

## AR TARGET SHEET

The following document was too large to scan as one unit, therefore, it has been broken down into sections.

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SECTION: 2 OF 2

DOCUMENT #: DOE/RL-2005-61, Draft A

TITLE: RI Report for 200-LW-1 and 200-LW-2 OU

## 6.0 CONCLUSIONS AND PATH FORWARD

The 200-LW-1 and 200-LW-2 OUs will be remediated under the CERCLA process. These OUs include RCRA past-practice waste sites; therefore, RCRA compliance will be documented and achieved through completion of the CERCLA process, and additional documentation to support the *Hanford Facility RCRA Permit* (WA7890008967) will be completed as described in the Implementation Plan (DOE/RL-98-28). Tasks to be completed following this RI include preparing an FS, a CERCLA Proposed Plan, and a CERCLA record of decision (ROD). CERCLA-RCRA integration is consistent with the provisions contained in the Tri-Party Agreement.

### 6.1 CONCLUSIONS

The purpose of this RI report was to perform the following:

1. Determine if sufficient data have been collected to support risk assessment and remedial decision making
2. Estimate risks at the representative waste sites based on the data collected during the RI and other existing data
3. Determine if any treatability investigations are required
4. Determine the need to proceed with an FS
5. Determine those constituents and site-specific considerations that need to be addressed in the FS.

The first purpose was met for the 216-S-20 Crib and the 216-Z-7 Crib; the data collected were of sufficient quantity and quality to both support the risk assessment activities and proceed to the FS to support evaluation of remedial alternatives and identify preferred remedial actions.

At the 216-T-28 Crib, incomplete soil recovery prevented samples from being collected and analyzed from the shallow zone (0 to 4.6 m [0 to 15 ft]). However it is anticipated that the major zones of contamination are below 4.6 m (15 ft), because the bottom of the crib is located just below 4.6 m (15 ft). In addition, similarities in the 216-T-28 Crib, the 216-S-20 Crib, and the 216-Z-7 Crib construction and inventories suggest that there is a similar risk associated with the 216-T-28 Crib. Therefore, it has been determined that the data collected at the 216-T-28 Crib also are of sufficient quantity and quality to support risk-assessment activities and to proceed to the FS to support evaluation of alternatives.

The second, third, and fourth purposes were achieved by estimating risk to human health (described in Chapter 5.0), which includes screening potential ecological risk and evaluating the impact to groundwater from those COPCs identified during the RI. Evaluation of the data collected during the RI concluded that no treatability investigations are required at this time. These risk estimates indicate that human health risks, evaluated under an industrial land-use scenario, are at acceptable levels at two of the three representative sites and will not require an

evaluation of remedial alternatives in an FS. Although no shallow soils data were available to evaluate risk at the 216-T-28 Crib, similarities in inventory, construction, and future land-use between the 216-T-28 Crib and the 216-S-20 and 216-T-28 Cribs suggest that there is a similar lack of risk associated with this site and that this site will not require an evaluation of remedial alternatives in an FS. In addition, exposure durations and intakes are less for an industrial worker than for some other exposure scenarios (such as unrestricted), where more time is spent at the waste site and greater volumes of contaminants will be encountered. Therefore, other scenarios would have even higher risks. The Tri-Parties' response (Klein et al. 2002) to HAB 132 committed to an evaluation of risk to potential intruders; this evaluation will be conducted as part of the FS and will include a potential residential exposure scenario.

Potential groundwater impacts also were evaluated at the three representative sites. An evaluation of protection of groundwater indicated that contaminants currently in the vadose zone likely will impact groundwater in the future. Based on the results of this evaluation, it was determined that risks associated with groundwater impacts are at unacceptable levels that will require an evaluation or remedial alternatives in the FS.

Those constituents and site-specific considerations that the FS needs to address are presented in Table 6-1. Table 6-2 identifies those contaminants that should be considered for confirmatory sampling in the future.

## **6.2 REMEDIAL INVESTIGATION REPORT SUMMARY**

The RI was conducted according to the Work Plan (DOE/RL-2001-66). The data were evaluated against the DQOs identified in the DQO summary report (BHI-01589). Through a DQA, the data were found to have met the DQOs established for this work. Contaminants were identified at the 216-T-28 Crib, 216-S-20 Crib, and 216-Z-7 Crib that may present a risk to human health and the environment. The data from these sites were used to estimate the risk, determine the need to proceed with an FS, and determine those constituents and site-specific considerations that need to be addressed in the FS. This RI report also provides data to support the evaluation of alternatives in the FS with regard to meeting potential ARARs and reducing risk.

The evaluation of the representative sites involved site characterization, refinement of the contaminant distribution and exposure models, a baseline risk evaluation, ecological risk screening, and fate and transport modeling. The data collected from the three representative sites, the 216-T-28 Crib, the 216-S-20 Crib, and the 216-Z-7 Crib, are considered sufficient for human health risk assessment and for remedial decision making.

### **6.2.1 Characterization**

Borehole drilling and sampling, large-diameter push-hole (drive-casing) installation, direct-push sampling, and sampling and analysis of soils were used to characterize the 216-T-28, 216-S-20, and 216-Z-7 Cribs representative waste sites. Data from these sites were collected during characterization efforts in fiscal years 2004 and 2005. Borehole geophysical surveys were performed at the 216-T-28, 216-S-20, and 216-Z-7 Cribs. An SGLS and an HRLS were used to

capture the down-hole radiometric signature at the three boreholes and six direct-push holes completed during the RI. Other than this geophysical data, no additional data were collected at these sites during the RI, because the DQO summary reports (BHI-01589 and WMP-18098) indicate that the information collected before the RI in addition to the geophysical data collected during the RI is sufficient for remedial decision making.

#### **6.2.1.1 Contaminant Distribution Models and Exposure Models**

The conceptual contaminant distribution models and the conceptual exposure model developed in the Work Plan (DOE/RL-2001-66) were revised based on the data obtained during the RI and other data-collection activities. The contaminant distribution models are presented in Chapter 3.0 but generally can be described as follows.

- Contamination associated with less mobile contaminants of concern, such as cesium, plutonium, and strontium, are detected in the highest concentrations near the bottom of the waste sites.
- Contaminant concentrations generally decrease with depth below the waste site bottom.
- Most of the contamination remains high in the vadose zone above the water table.
- Highly mobile contaminants of concern, such as technetium and tritium, have passed through the vadose zone and are detected sporadically across the vadose zone in low concentrations.

The exposure pathway model for the OUs is presented in Chapter 5.0 and generally is summarized as follows.

- Potentially contaminated media are shallow-zone soils, deep-zone soils, biota, and groundwater.
- Potential receptors are mainly current and future workers (based on the current land-use assumptions) and terrestrial biota.
- Exposure pathways are ingestion, dermal contact, inhalation, and exposure to external radiation.

The contaminant distribution models in this RI report generally have changed very little from the models in the Work Plan (DOE/RL-2001-66) with respect to the distribution of contamination. However, the models were updated to better depict the nature and vertical extent of contamination relative to the physical setting. The revised models identify the specific contaminants present, contaminant concentrations, and the vertical extent of contamination relative to the water table.

The conceptual model contains the following media types:

- Surface soils or shallow-zone soils from 0 to 4.6 m (0 to 15 ft) bgs
- Subsurface soils or deep-zone soils from 0 m to groundwater

- Groundwater
- Biota.

Based on current land-use assumptions, potential receptors are current workers, future workers, and terrestrial biota.

### **6.2.1.2 Contaminants of Concern and Site Risks**

Contaminants of concern were identified by following a data evaluation process that is based on regulatory guidance and professional judgment. Nonradioactive constituents analyzed in the RI were screened based on detection (constituents with no detections were eliminated), comparison to background, and comparison to regulatory requirements. Estimates for cancer risk were generated. Radiological constituents were screened based on detection and background. Radiological dose and cancer risk to receptors were evaluated using RESRAD (ANL 2002). The COPCs, relative risks, and radiological dose rates for each representative waste site are summarized in Table 6-1. Table 6-1 identifies those contaminants of concern that, based on the results of the data evaluation, must be considered for remedial action in the FS. Table 6-2 identifies those COPCs that were consistently identified in the 200-LW-1 and 200-LW-2 OUs and that are the most likely contaminants for future sampling efforts (i.e., confirmatory sampling, design sampling, verification sampling).

### **6.2.1.3 Need for Treatability Investigations**

Field and analytical results are consistent with the conceptual contaminant distribution models that were developed in the Work Plan (DOE/RL-2001-66) and that are seen at similar waste sites in other OUs. Based on the evaluation of the data derived from characterization of the representative waste sites against the preliminary remedial technologies identified in Appendix D of the Implementation Plan (DOE/RL-98-28), the potential technologies (e.g., removal and disposal, containment) currently identified will be adequate to address the contamination. Therefore, no treatability investigation requirements are identified at this time. Site-specific testing may be required later to support the remedial design phase and to define operating parameters.

## **6.2.2 Ecological Screening**

Contaminants in this report were compared to ecological soil-screening indicators in WAC-173-340-900, Table 749-3 (see Tables 5-25 through 5-27 of this RI report for chemical screening), and DOE-STD-1153-2002 (see Tables 5-28 through 5-30 of this RI report for radionuclide screening).

## **6.2.3 Fate and Transport Modeling and Evaluation**

The initial screening of the nonradioactive contaminants was performed by comparing the analysis results to the RBC, based on WAC 173-340-720, "Ground Water Cleanup Standards." The COPCs were compared to background levels in Table 5-3 (for shallow-zone soils) and Table 4-1 (for deep-zone soils). Organic COPCs were compared to human health RBCs in

Table 5-10 (organic chemicals). Inorganic chemicals were screened in Table 5-7 (direct exposure) and Tables 4-2, 4-3, and 4-4 (protection of groundwater). For radionuclides, specific site contaminants were selected based on the results of transport screening analyses performed using RESRAD modeling (ANL 2002) and regulatory considerations. Tables 5-13 through 5-17 give RESRAD dose and risk assessment results for individual waste sites. A second evaluation was performed to assess whether additional modeling was required. This included evaluation of the partition coefficients, frequency of detection, location of any single detects in the soil column, and whether the constituent already has reached groundwater. The evaluation was qualitative and is provided in Chapter 4.0 of this RI report. Based on this evaluation, sufficient data already existed to assess the fate and transport. A chart showing the flow of data through the screening and modeling processing is shown in Appendix A, Figure A-1.

The results of the fate and transport modeling and added evaluation indicate that most contaminants of concern are effectively attenuated in the vadose zone and do not pose a substantial threat to future groundwater quality during the 1,000-year simulation. Contaminants that will affect groundwater in the future in significant concentrations are fluoride, nitrate, Tc-99, and tritium. Both Tc-99 and tritium are predicted to reach groundwater within the 1,000 years. Short-lived radionuclides, such as Cs-137 and Sr-90, were shown to decay long before reaching groundwater.

## **6.3 PATH FORWARD**

### **6.3.1 Feasibility Study**

The FS will follow CERCLA guidance and the strategy in the Implementation Plan (DOE/RL-98-28). Although some refinement is expected during the FS, Appendix D of the Implementation Plan fulfills many of the requirements for the screening phase (Steps 1 through 6) of the FS process. The potential ARARs, preliminary RAOs, preliminary remediation goals, general response actions, and the screening-level analysis of alternatives are identified in the Implementation Plan. The information is not repeated here but is incorporated by this reference into this RI report. Potential ARARs are expected to be fully developed in the FS. The FS also will identify any applicable treatability studies.

As a result of the work completed in the Implementation Plan (DOE/RL-98-28), the FS report will focus on the final phase of the FS, which consists of refining and analyzing in detail a limited number of alternatives identified in the screening phase. General response actions considered applicable to the 200-LW-1 and 200-LW-2 OUs are as follows:

- No action
- Institutional controls and monitored natural attenuation
- Engineered surface barriers
- Excavation and disposal with or without ex situ treatment
- In situ grouting or stabilization
- In situ vitrification.

An initial activity of the FS will be the detailed evaluation of available information for the analogous waste sites in the OUs. Data will be compiled to evaluate the applicability of the representative waste sites to the analogous waste sites for the contaminant distribution models and relative risks developed in this RI report. Waste sites that are determined not to be analogous to the representative waste sites will be evaluated against representative waste sites from other OUs. Based on the specific characteristics, such a waste site may be reassigned to a more appropriate OU or may be maintained in the current OU with a requirement for confirmatory sampling. Changes to the preferred alternative would be evaluated, as needed, based on confirmatory data. The waste sites that are determined to be analogous to one or more of the representative waste sites will be evaluated for appropriate remedial measures through the FS process. Additional data needs may be identified during the FS process and during the DQO to support the confirmatory sampling for these analogous waste sites.

To support evaluation of the CERCLA criteria in the FS, additional risk-assessment activities will be conducted to evaluate the potential risks to inadvertent intruders. As reported in DOE/RL-2004-24, *Feasibility Study for the 200-CW-5 (U Pond/Z Ditches Cooling Water Waste group), 200-CW-2 (S Pond and Ditches Cooling Water Waste Group), 200-CW-4 (T Pond and Ditches Cooling Water Waste Group), and 200-SC-1 (Steam Condensate Waste Group) Operable Units*, and DOE/RL-2003-23, *Focused Feasibility Study for the 200-UW-1 Operable Unit*, the inadvertent intruder focuses on someone 150 years in the future who engages in an activity that results in contact with wastes that have been left in place. This could include a construction trench worker, a well driller, or a rural resident. The latter is considered the worst case scenario and, therefore, will be analyzed in the greatest detail.

### 6.3.2 Further Ecological Evaluations

Ecological risk will be evaluated using the EPA eight-step process as outlined in DOE/RL-2001-54. DOE/RL-2001-54 serves as the screening-level assessment for the Central Plateau. For the 200-LW-1 and 200-LW-2 OUs, an OU-specific screening has been conducted, and the results are included in this RI report.

DOE/RL-2001-54 is a foundation for the Central Plateau ecological evaluation DQO process that was conducted in fiscal years 2003 and 2004. This DQO process will further develop data gaps identified in DOE/RL-2001-54 and identify data needs for the Central Plateau to support remedial decision making. An ecological evaluation sampling and analysis plan will be prepared and implemented for the Central Plateau, either on an area-wide basis or by OU, depending on the actual data needs.

Based on the results of the DQO and the screening-level evaluation, additional risk assessment activities, including a baseline ecological risk assessment, may be conducted using the eight-step process. The evaluation will be conducted based on soil data collected during the RI, existing soil and ecological data, and, if identified during the Central Plateau ecological evaluation DQO, newly collected ecological data collected through a separate ecological evaluation sampling and analysis. The evaluation may be conducted on an OU-specific basis as part of the FS or on a Central Plateau basis, which would be reported in a separate report. This decision will be made through the DQO process.

### **6.3.3 Proposed Plan and Proposed RCRA Permit Modification**

The decision-making process for the waste sites in the 200-LW-1, and 200-LW-2 OUs will be based on the use of a proposed plan and a ROD. The proposed plan will be developed in conjunction with a draft permit modification with unit-specific permit conditions for the RCRA past-practice sites. A modification to the *Hanford Facility RCRA Permit (WA7890008967)* will incorporate the decision in the permit for these sites. During the RI/FS process, a number of options for developing proposed plans and RODs will be evaluated. Remedial decisions may proceed on an OU-by-OU basis, but alternative site groupings may be considered for waste sites in the Central Plateau. Several alternatives currently are under consideration, some of which may be used for the waste sites addressed in this RI report.

Three alternatives to the OU-by-OU remediation approach have been identified to provide flexibility in the decision-making process, facilitate early action, and remediate and close specific areas or zones. Examples of these alternatives are as follows.

#### **6.3.3.1 High-Risk Waste Sites Identified for Early Action**

The first alternative accelerates the start of remedial actions and closure of waste sites that present an ongoing or expected future threat to groundwater. Some high-risk sites already have been identified for early actions in the BC Cribs and Trenches Area and near the U Plant, the Plutonium-Uranium Extraction Plant, and the Plutonium Finishing Plant. Four waste sites (the 216-B-53A, 216-B-53B, 216-B-54, and 216-B-58 Trenches) in the 200-LW-1 OU have been transferred to the 200-TW-1 OU. Work at this OU has been accelerated.

#### **6.3.3.2 Regional Site Closure**

Under the second alternative, waste site remedial decision-making may be realigned under a regional closure strategy that aligns waste sites into groups defined by geographical zones.

#### **6.3.3.3 Waste Site Grouping by Characteristics or Hazards**

The third alternative for remedial decision-making strategies is based on a specific characteristic or hazard that mandates additional requirements, such as supplemental ARARs, or more robust remedial alternatives. For example, other OUs contain a number of waste sites that are suspected of containing concentrations of transuranic radionuclides in excess of the 100 nCi/g concentration limit for designation as TRU<sup>1</sup> waste. Waste sites containing concentrations of TRU radionuclides above 100 nCi/g may require selective removal actions or more protective barrier designs to prevent intrusion based on this particular hazard. Such alternatives are not required for other chemical waste sites in 200-LW-1 or 200-LW-2 OUs where only low levels of radionuclides are present. Grouping waste sites with other similarly contaminated soil sites in other OUs could streamline the decision-making process and tailor the requirements and alternatives to these specific hazards.

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<sup>1</sup> Waste materials contaminated with 100 nCi/g of transuranic materials having half-lives longer than 20 years.

Following the completion of the FS, a proposed plan will be prepared that identifies the preferred remedial alternative for the OUs (which will include RCRA closure and corrective-action requirements). In addition to identifying the preferred alternative, the proposed plan will serve the following purposes:

- Provide a summary of the completed RI/FS
- Provide criteria by which analogous waste sites within the OUs that were not previously characterized will be evaluated after the ROD is issued to confirm that the contaminant distribution model for the site is consistent with the preferred alternative. Contingencies to move a waste site to a more appropriate waste group also will be developed
- Identify performance standards and ARARs that are applicable to the OUs.

After the public review process is complete, a final decision on the remedial action to be taken will be documented in a ROD. The *Hanford Facility RCRA Permit* subsequently will be modified by Ecology to reference these activities as satisfying the RCRA requirements. If alternative decision-making strategies are employed, lead agency realignments may be considered in consultations between EPA and Ecology.

Because the 200 Areas are composed of CERCLA past-practice, RCRA past-practice, and TSD sites, the Tri-Parties have committed that the cleanup strategies will be integrated to the maximum extent possible. This is consistent with specific recommendations for integration in the Tri-Party Agreement (Ecology et al. 1989) and Section 2.4 of the Implementation Plan (DOE/RL-98-28) and can be accommodated under the *Hanford Facility RCRA Permit*.

#### **6.4 POST-RECORD OF DECISION ACTIVITIES AND ANALOGOUS SITE APPROACH**

The ROD for these OUs will cover all of the waste sites in the OUs, not just the three representative waste sites characterized under the RI. This analogous site approach is described in more detail in the Implementation Plan (DOE/RL-98-28). The basic approach is that the representative waste sites contain types, concentrations, and distributions of contaminants similar to those at the other sites in the OU, because the waste sites are grouped on the basis of similar site histories and processes. The waste sites, therefore, share similar risks and a similar need for remedial action. The data collected for the representative waste sites will be considered to be analogous to the remaining sites (Section 1.3.5).

After the ROD has been issued, a remedial design report and remedial action work plan will be prepared to detail the scope of the remedial action. As part of this activity, DQOs will be established and SAPs will be prepared to direct confirmatory and/or remedial design and verification sampling and analysis activities. Before remediation is started, confirmation and/or remedial design sampling will be performed to ensure that sufficient characterization data are available to confirm that the selected remedy is appropriate for the waste sites covered by the ROD, to collect data necessary for the remedial design, and to support the final cumulative risk assessment for the entire 200 Areas National Priorities List (CERCLA) site (40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National

### **6.3.3 Proposed Plan and Proposed RCRA Permit Modification**

The decision-making process for the waste sites in the 200-LW-1, and 200-LW-2 OUs will be based on the use of a proposed plan and a ROD. The proposed plan will be developed in conjunction with a draft permit modification with unit-specific permit conditions for the RCRA past-practice sites. A modification to the *Hanford Facility RCRA Permit* (WA7890008967) will incorporate the decision in the permit for these sites. During the RI/FS process, a number of options for developing proposed plans and RODs will be evaluated. Remedial decisions may proceed on an OU-by-OU basis, but alternative site groupings may be considered for waste sites in the Central Plateau. Several alternatives currently are under consideration, some of which may be used for the waste sites addressed in this RI report.

Three alternatives to the OU-by-OU remediation approach have been identified to provide flexibility in the decision-making process, facilitate early action, and remediate and close specific areas or zones. Examples of these alternatives are as follows.

#### **6.3.3.1 High-Risk Waste Sites Identified for Early Action**

The first alternative accelerates the start of remedial actions and closure of waste sites that present an ongoing or expected future threat to groundwater. Some high-risk sites already have been identified for early actions in the BC Cribs and Trenches Area and near the U Plant, the Plutonium-Uranium Extraction Plant, and the Plutonium Finishing Plant. Four waste sites (the 216-B-53A, 216-B-53B, 216-B-54, and 216-B-58 Trenches) in the 200-LW-1 OU have been transferred to the 200-TW-1 OU.

#### **6.3.3.2 Regional Site Closure**

Under the second alternative, waste site remedial decision-making may be realigned under a regional closure strategy that aligns waste sites into groups defined by geographical zones.

#### **6.3.3.3 Waste Site Grouping by Characteristics or Hazards**

The third alternative for remedial decision-making strategies is based on a specific characteristic or hazard that mandates additional requirements, such as supplemental ARARs, or more robust remedial alternatives. Grouping waste sites with other similarly contaminated soil sites in other OUs could streamline the decision-making process and tailor the requirements and alternatives to these specific hazards.

Following the completion of the FS, a proposed plan will be prepared that identifies the preferred remedial alternative for the OUs (which will include RCRA closure and corrective-action requirements). In addition to identifying the preferred alternative, the proposed plan will serve the following purposes:

- Provide a summary of the completed RI/FS
- Provide criteria by which analogous waste sites within the OUs that were not previously characterized will be evaluated after the ROD is issued to confirm that the contaminant distribution model for the site is consistent with the preferred alternative. Contingencies to move a waste site to a more appropriate waste group also will be developed
- Identify performance standards and ARARs that are applicable to the OUs.

After the public review process is complete, a final decision on the remedial action to be taken will be documented in a ROD. The *Hanford Facility RCRA Permit* subsequently will be modified by Ecology to reference these activities as satisfying the RCRA requirements. If alternative decision-making strategies are employed, lead agency realignments may be considered in consultations between EPA and Ecology.

Because the 200 Areas are composed of CERCLA past-practice, RCRA past-practice, and TSD sites, the Tri-Parties have committed that the cleanup strategies will be integrated to the maximum extent possible. This is consistent with specific recommendations for integration in the Tri-Party Agreement (Ecology et al. 1989) and Section 2.4 of the Implementation Plan (DOE/RL-98-28) and can be accommodated under the *Hanford Facility RCRA Permit*.

#### **6.4 POST-RECORD OF DECISION ACTIVITIES AND ANALOGOUS SITE APPROACH**

The ROD for these OUs will cover all of the waste sites in the OUs, not just the three representative waste sites characterized under the RI. This analogous site approach is described in more detail in the Implementation Plan (DOE/RL-98-28). The basic approach is that the representative waste sites contain types, concentrations, and distributions of contaminants similar to those at the other sites in the OU, because the waste sites are grouped on the basis of similar site histories and processes. The waste sites, therefore, share similar risks and a similar need for remedial action. The data collected for the representative waste sites will be considered to be analogous to the remaining sites (Section 1.3.5).

After the ROD has been issued, a remedial design report and remedial action work plan will be prepared to detail the scope of the remedial action. As part of this activity, DQOs will be established and SAPs will be prepared to direct confirmatory and/or remedial design and verification sampling and analysis activities. Before remediation is started, confirmation and/or remedial design sampling will be performed to ensure that sufficient characterization data are available to confirm that the selected remedy is appropriate for the waste sites covered by the ROD, to collect data necessary for the remedial design, and to support the final cumulative risk assessment for the entire 200 Areas National Priorities List (CERCLA) site (40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National

Priorities List”). Verification sampling will be performed after the remedial action is complete to determine if ROD requirements have been met and if the remedy was protective of human health and the environment. Additional guidance for confirmatory and verification sampling is provided in Section 6.2 of DOE/RL-98-28.

The remedial design report/remedial action work plan will include an integrated schedule of remediation activities for waste sites and releases covered by the ROD or RODs. The available options for remedy implementation throughout the 200 Areas will be explored during the course of the RI/FS process and may be reflected in the remedial action work plan. Following the completion of the remediation activity, closeout activities will be performed as discussed in Section 2.4 of DOE/RL-98-28.

Table 6-1. Contaminants of Concern, Risk, and Dose Summary.

Site	Nonradiological			Radiological					
	Total Excess Lifetime Cancer Risk from Shallow Nonradiological COCs (Dimension-less)	Nonradiological Exceeding GWP Soil RBC	Nonradiological COCs Exceeding Ecological Screening Levels (WAC 173-340-900, Table 749-3)	Total Maximum Excess Lifetime Cancer Risk from Radiological COCs (Dimension-less)	Total Maximum Dose Rate/Time	Primary Risk Contributor	Primary Dose Contributor	Total Maximum Dose Rate for Groundwater at No. of Years	Radiological COCs Exceeding Ecological Screening Levels
216-T-28 Crib	No shallow data available (no shallow samples were collected from this site).	Arsenic, Bismuth, Fluoride, Mercury, Nitrate, Nitrogen as nitrite/nitrate, Eicosene, Hexadecanoic acid, n-Hexanoic acid, Uranium, TPH-Kerosene Range	No shallow data available (no shallow samples were collected from this site).	No shallow data available (no shallow samples were collected from this site).	No shallow data available (no shallow samples were collected from this site).	No shallow data available (no shallow samples were collected from this site).	No shallow data available (no shallow samples were collected from this site).	41 mrem/yr at 4.5 years Tritium	No shallow data available (no shallow samples were collected from this site).
216-S-20 Crib	<1.0 E-05	Arsenic, Bismuth, Lead, Mercury, Uranium	None	a	a	a	a	None	None
				1.0 E-08 for no-cover scenario.	2.0 E-03 mrem/yr at 0 years for no-cover scenario.	Eu-155 for no-cover scenario.	Eu-155 for no-cover scenario.		
216-Z-7 Crib	<1.0 E-05	Arsenic, Bismuth, Cyanide, Mercury, Methylene chloride, Nonadecane, Nitrogen as nitrite/nitrate, Uranium	Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Chromium, Hexavalent Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Uranium, Chloride, Cyanide, Fluoride, Nitrate, Phosphate, Sulfate, Sulfide	1.4 E-18 for cover scenario.	5.9 E-14 mrem/yr at 1,000 years for cover scenario.	Np-237 for cover scenario.	Np-237 for cover scenario.	8.5 mrem/yr at 500 years Tc-99	Am-241, Sb-125, C-14, Cs-134, Cs-137, Co-60, Eu-152, Eu-154, Eu-155, Np-237, Ni-63, Pu-238, Pu-239/240, Ra-226, Ra-228, Tc-99, Th-228, Th-230, Th-232, Th-234, Sr-90, H-3, U-234, U-235, U-238
				2.6 E-07 for no-cover scenario.	4.3 E-02 mrem/yr at 1,000 years for no-cover scenario.	Np-237 for no-cover scenario.	Pu-239 for no-cover scenario.		

a. An exception was made for the 216-S-20 Crib to the general protocol for evaluating radionuclides in the shallow-zone soil layer. At this site, the depth of cover is approximately 11 m (36 ft). Because the depth of cover was so great, removal of the cover was judged to be implausible. However, unlike the other sites evaluated in this remedial investigation report, analytical data were obtained from samples of the cover material. Low concentrations of some radionuclides were measured in these samples. Because these data were available, potential exposure to radionuclides in the existing cover was evaluated under an industrial scenario at these sites. An evaluation of surface exposure to buried contamination with the existing cover in place was not conducted at these sites, because the depth of cover was considerably greater than 4.6 m (15 ft). However, the industrial scenario that was conducted is termed a "no-cover" evaluation in this table, because the site was modeled assuming no protective cover (clean fill) between the contaminants in the fill material and the surface.

WAC 173-340-900, "Tables."

COC = contaminant of concern.

GWP = groundwater protection.

RBC = risk-based concentration.

WAC = Washington Administrative Code.

Table 6-2. Preliminary List of Contaminants for the Confirmatory Sampling Phase at the 200-LW-1 and 200-LW-2 Operable Units.

Radioactive Constituents <sup>a</sup>	
Cesium-137	Technetium-99
Neptunium-237	Tritium
Uranium-233/234	Uranium-238
Plutonium -238	Plutonium-239
Americium-241	
Nonradioactive Constituents <sup>a</sup>	
Arsenic	Ethyl acetate
Nitrate	Acetone
Cyanide	Toluene
Fluoride	Diethylphthalate
Lead	Oil and Grease
Sulfide	TPH-kerosene
Methylene chloride	TPH-diesel
Nitrate	Trichloroethene
Nitrite	Di-n-butylphthalate
Nitrate and Nitrate/Nitrite <sup>b</sup>	Arochlor-1254
Uranium (total)	

Risk-based concentrations are from WAC 173-340-747(4) or WAC 173-340-900, Table 749-3.

<sup>a</sup> Listed contaminants may have a risk-based concentration in one section of the *Washington Administrative Code* (and passed screening) but no risk-based concentration in another section of the code (and failed because of no background or because background was exceeded).

<sup>b</sup> Nitrate and Nitrate/Nitrite was screened against the risk-based concentration for nitrite.

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WAC 173-340-900, "Tables."

Aroclor is an expired trademark.

TPH = total petroleum hydrocarbon.

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**APPENDIX A**

**FREQUENCY OF DETECTION AND DATA SUMMARY TABLES**

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**TERMS**

AEA	alpha energy analysis
bgs	below ground surface
Gamma	gamma spectroscopy method
HEIS	<i>Hanford Environmental Information System</i> database
ICP/MS	inductively coupled plasma/mass spectrometry
KPA	kinetic phosphorescence analysis
OU	operable unit
Work Plan	DOE/RL-2001-66, <i>Chemical Laboratory Waste Group Operable Units RI/FS Work Plan; Includes 200-LW-1 and 200-LW-2 Operable Units</i>

**APPENDIX A****FREQUENCY OF DETECTION AND DATA SUMMARY TABLES**

Tables A-1 and A-2 are summaries of laboratory data collected for the remedial investigation. The tables are arranged in two sets. Table A-1 summarizes the data for shallow-zone soils, consisting of analysis results for samples taken from the surface to 4.6 m (15 ft) below ground surface (bgs) at the 216-S-20 Crib and the 216-Z-7 Crib. No soil samples were collected from the shallow-zone at the 216-T-28 Crib. Table A-2 summarizes the data for deep-zone soils, consisting of analysis results for samples taken from the surface to the full depth of the borehole, which varies among the representative waste sites.

Samples were included in the shallow-zone soil table (Table A-1) if any part of the depth interval at which the sample was taken was at or above the 4.6 m (15-ft) bgs level.

The tables include the constituent, constituent class, reporting units, number of samples, number of detects, frequency of detects, and minimum and maximum reported analytical result, if any. In cases where no detection of any analyte occurred in a waste site's shallow (Table A-1) or deep (Table A-2) zone, the minimum and maximum constituent-specific reported detection limits or activity levels are given in the "Minimum Nondetected" and "Maximum Nondetected" columns of the tables. For radiological analyses, if no radiological constituent-specific detection limit was provided (or a zero was provided), the minimum detected activity in the Appendix B tables was used as an estimate of the detection limit. The exposure point concentrations in Table A-1 and Table A-2 coincide with the maximum detected concentrations.

**A1.0 SAMPLE SIZE, EXPOSURE-POINT CONCENTRATIONS, AND  
MAXIMUM CONCENTRATIONS**

Laboratory sample sizes for the 200-LW-1 and 200-LW-2 Operable Unit (OU) representative waste sites varied from one to three samples for different analytes at each depth. Infrequently, sample sizes from the same depth could be larger (up to about six samples) for some constituents (some radiological constituents, metals, miscellaneous organics, ammonia, cyanide, and pH) if multiple analytical methods were applied (see Chapter A2.0) and/or if field duplicates or split samples were collected. For laboratory-analyzed soil samples, one boring was performed per site.

The maximum concentration in the depth range of interest (shallow or deep) was selected as the exposure-point concentration. This is because sampling at the 200-LW-1 and 200-LW-2 OU representative waste sites was designed to sample areas at which suspected soil contamination had the highest probability of maximum concentration, based on historical knowledge about the sites. This meets the criteria for direct comparison of soil sample concentrations with cleanup levels under WAC 173-340-745(8), "Soil Cleanup Standards for Industrial Properties - Compliance Monitoring." There is documented, reliable information that the soil samples have been taken from the appropriate locations. The Work Plan (DOE/RL-2001-66, *Chemical Laboratory Waste Group Operable Unit RI/FS Work Plan; Includes 200-LW-1 and 200-LW-2 Operable Units*) documents how the location(s) of the maximum radiological contamination

were selected at the waste sites. Historical spectral gamma-ray logging and other characterization information were used to determine the location of maximum concentration for each waste site. For most sites, further spectral gamma-ray logging was completed just before borehole drilling was begun to confirm maximum contaminant location and to obtain the borehole depth(s) at which maximum contamination was most likely to occur. This information is documented in Chapter 3.0 of this remedial investigation report.

In addition, maximum detected concentrations were used as exposure-point concentrations because, based on Federal guidance (EPA, 2002, *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, OSWER 9285.6-10), the sample sizes taken at these waste sites are insufficient to generate a valid upper one-sided 95 percent confidence limit on the true mean soil concentration using Land's method, as specified in WAC 173-340-740(7)(d)(i)(A), "Unrestricted Land Use Soil Cleanup Standards," "Compliance Monitoring."

Figure A-1 shows the flow of analytical data in the 200-LW-1 and 200-LW-2 OUs remedial investigation, beginning with the reported laboratory data in Appendix B, through the selection of exposure-point concentrations in Appendix A, the data screening in Chapters 4.0 and 5.0 of this remedial investigation report, and discussion of results and the conclusions made in Chapter 6.0.

