

4

Nature and Extent of Contamination

This section presents the nature and extent (lateral and vertical boundaries) of contamination at the RDM based on field investigation sample data collected during the 2010 and 2011 field seasons. The presentation of the nature and extent of contamination is organized by media. For surface soil, subsurface soil, and groundwater, the presentation is further organized by the general geographic areas identified in the Sample Collection Summary tables presented in Section 2. These geographic areas are (see Figure 4-1):

- Pre-1955 Main Processing Area
- Post-1955 Main Processing Area
- Red Devil Creek Downstream Alluvial Area and Delta
- Dolly Sluice and Delta
- Rice Sluice and Delta
- Surface mined area
- Kuskokwim River
- Red Devil Creek upstream area
- Upland background areas
- Roads and abandoned roads

For the purposes of this chapter, background concentrations of inorganic analytes are used to determine chemical concentrations representing “contamination” and the lateral and vertical extents of contamination. Accordingly, inorganic element concentrations that exceed background values presented in Section 4.1 are considered “contamination.” The analytes aluminum, calcium, iron, magnesium, potassium, and sodium are common earth crust elements. Based on EPA, Region 10 policy, these common earth crust elements will not be discussed in this chapter; however, the sample results are presented in the data presentation tables presented at the end of this section for reference.

For organic analytes, all positive detections are considered to represent site-related “contamination” because there are no nearby offsite sources of organic contaminants that are expected to contribute to onsite contamination.

Analytical results for arsenic speciation, arsenic bioaccessibility, and mercury speciation are included in this chapter’s data presentation tables. Interpretation of these analytical results is provided in Chapter 5, Contaminant Fate and Transport, and Chapter 6, Baseline Risk Assessment.

The nature and extent of contamination are presented in tabular format in this chapter. Analyte concentrations representing contamination are highlighted in the analytical data summary tables. Graphic representations are used to illustrate the distribution and trends of contamination at the site.

Analytical data generated from the samples collected in 2010 and 2011, which are used in this chapter to characterize the nature and extent of contamination, were validated by E & E chemists in accordance with following:

- Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 2010a).
- Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 2008a).
- Guidelines for Data Reporting, Data Reduction, and Treatment of Non-Detect Values (ADEC 2008a).
- Quality assurance guidelines in Standard Operating Procedure BR-0013 for mercury selective sequential extraction analyses (Brooks Rand 2010).
- Quality assurance guidelines in EPA Method 1632 for arsenic speciation analysis (EPA 1998).
- Quality assurance guidelines in EPA Method 9200.1-86 for arsenic bio-accessibility assays (EPA 2008b).

The results of data validation are presented in Analytical Data Review Summary memoranda for each laboratory data deliverable and are contained in Appendix B. In general, all data generated for the RI are considered usable with qualifications, as noted in the Analytical Data Review Summary memoranda.

4.1 Background Sample Results

EPA's ProUCL program, Version 4.1.00 (EPA 2010b) was used to calculate background values for inorganic analytes, consistent with EPA guidance (EPA 2010b, 2010c). ProUCL 4.1.00 includes goodness-of-fit tests (e.g., normal, lognormal, and gamma) for data sets with and without nondetected values (NDs). For data sets with NDs, ProUCL 4.1.00 can create additional columns to store extrapolated values for NDs obtained using regression on order statistics (ROS) methods, including normal ROS, gamma ROS, and lognormal ROS (robust ROS) methods. ProUCL 4.1.00 also has parametric (e.g., maximum likelihood estimate, t-statistic, gamma distribution), nonparametric (e.g., skewness-adjusted central limit theorem (CLT), Kaplan-Meier), and computer intensive bootstrap (e.g., percentile, bias-corrected accelerated) methods to compute background values for uncensored data sets and also for data sets with ND observations.

The background data sets were pre-processed with field duplicate results averaged with the original sample result. Although ADEC guidelines (ADEC 2008a) recommend the more conservative result of the primary and duplicate results be used for management decision making, this is specific to the calculation of the 95-percent upper confidence limit when determining exposure point concentrations.

This approach may over-estimate the background concentration and therefore was not used for these calculations. Instead, the primary and duplicate concentrations were averaged. Non-detected values were assigned the method detection limit and flagged with a “U” to designate NDs. As mentioned above, ProUCL 4.1.00 was used to extrapolate values for NDs used in the calculation of the background value, consistent with ADEC (2008a).

In accordance with the RI Work Plan (E & E 2011), background samples were collected from locations outside of and upgradient of the areas recognized as potentially impacted by mining, ore processing, and waste disposal operations, including potential deposition of emissions from thermal ore processing (see Work Plan Appendix E). It should be noted that, although mineralized zones that yielded cinnabar ore over the course of the mine’s history are largely discrete localized ore bodies (see Section 1.4.3.2), natural mineralization in the RDM area extends beyond those areas that were mined, including areas within the footprint of surface exploration, ore processing, and possible aerial emissions from ore processing. This is evidenced by elevated concentrations of RDM-related inorganic elements, particularly arsenic and mercury, in undisturbed native materials outside of the mined ore zones. For example, at several soil locations that lie within the surface mined area but outside of mined ore zones (11SM10SB, 11SM11SB, and 11MP41SB), subsurface soil consisting of weathered bedrock, which is undisturbed by mining activities, contains arsenic concentrations up to two orders of magnitude higher than the calculated background concentrations presented below. Mercury concentrations in weathered bedrock at two of those locations (11SM10SB and 11SM11SB) are higher than the calculated background concentrations by approximately an order of magnitude. Weathered bedrock at several other locations outside of the surface mined area also locally exhibits arsenic concentrations higher than the calculated background concentration (e.g., 11RD05SB). Therefore, the background levels presented in this section, particularly soil background levels, are considered to be conservative, and likely underestimate actual background concentrations of inorganic elements associated with local bedrock mineralization.

4.1.1 Surface Soil

Table 4-1¹ presents the results of the background surface soil samples. As noted in Chapter 2, background surface soil samples comprise samples collected from Kuskokwim Group–derived soils and alluvium. No loess soils were encountered outside of the area of potential impacts specified in the RI Work Plan; therefore no background loess samples were collected.

Ten surface soil samples plus one duplicate sample were collected from alluvium, and 10 surface soil samples plus one duplicate sample were collected from Kuskokwim Group–derived soils that were used to generate the background concentrations. ProUCL was used to determine outliers for any mercury or arsenic result (antimony was not tested for outliers due to the low number of detected results).

¹ All tables for Chapter 4 are provided at the end of the chapter

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For mercury, the result 6.6 mg/kg from 10RD11SS was identified as an outlier. For arsenic, the result 220 mg/kg from 10RD10SS was identified as an outlier. These two samples were removed from the surface soil background data set prior to determination of the background values.

ProUCL was then used to conduct a two-sample hypothesis test comparing concentrations of the two different soil types consistent with EPA guidance (EPA 2010b). Arsenic and mercury results were used as indicators for this test. Again, antimony was not investigated due to the high number of non-detected results. The data were tested for distribution, and the Wilcoxon-Mann-Whitney test was used to determine that the means of the two populations (samples from the two soil types) were equal; therefore, the two soil type samples were combined to represent background surface soil.

Once the results from the soil types were combined and the two outliers removed, ProUCL was used to determine distribution of the data and to calculate background values for all metals. When possible, the upper prediction limit (UPL) was used as the background value, consistent with the recommendations of the EPA Technical Guide (EPA 2010b). If the background and site contaminant distributions are comparable, then a typical site observation should lie below a 95-percent UPL based upon a background data set with probability 0.95. A site observation exceeding the background 95-percent UPL can be considered as providing some evidence of contamination due to site-related activities (EPA 2010a). In general, this value is slightly below the maximum detected concentration with outliers removed.

Table 4-2 presents the summary statistics and recommended background levels for inorganic analytes.

4.1.2 Subsurface Soil

Table 4-3 presents the results of the background subsurface soil samples. Six subsurface soil samples from two borings were analyzed for inorganic analytes. There are too few samples to run background statistics. EPA (2010a) suggests avoiding the use of statistical methods to estimate the background values on data sets with fewer than four to six detected values. Therefore, it is recommended to use the maximum detected concentration as the background value for subsurface soils. Those results and associated summary statistics for the background subsurface soil samples are presented in Table 4-4.

4.1.3 Groundwater

Table 4-5 presents the results of the background groundwater samples.

Two background groundwater samples were collected (11RD13GW and 11UP11GW). Table 4-6 presents the summary statistics and recommended background levels for inorganic analytes in groundwater.

4.1.4 Red Devil Creek Surface Water and Sediment

Table 4-7 presents the results of the Red Devil Creek surface water and sediment samples.

One location for sediment (RD01SD) and surface water (RD01SW) in Red Devil Creek were sampled. A sample from the sediment location was taken once in 2011, and a sample from the surface water location was sampled in both 2010 and 2011. Detected values are provided in Table 4-8 for comparison to site samples.

4.1.5 Kuskokwim River Sediment

Table 4-9 presents the results of the background Kuskokwim River sediment samples.

Eighteen Kuskokwim River sediments samples plus four duplicate samples were analyzed for inorganic analytes. ProUCL was used to determine outliers for any mercury, arsenic, or antimony result. The result of 0.374 mg/kg from 11KR12SD was identified as an outlier for mercury; no results were identified as outliers for arsenic; and the result of 0.473 mg/kg from 11KR27SD was identified as an outlier for antimony. These two samples were removed from the Kuskokwim River sediment background data set prior to calculating the background values.

Once the two outliers removed, ProUCL was used to determine distribution of the data set and calculate the background value for all inorganic analytes. The recommended background value and summary statistics for the background Kuskokwim River sediment are presented in Table 4-10.

4.1.6 Vegetation

Table 4-11 presents the results of the background vegetation samples.

Background vegetation samples were collected and analyzed for metals during the 2011 sampling event. The number of background samples collected for the following vegetation types include: blueberry fruit (n=1), blueberry leaves and stems (n=9), green alder bark (n=4), horsetail pond vegetation (n=3), and white spruce needles (n=8). For blueberry fruit, green alder bark, and horsetail pond vegetation, sample numbers were too small to perform statistical analysis and derivation of background values using ProUCL. For these samples, the maximum detected concentration of inorganic elements in the vegetation is recommended for comparison to site samples. For blueberry leaves and stems and white spruce needles, ProUCL was used to determine the distribution of the data set and calculate the background value for all metals. The recommended background value and summary statistics for the background vegetation samples are presented in Tables 4-12 through 4-16.

4.2 Surface Soil

The following subsections present the nature and extent of contamination in surface soil. The inorganic elements are organized by geographic areas, which are presented in Chapter 2 and Figure 4-1, and then by soil types, which are presented

in Chapter 3. The organic compounds are organized by geographic area. The aerial extent of the surface soil types is illustrated in Figure 3-1. Selected inorganic element results for samples within the Main Processing Area are illustrated in Figures 4-2 through 4-4. Selected inorganic element results for samples outside the Main Processing Area are illustrated in Figures 4-5 through 4-7. Sample locations with detections of organic compounds are illustrated in Figure 4-8. Field screening results of the roads are illustrated in Figure 4-9.

4.2.1 Pre-1955 Main Processing Area

Four soil types, as defined in Chapter 3, were identified in the surface soil samples in the Pre-1955 Main Processing Area: tailings/waste rock, waste rock, fill, and native/disturbed native. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for the Pre-1955 Main Processing Area surface soil are presented in Table 4-17. Detailed information on the nature and extent of antimony, arsenic, and mercury in surface soil in the Pre-1955 Main Processing Area is presented in Table C-1, Appendix C.

4.2.1.1 Inorganic Elements

Tailings/Waste Rock

Tailings/waste rock occurs throughout the majority of the surface soils in the Pre-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were identified in the tailings/waste rock on the surface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the tailings/waste rock samples at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, nickel, and zinc.

Waste Rock

Waste rock occurs in the Pre-1955 Main Processing Area surface soil at sampling location MP59. Red porous rock and/or rock with a red oxidized rind and mineralized rock were identified in the waste rock on the surface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the waste rock samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cobalt, copper, lead, mercury, nickel, and zinc.

Fill

Fill occurs in the Pre-1955 Main Processing Area surface soil at sampling location MP54. Red porous rock and/or rock with a red oxidized rind and mineralized rock were identified in the fill on the surface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the fill samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cobalt, copper, lead, mercury, nickel, and zinc.

Native/Disturbed Native

Native/disturbed native soil occurs in the Pre-1955 Main Processing Area surface soil at sampling location MP56. Red porous rock and/or rock with a red oxidized rind and mineralized rock were identified in the native/disturbed native soil on the surface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the native/disturbed native soil samples at concentrations above background surface soil values: antimony, arsenic, and mercury.

- Tailings/waste rock is the dominant soil type in the Pre-1955 Main Processing Area.
- Concentrations of antimony, arsenic, and mercury in tailings/waste rock are generally more elevated above the background values compared to antimony, arsenic and mercury in waste rock, fill, and native/disturbed native soils.
- In native/disturbed native soil, only antimony, arsenic, and mercury were detected at concentrations above background values, and their concentrations were generally lower than the concentrations in the other soil types in the Pre-1955 Main Processing Area.
- Inorganic element contamination extends throughout surface soils in the Pre-1955 Main Processing Area.

4.2.1.2 Organic Compounds

The following organic compounds were detected in at least one of the Pre-1955 Main Processing Area surface soil samples at concentrations above background surface soil values: 12 SVOCs, DRO, RRO, and PCBs. Organic compounds were detected at sample locations MP45, MP46, MP47, and MP81.

- Organic compounds (excluding PCBs) were detected in every Pre-1955 Main Processing Area surface soil sample where they were analyzed.
- The absence of surface soil samples containing organic compounds below the background surface soil values indicates that the extent of organic compounds in the surface soil of the Pre-1955 Main Processing Area has not been determined.

4.2.2 Post-1955 Main Processing Area

Seven soil types, as defined in Chapter 3, were identified in the surface soil samples in the Post-1955 Main Processing Area: tailings/waste rock, flotation tailings, tailings, fill, native/disturbed native, and bedrock/weathered bedrock. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Post-1955 Main Processing Area surface soil is presented in Table 4-18.

Detailed information on the nature and extent of antimony, arsenic, and mercury in the surface soil in the Post-1955 Main Processing Area is presented in Table C-2, Appendix C.

4.2.2.1 Inorganic Elements

Tailings/Waste Rock

Tailings/waste rock occurs throughout the majority of the surface soils in the Post-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind and mineralized rock were identified in the tailings/waste rock on the surface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the tailings/waste rock samples at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Flotation Tailings

Flotation tailings occur in the surface soils of the Post-1955 Main Processing Area at locations MP32, MP34, and MP36. Red porous rock and/or rock with a red oxidized rind and mineralized rock were not identified in the flotation tailings on the surface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the flotation tailings samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Tailings

Tailings are composed of entirely calcine materials and are located in the Post-1955 Main Processing Area at sampling location OP01.

The following inorganic elements were detected in the tailings sample at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, nickel, and zinc.

Stockpiled Ore

The stockpiled ore, composed of mineralized rock, is located in the Post-1955 Main Processing Area at sampling location MP02.

The following inorganic elements were detected in the stockpiled ore sample at concentrations above background surface soil values: antimony, arsenic, beryllium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Fill

Fill occurs in the surface soils of the Post-1955 Main Processing Area at locations MP20, MP21, and MP68. Red porous rock and/or rock with a red oxidized rind

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and mineralized rock were not identified in the fill on the surface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the fill samples at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Native/Disturbed Native

Native/disturbed native soil occurs in the Post-1955 Main Processing Area surface soil at sampling locations MP01, MP10, MP19, MP20, MP21, MP33 and MP37. Red porous rock and/or rock with a red oxidized rind and mineralized rock were not identified in the native/disturbed native soil on the surface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the native/disturbed native soil samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, mercury, nickel, and zinc.

Bedrock/Weathered Bedrock

Bedrock/weathered bedrock occurs in the Post-1955 Main Processing Area at the ground surface at sampling location MP31. Red porous rock and/or rock with a red oxidized rind and mineralized rock were not identified in the bedrock/weathered bedrock on the surface of the Post-1955 Main Processing Area.

