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ADDENDUM TO THE CLEANUP ACTION PLAN SMALL ARMS RANGES RAU 2A-16 AND RAU 2A-21

Former Camp Bonneville Military Reservation
Vancouver, Washington

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ABBREVIATIONS AND ACRONYMS

BCRRT	Bonneville Conservation Restoration and Renewal Team, LLC
bgs	below ground surface
CAP	Cleanup Action Plan
CBMR	Former Camp Bonneville Military Reservation
EPA	U.S. Environmental Protection Agency
ESCA	Environmental Services Cooperative Agreement
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTCA	Model Toxics Control Act
PPCD	Prospective Purchaser Consent Decree
RAU	Remedial Action Unit
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
SPLP	synthetic precipitation leaching procedure
WAC	Washington Administrative Code
WDOE	State of Washington Department of Ecology
WESTON	Weston Solutions, Inc.

1 INTRODUCTION

This addendum to the Final Cleanup Action Plan (CAP) for the Small Arms Ranges, Remedial Action Unit (RAU) 2A, describes the proposed changes to the remedy for two of the small arms ranges at the former Camp Bonneville Military Reservation (CBMR) located in Clark County, Washington (Figure 1). Excavation and removal of lead-impacted soil as described in the RAU 2A CAP (Bonneville Conservation, Restoration & Renewal Team [BCRRT], 2008) has been conducted at the two small arms ranges (Figure 2); designated as the 1,000 inch Rifle Range and Machine Gun Range (RAU 2A-16) and Field Fire Ranges No. 1 and No. 2 (RAU 2A-21). However, confirmatory sampling and visual observations indicate lead-impacted fill soil remains at RAU 2A-16 and lead slugs remain at the overshoot area of RAU 2A-21. This CAP addendum presents two new remedial alternatives, (1) partial excavation and capping of the lead-contaminated soil with a clean soil cap, or (2) capping of the lead contaminated soil with a clean soil cap; and the technical rationale for the proposed changes to the remedy.

As an addendum, this plan only addresses the sections of the Final CAP (BCRRT, 2008) that require updating to present the cleanup actions conducted to date, additional sampling and analysis of the lead-impacted soil, new remedial alternatives, the schedule for additional cleanup activities, compliance monitoring, and cleanup action reporting. The main section headers are therefore the same as the Final CAP and the text includes either additional information regarding RAU 2A-16 and RAU 2A-21 or states there are no additions/revisions. For context and background information, excerpts from the Final RAU 2A CAP are also provided where appropriate. For completeness and further reference, the Final RAU 2A CAP is provided on compact disk in Appendix A.

Clark County Washington and the State of Washington Department of Ecology (WDOE) have entered into a mutual agreement to remediate the former CBMR. As stated in the Amended Prospective Purchaser Consent Decree (PPCD) (WDOE, 2012), Clark County is responsible for the cleanup and long-term obligations; and the WDOE is responsible for oversight of the cleanup. Funding for the cleanup is provided by the U.S. Army under an Environmental Services Cooperative Agreement (ESCA) with Clark County. Preparation of this CAP Addendum and the

cleanup work are being completed by Weston Solutions, Inc. (WESTON) under a Remediation Agreement with Clark County.

2 SITE DESCRIPTION AND BACKGROUND

Section 2.0 of the Final RAU 2A CAP presents general information about CBMR which is summarized below.

CBMR comprises approximately 3,840 acres, and is located in Clark County, Washington approximately five miles east of the city limits of Vancouver and approximately 3.5 miles north of the city limits of Camas. It is mostly undeveloped forested hillsides and creek side drainages. Former military barracks and classrooms are concentrated at the Camp Killpack and Camp Bonneville cantonment areas, which cover approximately 30 acres. Other developed areas include firing ranges, a paved two-lane road connecting the main gate with the two containment areas, and a network of unpaved roads. The main gate to CBMR is located on the western boundary of the camp, approximately one mile north of Pluss Road.

The Army used CBMR for a variety of infantry training exercises for live fire of small arms, assault weapons, mortars and artillery at firing ranges, firing points and target areas located on-site between 1910 and 1995. In July of 1995, CBMR was selected for closure under the 1995 Base Realignment and Closure process. The reuse plan (Camp Bonneville Local Redevelopment Authority, 2003) called for the majority of Camp Bonneville to be transferred to Clark County, Washington for public benefit including education, law enforcement training, parks, and conservation areas.

Section 2.0 of the RAU 2A CAP also presents information about site geology and hydrogeology, surface water, natural resources (including rare, threatened, or endangered species) and presents a summary of cultural and historic resources. These sections remain unchanged as presented in the Final RAU 2A CAP.

3 DESCRIPTION, BACKGROUND, AND CURRENT CONDITION OF THE SMALL ARMS RANGES

Sections 3.1 through 3.5 of the Final RAU 2A CAP present the historical use, summary of contamination and results of the Remedial Investigation/Feasibility Study (RI/FS) (BCRRT, 2007). These sections remain unchanged and are summarized below. As presented in Section 3.5 of the Final RAU 2A CAP, the recommended Alternative 5 included excavation and removal of contaminated soil for remediation of the small arms ranges. Excavation and removal of soil has been completed at the small arms ranges as described in the Final RAU 2A CAP; however, confirmatory sampling and visual observations indicate lead-impacted fill soil remains at RAU 2A-16 and lead slugs remain at the overshoot area of RAU 2A-21.

Sections 3.6, 3.7, and 3.8 are included below to describe activities conducted under the Final RAU 2A CAP at RAU 2A-16 and RAU 2A-21, follow-on sampling and analysis, and the two remedial alternatives to address the remaining lead-impacted areas.

3.1 GENERAL DESCRIPTION OF THE SMALL ARMS RANGES

Approximately 25 potential Small Arms Ranges were previously identified within the boundaries of CBMR from maps dating back to 1958. However, several of these were determined to be redundant. A final total of 17 firing ranges were confirmed and identified for investigation during the RI/FS of the small arms ranges (BCRRT, 2007). The Federal Bureau of Investigation currently makes frequent use of one of the small arms ranges and will be responsible for sampling and cleanup of that range which is not included in the 17 small arms ranges sampled for the RI/FS.

3.2 HISTORY OF SMALL ARMS RANGE USE

CBMR was established in 1909 as a drill field and rifle range. Use of the small arms ranges were from approximately 1910 through 1995.

3.3 HISTORY OF INVESTIGATIONS OF SMALL ARMS RANGES

After CBMR was selected for closure, investigations were conducted by the Army and its consultants in order to characterize the nature and extent of contamination at the site and to develop

a plan for potentially transferring ownership. Site documents and maps were reviewed and a Site Investigation (Atlanta Environmental Management, Inc., 2005) was conducted at the lead-contaminated ranges and Demolition Areas 2 and 3. The RI/FS (BCRRT, 2007) was conducted to determine the nature and extent of contamination at the identified 17 small arms ranges. As previously stated, the small arms range used by the Federal Bureau of Investigation was not included in the RI/FS activities.

3.4 SUMMARY OF SOIL CONTAMINATION INFORMATION BY RANGE

A total of 307 samples were collected in half-acre grids established at the small arms ranges. Characterization included collecting five grab samples from 0 to 6 inches below ground surface (bgs) in each of the half-acre grids. Specific locations were determined by latitude and longitude coordinates, and the center point of each grid was determined using a Global Positioning System unit. After a center point was determined, the field team measured approximately 40 feet north (magnetic), south, east, and west of the grid center. A soil sample was taken at the center and each of the four directions from the center. Soil samples were analyzed for total lead. The RI/FS (BCRRT, 2007) data is presented on figures and in tables in the Final RAU 2A CAP which is included in Appendix A of this CAP Addendum. Background samples were also collected and analyzed for total lead and other metals were included at several of the sample locations.

3.5 RI/FS INVESTIGATIONS SAMPLE RESULT SUMMARY

Based on results of the RI/FS sampling and comparison of the results to applicable cleanup criteria (BCRRT, 2007), it was determined that further action was required at nine of the small arms ranges.

Based on evaluation of candidate technologies, the following five alternative cleanup actions were identified for the small arms ranges:

- Alternative 1 - No Action
- Alternative 2 - Institutional Controls
- Alternative 3 - Containment (Capping)
- Alternative 4 - Consolidation and Containment (Capping)
- Alternative 5 - Excavation and Off-site Disposal or Recycling

To evaluate Alternative 5, results from each of the grids was assigned to a category representing the degree of lead contamination:

- Category 1 – average and individual lead sample concentrations less than 50 mg/kg; no excavation required
- Category 2 - average lead sample concentration less than 50 mg/kg and no individual sample concentration greater than 118 mg/kg; no excavation required
- Category 3 - average lead sample concentration greater than 50 mg/kg but less than 118 mg/kg and no individual sample concentration greater than 250 mg/kg; focused excavation required in a 29 by 29-foot area surrounding locations where lead concentrations exceed 50 mg/kg to a depth of 6 inches bgs
- Category 4 - average lead sample concentration greater than 118 mg/kg but less than 250 mg/kg; focused excavation required in a 58-foot by 58-foot area surrounding locations where lead concentrations exceed 50 mg/kg to a depth of 6 inches bgs
- Category 5 - average lead sample concentration is greater than 250 mg/kg; excavation required at the entire grid to a depth of 6 inches bgs

The RI/FS recommended Alternative 5, Excavation and Off-site Disposal or Recycling for remediation at the nine identified small arms ranges.

