to the Yakama Nation with as few restrictions as possible.

CULs for contaminated soil beneath the site will be achieved to the extent practical unless the cost and risk of additional excavation are disproportionate to the incrementally additional contaminant removal benefit. If soil with contaminant concentrations exceeding MTCA cleanup levels is left in place because it cannot be removed or treated, the property will remain in BIA ownership. An engineering justification (disproportionate cost analysis [DCA]) will be performed, if needed. Groundwater quality will improve over time once the contaminated soil source has been treated or removed. It is the goal of the BIA to transfer ownership of the property to the Yakama Nation and the BIA understands that if a clean site transfer is not completed, additional characterization/remediation may be required.

MTCA places preference on permanent solutions to the maximum extent practicable based on a DCA. The benefits of the alternatives considered are balanced against relative costs for implementing each alternative. Preference is also placed on remedies that can be implemented in a shorter time, based on potential environmental risks and effects on current site use and associated site and surrounding area resources.

Per Section VIII of the Agreed Order, following EPA's conditional approval of this document, the CAP will be made available for public review and comment in accordance with the requirements of 40 CFR 280.67.

4.2 Identification and Screening of Remedial Alternatives

Remedial alternatives identified and evaluated for the site are described in Table 7. Remedial alternatives evaluated for mitigation of gasoline- and diesel-contaminated soil include several passive and active remediation technologies.

4.3 Preferred Remedial Action

Based on the remedial alternatives evaluation (Table 7), the preferred alternative is Soil Excavation with Off-Site Disposal. This alternative was selected because it is the only remedial alternative that meets the cleanup action objectives for the site in the specified time frame.

5.0 CLEANUP ACTION PLAN FOR SOIL EXCAVATION

This section contains the plan for implementing the preferred alternative to mitigate the contaminated media and potential exposure pathways at the site in accordance with MTCA regulations. The planned excavation area and building demolition are shown Figure 5.

5.1 Overview

The proposed cleanup remedy involves the following measures:

- Coordinate and schedule field activities with necessary contractors.
- Obtain the necessary permits from the BIA and the Yakama Nation.
- Demolish Building 407, including the concrete apron on the south side of the building.
- Excavate and remove accessible impacted soil of regulatory significance from the site. Excavate, segregate and stockpile clean overburden soil from approximately ground surface to 4 to 10 feet bgs (clean stockpile) to access impacted soil at depths between 4 and 15 feet bgs. Soil will be field-screened for the presence of PCS. Excavated soil will be temporarily staged on site or loaded directly into trucks for transportation and disposal.
- During the previous investigations, groundwater samples from MW-8, Test Pit #3 and DP-12 contained concentrations of gasoline-range petroleum hydrocarbons above MTCA CULs. However, soil samples collected during the Site Investigation from MW-8 and GB-12 did not contain gasoline-range hydrocarbons above MTCA CULs. In addition, two borings near Test Pit #3 (GB-6 and GB-7) also did not contain gasoline-range hydrocarbons above MTCA CULs. However, in an effort to verify that no PCS is located in the vicinity of these groundwater detections, the BIA has requested that the unsaturated vadose zone soil (shown on Figure 5 as a purple hatching) be removed. Extraction of groundwater that enters the excavation using a vacuum truck in an effort to remove petroleum-contaminated groundwater. We anticipate that up to 20,000 gallons of water will be removed from the excavation to facilitate soil removal activities. The removed groundwater will be transported via vacuum truck to a local facility for disposal.
- Obtain cleanup confirmation soil samples for chemical analysis to document that contaminants of concern at the final limits of the remedial excavation have been successfully removed. Soil excavation will be conducted until concentrations of COI in the remaining soil meet site cleanup levels, unless excavation is limited by physical constraints.
- Obtain confirmation soil samples from the clean stockpiled soil. Chemical analyses will be completed on the confirmation samples to document that concentrations of COI in the samples are less than CUL.
- Placement of phosphate-intercalated magnesium peroxide (oxygen release compound [ORC] or similarly) to groundwater at the base of the open excavation. When hydrated the compound will produce a controlled release of oxygen to the subsurface environment where it will accelerate the rate of naturally occurring aerobic contaminant biodegradation in groundwater. Direct application of the release compound to the excavation was chosen over injections due to the accessibility to groundwater within the excavation which allows for a

more efficient delivery at a lower cost. We anticipate that the PCS excavation will provide an easy access to a large surface area of groundwater where the ORC can be directly applied. Based on the existing data, the majority of the remaining contamination is dissolved in groundwater or absorbed onto permeable soils within the vadose zone.

- Reuse the non-contaminated stockpile soil as backfill within the excavations at the site.
- Backfill the excavations with imported or non-contaminated native soil and restore the site surface to approximately pre-cleanup elevations. Backfill will be appropriate to allow native flora (grasses) to reestablish naturally.
- If soil excavation is limited by physical constraints, then supplemental corrective actions will be proposed in the Final Cleanup Report as specified in Section 6.1.4

The following table summarizes the potential exposure pathways for the site, as described in the conceptual site model, and identifies the elements of the proposed cleanup remedy that address each potential exposure:

TABLE 5-1: POTENTIAL EXPOSURE PATHWAYS

Pathway	Remedy
Soil or Groundwater Direct Contact	Excavate soil; possible institutional control (if needed) to prevent soil contact by future construction workers
Soil Leaching to Groundwater	Excavate soil and placement of ORC.
Groundwater Ingestion	Excavate soil and placement of ORC. Institutional control if needed to prevent the withdrawal of perched groundwater from the site.
Soil and/or Groundwater Contaminant Volatilization to Indoor Air	Excavate soil and placement of ORC evaluate residual concentrations relative to risk-based thresholds.

5.2 Area and Volumes To Be Excavated

The estimated area of excavation is shown in Figure 5. The base of the excavation will range from 10 to 15 feet bgs and will be deeper than contaminated soil sampled from the borings. Approximately 4 to 10 feet of overburden soil will be excavated and stockpiled for potential reuse as backfill. Excavation sidewalls will be sloped at a 1:1 (horizontal to vertical) for sidewall stability. The estimated volumes of soil to be excavated and handled are as follows:

TABLE 5-2: ESTIMATED SOIL EXCAVATION VOLUMES

Description	Estimated Quantity to Be Removed	Depth in Feet Below Existing Ground Surface (bgs)
Overburden (Likely Non-contaminated Soil)	1,145 cubic yards total (in-place volume)	0 to approximately 5
COI-Impacted Soil	1,115 cubic yards total (in-place volume)	Approximately 5 to 16
Total	2,260 cubic yards of soil (in-place volume)	

5.3 Site Safety Plan

A Health and Safety Plan (HASP) will be used by personnel during the cleanup action. Copies of the HASP used by the remedial contractor and the environmental consultant will be kept on-site and will be made available to authorized visitors for general information.

5.4 Building Demolition and Dewatering Plan

The existing building will need to be demolished to allow for implementation of remedial actions. Regulated building materials as well as other components of the existing buildings are required to be managed and disposed of in accordance with all local, state and federal regulations.

A formal building demolition plan will be prepared for the BIA and the Yakama Nation. The demolition plan will apply to all physical abatement, demolition and waste generating activities performed as a part of the remediation and demolition activities of the project. The demolition plan will document the utility abandonment procedures, hazardous material removal procedures (lead based paint and potential asbestos containing material), debris removal and disposal options. As part of the demolition plan, AEI will include a brief dewatering plan. The dewatering plan will detail how water will be removed from the excavation, testing requirements and disposal requirements.

5.5 Final Cleanup Report

A final cleanup report will be submitted to the BIA and EPA documenting the activities and compliance sampling associated with the cleanup action.

5.6 Schedule for Implementation of Cleanup Action

The general schedule for implementation of the cleanup action is contingent on the availability of funds and weather conditions. At this time, the implementation of the CAP is schedule for the summer of 2016. The schedule is contingent upon EPAs review and comment for this CAP and the availability of funds. The following table summarizes the proposed implementation schedule.

DESCRIPTION	DATE(S)
1. BIA submits draft CAP to EPA.	June 28, 2015
2. EPA provides comments on CAP.	By July 30, 2015
3. BIA submits revised CAP to EPA.	By August 11, 2015
4. Public comment period (30 days).	By August 30, 2015
5. EPA provides final approval of CAP.	Late September 2015
6. BIA procures necessary contractors, permits and funding.	By mid-September 2015
7. BIA implements CAP.	Late September early October 2015.
8. BIA submits draft Cleanup Report.	Within 60 days of implementation of CAP.
9. EPA provides comments to draft Cleanup Report.	30 days after submittal of draft report.
10. BIA submits final version of Cleanup Report.	Within 30 days after receipt of EPA comments to draft report.
11. Ongoing quarterly groundwater monitoring.	To be evaluated based on outcome of CAP.

Key:
BIA Bureau of Indian Affairs
EPA US Environmental Protection Agency

6.0 PERFORMANCE AND COMPLIANCE MONITORING OF SOIL

6.1 Sampling and Analysis Plan

A generalized summary of performance monitoring for the cleanup and soil confirmation monitoring is provided below. Sample handling and collection procedures will be generally in accordance with Ecology and EPA recommended guidance, similar to handling and collection procedures documented in the 2014 Site Assessment Work Plan.

6.1.1 Remedial Excavation Cleanup Confirmation Sampling

Confirmation soil sampling at the limits of the excavations will include the following:

- Obtain soil samples from the limits of the excavations at a rate of approximately one sample per 400 square feet of excavation base and 400 square feet of excavation sidewall surface area. Samples will be obtained from depths lower than the previous exploration sample locations with contaminant concentrations greater than cleanup levels. In addition, sampling locations will be where field screening of representative soil indicates a potential for the highest concentrations of petroleum related contaminants. Sample locations and depths from initial grade will be documented in the field.
- Field screen soil samples for evidence of petroleum contaminants using water sheen methods and soil headspace vapor measurements using a photo-ionization detector (PID).
- In general, soil will be segregated based on field screening evidence using water sheen and soil headspace vapor measurements.
- Analyze cleanup confirmation soil samples for gasoline-range petroleum hydrocarbons by Ecology Method NWTPH-Gx, diesel- and oil-range petroleum hydrocarbons by NWTPH-Dx and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270SIM.