## A2.0 MULTIPLE ANALYTICAL METHODS

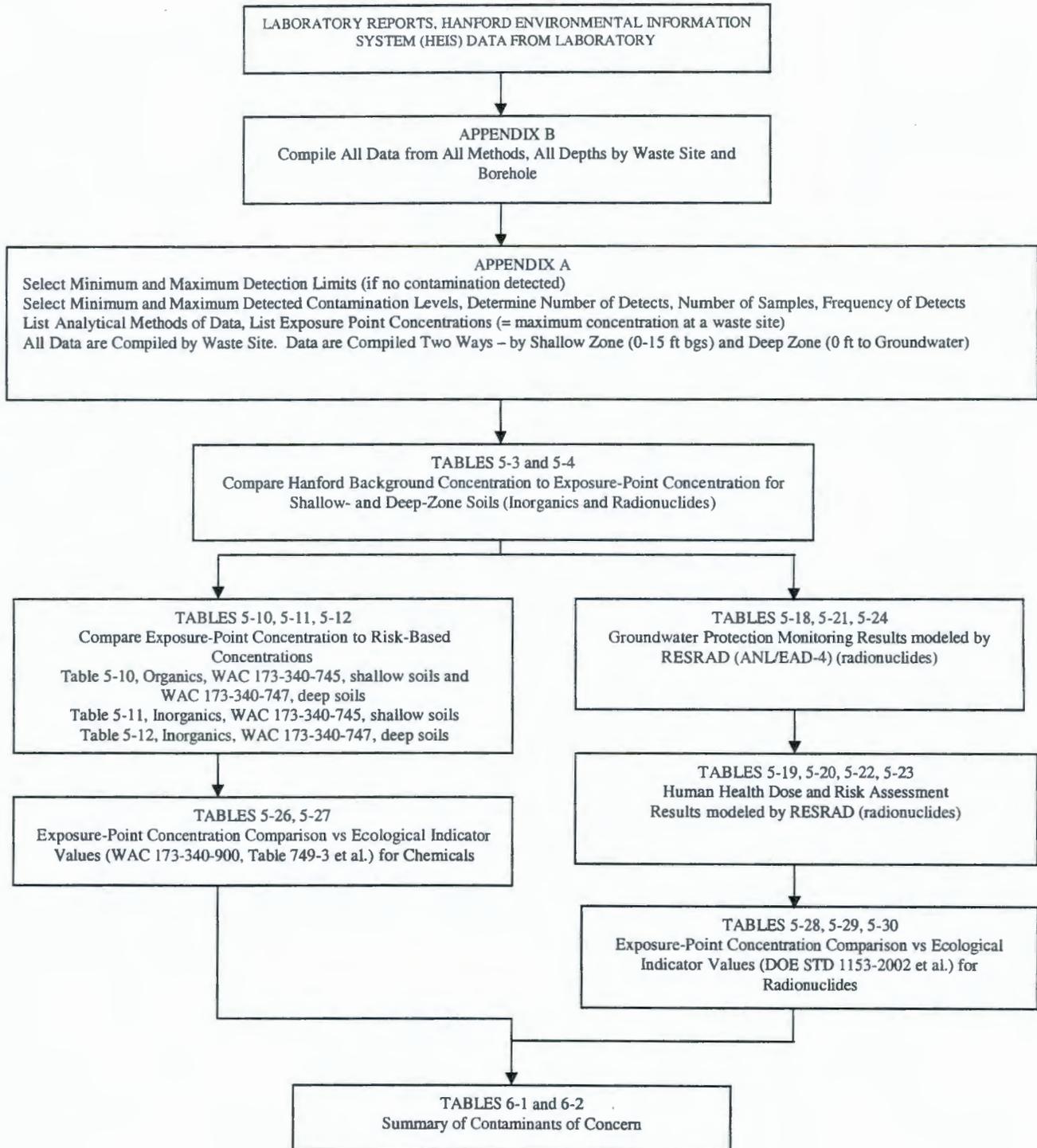
In cases where sample material within the same borehole was analyzed by different methods, the following procedure was used to determine the maximum detected result (or nondetect), the minimum detected result (or nondetect) and the number of samples and detects.

### A2.1 RADIOLOGICAL ANALYSES

There are three cases and multiple methods.

**Case 1:** A gamma spectroscopy (Gamma) method and one or more alpha energy analysis (AEA) methods were reported in some cases for Am-241, Pu-238, Pu-239/240, Th-228, Th-232, U-234 (also reported as U-233/234), U-235, and U-238. In these cases, only the AEA results were selected for use, because these analytes are strong alpha emitters and the AEA methods yield lower detection limits. For example, Am-241 at the 216-S-20 Crib was analyzed with Gamma and two AEA methods. The Gamma data were not considered in the risk screening. Data from the AEA methods were combined in the same manner as in Case 2.

Figure A-1. Flow of Analytical Data in the 200-LW-1 and 200-LW-2 Operable Unit Remedial Investigation.



**Case 2:** In some cases, data were present from two or more of the various analytical and/or preparation methods used with AEA analysis (e.g., preparation of the sample for counting using electroplating versus preparation using precipitation). In these cases, the larger result was used to determine the maximum. The combined data from all methods (including duplicates and splits but excluding rinsates) were used to determine the number of samples, the number of detects, and number of nondetects. Using all data by all analytical and/or preparation methods also allowed complete vertical coverage of the borehole, because all depths in a given borehole were not necessarily analyzed by the same set of methods for a given analyte. Because all methods predominantly meet the Work Plan (DOE/RL-2001-66) accuracy and precision criteria with few quality control failures, the methods are equivalent for use and comparison. For example, Am-241 in the 216-T-28 Crib was analyzed by electroplate AEA (2 samples, 2 detects,) and precipitation AEA (10 samples, 9 detects), for a detection frequency of 11/12 or 92 percent and a maximum of 802 pCi/g by electroplate AEA.

**Case 3:** For some samples, total uranium was analyzed by both the kinetic phosphorescence analysis (KPA) and inductively coupled plasma / mass spectrometry (ICP/MS) methods. Because the methods predominantly meet the Work Plan accuracy and precision criteria with few quality control failures, the methods are equivalent for use and comparison. The larger number was selected as the maximum. As in Case 2, data from both methods (including duplicates and splits but excluding rinsates) were used to determine number of samples, detects, and nondetects. For example, total uranium was analyzed by both KPA and ICP/MS for the 216-T-28 Crib. There were 2 KPA results, all detects, and 9 ICP/MS results with 7 detects. The frequency is 9/11 or 82 percent. The maximum detected value was by KPA, 125,000  $\mu\text{g}/\text{kg}$ .

## A2.2 METALS ANALYSES

For many metals, ICP emission spectrometry, ICP-Trace (which gives lower detection limits than ICP or ICP/MS), and ICP/MS (typically with detection limits lower than ICP and higher than ICP-Trace) were used. In most cases, samples from various depths in the same borehole were analyzed by different methods for the same analyte. For example, chromium in the 216-T-28 Crib was obtained with ICP (2 sample, 2 detects), ICP-Trace (3 samples, 3 detects), and ICP/MS (9 samples, 9 detects), for a detection frequency of 14/14 or 100 percent and a maximum of 81,700  $\mu\text{g}/\text{kg}$  by ICP-Trace. The methods were considered to be equivalent for obtaining the maximum so as to obtain coverage at all depths for each borehole. The highest result was selected as the maximum, regardless of the method. These methods met the accuracy and precision requirements in the Work Plan (unless footnoted). All soil duplicates were analyzed by the same analytical method that was used for the primary sample.

## A2.3 MISCELLANEOUS ANALYSES

For select analytes, multiple methods were used in a single borehole, because samples from various depths were sent to different laboratories as a result of the high radiation levels of some samples. Multiple analytical methods were used on miscellaneous analytes as follows:

## Analytical Methods Used on Miscellaneous Analytes.

Analyte	EPA Methods <sup>a</sup>	Comment
1-Butanol	8015, 8260	All results were nondetects. Largest detect used as maximum. All data were used to count the number of samples, detects, and nondetects.
Oil and Grease	413.1, 9071	Only one method at each depth at each site. Largest detect used as maximum. All data were used to count the number of samples, detects, and nondetects.
Ammonia and/or Ammonium Ion	350.1, 350.3, 300.7	For ammonia and ammonium, either colorimetric or ion chromatography methods were used. Sample analysis was for ammonia and/or ammonium ion. All data were combined to provide coverage for the full length of borehole. Ammonia and ammonium are not regulated under WAC 173-340; they are natural plant nutrients. However, all data were used to count the number of samples, detects, and nondetects.
Cyanide	335.2, 9010	For cyanide, either manual or automated colorimetric methods were used. Both methods predominantly meet the Work Plan (DOE/RL-2001-66) accuracy and precision criteria with few quality control failures; thus all data were combined for complete borehole coverage and are equivalent for evaluation. Largest detect used as maximum. All data were used to count the number of samples, detects, and nondetects.
pH	150.1, 9045	For pH, all the methods are electrode methods. Method 150.1 was modified to handle soils in a manner consistent with Method 9045. The methods are all equivalent. The pH is not a contaminant of concern, but it affects properties of some other analytes.
Nitrogen as Nitrate and Nitrite	300.0, 353.1, 353.2	For nitrate and nitrite, colorimetric methods were used and nitrate (300.0), nitrite (300.0), or combined nitrate/nitrite (353.1 and/or 353.2) were presented. All nitrate data were considered and the maximum was selected; likewise all nitrite data were considered and the maximum was selected.

<sup>a</sup> U.S. Environmental Protection Agency test methods. The 4-digit EPA methods are found in SW-846. Methods 150.1, 300.0, 335.2, 350.1, 350.3, 353.1, and 413.1 are found in EPA/600/4-79/020. Method 300.7 is found in EPA/600/4-86/024. Method 353.2 is found in EPA/600/R-93/100.

DOE/RL-2001-66, *Chemical Laboratory Waste Group Operable Units RI/FS Work Plan; Includes 200-LW-1 and 200-LW-2 Operable Units*, Rev. 0.

EPA/600/4-79/020, *Methods of Chemical Analysis of Water and Wastes*.

EPA/600/4-86/024, *Development of Standard Methods for the Collection and Analysis of Precipitation*.

EPA/600R-93/100, *Methods for the Determination of Inorganic Substances in Environmental Samples*.

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A*.

WAC 173-340, "Model Toxics Control Act - Cleanup."

The following analytical method numbers and terms/abbreviations are used in the Appendix A tables.

Table Features. (2 Pages)

Analytical Method/ Term/ Abbreviation	Definition	Reference
150.1	Determination of pH by electrometric measurement	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
200.8	Determination of trace metal elements by inductive coupled plasma/mass spectrometry	EPA/600/4-91/010, <i>Methods for the Determination of Metals in Environmental Samples</i>
300.0	Determination of inorganic anions by ion chromatography	EPA/600/R-93/100, <i>Methods for the Determination of Inorganic Substances in Environmental Samples</i>
300.7	Determination of anions by chromatography method for anions	EPA/600/4-86/024, <i>Development of Standard Methods for the Collection and Analysis of Precipitation</i>
335.2	Determination of cyanide by titrimetric spectrophotometry	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
350.1	Determination of ammonia nitrogen by semiautomated colorimetry	EPA/600/R-93/100, <i>Methods for the Determination of Inorganic Substances in Environmental Samples</i>
350.3	Determination of ammonia nitrogen by potentiometric, ion selective electrode	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
353.1	Determination of nitrate-nitrite by colorimetry	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
353.2	Determination of nitrate-nitrite by automated colorimetry	EPA/600/R-93/100, <i>Methods for the Determination of Inorganic Substances in Environmental Samples</i>
413.1	Determination of oil and grease by total recoverable, spectrophotometric, infrared	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
906	Determination of tritium in various matrices by liquid scintillation counting	EPA/600/4-80/032, <i>Prescribed Procedures for Measurement of Radioactivity in Drinking Water</i>
6010	Determination of metals and trace elements by inductive coupled plasma	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
7196	Determination of hexavalent chromium by automated colorimetry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
7471	Determination of mercury by cold vapor atomic absorption	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>

Table Features. (2 Pages)

Analytical Method/ Term/ Abbreviation	Definition	Reference
8015	Determination of nonhalogenated volatile organics by gas chromatography	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
8082	Determination of polychlorinated biphenyls by gas chromatography	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
8260	Determination of volatile organics by gas chromatography/mass spectrometry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
8270	Determination of semivolatile organics by gas chromatography/mass spectrometry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9010	Determination of total and amenable cyanide by colorimetry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9030	Determination of sulfides by colorimetry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9071	Determination of oil and grease by solvent extraction	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
D2216	Determination of soil water content	ASTM D2216-98, 1998, <i>Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass</i>
D2937	Determination of soil density	ASTM D2937-00e1, 2000, <i>Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method</i>

### A3.0 REFERENCES

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ASTM D2937-00e1, 2003, *Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method*, American Society for Testing and Materials, West Conshohocken, Pennsylvania.

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- SW-846, 1999, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.
- WAC 173-340, "Model Toxics Control Act -- Cleanup," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.
- WAC 173-340-740(7), "Unrestricted Land Use Soil Cleanup Standards," "Compliance Monitoring," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.
- WAC 173-340-745, "Soil Cleanup Standards for Industrial Properties," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-745(8), "Soil Cleanup Standards for Industrial Properties - Compliance Monitoring," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-747, "Deriving Soil Concentrations for Ground Water Protection," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-900, "Tables," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

### TERMS USED IN APPENDIX A TABLES

NOTE: Capitalization of the terms in this list follows what appears in the tables, not what is industry correct.

AEA	alpha energy analysis
AM	americium
bgs	below ground surface
C14	carbon-14
CM	curium
COX	combustion oxidation
CR6	chromium-6
CVAA	cold vapor atomic absorption
D2216	ASTM D2216-98, <i>Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass</i>
D2937	ASTM D2937-001e1, <i>Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method</i>
EPC	exposure-point concentration
ETVDSK	Eichrome (Industries) TEVA (filter) disk separation <sup>1</sup>
GC	gas chromatography
GCMS	gas chromatography mass spectrometry
GPC	gas proportional counting
H3	tritium
HG	mercury
IC	ion chromatography
ICP	inductively coupled plasma
ICPMS	inductively coupled plasma mass spectrometry
IE	ion exchange
ISO	isotopic
KPA	kinetic phosphorescence analysis
LLE	liquid liquid extraction

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<sup>1</sup> TEVA (filter) is a trademark of Eichrome Industries, Inc., Deerfield, Illinois.

LSC	liquid scintillation counting
NI63	nickel-63
NO3/NO2	NO <sub>3</sub> /NO <sub>2</sub>
NP237	neptunium-237
PCB	polychlorinated biphenyl
PH	(pH) acidity or alkalinity of an aqueous solution
PLATE	electroplated
PRECIP	precipitated
PU	plutonium
SEP	separation
SR	strontium
SVOA	semivolatile organic analysis
TC99	technetium-99
TH	thorium
TOT	total
TPH	total petroleum hydrocarbon
TR	trace
U	uranium
VOA	volatile organic analysis
WTPH	Washington total petroleum hydrocarbon (Ecology 97-602, <i>Analytical Methods for Petroleum Hydrocarbons</i> )

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detect	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Top 15 ft Max Conc (ft bgs)
<b>200-LW-2 Operable Unit Borehole C4176 (216-S-20 Crib)</b>												
Americium-241	RAD	pCi/g	2	0	0%	0.024	0.024	--	--	AMCMISO_IE_PRECIP_AEA	AMCMISO_IE_PRECIP_AEA	--
Carbon-14	RAD	pCi/g	1	0	0%	-0.199	-0.199	--	--	C14_COX_LSC	C14_COX_LSC	--
Cesium-137	RAD	pCi/g	2	0	0%	0.01	0.033	--	--	GAMMA	GAMMA	--
Cobalt-60	RAD	pCi/g	2	0	0%	-0.004	0.037	--	--	GAMMA	GAMMA	--
Europium-152	RAD	pCi/g	2	0	0%	-0.019	0.088	--	--	GAMMA	GAMMA	--
Europium-154	RAD	pCi/g	2	0	0%	0.008	0.11	--	--	GAMMA	GAMMA	--
Europium-155	RAD	pCi/g	2	1	50%	--	--	0.062	0.062	GAMMA	GAMMA	12.5-15
Gross Alpha	RAD	pCi/g	1	0	0%	-3.2	-3.2	--	--	ALPHA	ALPHA	--
Gross Beta	RAD	pCi/g	1	1	100%	--	--	4.7	4.7	BETA	BETA	12.5-15
Neptunium-237	RAD	pCi/g	1	0	0%	0.001	0.001	--	--	NP237_IE_PRECIP_AEA	NP237_IE_PRECIP_AEA	--
Nickel-63	RAD	pCi/g	1	0	0%	-0.091	-0.091	--	--	NI63_LSC	NI63_LSC	--
Plutonium-238	RAD	pCi/g	1	0	0%	-0.015	-0.015	--	--	PUISO_IE_PRECIP_AEA	PUISO_IE_PRECIP_AEA	--
Plutonium-239/240	RAD	pCi/g	1	0	0%	0.009	0.009	--	--	PUISO_IE_PRECIP_AEA	PUISO_IE_PRECIP_AEA	--
Potassium-40	RAD	pCi/g	1	1	100%	--	--	9.06	9.06	GAMMA	GAMMA	12.5-15
Radium-226	RAD	pCi/g	1	1	100%	--	--	0.358	0.358	GAMMA	GAMMA	12.5-15
Radium-228	RAD	pCi/g	1	1	100%	--	--	0.624	0.624	GAMMA	GAMMA	12.5-15
Technetium-99	RAD	pCi/g	1	0	0%	0.113	0.113	--	--	TC99_TR_SEP_LSC	TC99_TR_SEP_LSC	--
Thorium-228	RAD	pCi/g	1	1	100%	--	--	0.64	0.64	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Thorium-230	RAD	pCi/g	1	1	100%	--	--	0.319	0.319	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Thorium-232	RAD	pCi/g	1	1	100%	--	--	0.958	0.958	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Total Beta Radiostrontium	RAD	pCi/g	1	0	0%	0.009	0.009	--	--	SRTOT_SEP_PRECIP_GPC	SRTOT_SEP_PRECIP_GPC	--
Tritium	RAD	pCi/g	1	0	0%	-1.21	-1.21	--	--	TRITIUM_COX_LSC	TRITIUM_COX_LSC	--
Total Uranium	RAD	µg/kg	1	0	0%	978	978	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Uranium-233/234	RAD	pCi/g	1	1	100%	--	--	0.19	0.19	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	12.5-15
Uranium-235	RAD	pCi/g	1	1	100%	--	--	0.02	0.02	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	12.5-15
Uranium-238	RAD	pCi/g	1	1	100%	--	--	0.22	0.22	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	12.5-15
Antimony	METAL	µg/kg	1	0	0%	4890	4890	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Arsenic	METAL	µg/kg	1	1	100%	--	--	6700	6700	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Barium	METAL	µg/kg	1	1	100%	--	--	112000	112000	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Beryllium	METAL	µg/kg	1	0	0%	2930	2930	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Bismuth	METAL	µg/kg	1	0	0%	5000	5000	--	--	6010_METALS_ICP	6010_METALS_ICP	--
Cadmium	METAL	µg/kg	1	0	0%	978	978	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Chromium	METAL	µg/kg	1	1	100%	--	--	5840	5840	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Copper	METAL	µg/kg	1	1	100%	--	--	14500	14500	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Hexavalent Chromium	METAL	µg/kg	1	0	0%	214	214	--	--	7196_CR6	7196_CR6	--
Lead	METAL	µg/kg	1	0	0%	11700	11700	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Mercury	METAL	µg/kg	1	0	0%	978	978	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Nickel	METAL	µg/kg	1	1	100%	--	--	10400	10400	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Selenium	METAL	µg/kg	1	0	0%	2930	2930	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Silver	METAL	µg/kg	1	0	0%	1960	1960	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Uranium	METAL	µg/kg	1	0	0%	978	978	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Ammonium Ion	CONV	µg/kg	1	0	0%	252	252	--	--	300.7_IC	300.7_IC	--
Chloride	CONV	µg/kg	1	1	100%	--	--	2820	2820	300.0_ANIONS_IC	300.0_ANIONS_IC	12.5-15
Cyanide	CONV	µg/kg	1	0	0%	200	200	--	--	335.2_CYANIDE	335.2_CYANIDE	--
Fluoride	CONV	µg/kg	1	0	0%	1130	1130	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detect	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Top 15 ft Max Conc (ft bgs)
Nitrate as N	CONV	µg/kg	1	1	100%	--	--	7390	7390	300.0_ANIONS_IC	300.0_ANIONS_IC	12.5-15
Nitrite as N	CONV	µg/kg	1	0	0%	3060	3060	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Nitrogen in Nitrite and Nitrate	CONV	µg/kg	1	1	100%	--	--	2800	2800	353.2_NO3/NO2	353.2_NO3/NO3	12.5-15
Phosphate	CONV	µg/kg	1	0	0%	8130	8130	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Sulfate	CONV	µg/kg	1	0	0%	4900	4900	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Sulfide	CONV	µg/kg	1	0	0%	26000	26000	--	--	9030_SULFIDE	9030_SULFIDE	--
pH	CONV	pH	1	1	100%	--	--	9.12	9.12	150.1_PH	150.1_PH	12.5-15
Oil & grease	CONV	µg/kg	1	0	0%	714000	714000	--	--	9071_OILGREASE	9071_OILGREASE	--
Ethylene glycol	VOA	µg/kg	1	0	0%	5000	5000	--	--	8015_VOA_GC	8015	--
1,1,1-Trichloroethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2,2-Tetrachloroethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2-Trichloroethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethene (Total)	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloropropane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1-Butanol	VOA	µg/kg	1	0	0%	39	39	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Butanone	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Hexanone	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
4-Methyl-2-Pentanone	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Acetone	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Benzene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromodichloromethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromoform	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromomethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon disulfide	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon tetrachloride	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chlorobenzene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroform	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloromethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
cis-1,3-Dichloropropene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Dibromochloromethane	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Ethylbenzene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Methylene chloride	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
n-Butylbenzene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Styrene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Tetrachloroethene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Toluene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
trans-1,3-Dichloropropene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Trichloroethene	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Vinyl chloride	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Xylenes (total)	VOA	µg/kg	1	0	0%	1.9	1.9	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,4-Trichlorobenzene	SVOA	µg/kg	1	0	0%	320	320	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,4-Dichlorobenzene	SVOA	µg/kg	1	0	0%	340	340	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--

Table A-1. Data Summary Table -- Shallow Zone.

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detect	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Top 15 ft Max Conc (ft bgs)
2,4-Dinitrotoluene	SVOA	µg/kg	1	0	0%	72	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Chlorophenol	SVOA	µg/kg	1	0	0%	160	160	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Chloro-3-methylphenol	SVOA	µg/kg	1	0	0%	72	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Nitrophenol	SVOA	µg/kg	1	0	0%	700	700	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Acenaphthene	SVOA	µg/kg	1	0	0%	72	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
N-Nitrosodi-n-dipropylamine	SVOA	µg/kg	1	0	0%	72	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pentachlorophenol	SVOA	µg/kg	1	0	0%	320	320	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Phenol	SVOA	µg/kg	1	0	0%	110	110	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pyrene	SVOA	µg/kg	1	0	0%	72	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Tributyl phosphate	SVOA	µg/kg	1	0	0%	72	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Aroclor-1016	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1221	PCB	µg/kg	1	0	0%	110	110	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1232	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1242	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1248	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1254	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1260	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1262	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1268	PCB	µg/kg	1	0	0%	53	53	--	--	8082_PCB_GC	8082_PCB_GC	--
TPH -diesel range	TPH	µg/kg	1	0	0%	4000	4000	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -kerosene range	TPH	µg/kg	1	0	0%	4000	4000	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -gasoline range	TPH	µg/kg	1	0	0%	250	250	--	--	WTPH_GASOLINE	WTPH_GASOLINE	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detect	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Top 15 ft Max Conc (ft bgs)
<b>200-LW-2 Operable Unit Borehole C4183 (216-Z-7 Crib)</b>												
Americium-241	RAD	pCi/g	2	0	0%	-0.029	0.025	--	--	AMCMISO_IE_PLATE_AEA	AMCMISO_IE_PRECIP_AEA	--
Antimony-125	RAD	pCi/g	3	0	0%	-0.0096	1.6	--	--	GAMMA	GAMMA	--
Carbon-14	RAD	pCi/g	2	0	0%	0.988	2.35	--	--	C14_COX_LSC	C14_COX_LSC	--
Cesium-134	RAD	pCi/g	3	0	0%	0.0178	1	--	--	GAMMA	GAMMA	--
Cesium-137	RAD	pCi/g	3	1	33%	--	--	0.0835	0.0835	GAMMA	GAMMA	12.5-15
Cobalt-60	RAD	pCi/g	3	0	0%	-0.0033	0.86	--	--	GAMMA	GAMMA	--
Europium-152	RAD	pCi/g	3	0	0%	0.0203	1.6	--	--	GAMMA	GAMMA	--
Europium-154	RAD	pCi/g	3	0	0%	-0.005	2.6	--	--	GAMMA	GAMMA	--
Europium-155	RAD	pCi/g	3	1	33%	--	--	0.0734	0.0734	GAMMA	GAMMA	12.5-15
Neptunium-237	RAD	pCi/g	2	1	50%	--	--	0.059	0.059	NP237_LLE_PLATE	NP237_LLE_PLATE	12.5-15
Nickel-63	RAD	pCi/g	2	0	0%	-0.668	-1.62	--	--	NI63_LSC	NI63_LSC	--
Plutonium-238	RAD	pCi/g	2	0	0%	0	0.012	--	--	PUISO_IE_PLATE_AEA	PUISO_IE_PRECIP_AEA	--
Plutonium-239/240	RAD	pCi/g	2	1	50%	--	--	1.2	1.2	PUISO_IE_PLATE_AEA	PUISO_IE_PLATE_AEA	12.5-15
Potassium-40	RAD	pCi/g	2	2	100%	--	--	10.9	14.2	GAMMA	GAMMA	12.5-15
Radium-226	RAD	pCi/g	2	1	50%	--	--	0.41	0.41	GAMMA	GAMMA	12.5-15
Radium-228	RAD	pCi/g	2	1	50%	--	--	0.58	0.58	GAMMA	GAMMA	12.5-15
Technetium-99	RAD	pCi/g	2	0	0%	0.083	0.212	--	--	TC99_TR_SEP_LSC	TC99_TR_SEP_LSC	--
Thorium-228	RAD	pCi/g	2	2	100%	--	--	0.926	1.16	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Thorium-230	RAD	pCi/g	2	2	100%	--	--	0.741	1.03	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Thorium-232	RAD	pCi/g	2	2	100%	--	--	0.549	0.734	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Total Beta Radiostromtium	RAD	pCi/g	3	0	0%	-0.013	0.085	--	--	SRTOT_SEP_PRECIP_GPC	SRTOT_SEP_PRECIP_GPC	--
Tritium	RAD	pCi/g	2	0	0%	0.061	1.83	--	--	TRITIUM	TRITIUM	--
Uranium-233/234	RAD	pCi/g	2	2	100%	--	--	0.15	0.506	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	12.5-15
Uranium-235	RAD	pCi/g	2	0	0%	0	0.0074	--	--	UIISO_IE_PLATE_AEA	UIISO_IE_PRECIP_AEA	--
Uranium-238	RAD	pCi/g	4	2	50%	--	--	0.14	0.696	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	12.5-15
Antimony	METAL	µg/kg	1	0	0%	5060	5060	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Arsenic	METAL	µg/kg	1	1	100%	--	--	13400	13400	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Barium	METAL	µg/kg	1	1	100%	--	--	72100	72100	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Beryllium	METAL	µg/kg	1	0	0%	3030	3030	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Bismuth	METAL	µg/kg	1	0	0%	2130	2130	--	--	6010_METALS_ICP	6010_METALS_ICP	--
Boron	METAL	µg/kg	1	0	0%	2510	2510	--	--	6010_METALS_ICP	6010_METALS_ICP	--
Cadmium	METAL	µg/kg	1	0	0%	1010	1010	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Chromium	METAL	µg/kg	1	1	100%	--	--	7380	7380	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Copper	METAL	µg/kg	1	1	100%	--	--	13000	13000	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Hexavalent Chromium	METAL	µg/kg	1	0	0%	210	210	--	--	7196_CR6	7196_CR6	--
Lead	METAL	µg/kg	1	0	0%	12100	12100	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Mercury	METAL	µg/kg	1	0	0%	1010	1010	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Nickel	METAL	µg/kg	1	1	100%	--	--	11600	11600	200.8_METALS_ICPMS	200.8_METALS_ICPMS	12.5-15
Selenium	METAL	µg/kg	1	0	0%	3030	3030	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Silver	METAL	µg/kg	1	0	0%	2020	2020	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Uranium	METAL	µg/kg	1	0	0%	1010	1010	--	--	200.8_METALS_ICPMS	200.8_METALS_ICPMS	--
Ammonium Ion	CONV	µg/kg	1	1	100%	--	--	304	304	300.7_IC	300.7_IC	12.5-15
Chloride	CONV	µg/kg	1	0	0%	2550	2550	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Cyanide	CONV	µg/kg	1	1	100%	--	--	3950	3950	335.2_CYANIDE	335.2_CYANIDE	12.5-15
Fluoride	CONV	µg/kg	1	0	0%	1130	1130	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--

Table A-1. Data Summary Table -- Shallow Zone.

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detect	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Top 15 ft Max Conc (ft bgs)
Nitrate as N	CONV	µg/kg	1	1	100%	--	--	10846	10846	300.0_ANIONS_IC	300.0_ANIONS_IC	12.5-15
Nitrite as N	CONV	µg/kg	1	0	0%	3058	3058	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Nitrogen in Nitrite and Nitrate	CONV	µg/kg	1	1	100%	--	--	2000	2000	353.2_NO3/NO2	353.2_NO3/NO3	12.5-15
Phosphate	CONV	µg/kg	1	0	0%	8125	8125	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Sulfate	CONV	µg/kg	1	0	0%	4900	4900	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Sulfide	CONV	µg/kg	1	0	0%	39400	39400	--	--	9030_SULFIDE	9030_SULFIDE	--
pH	CONV	pH	1	1	100%	--	--	8.98	8.98	150.1_PH	150.1_PH	12.5-15
Oil & grease	CONV	µg/kg	1	0	0%	707000	707000	--	--	9071_OILGREASE	9071_OILGREASE	--
Ethylene glycol	VOA	µg/kg	1	0	0%	5000	5000	--	--	8015_VOA_GC	8015_VOA_GC	--
1,1,1-Trichloroethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2,2-Tetrachloroethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2-Trichloroethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethene (Total)	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloropropane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1-Butanol	VOA	µg/kg	1	0	0%	43	43	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Butanone	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Hexanone	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
4-Methyl-2-Pentanone	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Acetone	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Benzene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromodichloromethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromoform	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromomethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon disulfide	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon tetrachloride	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chlorobenzene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroform	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloromethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
cis-1,3-Dichloropropene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Dibromochloromethane	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Ethylbenzene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Methylene chloride	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
n-Butylbenzene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Styrene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Tetrachloroethene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Toluene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
trans-1,3-Dichloropropene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Trichloroethene	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Vinyl chloride	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Xylenes (total)	VOA	µg/kg	1	0	0%	2.1	2.1	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,4-Trichlorobenzene	SVOA	µg/kg	1	0	0%	190	190	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,4-Dichlorobenzene	SVOA	µg/kg	1	0	0%	280	280	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--

Table A-1. Data Summary Table -- Shallow Zone.