3.6 CLEANUP ACTIONS

3.6.1 1,000-Inch Rifle Range and Machine Gun Range, RAU 2A-16

As required in the Final RAU 2A CAP, excavation and removal of soil at RAU 2A-16, 1,000-inch Rifle Range and Machine Gun Range, was conducted at three entire grids which were categorized as Category 5 and around samples in 5 grids that were either Category 3 or 4. Soil excavations were completed to 0.5 feet bgs. Stepouts were conducted around several of the excavated areas to remove confirmatory sample locations with lead concentrations greater than 118 mg/kg. Based on the number of truckloads containing excavated soil, approximately 1,505 cubic yards of soil were excavated from the berm and range floor at RAU 2A-16 in 2008 (MKM, 2009). Figure 3 shows the excavation areas at RAU 2A-16.

Confirmatory soil sampling revealed that lead concentrations were increasing with depth in portions of RAU 2A-16 which was contrary to expectations and observations at the other small arms ranges. In addition, the physical appearance of the underlying soils and general appearance of the environs provided further indication that the area of RAU 2A-16 was constructed over lead-

impacted fill soil. The fill soil had apparently been brought to the range from another portion of the site and used to raise the elevation of the range floor and adjacent area above the flood level of Lacamas Creek (Michael Baker Jr. Inc., 2010). The lead-impacted fill soil area is approximately 1.76 acres (Figure 3).

3.6.2 Field Fire Ranges No.1 and No. 2, RAU 2A-21

At RAU 2A-21, Field Fire Ranges No. 1 and No. 2, the Final RAU 2A CAP required excavation and removal of soil at three entire grids which were Category 5 and around samples in 6 grids that were either Category 3 or 4. With the concurrence of WDOE, two of the three Category 5 grids identifed for removal at RAU 2A-21, as well as the northern portion of the third Category 5 grid, were not excavated because they were located under standing water (MKM, 2010). In the remaining locations, soil excavations were initially completed to 0.5 feet bgs. Several rounds of vertical and lateral expansions of the excavation were conducted to remove lead-impacted soil reported at concentrations greater than 118 kmg/kg in the area behind the target berm (overshoot area). Based on the number of truckloads containing excavated soil, approximately 4,060 cubic yards of soil were excavated from berms and the range floor at RAU 2A-21 and the adjacent RAU 2A-22 in 2008 (MKM, 2009). An unknown additional volume of soil was removed during additional excavations in 2009. Figure 6 shows the excavation areas at the RAU 2A-21 overshoot area.

Although the remediation described in the CAP (BCRRT, 2008) was performed, lead slugs were identified adjacent to excavation areas in the overshoot area. Additional surveys were completed to identify the extent of lead slugs in the overshoot area. Based on the surveys, lead slugs varied from one-half to one foot below the ground surface in the overshoot area (MKM, 2010). The lead slug overshoot area at RAU 2A-21 is approximately 6.21 acres (Figure 4).

3.7 POST-CLEANUP SAMPLING

Lead concentrations from confirmatory samples were compared to the cleanup standards provided in the RI/FS (BCRRT, 2007). Lead concentrations in soil at the fill area of the RAU 2A-16 range and the overshoot area of the RAU 2A-21 range exceeded the unrestricted land use concentration of 250 milligrams per kilogram (mg/kg) for lead. The lead concentrations also exceeded the

ecological indicator soil concentrations of 50 mg/kg for plants and 118 mg/kg for wildlife. The Washington State Model Toxics Control Act (MTCA) statute and regulations in Chapter 173-340 of the Washington Administrative Code (WAC) Table 740-1 provides the Method A Soil Cleanup Levels for unrestricted land uses and Table 749-3 provides the ecological indicator soil concentrations for protection of terrestrial plants and animals.

Because many of the lead samples at both ranges exceeded the cleanup standards, the synthetic precipitation leaching procedure (SPLP) was used to determine the mobility of lead-impacted soil remaining at the two small arms ranges. As described in WAC 173-340-747(2)(d), leaching tests may be used to establish allowable soil concentrations for certain metals. To determine the mobility of lead, each of the lead-impacted areas were divided into 40-foot grids and a random 5-point composite soil sample was collected from each grid. The 5-point composite soil sample was analyzed for total lead using U.S. Environmental Protection Agency (EPA) Methods 3050B/6010D and leachable lead by SPLP using EPA Methods 1312/3010A/6010C (WESTON, 2017). Results for total and SPLP lead are listed in Table 1 and shown on Figures 5 and 6 for RAU 2A-16 and RAU-2A-21, respectively.

Based on WAC 173-340-747(7)(c)(i), results for leachable lead were compared to 0.15 milligrams per liter (mg/L) which is ten times the Method A Cleanup Level for Groundwater of 0.015 mg/L based on applicable state and federal law; 40 Code of Federal Regulation 141.80. As shown in Table 1, leachable lead results from the 50 grids at RAU 2A-16 ranged from 0.78 mg/L to not detected (less than 0.005 mg/L) with an average of 0.084 mg/L for detected results. Leachable lead results from the 172 grids at RAU 2A-21 ranged from 0.042 mg/L to not detected (less than 0.005 mg/L) with an average of 0.015 mg/L for detected results. The average leachable lead results for both RAU 2A-16 and RAU 2A-21 were less than the established cleanup level of 0.15 mg/L.

Based on WAC 173-340-747(4)(b), results for total lead were compared to 3,000 mg/kg which is the lead concentration that is protective of groundwater under the Method A Cleanup Levels for unrestricted land uses. This lead value assumes no direct human or animal contact with the soil and is calculated using the three-phase partitioning model which is described by the following Equation 747-1 from WAC 173-340-747.

$$C_s = C_w(UCF)DF\left[K_d + \frac{(\theta_w + \theta_a H_{cc})}{\rho_b}\right]$$

Where:

C_s	=	soil concentration (mg/kg)
C_w	=	groundwater cleanup level established under WAC 173-340-720 (15 micrograms/liter for lead; cleanup level based on applicable state and federal law, 40 Code of Federal Regulation 141.80)
UCF	=	unit conversion factor (1 mg/1,000 µg)
DF	=	dilution factor (dimensionless: 20 for unsaturated zone soil)
K_d	=	distribution coefficient (10,000 liters/kilogram for lead)
Θ_w	=	water-filled soil porosity (milliliter water/milliliter soil: 0.3 for unsaturated zone)
Θ_a	=	air-filled soil porosity (milliliter air/milliliter soil: 0.13 for unsaturated zone)
H_{cc}	=	Henry's law constant (dimensionless: 0 for lead)
ρ_b	=	dry soil bulk density (1.5 kilograms/liter)

As shown on Figures 5 and 6, total lead concentrations for only two sample grids at RAU 2A-21 were greater than the lead cleanup value of 3,000 mg/kg.

3.8 IDENTIFICATION OF CLEANUP ALTERNATIVES

Alternative 5 was the recommended alternative to address the small arms ranges in the RI/FS (BCRRT, 2007). Alternative 5 included excavation and removal of contaminated soil. As previously described, this action has been performed. Although this remedial action was anticipated to satisfy the remedial activities presented in the Interim Cleanup Action Work Plan (Calibre, 2005), the RI/FS (BCRRT, 2007), the PPCD, and the ESCA, lead-impacted soil remains at the fill soil area of RAU 2A-16 and the overshoot area of RAU 2A-21. Consistent with the amended PPCD (WDOE, 2012), this CAP Addendum addresses the following two alternatives for cleanup of the remaining lead-impacted soil at the two small arms ranges:

- Alternative 1—Partial excavation and capping of the lead-contaminated soil with a clean soil cap
- Alternative 2—Capping of the lead-contaminated soil with a clean soil cap

Under Alternative 1, excavation of soil with total lead concentrations greater than 3,000 mg/kg would be conducted to a minimum of one foot bgs followed by confirmation sampling. Additional soil removal and sampling would continue until the confirmation sample results for total lead are equal to or less than 3,000 mg/kg. Excavated soil would be transported offsite for disposal.

Following removal of soil, the lead-impacted small arms ranges, including any excavated areas, would be covered with a one-foot thick clean soil cap.

Under Alternative 2, no excavation or offsite disposal would be performed. Lead-impacted areas in RAU 2A-16 and RAU 2A-21 would be covered with a one-foot thick clean soil cap.

3.8.1 Evaluation and Selection of Cleanup Actions

The two alternative cleanup actions for the remaining lead-impacted areas are Alternative 1, partial excavation and capping of the lead-contaminated soil with a clean soil cap; and Alternative 2, capping of the lead-contaminated soil with a clean soil cap. The MTCA provides the minimum requirements for selection of a cleanup alternative which includes the following:

- Threshold requirements from WAC 173-340-360(2)(a)
  - Protection of human health and the environment
  - Compliance with applicable cleanup standards
  - Compliance with applicable state and federal laws
  - Provisions for compliance monitoring
- Other requirements from WAC 173-340-360(2)(b)
  - Use permanent solutions to the maximum extent practical
  - Provide for a reasonable restoration time frame
  - Consider public concerns

The MTCA also provides additional requirements in WAC 173-340-360(3) for determining whether a cleanup action uses permanent solutions to the maximum extent practicable and provides evaluation criteria to determine the permanence of the candidate cleanup action approaches. The seven evaluation criteria are as follows:

- Protectiveness
- Permanence
- Cost
- Effectiveness over the long term
- Management of short-term risks
- Technical and administrative implementability
- Consideration of public concerns

3.8.1.1 Detailed Evaluation of Cleanup Action Alternatives

Alternative 1 — Partial excavation and capping of the lead-contaminated soil with a clean soil cap

Under Alternative 1, excavation of soil with total lead concentrations greater than 3,000 mg/kg would be conducted to a minimum of one foot bgs followed by confirmation sampling. Additional soil removal and sampling would continue until the confirmation sample results for total lead are equal to or less than 3,000 mg/kg. Excavated soil would be transported offsite for disposal. Following removal of soil, the small arms ranges would be covered with a geotextile fabric to delineate the lead-impacted soil area and a one-foot thick clean soil cap.