6.1.2 Contaminated Soil Disposal Characterization and Overburden

The impacted soil has been characterized by previous assessment results (see the list of references at the end of this report). At least one sample of contaminated soil will be additionally tested at the time of the proposed cleanup action to confirm the presence of contaminants of concern. Beyond that, additional analytical testing will generally not be conducted unless requested by the landfill facility.

Apparent non-contaminated soil will be analyzed to confirm contaminants of concern are not present, prior to reuse.

6.1.3 Soil Sampling and Analysis Plan Summary

The table below summarizes the proposed soil sampling frequency and chemical analytical program.

TABLE 6-1: SOIL ANALYTICAL PROGRAM

Description	Frequency		Analyses
Excavation Confirmation Samples from Base and Sidewalls	One (1) discrete sample minimum per approximately 400 square feet of excavation base. One (1) discrete soil sample minimum per approximately 400 square feet of excavation sidewall. Soil samples will be obtained from locations that are representative of unexcavated (left in place) soil. Typically the soil samples exhibiting the highest field screening results, if any, for each area will be submitted for analytical testing.		All samples to be tested for: Gasoline by Method NWTPH-Gx, Diesel by Method NWTPH-Dx and PAHs by EPA Method 8270SIM.
Excavated Overburden for Reuse	Bulk Cubic Yards (Stockpiled Soil)	Minimum Number of Samples	All samples to be tested for: Gasoline by Method NWTPH-Gx and Diesel by Method NWTPH-Dx. Two samples to be tested for: PAHs by EPA Method 8270SIM.
	0-100	1	
	101-500	3	
	501-1,000	5	
	1,000-2,000	7	
	>2,000	7+1 for each additional 500 cubic yards	

6.1.4 Supplemental Corrective Actions

If soil excavation is limited due to physical constraints, then supplemental corrective actions will be proposed in the Final Cleanup report for EPA's review and comment. Supplemental actions may include but not limited to additional site characterization, groundwater compliance monitoring and/or risk-based closure.

7.0 REFERENCES

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TABLES

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Table 1
Total Petroleum Hydrocarbons and Lead Results - Soil and Sediment
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	Sample Depth (feet)	Total Lead[2] (mg/kg)	Gasoline-Range Hydrocarbons[3] (mg/kg)	Diesel-Range Hydrocarbons[4] (mg/kg)	Oil-Range Hydrocarbons[4] (mg/kg)
Sediment Samples						
CREEK-SED-01	10/6/2014	0-0.5	**3.2**	**0.24**	**7.0**	**120**
CREEK-SED 02	10/6/2014	0-0.5	**7.2**	**0.85**	<8.5	<21
CREEK-SED-03	10/6/2014	0-0.5	**1.7**	<0.13	<5.3	<13
Soil Boring and Monitoring Well Samples						
GB-1 12-13FT	10/6/2014	12-13	<0.77	<0.15	<6.2	<15
GB-2 5-6FT	10/6/2014	5-6	<2.9	**210**	**4,400**	**5,500**
GB-2 11-12FT	10/6/2014	11-12	<0.74	**130**	**2,800**	**1,000**
GB-3 5-6FT	10/7/2014	5-6	--	<0.12	<4.8	<12
GB-3 7.5-9FT	10/7/2014	7.5-9	<2.9	**100**	**2,800**	**4,300**
GB-3 DUP			<2.9	**140**	**4,000**	**5,300**
GB-4 9-10FT	10/7/2014	9-10	<3.3	**10**	**250**	**200**
GB-5 9-10FT	10/7/2014	9-10	<0.73	<0.14	<5.8	<14
GB-6 8-9FT	10/7/2014	8-9	<3.1	<0.12	<4.9	<12
GB-7 13-14FT	10/7/2014	13-14	<0.67	<0.13	<5.4	<13
GB-8 11-13FT	10/7/2014	11-13	<3.0	**270**	**67**	**45**
GB-8 DUP			<3.1	**840**	**71**	**40**
GB-9 9-10FT	10/8/2014	9-10	<3.1	<0.12	<5.0	<12
GB-10 11-11.5FT	10/8/2014	11-11.5	**12**	**7.1**	**6.2**	**25**
GB-11 11-12FT	10/8/2014	11-12	**1.6**	<0.15	<5.9	<15
GB-12 9-10FT	10/8/2014	9-10	<3.0	<0.12	<4.8	<12
MW-1 10-12FT	10/7/2014	10-12	--	<0.15	<6.0	<15
MW-2 12-13FT	10/8/2014	12-13	**3.6**	<0.16	<6.6	<16
MW-3 16-17FT	10/8/2014	16-17	**2.1**	<0.20	<6.6	<16
MW-4 9-10FT	10/8/2014	9-10	<3.0	<0.12	<4.8	<12
MW-5 9-10FT	10/8/2014	9-10	<3.2	<0.14	<5.1	<13
MW-6 11-12FT	10/8/2014	11-12	**2.2**	<0.16	<6.2	<15
MW-7 14-15FT	10/8/2014	14-15	**1.8**	<0.15	<6.0	<15
MW-7 9-10FT	10/8/2014	9-10	<2.9	**2.7**	**66**	<11
MW-8 14-15FT	10/8/2014	14-15	**2.1**	<0.15	<6.1	<15

Table 1
Total Petroleum Hydrocarbons and Lead Results - Soil and Sediment
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	Sample Depth (feet)	Total Lead[2] (mg/kg)	Gasoline-Range Hydrocarbons[3] (mg/kg)	Diesel-Range Hydrocarbons[4] (mg/kg)	Oil-Range Hydrocarbons[4] (mg/kg)
UST Samples						
UST-01 5.5FT	10/7/2014	5.5	**56**	**280**	**580**	**330**
UST-02 6.5FT	10/7/2014	6.5	**31**	**790**	**100**	**71**
UST-03 6.25FT	10/7/2014	6.25	**16**	**12**	**6.2**	**27**
UST-04 4.5FT	10/7/2014	4.5	--	<0.12	<4.8	<12
SOIL STOCKPILE	10/8/2014	--	**28**	**18**	**41**	**160**
Model Toxics Contral Act - Method A Cleanup Values						
			250	100	2,000	2,000
Terrestrial Ecological Screening Values[5]						
			220	200	460	460
Sediment Cleanup Objectives[6]						
			360	340	3,600	3,600

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

[2]Analyzed by EPA 6000 Series Methods

[3]Analyzed by NWTPH-Gx Methods

[4]Analyzed by NWTPH-Dx Methods

[5]MTCA Table 749-2

[6]WAC 173-204

EPA = Environmental Protection Agency

bgs = below ground surface

mg/kg = milligrams per kilogram

Bold indicates analyte detection

-- = not analyzed

<0.57 = analyte not detected above reporting limit

Shading - conentration exceeds MTCA Method A Cleanup Values or Terrestrial Ecological Receptor Screening Values

Table 2
Volatile Organic Compound Results - Soil and Sediment
BIA Signal Peak Ranger Station

Sample Identification	Sample Depth (feet)	Date Sampled	Acetone	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	2-Butanone (MEK)	Naphthalene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes, Total
VOCs by EPA Method 8260B (mg/kg)[1]																	
Sediment Samples																	
CREEK-SED-01	0-0.5	10/6/2014	**0.19**	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	**0.0100**	<0.0053	<0.0011	<0.0011	<0.0011	<0.0011	<0.0032
CREEK-SED 02	0-0.5	10/6/2014	**0.68**	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	**0.18**	**0.0400**	<0.011	<0.0021	<0.0021	<0.0021	<0.0021	<0.0064
CREEK-SED-03	0-0.5	10/6/2014	<0.12	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.025	<0.012	<0.0025	<0.0025	<0.0025	<0.0025	<0.0074
Soil Boring and Monitoring Well Samples																	
GB-2 5-6FT	5-6	10/6/2014	<1.3	<0.026	**0.98**	**0.68**	**0.061**	**0.78**	**0.57**	**1.3**	<0.26	**0.95**	**1.4**	**0.77**	**0.85**	**3.9**	**1.4**
GB-3 7.5-9FT	7.5-9	10/7/2014	<1.4	<0.027	**0.18**	**0.28**	<0.027	<0.027	**0.075**	**0.055**	<0.27	**0.62**	**0.041**	**1.0**	**0.099**	<0.027	<0.081
GB-3 DUP		10/7/2014	<1.2	<0.024	**0.18**	**0.24**	<0.024	<0.024	**0.069**	**0.049**	<0.24	**0.73**	**0.05**	**0.87**	**0.093**	<0.024	<0.071
GB-4 9-10FT	9-10	10/7/2014	<1.6	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.33	<0.16	<0.033	**0.054**	<0.033	<0.033	<0.099
GB-8 11-13FT	11-13	10/7/2014	<12	<0.24	**0.24**	<0.24	<0.24	<0.24	<0.24	**0.28**	<2.4	<1.2	<0.24	<0.24	<0.24	**0.34**	<0.71
GB-8 DUP		10/7/2014	<12	<0.25	**0.74**	**0.4**	<0.25	<0.25	<0.25	**0.78**	<2.5	<1.2	**0.35**	**0.44**	<0.25	**0.95**	<0.75
MW-7 14-15FT	14-15	10/8/2014	<0.075	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.015	<0.0075	<0.0015	<0.0015	<0.0015	<0.0015	<0.0045
MW-7 9-10FT	9-10	10/8/2014	<0.074	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.015	<0.0074	<0.0015	<0.0015	<0.0015	<0.0015	<0.0045
UST Samples																	
UST-01 5.5FT	5.5	10/7/2014	<1.3	<0.025	**1.1**	**0.14**	**0.037**	**0.068**	**0.035**	**0.19**	<0.25	**0.72**	**0.19**	**1.6**	**0.2**	**0.53**	**0.25**
UST-02 6.5FT	6.5	10/7/2014	<2.4	<0.048	**1.3**	**0.19**	<0.048	**0.62**	**0.24**	**0.25**	<0.48	**4.1**	**0.82**	**4.9**	**1.2**	**3.4**	**1.6**
UST-03 6.25FT	6.25	10/7/2014	<0.064	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	**0.0028**	<0.013	**0.011**	<0.0013	**0.0028**	**0.0059**	**0.0084**	<0.0039
SOIL STOCKPILE	--	10/8/2014	<0.080	**0.0025**	**0.0076**	**0.0022**	<0.0016	**0.0064**	**0.0024**	**0.0046**	<0.016	<0.0080	**0.0064**	**0.037**	**0.011**	**0.027**	**0.04**
Model Toxics Control Act - Method A and B Cleanup Values																	
			72,000	0.03	4,000	8,000	8,000	6.0	--	--	--	5.0	8,000	--	--	80	9.0

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

MTCA Method A and B values are only shown for detected compounds. No Ecological Screening Values are available for detected compounds.