No inorganic elements were detected in the bedrock/weathered bedrock samples at concentrations above background surface soil values.

- Tailings/waste rock and flotation tailings are the dominant soil types in the Post-1955 Main Processing Area.
- Concentrations of antimony, arsenic, and mercury in tailings, flotation tailings, tailings/waste rock, and stockpiled ore are generally more elevated above the background values compared to antimony, arsenic, and mercury in fill, bedrock/weathered bedrock, and native/disturbed native soils.
- The highest arsenic concentrations are in the flotation tailings.
- Inorganic element contamination extends throughout surface soils in the Post-1955 Main Processing Area. Only bedrock/weathered bedrock had concentrations of inorganic elements less than the background values.

4.2.2.2 Organic Compounds

The following organic compounds were detected in at least one of the Post-1955 Main Processing Area surface soil samples at concentrations above background surface soil values: 36 SVOCs, DRO, and RRO.

- Organic compounds occur near the Power Plant Area, downgradient from the Gravel Pad, adjacent to Monofill #2, and in the Settling Pond Area.

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- Organic compounds (excluding PCBs) were detected in every surface soil sample where they were analyzed.
- The absence of surface soil samples containing organic compounds below the background surface soil values indicates that the extent of organic compounds in the surface soil of the Post-1955 Main Processing Area has not been determined.

4.2.3 Red Devil Creek Downstream Alluvial Area and Delta

Three soil types, as defined in Chapter 3, were identified in the surface soil samples in the Red Devil Creek Downstream Alluvial Area and Delta: tailings/waste rock, native/disturbed native, and fill. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Red Devil Creek Downstream Alluvial Area and Delta surface soil are presented in Table 4-19. Detailed information on the nature and extent of antimony, arsenic, and mercury in the surface soil in the Red Devil Creek Downstream Area and Delta is presented in Table C-3, Appendix C.

4.2.3.1 Inorganic Elements

Mixed Red Devil Creek Alluvium, Soil, and Tailings/Waste Rock

Mixed alluvium, soil, and tailings and/or waste rock occurs in the Red Devil Creek Downstream Alluvial Area and Delta surface soil at sampling locations RD02 and RD03. Tailings/waste rock occurs at the surface at locations RD04, and RD20, likely due to use as road surfacing material. Red porous rock and/or rock with a red oxidized rind and mineralized rock were identified in the tailings/waste rock on the surface of the Red Devil Creek Downstream Alluvial Area and Delta.

The following inorganic elements were detected in at least one of the tailings/waste rock samples at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, nickel, and zinc.

Native/Disturbed Native

Native/disturbed native soil occurs in the Red Devil Creek Downstream Alluvial Area and Delta surface soil at sampling locations RD01 and RD05. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Red Devil Creek Downstream Alluvial Area and Delta.

The following inorganic elements were detected in at least one of the native/disturbed native soil samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, and zinc.

- Tailings/waste rock is the dominant soil type in the Red Devil Creek Downstream Alluvial Area and Delta.

- Concentrations of antimony, arsenic, and mercury in tailings/waste rock and fill are generally more elevated above the background values compared to antimony, arsenic and mercury in native/disturbed native soils.
- The highest arsenic concentrations are in the fill.
- Inorganic element contamination extends throughout surface soils in the Red Devil Creek Downstream Alluvial Area and Delta. Only concentrations of arsenic below the background values adjacent to the Surface Mined Area and on the east side of the Red Devil Creek Downstream Alluvial Area and Delta define the extent of inorganic element contamination.

4.2.4 Red Devil Creek Upstream Alluvial Area

Two soil types, as defined in Chapter 3, were identified in the surface soil samples in the Red Devil Creek Upstream Alluvial Area: native/disturbed native and native/disturbed native (Red Devil Creek Alluvium). Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Red Devil Creek Upstream Alluvial Area surface soil are presented in Table 4-20. Detailed information on the nature and extent of antimony, arsenic, and mercury in the surface soil in the Red Devil Creek Upstream Area is presented in Table C-4, Appendix C.

4.2.4.1 Inorganic Elements

Native/Disturbed Native

Native/disturbed native soil occurs in the surface soil at several locations, including the reservoir dam, in the Red Devil Creek Upstream Alluvial Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Red Devil Creek Upstream Alluvial Area.

The following inorganic elements were detected in at least one of the native/disturbed native soil samples at concentrations above background surface soil values: arsenic, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Red Devil Creek Alluvium

Red Devil Creek Alluvium occurs throughout the majority of the Red Devil Creek Upstream Alluvial Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Red Devil Creek Upstream Alluvial Area.

Surface soil samples collected from Red Devil Creek Alluvium are considered background surface soil locations; therefore, the laboratory analytical data for those locations are presented in Section 4.1.1.

4.2.5 Dolly Sluice and Delta

Two soil types, as defined in Chapter 3, were identified in the surface soil samples in the Dolly Sluice and Delta: sluiced overburden and native/disturbed native. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Dolly Sluice and Delta surface soil are presented in Table 4-21. Detailed information regarding the nature and extent of antimony, arsenic, and mercury in the surface soil in the Dolly Sluice and Delta is presented in Table C-5, Appendix C.

4.2.5.1 Inorganic Elements

Sluiced Overburden

Sluice overburden occurs in the surface soil throughout the Dolly Sluice Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the sluiced overburden on the surface of the Dolly Sluice Delta.

The following inorganic elements were detected in at least one of the sluiced overburden surface soil samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cobalt, copper, lead, mercury, nickel, and zinc.

Native/Disturbed Native

Native/disturbed native soil occurs in the surface soil throughout the Dolly Sluice. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Dolly Sluice.

The following inorganic elements were detected in at least one of the native/disturbed native soil samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

- Concentrations of antimony, arsenic and mercury in the sluiced overburden are generally more elevated above the background values compared to antimony, arsenic, and mercury in native/disturbed native soils.
- Concentrations of arsenic and mercury are higher on the downstream side of Dolly Sluice Delta.
- Concentrations of antimony, arsenic, and mercury above background values extend throughout surface soils in the Dolly Sluice and Delta. However, the extent of arsenic has been defined on the northwest side of Dolly Sluice where concentrations of arsenic in the surface soil are below background values.

4.2.6 Rice Sluice and Delta

Two soil types, as defined in Chapter 3, were identified in the surface soil samples in the Rice Sluice and Delta: sluiced overburden and native/disturbed native.

Sample 10RS03SS, collected from the Rice Sluice, was not definitively identified as either sluiced overburden or native/disturbed native soil. Because this sample has different chemical characteristics than sluiced overburden, it will be presented as a native/disturbed native soil type. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Rice Sluice and Delta surface soil are presented in Table 4-22. Detailed information on the nature and extent of antimony, arsenic, and mercury in the surface soil in the Rice Sluice and Delta is presented in Table C-6, Appendix C.

4.2.6.1 Inorganic Elements

Sluiced Overburden

Sluice overburden occurs in the surface soil throughout the Rice Sluice Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the sluiced overburden on the surface of the Dolly Sluice and Delta.

The following inorganic elements were detected in at least one of the sluiced overburden surface soil samples at concentrations above background surface soil values: antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, and zinc.

Native/Disturbed Native

Native/disturbed native occurs in the surface soil throughout the Rice Sluice. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Dolly Sluice and Delta.

The following inorganic elements were detected in at least one of the native/disturbed native surface soil samples at concentrations above background surface soil values: arsenic, cobalt, copper, mercury, nickel, and zinc.

- Concentrations of antimony, arsenic, and mercury are similar in the sluiced overburden and native/disturbed native soils.
- The highest concentration of arsenic was in the native/disturbed native soil.
- Inorganic element contamination extends throughout surface soils in the Rice Sluice and Delta. However, the extent of arsenic has been defined on the south side of Rice Sluice where concentrations of arsenic in the surface soil are below background values.

4.2.7 Surface Mined Area

Three soil types, as defined in Chapter 3, were identified in the surface soil samples in the Surface Mined Area: native/disturbed native, native/disturbed native (loess), and bedrock/weathered bedrock. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for the Surface Mined Area surface soil are presented in Table 4-21. Detailed information on the nature and

extent of antimony, arsenic, and mercury in the surface soil in the Surface Mined Area is presented in Table C-7, Appendix C.

4.2.7.1 Inorganic Elements

Native/Disturbed Native Soil

Native/disturbed native soil occurs in the surface soil throughout the majority of the Surface Mined Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Dolly Sluice and Delta.

The following inorganic elements were detected in at least one of the native/disturbed native surface soil samples at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Native/Disturbed Native (Loess) Soil

Native/disturbed native (loess) soil occurs at sample location SM11 in the surface soil of the Surface Mined Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil on the surface of the Dolly Sluice and Delta.

The following inorganic elements were detected in at least one of the native/disturbed native surface soil samples at concentrations above background surface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Bedrock/Weathered Bedrock

Bedrock/weathered bedrock occurs at sample locations SM30 and SM31 at the ground surface in the Surface Mined Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the bedrock/weathered bedrock on the surface of the Surface Mined Area.

The following inorganic elements were detected in at least one of the bedrock/weathered bedrock soil samples at concentrations above background surface soil values: arsenic, beryllium, chromium, cobalt, copper, lead, mercury, nickel, and zinc.

- Concentrations of antimony, arsenic, and mercury are generally below background values in the native/disturbed native (loess) soils.
- The highest concentration of arsenic are in the soils located along the ore trends, which trend approximately east-west in the Surface Mined Area.
- Inorganic element contamination extends throughout surface soils in the Rice Sluice and Delta. However, the extent of arsenic has been defined around the perimeter of the Surface Mined Area where concentrations of arsenic in the surface soil are below background values. This excludes the perimeter adjacent to the Main Processing Area.

4.2.8 Mine Roads

Selected XRF results of the mine road soil survey are illustrated in Figure 4-9.

Roads in the Red Devil Creek Upstream Alluvial Area have similar concentrations of antimony, arsenic, and mercury both on the surface of the road and adjacent to the road. This indicates that the road was probably constructed from the native soils in the area.

Roads in the Post-1955 Main Processing Area, specifically near Monofill #2, have elevated concentrations of antimony and arsenic on the surface of the road relative to adjacent to the road. This indicates that the road may be constructed from tailings and/or waste rock.

Roads near the former AST area have similar concentrations of antimony, arsenic, and mercury both on the surface of the road and adjacent to the road. This indicates that the road was probably constructed from the native soils in the area.

The road in the Pre-1955 Main Processing Area has elevated concentrations of antimony, arsenic, and mercury both on the surface of the road and adjacent to the road. This indicates that the road may be constructed from tailings and/or waste rock.

The road in the Red Devil Creek Downstream Alluvial Area has elevated concentrations of antimony and arsenic on the surface of the road and on the downgradient side of the road. The upgradient side of the road has lower concentrations of antimony and arsenic. This indicates that the road may be constructed from tailings and/or waste rock that is migrating downgradient.

Some of the locations of the roads sampled in the Surface Mined Area have elevated concentrations of antimony and arsenic on the surface of the road relative to adjacent to the road. This indicates that some sections of the roads in the Surface Mined Area may be constructed from tailings and/or waste rock, particularly near the fringe of the Main Processing Area. However, field observations indicate that tailings/waste rock are not present on the road surfaces in the majority of this area. Rather, the elevated inorganic element concentrations are likely attributable to mineralized Kuskokwim-derived soils in this area.

At some locations along the mine access road adjacent the Kuskokwim River are elevated concentrations of antimony and arsenic on the surface of the road relative to areas adjacent to the road. This indicates that some sections of this road may be constructed from tailings and/or waste rock. Other locations along the mine access road adjacent the Kuskokwim River show elevated concentrations of antimony and arsenic on the Kuskokwim River side of the road relative to on the surface of the road, likely due to erosion of road materials toward the river.

4.3 Subsurface Soil

The following subsections contain a summary of the nature and extent of contamination in the subsurface soils. The inorganic elements are organized by geographic areas, which are presented in Chapter 2 and then by soil types, which are presented in Chapter 3. The organic compounds are organized by geographic area. The cross-sections (Figures 3-2 through 3-8) presented in Section 3 also illustrate the lateral and vertical extent of these soil types and their associated chemical characteristics.

4.3.1 Pre-1955 Main Processing Area

Four soil types, as defined in Chapter 3, were identified in the subsurface soil samples in the Pre-1955 Main Processing Area: tailings/waste rock, native/disturbed native, fill, and bedrock/weathered bedrock. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Pre-1955 Main Processing Area subsurface soil are presented in Table 4-24. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Pre-1955 Main Processing Area is presented in Table C-8, Appendix C.

4.3.1.1 Inorganic Elements

Tailings/Waste Rock

Tailings/waste rock occurs from approximately the ground surface to 4 to 20 feet bgs in the Pre-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were identified in the tailings/waste rock in the subsurface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the tailings/waste rock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

Fill

A small amount of fill occurs from approximately the ground surface to 8 feet bgs in several soil borings in the Pre-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind and mineralized rock were identified in the fill in the subsurface of the Pre-1955 Main Processing Area.

No subsurface soil samples sent to the laboratory were exclusively fill or conclusively identified as fill. The following inorganic elements were detected in at least one of the subsurface soil samples containing fill, or maybe fill or native/disturbed native soil, at concentrations above background subsurface soil values: antimony, arsenic, beryllium, chromium, copper, lead, mercury, selenium, thallium, vanadium, and zinc.

Native/Disturbed Native

Native/disturbed native soil occurs from approximately the ground surface to as much as 28 feet bgs in several soil borings in the Pre-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil in the subsurface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the native/disturbed native subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, beryllium, copper, lead, mercury, selenium, silver, thallium, and zinc.

Bedrock/Weathered Bedrock

The top of bedrock/weathered bedrock occurs from approximately 4 feet bgs to 30 feet bgs in in the Pre-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the bedrock/weathered bedrock in the subsurface of the Pre-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the bedrock/weathered bedrock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, cadmium, copper, lead, manganese, mercury, selenium, thallium, vanadium, and zinc.

- Concentrations of antimony, arsenic, and mercury have a large variation within each soil type.
- Generally, the highest concentrations of antimony, arsenic, and mercury are in the tailings/waste rock, and the lowest concentrations are in the native/disturbed native soils or bedrock/weathered bedrock.
- The depth of inorganic element contamination extends throughout subsurface soils until contacting bedrock/weathered bedrock from 4 to 30 feet bgs or until native/disturbed native soils have concentrations of inorganic elements below background values. The depth of inorganic element contamination in the subsurface soils has not been defined at all soil boring locations.

4.3.1.2 Organic Compounds

The following organic compounds were detected in at least one of the Pre-1955 Main Processing Area subsurface soil samples at concentrations above background subsurface soil values: 23 SVOCs, DRO, and RRO.

- Organic compounds in subsurface soil are widespread throughout the Pre-1955 Main Processing Area at depths ranging from 4 to 26 feet bgs.
- Organic compounds were detected in every subsurface soil sample where they were analyzed.
- The absence of subsurface soil samples containing organic compounds below the background surface soil values indicates that the extent of organic

compounds in the subsurface soil of the Pre-1955 Main Processing Area has not been determined.

4.3.2 Post-1955 Main Processing Area

Four soil types, as defined in Chapter 3, were identified in the subsurface soil samples in the Post-1955 Main Processing Area: tailings/waste rock, native/disturbed native, fill, and bedrock/weathered bedrock. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Post-1955 Main Processing Area subsurface soil are presented in Table 4-25. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Post-1955 Main Processing Area is presented in Table C-9, Appendix C.

4.3.2.1 Inorganic Elements

Tailings/Waste Rock

Tailings/waste rock occurs from approximately the ground surface to 2 to 20 feet bgs in the Post-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were identified in the tailings/waste rock in the subsurface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the tailings/waste rock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc.

Flotation Tailings

Flotation tailings occur from approximately the ground surface to 8 to 12 feet bgs in the Post-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the flotation tailings in the subsurface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the tailings/waste rock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, and vanadium.