Threshold Requirements:

Protection of Human Health and the Environment: Partial excavation would be conducted to remove lead-impacted soil at concentrations greater than the established cleanup criteria in this CAP Addendum. Further capping of the remaining lead-impacted areas with a geotextile fabric and clean soil would restrict dermal contact and accidental ingestion of the remaining lead-impacted soil.

Compliance with Cleanup Standards: The alternative may meet MTCA cleanup standards if all conditions in WAC 173-340-740(6)(f) are satisfied including but not limited to appropriate site controls, maintenance, and inspections. Lead concentrations in soil above unrestricted cleanup standards would be left on site; however, the remaining soils would be covered to significantly reduce the potential for exposure to humans and animals. This alternative may not meet the requirement of being permanent to the maximum extent practicable.

Compliance with Applicable Laws: Implementation of this alternative would involve compliance with laws and regulations related to wastewater discharges, air discharges, and/or dangerous waste management during removal of lead-impacted soil and soil cap placement. The excavated soil would be regulated as a solid or hazardous waste based on the concentrations of lead if lead is not screened from the soil. Deed restrictions and zoning changes would have to be implemented in accordance with local, county, and state laws and regulations to address soil under the cap.

Provisions of Compliance Monitoring: The excavation and offsite disposal would include protection monitoring during construction to confirm human health and the environment are adequately protected. Performance monitoring would be required during excavation to confirm soils remaining meet cleanup standards for protection of groundwater. Performance monitoring would be required during cap construction to confirm the cap meets design and construction specifications. Confirmation monitoring of the condition of the caps would be required to confirm the long-term condition and effectiveness of the cap.

Other Requirements:

Permanent Solutions to the Maximum Extent Practicable: This alternative would result in a permanent reduction in the toxicity or volume of hazardous substance at the site as some of the lead-impacted soil is being excavated and disposed offsite. However, the lead levels remaining in soil do not support unrestricted use. The containment alternative would not provide permanent solutions to the maximum extent practicable because it is possible to implement a more permanent cleanup action for all or a portion of the sites.

Attaining Cleanup in a Reasonable Time: Partial removal and containment will attain cleanup standards appropriate for groundwater protection and reduce exposure to contaminated soil in a reasonable time. However, without excavation to remove the lead-impacted soil, the lead contamination will remain at the site indefinitely.

Public Concerns: Public concerns will be addressed after receipt of public comments on this CAP Addendum.

Alternative 2 — Capping of the lead-contaminated soil with a clean soil cap

Under Alternative 2, no excavation or offsite disposal would be performed. Lead-impacted areas at RAU 2A-16 and RAU 2A-21 would be covered with a geotextile fabric to delineate the lead-impacted soil area and a one-foot thick clean soil cap.

Threshold Requirements:

Protection of Human Health and the Environment: Capping the lead-impacted areas with a geotextile fabric and clean soil would restrict dermal contact and accidental ingestion of the remaining lead-impacted soil.

Compliance with Cleanup Standards: The alternative may meet MTCA cleanup standards if all conditions in WAC 173-340-740(6)(f) are satisfied including but not limited to appropriate site controls, maintenance, and inspections. The remaining soils would be contained to significantly reduce the potential for exposure. This alternative may not meet the requirement of being permanent to the maximum extent practicable.

Compliance with Applicable Laws: Implementation of this alternative would involve compliance with laws and regulations related to wastewater discharges and/or air discharges during soil cap placement. Deed restrictions and zoning changes would have to be implemented in accordance with local, county, and state laws and regulations to address soil under the cap.

Provisions of Compliance Monitoring: Performance monitoring would be required during cap construction to confirm the cap meets design and construction specifications. Confirmation monitoring of the condition of the caps would be required to confirm the long-term condition and effectiveness of the caps.

Other Requirements:

Permanent Solutions to the Maximum Extent Practicable: This alternative would not result in permanent reduction in the toxicity or volume of hazardous substance at the site. The containment alternative would not provide permanent solutions to the maximum extent practicable because it is possible to implement a more permanent cleanup action for all or a portion of the sites.

Attaining Cleanup in a Reasonable Time: Containment could attain cleanup standards appropriate for groundwater protection and reduce exposure to contaminated soil in a reasonable time. However, without excavation to remove the lead-impacted soil, the lead will remain at the site indefinitely.

Public Concerns: Public concerns will be addressed after receipt of public comments on this CAP Addendum.

Permanence Evaluation

The permanence evaluation specifies consideration and comparison of each candidate alternative using seven criteria specified in WAC 173-340-360(3)(f). The following discussion provides the comparison.

- Protectiveness: Alternate 1 is protective of groundwater because all lead contamination above the calculated cleanup levels that are protective of groundwater will be removed. Based on the leachability testing of site soils, Alternative 2 is also protective of groundwater. Both alternatives are protective of human health and the environment as they provide a barrier to restrict contact to the lead-impacted soil.
- Permanence: Alternative 1 provides for more permanence because it involves additional permanent actions with the removal of lead-impacted soil above the calculated cleanup levels. Alternative 2 is less permanent in that no additional soil will be removed. Both alternatives involve maintenance of the protective cover.
- Cost: A full cost analysis was not prepared for this CAP Addendum. Alternative 1 will provide a higher overall costs to excavate and dispose of soil. Both alternatives include the long-term costs associated with the cap maintenance.
- Effectiveness Over the Long Term: Effectiveness of Alternatives 1 and 2 are both limited by the degree to which cap maintenance can be assured.
- Management of Short-Term Risks: Alternative 1 involves more short-term risk to workers implementing the removal and offsite transportation of lead-impacted soil, and both alternatives involve construction-related risks associated with placement of the cap. These risks however will be mitigated by the health and safety program standards used during construction activities.
- Technical and Administrative Implementability: Both alternatives rank high in implementability; however, there is potential for long-term administrative issues with leaving lead-contaminated soil onsite.
- Consideration of Public Concerns: Public concerns will be addressed after receipt of public comments on this CAP Addendum.

3.8.2 Recommendation

The cleanup levels described in this CAP Addendum are based on protection of groundwater. The addition of a geotextile layer and one-foot clean soil cap will serve to restrict contact with lead-impacted soil; therefore, direct contact to contamination was not considered in the selection of appropriate cleanup levels. Protection of groundwater is also supported by the results for leachable lead which indicated both sites would not result in an impact to groundwater above the Method A Cleanup Level for Groundwater of 0.015 mg/L.

Because both alternatives provide for protection of human health and the environment as well as protection of groundwater, Alternative 2, capping of the lead-contaminated soil with a clean soil cap, is the preferred alternative. The alternative is consistent with the projected use of the CBMR for education, law enforcement training, parks, and conservation areas as well as meeting of the objective of protection of human health and the environment. Capping of the remaining lead-contaminated areas at the small arms ranges also meets the threshold requirements; although it will require maintenance of the protective cover.

A public notice will be provided announcing this CAP Addendum. This CAP Addendum will be available for public review and comment as specified at WAC 173-340-360. This procedure will provide a mechanism to identify and respond to public concerns that have not been previously identified for the sites.

4 APPLICABLE LAWS, REGULATIONS, STANDARDS, AND CLEANUP STANDARDS

The applicable laws, regulations, standards, and cleanup standards presented in the Final RAU 2A CAP remain as originally presented. An addition to Section 4.1.1, which presents the MTCA and WAC regulations promulgated under it, is presented below to provide the specific sections of the regulations applicable to the discussions in this CAP Addendum.

4.1 APPLICABLE LAWS, REGULATIONS, AND STANDARDS

4.1.1 Washington State Model Toxics Control Act

Consistent with the Final CAP, this CAP Addendum addresses specific regulations under WAC Chapter 173-340 which governs the cleanup at hazardous waste and other contaminated sites in the State of Washington. In addition to the regulations presented in the Final CAP, the following regulations are applicable to the proposed cleanup actions in this CAP Addendum:

- Deriving soil concentrations for groundwater protection (WAC 173-340-747)

Based on WAC 173-340-747(7)(c)(i), ten times the Method A Cleanup Level for Groundwater of 0.015 mg/L, or 0.15 mg/L may be used as the cleanup level for leachable lead in soil. This cleanup level is based on the protection of groundwater.

Using WAC 173-340-747(4)(b), the soil cleanup level is based on the lead value calculated using the three-phase partitioning model described above in Section 3.7. Inputs used to derive the soil lead concentration that would be protective of groundwater assumes a maximum groundwater concentration of 0.015 mg/L which is the Method A Cleanup Level for unrestricted land uses found in Table 740-1 of WAC 173-340-900. The calculated lead value of 3,000 mg/kg is for groundwater protection based on potential for leachability and assumes no direct human or animal contact with the soil.

5 CLEANUP ACTION DESIGN AND METHODS

The soil cleanup standards are presented in Section 5.1 of the Final RAU 2A CAP. Sections 5.1.1 and 5.1.2, presented below, have been revised to provide the cleanup standards applicable to this CAP Addendum. The remaining text in Section 5.1 is unchanged.

Sections 5.2 through 5.8 of the Final RAU 2A CAP describe the actions to be conducted at each of the small arms ranges; the cleanup process; sample analysis and data management; waste management; site restoration; cleanup action support; and demobilization activities, respectively. These actions have been conducted at the small arms ranges and are no longer applicable to this CAP Addendum.