EPA = Environmental Protection Agency

bgs = below ground surface

mg/kg = milligrams per kilogram

Bold indicates analyte detection

-- = not analyzed or not available

<0.57 = analyte not detected above reporting limit

Table 2
Volatile Organic Compound Results - Soil and Sediment
BIA Signal Peak Ranger Station

Sample Identification	Sample Depth (feet)	Date Sampled	Acrylonitrile	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	2-Chloroethyl vinyl ether	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene
VOCs by EPA Method 8260B (mg/kg)[1]																					
Sediment Samples																					
CREEK-SED-01	0-0.5	10/6/2014	<0.011	<0.0011	<0.0011	<0.0011	<0.0053	<0.0011	<0.0011	<0.0011	<0.0053	<0.053	<0.0053	<0.0027	<0.0011	<0.0011	<0.0053	<0.0011	<0.0011	<0.0011	<0.0011
CREEK-SED 02	0-0.5	10/6/2014	<0.021	<0.0021	<0.0021	<0.0021	<0.011	<0.0021	<0.0021	<0.0021	<0.011	<0.11	<0.011	<0.0053	<0.0021	<0.0021	<0.011	<0.0021	<0.0021	<0.0021	<0.0021
CREEK-SED-03	0-0.5	10/6/2014	<0.025	<0.0025	<0.0025	<0.0025	<0.012	<0.0025	<0.0025	<0.0025	<0.012	<0.12	<0.012	<0.0062	<0.0025	<0.0025	<0.012	<0.0025	<0.0025	<0.0025	<0.0025
Soil Boring and Monitoring Well Samples																					
GB-2 5-6FT	5-6	10/6/2014	<0.26	<0.026	<0.026	<0.026	<0.13	<0.026	<0.026	<0.026	<0.13	<1.3	<0.13	<0.065	<0.026	<0.026	<0.13	<0.026	<0.026	<0.026	<0.026
GB-3 7.5-9FT	7.5-9	10/7/2014	<0.27	<0.027	<0.027	<0.027	<0.14	<0.027	<0.027	<0.027	<0.14	<1.4	<0.14	<0.068	<0.027	<0.027	<0.14	<0.027	<0.027	<0.027	<0.027
GB-3 DUP		10/7/2014	<0.24	<0.024	<0.024	<0.024	<0.12	<0.024	<0.024	<0.024	<0.12	<1.2	<0.12	<0.060	<0.024	<0.024	<0.12	<0.024	<0.024	<0.024	<0.024
GB-4 9-10FT	9-10	10/7/2014	<0.33	<0.033	<0.033	<0.033	<0.16	<0.033	<0.033	<0.033	<0.16	<1.6	<0.16	<0.082	<0.033	<0.033	<0.16	<0.033	<0.033	<0.033	<0.033
GB-8 11-13FT	11-13	10/7/2014	<2.4	<0.24	<0.24	<0.24	<1.2	<0.24	<0.24	<0.24	<1.2	<12.	<1.2	<0.59	<0.24	<0.24	<1.2	<0.24	<0.24	<0.24	<0.24
GB-8 DUP		10/7/2014	<2.5	<0.25	<0.25	<0.25	<1.2	<0.25	<0.25	<0.25	<1.2	<12.	<1.2	<0.63	<0.25	<0.25	<1.2	<0.25	<0.25	<0.25	<0.25
MW-7 14-15FT	14-15	10/8/2014	<0.015	<0.0015	<0.0015	<0.0015	<0.0075	<0.0015	<0.0015	<0.0015	<0.0075	<0.075	<0.0075	<0.0038	<0.0015	<0.0015	<0.0075	<0.0015	<0.0015	<0.0015	<0.0015
MW-7 9-10FT	9-10	10/8/2014	<0.015	<0.0015	<0.0015	<0.0015	<0.0074	<0.0015	<0.0015	<0.0015	<0.0074	<0.074	<0.0074	<0.0037	<0.0015	<0.0015	<0.0074	<0.0015	<0.0015	<0.0015	<0.0015
UST Samples																					
UST-01 5.5FT	5.5	10/7/2014	<0.25	<0.025	<0.025	<0.025	<0.13	<0.025	<0.025	<0.025	<0.13	<1.3	<0.13	<0.063	<0.025	<0.025	<0.13	<0.025	<0.025	<0.025	<0.025
UST-02 6.5FT	6.5	10/7/2014	<0.48	<0.048	<0.048	<0.048	<0.24	<0.048	<0.048	<0.048	<0.24	<2.4	<0.24	<0.12	<0.048	<0.048	<0.24	<0.048	<0.048	<0.048	<0.048
UST-03 6.25FT	6.25	10/7/2014	<0.013	<0.0013	<0.0013	<0.0013	<0.0064	<0.0013	<0.0013	<0.0013	<0.0064	<0.064	<0.0064	<0.0032	<0.0013	<0.0013	<0.0064	<0.0013	<0.0013	<0.0013	<0.0013
SOIL STOCKPILE	--	10/8/2014	<0.016	<0.0016	<0.0016	<0.0016	<0.0080	<0.0016	<0.0016	<0.0016	<0.0080	<0.080	<0.0080	<0.0040	<0.0016	<0.0016	<0.0080	<0.0016	<0.0016	<0.0016	<0.0016
Model Toxics Control Act - Method A and B Cleanup Values																					

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

MTCA Method A and B values are only shown for detected compounds. No Ecological Screening Values are available for detected compounds.

EPA = Environmental Protection Agency

bgs = below ground surface

mg/kg = milligrams per kilogram

Bold indicates analyte detection

-- = not analyzed or not available

<0.57 = analyte not detected above reporting limit

Table 2
Volatile Organic Compound Results - Soil and Sediment
BIA Signal Peak Ranger Station

Sample Identification	Sample Depth (feet)	Date Sampled	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,1-Dichloropropene	1,3-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	2,2-Dichloropropane	Di-isopropyl ether	Hexachloro-1,3-butadiene	Methylene Chloride	4-Methyl-2-pentanone (MIBK)	Methyl tert-butyl ether
VOCs by EPA Method 8260B (mg/kg)[1]																				
Sediment Samples																				
CREEK-SED-01	0-0.5	10/6/2014	<0.0011	<0.0053	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0053	<0.011	<0.0011
CREEK-SED 02	0-0.5	10/6/2014	<0.0021	<0.011	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.011	<0.021	<0.0021
CREEK-SED-03	0-0.5	10/6/2014	<0.0025	<0.012	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.012	<0.025	<0.0025
Soil Boring and Monitoring Well Samples																				
GB-2 5-6FT	5-6	10/6/2014	<0.026	<0.13	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.13	<0.26	<0.026
GB-3 7.5-9FT	7.5-9	10/7/2014	<0.027	<0.14	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.14	<0.27	<0.027
GB-3 DUP		10/7/2014	<0.024	<0.12	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.12	<0.24	<0.024
GB-4 9-10FT	9-10	10/7/2014	<0.033	<0.16	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.16	<0.33	<0.033
GB-8 11-13FT	11-13	10/7/2014	<0.24	<1.2	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<1.2	<2.4	<0.24
GB-8 DUP		10/7/2014	<0.25	<1.2	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<1.2	<2.5	<0.25
MW-7 14-15FT	14-15	10/8/2014	<0.0015	<0.0075	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0075	<0.015	<0.0015
MW-7 9-10FT	9-10	10/8/2014	<0.0015	<0.0074	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0074	<0.015	<0.0015
UST Samples																				
UST-01 5.5FT	5.5	10/7/2014	<0.025	<0.13	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.13	<0.25	<0.025
UST-02 6.5FT	6.5	10/7/2014	<0.048	<0.24	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.24	<0.48	<0.048
UST-03 6.25FT	6.25	10/7/2014	<0.0013	<0.0064	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0064	<0.013	<0.0013
SOIL STOCKPILE	--	10/8/2014	<0.0016	<0.0080	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0080	<0.016	<0.0016
Model Toxics Control Act - Method A and B Cleanup Values																				

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

MTCA Method A and B values are only shown for detected compounds. No Ecological Screening Values are available for detected compounds.

EPA = Environmental Protection Agency

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Table 2
Volatile Organic Compound Results - Soil and Sediment
BIA Signal Peak Ranger Station

Sample Identification	Sample Depth (feet)	Date Sampled	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichlorotrifluoroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl chloride
VOCs by EPA Method 8260B (mg/kg)[1]																
Sediment Samples																
CREEK-SED-01	0-0.5	10/6/2014	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0053	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0053	<0.0027	<0.0011
CREEK-SED 02	0-0.5	10/6/2014	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.011	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.011	<0.0053	<0.0021
CREEK-SED-03	0-0.5	10/6/2014	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.012	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.012	<0.0062	<0.0025
Soil Boring and Monitoring Well Samples																
GB-2 5-6FT	5-6	10/6/2014	<0.026	<0.026	<0.026	<0.026	<0.026	<0.13	<0.026	<0.026	<0.026	<0.026	<0.026	<0.13	<0.065	<0.026
GB-3 7.5-9FT	7.5-9	10/7/2014	<0.027	<0.027	<0.027	<0.027	<0.027	<0.14	<0.027	<0.027	<0.027	<0.027	<0.027	<0.14	<0.068	<0.027
GB-3 DUP		10/7/2014	<0.024	<0.024	<0.024	<0.024	<0.024	<0.12	<0.024	<0.024	<0.024	<0.024	<0.024	<0.12	<0.060	<0.024
GB-4 9-10FT	9-10	10/7/2014	<0.033	<0.033	<0.033	<0.033	<0.033	<0.16	<0.033	<0.033	<0.033	<0.033	<0.033	<0.16	<0.082	<0.033
GB-8 11-13FT	11-13	10/7/2014	<0.24	<0.24	<0.24	<0.24	<0.24	<1.2	<0.24	<0.24	<0.24	<0.24	<0.24	<1.2	<0.59	<0.24
GB-8 DUP		10/7/2014	<0.25	<0.25	<0.25	<0.25	<0.25	<1.2	<0.25	<0.25	<0.25	<0.25	<0.25	<1.2	<0.63	<0.25
MW-7 14-15FT	14-15	10/8/2014	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0075	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0075	<0.0038	<0.0015
MW-7 9-10FT	9-10	10/8/2014	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0074	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0074	<0.0037	<0.0015
UST Samples																
UST-01 5.5FT	5.5	10/7/2014	<0.025	<0.025	<0.025	<0.025	<0.025	<0.13	<0.025	<0.025	<0.025	<0.025	<0.025	<0.13	<0.063	<0.025
UST-02 6.5FT	6.5	10/7/2014	<0.048	<0.048	<0.048	<0.048	<0.048	<0.24	<0.048	<0.048	<0.048	<0.048	<0.048	<0.24	<0.12	<0.048
UST-03 6.25FT	6.25	10/7/2014	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0064	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0064	<0.0032	<0.0013
SOIL STOCKPILE	--	10/8/2014	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0080	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0080	<0.0040	<0.0016
Model Toxics Control Act - Method A and B Cleanup Values																

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

MTCA Method A and B values are only shown for detected compounds. No Ecological Screening Values are available for detected compounds.