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detect	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Top 15 ft Max Conc (ft bgs)
2,4-Dinitrotoluene	SVOA	µg/kg	1	0	0%	110	110	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Chlorophenol	SVOA	µg/kg	1	0	0%	160	160	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Chloro-3-methylphenol	SVOA	µg/kg	1	0	0%	99	99	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Nitrophenol	SVOA	µg/kg	1	0	0%	180	180	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Acenaphthene	SVOA	µg/kg	1	0	0%	150	150	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
N-Nitrosodi-n-dipropylamine	SVOA	µg/kg	1	0	0%	160	160	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pentachlorophenol	SVOA	µg/kg	1	0	0%	150	150	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Phenol	SVOA	µg/kg	1	0	0%	150	150	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pyrene	SVOA	µg/kg	1	0	0%	170	170	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Tributyl phosphate	SVOA	µg/kg	1	0	0%	150	72	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Aroclor-1016	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1221	PCB	µg/kg	1	0	0%	100	100	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1232	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1242	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1248	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1254	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1260	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1262	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1268	PCB	µg/kg	1	0	0%	52	52	--	--	8082_PCB_GC	8082_PCB_GC	--
TPH -diesel range	TPH	µg/kg	1	0	0%	4000	4000	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -kerosene range	TPH	µg/kg	1	0	0%	4000	4000	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -gasoline range	TPH	µg/kg	1	0	0%	250	250	--	--	WTPH_GASOLINE	WTPH_GASOLINE	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
<b>200-LW-1 Operable Unit Borehole C4175 (216-T-28 Crib)</b>												
Americium-241	RAD	pCi/g	12	11	92%	--	--	0.034	802	AMCMISO_IE_PRECIP_AEA	AMCMISO_IE_PLATE_AEA	17.5-20
Antimony-125	RAD	pCi/g	9	4	44%	--	--	0.074	2.39	GAMMA	GAMMA	27.5-30
Carbon-14	RAD	pCi/g	12	2	17%	--	--	3.18	4.52	C14_COX_LSC	C14_COX_LSC	90-92.5
Cesium-134	RAD	pCi/g	9	2	22%	--	--	0.03	456	GAMMA	GAMMA	17.5-20
Cesium-137	RAD	pCi/g	22	16	73%	--	--	0.018	3100000	GAMMA	GAMMA	17.5-20
Cobalt-60	RAD	pCi/g	22	15	68%	--	--	0.052	1180	GAMMA	GAMMA	17.5-20
Europium-152	RAD	pCi/g	22	4	18%	--	--	0.131	0.733	GAMMA	GAMMA	90-92.5
Europium-154	RAD	pCi/g	22	10	45%	--	--	0.205	43	GAMMA	GAMMA	90-92.5
Europium-155	RAD	pCi/g	22	7	32%	--	--	0.115	19.9	GAMMA	GAMMA	90-92.5
Neptunium-237	RAD	pCi/g	12	1	8%	--	--	0.011	0.011	NP237_IE_PLATE_AEA	NP237_IE_PLATE_AEA	47.5-50
Nickel-63	RAD	pCi/g	12	7	58%	--	--	3.36	843	NI63	NI63	17.5-20
Plutonium-238	RAD	pCi/g	12	5	42%	--	--	0.059	84.5	PUISO_IE_PRECIP_AEA	PUISO_IE_PLATE_AEA	17.5-20
Plutonium-239/240	RAD	pCi/g	12	9	75%	--	--	0.017	1110	PUISO_IE_PRECIP_AEA	PUISO_IE_PLATE_AEA	17.5-20
Potassium-40	RAD	pCi/g	11	10	91%	--	--	9.69	15	GAMMA	GAMMA	22.5-25
Radium-226	RAD	pCi/g	11	7	64%	--	--	0.294	0.523	GAMMA	GAMMA	90-92.5
Radium-228	RAD	pCi/g	11	7	64%	--	--	0.426	0.974	GAMMA	GAMMA	90-92.5
Technetium-99	RAD	pCi/g	12	6	50%	--	--	0.902	1.61	TC99_TR_SEP_LSC	TC99_ETVDSK_LSC	197.5-200
Thorium-228	RAD	pCi/g	10	10	100%	--	--	0.496	1.82	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	22.5-25
Thorium-230	RAD	pCi/g	10	7	70%	--	--	0.379	0.932	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	27.5-30
Thorium-232	RAD	pCi/g	11	7	64%	--	--	0.456	1.09	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	47.5-50
Total beta radiostrontium	RAD	pCi/g	12	7	58%	--	--	0.239	642000	SRTOT_SEP_PRECIP_GPC	SRTOT_SEP_PRECIP_GPC	17.5-20
Tritium	RAD	pCi/g	12	10	83%	--	--	0.792	19000	906_H3_LSC	906_H3_LSC	90-92.5
Total Uranium	RAD	µg/kg	12	10	83%	--	--	305	125000	200.8_METALS_ICPMS	UTOT_KPA	22.5-25
Uranium-233/234	RAD	pCi/g	12	12	100%	--	--	0.12	59.4	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	22.5-25
Uranium-235	RAD	pCi/g	12	8	67%	--	--	0.006	1.8	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	22.5-25
Uranium-238	RAD	pCi/g	12	11	92%	--	--	0.12	35.1	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	22.5-25
Antimony	METAL	µg/kg	12	3	25%	--	--	600	5030	6010_METALS_ICP_TR	200.8_METALS_ICPMS	197.5-200
Arsenic	METAL	µg/kg	12	9	75%	--	--	740	9290	6010_METALS_ICP_TR	200.8_METALS_ICPMS	90-92.5
Barium	METAL	µg/kg	12	12	100%	--	--	45400	110000	200.8_METALS_ICPMS	200.8_METALS_ICPMS	157.5-160
Beryllium	METAL	µg/kg	12	10	83%	--	--	173	912	200.8_METALS_ICPMS	200.8_METALS_ICPMS	47.5-50
Bismuth	METAL	µg/kg	12	9	75%	--	--	408	202000	6010_METALS_ICP	6010_METALS_ICP	22.5-25
Boron	METAL	µg/kg	1	0	0%	2200	2200	--	--	6010_METALS_ICP_TR	6010_METALS_ICP_TR	--
Cadmium	METAL	µg/kg	12	4	33%	--	--	126	204	200.8_METALS_ICPMS	200.8_METALS_ICPMS	157.5-160
Chromium	METAL	µg/kg	14	14	100%	--	--	6100	81700	6010_METALS_ICP_TR	6010_METALS_ICP_TR	22.5-25
Copper	METAL	µg/kg	12	12	100%	--	--	12600	19900	200.8_METALS_ICPMS	200.8_METALS_ICPMS	27.5-30
Hexavalent Chromium	METAL	µg/kg	11	3	27%	--	--	240	1500	7196_CR6	7196_CR6	90-92.5
Lead	METAL	µg/kg	12	10	83%	--	--	2990	34400	200.8_METALS_ICPMS	200.8_METALS_ICPMS	197.5-200
Mercury	METAL	µg/kg	12	11	92%	--	--	99	6840	200.8_METALS_ICPMS	7471_HG_CVAA	22.5-25
Nickel	METAL	µg/kg	12	12	100%	--	--	8900	52700	6010_METALS_ICP_TR	6010_METALS_ICP_TR	22.5-25
Selenium	METAL	µg/kg	12	1	8%	--	--	869	869	6010_METALS_ICP_TR	200.8_METALS_ICPMS	157.5-160
Silver	METAL	µg/kg	12	10	83%	--	--	32	4980	200.8_METALS_ICPMS	200.8_METALS_ICPMS	67.5-70
Ammonia as N	CONV	µg/kg	3	1	33%	--	--	14500	14500	350.1_AMMONIA	350.1_AMMONIA	22.5-25
Ammonium ion	CONV	µg/kg	9	9	100%	--	--	267	24700	300.7_IC	300.7_IC	67.5-75
Chloride	CONV	µg/kg	12	9	75%	--	--	1800	13300	300.0_ANIONS_IC	300.0_ANIONS_IC	22.5-25
Cyanide	CONV	µg/kg	12	0	0%	130	496	--	--	9010_CYANIDE	9010_CYANIDE	--

Table A-2. Data Summary Table -- Deep Zone

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Fluoride	CONV	µg/kg	12	9	75%	--	--	2300	39600	300.0_ANIONS_IC	300.0_ANIONS_IC	90-92.5
Nitrate as N	CONV	µg/kg	12	11	92%	--	--	11100	245000	300.0_ANIONS_IC	300.0_ANIONS_IC	90-92.5
Nitrite as N	CONV	µg/kg	12	2	17%	--	--	1450	2530	300.0_ANIONS_IC	300.0_ANIONS_IC	17.5-20
Nitrogen in Nitrite and Nitrate	CONV	µg/kg	11	11	100%	--	--	900	45800	353.2_NO3/NO2	353.2_NO3/NO3	90-92.5
Phosphate	CONV	µg/kg	12	7	58%	--	--	15900	59100	300.0_ANIONS_IC	300.0_ANIONS_IC	22.5-25
Sulfate	CONV	µg/kg	12	11	92%	--	--	9110	57200	300.0_ANIONS_IC	300.0_ANIONS_IC	157.5-160
Sulfide	CONV	µg/kg	11	0	0%	7600	55400	--	--	9030_SULFIDE	9030_SULFIDE	--
% moisture (dry)	CONV	%	4	4	100%	--	--	2.9	11.4	D2216_%MOIS	D2216_%MOIS	90-92.5
Density (dry)	CONV	kg/m <sup>3</sup>	4	4	100%	--	--	1748	1781	D2937_DENSITY	D2937_DENSITY	197.5-200
Density (wet)	CONV	kg/m <sup>3</sup>	4	4	100%	--	--	1808	1836	D2937_DENSITY	D2937_DENSITY	32.5-35
pH	CONV	pH	12	12	100%	--	--	8.4	11.1	150.1_PH	150.1_PH	47.5-50
Oil & grease	CONV	µg/kg	11	2	18%	--	--	1030000	1080000	9071_OILGREASE	9071_OILGREASE	197.5-200
Ethylene glycol	VOA	µg/kg	10	0	0%	5000	10000	--	--	8015_VOA_GC	8015_VOA_GC	--
1,1,1-Trichloroethane	VOA	µg/kg	12	0	0%	0.12	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2,2-Tetrachloroethane	VOA	µg/kg	12	0	0%	0.77	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2-Trichloroethane	VOA	µg/kg	12	0	0%	0.81	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethane	VOA	µg/kg	12	0	0%	0.22	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethene	VOA	µg/kg	12	0	0%	0.72	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethane	VOA	µg/kg	12	0	0%	0.15	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethene (Total)	VOA	µg/kg	12	0	0%	0.64	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloropropane	VOA	µg/kg	12	0	0%	0.11	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,4-Trimethylbenzene	VOA	µg/kg	2	0	0%	0.58	0.59	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1-Butanol	VOA	µg/kg	12	0	0%	35	5000	--	--	8260_VOA_GCMS	8015_VOA_GC	--
2-Butanone	VOA	µg/kg	12	0	0%	1.2	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Hexanone	VOA	µg/kg	12	0	0%	1.3	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
4-Methyl-2-Pentanone	VOA	µg/kg	12	0	0%	0.95	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Acetone	VOA	µg/kg	12	1	8%	--	--	8	8	8260_VOA_GCMS	8260_VOA_GCMS	22.5-25
Acetonitrile	VOA	µg/kg	2	0	0%	5.6	5.7	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Benzene	VOA	µg/kg	12	0	0%	0.12	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromodichloromethane	VOA	µg/kg	12	0	0%	0.74	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromoform	VOA	µg/kg	12	0	0%	0.65	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromomethane	VOA	µg/kg	12	0	0%	0.94	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon disulfide	VOA	µg/kg	12	0	0%	0.28	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon tetrachloride	VOA	µg/kg	12	0	0%	0.15	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chlorobenzene	VOA	µg/kg	12	0	0%	0.13	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroethane	VOA	µg/kg	12	0	0%	0.59	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroform	VOA	µg/kg	12	0	0%	0.13	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloromethane	VOA	µg/kg	12	0	0%	0.24	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
cis-1,3-Dichloropropene	VOA	µg/kg	12	0	0%	0.16	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Dibromochloromethane	VOA	µg/kg	12	0	0%	0.62	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Ethylbenzene	VOA	µg/kg	12	0	0%	0.4	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Hexane	VOA	µg/kg	2	0	0%	0.87	0.88	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Methylene chloride	VOA	µg/kg	12	3	25%	--	--	3.2	25	8260_VOA_GCMS	8260_VOA_GCMS	22.5-25
n-Butylbenzene	VOA	µg/kg	4	0	0%	2	5.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Styrene	VOA	µg/kg	12	0	0%	0.21	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Tetrachloroethene	VOA	µg/kg	12	0	0%	0.21	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Toluene	VOA	µg/kg	12	2	17%	--	--	2.5	4.9	8260_VOA_GCMS	8260_VOA_GCMS	157.5-160
trans-1,3-Dichloropropene	VOA	µg/kg	12	0	0%	0.56	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Trichloroethene	VOA	µg/kg	12	0	0%	0.063	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Vinyl chloride	VOA	µg/kg	12	0	0%	0.68	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Xylenes (total)	VOA	µg/kg	12	0	0%	0.87	6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,4-Trichlorobenzene	SVOA	µg/kg	10	0	0%	230	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,2-Dichlorobenzene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,3-Dichlorobenzene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,4-Dichlorobenzene	SVOA	µg/kg	10	0	0%	240	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4,5-Trichlorophenol	SVOA	µg/kg	1	0	0%	900	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4,6-Trichlorophenol	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4-Dichlorophenol	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4-Dimethylphenol	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4-Dinitrophenol	SVOA	µg/kg	1	0	0%	900	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4-Dinitrotoluene	SVOA	µg/kg	10	0	0%	51	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,6-Dinitrotoluene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Butoxyethanol	SVOA	µg/kg	2	2	100%	--	--	130	150	8270_SVOA_GCMS	8270_SVOA_GCMS	27.5-30
2-Chloronaphthalene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Chlorophenol	SVOA	µg/kg	10	0	0%	110	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Methylnaphthalene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Methylphenol (cresol, o-)	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Nitroaniline	SVOA	µg/kg	1	0	0%	900	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Nitrophenol	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
3,3'-Dichlorobenzidine	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
3-Nitroaniline	SVOA	µg/kg	1	0	0%	900	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4,6-Dinitro-2-methylphenol	SVOA	µg/kg	1	0	0%	900	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Bromophenylphenylether	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Chloro-3-methylphenol	SVOA	µg/kg	10	1	10%	--	--	23	23	8270_SVOA_GCMS	8270_SVOA_GCMS	22.5-25
4-Chloroaniline	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Chlorophenylphenyl ether	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Methylphenol (cresol, p-)	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Nitroaniline	SVOA	µg/kg	1	0	0%	900	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Nitrophenol	SVOA	µg/kg	10	0	0%	500	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Acenaphthene	SVOA	µg/kg	10	0	0%	51	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Acenaphthylene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Anthracene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Benzo(a)anthracene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Benzo(a)pyrene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Benzo(b)fluoranthene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Benzo(ghi)perylene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Benzo(k)fluoranthene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Bis(2-chloro-1-methylethyl)ether	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Bis(2-Chloroethoxy)methane	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Bis(2-chloroethyl) ether	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Bis(2-ethylhexyl)phthalate	SVOA	µg/kg	1	1	100%	--	--	700	700	8270_SVOA_GCMS	8270_SVOA_GCMS	22.5-25
Butylbenzylphthalate	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Carbazole	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Chrysene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Di-n-butylphthalate	SVOA	µg/kg	10	9	90%	--	--	340	1700	8270_SVOA_GCMS	8270_SVOA_GCMS	27.5-30
Di-n-octylphthalate	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Dibenz[a,h]anthracene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Dibenzofuran	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Diethylphthalate	SVOA	µg/kg	6	5	83%	--	--	200	730	8270_SVOA_GCMS	8270_SVOA_GCMS	90-92.5
Dimethylphthalate	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Eicosane	SVOA	µg/kg	1	1	100%	--	--	970	970	8270_SVOA_GCMS	8270_SVOA_GCMS	197.5-200
Fluoranthene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Fluorene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Hexachlorobenzene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Hexachlorobutadiene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Hexachlorocyclopentadiene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Hexachloroethane	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Hexadecanoic acid (9 CI)	SVOA	µg/kg	1	1	100%	--	--	180	180	8270_SVOA_GCMS	8270_SVOA_GCMS	22.5-25
Isophorone	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
n-Hexanoic Acid	SVOA	µg/kg	1	1	100%	--	--	570	570	8270_SVOA_GCMS	8270_SVOA_GCMS	197.5-200
N-Nitrosodi-n-dipropylamine	SVOA	µg/kg	10	0	0%	51	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
N-Nitrosodiphenylamine	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Naphthalene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Nitrobenzene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pentachlorophenol	SVOA	µg/kg	10	0	0%	230	900	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Phenanthrene	SVOA	µg/kg	1	0	0%	360	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Phenol	SVOA	µg/kg	12	1	8%	--	--	24	24	8270_SVOA_GCMS	8270_SVOA_GCMS	22.5-25
Pyrene	SVOA	µg/kg	10	1	10%	--	--	21	21	8270_SVOA_GCMS	8270_SVOA_GCMS	22.5-25
Tributyl phosphate	SVOA	µg/kg	12	0	0%	51	360	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Aroclor-1016	PCB	µg/kg	12	0	0%	6.7	68	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1221	PCB	µg/kg	12	0	0%	7.5	110	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1232	PCB	µg/kg	12	0	0%	8.5	86	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1242	PCB	µg/kg	12	0	0%	8	81	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1248	PCB	µg/kg	12	0	0%	10	100	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1254	PCB	µg/kg	12	2	17%	--	--	240	240	8082_PCB_GC	8082_PCB_GC	17.5-20
Aroclor-1260	PCB	µg/kg	12	0	0%	7.9	80	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1262	PCB	µg/kg	9	0	0%	50	57	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1268	PCB	µg/kg	9	0	0%	50	57	--	--	8082_PCB_GC	8082_PCB_GC	--
TPH -diesel range	TPH	µg/kg	12	1	8%	--	--	13000	13000	WTPH_DIESEL	WTPH_DIESEL	197.5-200
TPH -kerosene range	TPH	µg/kg	12	1	8%	--	--	13000	13000	WTPH_DIESEL	WTPH_DIESEL	197.5-200
TPH -gasoline range	TPH	µg/kg	12	0	0%	21	500	N/A	N/A	WTPH_GASOLINE	WTPH_GASOLINE	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
<b>200-LW-2 Operable Unit Borehole C4176 (216-S-20 Crib)</b>												
Americium-241	RAD	pCi/g	11	5	45%	--	--	0.058	12.3	AMCMISO_IE_PRECIP_AEA	AMCMISO_IE_PLATE_AEA	32.5-35
Antimony-125	RAD	pCi/g	3	0	0%	0.44	50	--	--	GAMMA	GAMMA	--
Carbon-14	RAD	pCi/g	12	1	8%	--	--	35.6	35.6	C14_COX_LSC	C14_COX_LSC	29.5-32
Cesium-134	RAD	pCi/g	3	0	0%	0.053	5.6	--	--	GAMMA	GAMMA	--
Cesium-137	RAD	pCi/g	22	10	45%	--	--	0.055	95600	GAMMA	GAMMA	29.5-32
Cobalt-60	RAD	pCi/g	22	8	36%	--	--	0.026	104	GAMMA	GAMMA	29.5-32
Europium-152	RAD	pCi/g	22	0	0%	-0.019	0.252	--	--	GAMMA	GAMMA	--
Europium-154	RAD	pCi/g	22	4	18%	--	--	0.258	70.8	GAMMA	GAMMA	29.5-32
Europium-155	RAD	pCi/g	22	3	14%	--	--	0.062	0.144	GAMMA	GAMMA	151.5-154
Neptunium-237	RAD	pCi/g	11	1	9%	--	--	0.084	0.084	NP237_IE_PRECIP_AEA	NP237_IE_PRECIP_AEA	32.5-35
Nickel-63	RAD	pCi/g	12	2	17%	--	--	19.1	4580	NI63_LSC	NI63_LSC	29.5-32
Plutonium-238	RAD	pCi/g	11	3	27%	--	--	0.078	2.6	PUISO_IE_PRECIP_AEA	PUISO_IE_PRECIP_AEA	32.5-35
Plutonium-239/240	RAD	pCi/g	11	7	64%	--	--	0.014	78	PUISO_IE_PRECIP_AEA	PUISO_IE_PRECIP_AEA	32.5-35
Potassium-40	RAD	pCi/g	12	11	92%	--	--	7.32	13.8	GAMMA	GAMMA	151.5-154
Radium-226	RAD	pCi/g	13	8	62%	--	--	0.237	0.594	GAMMA	GAMMA	40-42.5
Radium-228	RAD	pCi/g	13	9	69%	--	--	0.424	0.687	GAMMA	GAMMA	40-42.5
Technetium-99	RAD	pCi/g	12	1	8%	--	--	9.18	9.18	TC99_TR_SEP_LSC	TC99_ETVDSK_LSC	29.5-32
Thorium-228	RAD	pCi/g	12	11	92%	--	--	0.558	15.9	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	29.5-32
Thorium-230	RAD	pCi/g	12	10	83%	--	--	0.319	1.03	THISO_IE_PRECIP_AEA	THISO_IE_PLATE_AEA	97-99.5
Thorium-232	RAD	pCi/g	12	10	83%	--	--	0.61	1.41	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	32.5-35
Total beta radiostrontium	RAD	pCi/g	12	4	33%	--	--	0.576	96300	SRTOT_SEP_PRECIP_GPC	SRTOT_SEP_PRECIP_GPC	29.5-32
Tritium	RAD	pCi/g	12	5	42%	--	--	0.187	63.1	TRITIUM_COX_LSC	TRITIUM_COX_LSC	29.5-32
Total Uranium	RAD	µg/kg	11	7	64%	--	--	365	818000	200.8_METALS_ICPMS	UTOT_KPA	32.5-35
Uranium-233/234	RAD	pCi/g	11	11	100%	--	--	0.16	250	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	32.5-35
Uranium-235	RAD	pCi/g	11	11	100%	--	--	0.008	26.4	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	32.5-35
Uranium-238	RAD	pCi/g	11	11	100%	--	--	0.15	270	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	32.5-35
Antimony	METAL	µg/kg	12	2	17%	--	--	1200	2900	6010_METALS_ICP_TR	200.8_METALS_ICPMS	29.5-32
Arsenic	METAL	µg/kg	12	10	83%	--	--	1200	9160	6010_METALS_ICP_TR	200.8_METALS_ICPMS	97-99.5
Barium	METAL	µg/kg	12	12	100%	--	--	50000	136000	200.8_METALS_ICPMS	200.8_METALS_ICPMS	32.5-35
Beryllium	METAL	µg/kg	12	5	42%	--	--	213	2700	200.8_METALS_ICPMS	200.8_METALS_ICPMS	32.5-35
Bismuth	METAL	µg/kg	12	3	25%	--	--	2940	202000	6010_METALS_ICP_TR	6010_METALS_ICP_TR	29.5-32
Boron	METAL	µg/kg	1	1	100%	--	--	13500	13500	6010_METALS_ICP_TR	6010_METALS_ICP_TR	29.5-32
Cadmium	METAL	µg/kg	12	1	8%	--	--	280	280	200.8_METALS_ICPMS	200.8_METALS_ICPMS	29.5-32
Chromium	METAL	µg/kg	12	12	100%	--	--	5840	259000	200.8_METALS_ICPMS	6010_METALS_ICP_TR	29.5-32
Copper	METAL	µg/kg	12	12	100%	--	--	10700	122000	200.8_METALS_ICPMS	6010_METALS_ICP_TR	29.5-32
Hexavalent Chromium	METAL	µg/kg	11	3	27%	--	--	220	1280	7196_CR6	7196_CR6	32.5-35
Lead	METAL	µg/kg	12	5	42%	--	--	2710	489000	200.8_METALS_ICPMS	6010_METALS_ICP_TR	29.5-32
Mercury	METAL	µg/kg	13	7	54%	--	--	293	69200	200.8_METALS_ICPMS	200.8_METALS_ICPMS	29.5-32
Nickel	METAL	µg/kg	12	12	100%	--	--	9710	55000	200.8_METALS_ICPMS	6010_METALS_ICP_TR	29.5-32
Selenium	METAL	µg/kg	12	0	0%	320	3010	--	--	6010_METALS_ICP_TR	200.8_METALS_ICPMS	--
Silver	METAL	µg/kg	12	3	25%	--	--	14	6000	200.8_METALS_ICPMS	200.8_METALS_ICPMS	29.5-32
Ammonia as N	CONV	µg/kg	1	0	0%	6190	6190	--	--	350.3_AMMONIA	350.3_AMMONIA	--
Ammonium ion	CONV	µg/kg	11	6	55%	--	--	358	2870	300.7_IC	350.1_AMMONIA	47.5-50
Chloride	CONV	µg/kg	12	7	58%	--	--	1860	16700	300.0_ANIONS_IC	300.0_ANIONS_IC	32.5-35
Cyanide	CONV	µg/kg	12	0	0%	200	330	--	--	335.2_CYANIDE	9010_CYANIDE	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Fluoride	CONV	µg/kg	12	1	8%	--	--	6510	6510	300.0_ANIONS_IC	300.0_ANIONS_IC	29.5-32
Nitrate as N	CONV	µg/kg	12	12	100%	--	--	5490	18600	300.0_ANIONS_IC	300.0_ANIONS_IC	29.5-32
Nitrite as N	CONV	µg/kg	12	0	0%	1050	10000	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Nitrogen in Nitrite and Nitrate	CONV	µg/kg	11	10	91%	--	--	770	3400	353.2_NO3/NO2	353.2_NO3/NO3	32.5-35
Phosphate	CONV	µg/kg	12	0	0%	1050	11200	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Sulfate	CONV	µg/kg	12	9	75%	--	--	4850	26400	300.0_ANIONS_IC	300.0_ANIONS_IC	151.5-154
Sulfide	CONV	µg/kg	12	1	8%	--	--	23900	23900	9030_SULFIDE	9030_SULFIDE	29.5-32
% moisture (dry)	CONV	%	4	4	100%	--	--	2.9	19.7	D2216_%MOIS	D2216_%MOIS	151.5-154
Density (dry)	CONV	kg/m <sup>3</sup>	4	4	100%	--	--	1540	2191	D2937_DENSITY	D2937_DENSITY	191.5-194
Density (wet)	CONV	kg/m <sup>3</sup>	4	4	100%	--	--	1590	2292	D2937_DENSITY	D2937_DENSITY	191.5-194
pH	CONV	pH	12	12	100%	--	--	7.783	10.85	150.1_PH	150.1_PH	47.5-50
Oil & grease	CONV	µg/kg	11	0	0%	200000	794000	--	--	9071_OILGREASE	9071_OILGREASE	--
Ethylene glycol	VOA	µg/kg	11	0	0%	5000	5500	--	--	8015_VOA_GC	8015_VOA_GC	--
1,1,1-Trichloroethane	VOA	µg/kg	12	0	0%	0.7	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2,2-Tetrachloroethane	VOA	µg/kg	11	0	0%	2	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2-Trichloroethane	VOA	µg/kg	12	0	0%	0.68	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethane	VOA	µg/kg	12	0	0%	0.8	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethene	VOA	µg/kg	12	0	0%	0.76	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethane	VOA	µg/kg	12	0	0%	0.76	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethene (Total)	VOA	µg/kg	12	0	0%	1.4	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloropropane	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1-Butanol	VOA	µg/kg	12	0	0%	3.9	5500	--	--	8260_VOA_GCMS	8015_VOA_GC	--
2-Butanone	VOA	µg/kg	12	0	0%	0.82	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Hexanone	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
4-Methyl-2-Pentanone	VOA	µg/kg	12	0	0%	0.74	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Acetone	VOA	µg/kg	12	0	0%	0.92	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Benzene	VOA	µg/kg	12	0	0%	0.66	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromodichloromethane	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromoform	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromomethane	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon disulfide	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon tetrachloride	VOA	µg/kg	12	0	0%	1.3	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chlorobenzene	VOA	µg/kg	12	0	0%	0.76	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroethane	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroform	VOA	µg/kg	12	0	0%	0.72	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloromethane	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
cis-1,3-Dichloropropene	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Dibromochloromethane	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Ethylbenzene	VOA	µg/kg	12	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Methylene chloride	VOA	µg/kg	12	1	8%	--	--	4.7	4.7	8260_VOA_GCMS	8260_VOA_GCMS	32.5-35
n-Butylbenzene	VOA	µg/kg	10	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Styrene	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Tetrachloroethene	VOA	µg/kg	12	0	0%	0.7	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Toluene	VOA	µg/kg	12	0	0%	0.64	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
trans-1,3-Dichloropropene	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Trichloroethene	VOA	µg/kg	12	0	0%	0.86	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Vinyl chloride	VOA	µg/kg	11	0	0%	1.9	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Xylenes (total)	VOA	µg/kg	12	0	0%	1.6	11	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,4-Trichlorobenzene	SVOA	µg/kg	11	0	0%	300	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,4-Dichlorobenzene	SVOA	µg/kg	11	0	0%	320	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4-Dinitrotoluene	SVOA	µg/kg	11	0	0%	68	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Chlorophenol	SVOA	µg/kg	11	0	0%	150	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Chloro-3-methylphenol	SVOA	µg/kg	11	0	0%	68	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Nitrophenol	SVOA	µg/kg	11	0	0%	660	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Acenaphthene	SVOA	µg/kg	11	0	0%	68	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Di-n-butylphthalate	SVOA	µg/kg	7	7	100%	--	--	99	1200	8270_SVOA_GCMS	8270_SVOA_GCMS	40-42.5
N-Nitrosodi-n-dipropylamine	SVOA	µg/kg	11	0	0%	68	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pentachlorophenol	SVOA	µg/kg	11	0	0%	310	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Phenol	SVOA	µg/kg	12	0	0%	100	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pyrene	SVOA	µg/kg	11	0	0%	68	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Tributyl phosphate	SVOA	µg/kg	12	0	0%	68	920	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Aroclor-1016	PCB	µg/kg	12	0	0%	14	57	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1221	PCB	µg/kg	12	0	0%	13	110	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1232	PCB	µg/kg	12	0	0%	14	230	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1242	PCB	µg/kg	12	0	0%	14	57	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1248	PCB	µg/kg	12	0	0%	13	57	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1254	PCB	µg/kg	12	1	8%	--	--	170	170	8082_PCB_GC	8082_PCB_GC	29.5-32
Aroclor-1260	PCB	µg/kg	12	0	0%	14	57	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1262	PCB	µg/kg	12	0	0%	50	57	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1268	PCB	µg/kg	10	0	0%	50	57	--	--	8082_PCB_GC	8082_PCB_GC	--
TPH -diesel range	TPH	µg/kg	11	0	0%	3800	12700	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -kerosene range	TPH	µg/kg	11	0	0%	3800	12700	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -gasoline range	TPH	µg/kg	11	0	0%	33	2500	--	--	WTPH_GASOLINE	WTPH_GASOLINE	--

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
<b>200-LW-2 Operable Unit Borehole C4183 (216-Z-7 Crib)</b>												
Americium-241	RAD	pCi/g	10	8	80%	--	--	0.1	60600	AMCMISO_IE_PRECIP_AEA	AMCMISO_IE_PLATE_AEA	17.5-20
Antimony-125	RAD	pCi/g	6	0	0%	-0.0096	6.6	--	--	GAMMA	GAMMA	--
Carbon-14	RAD	pCi/g	11	0	0%	-1.9	14.7	--	--	C14_COX_LSC	C14_COX_LSC	--
Cesium-134	RAD	pCi/g	6	0	0%	0.0178	2.8	--	--	GAMMA	GAMMA	--
Cesium-137	RAD	pCi/g	18	5	28%	--	--	0.0107	2800	GAMMA	GAMMA	17.5-20
Cobalt-60	RAD	pCi/g	18	8	44%	--	--	0.0161	58.3	GAMMA	GAMMA	17.5-20
Europium-152	RAD	pCi/g	18	0	0%	-0.016	6.3	--	--	GAMMA	GAMMA	--
Europium-154	RAD	pCi/g	18	6	33%	--	--	0.0461	10.5	GAMMA	GAMMA	17.5-20
Europium-155	RAD	pCi/g	18	6	33%	--	--	0.0384	0.0829	GAMMA	GAMMA	57.5-60
Neptunium-237	RAD	pCi/g	10	1	10%	--	--	0.059	0.059	NP237_IE_PRECIP_AEA	NP237_IE_PLATE_AEA	12.5-15
Nickel-63	RAD	pCi/g	11	0	0%	-14.2	418	--	--	NI63_LSC	NI63_LSC	--
Plutonium-238	RAD	pCi/g	10	4	40%	--	--	0.43	5770	PUISO_IE_PRECIP_AEA	PUISO_IE_PLATE_AEA	17.5-20
Plutonium-239/240	RAD	pCi/g	10	7	70%	--	--	0.022	472000	PUISO_IE_PRECIP_AEA	PUISO_IE_PLATE_AEA	17.5-20
Potassium-40	RAD	pCi/g	11	9	82%	--	--	6.47	14.9	GAMMA	GAMMA	57.5-60
Radium-226	RAD	pCi/g	11	6	55%	--	--	0.219	0.807	GAMMA	GAMMA	117.5-120
Radium-228	RAD	pCi/g	11	5	45%	--	--	0.58	0.729	GAMMA	GAMMA	96.5-99
Technetium-99	RAD	pCi/g	11	2	18%	--	--	5.67	11	TC99_TR_SEP_LSC	TC99_TR_SEP_LSC	22.5-25
Thorium-228	RAD	pCi/g	11	9	82%	--	--	0.272	1.18	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	57.5-60
Thorium-230	RAD	pCi/g	11	7	64%	--	--	0.306	1.03	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	12.5-15
Thorium-232	RAD	pCi/g	11	9	82%	--	--	0.458	1.22	THISO_IE_PLATE_AEA	THISO_IE_PLATE_AEA	57.5-60
Total beta radiostrontium	RAD	pCi/g	11	4	36%	--	--	34.8	437000	SRTOT_SEP_PRECIP_GPC	SRTOT_SEP_PRECIP_GPC	17.5-20
Tritium	RAD	pCi/g	11	4	36%	--	--	0.631	9.54	TRITIUM_COX_LSC	TRITIUM_COX_LSC	117.5-120
Total Uranium	METAL	µg/kg	10	6	60%	--	--	208	27900	200.8_METALS_ICPMS	UTOT_KPA	17.5-20
Uranium-233/234	RAD	pCi/g	10	8	80%	--	--	0.13	0.506	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	12.5-15
Uranium-235	RAD	pCi/g	10	6	60%	--	--	0.0085	0.053	UIISO_IE_PRECIP_AEA	UIISO_IE_PRECIP_AEA	197.5-200
Uranium-238	RAD	pCi/g	21	8	38%	--	--	0.11	0.696	UIISO_IE_PRECIP_AEA	UIISO_IE_PLATE_AEA	12.5-15
Antimony	METAL	µg/kg	10	3	30%	--	--	540	2800	6010_METALS_ICP_TR	200.8_METALS_ICPMS	17.5-20
Arsenic	METAL	µg/kg	10	5	50%	--	--	1300	13400	6010_METALS_ICP_TR	200.8_METALS_ICPMS	12.5-15
Barium	METAL	µg/kg	10	10	100%	--	--	32200	80500	200.8_METALS_ICPMS	200.8_METALS_ICPMS	96.5-99
Beryllium	METAL	µg/kg	10	6	60%	--	--	71	380	200.8_METALS_ICPMS	200.8_METALS_ICPMS	40-42.5
Bismuth	METAL	µg/kg	10	3	30%	--	--	108000	123000	6010_METALS_ICP	6010_METALS_ICP	27.5-30
Boron	METAL	µg/kg	6	3	50%	--	--	2600	3100	6010_METALS_ICP_TR	6010_METALS_ICP_TR	27.5-30
Cadmium	METAL	µg/kg	10	1	10%	--	--	321	321	200.8_METALS_ICPMS	200.8_METALS_ICPMS	40-42.5
Chromium (Total)	METAL	µg/kg	10	10	100%	--	--	6200	193000	6010_METALS_ICP_TR	6010_METALS_ICP_TR	17.5-20
Copper	METAL	µg/kg	10	10	100%	--	--	7350	18200	200.8_METALS_ICPMS	6010_METALS_ICP_TR	22.5-25
Hexavalent Chromium	METAL	µg/kg	10	4	40%	--	--	730	2050	7196_CR6	7196_CR6	197.5-200
Lead	METAL	µg/kg	10	6	60%	--	--	1800	14300	6010_METALS_ICP_TR	6010_METALS_ICP_TR	17.5-20
Mercury	METAL	µg/kg	10	7	70%	--	--	37	5600	7471_HG_CVAA	7471_HG_CVAA	17.5-20
Nickel	METAL	µg/kg	10	10	100%	--	--	5800	23400	6010_METALS_ICP_TR	200.8_METALS_ICPMS	197.5-200
Selenium	METAL	µg/kg	10	0	0%	310	3030	--	--	6010_METALS_ICP_TR	200.8_METALS_ICPMS	--
Silver	METAL	µg/kg	10	5	50%	--	--	30.4	4700	200.8_METALS_ICPMS	200.8_METALS_ICPMS	96.5-99
Ammonia as N	CONV	µg/kg	3	0	0%	73	74.2	--	--	350.1_AMMONIA	350.1_AMMONIA	--
Ammonium ion	CONV	µg/kg	7	5	71%	--	--	297	649	300.7_IC	300.7_IC	197.5-200
Chloride	CONV	µg/kg	10	6	60%	--	--	1000	5340	300.0_ANIONS_IC	300.0_ANIONS_IC	197.5-200