Fill

Fill occurs from approximately the ground surface to eight to 10 to 14 feet bgs in the Post-1955 Main Processing Area. Tailings were identified in at least one of the fill samples in the subsurface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the fill subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, mercury, selenium, silver, and thallium. Several samples were not included in these statistics due to them be inconclusively identified as fill or

native/disturbed native soils or split between two soil types: fill and flotation tailings.

Native/Disturbed Native

The top of native/disturbed native soil occurs from approximately the ground surface to 10 feet bgs. The bottom of native/disturbed native soil occurs from approximately 2 feet bgs to the total depth of each borehole or the bedrock/weathered bedrock contact. Red porous rock and/or rock with a red oxidized rind and mineralized rock were not identified in the native/disturbed native soil samples in the subsurface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the native/disturbed native subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc.

Bedrock/Weathered Bedrock

The top of bedrock/weathered bedrock occurs from approximately the ground surface to 30 feet bgs in Post-1955 Main Processing Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the bedrock/weathered bedrock in the subsurface of the Post-1955 Main Processing Area.

The following inorganic elements were detected in at least one of the bedrock/weathered bedrock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc.

- Generally, the highest concentrations of antimony, arsenic, and mercury are in the tailings/waste rock and flotation tailings, and the lowest concentrations are in the native/disturbed native soils or bedrock/weathered bedrock.
- The depth of inorganic element contamination extends throughout subsurface soils until contacting bedrock/weathered bedrock from the surface to 30 feet bgs or until native/disturbed native soils have concentrations of inorganic elements below background values. The depth of inorganic element contamination in the subsurface soils has not been defined at all soil boring locations.

4.3.2.2 Organic Compounds

The following organic compounds were detected in at least one of the Post-1955 Main Processing Area subsurface soil samples at concentrations above background subsurface soil values: 47 SVOCs, DRO, and RRO.

- Organic compounds in subsurface soil are widespread throughout the Post-1955 Main Processing Area at depths ranging from 4 to 26 feet bgs.
- Organic compounds were detected in every subsurface soil sample where they were analyzed.
- The absence of subsurface soil samples containing organic compounds below the background surface soil values indicates that the extent of organic compounds in the subsurface soil of the Post-1955 Main Processing Area has not been determined.

4.3.3 Red Devil Creek Downstream Alluvial Area and Delta

Five soil types, as defined in Chapter 3, were identified in the subsurface soil samples in the Red Devil Creek Downstream Alluvial Area and Delta: tailings/waste rock, native/disturbed native, Kuskowim River alluvium, fill, and bedrock/weathered bedrock. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for Red Devil Creek Downstream Alluvial Area and Delta subsurface soil is presented in Table 4-26. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Red Devil Creek Alluvial Area and Delta is presented in Table C-19, Appendix C.

Mixed Red Devil Creek Alluvium, Soil, and Tailings/Waste Rock

Mixed Red Devil Creek alluvium, soil, and tailings/waste rock occurs from approximately the ground surface to 2 to 10 feet in the Red Devil Creek Downstream Alluvial Area and Delta. In the Red Devil Creek Alluvial Area tailings/waste rock was only identified in soil boring RD20. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were identified in the tailings/waste rock in the subsurface of the Red Devil Creek Downstream Alluvial Area and Delta.

The following inorganic elements were detected in at least one of the tailings/waste rock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, chromium, copper, mercury, selenium, thallium, and zinc.

Native/Disturbed Native

Native/disturbed native soil occurs from approximately the ground surface to 8 to 16 feet bgs in the Red Devil Creek Downstream Alluvial Area and Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil in the subsurface of the Red Devil Creek Downstream Alluvial Area and Delta.

The following inorganic elements were detected in at least one of the native/disturbed native subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, beryllium, chromium, copper, mercury, selenium, and thallium.

Kuskokwim River Alluvium

Kuskokwim River alluvium occurs from approximately 8 to 10 feet bgs to the total depth of each borehole in the Red Devil Creek Delta. Kuskokwim River alluvium was not identified in the Red Devil Creek Downstream Alluvial Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the Kuskokwim River alluvium in the subsurface of the Red Devil Creek Delta.

The following inorganic elements were detected in at least one of the Kuskokwim River alluvium subsurface soil samples at concentrations above background subsurface soil values: chromium, selenium, thallium, and vanadium.

Disturbed Native Soil with Local Fill

Disturbed native soil with local fill occurs from approximately the ground surface to 4 to 6 feet bgs in the Red Devil Creek Downstream Alluvial Area. Fill was not identified in the Red Devil Creek Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the fill in the subsurface of the Red Devil Creek Downstream Alluvial Area.

The following inorganic elements were detected in at least one of the fill subsurface soil samples at concentrations above background subsurface soil values: arsenic, mercury, selenium, and vanadium.

Bedrock/Weathered Bedrock

Bedrock/weathered bedrock occurs from approximately 10 to 16 feet bgs to the total depth of each borehole in the Red Devil Creek Downstream Alluvial Area. Bedrock/weathered bedrock was not identified in the Red Devil Creek Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the bedrock/weathered bedrock in the subsurface of the Red Devil Creek Downstream Alluvial Area.

The following inorganic elements were detected in at least one of the bedrock/weathered bedrock subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, beryllium, cadmium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

- Generally, the highest concentrations of antimony, arsenic, and mercury are in the tailings/waste rock and the lowest concentrations are in the Kuskokwim River alluvium, native/disturbed native soils, or bedrock/weathered bedrock.
- The depth of inorganic element contamination extends throughout subsurface soils until contacting bedrock/weathered bedrock from 10 to 30 feet bgs or until native/disturbed native soils have concentrations of inorganic elements below background values. The depth of inorganic element contamination in the subsurface soils has been defined at all soil boring locations.

4.3.4 Red Devil Creek Upstream Alluvial Area

One soil type, as defined in Chapter 3, was identified in the subsurface soil samples in the Red Devil Creek Upstream Alluvial Area: Red Devil Creek alluvium. The single soil boring installed in the Red Devil Creek Upstream Alluvial Area is considered a background location; therefore, the laboratory analytical data for subsurface soil is presented in Section 4.1.2. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Red Devil Creek Upstream Alluvial Area is presented in Table C-11, Appendix C.

4.3.4.1 Inorganic Elements**Red Devil Creek Alluvium**

Red Devil Creek alluvium occurs from approximately 2 feet bgs to the total depth of the borehole in the Red Devil Creek Upstream Alluvial Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the Red Devil Creek alluvium in the subsurface of the Red Devil Creek Upstream Alluvial Area.

4.3.5 Dolly Sluice and Delta

Two soil types, as defined in Chapter 3, were identified in the subsurface soil samples at the Dolly Sluice Delta: sluiced overburden and Kuskowim River alluvium. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for the Dolly Sluice and Delta subsurface soil are presented in Table 4-27. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Dolly Sluice and Delta is presented in Table C-12, Appendix C.

4.3.5.1 Inorganic Elements**Sluiced Overburden**

Sluiced overburden occurs from approximately ground surface to 10 to 12 feet bgs in the Dolly Sluice Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the sluiced overburden in the subsurface of the Dolly Sluice Delta.

The following inorganic elements were detected in at least one of the sluiced overburden subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, barium, beryllium, copper, mercury, selenium, thallium, and zinc.

Kuskowim River Alluvium

Kuskowim River alluvium occurs from approximately 10 to 12 feet bgs to the total depth of each borehole in the Dolly Sluice Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the Kuskowim River alluvium in the subsurface of the Dolly Sluice Delta.

The following inorganic elements were detected in at least one of the Kuskokwim River alluvium subsurface soil samples at concentrations above background subsurface soil values: arsenic, chromium, and thallium.

- Generally, the highest concentrations of antimony, arsenic, and mercury are in the sluiced overburden compared to the Kuskokwim River alluvium.
- Concentrations of inorganic elements do not vary much with depth.
- The depth of inorganic element contamination extends throughout sluiced overburden until Kuskokwim River alluvium has concentrations of inorganic elements below background values. The depth of inorganic element contamination in the subsurface soils has been defined at all soil boring locations and is approximately 12 to 14 feet bgs.

4.3.6 Rice Sluice and Delta

Two soil types, as defined in Chapter 3, were identified in the subsurface soil samples at the Rice Sluice Delta: sluiced overburden and Kuskowim River alluvium. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for the Rice Sluice and Delta subsurface soil are presented in Table 4-29. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Rice Sluice and Delta are presented in Table C-13, Appendix C.

4.3.6.1 Inorganic Elements

Sluiced Overburden

Sluiced overburden occurs from approximately ground surface to 12 feet bgs in the Rice Sluice Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the sluiced overburden in the subsurface of the Rice Sluice Delta.

The following inorganic elements were detected in at least one of the sluiced overburden subsurface soil samples at concentrations above background subsurface soil values: antimony, arsenic, beryllium, chromium, cobalt, lead, mercury, thallium, vanadium, and zinc.

Kuskokwim River Alluvium

Kuskokwim River alluvium occurs from approximately 12 feet bgs to the total depth of each borehole in the Rice Sluice Delta. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the Kuskokwim River alluvium in the subsurface of the Rice Sluice Delta.

The following inorganic elements were detected in at least one of the Kuskokwim River alluvium subsurface soil samples at concentrations above background subsurface soil values: chromium, thallium, and vanadium.

- Generally, the highest concentrations of antimony, arsenic, and mercury are in the sluiced overburden compared to the Kuskokwim River alluvium.

- Concentrations of inorganic elements do not vary much with depth.
- The depth of inorganic element contamination extends throughout sluiced overburden until Kuskokwim River alluvium has concentrations of inorganic elements below background values. The depth of inorganic element contamination in the subsurface soils has been defined at all soil boring locations and is approximately 12 to 14 feet bgs.

4.3.7 Surface Mined Area

Three soil types, as defined in Chapter 3, were identified in the subsurface soil samples in the Surface Mined Area: native/disturbed native, native/disturbed native (loess), and bedrock/weathered bedrock. Detailed descriptions of these soil types are provided in Chapter 3. Laboratory analytical data for the Surface Mined Area subsurface soil are presented in Table 4-29. Detailed information on the nature and extent of antimony, arsenic, and mercury in the subsurface soil in the Surface Mined Area is presented in Table C-14, Appendix C.

4.3.7.1 Inorganic Elements

Native/Disturbed Native Soil

Native/disturbed native soil occurs from approximately ground surface to 4 feet bgs in the Surface Mined Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil in the subsurface of the Surface Mined Area.

The following inorganic elements were detected in at least one of the native/disturbed native subsurface soil samples at concentrations above background subsurface soil values: arsenic, beryllium, mercury, and thallium.

Native/Disturbed Native (Loess) Soil

Native/disturbed native (loess) soil occurs from approximately ground surface to 12 feet bgs in the Surface Mined Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the native/disturbed native soil in the subsurface of the Surface Mined Area.

None of the inorganic elements of concern were detected in the native/disturbed native (loess) subsurface soil samples at concentrations above background subsurface soil values.

Bedrock/Weather Bedrock

The top of bedrock/weathered bedrock occurs from approximately 0.5 feet bgs to 12 feet bgs in the Surface Mined Area. Red porous rock and/or rock with a red oxidized rind, vitreous material, and mineralized rock were not identified in the bedrock/weathered bedrock in the subsurface of the Surface Mined Area.

The following inorganic elements were detected in at least one of the bedrock/weathered bedrock subsurface soil samples at concentrations above back-

ground subsurface soil values: antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, selenium, thallium, and zinc.

- Generally, the highest concentrations of antimony, arsenic, and mercury are in bedrock/weathered bedrock and the lowest concentrations are in the native/disturbed native (loess).
- At locations MP41 and SM10, the depth of inorganic element contamination extends throughout subsurface soils until contacting bedrock/weathered bedrock 2 to 8 feet bgs.
- At location SM11, inorganic element concentration increase with depth. The depth of inorganic element contamination is from 8 to 12 feet bgs, at which point bedrock/weathered bedrock was encountered.
- The depth of inorganic element contamination in the subsurface soils has been defined at all soil boring locations.
- At location SM11, only bedrock/weathered bedrock was encountered.

4.4 Groundwater

The results of the groundwater samples are presented in Table 4-30. Selected sample results are illustrated in Figures 4-9 through 4-20 (includes total and dissolved antimony, arsenic, and mercury in 2010 and total and dissolved antimony, arsenic, and mercury in 2011).

4.4.1 Total Inorganic Elements

The following inorganic elements were detected in at least one of the 2010 or 2011 groundwater samples at concentrations above total inorganics background values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

- Concentrations of total antimony and arsenic are highest in the Post-1955 Main Processing Area.
- An unusually high concentration of total mercury was detected in monitoring well MW24; however, this same monitoring well did not contain a relatively high dissolved mercury concentration.
- Concentrations of total antimony, arsenic, and mercury in the sentinel wells, MW32 and MW33, are above background values and are within the range of concentrations present in the Main Processing Area wells, although below the highest concentrations observed in the Main Processing Area.

4.4.2 Dissolved Inorganic Elements

The following inorganic elements were detected in at least one of the 2010 or 2011 groundwater samples at concentrations above dissolved inorganics background values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

4. Nature and Extent of Contamination

- Concentrations of dissolved antimony, arsenic, and mercury are highest in the Post-1955 Main Processing Area.
- Concentrations of dissolved antimony are below background values in areas upgradient from the Main Processing Area.
- Concentrations of dissolved antimony, arsenic, and mercury in the sentinel wells, MW32 and MW33, are above background values and are within the range of concentrations present in the Main Processing Area wells, although below the highest concentrations observed in the Main Processing Area.

4.4.3 Methylmercury

In the 2010 samples, methylmercury was detected above the background value at only monitoring well MW01. Monitoring wells MW03, MW04, and MW06 contained methylmercury at concentrations less than the background value or were not detected. In the 2011 samples, methylmercury was detected above the background value at monitoring wells (MW01, MW14, MW15, MW16, MW17, MW22, MW24, MW26, and MW28); all other 2011 samples contained concentrations of methylmercury below the background value.

The highest concentrations were detected at monitoring wells MW01 and MW22. All monitoring wells with concentrations of methylmercury above the background value were in the Main Processing Area. Other monitoring wells in the Main Processing Area exhibited concentrations of methylmercury below the laboratory detection limit. The extent of methylmercury contamination in groundwater appears to be confined to the Main Processing Area.

4.4.4 Organic Compounds

In the 2010 groundwater samples, organic compounds were detected in all of the monitoring wells where SVOCs, GRO, DRO, and RRO were analyzed. In the 2011 samples, organic compounds were detected in nine of the 10 groundwater samples analyzed for SVOCs, GRO, DRO, and RRO analyses. Toluene was detected in the groundwater at monitoring wells MW01 and MW14. Bis(2-ethylhexyl) phthalate was detected in the groundwater at monitoring well MW04. DRO were detected in the groundwater at monitoring wells MW01, MW04, MW14, MW19, MW20, MW21, MW22, MW32, and MW33. RRO were detected in the groundwater at monitoring wells MW04, MW14, MW19, and MW21. Only groundwater at monitoring well MW18 did not have positive detections for all organic compounds analyzed.

- Concentrations of organic compounds in groundwater above the background values are present in the Main Processing Area and in the sentinel wells MW32 and MW33, located at the Red Devil Creek Delta.

4.5 Red Devil Creek Surface Water

The results of the Red Devil Creek surface water samples are presented in Table 4-31. Selected sample results are illustrated in Figures 4-21 through 4-26.

4.5.1 Total Inorganic Elements

The following inorganic elements were detected in at least one of the 2010 or 2011 surface water samples at concentrations above total inorganics background values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, thallium, and zinc.

Total beryllium, cadmium, chromium, cobalt, copper, lead, silver, and thallium were generally detected at concentrations close to their respective background values in samples collected in 2010 and 2011. There is no discernible spatial trend of the concentrations of these elements in Red Devil Creek surface water.

Total barium, manganese, and nickel concentrations are elevated above their respective background values within the Main Processing Area down to the mouth of Red Devil Creek. Sample RD05SW contained significantly higher barium, manganese, and nickel concentrations than other locations in samples collected in 2010 and 2011. This sample location is at the seep in the Main Processing Area.