EPA = Environmental Protection Agency

bgs = below ground surface

mg/kg = milligrams per kilogram

Bold indicates analyte detection

-- = not analyzed or not available

<0.57 = analyte not detected above reporting limit

Table 3
Polynuclear Aromatic Hydrocarbon Results - Soil and Sediment
BIA Signal Peak Ranger Station

			Non-Carcinogenic PAHs											Carcinogenic PAHs								
Sample Name	Sample Depth (feet)	Date Sampled	Anthracene	Acenaphthene	Acenaphthylene	Benzo(g,h,i)perylene	2-Chloronaphthalene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	TEQ
PAHs by EPA Method 8270D-SIM (mg/kg)[1]																						
Sediment Samples																						
CREEK-SED-01	0-0.5	10/6/2014	<0.0064	<0.0064	<0.0064	<0.0064	<0.021	<0.0064	<0.0064	<0.021	<0.0064	<0.0064	<0.021	<0.021	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	<0.0064	0.004832
CREEK-SED 02	0-0.5	10/6/2014	<0.013	<0.013	<0.013	<0.013	<0.042	<0.013	<0.013	<0.042	<0.013	<0.013	<0.042	<0.042	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.009815
CREEK-SED-03	0-0.5	10/6/2014	<0.0080	<0.0080	<0.0080	<0.0080	<0.027	<0.0080	<0.0080	<0.027	<0.0080	<0.0080	<0.027	<0.027	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	0.00604
Soil Boring and Monitoring Well Samples																						
GB-2 5-6FT	5-6	10/6/2014	**1.4**	**1.8**	**0.46**	<0.14	<0.46	<0.14	**2.4**	**5.2**	**6.0**	**0.5**	**7.9**	**7.7**	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.1057
GB-3 7.5-9FT	7.5-9	10/7/2014	**0.82**	**0.91**	**0.21**	<0.14	<0.46	<0.14	**1.2**	**0.9**	**2.8**	**0.28**	**2.8**	**2.6**	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.1057
GB-3 DUP		10/7/2014	**0.87**	**1.0**	**0.24**	<0.14	<0.47	<0.14	**1.3**	**1.0**	**3.2**	**0.3**	**3.2**	**3.0**	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.1057
GB-4 9-10FT	9-10	10/7/2014	<0.16	<0.16	<0.16	<0.16	<0.53	<0.16	**0.18**	<0.53	**0.4**	<0.16	**0.68**	**0.76**	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	0.1208
GB-8 11-13FT	11-13	10/7/2014	<0.14	<0.14	<0.14	<0.14	<0.48	<0.14	<0.14	<0.48	<0.14	<0.14	<0.48	<0.48	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.1057
GB-8 DUP		10/7/2014	<0.15	<0.15	<0.15	<0.15	<0.50	<0.15	<0.15	<0.50	<0.15	<0.15	<0.50	<0.50	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.11325
MW-7 9-10FT	14-15	10/8/2014	<0.0069	**0.0098**	<0.0069	<0.0069	<0.023	**0.074**	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	**0.014**	**0.1**	<0.0069	<0.0069	<0.023	0.0167245
MW-7 14-15FT	14-15	10/8/2014	<0.0090	<0.0090	<0.0090	<0.0090	<0.030	<0.030	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.030	<0.0090	<0.0090	<0.030	0.008895
UST Samples																						
UST-01 5.5FT	5.5	10/7/2014	**0.07**	**0.028**	<0.0076	<0.0076	<0.025	**0.96**	**0.019**	<0.0076	**0.024**	<0.0076	**0.01**	**0.061**	<0.0076	**0.18**	**0.052**	**1.2**	**0.16**	**0.12**	**3.2**	0.63918
UST-02 6.5FT	6.5	10/7/2014	**0.054**	**0.044**	**0.011**	<0.0072	<0.024	**0.76**	**0.014**	**0.014**	**0.022**	**0.0083**	**0.009**	**0.052**	<0.0072	**0.13**	**0.062**	**1.0**	**0.18**	**0.09**	**2.2**	0.46736
UST-03 6.25FT	6.25	10/7/2014	**0.013**	**0.05**	<0.0078	<0.0078	<0.026	**0.057**	**0.013**	**0.0089**	**0.014**	**0.011**	<0.0078	**0.012**	<0.0078	**0.041**	**0.041**	**0.16**	**0.11**	**0.041**	**0.096**	0.07629
SOIL STOCKPILE	--	10/8/2014	**0.017**	**0.048**	<0.0072	<0.0072	<0.024	**0.24**	**0.022**	**0.013**	**0.027**	**0.0083**	<0.0072	**0.02**	<0.0072	**0.082**	**0.042**	**0.36**	**0.16**	**0.071**	**0.37**	0.16826
Model Toxics Contral Act - Method A and B Cleanup Values																						
			24,000	4,800	--	--	6,400	3,200	3,200	34.5	--	2,400	--	320	1.37	0.137	1.37	1.37	137	0.137	1.37	0.137
													Toxicity Equivalency Factor		0.1	1	0.1	0.1	0.01	0.1	0.1	--
Terrestrial Ecological Screening Values[2]																						
			--	--	--	--	--	--	--	--	--	--	--	--	--	30	--	--	--	--	--	--

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

[2]MTCA Table 749-2

EPA = Environmental Protection Agency

bgs = below ground surface

mg/kg = milligrams per kilogram

Bold indicates analyte detection

TEQ = toxicity equivalency quotient. The TEQ was calculated by multiplying the detected concentration (or 1/2 the method reporting limit) of carcinogenic PAHs by their respective toxicity equivalency factor (TEF). TEQ was compared to cleanup level for benzo(a)pyrene

-- = not analyzed

<0.57 = analyte not detected above reporting limit

Shading - conentration exceeds MTCA Method A Cleanup Values

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Table 4
Total Petroleum Hydrocarbon and Dissolved Lead Results - Surface and Groundwater
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	Dissolved Lead[2] (µg/L)	Gasoline-Range Hydrocarbons[3] (µg/L)	Diesel-Range Hydrocarbons[4] (µg/L)	Oil-Range Hydrocarbons[4] (µg/L)
Creek Samples					
CREEK-SW-01	10/6/2014	<1.0	<100	<100	<250
CREEK SW-02	10/6/2014	<1.0	<100	<100	<250
CREEK-SW-03	10/6/2014	<1.0	<100	<100	<250
Boring Samples					
GB-1 GW	10/6/2014	<1.0	<100	**200**	<250
GB-2 GW	10/6/2014	<1.0	**310**	**610**	<250
GB-4 GW	10/7/2014	<1.0	**410**	**990**	**380**
GB-6-GW	10/7/2014	<1.0	<100	<100	<250
GB-7-GW	10/7/2014	<1.0	<100	<100	<250
GB-10-GW	10/8/2014	<1.0	<100	<100	<250
GB-11-GW	10/8/2014	<1.0	**190**	**880**	<250
GB-12-GW	10/8/2014	<1.0	<100	**530**	<250
Monitoring Well Samples					
MW2-GW	10/17/2014	<1.0	<100	**270**	<250
	01/30/2015	**5.0**	<100	**170**	<250
	04/29/2015	<5.0	<100	**230**	<250
MW3-GW	10/17/2014	<1.0	<100	<100	<250
	01/30/2015	<5.0	<100	<100	<250
	04/29/2015	<5.0	<100	<100	<250
MW4-GW	10/17/2014	<1.0	**280**	**100**	<250
	01/29/2015	<5.0	**270**	<100	<250
	04/29/2015	<5.0	<100	<100	<250
MW5-GW	10/17/2014	<1.0	<100	<100	<250
	01/29/2015	<5.0	<100	<100	<250
	04/29/2015	<5.0	<100	<100	<250
MW6-GW	10/17/2014	<1.0	<100	<100	<250
	01/29/2015	**5.2**	<100	<100	<250
	04/29/2015	<5.0	<100	<100	<250
MW7-GW	10/17/2014	**1.1**	**660**	<100	<250
	01/30/2015	<5.0	**340**	<100	<250
		<5.0	**320**	<100	<250
	04/29/2015	<5.0	<100	<100	<250
MW8-GW	10/17/2014	<1.0	<100	**260**	<250
	01/30/2015	**6.4**	<100	**590**	<250
	04/29/2015	<5.0	<100	**420**	<250
		<5.0	<100	**580**	<250

Table 4
Total Petroleum Hydrocarbon and Dissolved Lead Results - Surface and Groundwater
BIA Signal Peak Ranger Station

Quality Assurance Samples					
RINSATE	10/16/2014	<1.0	<100	<100	<250
SOIL RINSATE	10/7/2014	<1.0	<100	<100	<250
Model Toxics Contral Act - Method A Cleanup Values					
		15	1,000	500	500