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Cyanide	CONV	µg/kg	10	1	10%	--	--	3950	3950	9010_CYANIDE	335.2_CYANIDE	12.5-15
Fluoride	CONV	µg/kg	10	1	10%	--	--	260	260	300.0_ANIONS_IC	300.0_ANIONS_IC	22.5-25
Nitrate as N	CONV	µg/kg	10	8	80%	--	--	2435	19744	300.0_ANIONS_IC	300.0_ANIONS_IC	40-42.5
Nitrite as N	CONV	µg/kg	10	0	0%	135	3120	--	--	300.0_ANIONS_IC	300.0_ANIONS_IC	--
Nitrogen in Nitrite and Nitrate	CONV	µg/kg	10	5	50%	--	--	360	2500	353.1_NO3/NO2	353.2_NO3/NO2	40-42.5
Phosphate	CONV	µg/kg	10	2	20%	--	--	7100	13000	300.0_ANIONS_IC	300.0_ANIONS_IC	22.5-25
Sulfate	CONV	µg/kg	10	4	40%	--	--	3100	5620	300.0_ANIONS_IC	300.0_ANIONS_IC	220-222.5
Sulfide	CONV	µg/kg	10	0	0%	7500	43100	--	--	9030_SULFIDE	9030_SULFIDE	--
% moisture (dry)	CONV	%	3	3	100%	--	--	2.6	5.0	D2216%MOIS	D2216%MOIS	96.5-99
Density (dry)	CONV	kg/m <sup>3</sup>	3	3	100%	--	--	1751.9	1936.2	D2937_DENSITY	D2937_DENSITY	197.5-200
Density (wet)	CONV	kg/m <sup>3</sup>	3	3	100%	--	--	1838.4	1985.9	D2937_DENSITY	D2937_DENSITY	197.5-200
pH	CONV	pH	10	10	100%	--	--	8.66	9.4	150.1_PH	150.1_PH	197.5-200
Oil & grease	CONV	µg/kg	10	1	10%	--	--	727000	727000	9071_OILGREASE	413.1_OILGREASE	220-222.5
1-butanol	VOA	µg/kg	7	0	0%	41	43	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Ethylene glycol	VOA	µg/kg	7	0	0%	5000	5000	--	--	8015_VOA_GC	8015_VOA_GC	--
1,1,1-Trichloroethane	VOA	µg/kg	10	0	0%	0.57	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2,2-Tetrachloroethane	VOA	µg/kg	10	0	0%	0.76	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1,2-Trichloroethane	VOA	µg/kg	10	0	0%	0.78	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethane	VOA	µg/kg	10	0	0%	0.56	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,1-Dichloroethene	VOA	µg/kg	10	0	0%	0.69	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethane	VOA	µg/kg	10	0	0%	0.44	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloroethene (Total)	VOA	µg/kg	10	0	0%	0.63	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2-Dichloropropane	VOA	µg/kg	10	0	0%	0.48	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,3-Trichlorobenzene	VOA	µg/kg	1	1	100%	--	--	7.5	7.5	8260_VOA_GCMS	8260_VOA_GCMS	22.5-25
1,2,4-Trimethylbenzene	VOA	µg/kg	3	0	0%	0.59	0.6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Butanone	VOA	µg/kg	10	0	0%	1.1	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
2-Hexanone	VOA	µg/kg	10	0	0%	1.3	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
4-Methyl-2-Pentanone	VOA	µg/kg	10	0	0%	0.93	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Acetone	VOA	µg/kg	10	0	0%	1.3	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Acetonitrile	VOA	µg/kg	3	0	0%	5.5	5.6	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Benzene	VOA	µg/kg	10	0	0%	0.32	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromodichloromethane	VOA	µg/kg	10	0	0%	0.4	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromoform	VOA	µg/kg	10	0	0%	0.64	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Bromomethane	VOA	µg/kg	10	0	0%	0.66	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Carbon disulfide	VOA	µg/kg	10	1	10%	--	--	1.1	1.1	8260_VOA_GCMS	8260_VOA_GCMS	17.5-20
Carbon tetrachloride	VOA	µg/kg	10	0	0%	0.47	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chlorobenzene	VOA	µg/kg	10	0	0%	0.56	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroethane	VOA	µg/kg	10	0	0%	0.58	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloroform	VOA	µg/kg	10	0	0%	0.54	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Chloromethane	VOA	µg/kg	10	0	0%	0.96	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
cis-1,3-Dichloropropene	VOA	µg/kg	10	0	0%	0.28	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Dibromochloromethane	VOA	µg/kg	10	0	0%	0.27	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Ethyl Acetate	VOA	µg/kg	1	1	100%	--	--	5.5	5.5	8260_VOA_GCMS	8260_VOA_GCMS	27.5-30
Ethylbenzene	VOA	µg/kg	10	0	0%	0.46	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--

Table A-2. Data Summary Table -- Deep Zone

Constituent	Constituent Class	Units	Number of Samples	Number of Detects	Frequency of Detects	Minimum Nondetect	Maximum Nondetect	Minimum Result	Maximum Result (EPC)	Analytical Method, Minimum Nondetect or Result	Analytical Method, Maximum Nondetect or Result	Overall Maximum Depth (ft bgs)
Methylene chloride	VOA	µg/kg	10	3	30%	--	--	3.1	8	8260_VOA_GCMS	8260_VOA_GCMS	22.5-25
n-Butylbenzene	VOA	µg/kg	7	0	0%	2	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
n-Hexane	VOA	µg/kg	3	0	0%	0.87	0.88	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Styrene	VOA	µg/kg	10	0	0%	0.49	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Tetrachloroethene	VOA	µg/kg	10	0	0%	0.57	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Toluene	VOA	µg/kg	10	0	0%	0.34	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
trans-1,3-Dichloropropene	VOA	µg/kg	10	0	0%	0.41	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Trichloroethene	VOA	µg/kg	10	1	10%	--	--	2	2	8260_VOA_GCMS	8260_VOA_GCMS	17.5-20
Vinyl chloride	VOA	µg/kg	10	0	0%	0.74	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
Xylenes (total)	VOA	µg/kg	10	0	0%	1.3	2.2	--	--	8260_VOA_GCMS	8260_VOA_GCMS	--
1,2,4-Trichlorobenzene	SVOA	µg/kg	7	0	0%	83	190	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
1,4-Dichlorobenzene	SVOA	µg/kg	7	0	0%	140	280	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2,4-Dinitrotoluene	SVOA	µg/kg	7	0	0%	56	110	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Chlorophenol	SVOA	µg/kg	7	0	0%	79	160	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
2-Methylphenol (cresol, o-)	SVOA	µg/kg	5	0	0%	84	89	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
3+4 Methylphenol (cresol m+p)	SVOA	µg/kg	5	0	0%	110	160	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Chloro-3-methylphenol	SVOA	µg/kg	7	0	0%	48	99	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
4-Nitrophenol	SVOA	µg/kg	7	0	0%	89	180	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Acenaphthene	SVOA	µg/kg	7	0	0%	55	150	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Di-n-butylphthalate	SVOA	µg/kg	2	2	100%	--	--	200	2100	8270_SVOA_GCMS	8270_SVOA_GCMS	96.5-99
Diethylphthalate	SVOA	µg/kg	3	3	100%	--	--	180	460	8270_SVOA_GCMS	8270_SVOA_GCMS	220-222.5
N-Nitrosodi-n-dipropylamine	SVOA	µg/kg	7	0	0%	72	160	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
nonadecane	SVOA	µg/kg	1	1	100%	--	--	1500	1500	8270_SVOA_GCMS	8270_SVOA_GCMS	197.5-200
Pentachlorophenol	SVOA	µg/kg	7	0	0%	73	150	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Phenol	SVOA	µg/kg	10	0	0%	71	150	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Pyrene	SVOA	µg/kg	7	0	0%	50	170	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Tributyl phosphate	SVOA	µg/kg	10	0	0%	33	350	--	--	8270_SVOA_GCMS	8270_SVOA_GCMS	--
Aroclor-1016	PCB	µg/kg	8	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1221	PCB	µg/kg	8	0	0%	100	100	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1232	PCB	µg/kg	8	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1242	PCB	µg/kg	8	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1248	PCB	µg/kg	8	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1254	PCB	µg/kg	8	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1260	PCB	µg/kg	8	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1262	PCB	µg/kg	7	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
Aroclor-1268	PCB	µg/kg	7	0	0%	51	52	--	--	8082_PCB_GC	8082_PCB_GC	--
TPH -diesel range	TPH	µg/kg	10	0	0%	970	4000	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -kerosene range	TPH	µg/kg	10	0	0%	3800	26000	--	--	WTPH_DIESEL	WTPH_DIESEL	--
TPH -gasoline range	TPH	µg/kg	10	0	0%	21	250	--	--	WTPH_GASOLINE	WTPH_GASOLINE	--

**APPENDIX B**

**DATA EVALUATION AND DATA SUMMARY TABLES**

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**TERMS**

HEIS	<i>Hanford Environmental Information System</i> database
LPPAL	lowest potential preliminary action limit
PCB	polychlorinated biphenyl
TPH	total petroleum hydrocarbon
TQL	target quantitation limit
VOA	volatile organic analyte

## APPENDIX B

## DATA EVALUATION AND DATA SUMMARY TABLES

## B1.0 DATA EVALUATION

Samples from representative waste sites in the 200-LW-1 and 200-LW-2 Operable Units and associated field quality-control samples were obtained and analyzed in accordance with the sampling and analysis plan in DOE/RL-2001-66, *Chemical Laboratory Waste Group Operable Units RI/FS Work Plan, Includes: 200-LW-1 and 200-LW-2 Operable Units*, Appendix A; EPA/600/R-96/084, *Guidance for Data Quality Assessment, Practical Methods for Data Analysis*, EPA QA/G-9, QA00 Update; and Fluor Hanford, Inc., procedure GRP-EE-01-1.22, *Data Quality Assessment*. Also, as required by the plan, the analytical data from these samples were evaluated to ensure that the quality assurance objectives of the project were achieved. This evaluation consisted of three activities:

- Formal validation of a portion of the data
- Review of the complete data set to determine the degree to which detection-limit requirements were achieved
- Evaluation of the field quality control sample data.

The results of these activities are summarized in the following sections.

## B1.1 DATA VALIDATION RESULTS

Laboratory data from 16 samples in eight sample delivery groups (H2704, H2815, H3046, W04366, W04380, W04523, WSCF20041462, and WSCF20042054) were validated to Level "C" as described in HNF-20433, *Data Validation Procedure for Chemical Analyses*, and HNF-20434, *Data Validation Procedure for Radiochemical Analyses*.

This validation resulted in the rejection of 48 analytes, as summarized below.

Summary of Rejected Analytes.

Waste Site	HEIS NO.	Analytes	Depth Collected
216-T-28 Crib	B19188	37 undetected VOAs	17.5 - 20 ft bgs
216-T-28 Crib	B19189	TPH-gasoline	22.5 - 25 ft bgs
216-T-28 Crib	B193K1	Sulfide	22.5 - 25 ft bgs
216-T-28 Crib	B19188	Cyanide	17.5 - 20 ft bgs
216-S-20 Crib	B19HY8	Bismuth	32.5 - 35 ft bgs
216-Z-7 Crib	B19406	PCBs (7 undetected aroclors) <sup>a</sup>	27.5 - 30 ft bgs

<sup>a</sup> Aroclor is an expired trademark.

bgs = below ground surface.

HEIS = Hanford Environmental Information System database.

PCB = polychlorinated biphenyl.

TPH = total petroleum hydrocarbon.

VOA = volatile organic analyte.

- Loss of 37 volatile organic analytes (VOA) in sample B19188, 6 m (20 ft) below ground surface (bgs) in the 216-T-28 Crib, should not be a modeling problem. Because all other VOA results for the 216-T-28 Crib were nondetects, it is likely that this sample also would have resulted in nondetects.
- Loss of the total petroleum hydrocarbon (TPH)-gasoline range result in sample B19189, 7.6 m (25 ft) bgs in the 216-T-28 Crib, should not be a modeling problem, because all other TPH-gasoline range results were well below the target quantitation limit (TQL).
- Loss of the sulfide result in sample B193K1, 7.6 m (25 ft) bgs in the 216-T-28 Crib, should not be a modeling problem. While all other sulfide results for the 216-T-28 Crib were above the TQL, there is no lowest potential preliminary action limit (LPPAL) for sulfide. Also, sulfide results for the 216-T-28 Crib were fairly uniform (between 35.7 and 55.4 mg/kg), so the 7.6 m (25 ft) bgs result likely would have been in this range.
- Loss of the cyanide result in sample B19188 6 m (20 ft) bgs in the 216-T-28 Crib, should not be a modeling problem, because all other cyanide results for the 216-T-28 Crib were below the TQL.
- Loss of the bismuth result in sample B19HY8, 10.7 m (35 ft) bgs in the 216-S-20 Crib, should not cause any difficulty in the remedial investigation/feasibility study modeling efforts. Because it was the split of sample B19189, results at this depth are available.
- Loss of aroclor<sup>1</sup> results in sample B19406, 9.2 m (30 ft) bgs in the 216-Z-7 Crib, should not cause any modeling difficulty. Because aroclors were nondetected in all other samples for this borehole, it is likely that this sample also would have resulted in nondetects.

In addition, several minor deficiencies were found, resulting in sample results being flagged with a "J" (estimate) qualifier. Qualification primarily occurred because of inadequate agreement between laboratory duplicates or matrix spike duplicates. Other deficiencies included the lack of blank, duplicate, or control standard results. However, the majority of the data were obtained without any discrepancy.

Contamination detected in laboratory blanks resulted in qualifying several results for volatile and semivolatile organic compounds with a "U" (not detected).

The amount of laboratory analytical data obtained in the validated sample delivery groups was well above the normal 90 percent "completeness" criterion for site characterization studies.

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<sup>1</sup> Aroclor is an expired trademark.

## B1.2 DATA COMPLETENESS AND DETECTION LIMITS

As a supplement to formal data validation, the data were examined with respect to completeness and detection limits. Reported analytical detection levels for nondetected analytes were compared to the TQLs and LPPALs specified in the sampling and analysis plan (DOE/RL-2001-66, Appendix A).

### B1.2.1 Data Completeness

The analytical data were reviewed to determine whether the goal of analyzing all contaminants of concern at each sampling location had been achieved. Missing results are summarized in the table below. These results are organized by location (crib), contaminant of concern, and sample depth (in feet bgs).

Contaminant of Concern Analysis Required but Not Reported.

Contaminant of Concern	216-T-28 Crib				216-S-20 Crib	216-Z-7 Crib			
	17.5 - 20	157.5 - 160	197.5 - 200	223.5 - 226	29.5 - 32	17.5 - 20	22.5 - 25	27.5 - 30	197.5 - 200
Sulfide	•								
Neptunium-237					•			•	
Plutonium-238					•			•	
Plutonium-239/240					•			•	
Uranium-233/234					•			•	
Ethylene glycol	•				•		•	•	
n-Butyl benzene		•	•	•	•		•	•	
n-Butanol							•	•	
Polychlorinated biphenyls						•	•		
Oil and grease	•				•				
TPH-diesel					•				•
TPH-gasoline					•				•
TPHC-kerosene					•				•

TPH = total petroleum hydrocarbon.

- The loss of sulfide, n-butyl benzene, and ethylene glycol data has little impact, because there are no preliminary action levels for these constituents. Also, because all other samples for these constituents in the borehole in question resulted in nondetects, it is likely that analysis for these constituents at the missing depths would have resulted in nondetects also.
- The Np-237 result missing from the 216-S-20 Crib data set does not represent a major modeling problem. This species reported levels well below its respective LPPAL in all other samples for this borehole.

- The Np-237, Pu-238, Pu-239/240, and U-233/234 results missing at 8.4 m (27.5 ft) bgs in the 216-Z-7 Crib do not represent a major modeling problem. The highest concentration of these radionuclides was reported at 5.3 to 8.4 m (17.5 to 20 ft) bgs. Samples taken above and below this depth resulted in substantially lower results, with contaminant concentration dropping off rapidly with increased depth. Thus it is highly unlikely that a higher concentration would have been reported at this depth.
- The missing Pu-238 and Pu-239/240 measurements from the 216-S-20 Crib analysis may represent modeling difficulties. Both constituents were detected at values above the TQL but well below the LPPAL. The missing sample is from 9.8 m (32 ft) bgs, and the highest reported result for both constituents was from 10.7 m (35 ft) bgs.
- The lack of data for U-233/234 from 9.0 to 9.8 m (29.5 to 32 ft) bgs in the 216-S-30 Crib may represent modeling difficulties. For U-233/234, the LPPAL is 39.5 pCi/g, and the highest value reported was 250 pCi/g. The missing sample is from 9.8 m (32 ft) bgs, and the highest reported result was from that depth.
- The hexavalent chromium data missing from the 216-T-28 Crib and 216-S-20 Crib data sets does not represent a modeling problem. This species was undetected above and below the gaps, so its presence in these intervals is unlikely. Furthermore, the highest values reported for all hexavalent chromium samples in these boreholes are well below the LPPAL.
- The polychlorinated biphenyl and n-butanol data missing from the 216-Z-7 Crib data set also does not represent a modeling problem. These species were undetected in all other sample intervals in the borehole, so its presence in these intervals is unlikely.
- The oil-and-grease measurement missing from the 216-T-28 Crib analysis set also does not represent a modeling problem. Because diesel-range, gasoline-range, and kerosene-range results from TPH measurements are available for this location, the oil-and-grease measurement will not be used in modeling the extent of these constituents.
- The oil-and-grease measurement missing from the 216-S-20 Crib analysis may represent modeling difficulties. All other samples for this borehole reported oil-and-grease concentrations that equaled or exceeded the TQL. The highest reported value for this borehole was about 40 percent of the LPPAL. Because the TPH measurements are missing for the same depth, these results cannot be used instead of the oil-and-grease results at this depth. However, because all results but one (200,000) ranged between 684,000 and 794,000  $\mu\text{g}/\text{kg}$ , and because the LPPAL is 2 million  $\mu\text{g}/\text{kg}$ , the chance that the result would have exceeded the LPPAL is very slight.
- The TPH measurements for diesel, gas, and kerosene that are missing from the 216-S-20 Crib and the 216-Z-7 Crib data sets should not present difficulties in modeling distribution of species in the soil. These constituents were not detected in any other samples in the 216-Z-7 Crib, so it is likely that analysis for these constituents at the missing depth would have resulted in nondetects also. The TPH measurements for diesel, gas, and kerosene were reported at concentrations lower than the TQL in all other borehole depths, so their presence in higher concentrations at this depth is unlikely.

**B1.2.2 Detection Limits**

Reported analytical detection levels for nondetected analytes were compared to the TQL and the preliminary action levels specified in the sampling and analysis plan (DOE/RL-2001-66, Appendix A). Although the detection limits for most determinations met both standards, exceedance of the TQLs was common. Exceedance of the LPPALs was relatively rare for all analytes except antimony, cadmium, and mercury. The table below summarizes results for undetected analytes with detection limits greater than the LPPAL given in the sampling and analysis plan, Table A-3 (DOE/RL-2001-66, Appendix A). The TQLs specified in the sampling and analysis plan are numerical values established as target levels that chemical laboratories should try to achieve in their analysis of soil and groundwater. This value typically is lower than the preliminary action level. The preliminary action level is a regulatory or risk-based value used to determine appropriate analytical requirements (i.e., detection limits). Detection limit exceedances of the lowest preliminary action levels are taken into consideration when making decisions based on the data.

Detection Limits Exceeding the Target Quantitation Limits and the Lowest Applicable Preliminary Action Limit. (2 Pages)

Analyte	Number of Samples with Detection Limits Exceeding the Target Quantitation Limit	Number of Samples with Detection Limits Exceeding the Lowest Applicable Preliminary Action Limit
Americium-241	4	1
Carbon-14	1	0
Cesium-137	3	0
Cobalt-60	11	0
Europium-152	24	3
Europium-154	20	1
Europium-155	27	1
Neptunium-237	3	1
Nickel-63	3	0
Technetium-99	2	0
Thorium-232	8	5
Uranium-235/236	11	8
Uranium-238	35	9
Antimony	15	12
Beryllium	12	0
Cadmium	12	12
Lead	12	0
Chloride	8	N/A
Ammonia	1	N/A
Ammonium Ion	1	N/A
Nitrate	3	0
Nitrite	29	1
Phosphate	23	N/A

Detection Limits Exceeding the Target Quantitation Limits and the Lowest Applicable Preliminary Action Limit. (2 Pages)

Analyte	Number of Samples with Detection Limits Exceeding the Target Quantitation Limit	Number of Samples with Detection Limits Exceeding the Lowest Applicable Preliminary Action Limit
Sulfide	32	N/A
Sulfate	2	0
1,1,1-trichloroethane	5	5
1,1,2-trichloroethane	5	5
1-butanol	1	0
2-butanone	2	N/A
4-methyl-2-pentanone	2	0
Benzene	5	0
Carbon tetrachloride	5	5
Chlorobenzene	5	0
Chloroform	5	0
Ethylbenzene	5	0
Ethylene glycol	2	N/A
Methylene chloride	3	0
n-butylbenzene	3	N/A
Tetrachloroethene	5	1
Toluene	5	0
Trichloroethene	5	0
Xylene	5	0
Phenol	2	0
Aroclor-1221	1	0
Aroclor-1232	1	1
Oil and grease	13	0
Total petroleum hydrocarbon-diesel range	3	0
Total petroleum hydrocarbon-kerosene range	7	0

Aroclor is an expired trademark.

N/A = not applicable.

### B1.3 FIELD QUALITY CONTROL SAMPLES

A total of 24 field quality control samples were collected and analyzed. These consisted of 4 field duplicate samples, 4 field split samples, 6 equipment rinsate blanks, and 10 trip blanks. The number of field duplicate samples and field split samples obtained for the 216-T-28 and 216-S-20 Cribs satisfies the sampling and analysis plan (DOE/RL-2001-66, Appendix A)

requirements of 1 duplicate for every 20 site characterization samples (for field duplicates) and one field duplicate sample and field split sample for each representative waste site. However, no field duplicate samples or field split samples were obtained at the 216-Z-7 Crib. Overall sampling frequency for the combined sites satisfied the 1-in-20 requirements. The number of equipment blanks and trip blanks obtained satisfies the sampling and analysis plan requirement of 1 blank for every 20 site-characterization samples.

For both field duplicate samples and field split samples, the relative percent difference between field duplicates/splits and their corresponding primary field samples were calculated to determine whether they meet the relative precision requirement of the sampling and analysis plan. In more than 90 percent of the cases, the resulting relative percent difference was satisfactory. Over half of the unsatisfactory matches were for radionuclides. These results show that the overall precision of sampling and analysis generally is within the project requirements, even at the very low concentrations of contaminants of concern found in most samples.

Equipment blanks were analyzed for gross alpha, gross beta, metals (except hexavalent chromium and mercury), anions (except cyanide), and VOAs of interest. An analyte was detected in nine out of 129. All nine detections were below their TQLs. And among the nondetect results for equipment blanks, the detection limit never exceeded the TQL. The trip blanks were analyzed for VOAs as required in the sampling and analysis plan. The analyte was detected in all 196 cases, except for toluene and its associated laboratory quality control blank, and was an estimated value. In no case did the detection limit exceed the TQL.

## **B2.0 CONCLUSION**

The conclusion of this data quality assessment is that the missing radiological data from borehole C4176 (at the 216-S-20 Crib) may have an impact on the refinement of the conceptual contaminant distribution model and remedial action decisions. However, the data collected at borehole C4175 located in the 216-T-28 Crib, the data collected at borehole C4183 located in the 216-Z-7 Crib, and the additional data collected at borehole C4176 in the 216-S-20 Crib are of the right type, quality, and quantity to support remedial action decisions related to the waste sites. The analytical data are acceptable for decision-making purposes and are acceptable for calculating the required values.

## **B3.0 ANALYTICAL RESULTS**

The tables at the end of this appendix (B1-x, B2-x, B3-x) list all of the chemical and radiochemical results obtained in response to DOE/RL-2001-66.

The "Sample Interval Depth" columns in these tables indicate the upper and lower bounds of the sample interval in feet bgs at which the sample was taken. The "Sample Interval Depth" columns also designate the field quality control samples (field duplicate samples - "Dup," equipment blank samples - "Equip blank," and trip blank samples - "Trip blank").

Analyte names are given in the top row of each table. Below each analyte name are the U.S. Environmental Protection Agency method number(s) or brief descriptive name(s) of the

analytical method(s) used for the analyte. The following analytical method numbers and terms/abbreviations are used in the Appendix B tables.

Table Features. (2 Pages)

Analytical Method/ Term/ Abbreviation	Definition	Reference
150.1	Determination of pH by electrometric measurement	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
200.8	Determination of trace metal elements by inductive coupled plasma/mass spectrometry	EPA/600/4-91/010, <i>Methods for the Determination of Metals in Environmental Samples</i>
300.0	Determination of inorganic anions by ion chromatography	EPA/600/R-93/100, <i>Methods for the Determination of Inorganic Substances in Environmental Samples</i>
300.7	Determination of anions by chromatography method for anions	EPA/600/4-86/024, <i>Development of Standard Methods for the Collection and Analysis of Precipitation</i>
335.2	Determination of cyanide by titrimetric spectrophotometry	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
350.1	Determination of ammonia nitrogen by semiautomated colorimetry	EPA/600/R-93/100, <i>Methods for the Determination of Inorganic Substances in Environmental Samples</i>
350.3	Determination of ammonia nitrogen by potentiometric, ion selective electrode	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
353.1	Determination of nitrate-nitrite by colorimetry	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
353.2	Determination of nitrate-nitrite by automated colorimetry	EPA/600/R-93/100, <i>Methods for the Determination of Inorganic Substances in Environmental Samples</i>
413.1	Determination of oil and grease by total recoverable, spectrophotometric, infrared	EPA/600/4-79/020, <i>Methods of Chemical Analysis of Water and Wastes</i>
906	Determination of tritium in various matrices by liquid scintillation counting	EPA/600/4-80/032, <i>Prescribed Procedures for Measurement of Radioactivity in Drinking Water</i>
6010	Determination of metals and trace elements by inductive coupled plasma	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
7196	Determination of hexavalent chromium by automated colorimetry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
7471	Determination of mercury by cold vapor atomic absorption	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
8015	Determination of nonhalogenated volatile organics by gas chromatography	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>

Table Features. (2 Pages)

Analytical Method/ Term/ Abbreviation	Definition	Reference
8082	Determination of polychlorinated biphenyls by gas chromatography	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
8260	Determination of volatile organics by gas chromatography/mass spectrometry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
8270	Determination of semivolatile organics by gas chromatography/mass spectrometry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9010	Determination of total and amenable cyanide by colorimetry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9030	Determination of sulfides by colorimetry	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9045	Determination of pH	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
9071	Determination of oil and grease by solvent extraction	SW-846, 1999, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
D422	Determination of soil particulate size	ASTM D422-63, 2002, <i>Standard Test Method for Particle-Size Analysis of Soils</i>
D2216	Determination of soil water content	ASTM D2216-98, 1998, <i>Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass</i>
D2937	Determination of soil density	ASTM D2937-001e1, 2000, <i>Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method</i>
TPH	Total petroleum hydrocarbon	Ecology 97-602, <i>Analytical Methods for Petroleum Hydrocarbons</i>
WTPH-Diesel WTPH-Kerosene	Washington State method to determine total petroleum hydrocarbons, diesel range and kerosene range, by gas chromatography	Ecology 97-602, <i>Analytical Methods for Petroleum Hydrocarbons</i>
WTPH-Gasoline	Washington State method to determine total petroleum hydrocarbons, gasoline range, by gas chromatography	Ecology 97-602, <i>Analytical Methods for Petroleum Hydrocarbons</i>

The letters in the columns labeled "Q" are quality control flags affixed by the laboratories. The flags have the following meanings.

- B: For organic analyses, indicates that the blank was contaminated with the analyte.
- B: For inorganic analysis (conducted by Severn Trent Laboratories) the analytical result is estimated.
- "B": Analyte detected is less than the reporting detection limit but greater than the instrument detection limit/method detection limit.
- C: For inorganic analysis, indicates that the analyte was detected in the associated method blank.
- E: For inorganic analyses, result is an estimate because of interference.
- J: Result is an estimate.
- U: Analyte was undetected, with the indicated reporting limit.
- R: Result is rejected for decision-making.
- X: Data were manually entered or modified.

Where more than one letter is used for a result, the meanings of the individual letters are combined.

Where validation qualifier flags were assigned by the data validator, they are entered in a separate column labeled "VQ." Where validation flags do not occur, this column is omitted. Validation flags have the following meanings.

- J: Result is an estimate.
- U: Analyte was undetected, with the indicated reporting limit.
- R: Result is rejected for decision-making.

For radionuclide analysis, a column labeled "MDA" appears. This column gives the "minimum detectable activity," as reported by the laboratory.

#### B4.0 REFERENCES

ASTM D422-63, 2002, *Standard Test Method for Particle-Size Analysis of Soils*, American Society of Testing and Materials, West Conshohocken, Pennsylvania.

ASTM D2216-98, 1998, *Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*, American Society for Testing and Materials, West Conshohocken, Pennsylvania.

- ASTM D2937-001e1, 2000, *Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method*, American Society of Testing and Materials, West Conshohocken, Pennsylvania.
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*Hanford Environmental Information System*, Hanford Site database.
- HNF-20433, 2004, *Data Validation Procedure for Chemical Analyses*, Fluor Hanford, Inc., Richland, Washington.
- HNF-20434, 2004, *Data Validation Procedure for Radiochemical Analyses*, Fluor Hanford, Inc., Richland, Washington.
- SW-846, 1999, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.

## TERMS USED IN APPENDIX B TABLES

NOTE: Capitalization of the terms in this list follows what appears in the tables, not what is industry correct.

222-S	222-S Analytical Laboratory, Hanford Site, Richland, Washington
AEA	alpha energy analysis
AM	americium
bgs	below ground surface
C14	carbon-14
CM	curium
COX	combustion oxidation
CR6	chromium-6
CVAA	cold vapor atomic absorption
D422	ASTM D422-63, <i>Standard Test Method for Particle-Size Analysis of Soils</i>
D2216	ASTM D2216-98, <i>Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass</i>
D2937	ASTM D2937-001e1, <i>Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method</i>
EBRLNE or EBR	Eberline Services, Inc., Richmond, California
EIE	separated by sequential eichrom ion exchange resin
ETVDSK	Eichrome (Industries) TEVA (filter) disk separation <sup>2</sup>
GC	gas chromatography
GCMS	gas chromatography mass spectrometry
GPC	gas proportional counting
GS	gamma spectroscopy
H3	tritium
HG	mercury
IC	ion chromatography
ICP	inductively coupled plasma
ICPMS	inductively coupled plasma mass spectrometry
IE	ion exchange
ISO	isotopic
KPA	kinetic phosphorescence analysis
LLE	liquid liquid extraction
LSC	liquid scintillation counting
LVLI	Lionville Laboratory, Inc., Exton, Pennsylvania
MDA	minimum detectable activity
NI63	nickel-63
NP237	neptunium-237
PCB	polychlorinated biphenyl
pH	acidity or alkalinity of an aqueous solution

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<sup>2</sup> TEVA (filter) is a trademark of Eichrome Industries, Inc., Deerfield, Illinois.