5.1 CLEANUP ACTION OBJECTIVES

5.1.1 Protection of Human Health

A quantitative human health risk assessment is not required under MTCA if a site is cleaned up to residential land use standards. The proposed action in this CAP Addendum will not clean up lead to levels less than the Method A Soil Cleanup Level for Unrestricted Land Uses of 250 mg/kg for lead. This cleanup level is based on direct human contact with soil. Capping the soil as described in Section 3.8 will restrict direct human contact. Capping the two lead-impacted areas at RAU 2A-16 and RAU 2A-21 with soil is compatible with the planned reuse of the property by Clark County for education, law enforcement training, parks, and conservation areas. The capped areas will require certain institutional and engineering controls to ensure the cap remains protective in the future.

The residual lead concentrations must also not be detrimental to groundwater. As described above in Section 3.7, the cleanup level for leachable lead is 0.15 mg/L and the Method A Cleanup Level for unrestricted land uses assuming the protection of groundwater is 3,000 mg/kg for total lead. Although four of the 50 samples tested at RAU 2A-16 exceeded the established cleanup level of 0.15 mg/L for leachable lead, the average leachable lead concentration of 0.084 mg/L for the site is less than the cleanup level of 0.15 mg/L. There were no leachable lead concentrations reported at concentrations greater than 0.15 mg/L at RAU 2A-21. There were no total lead concentrations

reported at levels greater than 3,000 mg/kg at RAU 2A-16. Although two sample grids at RAU 2A-21 were reported with lead concentrations greater than 3,000 mg/kg, the leachability results for lead at these two grids were 0.010 mg/L and 0.042 mg/L which are both less than the leachable lead cleanup level of 0.15 mg/L. The leachable lead results for RAU 2A-16 and RAU 2A-21 indicate the residual soil concentrations are protective of groundwater.

5.1.2 Protection of Ecological Receptors

The MTCA requires that soil cleanup levels are based on estimates of the reasonable maximum exposure expected under both the current and future use conditions. Historically the CBMR was an Army military reservation with controlled access and used for short-term, small unit training exercises. Future uses proposed for the CBMR may include development of a regional park and wildlife management area. The proposed future land uses is anticipated to include educational activities, hiking, camping, horse and bicycle riding and public recreation. The possible public uses may involve short-term camping and group use of existing or new structures for overnight programs. Based on the potential future land uses, the appropriate cleanup level for lead was selected from MTCA Table 749-3, Ecological Soil Concentrations for Protection of Terrestrial Plants and Animals. The proposed cleanup level for lead in soil at the small arms ranges is 50 mg/kg for protection of plants. The proposed action in this CAP Addendum will not clean up lead to levels less than 50 mg/kg. Capping the soil as described in Section 3.8 will however restrict plant and animal contact with the lead-contaminated soil. Capping the two lead-impacted areas at RAU 2A-16 and RAU 2A-21 with clean soil is also compatible with the planned reuses. The capped areas will require certain institutional and engineering controls as well as inspections to ensure the cap remains protective in the future.

As stated in the section above, the current concentrations for leachable and total lead are protective of groundwater.

5.2 CLEANUP ACTION DESIGN

Capping of the lead-impacted portions of RAU 2A-16 and RAU 2A-21 with soil will include delineating the upper extent of lead-impacted soil with a geotextile fabric followed by placement of one foot of clean soil on the fabric. Grade stakes will be used to guide the placement of soil over

the ranges. The soil will be compacted by track-walking and a seed mix of native plants will be broadcast over the soil as the final restoration of the areas.

The geotextile fabric (Mirafi 160N/O or equal) is an orange colored nonwoven geotextile the will serve as a delineator and will separate lead-impacted soil from the clean soil that serves as the cap. Mirafi 160N is composed of polypropylene fibers and is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids. The geotextile fabric will be installed in accordance with manufacturer requirements.

5.3 CLEANUP ACTION IMPLEMENTATION

An application will be submitted to WDOE for a Construction Stormwater General Permit that will address the installation of a soil cap at RAU 2A-16 and RAU 2A-21 (1.76 acres and 6.21 acres, respectively). A Stormwater Pollution Prevention Plan will be prepared and sediment, erosion, and pollution prevention control measures will be implemented as described in the plan.

Soil to be used for capping of the small arms ranges will be from either an onsite source, if available, or imported from a known clean offsite source. The import soil will be loamy to lean clay. If the import soil has been analyzed for potential pollutants based on the source, the data will be provided to WDOE. If the import soil requires testing, a total of five composite samples will be collected for the analysis of Priority Pollutant Metals using EPA Method 3050B/6010C.The data will be provided to WDOE.

The following (or similar) equipment will be mobilized to conduct the cleanup at RAU 2A-16 and RAU 2A-21:

- CAT D5K XL dozer or equal
- CAT 950K wheel loader or equal
- CAT TH508B 11K forklift or equal
- Water truck
- Pickup trucks
- Site facilities (portable toilets, dumpsters, etc.)

In addition, the following materials will be mobilized before work is conducted:

- Straw wattle, silt fence, plastic. and/or other erosion control materials
- Geotextile fabric (Mirafi 160N/O or equal)
- Import soil

Erosion control measures such as straw wattle or silt fence will be installed as part of site mobilization. Inspections will be performed as specified in the Storm Water Pollution Prevention Plan. Delivery of import soil will be timed to avoid stockpiling.

Vegetation (grass, small brush) will be cut prior to placement of the geotextile fabric. A forklift with a "stinger" attachment or wheel loader with a spreader bar will be used to position the geotextile rolls with 4 to 6 inches of overlap. Gradestakes will be installed to guide installation of the soil layer. Import soil will be pushed out over the fabric using the bulldozer and spread evenly over the surface. Compaction will be provided by track-walking with the dozer. Soil will be added until the placed soil layer is 12 inches thick. The water truck will be used throughout soil moving activities in order to provide dust control.

The imported clean soil fill will be transported to the site in 10-wheel dump trucks with 10 cubic yard transfer trailers. The overall duration of the work is estimated at six weeks or less, requiring delivery of 20 truckloads per day.

5.4 SAMPLE ANALYSIS AND DATA MANAGEMENT

This section was provided in the Final RAU 2A CAP and for consistency is presented here. Because there will be no additional sampling conducted at the two small arms ranges, this section is not applicable to this CAP Addendum.

5.5 WASTE MANAGEMENT

Any disposable items, such as packaging material for the geotextile rolls, will be disposed as municipal solid waste. Vegetation cuttings will remain on site. There are no additional wastes anticipated during the cleanup activities.

5.6 RESTORATION

A seed mixture approved by Clark County will be broadcast over the soil cap to accelerate revegetation of the capped areas. Erosion and sediment controls will be left in place during establishment of the vegetation.

5.7 CLEANUP ACTION SUPPORT ACTIVITIES

Support activities will consist of procurement of equipment, materials and supplies.

5.8 DEMOBILIZATION

Demobilization activities will include removal of all equipment and excess materials, general housekeeping, and a final site inspection by Clark County to verify that all contracted work has been completed.

6 TASK-SPECIFIC HEALTH AND SAFETY PLAN

The WESTON Accident Prevention Plan (WESTON, 2015) addresses mitigation of safety hazards associated with the site. Activity Hazards Analyses will be prepared to address task-specific hazards and controls associated with installation of the clean soil cap.

7 SCHEDULE

The proposed schedule for installation of a soil cap at RAU 2A-16 and RAU 2A-21 is shown below.

Mobilization	September 5, 2017
Cap Installation	September – October 2017
Demobilization	October 13, 2017

8 COMPLIANCE MONITORING AND CLEANUP ACTION REPORTING

Data presented in this Addendum to the RAU 2A CAP support the proposed changes of the remedies for RAU 2A-16 and RAU 2A-21. Once the remedies are complete, the actions taken will be documented in the Draft Cleanup Action Report as described in the RAU 2A CAP (BCRRT, 2008).