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

[2]Analyzed by EPA 6000 Series Methods

[3]Analyzed by NWTPH-Gx Methods

[4]Analyzed by NWTPH-Dx Methods

[5]This cleanup value is based on the sum total of the diesel- and oil-range hydrocarbon concentrations

EPA = Environmental Protection Agency

µg/L = micrograms per liter

Bold indicates analyte detection

-- = not analyzed

<0.57 = analyte not detected above reporting limit

Shading - conentration exceeds MTCA Method A Cleanup Values

Table 5
Volatile Organic Compound Results - Surface and Groundwater
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	n-Butylbenzene	sec-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Tetrachloroethene	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Acrolein	Acrylonitrile
VOCs by EPA Method 8260B (µg/L)[1]															
Creek Samples															
CREEK-SW-01	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
CREEK SW-02	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
CREEK-SW-03	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
Boring Samples															
GB-1 GW	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
GB-2 GW	10/6/2014	<1.0	**1.2**	<1.0	**1.2**	<1.0	**20**	**2.2**	<1.0	**20**	**6.2**	**2.3**	<50	<50	<10
GB-4 GW	10/7/2014	**1.6**	**1.8**	**2.5**	**2.1**	**1.1**	**30**	**4.4**	<1.0	**26**	**7.0**	**2.4**	<50	<50	<10
Monitoring Well Samples															
MW-1-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
MW-2-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
MW-3-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
MW-4-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
MW-5-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
MW-6-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
MW-7-GW	10/17/2014	**1.5**	**1.0**	<1.0	<1.0	**1.4**	<5.0	**2.1**	<1.0	**1.2**	<1.0	**4.4**	<50	<50	<10
MW-8-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
DUP-GW		<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
Quality Assurance Samples															
RINSATE (method blank)	10/16/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
SOIL RINSATE	10/7/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK 1	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK 2	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK-01	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK-02	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK-03	10/7/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK-A	10/9/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK-B	10/9/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
TRIP BLANK-C	10/9/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<50	<10
Model Toxics Contral Act - Method A and B Cleanup Values															
		400	800	700	--	--	160	800	5	--	--	--			

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

EPA = U.S. Environmental Protection Agency

RBC = Risk-based concentration

< 0.006 = analyte not detected above reporting limit

µg/L = microgram per liter

Bold indicates analyte detection

MTCA Method A and B values are only shown for detected compounds.

Table 5
Volatile Organic Compound Results - Surface and Groundwater
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	Benzene	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	tert-Butylbenzene	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	2-Chloroethyl vinyl ether	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene	1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	Dibromomethane	1,2-Dichlorobenzene
VOCs by EPA Method 8260B (µg/L)[1]																				
Creek Samples																				
CREEK-SW-01	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
CREEK SW-02	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
CREEK-SW-03	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
Boring Samples																				
GB-1 GW	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
GB-2 GW	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
GB-4 GW	10/7/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
Monitoring Well Samples																				
MW-1-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-2-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-3-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-4-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-5-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-6-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-7-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
MW-8-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
DUP-GW		<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
Quality Assurance Samples																				
RINSATE (method blank)	10/16/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
SOIL RINSATE	10/7/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK 1	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK 2	10/17/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK-01	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK-02	10/6/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK-03	10/7/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK-A	10/9/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK-B	10/9/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
TRIP BLANK-C	10/9/2014	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
Model Toxics Contral Act - Method A and B Cleanup Values																				

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

EPA = U.S. Environmental Protection Agency

RBC = Risk-based concentration

< 0.006 = analyte not detected above reporting limit

µg/L = microgram per liter

Bold indicates analyte detection

MTCA Method A and B values are only shown for detected compounds.

Table 5
Volatile Organic Compound Results - Surface and Groundwater
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,1-Dichloropropene	1,3-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	2,2-Dichloropropane	Di-isopropyl ether	Hexachloro-1,3-butadiene	2-Butanone (MEK)	Methylene Chloride	4-Methyl-2-pentanone (MIBK)
VOCs by EPA Method 8260B (µg/L)[1]																				
Creek Samples																				
CREEK-SW-01	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
CREEK SW-02	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
CREEK-SW-03	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
Boring Samples																				
GB-1 GW	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
GB-2 GW	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
GB-4 GW	10/7/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
Monitoring Well Samples																				
MW-1-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-2-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-3-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-4-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-5-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-6-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-7-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
MW-8-GW	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
DUP-GW		<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
Quality Assurance Samples																				
RINSATE (method blank)	10/16/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
SOIL RINSATE	10/7/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK 1	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK 2	10/17/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK-01	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK-02	10/6/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK-03	10/7/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK-A	10/9/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK-B	10/9/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
TRIP BLANK-C	10/9/2014	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10
Model Toxics Contral Act - Method A and B Cleanup Values																				

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

EPA = U.S. Environmental Protection Agency

RBC = Risk-based concentration

< 0.006 = analyte not detected above reporting limit

µg/L = microgram per liter

Bold indicates analyte detection

MTCA Method A and B values are only shown for detected compounds.

Table 5
Volatile Organic Compound Results - Surface and Groundwater
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	Methyl tert-butyl ether	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichlorotrifluoroethane	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl chloride	Xylenes, Total
VOCs by EPA Method 8260B (µg/L)[1]																
Creek Samples																
CREEK-SW-01	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
CREEK SW-02	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
CREEK-SW-03	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
Boring Samples																
GB-1 GW	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
GB-2 GW	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	5.5
GB-4 GW	10/7/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	6.6
Monitoring Well Samples																
MW-1-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-2-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-3-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-4-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-5-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-6-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-7-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
MW-8-GW	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
DUP-GW		<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
Quality Assurance Samples																
RINSATE (method blank)	10/16/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
SOIL RINSATE	10/7/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK 1	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK 2	10/17/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK-01	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK-02	10/6/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK-03	10/7/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK-A	10/9/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK-B	10/9/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
TRIP BLANK-C	10/9/2014	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<3.0
Model Toxics Contral Act - Method A and B Cleanup Values																

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

EPA = U.S. Environmental Protection Agency

RBC = Risk-based concentration

< 0.006 = analyte not detected above reporting limit

µg/L = microgram per liter

Bold indicates analyte detection

MTCA Method A and B values are only shown for detected compounds.

Table 5
Volatile Organic Compounds - Surface and Groundwater
BIA Signal Peak Ranger Station

Sample Identification	Date Sampled	Acetone	Acrolein	Acrylonitrile	Benzene	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	N-Butylbenzene	Sec-Butylbenzene	Tert-Butylbenzene	Carbon Tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	2-Chloroethyl Vinyl Ether	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene
VOCs by EPA Method 8260B (µg/L)[1]																					
Creek Samples																					
CREEK-SW-01	10/06/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
CREEK SW-02	10/06/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
CREEK-SW-03	10/06/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
Boring Samples																					
GB-1 GW	10/06/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
GB-2 GW	10/06/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	**1.2**	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
GB-4 GW	10/07/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	**1.6**	**1.8**	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
Monitoring Well Samples																					
MW1-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/30/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW2-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/30/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW3-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/30/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW4-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW5-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/28/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW6-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/28/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW7-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	**1.5**	**1.0**	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/30/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
MW8-GW	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	01/30/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
Quality Assurance Samples																					
TRIP BLANK-01	10/06/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK-02		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK-03	10/07/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
SOIL RINSATE		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK-A	10/09/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK-B		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK-C		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
RINSATE	10/16/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK 1	10/17/2014	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK 2		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK	01/30/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK 1	04/29/2015	<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
TRIP BLANK 2		<50	<50	<10	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<2.5	<1.0	<1.0
Model Toxics Contral Act - Method A and B Cleanup Values																					
										400	800										

Notes:
[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee
EPA = U.S. Environmental Protection Agency
RBC = Risk-based concentration
< 0.006 = analyte not detected above reporting limit
µg/L = microgram per liter
Bold indicates analyte detection
MTCA Method A and B values are only shown for detected compounds.

Table 5
Volatile Organic Compounds - Surface and Groundwater
BIA Signal Peak Ranger Station

1,2-Dibromo-3-Chloropropane	1,2-Dibromoethane	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene	1,2-Dichloropropane	1,1-Dichloropropene	1,3-Dichloropropane	Cis-1,3-Dichloropropene	Trans-1,3-Dichloropropene	2,2-Dichloropropane	Di-Isopropyl Ether	Ethylbenzene	Hexachloro-1,3-Butadiene	Isopropylbenzene	P-Isopropyltoluene	2-Butanone (Mek)	Methylene Chloride	4-Methyl-2-Pentanone (Mibk)	Methyl Tert-Butyl Ether	Naphthalene	N-Propylbenzene
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.2**	<1.0	<1.0	<10	<5.0	<10	<1.0	**20**	**2.2**
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**2.5**	<1.0	**2.1**	**1.1**	<10	<5.0	<10	<1.0	**30**	**4.4**
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
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<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<10	<1.0	<5.0	<1.0
																			700		--	--					160	800

Notes:
[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee
EPA = U.S. Environmental Protection Agency
RBC = Risk-based concentration
< 0.006 = analyte not detected above reporting limit
µg/L = microgram per liter
Bold indicates analyte detection
MTCA Method A and B values are only shown for detected compounds.

Table 5
Volatile Organic Compounds - Surface and Groundwater
BIA Signal Peak Ranger Station

Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichlorotrifluoroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride	Xylenes, Total
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	**20**	**6.2**	**2.3**	<1.0	**5.5**
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	**26**	**7.0**	**2.4**	<1.0	**6.6**
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<2.5	<1.0	<1.0	<1.0	<1.0	<3.0
				5									--	--	--		

Notes:
[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee
EPA = U.S. Environmental Protection Agency
RBC = Risk-based concentration
< 0.006 = analyte not detected above reporting limit
µg/L = microgram per liter
Bold indicates analyte detection
MTCA Method A and B values are only shown for detected compounds.