DOE/RL-2005-61 DRAFT A

PLATE	electroplated
PRECIP	precipitated
PU	plutonium
Q	laboratory data qualifier
SEP	separation
Shaw	Shaw Group, Inc., Geotechnical Laboratory, Oak Ridge, Tennessee
SR	strontium
STLRL	Severn Trent Laboratories, Inc., Richland, Washington
STLSL	Severn Trent Laboratories, Inc., St. Louis, Missouri
SVOA	semivolatile organic analysis
SW864	SW-846, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update III-A</i>
TC99	technetium-99
TH	thorium
TOT	total
TR	trace
U	uranium
VOA	volatile organic analysis
VQ	validation qualifier
WSCF	Waste Sampling and Characterization Facility, Richland, Washington
WTPH	Washington total petroleum hydrocarbon (Ecology 97-602, <i>Analytical Methods for Petroleum Hydrocarbons</i> )

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## DOE/RL-2005-61 DRAFT A

Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Americium-241									Antimony-125			Carbon-14					
		AMCMISO_IE_ PLATE_AEA			AMCMISO_IE_ PRECIP_AEA			GAMMA_GS			GAMMA_GS			C14_COX_LSC			C14_LSC		
		EBRLNE			WSCF			EBRLNE			EBRLNE/WSCF			EBRLNE			STLRL		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
17.5-20	B19188	802		22					U	2800		U	3700	-2.65	U	27			
22.5-25	B19189				7.5		0.033				0.827	U	1.2						
22.5-25 (split)	B19HY6	9.15		1.8					U	8.7		U	5.2						
22.5-25	B191B2													1.64	U	2.8			
22.5-25 (split)	B193K1																-0.635	U	3.27
27.5-30	B19187				4.4		0.043				0.866		0.68						
27.5-30 (dup)	B19190				4.4		0.029				2.39		1.7						
27.5-30	B191B0								U	3.9				-0.244	U	2.9			
27.5-30 (dup)	B191B3								U	6.3				-0.688	U	3			
32.5-35	B19191				0.26		0.034				0.074		0.042						
32.5-35	B191B4								U	0.14		U	0.062	0.607	U	3			
47.5-50	B19192				3.1		0.016				0.117		0.052						
47.5-50	B191B5							1.27		0.092		U	0.086	1.42	U	3.1			
67.5-70	B19193				3.6		0.06												
67.5-70	B191B6							2.02		0.17				3.18		2.6			
90-92.5	B19194				20		0.061												
90-92.5	B191B7							15.2		0.66				4.52		4.2			
157.5-160	B19195				-0.008	U	0.068												
157.5-160	B191B8								U	0.12				-0.474	U	3			
197.5-200	B19196				0.034		0.012												
197.5-200	B191B9								U	0.19				0.038	U	3.9			
223.5-226	B19197				0.058		0.022												
223.5-226	B191C0								U	0.15				-0.642	U	3.5			
Target Quantitation Limit		1												50					

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Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Cesium-134			Cesium-137			Cobalt-60			Europium-152			Europium-154			Europium-155			
		GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS			
		EBRLNE/WSCF			EBR/WSCF/STLRL			EBR/WSCF/STLRL			EBR/WSCF/STLRL			EBR/WSCF/STLRL			EBR/WSCF/STLRL			
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	
17.5-20	B19188	456		330	3100000		1200	1180		230		U	3100		U	800		U	1800	
22.5-25	B19189	0.104	U	0.27	4710		0.4	0.67		0.089		0.147	U	1.1	0.647	U	0.4	0.136	U	1.1
22.5-25 (split)	B19HY6		U	0.43	3470		1.4	1.52		0.28			U	4.5		U	1.6		U	2.7
22.5-25	B191B2																			
22.5-25 (split)	B193K1				6560		0.866	1.77		0.085		0.383	U	2.94	1.17	U	0.479	-0.346	U	2.04
27.5-30	B19187	0.023	U	0.043	652		0.16	0.398		0.022		0.028	U	0.6	0.623		0.076	-0.181	U	0.59
27.5-30 (dup)	B19190	0.041	U	0.13	2720		0.39	1.01		0.038		-0.374	U	1.6	1.4		0.2	-1.24	U	1.8
27.5-30	B191B0				1980		0.73	0.605		0.065			U	1.9	1.12		0.27		U	1.2
27.5-30 (dup)	B191B3				2040		0.78	0.674		0.067			U	2		U	1.3		U	1.2
32.5-35	B19191	0.03		0.019	0.336		0.015	0.052		0.019		0.017	U	0.048	0.205		0.064	0.115		0.079
32.5-35	B191B4		U	0.033	0.159		0.029		U	0.051			U	0.062		U	0.092		U	0.14
47.5-50	B19192	0.057	U	0.024	0.724		0.021	0.524		0.015		0.064	U	0.057	4.65		0.051	2.14		0.093
47.5-50	B191B5		U	0.038	0.359		0.035	0.364		0.028			U	0.067	3.51		0.087	1.51		0.093
67.5-70	B19193				0.845		0.023	0.134		0.014		0.171		0.059	8.68		0.05	3.71		0.1
67.5-70	B191B6				0.536		0.068	0.063		0.043		0.131		0.13	6.53		0.16	2.81		0.17
90-92.5	B19194				0.05		0.047	0.151		0.023		0.733		0.12	43		0.088	19.9		0.24
90-92.5	B191B7					U	0.11	0.086		0.048		0.613		0.22	31.5		0.25	14.5		0.39
157.5-160	B19195				0.018		0.011	0	U	0.011		-0.014	U	0.031	0.001	U	0.035	0.039	U	0.048
157.5-160	B191B8					U	0.028		U	0.026			U	0.071		U	0.085		U	0.076
197.5-200	B19196				0.007	U	0.01	0.001	U	0.009		0.001	U	0.026	0.004	U	0.029	0.009	U	0.038
197.5-200	B191B9					U	0.07		U	0.074			U	0.19		U	0.27		U	0.18
223.5-226	B19197				-0.007	U	0.011	0.005	U	0.011		0.019	U	0.031	-0.024	U	0.032	0.043	U	0.046
223.5-226	B191C0					U	0.064		U	0.067			U	0.16		U	0.2		U	0.14
Target Quantitation Limit					0.1			0.05			0.1			0.1			0.1			

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Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Neptunium-237								Nickel-63			Plutonium-238						
		NP237_IE_PRECIP_AEA				NP237_LLE_PLATE_AEA				NI63_LSC			PUIISO_IE_PRECIP_AEA				PUIISO_PLATE_AEA		
		WSCF				EBRLNE				EBRLNE/STLRL			WSCF				EBRLNE		
		pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	
17.5-20	B19188					2.56	U		12	843		400					84.5		13
22.5-25	B19189	0.012	U	J	0.018								0.59		J	0.12			
22.5-25 (split)	B19HY6					-0.064	U		0.49								0.632	U	0.81
22.5-25	B191B2									87.5		30							
22.5-25 (split)	B193K1									140		27.9							
27.5-30	B19187	0.005	U		0.019								0.29			0.065			
27.5-30 (dup)	B19190	0.008	U		0.012								0.41			0.07			
27.5-30	B191B0									52.8		3.3							
27.5-30 (dup)	B191B3									54.6		3.4							
32.5-35	B19191	-0.002	U		0.014								0.046	U		0.052			
32.5-35	B191B4									1.56	U	3.4							
47.5-50	B19192	0.011	X		0.004								0.057	U		0.063			
47.5-50	B191B5									5.81		3.3							
67.5-70	B19193	0.001	U		0.002								0.018	U		0.058			
67.5-70	B191B6									0.124	U	3.5							
90-92.5	B19194	-0.002	U		0.015								0.059			0.057			
90-92.5	B191B7									3.36		3.2							
157.5-160	B19195	-0.001	U		0.006								0.024	U		0.055			
157.5-160	B191B8									-0.756	U	3.3							
197.5-200	B19196	-0.001	U		0.012								-0.01	U		0.062			
197.5-200	B191B9									-1.97	U	3.2							
223.5-226	B19197	0.003	U		0.008								-0.004	U		0.041			
223.5-226	B191C0									-0.631	U	3.2							
Target Quantitation Limit		1								30			1						

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Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Plutonium-239/240						Potassium-40			Radium-226			Radium-228		
		PUIISO_IE_PRECIP_AEA			PUIISO_PLATE_AEA			GAMMA_GS			GAMMA_GS			GAMMA_GS		
		WSCF			EBRLNE			EBRLNE			EBRLNE			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
17.5-20	B19188				1110	Q	13		U	8500		U	1500		U	2000
22.5-25	B19189	12		0.036												
22.5-25 (split)	B19HY6				13		0.8	15		1.9		U	1.9		U	1.8
22.5-25	B191B2															
22.5-25 (split)	B193K1															
27.5-30	B19187	5.8		0.017												
27.5-30 (dup)	B19190	5.9		0.019												
27.5-30	B191B0							13.7		0.5		U	0.92		U	1.1
27.5-30 (dup)	B191B3							12.2		0.67		U	0.97		U	0.99
32.5-35	B19191	0.072		0.025												
32.5-35	B191B4							11.6		0.27	0.344		0.053	0.507		0.096
47.5-50	B19192	0.19		0.021												
47.5-50	B191B5							13.9		0.22	0.415		0.046	0.563		0.12
67.5-70	B19193	0.017	U	0.022												
67.5-70	B191B6							11.9		0.34	0.294		0.11	0.426		0.2
90-92.5	B19194	0.02		0.013												
90-92.5	B191B7							13.3		0.45	0.523		0.18	0.974		0.33
157.5-160	B19195	0.003	U	0.021												
157.5-160	B191B8							9.69		0.27	0.359		0.054	0.501		0.099
197.5-200	B19196	0.011	U	0.02												
197.5-200	B191B9							14.6		0.88	0.444		0.14	0.68		0.37
223.5-226	B19197	0.017		0.005												
223.5-226	B191C0							13		0.7	0.437		0.13	0.683		0.26
Target Quantitation Limit		1														

## DOE/RL-2005-61 DRAFT A

Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Technetium-99						Thorium-228						Thorium-230		
		TC99_ETVDSK_LSC			TC99_TR_SEP_LSC			GAMMA_GS			THISO_IE_PLATE_AEA			THISO_IE_PLATE_AEA		
		STLRL			EBRLNE			EBRLNE			EBRLNE			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q
17.5-20	B19188				4.66	U	15		U	1400						
22.5-25	B19189															
22.5-25 (split)	B19HY6							2.69		2						
22.5-25	B191B2				1.1		0.36				1.82	J	0.38	-0.206	U	1.1
22.5-25 (split)	B193K1	18.6	U	25												
27.5-30	B19187															
27.5-30 (dup)	B19190															
27.5-30	B191B0				0.92		0.59		U	2	1.72		0.55	0.932		0.55
27.5-30 (dup)	B191B3				0.902		0.55		U	1.9	1.79		0.19	0.408		0.26
32.5-35	B19191															
32.5-35	B191B4				0.316	U	0.66	0.447		0.03	1.13		0.079	0.559		0.21
47.5-50	B19192															
47.5-50	B191B5				0.279	U	0.42	0.538		0.031	0.984		0.054	0.671		0.2
67.5-70	B19193															
67.5-70	B191B6				0.479	U	0.53	0.414		0.054	0.54		0.15	0.404		0.24
90-92.5	B19194															
90-92.5	B191B7				0.974		0.43	0.924		0.14	1.18		0.15	0.436		0.23
157.5-160	B19195															
157.5-160	B191B8				1.22		0.38	0.468		0.03	0.496		0.32	0	U	0.32
197.5-200	B19196															
197.5-200	B191B9				1.61		0.57	0.53		0.078	0.559		0.28	0.334	U	0.36
223.5-226	B19197															
223.5-226	B191C0				0.085	U	0.59	0.62		0.064	0.497		0.049	0.379		0.2
Target Quantitation Limit		15														

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Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Thorium-232											Total beta radiostrontium			Tritium					
		GAMMA_GS			THISO_IE_PLATE_AEA				THISO_IE_PRECIP_AEA				SRTOT_SEP_PRECIP_GPC			906_H3_LSC			TRITIUM_COX_LSC		
		EBRLNE			EBRLNE				STLRL				EBRLNE			EBRLNE/STLRL			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
17.5-20	B19188		U	2000								642000		85	15.8	U	37				
22.5-25	B19189																				
22.5-25 (split)	B19HY6		U	1.8																	
22.5-25	B191B2				0.309	U	J	0.33				4010		8.4	15		0.36				
22.5-25 (split)	B193K1								0.356	U	J	0.482	4490	U	15.6	2.79	U	16.6			
27.5-30	B19187																				
27.5-30 (dup)	B19190																				
27.5-30	B191B0		U	1.1	0.502	U		0.55				1020		0.43	12.5		0.44				
27.5-30 (dup)	B191B3		U	0.99	0.778			0.15				1220		0.36	13.2		0.36				
32.5-35	B19191																				
32.5-35	B191B4	0.507		0.096	1.05			0.072				0.342		0.21	5.36		0.36				
47.5-50	B19192																				
47.5-50	B191B5	0.563		0.12	1.09			0.076				0.239		0.19	26.4		0.36				
67.5-70	B19193																				
67.5-70	B191B6	0.426		0.2	0.866			0.15				1.84		0.22	127		0.44				
90-92.5	B19194																				
90-92.5	B191B7	0.974		0.33	0.93			0.15				-0.005	U	0.27	19000		0.35				
157.5-160	B19195																				
157.5-160	B191B8	0.501		0.099	0.248	U		0.32				-0.032	U	0.12				13.4		3.5	
197.5-200	B19196																				
197.5-200	B191B9	0.68		0.37	0.557			0.28				0.039	U	0.31	7.31		0.41				
223.5-226	B19197																				
223.5-226	B191C0	0.683		0.26	0.456			0.062				0.011	U	0.21	0.792		0.45				
Target Quantitation Limit					1						1			400							

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Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Total Uranium								Uranium-233/234					
		UTOT_KPA			200.8_METALS_ICPMS		6010_METALS_ICP			UIISO_IE_PRECIP_AEA			UIISO_PLATE_AEA		
		EBRLNE			WSCF		STLSSL/LVLI			WSCF			EBRLNE		
		µg/kg	Q	MDA	µg/kg	Q	µg/kg	Q	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA
17.5-20	B19188	60300		120										41.6	19
22.5-25	B19189						104000		43	J	0.067				
22.5-25 (split)	B19HY6	125000		840										59.4	1.7
22.5-25	B191B2														
22.5-25 (split)	B193K1														
27.5-30	B19187				113000				34		0.011				
27.5-30 (dup)	B19190				84300				36		0.032				
27.5-30	B191B0														
27.5-30 (dup)	B191B3														
32.5-35	B19191				491				0.15		0.015				
32.5-35	B191B4														
47.5-50	B19192				1240				0.24		0.017				
47.5-50	B191B5														
67.5-70	B19193				1020	U			0.13		0.025				
67.5-70	B191B6														
90-92.5	B19194				955	U			0.31		0.005				
90-92.5	B191B7														
157.5-160	B19195				536				0.14		0.017				
157.5-160	B191B8														
197.5-200	B19196				564				0.15		0.014				
197.5-200	B191B9														
223.5-226	B19197				305				0.12		0.005				
223.5-226	B191C0														
Target Quantitation Limit					1000			1							

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Table B1-1. Radiochemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Uranium-235									Uranium-238								
		GAMMA_GS			UIISO_IE_PRECIP_AEA			UIISO_PLATE_AEA			GAMMA_GS			UIISO_IE_PRECIP_AEA			UIISO_PLATE_AEA		
		EBRLNE			WSCF			EBRLNE			EBRLNE			WSCF			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q
17.5-20	B19188		U	2600				0	U	23		U	46000				14.7	U	19
22.5-25	B19189				1.8		J	0.016					27		0.073				
22.5-25 (split)	B19HY6		U	3.8				3.44		1.6		U	72				35.1		1.7
22.5-25	B191B2																		
22.5-25 (split)	B193K1																		
27.5-30	B19187				1.7			0.012						24		0.011			
27.5-30 (dup)	B19190				1.7			0.013						27		0.012			
27.5-30	B191B0		U	1.8								U	32						
27.5-30 (dup)	B191B3		U	1.9								U	45						
32.5-35	B19191				0.007			0.006						0.12		0.006			
32.5-35	B191B4		U	0.094								U	3						
47.5-50	B19192				0.006	U		0.019						0.2		0.014			
47.5-50	B191B5		U	0.085								U	6.6						
67.5-70	B19193				0.005	U		0.006						0.14		0.006			
67.5-70	B191B6		U	0.15								U	8.7						
90-92.5	B19194				0.016			0.015						0.26		0.014			
90-92.5	B191B7		U	0.25								U	21						
157.5-160	B19195				0.014			0.005						0.19		0.005			
157.5-160	B191B8		U	0.1								U	3.3						
197.5-200	B19196				0.015	U		0.015						0.13		0.005			
197.5-200	B191B9		U	0.25								U	9.3						
223.5-226	B19197				0.006			0.006						0.16		0.005			
223.5-226	B191C0		U	0.2								U	7.1						
Target Quantitation Limit								1									1		

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Table B1-2. Metal Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Antimony						Arsenic				Barium			
		200.8_METALS_ICPMS		6010_METALS_ICP_TR				200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR	
		WSCF		STLSL/LVLI				WSCF		STLSL/LVLI		WSCF		STLSL/LVLI	
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	
17.5-20	B19188			600	B	J			740	B			98400		
22.5-25	B19189			1400		J			1200				87300		
22.5-25 (split)	B19HY6			259	U	J			2000				85600		
22.5-25	B191B2														
22.5-25 (split)	B193K1														
27.5-30	B19187	7030	U				2360	U			82800				
27.5-30 (dup)	B19190	7150	U				2400	U			70700				
27.5-30	B191B0														
27.5-30 (dup)	B191B3														
32.5-35	B19191	7080	U				3240				45400				
32.5-35	B191B4														
47.5-50	B19192	7030	U				4270				68800				
47.5-50	B191B5														
67.5-70	B19193	5090	U				6320				49800				
67.5-70	B191B6														
90-92.5	B19194	4780	U				9290				91800				
90-92.5	B191B7														
157.5-160	B19195	3440	U				2370				110000				
157.5-160	B191B8														
197.5-200	B19196	5030					2380				87500				
197.5-200	B191B9														
223.5-226	B19197	7090	U				2380	U			69800				
223.5-226	B191C0														
equip blank tied to B19188	B19182	0.5 (µg/L)	U				0.3 (µg/L)	U			0.3 (µg/L)				
Target Quantitation Limit		6000				10000		1000		20000					

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Table B1-2. Metal Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Beryllium				Bismuth				Boron	
		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		6010_METALS_ ICP		6010_METALS_ ICP_TR		6010_METALS_ ICP_TR	
		WSCF		STLSL/LVLI		WSCF		STLSL/LVLI		WSCF	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
17.5-20	B19188			230	B			156000			
22.5-25	B19189			270	B			202000			
22.5-25 (split)	B19HY6			277				408			
22.5-25	B191B2										
22.5-25 (split)	B193K1										
27.5-30	B19187	310				2320					
27.5-30 (dup)	B19190	317				5540			2200	U	
27.5-30	B191B0										
27.5-30 (dup)	B191B3										
32.5-35	B19191	317				5850					
32.5-35	B191B4										
47.5-50	B19192	912				4900					
47.5-50	B191B5										
67.5-70	B19193	3050	U			3910					
67.5-70	B191B6										
90-92.5	B19194	2860	U			5890					
90-92.5	B191B7										
157.5-160	B19195	267				110	U				
157.5-160	B191B8										
197.5-200	B19196	277				110	U				
197.5-200	B191B9										
223.5-226	B19197	173				2160	U				
223.5-226	B191C0										
equip blank tied to B19188	B19182	0.3 (µg/L)	U			22 (µg/L)	U				
Target Quantitation Limit		500									

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Table B1-2. Metal Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Cadmium				Chromium						Copper			
		200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR	
		WSCF		STLSSL/LVLI		WSCF		WSCF		STLSSL/LVLI		WSCF		STLSSL/LVLI	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg
17.5-20	B19188			23	U					6100	J			15100	
22.5-25	B19189			24	U					81700	J			19700	
22.5-25 (split)	B19HY6			193						10000	J			13800	
22.5-25	B191B2														
22.5-25 (split)	B193K1														
27.5-30	B19187	20	U			12000						19900			
27.5-30 (dup)	B19190	20	U			13400						17700			
27.5-30	B191B0														
27.5-30 (dup)	B191B3														
32.5-35	B19191	20	U			16900						18100			
32.5-35	B191B4														
47.5-50	B19192	127				18500						15000			
47.5-50	B191B5														
67.5-70	B19193	1020	U			19800						14500			
67.5-70	B191B6														
90-92.5	B19194	955	U			9630	E					16300			
90-92.5	B191B7														
157.5-160	B19195	204				24200		65500				18200			
157.5-160	B191B8														
197.5-200	B19196	126				27100		79900				18800			
197.5-200	B191B9														
223.5-226	B19197	20	U			28600						12600			
223.5-226	B191C0														
equip blank tied to B19188	B19182					1.34 (µg/L)	C					0.61 (µg/L)			
Target Quantitation Limit		500				1000						2500			

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Table B1-2. Metal Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Hexavalent Chromium		Lead				Mercury				Nickel			
		7196_CR6		200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		7471_HG_CVAA		200.8_METALS_ICPMS		6010_METALS_ICP_TR	
		LVLI/STLSL		WSCF		STLSL/LVLI		WSCF		STLSL/LVLI		WSCF		STLSL/LVLI	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
17.5-20	B19188					16700				6500				8900	J
22.5-25	B19189					4300				5100				52700	J
22.5-25 (split)	B19HY6					5100				6840				10300	
22.5-25	B191B2	216	U												
22.5-25 (split)	B193K1	250	U												
27.5-30	B19187			4340				3990				12600			
27.5-30 (dup)	B19190			4440				3510				12000			
27.5-30	B191B0	240													
27.5-30 (dup)	B191B3	210	U												
32.5-35	B19191			3490				1000				14300			
32.5-35	B191B4	210	U												
47.5-50	B19192			6060				1040				17800			
47.5-50	B191B5	250													
67.5-70	B19193			12200	U			1550				17300			
67.5-70	B191B6	210	U												
90-92.5	B19194			11500	U			955	U			17000			
90-92.5	B191B7	1500													
157.5-160	B19195			2990				230				18500			
157.5-160	B191B8	200	U												
197.5-200	B19196			34400				99				20200			
197.5-200	B191B9	210	U												
223.5-226	B19197			3860				638				21600			
223.5-226	B191C0	210	U												
equip blank tied to B19188	B19182			1.2 (µg/L)	U							0.5 (µg/L)	U		
Target Quantitation Limit		500		10000		1000				200		4000			

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Table B1-2. Metal Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Selenium				Silver			
		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR	
		WSCF		STLSSL/LVLI		WSCF		STLSSL/LVLI	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
17.5-20	B19188			320	U			1300	
22.5-25	B19189			320	U			2000	
22.5-25 (split)	B19HY6			342	U			2100	
22.5-25	B191B2								
22.5-25 (split)	B193K1								
27.5-30	B19187	718	U			1060			
27.5-30 (dup)	B19190	731	U			981			
27.5-30	B191B0								
27.5-30 (dup)	B191B3								
32.5-35	B19191	724	U			113			
32.5-35	B191B4								
47.5-50	B19192	719	U			827			
47.5-50	B191B5								
67.5-70	B19193	3050	U			4980			
67.5-70	B191B6								
90-92.5	B19194	2860	U			1910	U		
90-92.5	B191B7								
157.5-160	B19195	869				79			
157.5-160	B191B8								
197.5-200	B19196	358	U			32			
197.5-200	B191B9								
223.5-226	B19197	725	U			10	U		
223.5-226	B191C0								
equip blank tied to B19188	B19182	0.3 (µg/L)	U			0.2 (µg/L)	U		
Target Quantitation Limit		10000				2000		500	

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Table B1-3. Wet Chemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Ammonia						Ammonium ion		Chloride			Cyanide						Fluoride		
		350.1_AMMONIA			350.3_AMMONIA			300.7_IC		300_ANIONS_IC			335.2_CYANIDE		9010_CYANIDE			300_ANIONS_IC			
		STLSL			LVLI			WSCF/STLSL	WSCF/STLSL			WSCF		STLSL			WSCF/STLSL				
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ	
17.5-20	B19188	74.2	U	J					2500	C	UJ			130	U	R	2300		J		
22.5-25	B19189	280	U						1800	BC	UJ			130	U	J	3400				
22.5-25 (split)	B19HY6				14500		J		13300					496	U	J	3220				
22.5-25	B191B2																				
22.5-25 (split)	B193K1																				
27.5-30	B19187							1270	B	2600	U		200	U			2660	B			
27.5-30	B19190							1730	B	2600	U		200	U			4240	B			
27.5-30	B191B0																				
27.5-30 (dup)	B191B3																				
32.5-35	B19191							1170	B	2550	U		200	U			3620	B			
32.5-35	B191B4																				
47.5-50	B19192							1930	B	2580	B		200	U			1130	U			
47.5-50	B191B5																				
67.5-70	B19193							24700		6490	B		200	U			5950	B			
67.5-70	B191B6																				
90-92.5	B19194							22800		6420	B		200	U			39600				
90-92.5	B191B7																				
157.5-160	B19195							771	B	8460			200	U			4080	B			
157.5-160	B191B8																				
197.5-200	B19196							3920	B	10600			200	U			1150	U			
197.5-200	B191B9																				
223.5-226	B19197							267	B	6020	B		200	U			1150	U			
223.5-226	B191C0																				
equip blank tied to B19188	B19182																		18 (µg/L) U		
equip blank tied to B19189	B19183																				
Target Quantitation Limit		500								2000					500			5000			

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Table B1-3. Wet Chemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Nitrate		Nitrite		Nitrogen in Nitrite and Nitrate				pH			Phosphate			
		300_ANIONS_IC		300_ANIONS_IC		353.1_NO3/NO2		353.2_NO3/NO2		9045_pH			150.1_pH		300_ANIONS_IC	
		WSCF/STLSL		WSCF/STLSL		STLSL		LVLI		STLSL/LVLI			WSCF		WSCF/STLSL	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	ph	Q	VQ	ph	Q	µg/kg	Q
17.5-20	B19188	16800		2530						10.1	J			25200		
22.5-25	B19189	34500		1450						10.2	J			36600		
22.5-25 (split)	B19HY6	27700		1080	U					9.96	J			59100		
22.5-25	B191B2							6100								
22.5-25 (split)	B193K1					24900										
27.5-30	B19187	21700	B	3120	U							10.6		40800	BE	
27.5-30	B19190	25900	B	3120	U							10.6		55800	BE	
27.5-30	B191B0							3900								
27.5-30 (dup)	B191B3							4000								
32.5-35	B19191	11100	B	3060	U							10.6		8130	U	
32.5-35	B191B4							1300								
47.5-50	B19192	19300	B	3060	U							11.1		8130	U	
47.5-50	B191B5							3700								
67.5-70	B19193	51800		3060	U							10		15900	B	
67.5-70	B191B6							11600								
90-92.5	B19194	245000		3060	U							9.68		21000	B	
90-92.5	B191B7							45800								
157.5-160	B19195	100000		3060	U							8.4		8130	U	
157.5-160	B191B8							30500								
197.5-200	B19196	173000		3120	U							8.8		8280	U	
197.5-200	B191B9							43400								
223.5-226	B19197	2880	U	3120	U							9.15		8280	U	
223.5-226	B191C0							900								
equip blank tied to B19188	B19182	97.4 (µg/L)	U	19.7 (µg/L)	U									239 (µg/L)	U	
equip blank tied to B19189	B19183							26 (µg/L)								
Target Quantitation Limit		2500		2500									5000			

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Table B1-3. Wet Chemical Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Sulfate			Sulfide		
		300_ANIONS_IC			9030_SULFIDE		
		WSCF/STLSL			LVLI/STLSL		
		µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	9600		J			
22.5-25	B19189	12600					
22.5-25 (split)	B19HY6	13200					
22.5-25	B191B2				47500	U	J
22.5-25 (split)	B193K1				7600	U	R
27.5-30	B19187	12300	B				
27.5-30	B19190	10500	B				
27.5-30	B191B0				36000	U	
27.5-30 (dup)	B191B3				36600	U	
32.5-35	B19191	4900	U				
32.5-35	B191B4				40300	U	
47.5-50	B19192	9110	B				
47.5-50	B191B5				44600	U	
67.5-70	B19193	17000	B				
67.5-70	B191B6				40300	U	
90-92.5	B19194	42200					
90-92.5	B191B7				55400	U	
157.5-160	B19195	57200					
157.5-160	B191B8				35700	U	
197.5-200	B19196	50600					
197.5-200	B191B9				42900	U	
223.5-226	B19197	9330	B				
223.5-226	B191C0				38700	U	
equip blank tied to B19188	B19182	150 (µg/L)	U				
equip blank tied to B19189	B19183				1000 (µg/L)	U	
Target Quantitation Limit		5000			5000		

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Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,1,1-Trichloroethane			1,1,2,2-Tetrachloroethane			1,1,2-Trichloroethane			1,1-Dichloroethane			1,1-Dichloroethene			1,2,4-Trimethylbenzene		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			STLSL		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	0.12	U	R	0.77	U	R	0.81	U	R	0.22	U	R	0.72	U	R	0.58	U	R
22.5-25	B19189	0.12	U	J	0.78	U	J	0.82	U	J	0.22	U	J	0.73	U	J	0.59	U	J
22.5-25 (split)	B19HY6	6	U	J	6	U	J	6	U	J	6	U	J	6	U	J			
27.5-30	B19187	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U				
27.5-30	B19190	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U				
32.5-35	B19191	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U				
47.5-50	B19192	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U				
67.5-70	B19193	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U				
90-92.5	B19194	2.4	U		2.4	U		2.4	U		2.4	U		2.4	U				
157.5-160	B19195	2	U		2	U		2	U		2	U		2	U				
197.5-200	B19196	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U				
223.5-226	B19197	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U				
trip blank tied to B19194	B19184	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U				
equip blank tied to B19188	B19182	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U				
Target Quantitation Limit		5						5			10								

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Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,2-Dichloroethane			1,2-Dichloroethene (Total)			1,2-Dichloropropane			1-Butanol						2-Butanone		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8015_VOA_GC			8260_VOA_GCMS			8260_VOA_GCMS		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			LVLI			WSCF/STLSL			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	0.15	U	R	0.64	U	R	0.11	U	R				110	U		1.2	U	R
22.5-25	B19189	0.15	U	J	0.65	U	J	0.11	U	J				35	U	J	1.2	U	J
22.5-25 (split)	B19HY6	6	U	J	6	U	J	6	U	J	5000	U	J				11	U	J
27.5-30	B19187	5.2	U		5.2	U		5.2	U					100	U		5.2	U	
27.5-30	B19190	5.2	U		5.2	U		5.2	U					100	U		5.2	U	
32.5-35	B19191	2.1	U		2.1	U		2.1	U					41	U		2.1	U	
47.5-50	B19192	2.1	U		2.1	U		2.1	U					41	U		2.1	U	
67.5-70	B19193	2.1	U		2.1	U		2.1	U					41	U		2.1	U	
90-92.5	B19194	2.4	U		2.4	U		2.4	U					47	U		2.4	U	
157.5-160	B19195	2	U		2	U		2	U					41	U		2	U	
197.5-200	B19196	2.1	U		2.1	U		2.1	U					41	U		2.1	U	
223.5-226	B19197	2.1	U		2.1	U		2.1	U					42	U		2.1	U	
trip blank tied to B19194	B19184	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					20 (µg/L)	U		1 (µg/L)	U	
equip blank tied to B19188	B19182	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					20 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit					10						5000						10		

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Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	2-Hexanone			4-Methyl-2-Pentanone			Acetone			Acetonitrile			Benzene			Bromodichloromethane		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		WSCF/STL/SL/LVLI			WSCF/STL/SL/LVLI			WSCF/STL/SL			STL/SL			WSCF/STL/SL/LVLI			WSCF/STL/SL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	1.3	U	R	0.95	U	R	1.4	U	R	5.6	U	R	0.12	U	R	0.074	U	R
22.5-25	B19189	1.3	U	J	0.96	U	J	1.4	U	J	5.7	U	J	0.12	U	J	0.075	U	J
22.5-25 (split)	B19HY6	11	U	J	11	U	J	8	J	J				6	U	J	6	U	J
27.5-30	B19187	5.2	U		5.2	U		5.2	U					5.2	U		5.2	U	
27.5-30	B19190	5.2	U		5.2	U		5.2	U					5.2	U		5.2	U	
32.5-35	B19191	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
47.5-50	B19192	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
67.5-70	B19193	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
90-92.5	B19194	2.4	U		2.4	U		2.4	U					2.4	U		2.4	U	
157.5-160	B19195	2	U		2	U		2	U					2	U		2	U	
197.5-200	B19196	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
223.5-226	B19197	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
trip blank tied to B19194	B19184	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
equip blank tied to B19188	B19182	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit					10			20						5					

## DOE/RL-2005-61 DRAFT A

Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Bromoform			Bromomethane			Carbon disulfide			Carbon tetrachloride			Chlorobenzene			Chloroethane		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	0.65	U	R	0.94	U	R	0.28	U	R	0.15	U	R	0.13	U	R	0.59	U	R
22.5-25	B19189	0.66	U	J	0.95	U	J	0.29	U	J	0.15	U	J	0.13	U	J	0.6	U	J
22.5-25 (split)	B19HY6	6	U	J	11	U	J	6	U	J	6	U	J	6	U	J	11	U	J
27.5-30	B19187	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U		5.2	U	
27.5-30	B19190	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U		5.2	U	
32.5-35	B19191	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
47.5-50	B19192	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
67.5-70	B19193	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
90-92.5	B19194	2.4	U		2.4	U		2.4	U		2.4	U		2.4	U		2.4	U	
157.5-160	B19195	2	U		2	U		2	U		2	U		2	U		2	U	
197.5-200	B19196	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
223.5-226	B19197	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
trip blank tied to B19194	B19184	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
equip blank tied to B19188	B19182	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit											5			5					

## DOE/RL-2005-61 DRAFT A

Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Chloroform			Chloromethane			cis-1,3-Dichloropropene			Dibromochloromethane			Ethylbenzene			Ethylene glycol		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8015_VOA_GC		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	0.13	U	R	0.24	U	R	0.16	U	R	0.62	U	R	0.4	U	R			
22.5-25	B19189	0.13	U	J	0.25	U	J	0.16	U	J	0.63	U	J	0.41	U	J			
22.5-25 (split)	B19HY6	6	U	J	11	U	J	6	U	J	6	U	J	6	U	J	5000	U	J
27.5-30	B19187	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U		10000	U	
27.5-30	B19190	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U		10000	U	
32.5-35	B19191	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		5000	U	
47.5-50	B19192	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		5000	U	
67.5-70	B19193	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		5000	U	
90-92.5	B19194	2.4	U		2.4	U		2.4	U		2.4	U		2.4	U		5000	U	
157.5-160	B19195	2	U		2	U		2	U		2	U		2	U		5000	U	
197.5-200	B19196	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		5000	U	
223.5-226	B19197	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		5000	U	
trip blank tied to B19194	B19184	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U				
equip blank tied to B19188	B19182	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		5000 (µg/L)	U	
Target Quantitation Limit		5												5			5000		

## DOE/RL-2005-61 DRAFT A

Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Hexane			Methylene chloride			n-Butylbenzene		Styrene			Tetrachloroethene		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		8260_VOA_GCMS			8260_VOA_GCMS		
		WSCF/STLSL			WSCF/STLSL/LVLI			WSCF		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	0.87	U	R	3.7	J	J	0.79	U	0.21	U	R	0.21	U	R
22.5-25	B19189	0.88	U	J	3.2	J	J	0.8	U	0.21	U	J	0.21	U	J
22.5-25 (split)	B19HY6				25	B	J			6	U	J	6	U	J
27.5-30	B19187				5.2	U		5.2	U	5.2	U		5.2	U	
27.5-30	B19190				5.2	U		5.2	U	5.2	U		5.2	U	
32.5-35	B19191				2.1	U		2	U	2.1	U		2.1	U	
47.5-50	B19192				2.1	U		2.1	U	2.1	U		2.1	U	
67.5-70	B19193				2.1	U		2.1	U	2.1	U		2.1	U	
90-92.5	B19194				2.4	U		2.4	U	2.4	U		2.4	U	
157.5-160	B19195				2	U				2	U		2	U	
197.5-200	B19196				2.1	U				2.1	U		2.1	U	
223.5-226	B19197				2.1	U				2.1	U		2.1	U	
trip blank tied to B19194	B19184				1 (µg/L)	U				1 (µg/L)	U		1 (µg/L)	U	
equip blank tied to B19188	B19182				1 (µg/L)	U				1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit					5			5					5		

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Table B1-4. Volatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Toluene			trans-1,3-Dichloropropene			Trichloroethene			Vinyl chloride			Xylenes (total)		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	0.62	U	R	0.56	U	R	0.063	U	R	0.68	U	R	0.87	U	R
22.5-25	B19189	0.63	U	J	0.57	U	J	0.064	U	J	0.68	U	J	0.88	U	J
22.5-25 (split)	B19HY6	6	U	J	6	U	J	6	U	J	11	U	J	6	U	J
27.5-30	B19187	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U	
27.5-30	B19190	5.2	U		5.2	U		5.2	U		5.2	U		5.2	U	
32.5-35	B19191	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
47.5-50	B19192	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
67.5-70	B19193	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
90-92.5	B19194	2.4	U		2.4	U		2.4	U		2.4	U		2.4	U	
157.5-160	B19195	4.9	BJ		2	U		2	U		2	U		2	U	
197.5-200	B19196	2.3	BJ		2.1	U		2.1	U		2.1	U		2.1	U	
223.5-226	B19197	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
trip blank tied to B19194	B19184	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
equip blank tied to B19188	B19182	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit		5						5						5		

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,2,4- Trichlorobenzene			1,2-Dichlorobenzene			1,3-Dichlorobenzene			1,4-Dichlorobenzene			2,4,5- Trichlorophenol			2,4,6- Trichlorophenol		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		WSCF/LVLI			LVLI			LVLI			WSCF/LVLI			LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																		
22.5-25	B19189																		
22.5-25 (split)	B19HY6	360	U	J	360	U	J	360	U	J	360	U	J	900	U	J	360	U	J
27.5-30	B19187	310	U								330	U							
27.5-30	B19190	310	U								330	U							
32.5-35	B19191	300	U								320	U							
47.5-50	B19192	300	U								320	U							
67.5-70	B19193	300	U								320	U							
90-92.5	B19194	350	U								370	U							
157.5-160	B19195	230	U								240	U							
197.5-200	B19196	230	U								240	U							
223.5-226	B19197	310	U								330	U							
equip blank tied to B19188	B19182	2.9 (µg/L)	U								4.9 (µg/L)	U							
Target Quantitation Limit																			

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	2,4-Dichlorophenol			2,4-Dimethylphenol			2,4-Dinitrophenol			2,4-Dinitrotoluene			2,6-Dinitrotoluene			2-Butoxyethanol	
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS	
		LVLI			LVLI			LVLI			WSCF/LVLI			LVLI			WSCF	
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q
17.5-20	B19188																	
22.5-25	B19189																	
22.5-25 (split)	B19HY6	360	U	J	360	U	J	900	U	J	360	U	J	360	U	J		
27.5-30	B19187										70	U						130
27.5-30	B19190										69	U						150
32.5-35	B19191										69	U						
47.5-50	B19192										69	U						
67.5-70	B19193										69	U						
90-92.5	B19194										79	U						
157.5-160	B19195										51	U						
197.5-200	B19196										52	U						
223.5-226	B19197										70	U						
equip blank tied to B19188	B19182										1.8 (µg/L)	U						
Target Quantitation Limit																		