Total zinc was not detected in any of the 2010 surface water samples. However, in 2011, total zinc was detected at concentrations above the background value at two locations: the seep in the Main Processing Area (RD05SW) and a location on the upper end of the Main Processing Area (RD11SW).

Total antimony, arsenic, and mercury are the most highly elevated contaminants above background values in the Red Devil Creek surface water samples. Figure 4-21 indicates the following:

- Total antimony was detected below the background value between the reservoir dam and the upper end of the Main Processing Area (11RD11SW) in 2010 and 2011. Starting at the upper end of the Main Processing area, sample results from both 2010 and 2011 indicate antimony is significantly elevated above the background value in Red Devil Creek surface water down to the mouth of the creek.
- Total arsenic was detected below the background value between the reservoir dam and the upper end of the Main Processing Area (11RD11SW) in 2010 and 2011. Starting at the upper end of the Main Processing Area, sample results from both 2010 and 2011 indicate that arsenic is significantly elevated above the background level in Red Devil Creek surface water down to the mouth of the creek.
- Total mercury was detected below the background value between the reservoir dam and the upper end of the Main Processing Area (11RD11SW) in 2010. Samples collected in 2011 between the reservoir dam and the Main Processing contained total mercury above the background value. Starting at the upper end of the Main Processing Area, sample results from both 2010 and 2011 indicate that mercury is significantly elevated above the background value in Red Devil Creek surface water down to the mouth of the creek.

- Contamination in Red Devil Creek surface water from total inorganic elements extends from the reservoir dam to the creek's mouth at the Kuskokwim River.

4.5.2 Dissolved Inorganic Elements

The following inorganic elements were detected in at least one of the 2010 or 2011 surface water samples at concentrations above dissolved inorganics background values: antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

Dissolved beryllium, chromium, copper, lead, selenium, silver, and thallium, vanadium, and zinc were generally detected at concentrations close to their respective background values in samples collected in 2010 and 2011. There is no discernible spatial trend of the concentrations of these dissolved elements in Red Devil Creek surface water.

Dissolved barium, cobalt, manganese, and nickel concentrations are elevated above their respective background values within the Main Processing Area down to the mouth of Red Devil Creek. Sample RD05SW contained significantly higher barium, cobalt, manganese, and nickel concentrations than other locations in samples collected in 2010 and 2011. This sample location is at the seep in the Main Processing Area.

Dissolved concentrations of arsenic were comparable to the concentrations of total arsenic at the same sample location. Dissolved concentrations of antimony were mostly comparable to the total antimony concentrations, with two exceptions: samples 11RD05SW and 10RD05SW, located at the seep in the Main Processing Area. In these two samples, dissolved antimony concentrations were approximately one order of magnitude less than the total antimony concentration. Dissolved mercury concentrations, in general, were detected at approximately one order of magnitude less than the total mercury concentrations. This trend is most prevalent in areas of the site (Main Processing Area) where mercury concentrations in surface water are significantly elevated above the background value. Further interpretation of these findings is discussed in Chapter 5.

Dissolved antimony, arsenic, and mercury are the most highly elevated contaminants above background values in the Red Devil Creek surface water samples.

Figure 4-22 indicates the following:

- Dissolved antimony was detected below the background value between the reservoir dam and the upper end of the Main Processing Area (RD04SW) in 2010, but it was detected slightly above the background value at these locations in 2011. Starting at the upper end of the Main Processing area at station RD04SW, sample results from both 2010 and 2011 indicate dissolved antimony is significantly elevated above the

- background value in Red Devil Creek surface water down to the mouth of the creek.
- Dissolved arsenic was detected at or very near the background value between the reservoir dam and the upper end of the Main Processing Area (RD04SW) in 2010 and 2011. Starting at the upper end of the Main Processing area, sample results from both 2010 and 2011 indicate that dissolved arsenic is significantly elevated above the background value in Red Devil Creek surface water down to the mouth of the creek.
 - Dissolved mercury was detected below the background value between the reservoir dam and the central portion of the Main Processing Area (RD06SW) in 2010. In 2011, dissolved mercury was detected above the background value, starting at the upper end of the Main Processing Area (RD04SW) down to the mouth of Red Devil Creek. Sample results from both 2010 and 2011 indicate dissolved mercury is significantly elevated above background in Red Devil Creek surface water from the Main Processing Area down to the mouth of the creek.
 - Contamination in Red Devil Creek surface water from dissolved inorganic elements extends from the reservoir dam to the creek's mouth at the Kuskokwim River.

4.5.3 Methylmercury

In the 2010 samples, methylmercury was detected above the background value at all of the Red Devil Creek surface water stations. In the 2011 samples, methylmercury was detected at the background value at three stations (RD02SW, RD04SW, and RD10SW); all other samples contained concentrations of methylmercury above the background value.

The highest concentrations were detected at the seep in the Main Processing Area (RD05SW) in both 2010 and 2011. The extent of methylmercury contamination in Red Devil Creek surface water reaches from the reservoir dam to the mouth of Red Devil Creek.

4.5.4 Organic Compounds

Five organic compounds were detected in at least one of the 2010 and 2011 Red Devil Creek surface water samples submitted for SVOCs analyses. All of the positively detected organic compound concentrations were very near the method detection limits. The highest detected concentrations of organic compounds were found in the 2010 surface water samples at stations RD05SW (1-methylnaphthalene and 2-methylnaphthalene), and RD03SW and RD09SW (unknown hydrocarbon).

4.6 Red Devil Creek Sediment

The results of the Red Devil Creek sediment samples are presented in Table 4-32. Selected sample results are illustrated in Figure 4-27.

4.6.1 Inorganic Elements

The following inorganic elements were detected in at least one of the sediment samples at concentrations above background values: antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, vanadium, and zinc.

Beryllium, chromium, cobalt, copper, lead, vanadium, and zinc were generally detected at concentrations close to their respective background values. There is no discernible spatial trend of the concentrations of these elements in Red Devil Creek sediments.

Barium concentrations are elevated above the background value within the Main Processing Area down to the mouth of Red Devil Creek. Two samples, 10RD05SD and 11RD12SD, contained significantly higher barium concentrations than other locations. These samples are at the seep location in the Main Processing Area.

Manganese concentrations are elevated above the background value within the Main Processing Area; however, there is no spatial trend of manganese concentrations in Red Devil Creek sediments.

Similar to barium, nickel was detected above the background value in the Main Processing Area down to the mouth of Red Devil Creek. Nickel was significantly elevated at the seep location (10RD05SD); however, there is no additional spatial trend of nickel concentrations in Red Devil Creek sediments.

Total antimony, arsenic, and mercury were the most highly elevated contaminants above background values in the Red Devil Creek sediment samples. Figure 4-27 indicates the following:

- Antimony concentrations are undetected between the reservoir dam and the upper end of the Main Processing Area (11RD11SD). Starting at the upper end of the Main Processing Area, antimony is significantly elevated above background in Red Devil Creek sediments down to the mouth of the creek.
- Arsenic concentrations between the reservoir dam and the upper end of the Main Processing Area are below the background value. Starting at the upper end of the Main Processing Area (10RD04SD), arsenic is significantly elevated above background in Red Devil Creek sediments down to the mouth of the creek.
- Mercury concentrations are above the background value at all locations downstream of the reservoir dam. Mercury concentrations are significantly elevated above the background value in Red Devil Creek sediments starting at the upper end of the Main Processing Area down to the mouth of the creek.

- Contamination in Red Devil Creek sediments from inorganic elements extends from the reservoir dam to the creek's mouth at the Kuskokwim River.

4.6.2 Methylmercury

Methylmercury was detected above the background value in all but one of the Red Devil Creek sediment samples (11RD10SD). The highest concentrations were detected at the reservoir dam area (10RD02SD) and near the seep in the Main Processing Area (10RD05SD). The extent of methylmercury contamination reaches from the reservoir dam to the mouth of Red Devil Creek.

4.6.3 Organic Compounds

Twelve organic compounds were detected in two Red Devil Creek sediment samples submitted for SVOC analyses (10RD10SD and 11RD11SD). These samples are adjacent to the Gravel Pad area in the Post-1955 Main Processing Area, and the detected organic compounds may represent migration of contaminants from historic releases of chemicals and/or petroleum at the Gravel Pad. All of the organic compounds were detected at concentrations very near the compound method detection limits.

4.7 Kuskokwim River Sediment

The results of the Kuskokwim River sediment samples are presented in Table 4-33. Selected sample results are illustrated in Figures 4-28 and 4-29.

4.7.1 Inorganic Elements

The following inorganic elements were detected in at least one of the sediment samples at concentrations above background values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

Of these inorganic elements, the following were generally detected at concentrations close to their respective background values and do not show any discernible spatial trends: barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc.

Manganese was detected above the background value in eight samples. The samples collected at shoreline sediment station KR15SD and off-shore sediment station KR41SD contained manganese at concentrations significantly elevated above the background value.

Selenium was detected above the background value in two samples. The sample collected at off-shore sediment station KR39SD contained selenium at a concentration significantly elevated above the background value.

Silver was detected above the background value in 11 samples. While most of these samples contained silver concentrations very close to the background value,

4. Nature and Extent of Contamination

the sample collected at off-shore sediment station KR39SD contained silver at a concentration significantly elevated above the background value.

Thallium was detected above the background value in 10 samples. While most of these samples contained thallium concentrations very close to the background value, the samples collected at off-shore sediment stations KR28SD and KR30SD (near the mouth of Red Devil Creek) contained thallium at concentrations significantly elevated above the background value.

Similar to Red Devil Creek sediments, antimony, arsenic, and mercury were the most highly elevated contaminants above background values in the Kuskokwim River sediment samples. Figure 4-28 indicates the following:

- Antimony was detected above the background value in all the Kuskokwim River sediment samples except one (KR45SD). The sample results for antimony do not show a concentration gradient in the downstream direction from the mouth of Red Devil Creek or in the cross-river direction.
- Arsenic was detected above the background value in all the Kuskokwim River sediment samples except three (KR14SD, KR44SD, and KR45SD). In general, arsenic concentrations decrease in the down-river direction from the mouth of Red Devil Creek. The sample results do not show a concentration gradient in the cross-river direction.
- Mercury was detected above the background value in all the Kuskokwim River sediment samples. The sample results for mercury do not show a concentration gradient in the downstream direction from the mouth of Red Devil Creek or in the cross-river direction.
- Contamination in Kuskokwim River sediments from inorganic elements extends downriver from the mouth of Red Devil Creek to the most downriver sample stations. The extent of inorganic element contamination in river sediments has not been defined by RI sampling in either the downriver or cross-river direction.

4.7.2 Methylmercury

Methylmercury was detected above the background value in all but one (KR07SD) of the Kuskokwim River sediment samples. The highest concentrations were detected near the mouth of Red Devil Creek (KR15SD and KR28SD), just downstream of the mouth of Red Devil Creek (KR16SD and KR28SD), and at a location in the sample transect downstream of the Dolly Sluice delta (KR40SD).

As illustrated in Figure 4-29, the methylmercury concentrations generally decrease in the downstream direction from the mouth of Red Devil Creek, with the single exception of sample KR40SD. The extent of methylmercury contamination in Kuskokwim River sediments reaches from the mouth of Red Devil Creek to the sample stations located furthest downriver. The extent of methylmercury contam-

ination in river sediments has not been defined by RI sampling in either the down-river or cross-river direction.

4.8 Vegetation

Analytical results for blueberry leaves and stems, green alder bark, white spruce needles, and horsetail pond vegetation are presented in this section. As noted in Section 2.7, insufficient amounts of blueberry fruit were found for sampling purposes during the 2011 RI field activities.

4.8.1 Blueberry Leaves and Stems

The results of the blueberry leaves and stems samples are presented in Table 4-34. Selected sample results are illustrated in Figure 4-30.

The following inorganic elements were detected in at least one of the blueberry leaves and stems samples at concentrations above background values: barium, cadmium, chromium, manganese, and nickel.

Antimony, arsenic, mercury, and methylmercury were not detected above background values in these samples. Sample SM24BL contained the most inorganic elements detected above background values. This sample is located along the ore trend in the surface mined area.

4.8.2 Green Alder Bark

The results of the green alder bark samples are presented in Table 4-35. Selected sample results are illustrated in Figure 4-31.

The following inorganic elements were detected in at least one of the green alder bark samples at concentrations above background values: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, thallium, vanadium, and zinc.

The highest detected concentration of antimony in these samples was in sample 11MP27GA, located adjacent to tailings on the Pre-1955 side of the Main Processing Area. The highest detected concentrations of arsenic and mercury were in sample 11MP34GA, located in Settling Pond #2.

Methylmercury was not detected in any of the samples.

4.8.3 White Spruce Needles

The results of the white spruce needles samples are presented in Table 4-36. Selected sample results are illustrated in Figure 4-32.

The following inorganic elements were detected in at least one of the white spruce needles samples at concentrations above background values: antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, thallium, and vanadium.

The highest concentrations of antimony, arsenic, and mercury were in sample 11MP38WS, located near Red Devil Creek downhill from Settling Ponds #1 and #2.

Methylmercury was not detected in any of the samples.

4.8.4 Horsetail Pond Vegetation

The results of the horsetail pond vegetation samples are presented in Table 4-37. Selected sample results are illustrated in Figure 4-33.

The following inorganic elements were detected in at least one of the horsetail pond vegetation samples at concentrations above background values: antimony, arsenic, cadmium, cobalt, copper, lead, mercury, nickel, selenium, thallium, and zinc.

The highest concentrations of antimony and arsenic detected in vegetation at the site were in the horsetail samples. The horsetail samples also contained the only positive detection of methylmercury in vegetation at the site. The highest concentrations of antimony and arsenic were in sample PM86PV located in Settling Pond #1. The highest concentration of mercury was in sample MP85PV located in Settling Pond #1.