9 REFERENCES

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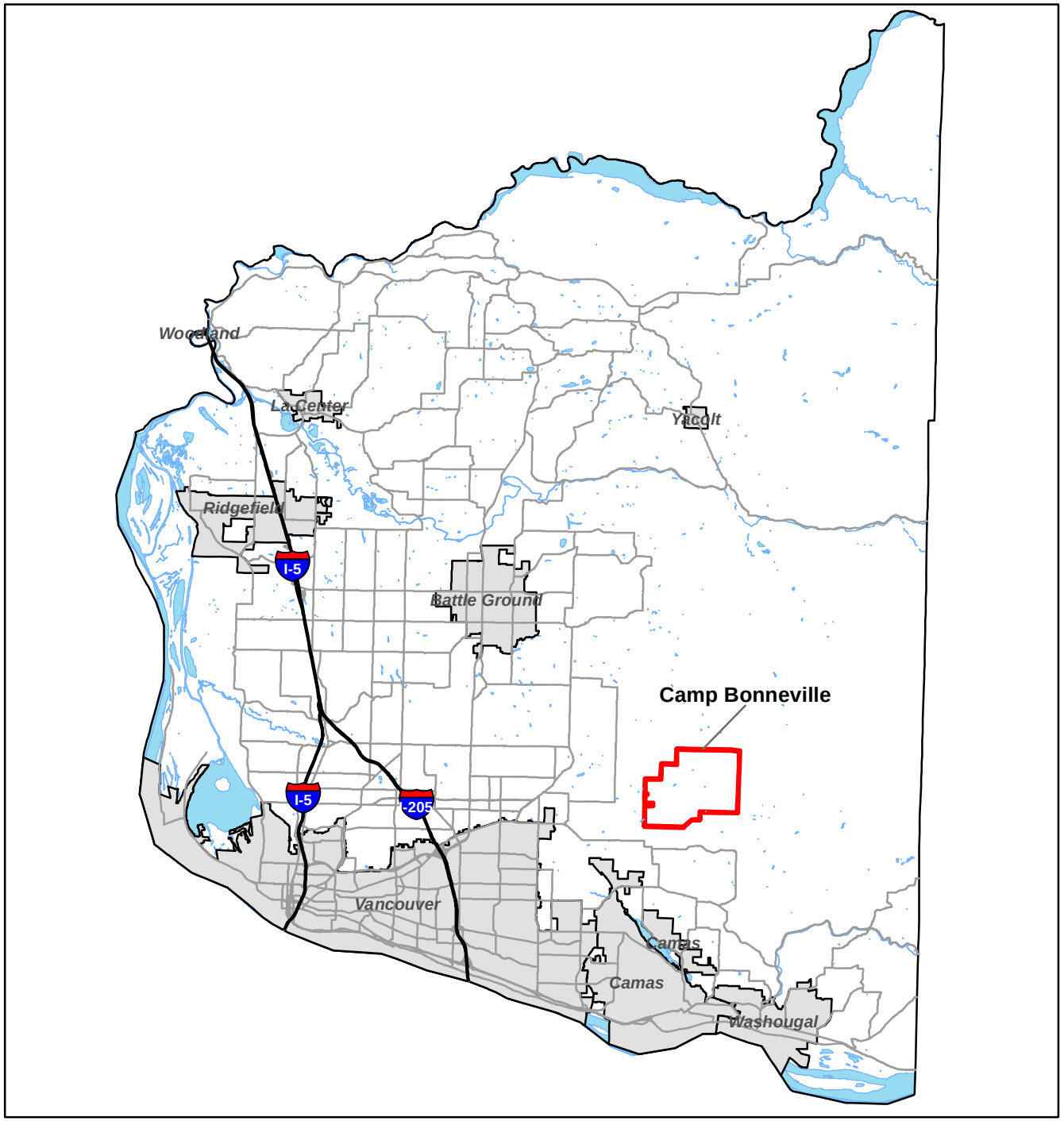
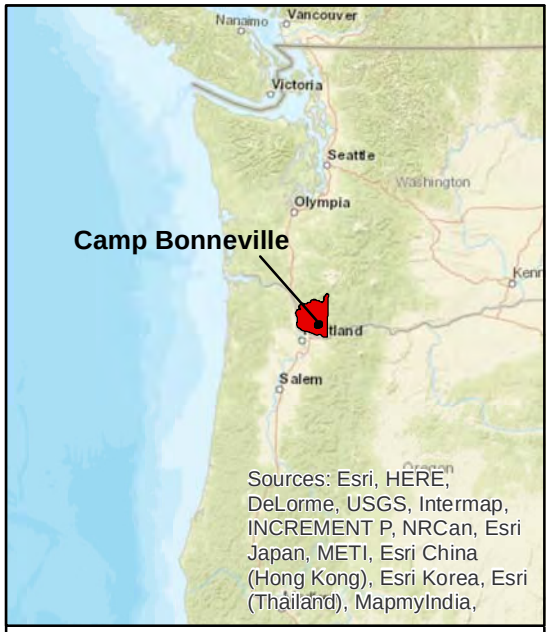
FIGURES





N

0 5 10 Miles

Clark County Public Works

FIGURE 1
SITE LOCATION

Former Camp Bonneville Military Reservation
Vancouver, Washington

WESTON SOLUTIONS

Wildlife Management Area

RAU 2A-21
Field Fire Ranges No. 1 and No. 2 and Berms

RAU 2A-16
1,000-inch Rifle Range and
Machine Gun Range Berm

Main
Gate

Wildlife Management Area

South Gate

LEGEND

- Lead-Impacted Area
- RAU 2A-16 and RAU 2A-21
- Property Boundary
- Central Valley Floor and Wetlands
- Wetland
- Road
- Stream / River

N

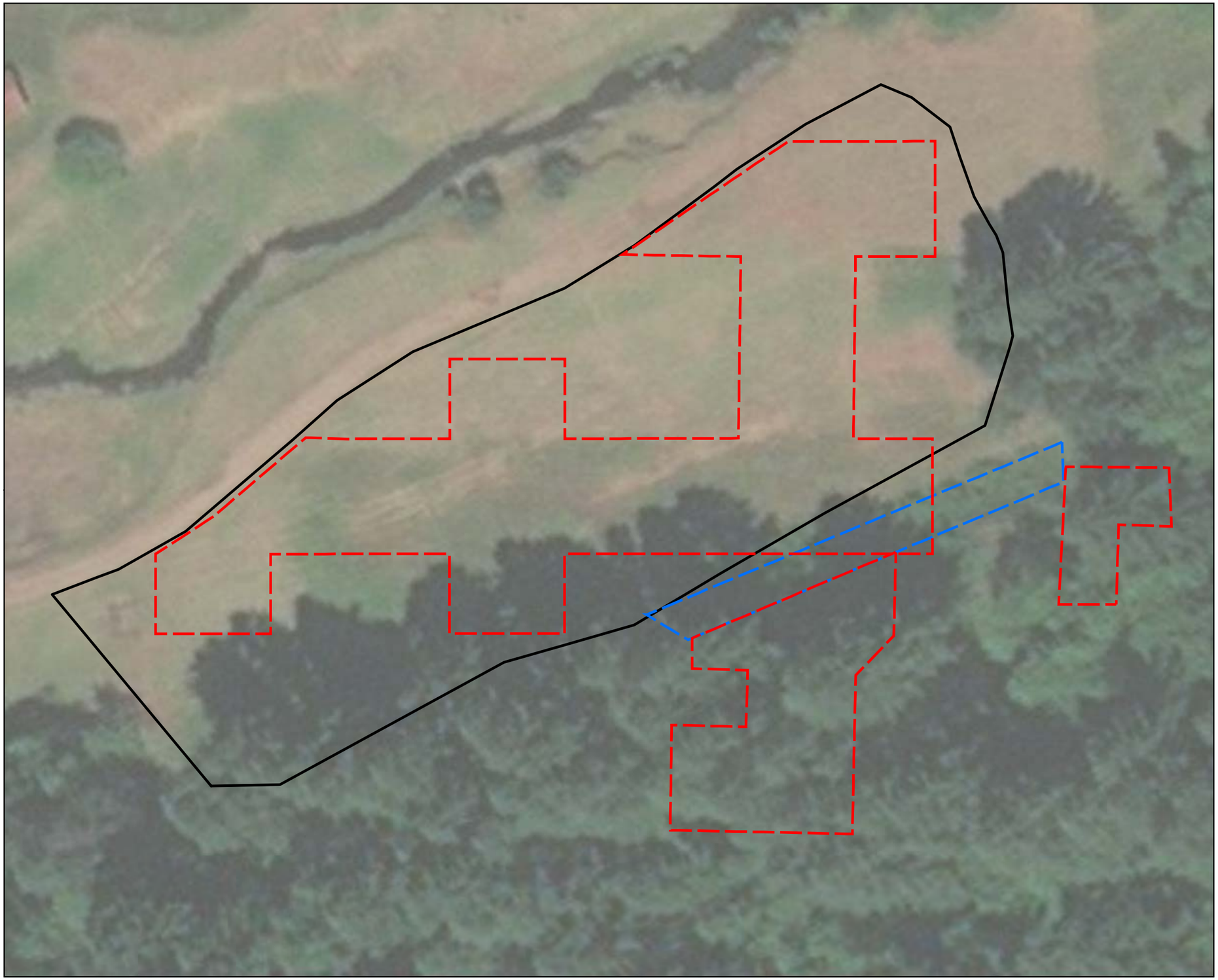
0 750 1,500 3,000 Feet

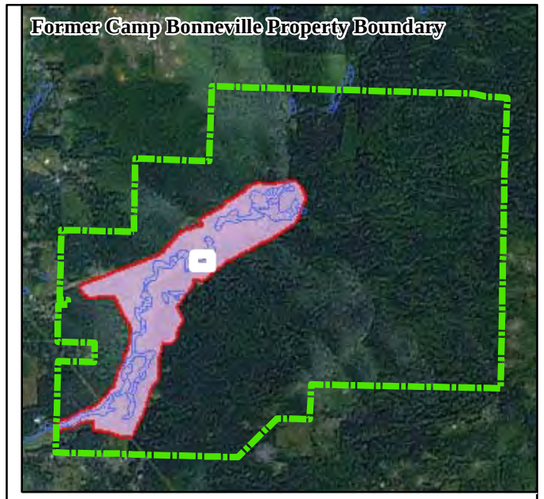
Clark County Public Works

FIGURE 2
REMEDIAL ACTION UNITS
2A-16 AND 2A-21

Former Camp Bonneville Military Reservation
Vancouver, Washington

WESTON SOLUTIONS





LEGEND

- Lead-Impacted Area
- Former Berm
- Excavation Area (2008)
- Property Boundary

N

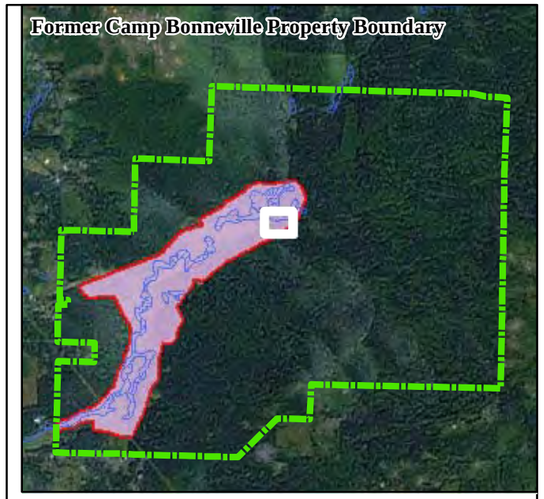
0 25 50 100 Feet

Clark County Public Works

FIGURE 3
EXCAVATION AREA
REMEDIAL ACTION UNIT 2A-16 (2008)