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	2-Chloronaphthalene			2-Chlorophenol			2-Methyl-naphthalene			2-Methylphenol (cresol, o-)			2-Nitroaniline			2-Nitrophenol		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			WSCF/LVLI			LVLI			LVLI			LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																		
22.5-25	B19189																		
22.5-25 (split)	B19HY6	360	U	J	360	U	J	360	U	J	360	U	J	900	U	J	360	U	J
27.5-30	B19187				150	U													
27.5-30	B19190				150	U													
32.5-35	B19191				150	U													
47.5-50	B19192				150	U													
67.5-70	B19193				150	U													
90-92.5	B19194				170	U													
157.5-160	B19195				110	U													
197.5-200	B19196				110	U													
223.5-226	B19197				150	U													
equip blank tied to B19188	B19182				1.7 (µg/L)	U													
Target Quantitation Limit																			

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	3,3'-Dichloro-benzidine			3-Nitroaniline			4,6-Dinitro-2-methylphenol			4-Bromophenyl-phenyl ether			4-Chloro-3-methylphenol			4-Chloroaniline		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			LVLI			LVLI			LVLI			WSCF/LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																		
22.5-25	B19189																		
22.5-25 (split)	B19HY6	360	U	J	900	U	J	900	U	J	360	U	J	23	J	J	360	U	J
27.5-30	B19187													70	U				
27.5-30	B19190													69	U				
32.5-35	B19191													69	U				
47.5-50	B19192													69	U				
67.5-70	B19193													69	U				
90-92.5	B19194													79	U				
157.5-160	B19195													51	U				
197.5-200	B19196													52	U				
223.5-226	B19197													70	U				
equip blank tied to B19188	B19182													1.3 (µg/L)	U				
Target Quantitation Limit																			

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	4-Chlorophenyl- phenyl ether			4-Methylphenol (cresol, p-)			4-Nitroaniline			4-Nitrophenol			Acenaphthene			Acenaphthylene		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			LVLI			LVLI			WSCF/LVLI			WSCF/LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																		
22.5-25	B19189																		
22.5-25 (split)	B19HY6	360	U	J	360	U	J	900	U	J	900	U	J	360	U	J	360	U	J
27.5-30	B19187										680	U		70	U				
27.5-30	B19190										670	U		69	U				
32.5-35	B19191										660	U		69	U				
47.5-50	B19192										670	U		69	U				
67.5-70	B19193										670	U		69	U				
90-92.5	B19194										760	U		79	U				
157.5-160	B19195										500	U		51	U				
197.5-200	B19196										500	U		52	U				
223.5-226	B19197										670	U		70	U				
equip blank tied to B19188	B19182										1.4 (µg/L)	U		2.4 (µg/L)	U				
Target Quantitation Limit																			

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Anthracene			Benzo(a) anthracene			Benzo(a) pyrene			Benzo(b) fluoranthene			Benzo(ghi) perylene		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			LVLI			LVLI			LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188															
22.5-25	B19189															
22.5-25 (split)	B19HY6	360	U	J	360	U	J	360	U	J	360	U	J	360	U	J
27.5-30	B19187															
27.5-30	B19190															
32.5-35	B19191															
47.5-50	B19192															
67.5-70	B19193															
90-92.5	B19194															
157.5-160	B19195															
197.5-200	B19196															
223.5-226	B19197															
equip blank tied to B19188	B19182															
Target Quantitation Limit																

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Benzo(k) fluoranthene			Bis(2-chloro-1-methylethyl)ether			Bis(2-Chloroethoxy) methane			Bis(2-chloroethyl) ether			Bis(2-ethylhexyl) phthalate			Butylbenzyl-phthalate		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			LVLI			LVLI			LVLI			LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																		
22.5-25	B19189																		
22.5-25 (split)	B19HY6	360	U	J	360	U	J	360	U	J	360	U	J	700		J	360	U	J
27.5-30	B19187																		
27.5-30	B19190																		
32.5-35	B19191																		
47.5-50	B19192																		
67.5-70	B19193																		
90-92.5	B19194																		
157.5-160	B19195																		
197.5-200	B19196																		
223.5-226	B19197																		
equip blank tied to B19188	B19182																		
Target Quantitation Limit																			

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Carbazole			Chrysene			Dibenz[a,h]anthracene			Dibenzofuran			Diethylphthalate			Dimethyl phthalate		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			LVLI			LVLI			LVLI			WSCF/LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																		
22.5-25	B19189																		
22.5-25 (split)	B19HY6	360	U	J	360	U	J	360	U	J	360	U	J	360	U	J	360	U	J
27.5-30	B19187																		
27.5-30	B19190																		
32.5-35	B19191													370					
47.5-50	B19192																		
67.5-70	B19193													410					
90-92.5	B19194													730					
157.5-160	B19195													230					
197.5-200	B19196													200					
223.5-226	B19197																		
equip blank tied to B19188	B19182																5 (µg/L)	J	
Target Quantitation Limit																			

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Di-n-butylphthalate			Di-n-octylphthalate			Eicosane		Fluoranthene			Fluorene			Hexachlorobenzene		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		WSCF/LVLI			LVLI			WSCF		LVLI			LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																	
22.5-25	B19189																	
22.5-25 (split)	B19HY6	360	U	J	360	U	J			360	U	J	360	U	J	360	U	J
27.5-30	B19187	1700																
27.5-30	B19190	980																
32.5-35	B19191	1300																
47.5-50	B19192	970																
67.5-70	B19193	1700																
90-92.5	B19194	870																
157.5-160	B19195	630																
197.5-200	B19196	340						970	J									
223.5-226	B19197	1200																
equip blank tied to B19188	B19182	4.3 (µg/L)																
Target Quantitation Limit																		

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Hexachloro-butadiene			Hexachloro-cyclopentadiene			Hexachloroethane			Hexadecanoic acid (9Cl)		Indeno(1,2,3-cd) pyrene			Isophorone		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		8270_SVOA_GCMS					
		LVLI			LVLI			LVLI			STLSL		LVLI			LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																	
22.5-25	B19189										180	J						
22.5-25 (split)	B19HY6	360	U	J	360	U	J	360	U	J			360	U	J	360	U	J
27.5-30	B19187																	
27.5-30	B19190																	
32.5-35	B19191																	
47.5-50	B19192																	
67.5-70	B19193																	
90-92.5	B19194																	
157.5-160	B19195																	
197.5-200	B19196																	
223.5-226	B19197																	
equip blank tied to B19188	B19182																	
Target Quantitation Limit																		

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Naphthalene			n-Hexanoic Acid		Nitrobenzene			N-Nitrosodipropylamine			N-Nitrosodiphenylamine			Pentachlorophenol		
		8270_SVOA_GCMS			8270_SVOA_GCMS		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			WSCF		LVLI			WSCF/LVLI			LVLI			WSCF/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188																	
22.5-25	B19189																	
22.5-25 (split)	B19HY6	360	U	J					360	U	J	360	U	J	360	U	J	
27.5-30	B19187											70	U				310	U
27.5-30	B19190											69	U				310	U
32.5-35	B19191											69	U				310	U
47.5-50	B19192											69	U				310	U
67.5-70	B19193											69	U				310	U
90-92.5	B19194											79	U				350	U
157.5-160	B19195											51	U				230	U
197.5-200	B19196					570	J					52	U				230	U
223.5-226	B19197											70	U				310	U
equip blank tied to B19188	B19182											1.7 (µg/L)	U				1.7 (µg/L)	U
Target Quantitation Limit																		

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Table B1-5. Semivolatile Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Phenanthrene			Phenol			Pyrene			Tributyl phosphate		
		8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS			8270_SVOA_GCMS		
		LVLI			WSCF/STLSL/LVLI			WSCF/LVLI			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	Q	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188				92	U	J				350	U	J
22.5-25	B19189				93	U	J				350	U	J
22.5-25 (split)	B19HY6	360	U	J	24	J	J	21	J	J	360	U	J
27.5-30	B19187				100	U		70	U		70	U	
27.5-30	B19190				100	U		69	U		69	U	
32.5-35	B19191				100	U		69	U		69	U	
47.5-50	B19192				100	U		69	U		69	U	
67.5-70	B19193				100	U		69	U		69	U	
90-92.5	B19194				120	U		79	U		79	U	
157.5-160	B19195				77	U		51	U		51	U	
197.5-200	B19196				77	U		52	U		52	U	
223.5-226	B19197				100	U		70	U		70	U	
equip blank tied to B19188	B19182				1.7 (µg/L)	U		2.1 (µg/L)	U		2.5 (µg/L)	U	
Target Quantitation Limit					330						3300		

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Table B1-6. Miscellaneous Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Aroclor-1016			Aroclor-1221			Aroclor-1232			Aroclor-1242			Aroclor-1248		
		8082_PCB_GC			8082_PCB_GC			8082_PCB_GC			8082_PCB_GC			8082_PCB_GC		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg			µg/kg	Q	VQ
17.5-20	B19188	6.7	U	J	7.5	U	J	8.5	U	J	8	U	J	10	U	J
22.5-25	B19189	68	U	J	76	U	J	86	U	J	81	U	J	100	U	J
22.5-25 (split)	B19HY6	14	U	J	14	U	J	14	U	J	14	U	J	14	U	J
22.5-25	B191B2															
22.5-25 (split)	B193K1															
27.5-30	B19187	52	U		100	U		52	U		52	U		52	U	
27.5-30 (dup)	B19190	50	U		100	U		50	U		50	U		50	U	
27.5-30	B191B0															
27.5-30 (dup)	B191B3															
32.5-35	B19191	50	U		100	U		50	U		50	U		50	U	
32.5-35	B191B4															
47.5-50	B19192	51	U		100	U		51	U		51	U		51	U	
47.5-50	B191B5															
67.5-70	B19193	50	U		100	U		50	U		50	U		50	U	
67.5-70	B191B6															
90-92.5	B19194	57	U		110	U		57	U		57	U		57	U	
90-92.5	B191B7															
157.5-160	B19195	50	U		100	U		50	U		50	U		50	U	
157.5-160	B191B8															
197.5-200	B19196	57	U		110	U		57	U		57	U		57	U	
197.5-200	B191B9															
223.5-226	B19197	51	U		100	U		51	U		51	U		51	U	
223.5-226	B191C0															
Target Quantitation Limit		100			100			100			100			100		

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Table B1-6. Miscellaneous Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Aroclor-1254			Aroclor-1260			Aroclor-1262		Aroclor-1268		Oil and grease					
		8082_PCB_GC			8082_PCB_GC			8082_PCB_GC		8082_PCB_GC		413.1_OILGREASE			9071_OILGREASE		
		WSCF/STLSSL/LVLI			WSCF/STLSSL/LVLI			WSCF		WSCF		LVLI			STLSSL		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	
17.5-20	B19188	240		J	7.9	U	J										
22.5-25	B19189	85	U	J	80	U	J										
22.5-25 (split)	B19HY6	240		J	14	U	J										
22.5-25	B191B2												721000	U	J		
22.5-25 (split)	B193K1															173000	U
27.5-30	B19187	52	U		52	U		52	U	52	U						
27.5-30 (dup)	B19190	50	U		50	U		50	U	50	U						
27.5-30	B191B0												697000	U			
27.5-30 (dup)	B191B3												696000	U			
32.5-35	B19191	50	U		50	U		50	U	50	U						
32.5-35	B191B4												689000	U			
47.5-50	B19192	51	U		51	U		51	U	51	U						
47.5-50	B191B5												695000	U			
67.5-70	B19193	50	U		50	U		50	U	50	U						
67.5-70	B191B6												689000	U			
90-92.5	B19194	57	U		57	U		57	U	57	U						
90-92.5	B191B7												785000	U			
157.5-160	B19195	50	U		50	U		50	U	50	U						
157.5-160	B191B8												1030000				
197.5-200	B19196	57	U		57	U		57	U	57	U						
197.5-200	B191B9												1080000				
223.5-226	B19197	51	U		51	U		51	U	51	U						
223.5-226	B191C0												696000	U			
Target Quantitation Limit		100			100			100		100		200000					

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Table B1-6. Miscellaneous Organic Analysis Results for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Total petroleum hydrocarbons - diesel range			Total petroleum hydrocarbons - gasoline range			Total petroleum hydrocarbons - kerosene range		
		WTPH_DIESEL			WTPH_GASOLINE			WTPH_DIESEL		
		WSCF/STLSL/LVLI			WSCF/STLSL/LVLI			WSCF/STLSL/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
17.5-20	B19188	2000	U	J	21	U	R	26000	U	J
22.5-25	B19189	2000	U	J	21	U	R	27000	U	J
22.5-25 (split)	B19HY6	13000	U	J	33	U	J	13000	U	J
22.5-25	B191B2									
22.5-25 (split)	B193K1									
27.5-30	B19187	3900	U		500	U		3900	U	
27.5-30 (dup)	B19190	3900	U		500	U		3900	U	
27.5-30	B191B0									
27.5-30 (dup)	B191B3									
32.5-35	B19191	3800	U		250	U		3800	U	
32.5-35	B191B4									
47.5-50	B19192	3900	U		250	U		3900	U	
47.5-50	B191B5									
67.5-70	B19193	3900	U		250	U		3900	U	
67.5-70	B191B6									
90-92.5	B19194	4400	U		250	U		4400	U	
90-92.5	B191B7									
157.5-160	B19195	5100	U		250	U		5100	U	
157.5-160	B191B8									
197.5-200	B19196	13000			250	U		13000		
197.5-200	B191B9									
223.5-226	B19197	3900	U		250	U		3900	U	
223.5-226	B191C0									
Target Quantitation Limit		5000			5000			5000		

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Table B1-7. Physical Properties for Borehole C4175 Samples (216-T-28 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Density		% Moisture		% Solids	Particle Size											
		Shaw		Shaw		Shaw	Shaw											
		D2937_DENSITY		D2216	SW846	% Solids	D422_PARTCLSIZE											
		kg/m <sup>3</sup>		dry sample	wet sample		Percent passing sieve sized											
Dry	Wet				3 in	1.5 in	3/4 in	3/8 in	No.4	No.10	No.20	No.40	No.60	No.100	No.140	No.200		
32.5-35	B191C1	1776	1836	2.9	2.9	97.1	100	100	100	100	98.2	91	67.5	28.1	11.4	5.6	4	3
67.5-70	B191C2	1748	1808	3.8	3.7	96.3	100	100	100	99.3	98.4	95.4	82.5	38.7	18.2	10.4	8.1	6.2
90-92.5	B191C3	1781	1834	12.9	11.4	88.6	100	100	99.2	99	98.4	97.1	86.2	49.2	31	24.3	22.4	20.9
197.5-200	B19441	1781	1834	3.2	3.1	96.9	100	100	88.3	75.9	69.5	64.3	58.7	53.5	44.2	37	33.7	30.6

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Americium-241									Antimony-125			Carbon-14					
		AMCMISO_IE_PLATE_AEA			AMCMISO_IE_PREC_AEA			GAMMA_GS			GAMMA_GS			C14_COX_LSC			C14_LSC		
		EBRLNE			WSCF			EBRLNE			EBRLNE			EBRLNE			STLRL		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
12.5-15	B191F0				0.024	U	0.048												
12.5-15	B191H1																		
12.5-15	B191J1							U	0.15					-0.199	U	2.4			
29.5-32	B191J2							5800	15			U	50	35.6		4.5			
32.5-35	B191F3				25		0.58												
32.5-35 (split)	B19HY8	12.3		0.17				12.9	0.43			U	0.44						
32.5-35	B191J4							14.4	0.67			U	0.71	0.234	U	2.1			
32.5-35 (split)	B193K0															0.295	U	1.61	
40-42.5	B191F2				0.074		0.047												
40-42.5 (dup)	B191F4				0.046	U	0.055												
40-42.5	B191J3								U	0.17				0.466	U	2.3			
40-42.5 (dup)	B191J5								U	0.15				1.28	U	2.4			
47.5-50	B191F5				0.058		0.042												
47.5-50	B191J6								U	0.063				0.714	U	2			
72-74.5	B191F6				0.016	U	0.029												
72-74.5	B191J7								U	0.11				0	U	4			
97-99.5	B191F7				0.002	U	0.037												
97-99.5	B191J8								U	0.037				-1.38	U	4.3			
151.5-154	B191F8				0.013	U	0.029												
151.5-154	B191J9								U	0.064				-0.65	U	4.7			
191.5-194	B191F9				0.015	U	0.045												
191.5-194	B191K0								U	0.1				-2.05	U	4.1			
238-240.5	B191H0				0.12		0.051												
238-240.5	B191K1							0.125		0.066				-0.042	U	4.2			
equip blank tied to B191F0	B191D6																		
Target Quantitation Limit					1													50	

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Cesium-134			Cesium-137			Cobalt-60			Europium-152			Europium-154			Europium-155		
		GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS		
		EBRLNE			EBRLNE/WSCF			EBRLNE/WSCF			EBRLNE/WSCF			EBRLNE/WSCF			EBRLNE/WSCF		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
12.5-15	B191F0				0.01	U	0.011	-0.004	U	0.01	-0.019	U	0.031	0.008	U	0.032	0.062		0.044
12.5-15	B191H1																		
12.5-15	B191J1					U	0.033		U	0.037		U	0.088		U	0.11		U	0.096
29.5-32	B191J2		U	5.6	95600		13	104		2.3		U	42	70.8		6.1		U	19
32.5-35	B191F3				813		0.14	2		0.021	0.252	U	0.61	0.711		0.083	-2.42	U	0.96
32.5-35 (split)	B19HY8		U	0.053	352		0.13	0.981		0.029		U	0.44	0.288		0.1		U	0.4
32.5-35	B191J4		U	0.088	277		0.24	1.02		0.057		U	0.67	0.258		0.18		U	0.68
32.5-35 (split)	B193K0																		
40-42.5	B191F2				1.71		0.019	0.033		0.02	0.003	U	0.057	-0.011	U	0.06	0.093		0.075
40-42.5 (dup)	B191F4				0.755		0.016	0.049		0.016	-0.013	U	0.046	0.005	U	0.046	0.051	U	0.062
40-42.5	B191J3				0.192		0.036	0.051		0.038		U	0.087		U	0.12		U	0.11
40-42.5 (dup)	B191J5				0.514		0.073		U	0.07		U	0.13		U	0.17		U	0.13
47.5-50	B191F5				0.01	U	0.012	0.026		0.011	0.009	U	0.035	0.006	U	0.037	0.016	U	0.05
47.5-50	B191J6					U	0.024		U	0.034		U	0.062		U	0.093		U	0.057
72-74.5	B191F6				-0.004	U	0.012	-0.007	U	0.011	-0.013	U	0.035	-0.017	U	0.039	0.057		0.051
72-74.5	B191J7					U	0.024		U	0.025		U	0.059		U	0.081		U	0.068
97-99.5	B191F7				0	U	0.016	0.009	U	0.017	-0.03	U	0.046	-0.024	U	0.052	0.057	U	0.063
97-99.5	B191J8					U	0.032		U	0.037		U	0.089		U	0.12		U	0.066
151.5-154	B191F8				0.008	U	0.019	0.01	U	0.019	-0.016	U	0.048	-0.044	U	0.056	0.144		0.068
151.5-154	B191J9					U	0.057		U	0.062		U	0.16		U	0.22		U	0.11
191.5-194	B191F9				-0.002	U	0.011	0.001	U	0.01	0.002	U	0.035	-0.014	U	0.033	0.031	U	0.06
191.5-194	B191K0					U	0.021		U	0.023		U	0.055		U	0.076		U	0.064
238-240.5	B191H0				0.058		0.015	0.001	U	0.015	-0.002	U	0.042	-0.023	U	0.046	0.039	U	0.062
238-240.5	B191K1				0.055		0.026		U	0.026		U	0.058		U	0.092		U	0.085
equip blank tied to B191F0	B191D6																		
Target Quantitation Limit							0.1			0.05			0.1			0.1			0.1

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Gross alpha			Gross beta			Neptunium-237						Nickel-63		
		ALPHA			BETA			NP237_IE_PRECIP_AEA			NP237_IE_PLATE_AEA			NI63_LSC		
		WSCF			WSCF			WSCF			EBRLNE			EBRLNE/STLRL		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q
12.5-15	B191F0															
12.5-15	B191H1	-3.2	U	1	4.7		1.3									
12.5-15	B191J1													-0.091	U	2.5
29.5-32	B191J2													4580		180
32.5-35	B191F3							0.084	X	J	0.058					
32.5-35 (split)	B19HY8											0.08	U	0.24		
32.5-35	B191J4													19.1		1.9
32.5-35 (split)	B193K0													139	U	151
40-42.5	B191F2							-0.003	UX		0.013					
40-42.5 (dup)	B191F4							0.002	U		0.009					
40-42.5	B191J3													0.254	U	2.6
40-42.5 (dup)	B191J5													0.596	U	2.4
47.5-50	B191F5							-0.004	U		0.01					
47.5-50	B191J6													-0.188	U	2.3
72-74.5	B191F6							0.002	UX		0.008					
72-74.5	B191J7													0.082	U	2.5
97-99.5	B191F7							-0.004	U		0.01					
97-99.5	B191J8													1.38	U	2.5
151.5-154	B191F8							0.002	U		0.009					
151.5-154	B191J9													0.466	U	2.5
191.5-194	B191F9							0.001	U		0.003					
191.5-194	B191K0													1.47	U	2.6
238-240.5	B191H0							0.002	U		0.007					
238-240.5	B191K1													-0.303	U	2.5
equip blank tied to B191F0	B191D6	0.52 (pCi/L)	U	0.73	0.92 (pCi/L)		0.8									
Target Quantitation Limit											1					30

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Plutonium-238						Plutonium-239/240						Potassium-40				Radium-226			
		PUIISO_IE_PRECIP_AEA				PUIISO_PLATE_AEA		PUIISO_IE_PRECIP_AEA			PUIISO_PLATE_AEA			GAMMA_GS				GAMMA_GS			
		WSCF				EBRLNE		WSCF			EBRLNE			EBRLNE				EBRLNE/STLRL			
		pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA
12.5-15	B191F0	-0.015	U		0.064			0.009	U	0.024											
12.5-15	B191H1																				
12.5-15	B191J1												9.06				0.43	0.358		0.07	
29.5-32	B191J2													U	J		8.4		U	18	
32.5-35	B191F3	2.6		J	0.59			78		0.21											
32.5-35 (split)	B19HY8					1.4	0.45				40.1	0.45	8.87				0.23	0.432		0.2	
32.5-35	B191J4												9.39		J		0.5	0.292	U	0.32	
32.5-35 (split)	B193K0																	0.505	U	0.359	
40-42.5	B191F2	-0.023	U		0.075			0.31		0.006											
40-42.5 (dup)	B191F4	-0.019	U		0.049			0.14		0.018											
40-42.5	B191J3												9.92				0.47	0.408		0.079	
40-42.5 (dup)	B191J5												13.6				0.69	0.594		0.12	
47.5-50	B191F5	0	U		0.063			0.19		0.026											
47.5-50	B191J6												10.5				0.33	0.374		0.051	
72-74.5	B191F6	0.078			0.066			0.005	U	0.021											
72-74.5	B191J7												12.2				0.28	0.397		0.051	
97-99.5	B191F7	-0.009	U		0.068			-0.002	U	0.024											
97-99.5	B191J8												12.6				0.38		U	0.08	
151.5-154	B191F8	-0.014	U		0.066			0.002	U	0.017											
151.5-154	B191J9												13.8				0.55		U	0.15	
191.5-194	B191F9	-0.004	U		0.067			0.023		0.019											
191.5-194	B191K0												7.32				0.21	0.248		0.05	
238-240.5	B191H0	0.027	U		0.065			0.014		0.006											
238-240.5	B191K1												11.6				0.32	0.237		0.046	
equip blank tied to B191F0	B191D6																				
Target Quantitation Limit					1					1											

## DOE/RL-2005-61 DRAFT A

Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Radium-228			Technetium-99						Thorium-228									
		GAMMA_GS			TC99_ETVDSK_LSC			TC99_TR_SEP_LSC			GAMMA_GS			THISO_IE_PLATE_AEA				THISO_IE_PRECIP_AEA		
		EBRLNE			STLRL			EBRLNE			EBRLNE			EBRLNE				STLRL		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	VQ
12.5-15	B191F0																			
12.5-15	B191H1																			
12.5-15	B191J1	0.624		0.16				0.113	U	0.34	0.409		0.043	0.64			0.27			
29.5-32	B191J2		U	13				9.18		7.9		U	17	15.9		J	12			
32.5-35	B191F3																			
32.5-35 (split)	B19HY8	0.603		0.14							0.903		0.22							
32.5-35	B191J4	0.562		0.29				0.168	U	0.4	1.22		0.32	2		J	0.37			
32.5-35 (split)	B193K0	0.815	U	0.326	3.97	U	24.8										0.792	U	J	7.74
40-42.5	B191F2																			
40-42.5 (dup)	B191F4																			
40-42.5	B191J3	0.687		0.17				0.15	U	0.58	0.624		0.042	0.722			0.05			
40-42.5 (dup)	B191J5	0.674		0.31				-0.068	U	0.57	0.788		0.062	0.732			0.051			
47.5-50	B191F5																			
47.5-50	B191J6	0.582		0.13				-0.088	U	0.54	0.498		0.03	0.791			0.086			
72-74.5	B191F6																			
72-74.5	B191J7	0.537		0.11				0.528	U	0.72	0.439		0.031	0.822			0.079			
97-99.5	B191F7																			
97-99.5	B191J8		U	0.18				0.143	U	0.53	0.895		0.052	1.01			0.074			
151.5-154	B191F8																			
151.5-154	B191J9		U	0.31				0.164	U	0.41	1.19		0.086	0.888			0.065			
191.5-194	B191F9																			
191.5-194	B191K0	0.424		0.089				0.264	U	0.38	0.306		0.029	0.558			0.086			
238-240.5	B191H0																			
238-240.5	B191K1	0.479		0.12				0.11	U	0.35	0.418		0.029	0.752			0.069			
equip blank tied to B191F0	B191D6																			
Target Quantitation Limit								15												

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Thorium-230						Thorium-232								Total beta							
		THISO_IE_PLATE_ AEA			THISO_IE_PRECIP_ AEA			GAMMA_GS			THISO_IE_PLATE_AEA				THISO_IE_PRECIP_AEA				SRTOT_SEP_ PRECIP_GPC				
		EBRLNE			STLRL			EBRLNE			EBRLNE				STLRL				EBRLNE/STLRL				
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA		
12.5-15	B191F0																						
12.5-15	B191H1																						
12.5-15	B191J1	0.319		0.27				0.624		0.16			0.958				0.27			0.009	U	0.27	
29.5-32	B191J2	7.89	U	12					U	13			1.58	U	J		12			96300		71	
32.5-35	B191F3																						
32.5-35 (split)	B19HY8							0.603		0.14													
32.5-35	B191J4	0.68		0.37				0.562		0.29			1.41		J		0.37			5920		0.36	
32.5-35 (split)	B193K0				1.65	U	4.67							0.486	U	J	5.55			3820	U	65	
40-42.5	B191F2																						
40-42.5 (dup)	B191F4																						
40-42.5	B191J3	0.506		0.21				0.687		0.17			0.702				0.063			0.153	U	0.25	
40-42.5 (dup)	B191J5	0.416		0.21				0.674		0.31			0.631				0.051			0.576		0.2	
47.5-50	B191F5																						
47.5-50	B191J6	0.543		0.21				0.582		0.13			0.869				0.074			0.175	U	0.22	
72-74.5	B191F6																						
72-74.5	B191J7	0.628		0.2				0.537		0.11			0.987				0.049			0.095	U	0.28	
97-99.5	B191F7																						
97-99.5	B191J8	1.03		0.21					U	0.18			1.02				0.064			-0.014	U	0.32	
151.5-154	B191F8																						
151.5-154	B191J9	0.648		0.19					U	0.31			1.03				0.071			0.083	U	0.28	
191.5-194	B191F9																						
191.5-194	B191K0	0.563		0.2				0.424		0.089			0.461				0.071			0.007	U	0.23	
238-240.5	B191H0																						
238-240.5	B191K1	0.532		0.2				0.479		0.12			0.988				0.077			0.118	U	0.24	
equip blank tied to B191F0	B191D6																						
Target Quantitation Limit																							1

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Tritium						Total Uranium						Uranium-233/234					
		906_H3_LSC			TRITIUM_COX_LSC			UTOT_KPA			200.8_METALS_ICPMS			UIISO_IE_PRECIP_AEA				UIISO_PLATE_AEA	
		EBRLNE/STLRL			EBRLNE			EBRLNE			WSCF			WSCF				EBRLNE	
		pCi/g	Q	MDA	pCi/g	Q	MDA	µg/kg	Q	MDA	µg/kg	Q	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA
12.5-15	B191F0																		
12.5-15	B191H1																		
12.5-15	B191J1				-1.21	U	3												
29.5-32	B191J2				63.1		6.9				652000								
32.5-35	B191F3											250	J	0.38					
32.5-35 (split)	B19HY8							818000	3600							236	1.1		
32.5-35	B191J4				0.561	U	2.7												
32.5-35 (split)	B193K0	0.187		0.074															
40-42.5	B191F2										2460			0.55				0.017	
40-42.5 (dup)	B191F4										2880			0.99				0.024	
40-42.5	B191J3				1.16	U	2.7												
40-42.5 (dup)	B191J5				-0.029	U	2.8												
47.5-50	B191F5										998	U		0.16				0.018	
47.5-50	B191J6				-0.822	U	2.4												
72-74.5	B191F6										899	U		0.19				0.019	
72-74.5	B191J7	-0.366	U	0.47															
97-99.5	B191F7										1000	U		0.2				0.019	
97-99.5	B191J8	-0.102	U	0.5															
151.5-154	B191F8										476			0.22				0.02	
151.5-154	B191J9	2.5		0.5															
191.5-194	B191F9										409			0.22				0.006	
191.5-194	B191K0	6.88		0.45															
238-240.5	B191H0										365			0.42				0.029	
238-240.5	B191K1	3.34		0.49															
equip blank tied to B191F0	B191D6																		
Target Quantitation Limit		400						1000						1					

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Table B2-1. Radiochemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Uranium-235									Uranium-238								
		GAMMA_GS			UIISO_IE_PRECIP_AEA				UIISO_PLATE_AEA		GAMMA_GS			UIISO_IE_PRECIP_AEA			UIISO_PLATE_AEA		
		EBRLNE			WSCF				EBRLNE		EBRLNE			WSCF			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q
12.5-15	B191F0				0.02				0.006							0.22			0.005
12.5-15	B191H1																		
12.5-15	B191J1		U	0.13								U	4.1						
29.5-32	B191J2		U	34								U	3100						
32.5-35	B191F3				16	J	0.12							270		0.3			
32.5-35 (split)	B19HY8	5.69		0.66				26.4	0.19		210		5.2				236		1
32.5-35	B191J4	7.39		0.98							230		9.9						
32.5-35 (split)	B193K0																		
40-42.5	B191F2				0.049				0.005					0.58		0.017			
40-42.5 (dup)	B191F4				0.064				0.019					1.1		0.005			
40-42.5	B191J3		U	0.19								U	4.5						
40-42.5 (dup)	B191J5		U	0.2								U	6.9						
47.5-50	B191F5				0.008				0.006					0.15		0.005			
47.5-50	B191J6		U	0.086								U	3.3						
72-74.5	B191F6				0.027				0.016					0.21		0.006			
72-74.5	B191J7		U	0.087								U	3						
97-99.5	B191F7				0.02				0.006					0.22		0.006			
97-99.5	B191J8		U	0.11								U	4.1						
151.5-154	B191F8				0.01				0.006					0.24		0.005			
151.5-154	B191J9		U	0.19								U	7						
191.5-194	B191F9				0.017				0.007					0.18		0.021			
191.5-194	B191K0		U	0.082								U	2.6						
238-240.5	B191H0				0.059				0.032					0.62		0.029			
238-240.5	B191K1		U	0.079								U	3.3						
equip blank tied to B191F0	B191D6																		
Target Quantitation Limit									1										1

Table B2-2. Metal Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Antimony					Arsenic					Barium									
		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR			200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR			200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR							
		WSCF		STLSL/LVLI			WSCF		STLSL/LVLI			WSCF		STLSL/LVLI							
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q							
12.5-15	B191F0	4890	U				6700				112000										
12.5-15	B191J1																				
29.5-32	B191F1				2900	J			1200					127000							
32.5-35	B191F3	4820	U				5650				136000										
32.5-35	B19HY8				1200	J			2400					133000							
32.5-35	B191J4																				
32.5-35	B193K0																				
40-42.5	B191F2	5010	U				3010	U			97100										
40-42.5 (dup)	B191F4	4560	U				3930				99800										
40-42.5	B191J3																				
40-42.5 (dup)	B191J5																				
47.5-50	B191F5	4990	U				5230				94700										
47.5-50	B191J6																				
72-74.5	B191F6	4500	U				8630				56000										
72-74.5	B191J7																				
97-99.5	B191F7	5000	U				9160				69200										
97-99.5	B191J8																				
151.5-154	B191F8	7140	U				5660				87900										
151.5-154	B191J9																				
191.5-194	B191F9	7160	U				2550				97100										
191.5-194	B191K0																				
238-240.5	B191H0	7050	U				2370	U			50000										
238-240.5	B191K1																				
equip blank tied to B191F0	B191D6	1.12 (µg/L)	C				0.3 (µg/L)	U			0.2 (µg/L)	U									
Target Quantitation Limit		6000					10000					1000					20000				

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Table B2-2. Metal Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Beryllium				Bismuth				Boron		Cadmium			
		200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR	
		WSCF		STLSL/LVLI		WSCF		STLSL/LVLI		STLSL/LVLI		WSCF		STLSL/LVLI	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg
12.5-15	B191F0	2930	U			5000	U					978	U		
12.5-15	B191J1														
29.5-32	B191F1			270	B			202000			13500	<u>BJ</u>		280	B
32.5-35	B191F3	2900	U			5000	U					965	U		
32.5-35	B19HY8			2700				1480	U	R				95	U
32.5-35	B191J4														
32.5-35	B193K0														
40-42.5	B191F2	3010	U			5000	U					1000	U		
40-42.5 (dup)	B191F4	2740	U			5000	U					912	U		
40-42.5	B191J3														
40-42.5 (dup)	B191J5														
47.5-50	B191F5	2990	U			2200	U					998	U		
47.5-50	B191J6														
72-74.5	B191F6	2700	U			2200	U					899	U		
72-74.5	B191J7														
97-99.5	B191F7	3000	U			3200						1000	U		
97-99.5	B191J8														
151.5-154	B191F8	244				2200	U					20	U		
151.5-154	B191J9														
191.5-194	B191F9	213				2200	U					20	U		
191.5-194	B191K0														
238-240.5	B191H0	234				2940						20	U		
238-240.5	B191K1														
equip blank tied to B191F0	B191D6	0.3 (µg/L)	U			22 (µg/L)	U								
Target Quantitation Limit		500										500			