Table 4-1 Background Surface Soil Results														
Analyte	Units	10RD10SS	10RD11SS	10RD12SS	10RD13SS	10RD14SS	10RD15SS	10RD16SS	10RD17SS	10RD18SS	10RD19SS	10UP01SS	10UP02SS	10UP03SS
Total Inorganic Elements														
Aluminum	mg/kg	9470	2.08 J	14500	14100	14300	14700	13400	14000	15600	16700	18300	14400	17400
Antimony	mg/kg	30 J	14 J	0.69 UJ	0.8 UJ	0.7 UJ	0.65 UJ	8 J	0.62 UJ	0.8 UJ	0.76 UJ	0.58 UJ	0.8 U	0.8 UJ
Arsenic	mg/kg	220	41	25	20	13	8	0.47 U	0.47 U	40	12	11	10	0.6 U
Barium	mg/kg	135	172	231	266	148	120	131	129	220	188	78.4	63.5	145
Beryllium	mg/kg	0.5	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.5	0.5	0.3	0.2	0.3
Cadmium	mg/kg	0.7	0.4	0.4	0.041 U	0.034 U	0.032 U	0.03 U	0.3	0.4	0.037 U	0.028 U	0.039 U	0.039 U
Calcium	mg/kg	2040	6380	6590	10100	4620	2320	3040	2560	6490	3210	972	620	4090
Chromium	mg/kg	20	28.4	22.5	21	21.6	21.8	20.2	21.7	24	26.3	23.9	18	23
Cobalt	mg/kg	16.7	8.5	11.6	8.2	7.4	6.3	6.5	6.7	10.8	8.5	5.6	3.4	5.9
Copper	mg/kg	39.3	17.9	17.9	18.8	16.5	15.3	14.7	17.3	22.8	23.7	18.3	11.6	12.8
Iron	mg/kg	31700	20600	23100	16700	17100	20300	15000	15600	26300	19300	22800	20300	18400
Lead	mg/kg	12	7	7	6	6	6	5	6	9	8	9	7	9
Magnesium	mg/kg	2230	3720	3750	3420	3800	3610	3470	3580	3760	3870	2980	1520	3200
Manganese	mg/kg	570	321	816	465	276	144	135	139	251	148	157	112	118
Mercury	mg/kg	6.4	6.6	0.79	0.6	0.96	0.13	0.25	0.14	1.57	1.86	0.18 J	0.23	0.19
Nickel	mg/kg	50 J	23 J	26	24	20	19	19	20	28	25	18	9	17
Potassium	mg/kg	990	790	860	790	740	680	700	740	1030	800	650	470	570
Selenium	mg/kg	1.7 U	1 U	0.99 U	1.2 U	1.01 U	0.94 U	0.89 U	0.89 U	1.2 U	1.09 U	0.84 U	1.2 U	1.2 U
Silver	mg/kg	0.113 U	0.068 U	0.067 U	0.082 U	0.069 U	0.064 U	0.06 U	0.06 U	0.08 U	0.074 U	0.057 U	0.078 U	0.079 U
Sodium	mg/kg	42.6 U	90	25.4 U	30.8 U	90	90	90	90	100	100	70	29.5 U	100
Thallium	mg/kg	0.7 U	0.43 U	0.42 U	0.5 U	0.43 U	0.4 U	0.38 U	0.38 U	0.5 U	0.46 U	0.35 U	0.5 U	0.5 U
Vanadium	mg/kg	37.3	41	36.6	30.8	34.7	37.6	32.9	35.4	39.8	41.6	44.8	35.1	43.7
Zinc	mg/kg	100	48	61	39	53	49	49	51	67	58	45	23	47
Arsenic Speciation (mg/kg)														
Arsenate	mg/kg		46.5 J	35.1 J						10.2 J	15.9 J			
Arsenite	mg/kg		1.68 J	0.971 J						3.91 J	0.976 J			
Inorganic Arsenic	mg/kg		48.2 J	36.1 J						14.1 J	16.9 J			
Arsenic Bioavailability														
Arsenic (IVBA)	mg/L													
Arsenic, total (3050)	mg/kg													
Arsenic IVBA% (In Vitro RBA)	%													
Total Solids	%		56.44	58.17						53.21	59.53			
Mercury Selective Sequential Extraction														
Hg(F0)	ng/g		5.68 U	5.29 U						5.84 U	4.11 U			
Hg(F1)	ng/g		10.8	2.2						1.65	2.59			
Hg(F2)	ng/g		56.9	1.25						0.63 B	0.85			
Hg(F3)	ng/g		4140 J	485 J						482 J	1210 J			
Hg(F4)	ng/g		259	21.1						23.7	33.3			
Hg(F5)	ng/g		2000	24.8						65	22.1			
Hg(F6)	ng/g		3.18 U	3.38 U						689 J	3.04 U			

Table 4-1 Background Surface Soil Results		Units	10UP04SS	10UP05SS	10UP06SS	10UP07SS	10UP08SS	10UP09SS	10UP10SS	11RD18SS	11UP09SS
Analyte											
Total Inorganic Elements											
Aluminum	mg/kg	14100	15900	17600	15300	19600	17500	19500			
Antimony	mg/kg	0.76 UJ	0.63 UJ	0.6 UJ	0.61 UJ	1.3 UJ	0.56 UJ	0.59 UJ			
Arsenic	mg/kg	0.58 U	8	11	0.46 U	20	23	16			
Barium	mg/kg	115	95.6	76.5	69.4	105	94.5	101			
Beryllium	mg/kg	0.3	0.3	0.3	0.3	0.4	0.4	0.3			
Cadmium	mg/kg	0.037 U	0.031 U	0.029 U	0.03 U	0.063 U	0.3	0.029 U			
Calcium	mg/kg	1150	1040	863	551	1080	796	1010			
Chromium	mg/kg	19.2	21.4	24	19.1	30	26.7	27.6			
Cobalt	mg/kg	5.1	6.5	5.7	5.6	11.9	7.7	6.5			
Copper	mg/kg	9.4	12.2	13.4	13.2	17	20.7	13.7			
Iron	mg/kg	15500	20300	25300	17900	32400	33100	26600			
Lead	mg/kg	8	8	9	7	10	9	9			
Magnesium	mg/kg	2140	2920	2560	2130	3570	2870	3190			
Manganese	mg/kg	106	142	139	182	455	268	198			
Mercury	mg/kg	0.2	0.19	0.23	0.15	0.32	0.25	0.22			
Nickel	mg/kg	14	16	16	14	24	23	19			
Potassium	mg/kg	550	560	570	440	800	760	730			
Selenium	mg/kg	1.1 U	0.9 U	0.86 U	0.88 U	1.9 U	0.8 U	0.85 U			
Silver	mg/kg	0.074 U	0.061 U	0.059 U	0.059 U	0.127 U	0.054 U	0.058 U			
Sodium	mg/kg	28.1 U	80	90	22.4 U	47.8 U	20.5 U	80			
Thallium	mg/kg	0.47 U	0.38 U	0.37 U	0.37 U	0.8 U	0.34 U	0.36 U			
Vanadium	mg/kg	34	38.2	45.8	35.6	62.9	57.8	57.6			
Zinc	mg/kg	39	45	41	33	58	56	45			
Arsenic Speciation (mg/kg)											
Arsenate	mg/kg						16.9 J	14.9 J			
Arsenite	mg/kg						3.637	0.408 J			
Inorganic Arsenic	mg/kg						36.38	15.3 J			
Arsenic Bioavailability											
Arsenic (IVBA)	mg/L								0.0725	0.2194 J	
Arsenic, total (3050)	mg/kg								20.8	32.2	
Arsenic IVBA% (In Vitro RBA)	%								34.9 J	68.1 J	
Total Solids	%						67.95	69.47	54	51	
Mercury Selective Sequential Extraction											
Hg(F0)	ng/g						4.15 U	4.53 U			
Hg(F1)	ng/g						1.26	0.54 B			
Hg(F2)	ng/g						4.11	1.62			
Hg(F3)	ng/g						207 J	116 J			
Hg(F4)	ng/g						12.9	9.66			
Hg(F5)	ng/g						9.72 M	6.76			
Hg(F6)	ng/g						2.84 U	2.53 U			

Key

% = percent

IVBA = in-vitro bioaccessibility

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

RBA = relative bioavailability

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-2 Background Statistics for Surface Soil

Analyte	Sample Size	Number Detections	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Average Detected Concentration (mg/kg)	Distribution	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	18	18	13400	19600	15961	Normal	19563	95% UPL
Antimony	18	1	8	8	NA	NA	8	Maximum Detected Concentration
Arsenic	18	13	8	40	16.65	Gamma	28.91	95% KM UPL
Barium	18	18	63.5	266	132.1	Normal	237.5	95% UPL
Beryllium	18	18	0.2	0.5	0.356	Non-Parametric	0.5	95% UPL
Cadmium	18	4	0.3	0.4	0.363	Normal	0.4	Maximum Detected Concentration
Calcium	18	18	551	10100	2863	Gamma	8595	95% WH Approx. Gamma UPL
Chromium	18	18	18	30	22.93	Normal	28.74	95% UPL
Cobalt	18	18	3.4	11.9	7.267	Normal	11.36	95% UPL
Copper	18	18	9.4	23.7	16.11	Normal	23.13	95% UPL
Iron	18	18	15000	32500	21422	Normal	31046	95% UPL
Lead	18	18	5	10	7.694	Normal	10.35	95% UPL
Magnesium	18	18	1520	3870	31399	Gamma	4589	95% WH Approx. Gamma UPL
Manganese	18	18	106	816	238.8	Non-Parametric	816	95% UPL
Mercury	18	18	0.13	1.86	0.478	Non-Parametric	1.86	95% UPL
Nickel	18	18	9	28	19.61	Normal	28.45	95% UPL
Potassium	18	18	440	1030	692.5	Normal	957	95% UPL
Selenium	18	0	NA	NA	NA	NA	NA	No Detections
Silver	18	0	NA	NA	NA	NA	NA	No Detections
Sodium	18	11	70	100	89.09	Normal	102.5	95% KM UPL
Thallium	18	0	NA	NA	NA	NA	NA	No Detections
Vanadium	18	18	30.8	62.9	41.35	Gamma	58.34	95% WH Approx. Gamma UPL
Zinc	18	18	23	67	47.83	Normal	66.98	95% UPL

Key:
KM Kaplan Meier
 mg/kg milligrams per kilogram
 NA Not Available
 Background > Max
 UPL upper prediction limit
 WH Wilson Hilferty

Table 4-3 Background Subsurface Soil Results		Units	11RD13SB04	11RD13SB06	11RD13SB10	11RD13SB14	11RD13SB18	11UP11SB04	11UP11SB06	11UP11SB08
Analyte										
Total Inorganic Elements										
Aluminum	mg/kg	15300	4890 J	1520	12700			4980 J	14800	7880
Antimony	mg/kg	2.81 J	6.25 J	52.2 J	3.91 J			20 U	0.264 J	0.591 J
Arsenic	mg/kg	6.01	8.63	20 UJ	12.8			7.21 J	6.95 J	7.82 J
Barium	mg/kg	178	65.2 J	32.8 J	156			67.3 J	178 J	132 J
Beryllium	mg/kg	0.427	0.42	0.2 U	0.357			0.415	0.421	0.484
Cadmium	mg/kg	0.203	0.8 U	0.8 UJ	0.274			1.3 J	0.231 J	0.5 J
Calcium	mg/kg	1630 J	961 J	4640	2510 J			646 J	2010 J	1750 J
Chromium	mg/kg	23.4 J	7.1 J	3.8 J	18.9			7.4 J	23.3 J	14.6 J
Cobalt	mg/kg	9.71	2 U	6 J	7.21			9.91	6.73	19.1
Copper	mg/kg	23.9 J	7.4 J	5 U	20.1 J			6.8 J	28.2 J	59.7 J
Iron	mg/kg	31500	6100 J	1580	24300			4630	25600	39300
Lead	mg/kg	9.75 J	9.34 J	8 U	7.46 J			8.06	9.72	14.3
Magnesium	mg/kg	4880 J	718	2180	4370 J			509	4230 J	2860 J
Manganese	mg/kg	388	99	416	287			64.3	951	739
Mercury	mg/kg	0.367 J	0.4 U	0.4 U	3.92			0.4 U	0.234	0.498
Nickel	mg/kg	25.3 J	8.1 J	16.3 J	22.3			4.3 J	27.4 J	52.2 J
Potassium	mg/kg	576 J	621	536	609 J			917	939	1080
Selenium	mg/kg	0.16	30 U	30 UJ	0.37			30 U	0.09 J	0.34
Silver	mg/kg	0.123	10.5 J	9.4 J	0.138			5 U	0.167	0.319
Sodium	mg/kg	48.4	8170 J	8090 J	77.8			92.2 J	79.1 J	48.1 J
Thallium	mg/kg	0.081	30 U	30 U	0.076			30 U	0.087	0.088
Vanadium	mg/kg	37.6	36.2	5.5 J	29.7			7.3 J	30.4	26.4
Zinc	mg/kg	56.2	66.7	27.9 J	53.7			74.2 J	72.5 J	106 J
Low Level Mercury										
Mercury	ng/g							123 J		
Arsenic Speciation										
Arsenate	mg/kg	8.62	3.05 U		1.52 U	2.76 J		9.52 J		
Arsenite	mg/kg	1.75	5.69		3.8	3.84		0.19 J		
Inorganic Arsenic	mg/kg	10.4	6.8		4.84	6.6		9.7		
Mercury Selective Sequential Extraction										
Hg(F1)	ng/g							0.24 UJ		
Hg(F2)	ng/g							0.24 J		
Hg(F3)	ng/g							40.8 J		
Hg(F4)	ng/g							20 J		
Hg(F5)	ng/g							7.41 J		

Key

% = percent

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-4 Background Statistics for Subsurface Soil

Analyte	Sample Size	Number Detections	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Average Detected Concentration(mg/kg)	Distribution	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	6	6	7880	16300	13446	NA	16300	Maximum Detection
Antimony	6	6	0.264	6.25	2.35	NA	6.25	Maximum Detection
Arsenic	6	6	6.01	12.8	8.24	NA	12.8	Maximum Detection
Barium	6	6	132	200	170	NA	200	Maximum Detection
Beryllium	6	6	0.357	0.484	0.421	NA	0.484	Maximum Detection
Cadmium	6	6	0.203	0.614	0.365	NA	0.614	Maximum Detection
Calcium	6	6	1630	2740	2153	NA	2740	Maximum Detection
Chromium	6	6	14.6	24.6	21.5	NA	24.6	Maximum Detection
Cobalt	6	6	6.73	19.1	10.51	NA	19.1	Maximum Detection
Copper	6	6	20.1	59.7	30.6	NA	59.7	Maximum Detection
Iron	6	6	24300	39300	30250	NA	39300	Maximum Detection
Lead	6	6	7.46	14.3	9.77	NA	14.3	Maximum Detection
Magnesium	6	6	2860	4910	4337	NA	4910	Maximum Detection
Manganese	6	6	287	1280	718	NA	1280	Maximum Detection
Mercury	6	6	0.22	3.92	0.921	NA	3.92	Maximum Detection
Nickel	6	6	22.3	52.2	32.5	NA	52.2	Maximum Detection
Potassium	6	6	576	1080	784	NA	1080	Maximum Detection
Selenium	6	5	0.09	0.52	0.296	NA	0.52	Maximum Detection
Silver	6	6	0.123	0.319	0.171	NA	0.319	Maximum Detection
Sodium	6	6	48.1	92.2	67.9	NA	92.2	Maximum Detection
Thallium	6	6	0.076	0.103	0.085	NA	0.103	Maximum Detection
Vanadium	6	6	26.4	38.4	33.1	NA	38.4	Maximum Detection
Zinc	6	6	53.7	106	71.55	NA	106	Maximum Detection

Key:

mg/kg milligrams per kilogram
NA Not Available

Table 4-5 Background Groundwater Results	Units	11RD13GW MW12	11UP11GW MW31
Analyte			
Total Inorganic Elements			
Aluminum	µg/L	63.2 J	405
Antimony	µg/L	0.505 J	0.098
Arsenic	µg/L	13.5	0.1 U
Barium	µg/L	83.3	11.1
Beryllium	µg/L	0.006 U	0.018 J
Cadmium	µg/L	0.005 U	0.017 J
Calcium	µg/L	20600	7730
Chromium	µg/L	0.33	4.95
Cobalt	µg/L	1.14	0.314
Copper	µg/L	0.28	0.48
Iron	µg/L	8990	777
Lead	µg/L	0.022	0.311
Magnesium	µg/L	11300	5390
Manganese	µg/L	1120	19.2
Nickel	µg/L	1.3	2.68
Potassium	µg/L	708	417 J
Selenium	µg/L	0.2 U	0.3 U
Silver	µg/L	0.004 U	0.016 J
Sodium	µg/L	2800	1560
Thallium	µg/L	0.005 U	0.009 J
Vanadium	µg/L	0.55	0.51
Zinc	µg/L	0.7	1.3
Total Low Level Mercury			
Mercury, Total	ng/L	54.1	58.4
Dissolved Inorganic Elements			
Aluminum, Dissolved	µg/L	8.3 J	8 J
Antimony, Dissolved	µg/L	0.522 J	0.027 J
Arsenic, Dissolved	µg/L	13.9	0.1 U
Barium, Dissolved	µg/L	87.7	4.05
Beryllium, Dissolved	µg/L	0.01 J	0.006 U
Cadmium, Dissolved	µg/L	0.006 J	0.008 J
Calcium, Dissolved	µg/L	20400	7620
Chromium, Dissolved	µg/L	0.36	1.43
Cobalt, Dissolved	µg/L	1.21	0.043
Copper, Dissolved	µg/L	0.34	0.13
Iron, Dissolved	µg/L	8760	7.5 J
Lead, Dissolved	µg/L	0.244	0.005 U
Magnesium, Dissolved	µg/L	11400	5410
Manganese, Dissolved	µg/L	1190	1.78
Nickel, Dissolved	µg/L	1.56	1.84
Potassium, Dissolved	µg/L	730	162 J
Selenium, Dissolved	µg/L	0.2 U	0.3 U
Silver, Dissolved	µg/L	0.004 J	0.004 U
Sodium, Dissolved	µg/L	2810	1500
Thallium, Dissolved	µg/L	0.005 U	0.005 U
Vanadium, Dissolved	µg/L	0.74	0.05 J
Zinc, Dissolved	µg/L	1.2	0.4 J