Former Camp Bonneville Military Reservation
Vancouver, Washington

WESTON SOLUTIONS



LEGEND

- Lead-Impacted Area
- Excavation Area (2008/2009)
- Removed Berm
- Property Boundary
- Central Valley Floor and Wetlands

N

0 50 100 200 Feet

Clark County Public Works

FIGURE 4
EXCAVATION AREA
REMEDIAL ACTION UNIT 2A-21
OVERSHOOT AREA (2008/2009)

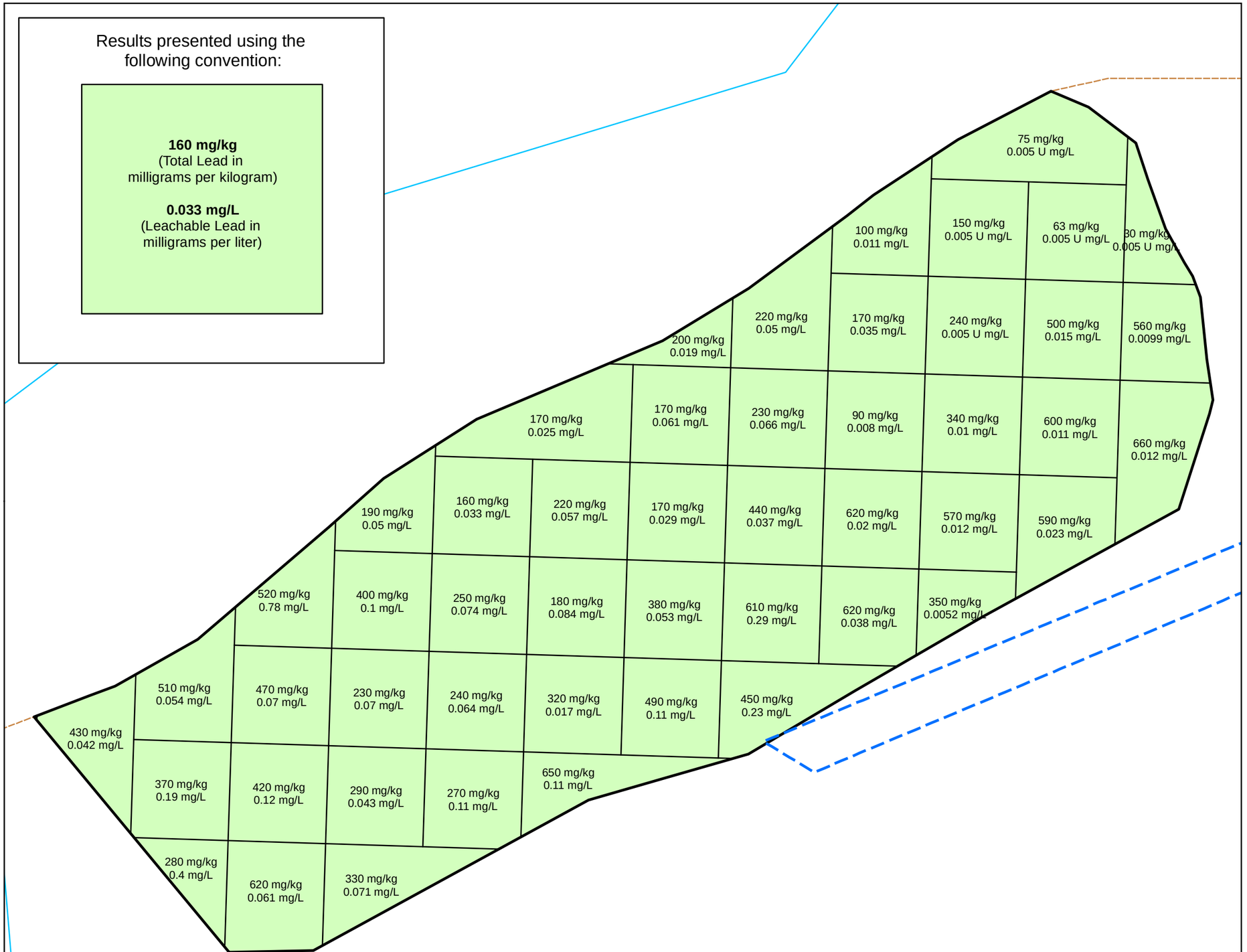
Former Camp Bonneville Military Reservation
Vancouver, Washington

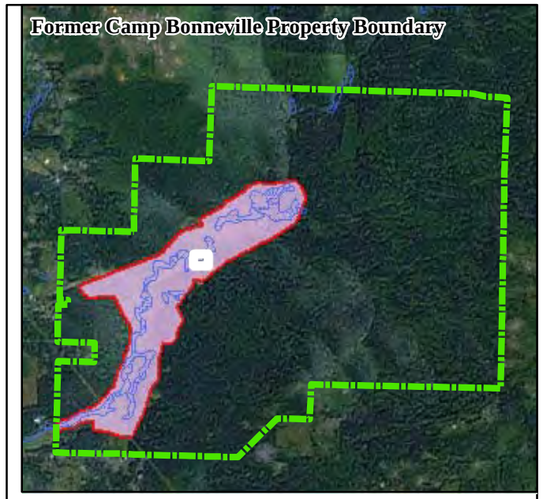
WESTON SOLUTIONS

Results presented using the following convention:

160 mg/kg
(Total Lead in milligrams per kilogram)

0.033 mg/L
(Leachable Lead in milligrams per liter)





LEGEND

- Lead-Impacted Fill Soil Area
- RAU 2A-16 Berm (Removed)
- Property Boundary
- Central Valley Floor and Wetlands
- Wetland
- Road
- Stream / River

Notes:
U indicates result is not detected.
Value provided is the reporting limit.