Table B2-2. Metal Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Chromium						Copper				Hexavalent Chromium		Lead					
		200.8_METALS_ ICPMS			6010_METALS_ ICP_TR			200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		7196_CR6		200.8_ METALS_ ICPMS		6010_METALS_ICP_ TR			
		WSCF			STLSL/LVLI			WSCF		STLSL/LVLI		LVLI/STLSL		WSCF		STLSL/LVLI			
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	
12.5-15	B191F0	5840						14500						11700	U				
12.5-15	B191J1											214	U						
29.5-32	B191F1				259000					122000						489000			
32.5-35	B191F3	14800		J				29100						11600	U				
32.5-35	B19HY8				22600		J			31300						15300		J	
32.5-35	B191J4											1280							
32.5-35	B193K0											400	U						
40-42.5	B191F2	7480						12800						12000	U				
40-42.5 (dup)	B191F4	11000						14200						10900	U				
40-42.5	B191J3											330							
40-42.5 (dup)	B191J5											220							
47.5-50	B191F5	7940						11700						12000	U				
47.5-50	B191J6											210	U						
72-74.5	B191F6	8100						10900						10800	U				
72-74.5	B191J7											200	U						
97-99.5	B191F7	11000						10700						12000	U				
97-99.5	B191J8											210	U						
151.5-154	B191F8	13700						19200						6620					
151.5-154	B191J9											238	U						
191.5-194	B191F9	33400						14600						2710					
191.5-194	B191K0											212	U						
238-240.5	B191H0	7980						12000						4510					
238-240.5	B191K1											206	U						
equip blank tied to B191F0	B191D6	0.71 (µg/L)						0.5 (µg/L)	U					1.2 (µg/L)	U				
Target Quantitation Limit		1000						2500				500		10000		1000			

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Table B2-2. Metal Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Mercury						Nickel						Selenium				Silver					
		200.8_METALS_ICPMS		7471_HG_CVAA		7471_HG_CVAA		200.8_METALS_ICPMS		6010_METALS_ICP_TR				200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR			
		WSCF		222-S		LVLI/STLSL		WSCF		STLSL/LVLI				WSCF		STLSL/LVLI		WSCF		STLSL/LVLI			
		µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	
12.5-15	B191F0	978	U					10400					2930	U			1960	U					
12.5-15	B191J1																						
29.5-32	B191F1			66600		69200	J			55000	J				320	U			6000	J			
32.5-35	B191F3	1800						10000					2900	U			1930	U					
32.5-35	B19HY8					926				12000					1230	U			284	U			
32.5-35	B191J4																						
32.5-35	B193K0																						
40-42.5	B191F2	1000	U					10800					3010	U			2000	U					
40-42.5 (dup)	B191F4	912	U					11600					2740	U			1820	U					
40-42.5	B191J3																						
40-42.5 (dup)	B191J5																						
47.5-50	B191F5	998	U					9710					2990	U			2000	U					
47.5-50	B191J6																						
72-74.5	B191F6	899	U					13000					2700	U			1800	U					
72-74.5	B191J7																						
97-99.5	B191F7	1000	U					11400					3000	U			2000	U					
97-99.5	B191J8																						
151.5-154	B191F8	293						18000					730	U			10	U					
151.5-154	B191J9																						
191.5-194	B191F9	898						23800					732	U			14						
191.5-194	B191K0																						
238-240.5	B191H0	295						15400					721	U			36						
238-240.5	B191K1																						
equip blank tied to B191F0	B191D6							0.5 (µg/L)	U				0.3 (µg/L)	U			0.2 (µg/L)	U					
Target Quantitation Limit						200				4000					10000		2000				500		

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Table B2-3. Wet Chemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Ammonia		Ammonium ion				Chloride		Cyanide				Fluoride		
		350.3_ AMMONIA		350.1_ AMMONIA		300.7_IC		300_ ANIONS_IC		335.2_CYANIDE		9010_ CYANIDE		300_ ANIONS_IC		
		LVLI		222-S		WSCF		WSCF/LVLI/222-S		WSCF/222-S		LVLI/222-S		WSCF/LVLI/222-S		
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q
12.5-15	B191F0					252	U	2820	B	200	U			1130	U	
12.5-15	B191J1															
29.5-32	B191F1			46300	U			1860	BC			278	U	6510	BC	
29.5-32	B191J2															
32.5-35	B191F3					258	U	15700		200	U	J		1150	U	
32.5-35 (split)	B19HY8	6190	U					16700					330	U	1050	U
32.5-35	B191J4															
32.5-35 (split)	B193K0															
40-42.5	B191F2					882		2600	U	200	U			1150	U	
40-42.5 (dup)	B191F4					927		2550	U	200	U			1130	U	
40-42.5	B191J3															
40-42.5 (dup)	B191J5															
47.5-50	B191F5					2870		2550	U	200	U			1130	U	
47.5-50	B191J6															
72-74.5	B191F6					373	B	3190	B	200	U			1150	U	
72-74.5	B191J7															
97-99.5	B191F7					358	B	3630	B	200	U			1150	U	
97-99.5	B191J8															
151.5-154	B191F8					376	B	8970		200	U			1150	U	
151.5-154	B191J9															
191.5-194	B191F9					252	U	2600	U	200	U			1150	U	
191.5-194	B191K0															
238-240.5	B191H0					258	U	2600	U	200	U			1150	U	
238-240.5	B191K1															
equip blank tied to B191F0	B191D6					5.15 (µg/L)	U	52 (µg/L)	U					23 (µg/L)	U	
equip blank tied to B191J1	B191D7	122 (µg/L)	U													
Target Quantitation Limit		500		500				2000				500		5000		

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Table B2-3. Wet Chemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Nitrate		Nitrite		Nitrogen in Nitrite and Nitrate				pH						
		300_ ANIONS_IC		300_ ANIONS_IC		353.1_ NO3/NO2		353.2_ NO3/NO2		9045_pH			150.1_pH			
		WSCF/LVLI/222-S		WSCF/LVLI/222-S		STLSL		LVLI		222-S/LVLI			WSCF			
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	ph	Q	VQ	ph	Q	VQ	
12.5-15	B191F0	7390	B	3060	U									9.12		
12.5-15	B191J1							2800								
29.5-32	B191F1	18600	B	10000	U					8.14						
29.5-32	B191J2															
32.5-35	B191F3	15400	B	3120	U									9.347		J
32.5-35 (split)	B19HY8	8500		1050	U					9.34		J				
32.5-35	B191J4							1960								
32.5-35 (split)	B193K0					3400										
40-42.5	B191F2	5580	B	3120	U									10.63		
40-42.5 (dup)	B191F4	5490	B	3060	U									10.68		
40-42.5	B191J3								1000							
40-42.5 (dup)	B191J5								1100							
47.5-50	B191F5	11000	B	3060	U									10.85		
47.5-50	B191J6								810							
72-74.5	B191F6	9610	B	3120	U									9.195		
72-74.5	B191J7								770							
97-99.5	B191F7	13900	B	3120	U									9.245		
97-99.5	B191J8								2000							
151.5-154	B191F8	17200	B	3120	U									8.846		
151.5-154	B191J9								3020							
191.5-194	B191F9	11400	B	3120	U									8.716		
191.5-194	B191K0								1380							
238-240.5	B191H0	5620	B	3120	U									7.783		
238-240.5	B191K1								82	U						
equip blank tied to B191F0	B191D6	57.5 (µg/L)	U	62.4 (µg/L)	U									4.379		
equip blank tied to B191J1	B191D7								20 (µg/L)	U						
Target Quantitation Limit		2500		2500												

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Table B2-3. Wet Chemical Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Phosphate		Sulfate		Sulfide		
		300_ANIONS_IC		300_ANIONS_IC		9030_SULFIDE		
		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/STLSL		
		µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ
12.5-15	B191F0	8130	U	4900	U			
12.5-15	B191J1					26000	U	
29.5-32	B191F1	11200	U	12800	U			
29.5-32	B191J2					23900	B	
32.5-35	B191F3	8280	U	10200	B			
32.5-35 (split)	B19HY8	1050	U	4850				
32.5-35	B191J4					41900	U	J
32.5-35 (split)	B193K0					10000	U	
40-42.5	B191F2	8280	U	5000	U			
40-42.5 (dup)	B191F4	8130	U	7390	B			
40-42.5	B191J3					42200	U	
40-42.5 (dup)	B191J5					51300	U	
47.5-50	B191F5	8130	U	5780	B			
47.5-50	B191J6					44200	U	
72-74.5	B191F6	8280	U	7300	B			
72-74.5	B191J7					42400	U	
97-99.5	B191F7	8280	U	8370	B			
97-99.5	B191J8					41000	U	
151.5-154	B191F8	8280	U	26400	B			
151.5-154	B191J9					46300	U	
191.5-194	B191F9	8280	U	16700	B			
191.5-194	B191K0					39900	U	
238-240.5	B191H0	8280	U	6240	B			
238-240.5	B191K1					48600	U	
equip blank tied to B191F0	B191D6	166 (µg/L)	U	100 (µg/L)	U			
equip blank tied to B191J1	B191D7					1000 (µg/L)	U	
Target Quantitation Limit		5000		5000		5000		

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,1,1- Trichloroethane		1,1,2,2- Tetrachloroethane		1,1,2- Trichloroethane		1,1-Dichloroethane		1,1-Dichloroethene		1,2-Dichloroethane	
		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS	
		WSCF/LVLI/222-S		WSCF/LVLI		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/222-S	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
29.5-32	B191F1	0.7	U			0.68	U	0.8	U	0.76	U	0.76	U
32.5-35	B191F3	11	U	11	U	11	U	11	U	11	U	11	U
32.5-35 (split)	B19HY8	6	U	6	U	6	U	6	U	6	U	6	U
40-42.5	B191F2	2	U	2	U	2	U	2	U	2	U	2	U
40-42.5 (dup)	B191F4	2	U	2	U	2	U	2	U	2	U	2	U
47.5-50	B191F5	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
72-74.5	B191F6	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
97-99.5	B191F7	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
151.5-154	B191F8	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
191.5-194	B191F9	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
238-240.5	B191H0	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
equip blank tied to B191F0	B191D6	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
trip blank tied to B191F7	B191D8	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
Target Quantitation Limit		5				5		10				5	

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,2-Dichloroethene (Total)		1,2-Dichloropropane		1-Butanol			2-Butanone		2-Hexanone			
		8260_VOA_GCMS WSCF/LVLI/222-S		8260_VOA_GCMS WSCF/LVLI		8015 LVLI			8260_VOA_GCMS WSCF/222-S		8260_VOA_GCMS WSCF/LVLI/222-S			
		µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	1.9	U	1.9	U				39	U	1.9	U	1.9	U
29.5-32	B191F1	1.4	U						3.9	U	0.82	U		
32.5-35	B191F3	11	U	11	U				210	U	11	U	11	U
32.5-35 (split)	B19HY8	6	U	6	U	5500	U	J			11	U	11	U
40-42.5	B191F2	2	U	2	U				39	U	2	U	2	U
40-42.5 (dup)	B191F4	2	U	2	U				39	U	2	U	2	U
47.5-50	B191F5	2.1	U	2.1	U				42	U	2.1	U	2.1	U
72-74.5	B191F6	2.1	U	2.1	U				41	U	2.1	U	2.1	U
97-99.5	B191F7	2.1	U	2.1	U				42	U	2.1	U	2.1	U
151.5-154	B191F8	2.4	U	2.4	U				47	U	2.4	U	2.4	U
191.5-194	B191F9	2.1	U	2.1	U				42	U	2.1	U	2.1	U
238-240.5	B191H0	2.1	U	2.1	U				41	U	2.1	U	2.1	U
equip blank tied to B191F0	B191D6	1 (µg/L)	U	1 (µg/L)	U				20 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
trip blank tied to B191F7	B191D8	1 (µg/L)	U	1 (µg/L)	U				20 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
Target Quantitation Limit		10				5000					10			

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	4-Methyl-2-Pentanone		Acetone		Benzene		Bromodichloro- methane		Bromoform		Bromomethane	
		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS	
		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI		WSCF/LVLI		WSCF/LVLI	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
29.5-32	B191F1	0.74	U	0.92	U	0.66	U						
32.5-35	B191F3	11	U	11	U	11	U	11	U	11	U	11	U
32.5-35 (split)	B19HY8	11	U	11	U	6	U	6	U	6	U	11	U
40-42.5	B191F2	2	U	2	U	2	U	2	U	2	U	2	U
40-42.5 (dup)	B191F4	2	U	2	U	2	U	2	U	2	U	2	U
47.5-50	B191F5	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
72-74.5	B191F6	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
97-99.5	B191F7	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
151.5-154	B191F8	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
191.5-194	B191F9	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
238-240.5	B191H0	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
equip blank tied to B191F0	B191D6	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
trip blank tied to B191F7	B191D8	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
Target Quantitation Limit		10		20		5							

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Carbon disulfide		Carbon tetrachloride		Chlorobenzene		Chloroethane		Chloroform		Chloromethane	
		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS	
		WSCF/LVLI		WSCF/LVLI		WSCF/LVLI/222-S		WSCF/LVLI		WSCF/LVLI/222-S		WSCF/LVLI	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
29.5-32	B191F1			1.3	U	0.76	U			0.72	U		
32.5-35	B191F3	11	U	11	U	11	U	11	U	11	U	11	U
32.5-35 (split)	B19HY8	6	U	6	U	6	U	11	U	6	U	11	U
40-42.5	B191F2	2	U	2	U	2	U	2	U	2	U	2	U
40-42.5 (dup)	B191F4	2	U	2	U	2	U	2	U	2	U	2	U
47.5-50	B191F5	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
72-74.5	B191F6	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
97-99.5	B191F7	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
151.5-154	B191F8	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
191.5-194	B191F9	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
238-240.5	B191H0	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
equip blank tied to B191F0	B191D6	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
trip blank tied to B191F7	B191D8	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
Target Quantitation Limit				5		5				5			

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	cis-1,3-Dichloropropene		Dibromochloro-methane		Ethylbenzene		Ethylene glycol			Methylene chloride		
		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8015			8260_VOA_GCMS		
		WSCF/LVLI		WSCF/LVLI		WSCF/LVLI/222-S		WSCF/LVLI			WSCF/LVLI/222-S		
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ
12.5-15	B191F0	1.9	U	1.9	U	1.9	U	5000	U		1.9	U	
29.5-32	B191F1					0.98	U				1.3	U	
32.5-35	B191F3	11	U	11	U	11	U	5000	U		11	U	
32.5-35 (split)	B19HY8	6	U	6	U	6	U	5500	U	J	4.7	JB	U
40-42.5	B191F2	2	U	2	U	2	U	5000	U		2	U	
40-42.5 (dup)	B191F4	2	U	2	U	2	U	5000	U		2	U	
47.5-50	B191F5	2.1	U	2.1	U	2.1	U	5000	U		2.1	U	
72-74.5	B191F6	2.1	U	2.1	U	2.1	U	5000	U		2.1	U	
97-99.5	B191F7	2.1	U	2.1	U	2.1	U	5000	U		2.1	U	
151.5-154	B191F8	2.4	U	2.4	U	2.4	U	5000	U		2.4	U	
191.5-194	B191F9	2.1	U	2.1	U	2.1	U	5000	U		2.1	U	
238-240.5	B191H0	2.1	U	2.1	U	2.1	U	5000	U		2.1	U	
equip blank tied to B191F0	B191D6	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	5000 (µg/L)	U	U	1 (µg/L)	U	
trip blank tied to B191F7	B191D8	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U				1 (µg/L)	U	
Target Quantitation Limit						5		5000			5		

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	n-Butylbenzene		Styrene		Tetrachloroethene		Toluene		trans-1,3-Dichloropropene		Trichloroethene	
		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS		8260_VOA_GCMS	
		WSCF		WSCF/LVLI		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI		WSCF/LVLI/222-S	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
29.5-32	B191F1					0.7	U	0.64	U			0.86	U
32.5-35	B191F3	11	U	11	U	11	U	11	U	11	U	11	U
32.5-35 (split)	B19HY8			6	U	6	U	6	U	6	U	6	U
40-42.5	B191F2	2	U	2	U	2	U	2	U	2	U	2	U
40-42.5 (dup)	B191F4	2	U	2	U	2	U	2	U	2	U	2	U
47.5-50	B191F5	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
72-74.5	B191F6	2	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
97-99.5	B191F7	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
151.5-154	B191F8	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
191.5-194	B191F9	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
238-240.5	B191H0	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
equip blank tied to B191F0	B191D6			1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
trip blank tied to B191F7	B191D8			1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U	1 (µg/L)	U
Target Quantitation Limit		5				5		5				5	

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Table B2-4. Volatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Vinyl chloride		Xylenes (total)	
		8260_VOA_GCMS		8260_VOA_GCMS	
		WSCF/LVLI		WSCF/LVLI/222-S	
		µg/kg	Q	µg/kg	Q
12.5-15	B191F0	1.9	U	1.9	U
29.5-32	B191F1			1.6	U
32.5-35	B191F3	11	U	11	U
32.5-35 (split)	B19HY8	11	U	6	U
40-42.5	B191F2	2	U	2	U
40-42.5 (dup)	B191F4	2	U	2	U
47.5-50	B191F5	2.1	U	2.1	U
72-74.5	B191F6	2.1	U	2.1	U
97-99.5	B191F7	2.1	U	2.1	U
151.5-154	B191F8	2.4	U	2.4	U
191.5-194	B191F9	2.1	U	2.1	U
238-240.5	B191H0	2.1	U	2.1	U
equip blank tied to B191F0	B191D6	1 (µg/L)	U	1 (µg/L)	U
trip blank tied to B191F7	B191D8	1 (µg/L)	U	1 (µg/L)	U
Target Quantitation Limit				5	

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Table B2-5. Semivolatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,2,4-Trichlorobenzene		1,4-Dichlorobenzene		2,4-Dinitrotoluene		2-Chlorophenol		4-Chloro-3-methylphenol	
		8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS	
		WSCF/222-S		WSCF/222-S		WSCF/222-S		WSCF/222-S		WSCF/222-S	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	320	U	340	U	72	U	160	U	72	U
29.5-32	B191F1	920	U	920	U	920	U	920	U	920	U
32.5-35	B191F3	310	U	330	U	71	U	160	U	71	U
32.5-35 (split)	B19HY8										
40-42.5	B191F2	310	U	330	U	71	U	160	U	71	U
40-42.5 (dup)	B191F4	310	U	330	U	71	U	160	U	71	U
47.5-50	B191F5	310	U	330	U	70	U	150	U	70	U
72-74.5	B191F6	300	U	320	U	68	U	150	U	68	U
97-99.5	B191F7	310	U	330	U	70	U	150	U	70	U
151.5-154	B191F8	350	U	370	U	78	U	170	U	78	U
191.5-194	B191F9	310	U	330	U	70	U	150	U	70	U
238-240.5	B191H0	300	U	320	U	68	U	150	U	68	U
equip blank tied to B191F0	B191D6	2.9 (µg/L)	U	4.9 (µg/L)	U	1.7 (µg/L)	U	1.7 (µg/L)	U	1.3 (µg/L)	U
Target Quantitation Limit											

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Table B2-5. Semivolatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	4-Nitrophenol		Acenaphthene		Bis(2-ethylhexyl)phthalate		Di-n-butylphthalate		Diethylphthalate	
		8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS	
		WSCF/222-S		WSCF/222-S		WSCF/222-S		WSCF		WSCF	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	700	U	72	U						
29.5-32	B191F1	920	U	920	U						
32.5-35	B191F3	690	U	71	U						
32.5-35 (split)	B19HY8										
40-42.5	B191F2	690	U	71	U			1200			
40-42.5 (dup)	B191F4	680	U	71	U			120			
47.5-50	B191F5	670	U	70	U						
72-74.5	B191F6	660	U	68	U			100			
97-99.5	B191F7	680	U	70	U			390			
151.5-154	B191F8	760	U	78	U			170			
191.5-194	B191F9	680	U	70	U			140			
238-240.5	B191H0	660	U	68	U			99			
equip blank tied to B191F0	B191D6	1.4 (µg/L)	U	2.3 (µg/L)	U	5.5 (µg/L)		4 (µg/L)		7.7 (µg/L)	
Target Quantitation Limit											

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Table B2-5. Semivolatile Organic Analysis Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	N-Nitrosodi-n-dipropylamine		Pentachlorophenol			Phenol		Pyrene		Tributyl phosphate	
		8270_SVOA_GCMS		8270_SVOA_GCMS			8270_SVOA_GCMS		8270_SVOA_GCMS		8270_SVOA_GCMS	
		WSCF/222-S		WSCF/222-S			WSCF/LVLI/222-S		WSCF/222-S		WSCF/222-S	
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	72	U	320	U		110	U	72	U	72	U
29.5-32	B191F1	920	U	920	U		920	U	920	U	920	U
32.5-35	B191F3	71	U	320	U	J	110	U	71	U	71	U
32.5-35 (split)	B19HY8						350	U			350	U
40-42.5	B191F2	71	U	320	U		110	U	71	U	71	U
40-42.5 (dup)	B191F4	71	U	320	U		110	U	71	U	71	U
47.5-50	B191F5	70	U	310	U		100	U	70	U	70	U
72-74.5	B191F6	68	U	310	U		100	U	68	U	68	U
97-99.5	B191F7	70	U	310	U		100	U	70	U	70	U
151.5-154	B191F8	78	U	350	U		120	U	78	U	78	U
191.5-194	B191F9	70	U	320	U		110	U	70	U	70	U
238-240.5	B191H0	68	U	310	U		100	U	68	U	68	U
equip blank tied to B191F0	B191D6	1.7 (µg/L)	U	1.7 (µg/L)	U		1.7 (µg/L)	U	2 (µg/L)	U	1.7 (µg/L)	U
Target Quantitation Limit							330				3300	

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Table B2-6. Miscellaneous Organic Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Aroclor-1016		Aroclor-1221		Aroclor-1232		Aroclor-1242		Aroclor-1248	
		8082_PCB_GC		8082_PCB_GC		8082_PCB_GC		8082_PCB_GC		8082_PCB_GC	
		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF/LVLI/222-S	
		µg/kg	Q								
12.5-15	B191F0	53	U	110	U	53	U	53	U	53	U
12.5-15	B191J1										
29.5-32	B191F1	40	U	13	U	230	U	41	U	13	U
32.5-35	B191F3	52	U	100	U	52	U	52	U	52	U
32.5-35 (split)	B19HY8	14	U								
32.5-35	B191J4										
32.5-35 (split)	B193K0										
40-42.5	B191F2	52	U	100	U	52	U	52	U	52	U
40-42.5 (dup)	B191F4	52	U	100	U	52	U	52	U	52	U
40-42.5	B191J3										
40-42.5 (dup)	B191J5										
47.5-50	B191F5	50	U	100	U	50	U	50	U	50	U
47.5-50	B191J6										
72-74.5	B191F6	51	U	100	U	51	U	51	U	51	U
72-74.5	B191J7										
97-99.5	B191F7	51	U	100	U	51	U	51	U	51	U
97-99.5	B191J8										
151.5-154	B191F8	57	U	110	U	57	U	57	U	57	U
151.5-154	B191J9										
191.5-194	B191F9	51	U	100	U	51	U	51	U	51	U
191.5-194	B191K0										
238-240.5	B191H0	50	U	99	U	50	U	50	U	50	U
238-240.5	B191K1										
Target Quantitation Limit		100		100		100		100		100	

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Table B2-6. Miscellaneous Organic Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Aroclor-1254		Aroclor-1260		Aroclor-1262		Aroclor-1268	
		8082_PCB_GC		8082_PCB_GC		8082_PCB_GC		8082_PCB_GC	
		WSCF/LVLI/222-S		WSCF/LVLI/222-S		WSCF		WSCF	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B191F0	53	U	53	U	53	U	53	U
12.5-15	B191J1								
29.5-32	B191F1	170		55	U				
32.5-35	B191F3	52	U	52	U	52	U	52	U
32.5-35 (split)	B19HY8	14	U	14	U				
32.5-35	B191J4								
32.5-35 (split)	B193K0								
40-42.5	B191F2	52	U	52	U	52	U	52	U
40-42.5 (dup)	B191F4	52	U	52	U	52	U	52	U
40-42.5	B191J3								
40-42.5 (dup)	B191J5								
47.5-50	B191F5	50	U	50	U	50	U	50	U
47.5-50	B191J6								
72-74.5	B191F6	51	U	51	U	51	U	51	U
72-74.5	B191J7								
97-99.5	B191F7	51	U	51	U	51	U	51	U
97-99.5	B191J8								
151.5-154	B191F8	57	U	57	U	57	U	57	U
151.5-154	B191J9								
191.5-194	B191F9	51	U	51	U	51	U	51	U
191.5-194	B191K0								
238-240.5	B191H0	50	U	50	U	50	U	50	U
238-240.5	B191K1								
Target Quantitation Limit		100		100		100		100	

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Table B2-6. Miscellaneous Organic Results for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Oil and Grease					Total petroleum hydrocarbons - diesel range		Total petroleum hydrocarbons - gasoline range			Total petroleum hydrocarbons - kerosene range	
		9070_OILGREASE		9071_OILGREASE			WTPH_DIESEL		WTPH_GASOLINE			WTPH_DIESEL	
		LVLI		LVLI/STLSL			WSCF/LVLI		WSCF/LVLI			WSCF/LVLI	
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	
12.5-15	B191F0						4000 U	250 U			4000 U		
12.5-15	B191J1			714000	U								
29.5-32	B191F1												
32.5-35	B191F3						4000 U	2500 U	J		4000 U		
32.5-35 (split)	B19HY8						12700 U	33 U			12700 U		
32.5-35	B191J4			717000	U	J							
32.5-35 (split)	B193K0			200000	U								
40-42.5	B191F2						4000 U	250 U			4000 U		
40-42.5 (dup)	B191F4						4000 U	250 U			4000 U		
40-42.5	B191J3	698000	U										
40-42.5 (dup)	B191J5	698000	U										
47.5-50	B191F5						3900 U	250 U			3900 U		
47.5-50	B191J6	694000	U										
72-74.5	B191F6						3800 U	250 U			3800 U		
72-74.5	B191J7	684000	U										
97-99.5	B191F7						3900 U	250 U			3900 U		
97-99.5	B191J8	702000	U										
151.5-154	B191F8						4400 U	250 U			4400 U		
151.5-154	B191J9			794000	U								
191.5-194	B191F9						3900 U	250 U			3900 U		
191.5-194	B191K0			706000	U								
238-240.5	B191H0						3900 U	250 U			3900 U		
238-240.5	B191K1			687000	U								
Target Quantitation Limit							5000	5000			5000		

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Table B2-7. Physical Properties for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Density		% Moisture		% Solids
		Shaw		Shaw		Shaw
		D2937_DENSITY		D2216	SW846	% Solids
		kg/m <sup>3</sup>		dry sample	wet sample	
Dry	Wet					
72-74.5	B19443	1814	1880	2.9	2.8	97.2
151.5-154	B19444	1701	2080	19.7	16.5	83.5
191.5-194	B19445	2191	2292	6	5.7	94.3
238-240.5	B19446	1540	1590	3.7	3.5	96.5

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Table B2-7. Physical Properties for Borehole C4176 Samples (216-S-20 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Particle Size											
		Shaw											
		D422_PARTCLSIZE											
		Percent passing sieve sized											
		3 in	1.5 in	3/4 in	3/8 in	No.4	No.10	No.20	No.40	No.60	No.100	No.140	No.200
72-74.5	B19443	100	100	100	100	100	99.8	92.8	56.9	30.7	20.6	16.5	12.7
151.5-154	B19444	100	100	100	100	100	100	100	100	99.9	99.8	99.4	98.5
191.5-194	B19445	100	93.2	80.3	69.6	53	41.8	34.5	28.5	24.4	19.4	16.6	14.1
238-240.5	B19446	100	100	100	98.9	98.5	98.1	96	57.7	20.6	11.7	8.4	5.4

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Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Americium-241									Antimony-125			Carbon-14		
		AMCMISO_IE_PLATE_AEA			AMCMISO_IE_PREC_AEA			GAMMA_GS			GAMMA_GS			C14_COX_LSC		
		EBRLNE			WSCF			EBRLNE			EBRLNE/WSCF			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
12.5-15	B19402				0.025	U	0.04				-0.00959	U	0.041			
12.5-15	B19423							U	0.3		U	0.19	2.35	U	3.4	
12.5-15	B1BX65	-0.029	U	0.22				U	0.52		U	1.6	0.988	U	5.1	
17.5-20	B19405	60600		100				6220		21	U	15	5.22	U	22	
22.5-25	B19403	5340		25				4760		12	U	6.6	14.7	U	56	
27.5-30	B19427							65.4		2.7	U	2.8	-1.38	U	3.5	
40-42.5	B19407				3		0.056									
40-42.5	B19428							3.79		0.29			0.462	U	3.9	
57.5-60	B19408				0.12		0.02									
57.5-60	B19429								U	0.28			1.14	U	2.9	
96.5-99	B19409				2.5		0.036									
96.5-99	B19430							1.77		0.56			1.94	U	2.9	
117.5-120	B19410				0.77		0.012									
117.5-120	B19431							0.367		0.33			0.95	U	3	
197.5-200	B19411				0.12		0.038									
197.5-200	B19432								U	0.23			-1.9	U	5.4	
220-222.5	B19412				0.1		0.049									
220-222.5	B19433								U	0.28			-0.215	U	4.8	
equip blank tied to B19402	B19447															
Target Quantitation Limit		1												50		

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Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Cesium-134			Cesium-137			Cobalt-60			Europium-152			Europium-154				Europium-155		
		GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS			GAMMA_GS				GAMMA_GS		
		EBRLNE/WSCF			EBRLNE/WSCF			EBRLNE/WSCF			EBRLNE/WSCF			EBRLNE/WSCF				EBRLNE/WSCF		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA
12.5-15	B19402	0.0178	U	0.018	0.0835		0.018	-0.00331	U	0.015	0.0203	U	0.051	-0.00496	U		0.051	0.0734		0.068
12.5-15	B19423		U	0.12			U	0.093		U	0.071		U	0.18			0.29		U	0.19
12.5-15	B1BX65		U	1			U	0.76		U	0.86		U	1.6			2.6		U	0.94
17.5-20	B19405		U	2.8	2800		5.5	58.3		1.7		U	14	10.5		J	4.4		U	18
22.5-25	B19403		U	1.5	563		2.4	17.5		0.96		U	6.3	5.54		J	1.9		U	9.4
27.5-30	B19427		U	1.5	1.03		0.93	2.68		0.7		U	3		U	J	1.9		U	3.3
40-42.5	B19407				0.0107		0.01	0.0443		0.0092	-0.00734	U	0.027	0.00462	U		0.03	0.00677	U	0.041
40-42.5	B19428					U	0.2		U	0.25		U	0.6		U		0.77		U	0.36
57.5-60	B19408				-0.00014		U	0.011	0.00225	U	0.011	-0.00496	U	0.031	0.0461		0.033	0.0829		0.044
57.5-60	B19429					U	0.069		U	0.075		U	0.16		U		0.25		U	0.17
96.5-99	B19409				0.00376	U	0.011	0.107		0.011	0	U	0.031	0.0425			0.036	0.0551		0.044
96.5-99	B19430					U	0.071	0.078	U	0.081		U	0.2		U		0.31		U	0.19
117.5-120	B19410				-0.00152	U	0.0099	0.0685		0.011	-0.016	U	0.032	0.153			0.03	0.0817		0.046
117.5-120	B19431					U	0.099		U	0.15		U	0.26		U		0.45		U	0.25
197.5-200	B19411				-0.00046	U	0.01	0.0171		0.01	-0.0113	U	0.03	0.0116	U		0.034	0.0384		0.042
197.5-200	B19432					U	0.084		U	0.12		U	0.23		U		0.3		U	0.21
220-222.5	B19412				-0.00634	U	0.0085	0.0161		0.0089	-0.00303	U	0.027	0.0462			0.028	0.0419		0.037
220-222.5	B19433					U	0.069		U	0.078		U	0.15		U		0.26		U	0.16
equip blank tied to B19402	B19447																			
Target Quantitation Limit					0.1			0.05			0.1			0.1				0.1		

## DOE/RL-2005-61 DRAFT A

Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Gross alpha			Gross beta			Neptunium-237						Nickel-63			
		ALPHA			BETA			NP237_IE_PRECIP_A EA			NP237_IE_PLATE_AEA			NI63_LSC			
		WSCF			WSCF			WSCF			EBRLNE			EBRLNE			
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	
12.5-15	B19402								0.0018	U	0.0068						
12.5-15	B19423														-1.62	U	3.4
12.5-15	B1BX65											0.059		0.059	-0.668	U	3.4
17.5-20	B19405											42.3	U	63	418	U	500
22.5-25	B19403											0	U	11	-14.2	U	160
27.5-30	B19427														-4.88	U	14
40-42.5	B19407								0.002	U	0.0095						
40-42.5	B19428														-1.26	U	3.8
57.5-60	B19408								0.0023	U	0.0021						
57.5-60	B19429														-0.911	U	4
96.5-99	B19409								0.0036	U	0.011						
96.5-99	B19430														-0.449	U	3.3
117.5-120	B19410								0.0016	U	0.0021						
117.5-120	B19431														1.47	U	5.4
197.5-200	B19411								0.0069	U	0.012						
197.5-200	B19432														0.311	U	2.4
220-222.5	B19412																
220-222.5	B19433											0.043	U	0.13	-0.142	U	2.4
equip blank tied to B19402	B19447	-0.55 (pCi/L)	U	1.1 (pCi/L)	0.54 (pCi/L)	U	0.89 (pCi/L)										
Target Quantitation Limit									1						30		

## DOE/RL-2005-61 DRAFT A

Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Plutonium-238						Plutonium-239/240						Potassium-40			Radium-226			
		PUIISO_IE_PRECIP_A EA			PUIISO_PLATE_AEA			PUIISO_IE_PRECIP_A EA			PUIISO_PLATE_AEA			GAMMA_GS			GAMMA_GS			
		WSCF			EBRLNE			WSCF			EBRLNE			EBRLNE			EBRLNE			
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	
12.5-15	B19402	0.012	U	0.056				0.014	U	0.021										
12.5-15	B19423												10.9		0.98	0.41		0.16		
12.5-15	B1BX65				0	U	0.34				1.2		0.34	14.2		8		U	1.3	
17.5-20	B19405				5770		85				472000		84		U	19		U	6.9	
22.5-25	B19403				388		17				33900		17	14		4.5		U	3.1	
27.5-30	B19427														U	10		U	2.1	
40-42.5	B19407	0.53		0.048				9.1		0.0049										
40-42.5	B19428													11.8		2.1		U	0.55	
57.5-60	B19408	0.023	U	0.053				0.0042	U	0.019										
57.5-60	B19429													14.9		0.58	0.524		0.14	
96.5-99	B19409	0.43		0.075				7.9		0.0073										
96.5-99	B19430													14.5		0.49	0.364		0.16	
117.5-120	B19410	-0.0095	U	0.049				0.0038	U	0.018										
117.5-120	B19431													6.47		1.3	0.807		0.2	
197.5-200	B19411	-0.0075	U	0.068				0.032		0.014										
197.5-200	B19432													11.1		1	0.299		0.14	
220-222.5	B19412	0.0017	U	0.057				0.022		0.012										
220-222.5	B19433													8.71		0.82	0.219		0.12	
equip blank tied to B19402	B19447																			
Target Quantitation Limit		1						1												