Table 4-5 Background Groundwater Results		Units	11RD13GW MW12	11UP11GW MW31
Analyte				
Dissolved Low Level Mercury				
Mercury, Dissolved	ng/L	1.14	0.7 J	
Arsenic Speciation				
Arsenate	µg/L	4.56 J	0.057	
Arsenite	µg/L	10.2 J	0.003 U	
Inorganic Arsenic	µg/L	14.7	0.061	
Methylmercury				
Methylmercury	ng/L	0.05 U	0.05 U	
Gasoline, Diesel and Residual Range Organics				
Diesel Range Organics	µg/L	20 J		
Residual Range Organics	µg/L	42 J		
General Chemistry				
Bicarbonate	mg/L	108	44.1	
Carbonate	mg/L	3 U	3 U	
Hydroxide	mg/L			
Chloride	mg/L	0.33 J	0.51	
Fluoride	mg/L	0.14 J	0.11 J	
Sulfate	mg/L	0.28 J	1.27	
Nitrate+Nitrite as Nitrogen	mg/L	0.009 U	0.073	
Total Dissolved Solids	mg/L	82	82	
Total Suspended Solids	mg/L	18.5	33.5	
Silicon	µg/L	9100	6490	
Silicon, Dissolved	µg/L	9160	5870	

Key

% percent

µg/L micrograms per liter

J Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/L milligrams per liter

ng/l nanograms per liter

U Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-6 Background Statistics for Groundwater Samples	Groundwater - Total						Groundwater - Dissolved					
	Analyte	11RD13GW (µg/L)	11UP11GW (µg/L)	Sample Size	Number Detections	Recommended Background Level (µg/L)	Background Rationale	11RD13GW (µg/L)	11UP11GW (µg/L)	Sample Size	Number Detections	Recommended Background Level (µg/L)
Aluminum	63.2 J	405	2	2	405	Maximum Detection	8.3 J	8 J	2	2	8.3 J	Maximum Detection
Antimony	0.505 J	0.098	2	2	0.505 J	Maximum Detection	0.522 J	0.027 J	2	2	0.522 J	Maximum Detection
Arsenic	13.5	ND	2	1	13.5	Maximum Detection	13.9	ND	2	1	13.9	Maximum Detection
Barium	83.3	11.1	2	2	83.3	Maximum Detection	87.7	4.05	2	2	87.7	Maximum Detection
Beryllium	ND	0.018 J	2	2	0.018 J	Maximum Detection	0.01 J	ND	2	0	0.01 J	Maximum Detection
Cadmium	ND	0.017 J	2	2	0.017 J	Maximum Detection	0.006 J	0.008 J	2	2	0.008 J	Maximum Detection
Calcium	20600	7730	2	2	20600	Maximum Detection	20400	7620	2	2	20400	Maximum Detection
Chromium	0.33	4.95	2	2	4.95	Maximum Detection	0.36	1.43	2	2	1.43	Maximum Detection
Cobalt	1.14	0.314	2	2	1.14	Maximum Detection	1.21	0.043	2	2	1.21	Maximum Detection
Copper	0.28	0.48	2	2	0.48	Maximum Detection	0.34	0.13	2	2	0.34	Maximum Detection
Iron	8990	777	2	2	8990	Maximum Detection	8760	7.5 J	2	1	8760	Maximum Detection
Lead	0.022	0.311	2	2	0.311	Maximum Detection	0.244	ND	2	1	0.244	Maximum Detection
Magnesium	11300	5390	2	2	11300	Maximum Detection	11400	5410	2	2	11400	Maximum Detection
Manganese	1120	19.2	2	2	1120	Maximum Detection	1190	1.78	2	2	1190	Maximum Detection
Mercury	54.1	0.0584	2	2	54.1	Maximum Detection	1.14	0.0007 J	2	2	1.14	Maximum Detection
Nickel	1.3	2.68	2	2	2.68	Maximum Detection	1.56	1.84	2	2	1.84	Maximum Detection
Potassium	708	417 J	2	2	708	Maximum Detection	730	162 J	2	2	730	Maximum Detection
Selenium	ND	ND	2	1	ND	Maximum Detection	ND	ND	2	1	ND	Maximum Detection
Silver	ND	0.016 J	2	2	0.016 J	Maximum Detection	0.004 J	ND	2	0	0.004 J	Maximum Detection
Sodium	2800	1560	2	2	2800	Maximum Detection	2810	1500	2	2	2810	Maximum Detection
Thallium	ND	0.009 J	2	1	0.009 J	Maximum Detection	ND	ND	2	0	ND	Maximum Detection
Vanadium	0.55	0.51	2	2	0.55	Maximum Detection	0.74	0.05 J	2	2	0.74	Maximum Detection
Zinc	0.7	1.3	2	2	1.3	Maximum Detection	1.2	0.4 J	2	2	0.4 J	Maximum Detection
Methyl Mercury	ND	ND	2	1	ND	Maximum Detection	NA	NA	0	NA	NA	NA

Key:
µg/L micrograms per liter
J Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.
NA Not available, not analyzed
ND Not detected

Table 4-7 Background Red Devil Creek Surface Water and Sediment Results	RD01	RD01	RD01
	10RD01SW	11RD01SW	10RD01SD
Analyte			
Total Inorganic Elements (SW=µg/L, SD=mg/kg)			
Aluminum	80	30.5 J	10800
Antimony	1.4	1.52 J	0.54 UJ
Arsenic	0.8	1.1	65
Barium	26.4	23.8	159
Beryllium	0.027 U	0.006 U	0.5
Cadmium	0.022 U	0.005 U	0.3
Calcium	18400	17500	2380
Chromium	0.053 U	0.43	20.4
Cobalt	0.007 U	0.066	12.3
Copper	0.232 U	0.37	21.7
Iron	110	138	32100
Lead	0.2 U	0.021	8
Magnesium	9680	9460	2990
Manganese	10.2	17.5	579
Mercury			0.18
Nickel	0.081 U	0.44	32
Potassium	69.1 U	218 J	1200
Selenium	0.125 U	0.5 J	0.78 U
Silver	0.009 U	0.004 U	0.053 U
Sodium	1580	1470	19.9 U
Thallium	0.003 U	0.005 U	0.33 U
Vanadium	0.3	0.16 J	35.4
Zinc	0.81 U	0.5 J	80
Total Low Level Mercury (SW=ng/L)			
Mercury, Total	3.17	6.37	
Dissolved Inorganic Elements (SW=µ+A73g/L)			
Aluminum, Dissolved	14.8 U	11.9 J	
Antimony, Dissolved	1.3	1.4 J	
Arsenic, Dissolved	0.6	0.9	
Barium, Dissolved	24	23	
Beryllium, Dissolved	0.027 U	0.006 U	
Cadmium, Dissolved	0.022 U	0.005 U	
Calcium, Dissolved	19200	17300	
Chromium, Dissolved	0.053 U	0.23	
Cobalt, Dissolved	0.007 U	0.056	
Copper, Dissolved	0.232 U	0.27	
Iron, Dissolved	7.2 U	100	
Lead, Dissolved	0.2 U	0.005 U	
Magnesium, Dissolved	10200	9340	
Manganese, Dissolved	7.2	15.9	
Nickel, Dissolved	0.081 U	0.35	
Potassium, Dissolved	69.1 U	220 J	
Selenium, Dissolved	0.125 U	0.5 J	
Silicon, Dissolved	3.3	3680	
Silver, Dissolved	0.009 U	0.004 U	
Sodium, Dissolved	1610	1450	
Thallium, Dissolved	0.003 U	0.005 U	
Vanadium, Dissolved	0.026 U	0.13 J	
Zinc, Dissolved	0.81 U	0.2 U	
Dissolved Low Level Mercury (SW=ng/L)			
Mercury, Dissolved	1.95	2.63	
Arsenic Speciation (SW=µg/L, SD=mg/kg)			
Arsenate	0.578	0.774 J	48.7 J
Arsenite	0.102	0.089 J	4.13 J
Inorganic Arsenic	0.68	0.863 J	52.8 J

Table 4-7 Background Red Devil Creek Surface Water and Sediment Results	RD01	RD01	RD01
	10RD01SW	11RD01SW	10RD01SD
Analyte			
Mercury Selective Sequential Extraction (sd=ng/g)			
Hg(F0)		3.36 U	
Hg(F1)		1.19 J	
Hg(F2)		0.25 U	
Hg(F3)		57.3 J	
Hg(F4)		17.3 J	
Hg(F5)		24.7	
Hg(F6)		4.98 J	
Methylmercury (SW=ng/L, SD=ng/g)			
Methylmercury	0.074	0.08 J	0.177
Semi-Volatile Organic Compounds (SW=ng/L)			
2-Methylnaphthalene			
Naphthalene			
1-Methylnaphthalene			
2-Methylnaphthalene			
Unknown Hydrocarbon			
Gasoline, Diesel, and Residual Range Organics (SW=mg/L)			
Gasoline Range Organics			
Diesel Range Organics			
Residual Range Organics			
Total Organic Carbon (SD=%)			
Carbon, Total Organic (TOC)		1.47	
General Chemistry (SW=mg/L)			
Bicarbonate	81	74.1	
Carbonate	1 U	3 U	
Hydroxide	1 U		
Hydroxide			
Total Dissolved Solids		74	
Total Suspended Solids		5 U	
Total Dissolved Solids	102		
Total Suspended Solids	2		
Chloride	0.4	0.35 J	
Fluoride	0.022 U	0.05 J	
Sulfate	11.2	9.58	
Nitrate+Nitrite as Nitrogen	0.166	0.208	

Key

% = percent

µg/L = micrograms per liter

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

ng/L = nanograms per liter

SD = sediment

SW = surface water

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-8 Background Statistics for Red Devil Creek Sediment and Surface Water Samples

Analyte	Sediment					Surface Water - Total						Surface Water - Dissolved					
	10RD01SD Conc.(mg/kg)	Sample Size	Number Detections	Recommended Background Level (mg/kg)	Background Rationale	10RD01SW Conc. (µg/L)	11RD01SW Conc. (µg/L)	Sample Size	Number Detections	Recommended Background Level (mg/kg)	Background Rationale	10RD01SW Conc. (µg/L)	11RD01SW Conc. (µg/L)	Sample Size	Number Detections	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	10800	1	1	10800	Single Result	80	30.5 J	2	2	80	Maximum Detection	ND	11.9 J	2	1	11.9 J	Maximum Detection
Antimony	ND	1	0	ND	Single Result	1.4	1.52 J	2	2	1.52 J	Maximum Detection	1.3	1.4 J	2	2	1.4 J	Maximum Detection
Arsenic	65	1	1	65	Single Result	0.8	1.1	2	2	1.1	Maximum Detection	0.6	0.9	2	2	0.9	Maximum Detection
Inorganic Arsenic	NA	0	0	NA	Single Result	0.68	0.863	2	2	0.863	Maximum Detection	NA	NA	0	0	NA	Maximum Detection
Barium	159	1	1	159	Single Result	26.4	23.8	2	2	26.4	Maximum Detection	24	23	2	2	24	Maximum Detection
Beryllium	0.5	1	1	0.5	Single Result	ND	ND	2	0	ND	Maximum Detection	ND	ND	2	0	ND	Maximum Detection
Cadmium	0.3	1	1	0.3	Single Result	ND	ND	2	0	ND	Maximum Detection	ND	ND	2	0	ND	Maximum Detection
Calcium	2380	1	1	2380	Single Result	18400	17500	2	2	18400	Maximum Detection	19200	17300	2	2	19200	Maximum Detection
Chromium	20.4	1	1	20.4	Single Result	ND	0.43	2	1	0.43	Maximum Detection	ND	0.23	2	1	0.23	Maximum Detection
Cobalt	12.3	1	1	12.3	Single Result	ND	0.066	2	1	0.066	Maximum Detection	ND	0.056	2	1	0.056	Maximum Detection
Copper	21.7	1	1	21.7	Single Result	ND	0.37	2	1	0.37	Maximum Detection	ND	0.27	2	1	0.27	Maximum Detection
Iron	32100	1	1	32100	Single Result	110	138	2	2	138	Maximum Detection	ND	100	2	1	100	Maximum Detection
Lead	8	1	1	8	Single Result	ND	0.021	2	1	0.021	Maximum Detection	ND	ND	2	0	ND	Maximum Detection
Magnesium	2990	1	1	2990	Single Result	9680	9460	2	2	9680	Maximum Detection	10200	9340	2	2	10200	Maximum Detection
Manganese	579	1	1	579	Single Result	10.2	17.5	2	2	17.5	Maximum Detection	7.2	15.9	2	2	15.9	Maximum Detection
Methylmercury	0.000177	1	1	0.000177	Single Result	0.000074	0.00008 J	2	2	0.00008 J	Maximum Detection	NA	NA	0	0	NA	Maximum Detection
Mercury	0.18	1	1	0.18	Single Result	0.00195	0.00263	2	2	0.00263	Maximum Detection	0.00317	0.00637	2	2	0.00637	Maximum Detection
Nickel	32	1	1	32	Single Result	ND	0.44	2	1	0.44	Maximum Detection	ND	0.35	2	1	0.35	Maximum Detection
Potassium	1200	1	1	1200	Single Result	ND	218 J	2	1	218 J	Maximum Detection	ND	220 J	2	1	220 J	Maximum Detection
Selenium	ND	1	0	ND	Single Result	ND	0.5 J	2	1	0.5 J	Maximum Detection	ND	0.5 J	2	1	0.5 J	Maximum Detection
Silver	ND	1	0	ND	Single Result	ND	ND	2	0	ND	Maximum Detection	ND	ND	2	0	ND	Maximum Detection
Sodium	ND	1	0	ND	Single Result	1580	1470	2	2	1580	Maximum Detection	1610	1450	2	2	1610	Maximum Detection
Thallium	ND	1	0	ND	Single Result	ND	ND	2	0	ND	Maximum Detection	ND	ND	2	0	ND	Maximum Detection
Vanadium	35.4	1	1	35.4	Single Result	0.3	0.16 J	2	2	0.3	Maximum Detection	ND	0.13 J	2	1	0.13 J	Maximum Detection
Zinc	80	1	1	80	Single Result	ND	0.5 J	2	1	0.5 J	Maximum Detection	ND	ND	2	0	ND	Maximum Detection

Key:
µg/L micrograms per liter
J Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.
mg/kg milligrams per kilogram
NA Not Available, not analyzed
ND Not Detected