N

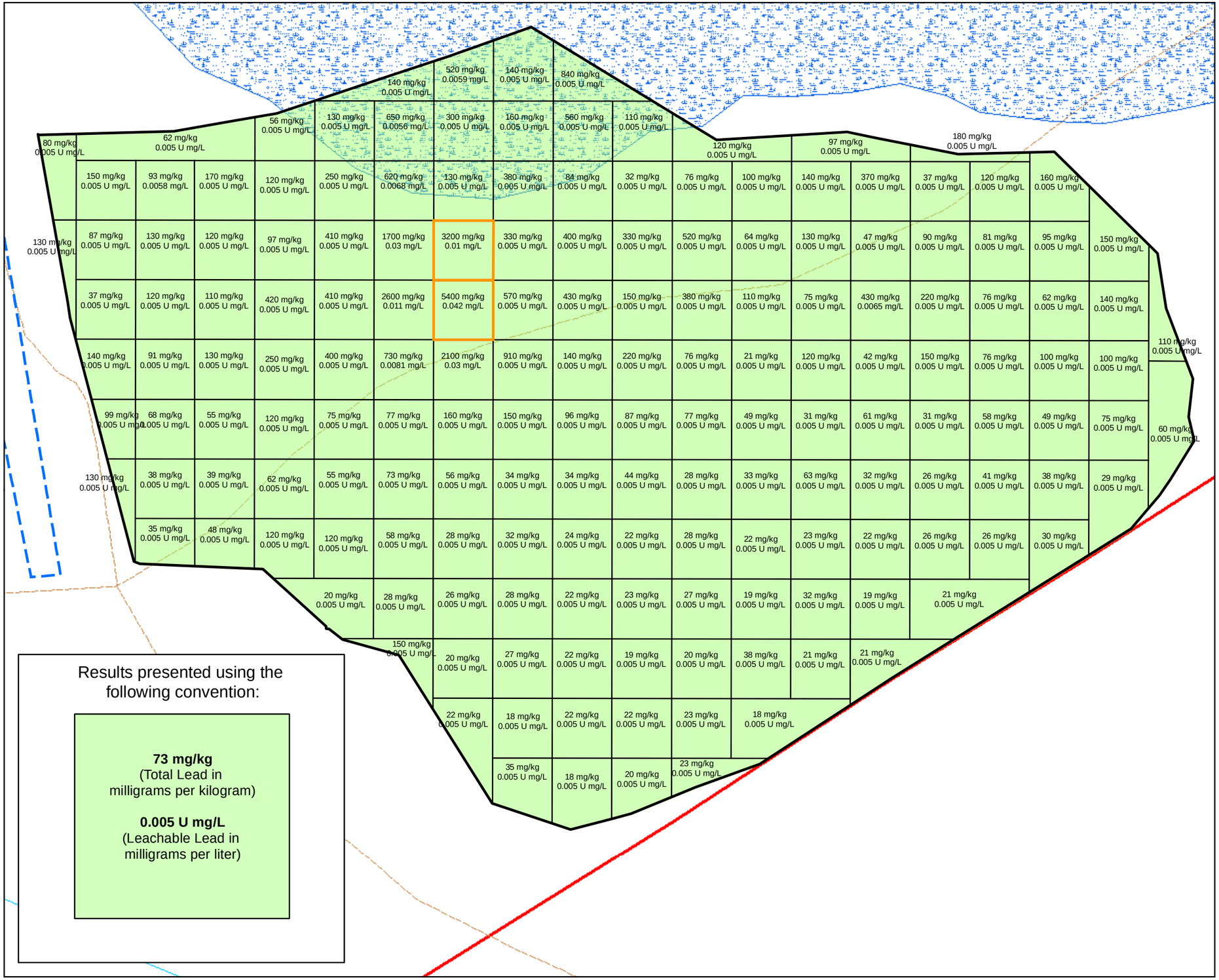
0 25 50 100 Feet

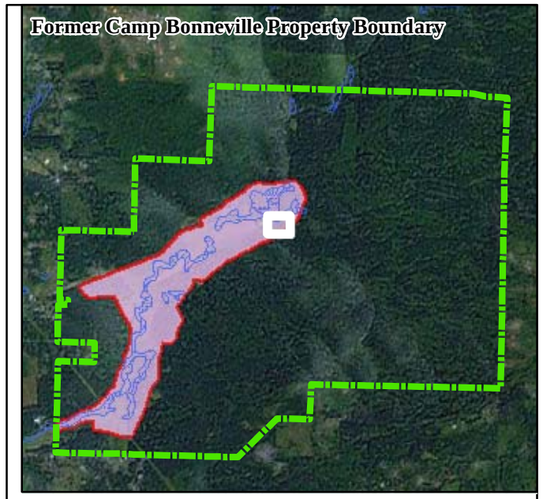
Clark County Public Works

FIGURE 5
REMEDIAL ACTION UNIT 2A-16
LEAD SAMPLE RESULTS

Former Camp Bonneville Military Reservation
Vancouver, Washington

WESTON SOLUTIONS





LEGEND

- Lead-Impacted Overshoot Area
- Alternative 1 Soil Removal Area
- RAU 2A-21 Berm (Removed)
- Property Boundary
- Central Valley Floor and Wetlands
- Wetland
- Road

Notes:
U indicates result is not detected.
Value provided is the reporting limit.

N

0 40 80 160 Feet

Clark County Public Works

FIGURE 6
REMEDIAL ACTION UNIT 2A-21
LEAD SAMPLE RESULTS

Former Camp Bonneville Military Reservation
Vancouver, Washington

WESTON SOLUTIONS

TABLES

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS001		16-SS002		16-SS003		16-SS004		16-SS005		16-SS006	
Location ID		16-001		16-002		16-003		16-004		16-005		16-006	
Laboratory Sample ID		287077-001		287077-002		287077-003		287077-004		287077-005		287077-006	
Sample Date	**Cleanup**	3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**430**		**510**		**370**		**280**		**520**		**470**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.042**		**0.054**		**0.19**		**0.4**		**0.78**		**0.07**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS007		16-SS008		16-SS009		16-SS010		16-SS011		16-SS012	
Location ID		16-007		16-008		16-009		16-010		16-011		16-012	
Laboratory Sample ID		287077-007		287077-008		287077-009		287077-010		287077-011		287077-012	
Sample Date	**Cleanup**	3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**420**		**620**		**190**		**400**		**230**		**290**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.12**		**0.061**		**0.05**		**0.1**		**0.07**		**0.043**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS013		16-SS014		16-SS015		16-SS016		16-SS017		16-SS018	
Location ID		16-013		16-014		16-015		16-016		16-017		16-018	
Laboratory Sample ID		287077-013		287077-014		287077-015		287077-016		287077-017		287077-018	
Sample Date	**Cleanup**	3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**330**		**170**		**160**		**250**		**240**		**270**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.071**		**0.025**		**0.033**		**0.074**		**0.064**		**0.11**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS019		16-SS020		16-SS021		16-SS022		16-SS023		16-SS024	
Location ID		16-019		16-020		16-021		16-022		16-023		16-024	
Laboratory Sample ID		287077-019		287077-020		287077-021		287077-022		287077-023		287077-024	
Sample Date	**Cleanup**	3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017		3/13/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**220**		**180**		**320**		**650**		**200**		**170**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.057**		**0.084**		**0.017**		**0.11**		**0.019**		**0.061**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS025		16-SS026		16-SS027		16-SS028		16-SS029		16-SS030	
Location ID		16-025		16-026		16-027		16-028		16-029		16-030	
Laboratory Sample ID		287077-025		287077-026		287077-027		287077-028		287077-029		287077-030	
Sample Date	**Cleanup**	3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/14/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**170**		**380**		**490**		**220**		**230**		**440**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.029**		**0.053**		**0.11**		**0.05**		**0.066**		**0.037**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS031		16-SS032		16-SS033		16-SS034		16-SS035		16-SS036	
Location ID		16-031		16-032		16-033		16-034		16-035		16-036	
Laboratory Sample ID		287077-031		287077-032		287077-033		287077-034		287077-035		287077-036	
Sample Date	**Cleanup**	3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/14/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**610**		**450**		**100**		**170**		**90**		**620**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.29**		**0.23**		**0.011**		**0.035**		**0.008**		**0.02**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS037		16-SS038		16-SS039		16-SS040		16-SS041		16-SS042	
Location ID		16-037		16-038		16-039		16-040		16-041		16-042	
Laboratory Sample ID		287077-037		287077-038		287077-039		287077-040		287077-041		287077-042	
Sample Date	**Cleanup**	3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/14/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**620**		**75**		**150**		**240**		**340**		**570**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.038**		0.005	U	0.005	U	0.005	U	**0.01**		**0.012**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS043		16-SS044		16-SS045		16-SS046		16-SS047		16-SS048	
Location ID		16-043		16-044		16-045		16-046		16-047		16-048	
Laboratory Sample ID		287077-043		287077-044		287077-045		287077-046		287077-047		287077-048	
Sample Date	**Cleanup**	3/14/2017		3/14/2017		3/14/2017		3/14/2017		3/15/2017		3/15/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**350**		**63**		**500**		**600**		**590**		**30**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.0052**		0.005	U	**0.015**		**0.011**		**0.023**		0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		16-SS049		16-SS050		21-SS051		21-SS052		21-SS053		21-SS054	
Location ID		16-049		16-050		21-051		21-052		21-053		21-054	
Laboratory Sample ID		287077-049		287077-050		287252-011		287252-010		287252-009		287252-008	
Sample Date	**Cleanup**	3/15/2017		3/15/2017		3/16/2017		3/16/2017		3/16/2017		3/16/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**560**		**660**		**80**		**130**		**62**		**150**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	**0.0099**		**0.012**		0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS055		21-SS056		21-SS057		21-SS058		21-SS059		21-SS060	
Location ID		21-055		21-056		21-057		21-058		21-059		21-060	
Laboratory Sample ID		287252-007		287252-006		287252-005		287252-004		287252-003		287082-001	
Sample Date	**Cleanup**	3/16/2017		3/16/2017		3/16/2017		3/16/2017		3/16/2017		3/15/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**87**		**37**		**140**		**99**		**130**		**93**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	**0.0058**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS061		21-SS062		21-SS063		21-SS064		21-SS065		21-SS066	
Location ID		21-061		21-062		21-063		21-064		21-065		21-066	
Laboratory Sample ID		287082-002		287082-003		287082-004		287082-005		287082-006		287082-007	
Sample Date	**Cleanup**	3/15/2017		3/15/2017		3/15/2017		3/15/2017		3/15/2017		3/15/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**130**		**120**		**91**		**68**		**38**		**35**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS067		21-SS068		21-SS069		21-SS070		21-SS071		21-SS072	
Location ID		21-067		21-068		21-069		21-070		21-071		21-072	
Laboratory Sample ID		287082-008		287082-009		287082-010		287082-011		287082-012		287252-023	
Sample Date	**Cleanup**	3/15/2017		3/15/2017		3/15/2017		3/15/2017		3/15/2017		3/15/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**170**		**120**		**110**		**130**		**55**		**39**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS073		21-SS074		21-SS075		21-SS076		21-SS077		21-SS078	
Location ID		21-073		21-074		21-075		21-076		21-077		21-078	
Laboratory Sample ID		287082-013		287252-002		287252-001		287082-014		287082-015		287082-016	
Sample Date	**Cleanup**	3/15/2017		3/15/2017		3/15/2017		3/15/2017		3/15/2017		3/15/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**48**		**56**		**120**		**97**		**420**		**250**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS079		21-SS080		21-SS081		21-SS082		21-SS083		21-SS084	
Location ID		21-079		21-080		21-081		21-082		21-083		21-084	
Laboratory Sample ID		287082-017		287082-018		287082-019		287252-016		287252-015		287252-014	
Sample Date	**Cleanup**	3/15/2017		3/15/2017		3/15/2017		3/16/2017		3/16/2017		3/16/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**120**		**62**		**120**		**130**		**250**		**410**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS085		21-SS086		21-SS087		21-SS088		21-SS089		21-SS090	
Location ID		21-085		21-086		21-087		21-088		21-089		21-090	
Laboratory Sample ID		287252-013		287252-012		287252-017		287252-018		287252-019		287252-020	
Sample Date	**Cleanup**	3/16/2017		3/16/2017		3/16/2017		3/16/2017		3/16/2017		3/16/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**410**		**400**		**75**		**55**		**120**		**20**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS091		21-SS092		21-SS093		21-SS094		21-SS095		21-SS096	
Location ID		21-091		21-092		21-093		21-094		21-095		21-096	
Laboratory Sample ID		287252-032		287252-031		287252-030		287252-029		287252-028		287252-027	
Sample Date	**Cleanup**	3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**140**		**650**		**620**		**1700**		**2600**		**730**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	**0.0056**		**0.0068**		**0.030**		**0.011**		**0.0081**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS097		21-SS098		21-SS099		21-SS100		21-SS101		21-SS102	
Location ID		21-097		21-098		21-099		21-100		21-101		21-102	
Laboratory Sample ID		287252-021		287252-022		287252-024		287252-025		287252-026		287252-038	
Sample Date	**Cleanup**	3/16/2017		3/16/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**77**		**73**		**58**		**28**		**150**		**520**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	**0.0059**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS103		21-SS104		21-SS105		21-SS106		21-SS107		21-SS108	
Location ID		21-103		21-104		21-105		21-106		21-107		21-108	
Laboratory Sample ID		287252-037		287252-036		287252-035		287252-034		287252-033		287252-039	
Sample Date	**Cleanup**	3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**300**		**130**		**3200**		**5400**		**2100**		**160**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	**0.010**		**0.042**		**0.030**		0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS109		21-SS110		21-SS111		21-SS112		21-SS113		21-SS114	
Location ID		21-109		21-110		21-111		21-112		21-113		21-114	
Laboratory Sample ID		287252-040		287252-041		287252-042		287252-043		287252-044		287362-005	
Sample Date	**Cleanup**	3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**56**		**28**		**26**		**20**		**22**		**140**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS115		21-SS116		21-SS117		21-SS118		21-SS119		21-SS120	
Location ID		21-115		21-116		21-117		21-118		21-119		21-120	
Laboratory Sample ID		287362-004		287362-003		287362-002		287362-001		287252-045		287362-006	
Sample Date	**Cleanup**	3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017		3/20/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**160**		**380**		**330**		**570**		**910**		**150**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS121		21-SS122		21-SS123		21-SS124		21-SS125		21-SS126	
Location ID		21-121		21-122		21-123		21-124		21-125		21-126	
Laboratory Sample ID		287362-007		287362-008		287362-009		287362-010		287362-011		287362-012	
Sample Date	**Cleanup**	3/20/2017		3/21/2017		3/21/2017		3/21/2017		3/21/2017		3/21/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**34**		**32**		**28**		**27**		**18**		**35**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS127		21-SS128		21-SS129		21-SS130		21-SS131		21-SS132	
Location ID		21-127		21-128		21-129		21-130		21-131		21-132	
Laboratory Sample ID		287362-017		287362-016		287362-015		287362-014		287362-013		287362-018	
Sample Date	**Cleanup**	3/22/2017		3/22/2017		3/21/2017		3/21/2017		3/21/2017		3/22/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**840**		**560**		**84**		**400**		**430**		**140**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS133		21-SS134		21-SS135		21-SS136		21-SS137		21-SS138	
Location ID		21-133		21-134		21-135		21-136		21-137		21-138	
Laboratory Sample ID		287362-019		287362-020		287362-021		287362-022		287362-023		287362-024	
Sample Date	**Cleanup**	3/22/2017		3/22/2017		3/22/2017		3/22/2017		3/22/2017		3/22/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**96**		**34**		**24**		**22**		**22**		**22**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS139		21-SS140		21-SS141		21-SS142		21-SS143		21-SS144	
Location ID		21-139		21-140		21-141		21-142		21-143		21-144	
Laboratory Sample ID		287362-025		287362-037		287362-036		287362-033		287362-034		287362-026	
Sample Date	**Cleanup**	3/22/2017		3/22/2017		3/22/2017		3/22/2017		3/22/2017		3/22/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**18**		**110**		**32**		**330**		**150**		**220**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS145		21-SS146		21-SS147		21-SS148		21-SS149		21-SS150	
Location ID		21-145		21-146		21-147		21-148		21-149		21-150	
Laboratory Sample ID		287362-027		287362-028		287362-029		287362-030		287362-031		287362-032	
Sample Date	**Cleanup**	3/22/2017		3/22/2017		3/22/2017		3/22/2017		3/22/2017		3/22/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**87**		**44**		**22**		**23**		**19**		**22**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS151		21-SS152		21-SS153		21-SS154		21-SS155		21-SS156	
Location ID		21-151		21-152		21-153		21-154		21-155		21-156	
Laboratory Sample ID		287362-033		287500-001		287500-002		287362-046		287500-003		287362-038	
Sample Date	**Cleanup**	3/22/2017		3/23/2017		3/23/2017		3/23/2017		3/23/2017		3/22/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**20**		**120**		**76**		**520**		**380**		**76**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS157		21-SS158		21-SS159		21-SS160		21-SS161		21-SS162	
Location ID		21-157		21-158		21-159		21-160		21-161		21-162	
Laboratory Sample ID		287362-039		287362-040		287362-041		287362-042		287362-043		287362-044	
Sample Date	**Cleanup**	3/22/2017		3/22/2017		3/22/2017		3/23/2017		3/23/2017		3/23/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**77**		**28**		**28**		**27**		**20**		**23**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS163		21-SS164		21-SS165		21-SS166		21-SS167		21-SS168	
Location ID		21-163		21-164		21-165		21-166		21-167		21-168	
Laboratory Sample ID		287362-045		287500-004		287500-005		287500-006		287500-007		287500-008	
Sample Date	**Cleanup**	3/23/2017		3/23/2017		3/23/2017		3/23/2017		3/23/2017		3/23/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**23**		**100**		**64**		**110**		**21**		**49**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS169		21-SS170		21-SS171		21-SS172		21-SS173		21-SS174	
Location ID		21-169		21-170		21-171		21-172		21-173		21-174	
Laboratory Sample ID		287500-009		287500-010		287500-011		287500-012		287500-013		287610-001	
Sample Date	**Cleanup**	3/23/2017		3/23/2017		3/23/2017		3/23/2017		3/23/2017		3/27/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**33**		**22**		**19**		**38**		**18**		**97**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS175		21-SS176		21-SS177		21-SS178		21-SS179		21-SS180	
Location ID		21-175		21-176		21-177		21-178		21-179		21-180	
Laboratory Sample ID		287500-014		287500-015		287500-016		287500-017		287500-018		287500-019	
Sample Date	**Cleanup**	3/27/2017		3/27/2017		3/27/2017		3/27/2017		3/27/2017		3/27/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**140**		**130**		**75**		**120**		**31**		**63**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS181		21-SS182		21-SS183		21-SS184		21-SS185		21-SS186	
Location ID		21-181		21-182		21-183		21-184		21-185		21-186	
Laboratory Sample ID		287500-020		287500-021		287500-022		287610-010		287610-009		287610-008	
Sample Date	**Cleanup**	3/27/2017		3/27/2017		3/27/2017		3/27/2017		3/27/2017		3/27/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**23**		**32**		**21**		**370**		**47**		**430**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	**0.0065**	