## DOE/RL-2005-61 DRAFT A

Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Radium-228			Technetium-99			Thorium-228						Thorium-230			
		GAMMA_GS			TC99_TR_SEP_LSC			GAMMA_GS			THISO_IE_PLATE_AEA			THISO_IE_PLATE_AEA			
		EBRLNE			EBRLNE			EBRLNE			EBRLNE			EBRLNE			
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA
12.5-15	B19402																
12.5-15	B19423	0.58		0.33	0.083	U	0.56	0.627		0.089	1.16			0.21	0.741	B	0.26
12.5-15	B1BX65		U	3	0.212	U	0.59		U	0.92	0.926			0.21	1.03	B	0.21
17.5-20	B19405		U	8.4	5.67		0.97		U	6.8	-3.5	U	J	11	1.4	U	48
22.5-25	B19403		U	4.5	11		2.1		U	3.3	0.711	U	J	2	-1.56	U	9.7
27.5-30	B19427		U	3.6	-0.743	U	5.4		U	1.6	0.538		J	0.08	0.167	U	0.5
40-42.5	B19407																
40-42.5	B19428		U	0.92	0.014	U	0.57	0.768		0.22	0.51			0.045	0.445		0.19
57.5-60	B19408																
57.5-60	B19429	0.632		0.33	-0.03	U	0.58	0.634		0.073	1.18			0.045	0.75		0.19
96.5-99	B19409																
96.5-99	B19430	0.729		0.29	0.019	U	0.53	0.634		0.13	0.577			0.038	0.497		0.2
117.5-120	B19410																
117.5-120	B19431	0.644		0.47	-0.06	U	0.53	0.52		0.11	0.9			0.034	0.998		0.19
197.5-200	B19411																
197.5-200	B19432	0.589		0.34	-0.092	U	0.59	0.539		0.14	0.459			0.23	0.306		0.23
220-222.5	B19412																
220-222.5	B19433	0.227	U	0.27	-0.022	U	0.37	0.472		0.09	0.272			0.26	-0.068	U	0.26
equip blank tied to B19402	B19447																
Target Quantitation Limit																	

## DOE/RL-2005-61 DRAFT A

Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Thorium-232							Total beta radiostrontium			Tritium					
		GAMMA_GS			THISO_IE_PLATE_AEA				SRTOT_SEP_PRECIP_GPC			906_H3_LSC			TRITIUM_COX_LSC		
		EBRLNE			EBRLNE				EBRLNE			EBRLNE			EBRLNE		
		pCi/g	Q	MDA	pCi/g	Q	VQ	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
12.5-15	B19402																
12.5-15	B19423	0.58		0.33	0.549		0.21	-0.013	U	0.3				0.061	U	4.2	
12.5-15	B1BX65		U	3	0.734		0.21	-0.085	U	0.29				1.83	U	6	
17.5-20	B19405		U	8.4	2.1	U	J	13	437000		75			1.47	U	27	
22.5-25	B19403		U	4.5	0	U	J	2.5	34200		28			-23.6	U	66	
27.5-30	B19427		U	3.6	0.458		J	0.15	5100		2.5			0.899	U	4.4	
40-42.5	B19407																
40-42.5	B19428		U	0.92	0.532			0.05	34.8		0.33			1.97	U	3	
57.5-60	B19408																
57.5-60	B19429	0.632		0.33	1.22		0.052	-0.036	U	0.31	0.631		0.26				
96.5-99	B19409																
96.5-99	B19430	0.729		0.29	0.58		0.061	-0.064	U	0.29	3.43		0.27				
117.5-120	B19410																
117.5-120	B19431	0.644		0.47	0.766		0.048	-0.027	U	0.27	9.54		0.28				
197.5-200	B19411																
197.5-200	B19432	0.589		0.34	0.489		0.23	0.068	U	0.27	0.668		0.32				
220-222.5	B19412																
220-222.5	B19433	0.227	U	0.27	0.51		0.26	0.017	U	0.29	-0.386	U	0.44				
equip blank tied to B19402	B19447																
Target Quantitation Limit					1				1						400		

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Table B3-1. Radiochemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Uranium					Uranium-233/234					
		UTOT_KPA			200.8_ METALS_ ICPMS		UIISO_IE_PRECIP_ AEA			UIISO_PLATE_AEA		
		EBRLNE			WSCF		WSCF			EBRLNE		
		µg/kg	Q	MDA	µg/kg	Q	pCi/g	Q	MDA	pCi/g	Q	MDA
12.5-15	B19402				1010	U	0.15		0.016			
12.5-15	B19423											
12.5-15	B1BX65	1310		8					0.506			0.24
17.5-20	B19405	27900		400					14.9	U		110
22.5-25	B19403	5060		80					2.82	U		22
27.5-30	B19427											
40-42.5	B19407				2670		0.17		0.018			
40-42.5	B19428											
57.5-60	B19408				983	U	0.14		0.014			
57.5-60	B19429											
96.5-99	B19409				1000	U	0.15		0.0053			
96.5-99	B19430											
117.5-120	B19410				987	U	0.32		0.013			
117.5-120	B19431											
197.5-200	B19411				214		0.21		0.0049			
197.5-200	B19432											
220-222.5	B19412				208		0.13		0.016			
220-222.5	B19433											
equip blank tied to B19402	B19447											
Target Quantitation Limit					1000				1			



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Table B3-2. Metal Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Antimony						Arsenic				Barium			
		200.8_METALS_ICPMS		6010_METALS_ICP_TR				200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR	
		WSCF		STLSL				WSCF		STLSL		WSCF		STLSL	
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	
12.5-15	B19402	5060	U					13400				72100			
12.5-15	B19423														
17.5-20	B19405			2800		J				3100				71900	
22.5-25	B19404			1300		J				1500				69100	
27.5-30	B19406			540	<u>B</u>	J				1300				55000	
40-42.5	B19407	7100	U					2390	U			53000			
40-42.5	B19428														
57.5-60	B19408	4920	U					2950	U			38800			
57.5-60	B19429														
96.5-99	B19409	5000	U					3000	U			80500			
96.5-99	B19430														
117.5-120	B19410	4940	U					5530				74800			
117.5-120	B19431														
197.5-200	B19411	6850	U					2300	U			53000			
197.5-200	B19432														
220-222.5	B19412	6980	U					2350	U			32200			
220-222.5	B19433														
equip blank tied to B10402	B19447	0.5 (µg/L)	U					0.3 (µg/L)	U			0.44 (µg/L)			
Target Quantitation Limit		6000						10000		1000		20000			

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Table B3-2. Metal Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Beryllium				Bismuth				Boron					
		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		6010_METALS_ ICP		6010_METALS_ ICP_TR		6010_METALS_ ICP		6010_METALS_ICP_ TR			
		WSCF		STLSL		WSCF		STLSL		WSCF		STLSL			
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	
12.5-15	B19402	3030	U			2130	U			2510	U				
12.5-15	B19423														
17.5-20	B19405			71	<u>B</u>			116000				2600	<u>B</u>	<u>C</u>	<u>UJ</u>
22.5-25	B19404			160	<u>B</u>			108000				3000	<u>B</u>	<u>C</u>	<u>UJ</u>
27.5-30	B19406			210	<u>B</u>			123000				3100	<u>B</u>	<u>C</u>	<u>UJ</u>
40-42.5	B19407	380				2160	U								
40-42.5	B19428														
57.5-60	B19408	2950	U			2160	U								
57.5-60	B19429														
96.5-99	B19409	3000	U			2180	U								
96.5-99	B19430														
117.5-120	B19410	2960	U			2190	U								
117.5-120	B19431														
197.5-200	B19411	132				2120	U			2500	U				
197.5-200	B19432														
220-222.5	B19412	194				2190	U			2590	U				
220-222.5	B19433														
equip blank tied to B10402	B19447	0.3 (µg/L)	U			22 (µg/L)	U								
Target Quantitation Limit		500													

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Table B3-2. Metal Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Cadmium				Chromium				Copper				Hexavalent Chromium		
		200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR		200.8_METALS_ICPMS		6010_METALS_ICP_TR		7196_CR6		
		WSCF		STLSL		WSCF		STLSL		WSCF		STLSL		LVL/STLSL		
		µg/kg	Q	µg/kg	Q											
12.5-15	B19402	1010	U			7380				13000						
12.5-15	B19423														210	U
17.5-20	B19405			23	U			193000				16000			730	
22.5-25	B19404			23	U			47200				18200			730	
27.5-30	B19406			23	U			6200				13400			250	U
40-42.5	B19407	321				12000				17000						
40-42.5	B19428														210	U
57.5-60	B19408	983	U			7600				9600						
57.5-60	B19429														210	U
96.5-99	B19409	1000	U			11000				14900						
96.5-99	B19430														210	U
117.5-120	B19410	987	U			7580				7350						
117.5-120	B19431														220	U
197.5-200	B19411	19.2	U			42100				10100						
197.5-200	B19432														2050	
220-222.5	B19412	19.6	U			35800				7880						
220-222.5	B19433														1340	
equip blank tied to B10402	B19447					0.73 (µg/L)	C			1.64 (µg/L)						
Target Quantitation Limit		500				1000				2500				500		

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Table B3-2. Metal Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Lead				Mercury					Nickel				
		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		200.8_ METALS_ ICPMS		7471_HG_ CVAA			200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		
		WSCF		STLSL		WSCF		STLSL			WSCF		STLSL		
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	
12.5-15	B19402	12100	U			1010	U					11600			
12.5-15	B19423														
17.5-20	B19405			14300				5600		J				6800	
22.5-25	B19404			2200				810		J				6900	
27.5-30	B19406			1800				37		J				5800	
40-42.5	B19407	3040				1350						10400			
40-42.5	B19428														
57.5-60	B19408	11800	U			983	U					7680			
57.5-60	B19429														
96.5-99	B19409	12000	U			1230						9350			
96.5-99	B19430														
117.5-120	B19410	11800	U			987	U					9580			
117.5-120	B19431														
197.5-200	B19411	4070				388						23400			
197.5-200	B19432														
220-222.5	B19412	1960				677						21000			
220-222.5	B19433														
equip blank tied to B10402	B19447	1.2 (µg/L)	U									0.5 (µg/L)	U		
Target Quantitation Limit		10000		1000				200			4000				

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Table B3-2. Metal Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Selenium				Silver			
		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR		200.8_ METALS_ ICPMS		6010_METALS_ ICP_TR	
		WSCF		STLSL		WSCF		STLSL	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B19402	3030	U			2020	U		
12.5-15	B19423								
17.5-20	B19405			320	U			610	U
22.5-25	B19404			310	U			600	U
27.5-30	B19406			310	U			600	U
40-42.5	B19407	726	U			249			
40-42.5	B19428								
57.5-60	B19408	2950	U			1970	UE		
57.5-60	B19429								
96.5-99	B19409	3000	U			4700	E		
96.5-99	B19430								
117.5-120	B19410	2960	U			2440	E		
117.5-120	B19431								
197.5-200	B19411	701	U			30.4			
197.5-200	B19432								
220-222.5	B19412	714	U			163			
220-222.5	B19433								
equip blank tied to B10402	B19447	0.3 (µg/L)	U			0.2 (µg/L)	U		
Target Quantitation Limit		10000				2000		500	

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Table B3-3. Wet Chemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Ammonia				Ammonium ion		Chloride		Cyanide				Fluoride		
		350.1_ AMMONIA		350.3_ AMMONIA		300.7_IC		300_ ANIONS_ IC		335.2_ CYANIDE		9010_ CYANIDE		300_ ANIONS_ IC		
		STLSL		LVLI		WSCF		WSCF/STLSL		WSCF		STLSL		WSCF/STLSL		
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q
12.5-15	B19402					304		2550	U	3950					1130	U
12.5-15	B19423															
17.5-20	B19405	74.2	U					1100	"B"			130	U	J	100	U
22.5-25	B19404	73	U					1000	"B"			130	U		260	"B"
27.5-30	B19406	73	U					450	U			130	U		100	U
40-42.5	B19407					336		3420	"B"	200	U				1150	U
40-42.5	B19428															
57.5-60	B19408					297		3620	B	200	U				1130	U
57.5-60	B19429															
96.5-99	B19409					258	U	2600	U	200	U				1150	U
96.5-99	B19430															
117.5-120	B19410					258	U	2550	U	200	U				1130	U
117.5-120	B19431															
197.5-200	B19411					649		5340		200	U				1150	U
197.5-200	B19432															
220-222.5	B19412					373		5040		200	U				1130	U
220-222.5	B19433															
equip blank tied to B19402	B19447							59.5 (µg/L)	B						18 (µg/L)	U
equip blank tied to B19423	B19448			122 (µg/L)	U											
Target Quantitation Limit		500						2000				500			5000	

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Table B3-3. Wet Chemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Nitrate		Nitrite		Nitrogen in Nitrite and Nitrate				pH			Phosphate		Sulfate			
		300_ANIONS_IC		300_ANIONS_IC		353.1_NO3/NO2		353.2_NO3/NO2		9045_pH			150.1_pH		300_ANIONS_IC		300_ANIONS_IC	
		WSCF/STLSL		WSCF/STLSL		STLSL		LVLI		STLSL			WSCF		WSCF/STLSL		WSCF/STLSL	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	ph	Q	VQ	ph	Q	µg/kg	Q	µg/kg	Q
12.5-15	B19402	10846	B	3058	U							8.98		8125	U	4900	U	
12.5-15	B19423						2000											
17.5-20	B19405	5312		138	U	27	U			8.8	J			7100	C	3100	"B"	
22.5-25	B19404	4427		135	U	27	U			9.0	J			13000		3200	"B"	
27.5-30	B19406	2435		138	U	27	U			9.0	J			520	U	1200	U	
40-42.5	B19407	19744	"B"	3120	U							8.98		8279	U	5000	U	
40-42.5	B19428						2500											
57.5-60	B19408	13812	"B"	3058	U							9		8125	U	4900	U	
57.5-60	B19429						710											
96.5-99	B19409	9075	"B"	3120	U							8.66		8279	U	5000	U	
96.5-99	B19430						440											
117.5-120	B19410	6507	"B"	3058	U							8.78		8125	U	5400	"B"	
117.5-120	B19431						360											
197.5-200	B19411	2877	U	3120	U							9.43		8279	U	5000	U	
197.5-200	B19432						200	U										
220-222.5	B19412	2820	U	3058	U							8.77		8125	U	5620	B	
220-222.5	B19433						206	U										
equip blank tied to B19402	B19447	97.4 (µg/L)	U	19.7 (µg/L)	U									239 (µg/L)	U	150 (µg/L)	U	
equip blank tied to B19423	B19448						1100 (µg/L)	U										
Target Quantitation Limit		2500		2500									5000		5000			

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Table B3-3. Wet Chemical Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Sulfide		
		9030_SULFIDE		
		LVLI/STLSL		
		µg/kg	Q	VQ
12.5-15	B19402			
12.5-15	B19423	39400	U	
17.5-20	B19405	7600	U	J
22.5-25	B19404	7500	U	J
27.5-30	B19406	7500	U	J
40-42.5	B19407			
40-42.5	B19428	35900	U	
57.5-60	B19408			
57.5-60	B19429	41700	U	
96.5-99	B19409			
96.5-99	B19430	43100	U	
117.5-120	B19410			
117.5-120	B19431	42200	U	
197.5-200	B19411			
197.5-200	B19432	38600	U	
220-222.5	B19412			
220-222.5	B19433	37400	U	
equip blank tied to B19402	B19447			
equip blank tied to B19423	B19448	1000 (µg/L)	U	
Target Quantitation Limit		5000		

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,1,1- Trichloroethane			1,1,2,2- Tetrachloroethane			1,1,2- Trichloroethane			1,1-Dichloroethane			1,1-Dichloroethene			1,2-Dichloroethane		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		STLSL/WSCF			STLSL/WSCF			STLSL/WSCF			STLSL/WSCF			STLSL/WSCF			STLSL/WSCF		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
12.5-15	B19402	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
17.5-20	B19405	0.58	U	J	0.77	U	J	0.79	U	J	0.57	U	J	0.7	U	J	0.44	U	J
22.5-25	B19404	0.57	U	J	0.76	U	J	0.78	U	J	0.56	U	J	0.69	U	J	0.44	U	J
27.5-30	B19406	0.57	U		0.76	U		0.78	U		0.56	U		0.7	U		0.44	U	
40-42.5	B19407	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
57.5-60	B19408	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
96.5-99	B19409	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
117.5-120	B19410	2.2	U		2.2	U		2.2	U		2.2	U		2.2	U		2.2	U	
197.5-200	B19411	2	U		2	U		2	U		2	U		2	U		2	U	
220-222.5	B19412	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
equipment blank	B19447	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank	B1BX40	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19407	B1BX43	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19408	B1BX44	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19409	B1BX45	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19410	B1BX46	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19411	B1BX47	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19412	B1BX48	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19402	B1BX49	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit		5						5			10						5		

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,2-Dichloroethene (Total)			1,2-Dichloropropane			1,2,3-Trichlorobenzene		1,2,4-Trimethylbenzene			1-Butanol		2-Butanone		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCM		8260_VOA_GCMS			8260_VOA_GC		8260_VOA_GCMS		
		STLSL/WSCF			STLSL/WSCF			STLSL		STLSL/WSCF			WSCF		STLSL/WSCF		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ
12.5-15	B19402	2.1	U		2.1	U							43	U	2.1	U	
17.5-20	B19405	0.64	U	J	0.48	U	J			0.6	U	J			1.2	U	J
22.5-25	B19404	0.63	U	J	0.48	U	J	7.5		0.59	U	J			1.1	U	J
27.5-30	B19406	0.63	U		0.48	U				0.59	U				1.2	U	
40-42.5	B19407	2.1	U		2.1	U							42	U	2.1	U	
57.5-60	B19408	2.1	U		2.1	U							41	U	2.1	U	
96.5-99	B19409	2.1	U		2.1	U							42	U	2.1	U	
117.5-120	B19410	2.2	U		2.2	U							43	U	2.2	U	
197.5-200	B19411	2	U		2	U							41	U	2	U	
220-222.5	B19412	2.1	U		2.1	U							41	U	2.1	U	
equipment blank	B19447	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank	B1BX40	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19407	B1BX43	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19408	B1BX44	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19409	B1BX45	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19410	B1BX46	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19411	B1BX47	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19412	B1BX48	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
trip blank tied to B19402	B1BX49	1 (µg/L)	U		1 (µg/L)	U							20 (µg/L)	U	1 (µg/L)	U	
Target Quantitation Limit		10													10		

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	2-Hexanone			4-Methyl-2-Pentanone			Acetone			Acetonitrile			Benzene			Bromodichloro-methane		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		STLSL/WSCF			STLSL/WSCF			STLSL/WSCF			STLSL			STLSL/WSCF			STLSL/WSCF		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
12.5-15	B19402	2.1	U		2.1	U		2.1	U				2.1	U		2.1	U		
17.5-20	B19405	1.3	U	J	0.94	U	J	1.4	U	J	5.6	U	J	0.33	U	J	0.41	U	J
22.5-25	B19404	1.3	U	J	0.93	U	J	1.3	U	J	5.5	U	J	0.32	U	J	0.4	U	J
27.5-30	B19406	1.3	U		0.93	U		1.3	U		5.5	U		0.32	U		0.4	U	
40-42.5	B19407	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
57.5-60	B19408	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
96.5-99	B19409	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
117.5-120	B19410	2.2	U		2.2	U		2.2	U					2.2	U		2.2	U	
197.5-200	B19411	2	U		2	U		2	U					2	U		2	U	
220-222.5	B19412	2.1	U		2.1	U		2.1	U					2.1	U		2.1	U	
equipment blank	B19447	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank	B1BX40	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19407	B1BX43	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19408	B1BX44	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19409	B1BX45	1 (µg/L)	U		1 (µg/L)	U		3.7 (µg/L)	J					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19410	B1BX46	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19411	B1BX47	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19412	B1BX48	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19402	B1BX49	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U					1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit					10			20						5					

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Bromoform			Bromomethane			Carbon disulfide			Carbon tetrachloride			Chlorobenzene			Chloroethane		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF		
	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	
12.5-15	B19402	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
17.5-20	B19405	0.65	U	J	1.1	J	J	0.28	U	J	0.47	U	J	0.57	U	J	0.59	U	J
22.5-25	B19404	0.64	U	J	0.66	U	J	0.28	U	J	0.47	U	J	0.56	U	J	0.58	U	J
27.5-30	B19406	0.64	U		0.66	U		0.28	U		0.47	U		0.56	U		0.58	U	
40-42.5	B19407	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
57.5-60	B19408	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
96.5-99	B19409	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
117.5-120	B19410	2.2	U		2.2	U		2.2	U		2.2	U		2.2	U		2.2	U	
197.5-200	B19411	2	U		2	U		2	U		2	U		2	U		2	U	
220-222.5	B19412	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
equipment blank	B19447	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank	B1BX40	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19407	B1BX43	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19408	B1BX44	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19409	B1BX45	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19410	B1BX46	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19411	B1BX47	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19412	B1BX48	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19402	B1BX49	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit											5			5					

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Chloroform			Chloromethane			cis-1,3- Dichloropropene			Dibromochloro- methane			Ethyl Acetate		Ethylbenzene		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GC		8260_VOA_GCMS		
		STLSL/WSCF			STLSL/WSCF			STLSL/WSCF			STLSL/WSCF			STLSL		STLSL/WSCF		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ
12.5-15	B19402	2.1	U		2.1	U		2.1	U		2.1	U			2.1	U		
17.5-20	B19405	0.55	U	J	0.98	U	J	0.28	U	J	0.27	U	J		0.46	U	J	
22.5-25	B19404	0.54	U	J	0.96	U	J	0.28	U	J	0.27	U	J		0.46	U	J	
27.5-30	B19406	0.54	U		0.97	U		0.28	U		0.27	U		5.5	0.46	U		
40-42.5	B19407	2.1	U		2.1	U		2.1	U		2.1	U			2.1	U		
57.5-60	B19408	2.1	U		2.1	U		2.1	U		2.1	U			2.1	U		
96.5-99	B19409	2.1	U		2.1	U		2.1	U		2.1	U			2.1	U		
117.5-120	B19410	2.2	U		2.2	U		2.2	U		2.2	U			2.2	U		
197.5-200	B19411	2	U		2	U		2	U		2	U			2	U		
220-222.5	B19412	2.1	U		2.1	U		2.1	U		2.1	U			2.1	U		
equipment blank	B19447	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank	B1BX40	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19407	B1BX43	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19408	B1BX44	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19409	B1BX45	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19410	B1BX46	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19411	B1BX47	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19412	B1BX48	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
trip blank tied to B19402	B1BX49	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U			1 (µg/L)	U		
Target Quantitation Limit		5														5		

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Ethylene glycol		Methylene chloride			n-Butylbenzene		n-Hexane			Styrene			Tetrachloroethene				
		8015_VOA_GC		8260_VOA_GCMS			8260_VOA_GC		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS				
		STLSSL/WSCF		STLSSL/WSCF			WSCF		STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF				
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ		
12.5-15	B19402	5000	U	2.1	U			2.1	U				2.1	U			2.1	U	
17.5-20	B19405			4.3	J	J			0.88	U	J		0.49	U	J		0.58	U	J
22.5-25	B19404			24		J			0.87	U	J		0.49	U	J		0.57	U	J
27.5-30	B19406			3.1	J	J			0.87	U			0.49	U			0.57	U	
40-42.5	B19407	5000	U	2.1	U			2.1	U				2.1	U			2.1	U	
57.5-60	B19408	5000	U	2.1	U			2.1	U				2.1	U			2.1	U	
96.5-99	B19409	5000	U	2.1	U			2.1	U				2.1	U			2.1	U	
117.5-120	B19410	5000	U	2.2	U			2.2	U				2.2	U			2.2	U	
197.5-200	B19411	5000	U	2	U			2	U				2	U			2	U	
220-222.5	B19412	5000	U	2.1	U			2.1	U				2.1	U			2.1	U	
equipment blank	B19447	5000	U	1 (µg/L)	U								1 (µg/L)	U			1 (µg/L)	U	
trip blank	B1BX40			1 (µg/L)	U								1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19407	B1BX43			1 (µg/L)	U								1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19408	B1BX44			1 (µg/L)	U			1 (µg/L)	U				1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19409	B1BX45			1 (µg/L)	U			1 (µg/L)	U				1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19410	B1BX46			1 (µg/L)	U			1 (µg/L)	U				1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19411	B1BX47	5000 (µg/L)	U	1 (µg/L)	U			1 (µg/L)	U				1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19412	B1BX48			1 (µg/L)	U			1 (µg/L)	U				1 (µg/L)	U			1 (µg/L)	U	
trip blank tied to B19402	B1BX49			1 (µg/L)	U								1 (µg/L)	U			1 (µg/L)	U	
Target Quantitation Limit		5000		5				5									5		

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Table B3-4. Volatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Toluene			trans-1,3-Dichloropropene			Trichloroethene			Vinyl chloride			Xylenes (total)		
		8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS			8260_VOA_GCMS		
		STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF			STLSSL/WSCF		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
12.5-15	B19402	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
17.5-20	B19405	0.35	U	J	0.42	U	J	2	J	J	0.74	U	J	1.3	U	J
22.5-25	B19404	0.34	U	J	0.41	U	J	0.46	U	J	0.74	U	J	1.3	U	J
27.5-30	B19406	0.34	U		0.42	U		0.46	U		0.74	U		1.3	U	
40-42.5	B19407	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
57.5-60	B19408	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
96.5-99	B19409	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
117.5-120	B19410	2.2	U		2.2	U		2.2	U		2.2	U		2.2	U	
197.5-200	B19411	2	U		2	U		2	U		2	U		2	U	
220-222.5	B19412	2.1	U		2.1	U		2.1	U		2.1	U		2.1	U	
equipment blank	B19447	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank	B1BX40	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19407	B1BX43	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19408	B1BX44	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19409	B1BX45	3.3 (µg/L)	BJ	X	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19410	B1BX46	2.6 (µg/L)	BJ		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19411	B1BX47	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19412	B1BX48	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
trip blank tied to B19402	B1BX49	1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U		1 (µg/L)	U	
Target Quantitation Limit		5						5						5		

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Table B3-5. Semivolatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	1,2,4- Trichlorobenzene		1,4- Dichlorobenzene		2,4- Dinitrotoluene		2-Chlorophenol		2-Methylphenol (cresol, o-)		3+4 Methylphenol	
		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS	
		WSCF		WSCF		WSCF		WSCF		WSCF		WSCF	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B19402	190	U	280	U	110	U	160	U				
17.5-20	B19405												
22.5-25	B19404												
27.5-30	B19406												
40-42.5	B19407	190	U	280	U	110	U	160	U				
57.5-60	B19408	94	U	140	U	56	U	79	U	84	U	110	U
96.5-99	B19409	94	U	140	U	56	U	79	U	84	U	110	U
117.5-120	B19410	98	U	140	U	58	U	82	U	88	U	110	U
197.5-200	B19411	83	U	140	U	62	U	120	U	88	U	160	U
220-222.5	B19412	84	U	150	U	63	U	130	U	89	U	160	U
equip blank tied to B19402	B19447	2.8 (µg/L)	U	4.7 (µg/L)	U	1.7 (µg/L)	U	1.6 (µg/L)	U				
Target Quantitation Limit													

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Table B3-5. Semivolatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	4-Chloro-3- methylphenol		4-Nitrophenol		Acenaphthene		Diethylphthalate		Di-n- butylphthalate		N-Nitrosodi-n- dipropylamine		Nonadecane	
		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS		8270_SVOA_ GCMS	
		WSCF		WSCF		WSCF		WSCF		WSCF		WSCF		WSCF	
		µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B19402	99	U	180	U	150	U					160	U		
17.5-20	B19405														
22.5-25	B19404														
27.5-30	B19406														
40-42.5	B19407	98	U	180	U	140	U					160	U		
57.5-60	B19408	48	U	89	U	71	U	180				77	U		
96.5-99	B19409	48	U	89	U	71	U			2100		77	U		
117.5-120	B19410	50	U	93	U	74	U			200		80	U		
197.5-200	B19411	75	U	150	U	55	U	450				72	U	1500	J
220-222.5	B19412	76	U	160	U	56	U	460				73	U		
equip blank tied to B19402	B19447	1.2 (µg/L)	U	1.3 (µg/L)	U	2.3 (µg/L)	U					1.6 (µg/L)	U		
Target Quantitation Limit															

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Table B3-5. Semivolatile Organic Analysis Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Penta- chlorophenol		Phenol			Pyrene		Tributyl phosphate		
		8270_SVOA_ GCMS		8270_SVOA_ GCMS			8270_SVOA_ GCMS		8270_SVOA_ GCMS		
		WSCF		WSCF			WSCF		WSCF		
		µg/kg	Q	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	VQ
12.5-15	B19402	150	U	150	U		170	U	150	U	
17.5-20	B19405			91	U	J			350	U	J
22.5-25	B19404			90	U	J			340	U	J
27.5-30	B19406			90	U				340	U	J
40-42.5	B19407	150	U	140	U		160	U	150	U	
57.5-60	B19408	75	U	71	U		81	U	73	U	
96.5-99	B19409	75	U	71	U		81	U	73	U	
117.5-120	B19410	78	U	74	U		84	U	76	U	
197.5-200	B19411	73	U	86	U		50	U	33	U	
220-222.5	B19412	74	U	87	U		50	U	33	U	
equip blank tied to B19402	B19447	1.6 (µg/L)	U	1.6 (µg/L)	U		2 (µg/L)	U	2.4 (µg/L)	U	
Target Quantitation Limit											

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Table B3-6. Miscellaneous Organic Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Aroclor-1016			Aroclor-1221			Aroclor-1232			Aroclor-1242			Aroclor-1248		
		8082_PCB_GC			8082_PCB_GC			8082_PCB_GC			8082_PCB_GC			8082_PCB_GC		
		WSCF			WSCF			WSCF			WSCF			WSCF		
		µg/kg	Q	VQ												
12.5-15	B19402	52	U		100	U		52	U		52	U		52	U	
12.5-15	B19423															
17.5-20	B19405															
22.5-25	B19404															
27.5-30	B19406	4.9	U	UR												
40-42.5	B19407	52	U		100	U		52	U		52	U		52	U	
40-42.5	B19428															
57.5-60	B19408	51	U		100	U		51	U		51	U		51	U	
57.5-60	B19429															
96.5-99	B19409	52	U		100	U		52	U		52	U		52	U	
96.5-99	B19430															
117.5-120	B19410	52	U		100	U		52	U		52	U		52	U	
117.5-120	B19431															
197.5-200	B19411	51	U		100	U		51	U		51	U		51	U	
197.5-200	B19432															
197.5-200	B19437															
220-222.5	B19412	51	U		100	U		51	U		51	U		51	U	
220-222.5	B19433															
Target Quantitation Limit		100			100			100			100			100		

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Table B3-6. Miscellaneous Organic Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Aroclor-1254			Aroclor-1260			Aroclor-1262		Aroclor-1268		Oil and Grease			
		8082_PCB_GC			8082_PCB_GC			8082_PCB_GC		8082_PCB_GC		413.1_OILGREASE LVLI		9071_OILGREASE LVLI	
		WSCF			WSCF			WSCF		WSCF		LVLI		LVLI	
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	µg/kg	Q	µg/kg	Q	µg/kg	Q
12.5-15	B19402	52	U		52	U		52	U	52	U				
12.5-15	B19423													707000	U
17.5-20	B19405													139000	U
22.5-25	B19404													257000	U
27.5-30	B19406	5	U	UR	5	U	UR							163000	U
40-42.5	B19407	52	U		52	U		52	U	52	U				
40-42.5	B19428											692000	U		
57.5-60	B19408	51	U		51	U		51	U	51	U				
57.5-60	B19429											688000	U		
96.5-99	B19409	52	U		52	U		52	U	52	U				
96.5-99	B19430											695000	U		
117.5-120	B19410	52	U		52	U		52	U	52	U				
117.5-120	B19431											723000	U		
197.5-200	B19411	51	U		51	U		51	U	51	U				
197.5-200	B19432											684000	U		
197.5-200	B19437														
220-222.5	B19412	51	U		51	U		51	U	51	U				
220-222.5	B19433											727000			
Target Quantitation Limit		100			100			100		100					

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Table B3-6. Miscellaneous Organic Results for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Total petroleum hydrocarbons - diesel range			Total petroleum hydrocarbons - gasoline range			Total petroleum hydrocarbons - kerosene range		
		WTPH_DIESEL			WTPH_GASOLINE			WTPH_DIESEL		
		WSCF/LVLI			WSCF/LVLI			WSCF/LVLI		
		µg/kg	Q	VQ	µg/kg	Q	VQ	µg/kg	Q	VQ
12.5-15	B19402	4000	U		250	U		4000	U	
12.5-15	B19423									
17.5-20	B19405	990	U	J	21	U	J	26000	U	J
22.5-25	B19404	970	U	J	21	U		26000	U	J
27.5-30	B19406	980	U	J	21	U		26000	U	J
40-42.5	B19407	3900	U		250	U		3900	U	
40-42.5	B19428									
57.5-60	B19408	3900	U		250	U		3900	U	
57.5-60	B19429									
96.5-99	B19409	3900	U		250	U		3900	U	
96.5-99	B19430									
117.5-120	B19410	4000	U		250	U		4000	U	
117.5-120	B19431									
197.5-200	B19411	3800	U		250	U		3800	U	
197.5-200	B19432									
197.5-200	B19437									
220-222.5	B19412	3900	U		250	U		3900	U	
220-222.5	B19433									
Target Quantitation Limit		5000			5000			5000		

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Table B3-7. Physical Properties for Borehole C4183 Samples (216-Z-7 Crib)

SAMPLE INTERVAL DEPTH (ft bgs)	SAMPLE NUMBER	Density		% Moisture		% Solids	Particle Size											
		Shaw		Shaw		Shaw	Shaw											
		D2937_DENSITY		D2216	SW846	% Solids	D422_PARTCLSIZE											
		kg/m <sup>3</sup>		dry sample	wet sample		Percent passing sieve sized											
Dry	Wet				3 in	1.5 in	3/4 in	3/8 in	No.4	No.10	No.20	No.40	No.60	No.100	No.140	No.200		
57.5-60	B19435	1851.3	1933	3.3	3.2	57.5	100	100	100	99.6	97.1	88	58.5	26.2	14.9	8.8	7.2	5.1
96.5-99	B19436	1751.9	1838.4	4.8	4.6	96.5	100	100	100	100	99.2	91.6	77.1	51.1	30.7	19.5	16	12.3
197.5-200	B19437	1936.2	1985.9	2.2	2.2	197.5	100	100	100	97.9	93.3	84.4	74.2	65.8	58.5	49.5	44.9	40.7

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