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Table 6
Polynuclear Aromatic Hydrocarbon Results - Surface and Groundwater
BIA Signal Peak Ranger Station

		Non-Carcinogenic PAHs												Carcinogenic PAHs							
Sample Identification	Date Sampled	Anthracene	Acenaphthene	Acenaphthylene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	1-Methylnaphthalene	2-Methylnaphthalene	2-Chloronaphthalene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	TEQ
PAHs by EPA Method 8270C (µg/L) [1]																					
Creek Samples																					
CREEK-SW-01	10/6/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
CREEK SW-02	10/6/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
CREEK-SW-03	10/6/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
Soil Boring Samples																					
GB-1 GW	10/6/2014	<0.050	<0.050	<0.050	<0.050	<0.050	**0.1**	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
GB-2 GW	10/6/2014	**0.12**	**1.4**	**0.4**	<0.050	<0.050	**2.7**	**14**	**2.5**	<0.050	**25**	**27**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
GB-4 GW	10/7/2014	**0.17**	**1.8**	**0.4**	<0.050	<0.050	**3.3**	**19**	**2.8**	**0.073**	**32**	**30**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
Groundwater Samples																					
MW-1-GW	10/17/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW1-GW	10/17/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/30/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW2-GW	10/17/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/30/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW3-GW	10/17/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/30/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW4-GW	10/17/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**0.32**	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW5-GW	10/17/2014	<0.050	**0.12**	<0.050	<0.050	<0.050	**0.16**	<0.25	**0.051**	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/28/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW6-GW	10/17/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/28/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775

Table 6
Polynuclear Aromatic Hydrocarbon Results - Surface and Groundwater
BIA Signal Peak Ranger Station

		Non-Carcinogenic PAHs												Carcinogenic PAHs							
Sample Identification	Date Sampled	Anthracene	Acenaphthene	Acenaphthylene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	1-Methylnaphthalene	2-Methylnaphthalene	2-Chloronaphthalene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	TEQ
PAHs by EPA Method 8270C (µg/L) [1]																					
MW7-GW	10/17/2014	<0.050	**0.064**	<0.050	<0.050	<0.050	**0.054**	**0.94**	<0.050	<0.050	**0.48**	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/30/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
DUP-GW		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/29/2015	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
MW8-GW	10/17/2014	<0.050	**0.38**	**0.068**	<0.050	<0.050	**0.92**	**0.79**	**0.64**	<0.050	<0.25	**0.92**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
DUP-GW		**0.052**	**0.39**	**0.069**	<0.050	<0.050	**0.94**	**0.9**	**0.62**	<0.050	<0.25	**0.67**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	01/30/2015	<0.050	**0.95**	**0.20**	<0.050	<0.050	**1.7**	**7.8**	**1.1**	<0.050	**5.3**	**12**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
	04/29/2015	**0.11**	**0.98**	**0.17**	<0.050	<0.050	**1.8**	**8.9**	**1.1**	<0.050	**6.4**	**10**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
DUP-GW		**0.11**	**0.94**	**0.16**	<0.050	<0.050	**1.7**	**8.9**	**1.1**	<0.050	**6.3**	**10**	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
Quality Assurance Samples																					
RINSATE	10/16/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
SOIL RINSATE	10/7/2014	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.03775
Model Toxics Contral Act - Method A and B Cleanup Values																					
		4,800	960	--	--	640	640	160*	--	480	1.51/160*	32/160*	--	0.12	0.12	0.12	1.2	12	0.012	0.12	0.120
													Toxicity Equivalency Factor	0.1	1	0.1	0.1	0.01	0.1	0.1	--

Notes:

[1]Chemical analytical testing was performed by ESC Lab Sciences of Mt. Juliet, Tennessee

EPA = U.S. Environmental Protection Agency

< 0.006 = analyte not detected above reporting limit

-- = not analyzed or not available

µg/L = microgram per liter

Bold indicates analyte detection

TEQ = toxicity equivalency quotient. The TEQ was calculated by multiplying the detected concentration (or 1/2 the method reporting limit) of carcinogenic PAHs by their respective toxicity equivalency factor (TEF). TEQ was compared to cleanup level for benzo(a)pyrene

* = MTCA Method A cleanup level based on concentration derived using Equation 720-1. This is a total value for naphthalene, 1-methylnaphthalene and 2-methylnaphalene.

Table 7
Comparision of Remedial Options
BIA Signal Peak Ranger Station

Method Type	Remedial Method	Conceptual Description	Benefits	Limitations	Meets MTCA Threshold Requirements (WAC 173-340-360(2)(a))	Permanency	Consideration of Public Concerns	Restoration Time Frame	Implement-ability	Relative Ranking
Passive	Institutional Controls with No Additional Action	An institutional control (some form of restrictive covenant) would be established for the Site to mitigate direct contact exposure to contaminated soil and restrict groundwater removal from the site. In this scenario, there would be no active remedial measures.	- Non-invasive and relatively low cost. - Provides some control on potential exposure to contaminated media.	- Provides no active source control. - Very long restoration time frame. - Not likely to satisfy a "No Further Action" regulatory condition.	No	No	No	Very long (greater than 20 years)	No construction	Low
Passive	Monitored Natural Attenuation	Implement study to assess whether natural attenuation is occurring and, if so, use monitored natural attenuation as remedy. Would likely necessitate some level of risk assessment to demonstrate long-term risk.	- Non-invasive and relatively low monitoring cost. - Additional monitoring wells may be necessary for plume monitoring.	- Would need monitoring and testing program to establish that natural attenuation is actually occurring. - Provides no active source control. - Very long restoration time frame without enhancement. - Could possibly satisfy regulatory concerns, but generally is not preferred.	Yes	No	Yes	Very long (greater than 20 years)	No construction	Low
Active	Chemical Oxidation	Chemical oxidation compound (such as ORC) placed via injection wells (or trenches) throughout the former UST area. Liquid chemical oxygen compound injected from ground surface through temporary injection points or wells; alternatively liquid or powder chemical oxygen compound can be placed in trenches at and below groundwater table. Injections occur in three one-week events over a 6 to 8 week time interval.	- Following initial iterations of injection / treatment, no system maintenance, noise, or infrastructure compared to the other active source control options. - Treats vadose and saturated zone soil (liquid injection). - Can be completed in stages. - Trenches provide advantage of getting more treatment medium into the ground. - Once placed, the area can be left for a couple of years to treat.	- Groundwater flow direction variable and groundwater table is flat; groundwater flow through/across compound may be limited. - Injection of chemical oxygen compound or placing the compound into trenches using this technology may be better suited to sites where biodegradation is the primary treatment method. - Not as effective as air sparging because no "stripping" of volatile compounds occurs. - Trenches would require shoring and dewatering. - Treatment duration is uncertain. - In-situ technologies provide less certainty of treatment throughought impacted area compared to excavation. - Pilot testing (small-scale) needed to verify implementability. - Treatment of soil and groundwater contamination under building 407 difficult.	Yes	Yes	Yes	Moderate to long (on the order of ~3 to 5 years)	Less intensive	Medium
Active	Soil Excavation with off-site treatment/disposal	Demolition of Building 407 with excavation of contaminated soil above and below the water table	- Direct source removal by excavation would improve downgradient water quality in the shortest time frame and reduce long-term liabilities. - Higher probability of site closure.	- Would severely impact this location during the short period of soil excavation activities (approximately 1 month). - Other remedial technologies may be required if all contaminated soil cannot be excavated due to access constraints.	Yes	Yes	Yes	This method provides the shortest restoration time frame (approximately 1 year)	Most Intensive	High - Preferred Remedy
Active	Soil Excavation with off-site treatment/disposal	Demolition of Building 407 with excavation of contaminated soil above the water table	- Direct source removal by excavation would improve downgradient water quality in the shortest time frame and reduce long-term liabilities. - Higher probability of site closure.	- Would severely impact this location during the short period of soil excavation activities (approximately 1 month). - Other remedial technologies may be required if all contaminated soil cannot be excavated due to access constraints. - Contaminated soil below the water table would be left in place.	Yes	Yes	Yes	This method provides a shorter restoration time frame (approximately 2 to 3 years)	Most Intensive	High -
Active	Soil Excavation with on-site soil treatment and re-use	Excavation of contaminated soil above and below the water table	- Potential cost savings for on-site treatment of soil by land-farming / aeration of excavation contaminated soil - Soil available for re-use - Higher probability of site closure.	Same as above with the additional considerations: - Large soil volume will require large area of land for land-farming. - Active tilling or other maintenance to aerate soil. - Difficult to aerate in winter. - If treated soil is to be re-used in excavation (?), the excavation would need to remain open. - Lower relative cost because soil treated on site.	Yes	Yes	Yes	This method provides the shortest restoration time frame (approximately 1 year)	Most Intensive	Medium
Active	Vertical Air Sparging/Vapor Extraction System	Vertical air sparging wells throughout former UST area oriented in grid fashion (spaced 10 to 20 feet on center) to treat volatile compounds in saturated soil and groundwater. Some form of vapor extraction and vapor treatment (horizontal or vertical system) would be needed to collect and treat volatile compounds generated by sparging.	- Proven and cost-effective technologies. - Injection of sparging air will treat PCS. - Provides source control and addresses downgradient impacts.	- Relatively high installation costs. - Approximately one-month installation time-frame. - Requires system operation and maintenance for 1 year or more. - Groundwater monitoring for 1 year after system shutdown and confirmation soil sampling. - Some uncertainty of complete source removal. - Decommissioning time and costs at end of project.	Yes	Yes	Yes	Moderate (in the range of 2 to 3 years)	Moderately intensive	Medium