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS187		21-SS188		21-SS189		21-SS190		21-SS191		21-SS192	
Location ID		21-187		21-188		21-189		21-190		21-191		21-192	
Laboratory Sample ID		287610-007		287610-006		287610-005		287610-004		287610-003		287610-002	
Sample Date	**Cleanup**	3/27/2017		3/27/2017		3/27/2017		3/27/2017		3/27/2017		3/27/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**42**		**61**		**32**		**22**		**19**		**21**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS193		21-SS194		21-SS195		21-SS196		21-SS197		21-SS198	
Location ID		21-193		21-194		21-195		21-196		21-197		21-198	
Laboratory Sample ID		287610-019		287610-018		287610-017		287610-016		287610-015		287610-014	
Sample Date	**Cleanup**	3/28/2017		3/28/2017		3/28/2017		3/28/2017		3/28/2017		3/28/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**180**		**37**		**90**		**220**		**150**		**31**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS199		21-SS200		21-SS201		21-SS202		21-SS203		21-SS204	
Location ID		21-199		21-200		21-201		21-202		21-203		21-204	
Laboratory Sample ID		287610-013		287610-012		287610-011		287610-026		287610-025		287610-024	
Sample Date	**Cleanup**	3/27/2017		3/27/2017		3/27/2017		3/29/2017		3/29/2017		3/28/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**26**		**26**		**21**		**120**		**81**		**76**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS205		21-SS206		21-SS207		21-SS208		21-SS209		21-SS210	
Location ID		21-205		21-206		21-207		21-208		21-209		21-210	
Laboratory Sample ID		287610-023		287610-022		287610-021		287610-020		287610-027		287610-028	
Sample Date	**Cleanup**	3/28/2017		3/28/2017		3/28/2017		3/28/2017		3/29/2017		3/29/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**76**		**58**		**41**		**26**		**160**		**95**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS211		21-SS212		21-SS213		21-SS214		21-SS215		21-SS216	
Location ID		21-211		21-212		21-213		21-214		21-215		21-216	
Laboratory Sample ID		287610-040		287610-029		287610-030		287610-031		287610-032		287610-037	
Sample Date	**Cleanup**	3/29/2017		3/29/2017		3/29/2017		3/29/2017		3/29/2017		3/28/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**62**		**100**		**49**		**38**		**30**		**150**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

Table 1
Total and Leachable Lead Results Summary
Remedial Action Unit 2A-16 and Remedial Action Unit 2A-21

Field Sample ID		21-SS217		21-SS218		21-SS219		21-SS220		21-SS221		21-SS222	
Location ID		21-217		21-218		21-219		21-220		21-221		21-222	
Laboratory Sample ID		287610-036		287610-035		287610-034		287610-033		287610-038		287610-039	
Sample Date	**Cleanup**	3/29/2017		3/29/2017		3/29/2017		3/29/2017		3/29/2017		3/29/2017	
Sample Type	**Level**	Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate		Soil/Leachate	
			Qual		Qual		Qual		Qual		Qual		Qual
Total Lead Method 3050B/6010C	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Lead	3,000	**140**		**100**		**75**		**29**		**110**		**60**	
Leachable Lead Method 1312/3010A/6010C	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Leachable Lead	0.15	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:
mg/kg milligrams per kilogram
mg/L milligrams per liter
U not detected (result provided is the sample quantitation limit)
Bold results are detected values

Shaded results are greater than the cleanup level

APPENDIX A
FINAL CLEANUP ACTION PLAN
SMALL ARMS RANGES (RAU 2A)
(Compact Disk only)