Table 4-9 Background Kuskokwim River Sediment Results	Units	10KR13SD	11KR01SD	11KR12SD	11KR18SD	11KR19SD	11KR20SD	11KR21SD	11KR22SD	11KR23SD	11KR24SD	11KR25SD
Analyte												
Total Inorganic Elements												
Aluminum	mg/kg	11600	12500 J	6340 J	10700	2160	5470	5710	10200	10300	6180	9090
Antimony	mg/kg	0.56 U	0.234	0.271	0.185	0.133 J	0.239 J	0.189 J	0.22 J	0.188	0.137	0.171
Arsenic	mg/kg	15	10.4 J	8.77 J	4.75	6.06 J	3.67 J	3.67 J	12.7 J	6.32	6.21	5.03
Barium	mg/kg	152	142 J	138 J	146 J	77.5	58.6	55.6	79.5	141 J	95.5 J	158 J
Beryllium	mg/kg	0.5	0.383	0.538	0.343	0.352	0.146	0.13	0.196	0.408	0.265	0.28
Cadmium	mg/kg	0.5	0.288 J	0.42	0.263 J	0.82	0.099	0.069	0.12	0.268 J	0.164 J	0.221 J
Calcium	mg/kg	4800	2390 J	2250 J	2960	762	1610	1700	2930	2670	1930	2220
Chromium	mg/kg	25.3	16.6 J	17.7 J	22.2 J	13.6 J	11.1 J	10.7 J	15.8 J	20.2 J	15.7 J	20.1 J
Cobalt	mg/kg	10.9	12.5 J	14.8 J	8.91	11.5	4.54	3.83	4.94	13.5	8.38	7.47
Copper	mg/kg	25.3 J	29.4	56.2 J	20.9 J	36.9 J	7.15 J	4.62 J	10.4 J	28 J	16.7 J	14.5 J
Iron	mg/kg	27100	33900	31200	21800	8170	13500	13400	21900	32300	18000	18100
Lead	mg/kg	7	11.4 J	12.3 J	7.11	13.5	2.4	1.82	3.35	10.5	4.43	5.06
Magnesium	mg/kg	4840	5040	2950	4440 J	1400	2860	3190	5900	4400 J	3270 J	4020 J
Manganese	mg/kg	451	740	280	395 J	465	246	197	366	536 J	385 J	253 J
Mercury	mg/kg	0.09 J	0.081 J	0.374 J	0.089 J	0.143 J	0.013 J	0.013 J	0.03 J	0.126 J	0.078 J	0.053 J
Nickel	mg/kg	32	29.2	51.7	25.3 J	37	13	10.7	14.4	36.2 J	23 J	22.2 J
Potassium	mg/kg	1280	721	853	668 J	418	637	508	614	773 J	899 J	685 J
Selenium	mg/kg	0.81 U	0.31	0.74	0.42	1.03	0.08 J	0.04 J	0.22	0.45	0.17	0.19
Silver	mg/kg	0.055 U	0.092	0.123	0.124	0.035	0.043	0.034	0.062	0.113	0.046	0.084
Sodium	mg/kg	170	37.9 J	57.3	79.3	35.9 J	70.3	71.4	86.5	60.9	42.5	83.1
Thallium	mg/kg	0.34 U	0.075	0.077	0.096	0.105	0.051	0.035	0.075	0.07	0.052	0.092
Vanadium	mg/kg	36.3	21.9 J	27.8 J	29.8	23.8	15.7	11.9	27.3	28.9	21.8	27.1
Zinc	mg/kg	84	74.3 J	116 J	69.5 J	174 J	30.9 J	21.8 J	36.2 J	78 J	52.4 J	56.4 J
Arsenic Speciation												
Arsenate	mg/kg	15.8 J	16.7	22.3								
Arsenite	mg/kg	1.34 J	1.1 J	1.62 J								
Inorganic Arsenic	mg/kg	17.1 J	17.8	24								
Methylmercury												
Methylmercury	ng/g	0.184	0.06 J	0.49 J	0.28 J						0.05 U	
Total Organic Carbon												
Carbon, Total Organic	%	0.794	0.324	0.522	1.43	0.663	0.276	0.266	0.735	0.724	0.518	0.676

Table 4-9 Background Kuskokwim River Sediment Results		Units	11KR26SD	11KR27SD	11KR48SD	11KR49SD	11KR50SD	11KR51SD	11KR53SD
Analyte									
Total Inorganic Elements									
Aluminum	mg/kg	11000	6400	6730	5500	4860	8350	9120	
Antimony	mg/kg	0.45 J	0.473 J	0.22	0.125	0.313	0.153	0.236	
Arsenic	mg/kg	4.93 J	5.98 J	10.1	6.12	7.04	8.91	12.9	
Barium	mg/kg	113	70.3	128 J	70.1 J	102 J	124 J	116 J	
Beryllium	mg/kg	0.314	0.157	0.23	0.187	0.189	0.354	0.276	
Cadmium	mg/kg	0.231	0.127	0.218 J	0.121 J	0.148 J	0.294 J	0.241 J	
Calcium	mg/kg	2930	1880	7100	2760	3620	2170	8470	
Chromium	mg/kg	21.4 J	14.4 J	15.9 J	13.8 J	16.2 J	23.7 J	17.8 J	
Cobalt	mg/kg	8.2	5.69	5.92	4.57	5.36	11.9	6.54	
Copper	mg/kg	16.9 J	7.69 J	13.9 J	6.98 J	11.4 J	27.9 J	15.4 J	
Iron	mg/kg	20700	17200	16800	13100	14900	29300	21700	
Lead	mg/kg	5.73	2.41	5.05	2.91	3.13	7.58	5.58	
Magnesium	mg/kg	5000	3460	4060 J	3250 J	2610 J	3700 J	5060 J	
Manganese	mg/kg	261	743	424 J	468 J	1660 J	875 J	523 J	
Mercury	mg/kg	0.044 J	0.015 J	0.024 J	0.026 J	0.013 J	0.086 J	0.028 J	
Nickel	mg/kg	23.9	14.8	18.7 J	14.2 J	18.4 J	33.5 J	19.6 J	
Potassium	mg/kg	961	718	880 J	638 J	661 J	705 J	1160 J	
Selenium	mg/kg	0.28	0.06 J	0.16	0.06 J	0.09 J	0.43	0.24	
Silver	mg/kg	0.105	0.044	0.093	0.044	0.053	0.065	0.125	
Sodium	mg/kg	125	89.3	110	76.1	117	49.9	148	
Thallium	mg/kg	0.089	0.059	0.091	0.069	0.063	0.106	0.106	
Vanadium	mg/kg	29.8	19.8	22	17.4	23.5	33.4	23.9	
Zinc	mg/kg	62 J	35.3 J	52.3 J	33.1 J	40.1 J	78.9 J	59.3 J	
Arsenic Speciation									
Arsenate	mg/kg								
Arsenite	mg/kg								
Inorganic Arsenic	mg/kg								
Methylmercury									
Methylmercury	ng/g								
Total Organic Carbon									
Carbon, Total Organic	%	0.795	0.173						

Key

% = percent

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-10 Background Statistics for Kuskokwim River Sediments

Compound	Sample Size	Number Detections	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Average Detected Concentration (mg/kg)	Distribution	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	16	16	2160	13450	8147	Normal	13600	95% UPL
Antimony	16	14	0.125	0.45	0.209	Gamma	0.351	95% KM UPL
Arsenic	16	16	3.67	15	7.558	Gamma	14.64	95% WH Approx. Gamma UPL
Barium	16	16	55.6	152	106.5	Normal	167.7	95% UPL
Beryllium	16	16	0.13	0.5	0.283	Normal	0.472	95% UPL
Cadmium	16	16	0.069	0.82	0.254	Gamma	0.596	95% WH Approx. Gamma UPL
Calcium	16	16	762	8470	3217	Gamma	7202	95% WH Approx. Gamma UPL
Chromium	16	16	10.7	25.3	17.21	Normal	25.13	95% UPL
Cobalt	16	16	3.83	13.5	7.947	Normal	13.7	95% UPL
Copper	16	16	4.62	36.9	18.01	Normal	35.47	95% UPL
Iron	16	16	8170	33750	20186	Normal	33456	95% UPL
Lead	16	16	1.82	13.5	5.972	Normal	11.98	95% UPL
Magnesium	16	16	1400	5900	3934	Normal	6042	95% UPL
Manganese	16	16	197	1124	481.5	Gamma	981.6	95% WH Approx. Gamma UPL
Methylmercury	4	4	0.000055	0.00028	0.000145	NA	0.00028	Maximum (n<6)
Mercury	16	16	0.013	0.143	0.0583	Normal	0.133	95% UPL
Nickel	16	16	10.7	37	23.13	Normal	38.6	95% UPL
Potassium	16	16	418	1280	754.4	Normal	1160	95% UPL
Selenium	16	15	0.04	1.03	0.283	Gamma	0.702	95% KM UPL
Silver	16	15	0.034	0.125	0.0747	Normal	0.128	95% KM UPL
Sodium	16	16	35.9	170	88.06	Normal	161.3	95% UPL
Thallium	16	14	0.035	0.106	0.0771	Normal	0.116	95% KM UPL
Vanadium	16	16	11.9	36.3	24.11	Normal	36.07	95% UPL
Zinc	16	16	21.8	174	62.53	Gamma	128.7	95% WH Approx. Gamma UPL

Notes:

KM Kaplan Meier
mg/kg milligrams per kilogram
NA Not Available, not analyzed
UPL upper prediction limit
WH Wilson Hilferty

Table 4-11 Background Vegetation Results		11RD18WS	11RD40BL	11UP01WS	11UP02BL	11UP02WS	11UP04BF	11UP04BL	11UP07BL	11UP07WS	11UP08BL	11UP09BL	11UP09WS
Analyte	Units	White Spruce Needles	Blueberry Leaves and Stems	White Spruce Needles	Blueberry Leaves and Stems	White Spruce Needles	Blueberry Fruit	Blueberry Leaves and Stems	Blueberry Leaves and Stems	White Spruce Needles	Blueberry Leaves and Stems	Blueberry Leaves and Stems	White Spruce Needles
Total Metals													
Aluminum	mg/kg dry weight	0.4 U	16.1	68.8	56.7	53.4	0.4 U	19.5	42.2	14	28.9	51.5	9.8
Antimony	mg/kg dry weight	0.104 J	0.357 J	0.096 J	0.225 J	1.49 J	0.009 U	0.441 J	0.009 U	0.101 J	0.009 U	0.126 J	0.107 J
Arsenic	mg/kg dry weight	0.06 U	0.22 J	0.06 J	0.06 U	0.06 U	0.13	0.06 U	0.11	0.06 U	0.09	0.16 J	0.06 U
Barium	mg/kg dry weight	80.4	42.7	7.5	34.4	11.3	9.03	18.8	49.4	5.31	48.1	48.8	9.05
Beryllium	mg/kg dry weight	0.003 U	0.003 U	0.007 J	0.003 U	0.005 J	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.019 J	0.003 J
Cadmium	mg/kg dry weight	0.003 U	0.14	0.032	0.174	0.018 J	0.082	0.154	0.304	0.009 J	0.192	0.432	0.015 J
Calcium	mg/kg dry weight	7590	2820	3210	2600	4240	1110	1660	2030	3310	2150	3100	3840
Chromium	mg/kg dry weight	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cobalt	mg/kg dry weight	0.003 U	0.023	0.048	0.041	0.041	0.013	0.003 U	0.091	0.094	0.03	0.105	0.034
Copper	mg/kg dry weight	1.61	5.08	1.31	5.32	1.46	2.49	2.74	7.87	1.75	5.73	6.58	1.38
Iron	mg/kg dry weight	25.2	33	16.6	30.3	17.3	10.8	13.5	26.2	12.8	26.9	32.8	14.9
Lead	mg/kg dry weight	0.015	0.027 J	0.044 J	0.032	0.036 J	0.032	0.022	0.078	0.022 J	0.035	0.085	0.02 J
Magnesium	mg/kg dry weight	596	1600	863	1030	653	582	706	770	943	1140	1060	988
Manganese	mg/kg dry weight	135	342	931	1530	1590	294	960	1120	1040	1250	1020	1350
Mercury	mg/kg dry weight	0.036	0.036 J	0.034 J	0.023	0.032 J	0.026	0.025	0.03	0.021 J	0.044	0.034 J	0.038 J
Nickel	mg/kg dry weight	0.03 U	0.49	1.39	1.68	1.02	0.53	0.51	1.58	1.01	1	2.01	1.11
Potassium	mg/kg dry weight	4530	5180	3800	3550	4280	5030	2060	2670	5370	3900	3750	3990
Selenium	mg/kg dry weight	0.15 U	0.15 U	0.15 U	0.03 U	0.15 U	0.59 U	0.15 U	0.03 U	0.15 U	0.03 U	0.15 U	0.15 U
Silver	mg/kg dry weight	0.008 U	0.008 U	0.008 U	0.012	0.154	0.008 U	0.035	0.008 U	0.011 J	0.008 U	0.008 U	0.008 U
Sodium	mg/kg dry weight	6.4 J	17.5 J	13.5 J	7.5 J	7.8 J	21.8 J	5 J	7.8 J	10.5 J	7.1 J	15.8 J	7 J
Thallium	mg/kg dry weight	0.002 U	0.002 U	0.015 J	0.002 U	0.004 J	0.002 U	0.002 U	0.002 U	0.008 J	0.002 U	0.019 J	0.015 J
Vanadium	mg/kg dry weight	0.03	0.02 U	0.04 J	0.03	0.04 J	0.06	0.03	0.07	0.03 J	0.04	0.06 J	0.02 J
Zinc	mg/kg dry weight	23.3	38.8 J	25.1 J	21.9	50.3 J	15.7	29.6	44	28.7 J	22.4	39.5 J	29.3 J
Total Solids													
Total Solids	%	32.8	31.3	40.4	36.5	37.2	9.01	38.6	45	38.5	39.4	38.3	41.3
Methylmercury (ng/g)													
Methylmercury	ng/g dry weight					3.9 U	7.9 U	3.9 U		4 U	4 U		
Arsenic Speciation													
Arsenic (III)	µg/g dry weight						0.03 J						
Arsenic (V)	µg/g dry weight						0.03 J						
Inorganic Arsenic	µg/g dry weight						0.06						

Key

µg/g = micrograms per gram

% = percent

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-12 Background Statistics for Green Alder Bark

Analyte	Sample Size	Number Detections	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	4	3	3.8 J	8.7	8.7	Maximum Detection
Antimony	4	2	0.116 J	0.139	0.139	Maximum Detection
Arsenic	4	3	0.06 J	0.1	0.1	Maximum Detection
Barium	4	4	24.2	34	34	Maximum Detection
Beryllium	4	0	ND	ND	ND	Maximum Detection
Cadmium	4	2	0.017	0.029	0.029	Maximum Detection
Calcium	4	4	3790	5070	5070	Maximum Detection
Chromium	4	1	1.1	1.1	1.1	Maximum Detection
Cobalt	4	4	0.027	0.079	0.079	Maximum Detection
Copper	4	4	4.61	6.4	6.4	Maximum Detection
Iron	4	3	12.5	27.9	27.9	Maximum Detection
Lead	4	4	0.034	0.07	0.07	Maximum Detection
Magnesium	4	4	571	637	637	Maximum Detection
Manganese	4	4	59	229	229	Maximum Detection
Mercury	4	4	0.014	0.056	0.056	Maximum Detection
Methylmercury	4	0	ND	ND	ND	Maximum Detection
Nickel	4	4	0.16 J	0.32	0.32	Maximum Detection
Potassium	4	4	2120	2760	2760	Maximum Detection
Selenium	4	0	ND	ND	ND	Maximum Detection
Silver	4	0	ND	ND	ND	Maximum Detection
Sodium	4	4	13.3 J	51.3 J	51.3 J	Maximum Detection
Thallium	4	0	ND	ND	ND	Maximum Detection
Vanadium	4	4	0.04 J	0.05	0.05	Maximum Detection
Zinc	4	4	22.5	66.9 J	66.9 J	Maximum Detection

Key:

J Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.
mg/kg milligrams per kilogram
NA Not Available, not analyzed
ND Not Detected