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FIGURES

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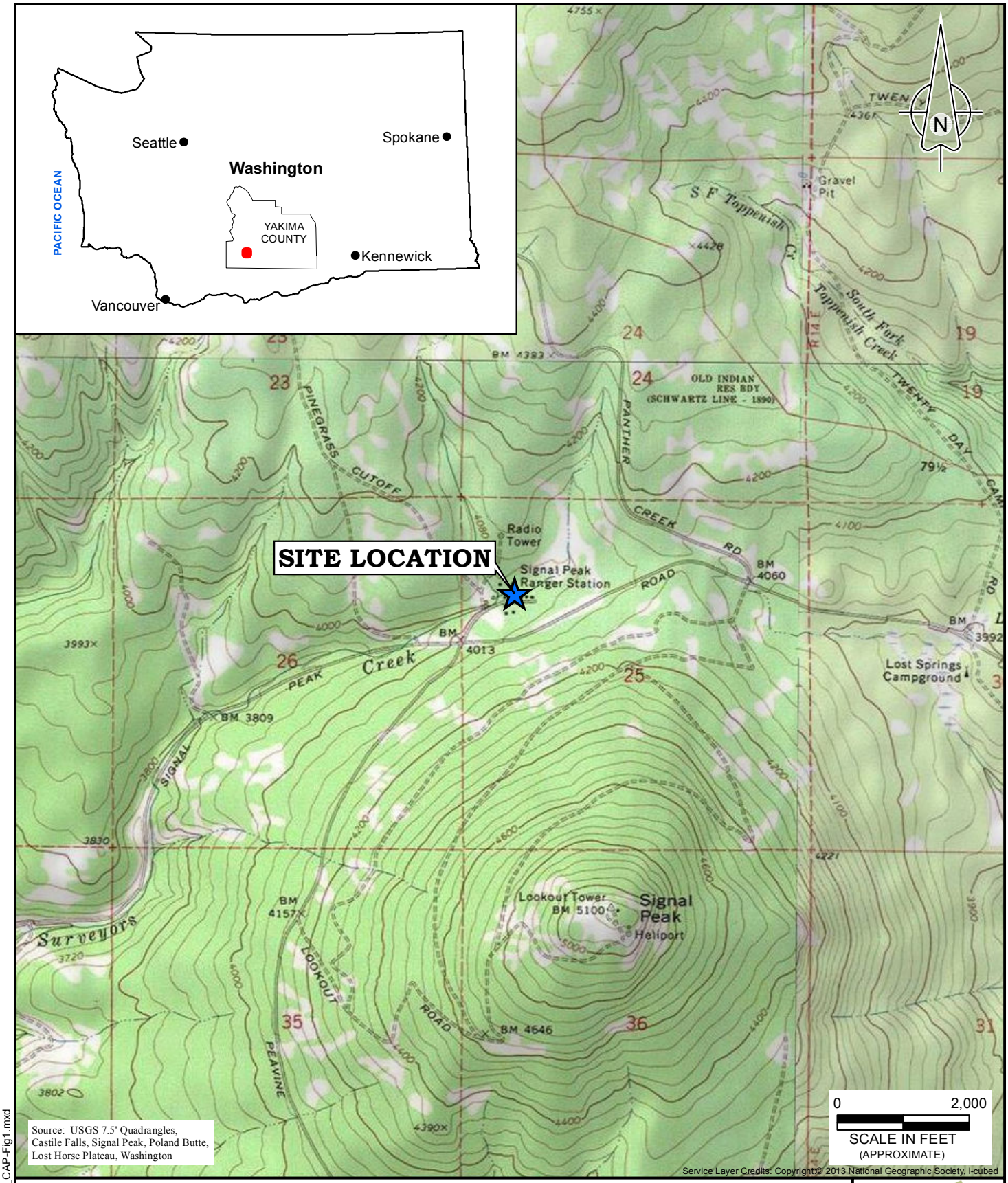

BIA SIGNAL PEAK RANGER STATION - CORRECTIVE ACTION PLAN
YAKIMA COUNTY, WASHINGTON

Ahtna Environmental Inc.

STATE AND VICINITY MAP

Project Number: 05051	Figure Number:
Date: May 2015	1
Drafted By: POINTMAP/JS	

File: BIA_SignalPeak_Ahtna_CAP-Fig1.mxd

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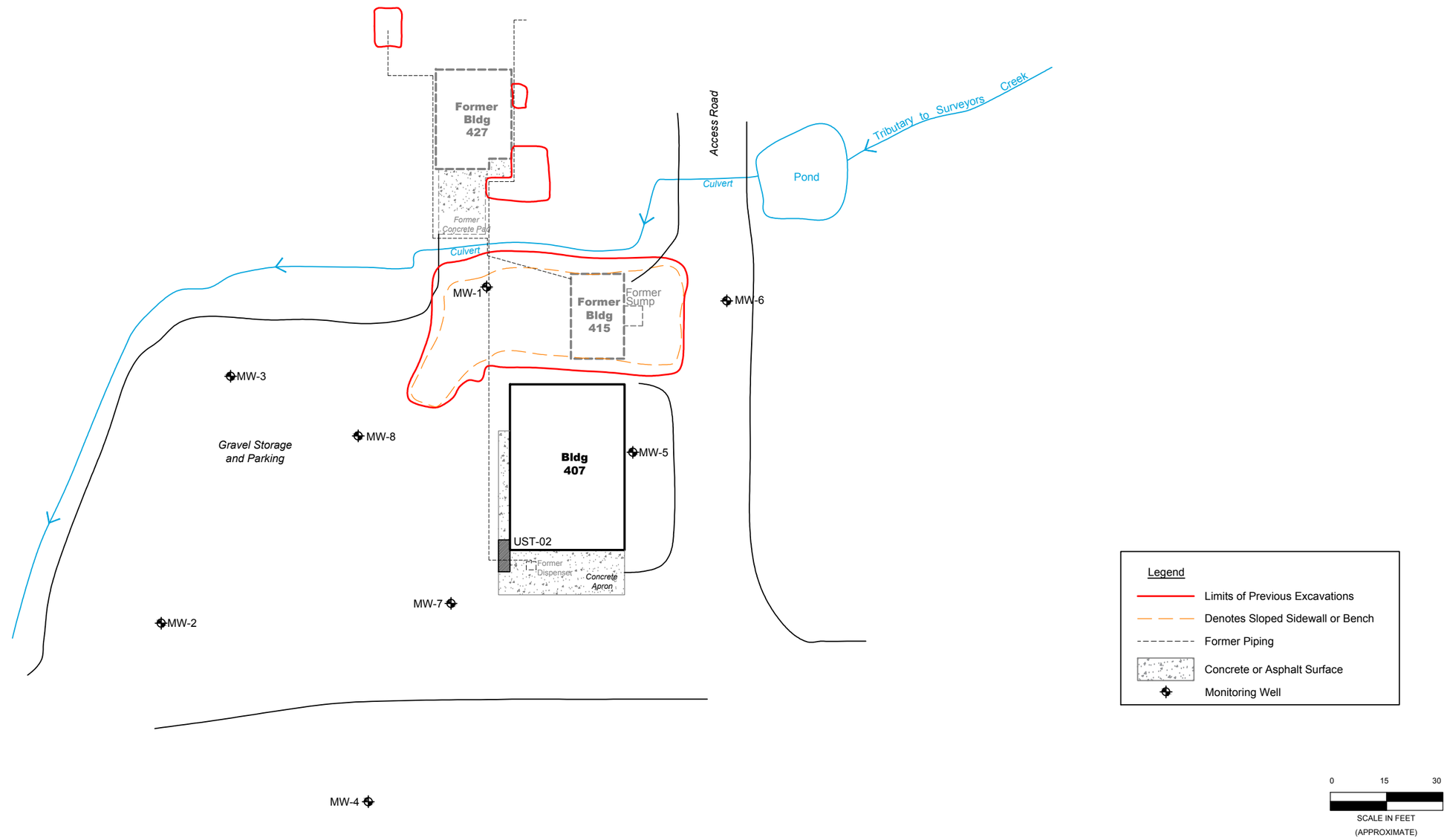

Notes:
1. All locations are approximate.

Source:
1. Grant Associates, Inc. September 2008.

BIA SIGNAL PEAK RANGER STATION - CORRECTIVE ACTION PLAN
YAKIMA COUNTY, WASHINGTON

SITE PLAN

Ahtna Environmental Inc.

Project Number: 05051	Figure Number: 2
Date: May 2015	
Drafted By: POINTMAP/JS	

File: BIA_SignalPeak_Ahtna_CAP.dwg

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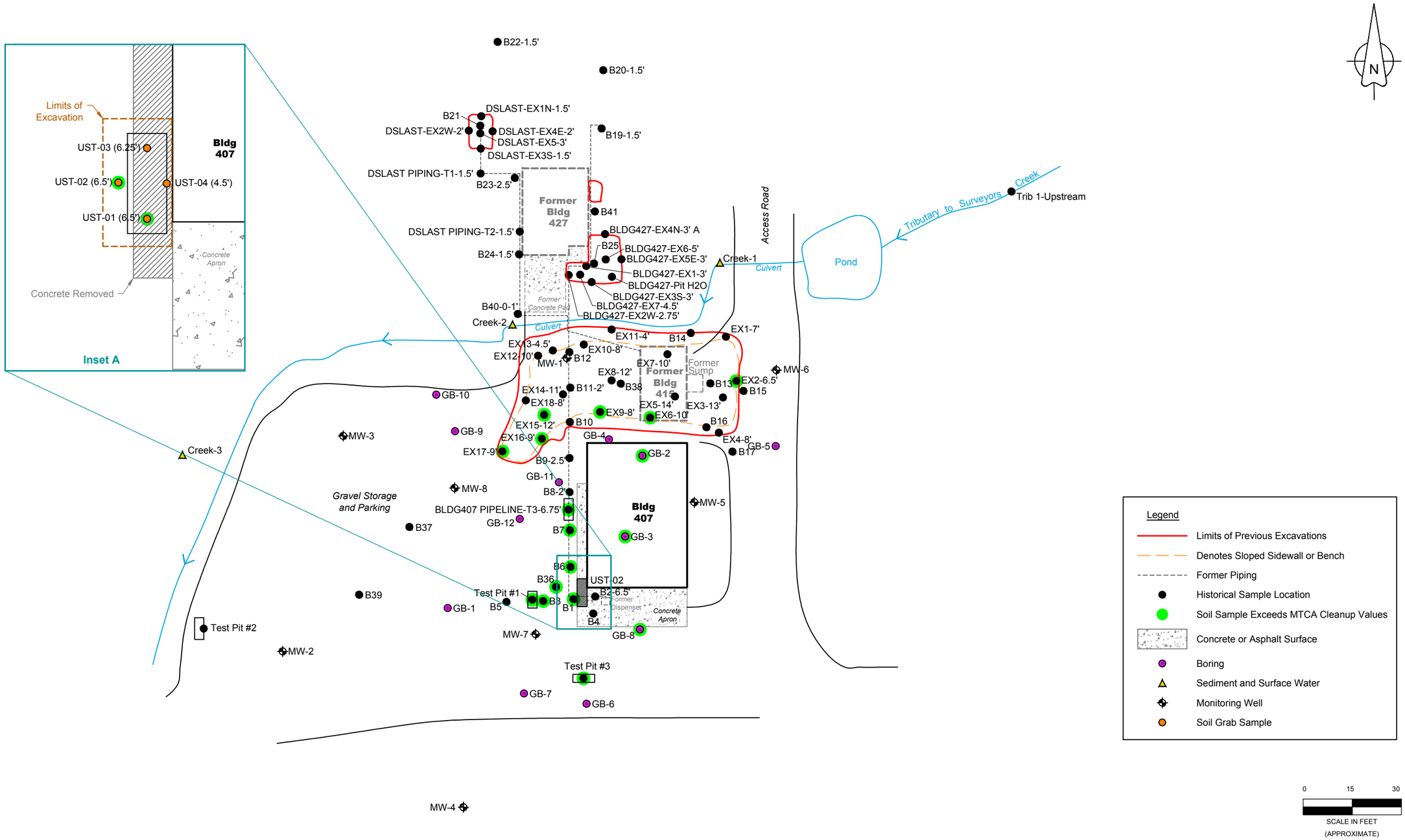

Notes:
1. All locations are approximate.

Source:
1. Grant Associates, Inc. September 2008.

BIA SIGNAL PEAK RANGER STATION - CORRECTIVE ACTION PLAN
YAKIMA COUNTY, WASHINGTON

LOCATIONS WHERE HISTORICAL SOIL ANALYTICAL RESULTS EXCEED MTCA METHOD A CLEANUP LEVELS

Ahtna Environmental Inc.

Project Number: 05051
Date: July 2015
Drafted By: POINTMAP/JS

Figure Number: 3

File: BIA_SignalPeak_Ahtna_CAP.dwg

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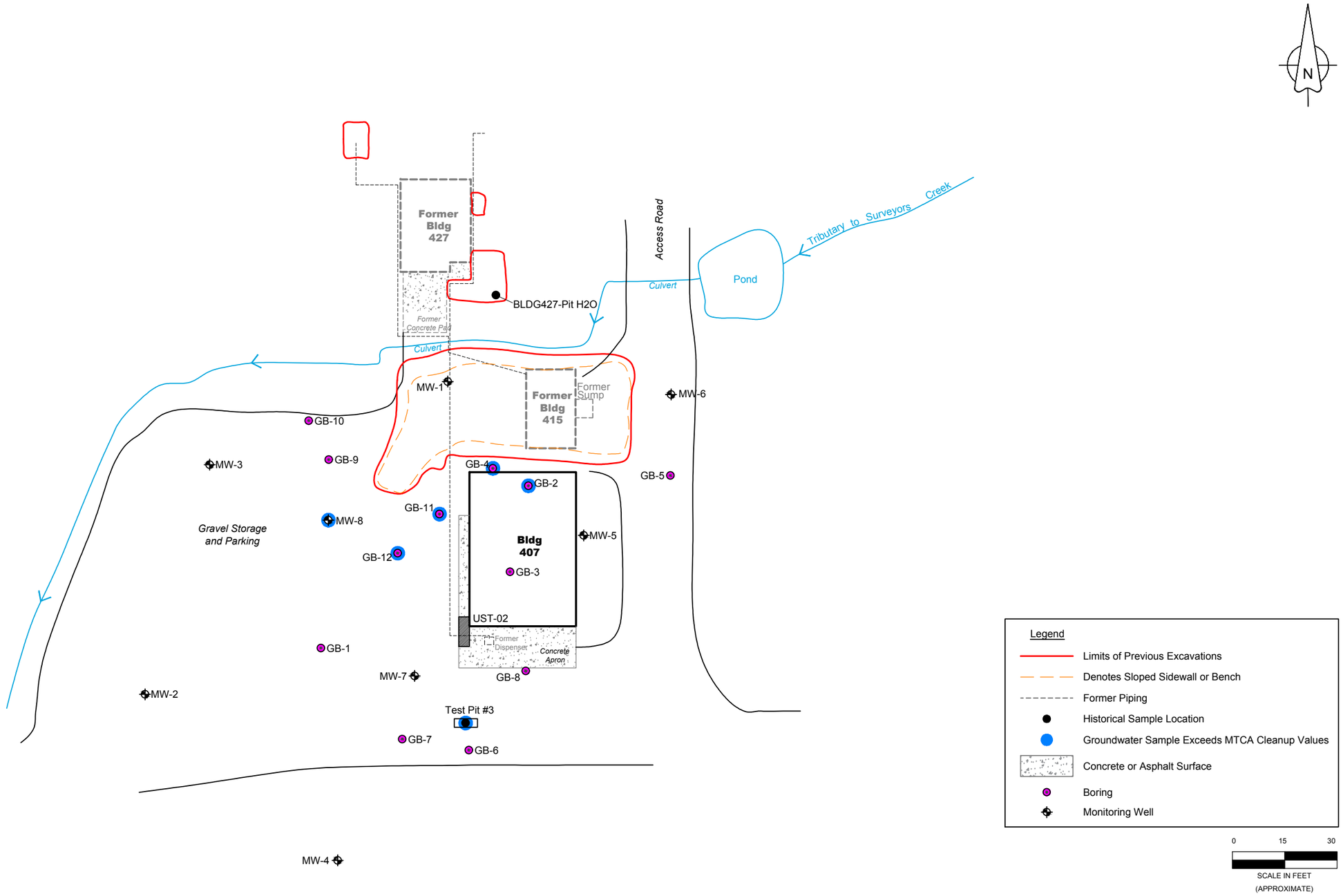

Notes:
1. All locations are approximate.

Source:
1. Grant Associates, Inc. September 2008.

BIA SIGNAL PEAK RANGER STATION - CORRECTIVE ACTION PLAN
YAKIMA COUNTY, WASHINGTON

Ahtna Environmental Inc.

LOCATIONS WHERE HISTORICAL GROUNDWATER ANALYTICAL RESULTS EXCEED MTCA METHOD A CLEANUP LEVELS

Project Number: 05051
Date: July 2014
Drafted By: POINTMAP/JS

Figure Number: 4

File: BIA_SignalPeak_Ahtna_CAP.dwg

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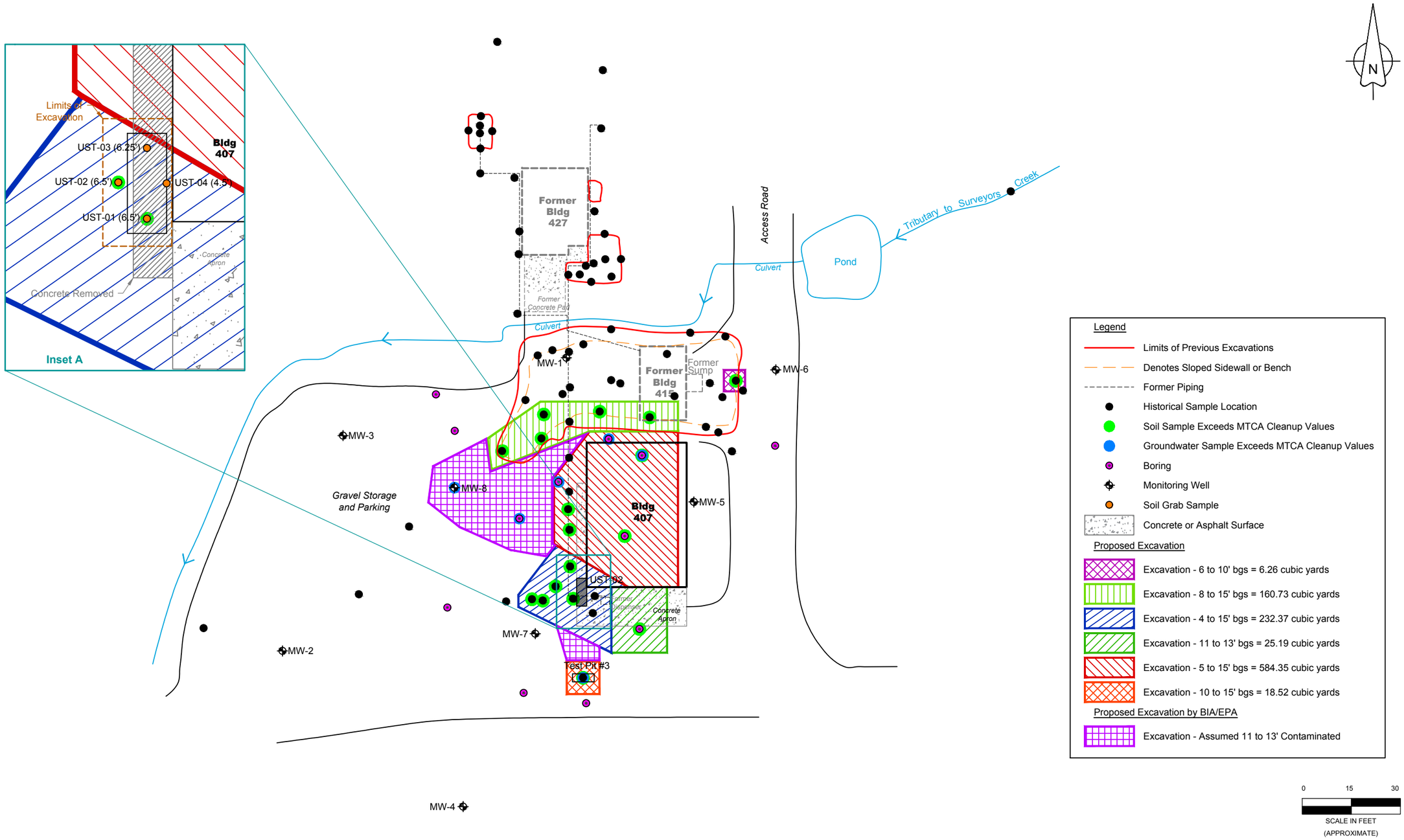

Notes:
1. All locations are approximate.

Source:
1. Grant Associates, Inc. September 2008.

BIA SIGNAL PEAK RANGER STATION - CORRECTIVE ACTION PLAN
YAKIMA COUNTY, WASHINGTON

PROPOSED EXCAVATION LIMITS

Ahtna Environmental Inc.

Project Number: 05051
Date: July 2015
Drafted By: POINTMAP/JS

Figure Number: 5

File: BIA_SignalPeak_Ahtna_CAP.dwg

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