Table 4-13 Background Statistics for Blueberry Leaves and Stems

Compound	Sample Size	Number Detections	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Average Detected Concentration (mg/kg)	Distribution	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	9	9	11.5	56.7	29.64	Normal	56.7	Maximum Concentration; Max>95 UPL
Antimony	9	7	0.126	0.441	0.239	Normal	0.441	Maximum Concentration; Max>95 UPL
Arsenic	9	7	0.09	0.22	0.127	Normal	0.22	Maximum Concentration; Max>95 UPL
Barium	9	9	18.8	56.4	41.97	Normal	56.4	Maximum Concentration; Max>95 UPL
Beryllium	9	1	0.019	0.019	NA	NA	0.019	Maximum; 1 Detection
Cadmium	9	9	0.093	0.432	0.215	Normal	0.416	95% UPL
Calcium	9	9	1660	3100	2439	Normal	3100	Maximum Concentration; Max>95 UPL
Chromium	9	0	ND	ND	NA	NA	ND	Not Detected
Cobalt	9	8	0.017	0.105	0.0453	Gamma	0.105	Maximum Concentration; Max>95 UPL
Copper	9	9	2.74	7.87	5.189	Normal	7.87	Maximum Concentration; Max>95 UPL
Iron	9	9	13.5	37.3	27.86	Normal	37.3	Maximum Concentration; Max>95 UPL
Lead	9	9	0.021	0.085	0.0441	Normal	0.085	Maximum Concentration; Max>95 UPL
Magnesium	9	9	706	1600	1066	Normal	1600	Maximum Concentration; Max>95 UPL
Manganese	9	9	328	1530	851.6	Normal	1530	Maximum Concentration; Max>95 UPL
Mercury	9	9	0.016	0.05	0.033	Normal	0.05	Maximum Concentration; Max>95 UPL
Methylmercury	4	0	ND	ND	NA	NA	ND	Not Detected
Nickel	9	9	0.49	2.01	1.036	Normal	2.01	Maximum Concentration; Max>95 UPL
Potassium	9	9	2060	5180	3653	Normal	5180	Maximum Concentration; Max>95 UPL
Selenium	9	0	ND	ND	NA	NA	ND	Not Detected
Silver	9	2	0.012	0.035	0.0235	NA	0.035	Maximum; 2 Detections
Sodium	9	9	5	25.3	11.91	Normal	24.67	95% UPL
Thallium	9	1	0.019	0.019	NA	NA	0.019	1 Detection
Vanadium	9	8	0.03	0.07	0.045	Normal	0.07	Maximum Concentration; Max>95 UPL
Zinc	9	9	21.9	48.9	36.02	Normal	48.9	Maximum Concentration; Max>95 UPL

Key:
mg/kg milligrams per kilogram
NA Not Available, not analyzed
ND Not Detected

Table 4-14 Background Statistics for Blueberry Fruit		11UP04BF	Sample Size	Number Detections	Recommended Background Level (mg/kg)	Background Rationale
Analyte						
Total Metals (mg/kg dry weight)						
Aluminum	0.4 U	1	0	ND	Single Result	
Antimony	0.009 U	1	0	ND	Single Result	
Arsenic	0.13	1	1	0.13	Single Result	
Barium	9.03	1	1	9.03	Single Result	
Beryllium	0.003 U	1	0	ND	Single Result	
Cadmium	0.082	1	1	0.082	Single Result	
Calcium	1110	1	1	1110	Single Result	
Chromium	0.2 U	1	0	ND	Single Result	
Cobalt	0.013	1	1	0.013	Single Result	
Copper	2.49	1	1	2.49	Single Result	
Iron	10.8	1	1	10.8	Single Result	
Lead	0.032	1	1	0.032	Single Result	
Magnesium	582	1	1	582	Single Result	
Manganese	294	1	1	294	Single Result	
Mercury	0.026	1	1	0.026	Single Result	
Nickel	0.53	1	1	0.53	Single Result	
Potassium	5030	1	1	5030	Single Result	
Selenium	0.59 U	1	0	ND	Single Result	
Silver	0.008 U	1	0	ND	Single Result	
Sodium	21.8 J	1	1	21.8 J	Single Result	
Thallium	0.002 U	1	0	ND	Single Result	
Vanadium	0.06	1	1	0.06	Single Result	
Zinc	15.7	1	1	15.7	Single Result	
Total Solids (%)						
Total Solids	9.01	NA	NA	NA	NA	
Methyl Mercury (ng/g)						
Methyl Mercury	7.9 U	1	1	ND	Single Result	
Arsenic Speciation (µg/g dry weight)						
Arsenic (III)	0.03 J	1	1	0.03 J	Single Result	
Arsenic (V)	0.03 J	1	1	0.03 J	Single Result	
Inorganic Arsenic	0.06	1	1	0.06	Single Result	

Key:

µg/g micrograms per gram
mg/kg milligrams per kilogram
NA not applicable
ng/g nanograms per gram

Table 4-15 Background Statistics for Horsetail Pond Vegetation

Compound	Sample Size	Number Detections	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Recommended Background Level (mg/kg)	Background Rationale
Aluminum	3	3	50.7	292	292	Maximum Detection
Antimony	3	3	0.386 J	1.05	1.05	Maximum Detection
Arsenic	3	3	1.24	3.23	3.23	Maximum Detection
Barium	3	3	30.3	120	120	Maximum Detection
Beryllium	3	2	0.004 J	0.013 J	0.013 J	Maximum Detection
Cadmium	3	3	0.009	0.053	0.053	Maximum Detection
Calcium	3	3	17600	20300	20300	Maximum Detection
Chromium	3	2	0.2 J	0.5 J	0.5 J	Maximum Detection
Cobalt	3	3	0.307	0.77	0.77	Maximum Detection
Copper	3	3	3.39	5.02	5.02	Maximum Detection
Iron	3	3	185	618	618	Maximum Detection
Lead	3	3	0.042 J	0.207	0.207	Maximum Detection
Magnesium	3	3	4740	6020	6020	Maximum Detection
Manganese	3	3	635	1480	1480	Maximum Detection
Mercury	3	3	0.027 J	0.071 J	0.071 J	Maximum Detection
Methylmercury	1	0	ND	ND	ND	Maximum Detection
Nickel	3	3	0.36	1.45	1.45	Maximum Detection
Potassium	3	3	8960	15300	15300	Maximum Detection
Selenium	3	2	0.16 J	0.18 J	0.18 J	Maximum Detection
Silver	3	3	0.012 J	0.048	0.048	Maximum Detection
Sodium	3	3	673	2010	2010	Maximum Detection
Thallium	3	3	0.006 J	0.018 J	0.018 J	Maximum Detection
Vanadium	3	3	0.13	0.73	0.73	Maximum Detection
Zinc	3	3	25.5 J	38.2 J	38.2 J	Maximum Detection

Key:

J Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated
mg/kg milligrams per kilogram
NA Not Available, not analyzed
ND Not Detected

Table 4-14 Background Statistics for Blueberry Fruit		11UP04BF	Sample Size	Number Detections	Recommended Background Level (mg/kg)	Background Rationale
Analyte						
Total Metals (mg/kg dry weight)						
Aluminum	0.4 U	1	0	ND	Single Result	
Antimony	0.009 U	1	0	ND	Single Result	
Arsenic	0.13	1	1	0.13	Single Result	
Barium	9.03	1	1	9.03	Single Result	
Beryllium	0.003 U	1	0	ND	Single Result	
Cadmium	0.082	1	1	0.082	Single Result	
Calcium	1110	1	1	1110	Single Result	
Chromium	0.2 U	1	0	ND	Single Result	
Cobalt	0.013	1	1	0.013	Single Result	
Copper	2.49	1	1	2.49	Single Result	
Iron	10.8	1	1	10.8	Single Result	
Lead	0.032	1	1	0.032	Single Result	
Magnesium	582	1	1	582	Single Result	
Manganese	294	1	1	294	Single Result	
Mercury	0.026	1	1	0.026	Single Result	
Nickel	0.53	1	1	0.53	Single Result	
Potassium	5030	1	1	5030	Single Result	
Selenium	0.59 U	1	0	ND	Single Result	
Silver	0.008 U	1	0	ND	Single Result	
Sodium	21.8 J	1	1	21.8 J	Single Result	
Thallium	0.002 U	1	0	ND	Single Result	
Vanadium	0.06	1	1	0.06	Single Result	
Zinc	15.7	1	1	15.7	Single Result	
Total Solids (%)						
Total Solids	9.01	NA	NA	NA	NA	
Methyl Mercury (ng/g)						
Methylmercury	7.9 U	1	1	ND	Single Result	
Arsenic Speciation (µg/g dry weight)						
Arsenic (III)	0.03 J	1	1	0.03 J	Single Result	
Arsenic (V)	0.03 J	1	1	0.03 J	Single Result	
Inorganic Arsenic	0.06	1	1	0.06	Single Result	

Key:

µg/g micrograms per gram
mg/kg milligrams per kilogram
NA not applicable
ng/g nanograms per gram

Table 4-17 Pre-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP51	MP52	MP53	MP54	MP55565758 (Composite)	MP55	MP56	MP57	MP58	MP59	MP60	MP61
		Soil Type		T/WR	T/WR	T/WR	F	T/WR	T/WR	N/DN	T/WR	T/WR	WR	T/WR	T/WR
		Sample ID		10MP51SS	10MP52SS	10MP53SS	10MP54SS	10MP55565758SS	10MP55SS	10MP56SS	10MP57SS	10MP58SS	10MP59SS	10MP60SS	10MP61SS
Analyte	Method														
Total Inorganic Elements															
Aluminum	19563	SW6010B	mg/kg	11100	12800	6490	6340	9340	9480	7750	7730	8980	3370	5910	9710
Antimony	8	SW6010B	mg/kg	23300 J	18500 J	1480 J	20 J	764 J	1890 J	183 J	1630 J	716 J	170 J	660 J	1200 J
Arsenic	28.91	SW6010B	mg/kg	4610	5000	3000	1360	1100	2150	333	2000	1080	1130	1800	1410
Barium	237.5	SW6010B	mg/kg	732	663	291	186	221	340	119	269	256	191	217	211
Beryllium	0.5	SW6010B	mg/kg	0.22 U	0.21 U	0.8	0.7	0.5	0.6	0.3	0.6	0.5	0.6	0.8	0.6
Cadmium	0.4	SW6010B	mg/kg	0.22 U	0.21 U	0.053 U	0.054 U	0.023 U	0.058 U	0.021 U	0.055 U	0.023 U	0.051 U	0.052 U	0.023 U
Calcium	8595	SW6010B	mg/kg	7250	6260	2590	2020	2190	3000	1760	2580	2570	9210	3370	2350
Chromium	28.74	SW6010B	mg/kg	41	40	24	18	26.9	31	17	22	24.3	12	20	23.4
Cobalt	11.36	SW6010B	mg/kg	17	15	17.8	18.7	11.9	16.9	8.2	14.9	13.7	23.1	21.7	15.7
Copper	23.13	SW6010B	mg/kg	109	93	68.6	55.9	33.2	45.4	20.8	51.5	38.5	66.8	73.7	40.8
Iron	31046	SW6010B	mg/kg	33600	29700	41000	39600	21800	29200	17300	31700	25500	38000	35100	27900
Lead	10.35	SW6010B	mg/kg	1.9 U	1.9 U	44	12	9	13	5	18	14	14	19	12
Magnesium	4589	SW6010B	mg/kg	7240	5750	2260	1640	3570	4100	3030	4870	3910	7730	4980	3280
Manganese	816	SW6010B	mg/kg	644	562	501	1110	644	573	309	559	415	991	572	477
Mercury	1.86	SW7471A	mg/kg	119	183	183	24.4	114	124	19.1	150	114	115	144	68
Nickel	28.45	SW6010B	mg/kg	60	60	48	48	38	43 J	24 J	49 J	44 J	60 J	57 J	48 J
Potassium	957	SW6010B	mg/kg	2570	3300	1990	1190	1350	1980	770	1810	1230	1290	1670	1410
Selenium	NA	SW6010B	mg/kg	6.4 U	6.1 U	1.6 U	1.6 U	0.67 U	1.7 U	0.61 U	1.6 U	0.68 U	1.5 U	1.5 U	0.68 U
Silver	NA	SW6010B	mg/kg	0.43 U	0.41 U	0.107 U	0.107 U	0.045 U	0.116 U	0.041 U	0.11 U	0.046 U	0.101 U	0.104 U	0.046 U
Sodium	102.5	SW6010B	mg/kg	163 U	156 U	170	40.6 U	110	160	90	140	110	38.2 U	39.1 U	100
Thallium	NA	SW6010B	mg/kg	2.7 U	2.6 U	0.7 U	0.7 U	0.28 U	0.7 U	0.26 U	0.7 U	0.29 U	0.6 U	0.6 U	0.29 U
Vanadium	58.34	SW6010B	mg/kg	28	30	29.8	30.9	27.3	28.9	24.7	28	28.4	24.3	29.6	33.2
Zinc	66.98	SW6010B	mg/kg	100	120	107	103	68	93	48	97	82	104	114	89
SPLP Inorganic Elements (µg/L)															
Aluminum		SW6010B SPLP	mg/L					2.42					0.27		
Antimony		SW6010B SPLP	mg/L					0.96					0.11		
Arsenic		SW6010B SPLP	mg/L					0.92					0.37		
Barium		SW6010B SPLP	mg/L					0.103					0.029		
Beryllium		SW6010B SPLP	mg/L					0.001 U					0.00024 U		
Cadmium		SW6010B SPLP	mg/L					0.002 U					0.00031 U		
Calcium		SW6010B SPLP	mg/L					2.94					3.84		
Chromium		SW6010B SPLP	mg/L					0.007					0.00329 U		
Cobalt		SW6010B SPLP	mg/L					0.003 U					0.00051 U		
Copper		SW6010B SPLP	mg/L					0.008					0.00113 U		
Iron		SW6010B SPLP	mg/L					1.45					0.05		
Lead		SW6010B SPLP	mg/L					0.02 U					0.0019 U		
Magnesium		SW6010B SPLP	mg/L					2.35					4.94		
Manganese		SW6010B SPLP	mg/L					0.018					0.00085 U		
Mercury		SW7470A SPLP	mg/L					0.015					0.0002		
Nickel		SW6010B SPLP	mg/L					0.01 U					0.005 U		
Potassium		SW6010B SPLP	mg/L					1					0.069 U		
Selenium		SW6010B SPLP	mg/L					0.05 U					0.0061 U		
Silver		SW6010B SPLP	mg/L					0.003 U					0.00055 U		
Sodium		SW6010B SPLP	mg/L					10.1					5.9		
Thallium		SW6010B SPLP	mg/L					0.05 U					0.0052 U		
Vanadium		SW6010B SPLP	mg/L					0.008					0.00061 U		
Zinc		SW6010B SPLP	mg/L					0.01 U					0.0039 U		
TCLP Inorganic Elements (mg/L)															
Arsenic		SW6010B TCLP	mg/L					0.9					0.036 U		
Barium		SW6010B TCLP	mg/L					0.83					1.15		
Cadmium		SW6010B TCLP	mg/L					0.01 U					0.0016 U		
Chromium		SW6010B TCLP	mg/L					0.02 U					0.0164 U		
Lead		SW6010B TCLP	mg/L					0.1 U					0.01 U		
Selenium		SW6010B TCLP	mg/L					0.2 U					0.03 U		
Silver		SW6010B TCLP	mg/L					0.02 U					0.0028 U		
Mercury		SW7470A TCLP	mg/L					0.004					0.0003 J		
Arsenic Speciation (mg/kg)															
Arsenate		EPA 1632	mg/kg		2490 J						1870 J		803 J		
Arsenite		EPA 1632	mg/kg		90.4 J						76.4 J		12.1 J		
Inorganic Arsenic		EPA 1632	mg/kg		2580 J						1950 J		815 J		

Table 4-17 Pre-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP85	MP86	MP87
		Soil Type		T/WR	T/WR	T/WR
		Sample ID		11MP85SS	11MP86SS	11MP87SS
Analyte	Method					
Total Inorganic Elements						
Aluminum	19563	SW6010B	mg/kg			
Antimony	8	SW6010B	mg/kg			
Arsenic	28.91	SW6010B	mg/kg			
Barium	237.5	SW6010B	mg/kg			
Beryllium	0.5	SW6010B	mg/kg			
Cadmium	0.4	SW6010B	mg/kg			
Calcium	8595	SW6010B	mg/kg			
Chromium	28.74	SW6010B	mg/kg			
Cobalt	11.36	SW6010B	mg/kg			
Copper	23.13	SW6010B	mg/kg			
Iron	31046	SW6010B	mg/kg			
Lead	10.35	SW6010B	mg/kg			
Magnesium	4589	SW6010B	mg/kg			
Manganese	816	SW6010B	mg/kg			
Mercury	1.86	SW7471A	mg/kg			
Nickel	28.45	SW6010B	mg/kg			
Potassium	957	SW6010B	mg/kg			
Selenium	NA	SW6010B	mg/kg			
Silver	NA	SW6010B	mg/kg			
Sodium	102.5	SW6010B	mg/kg			
Thallium	NA	SW6010B	mg/kg			
Vanadium	58.34	SW6010B	mg/kg			
Zinc	66.98	SW6010B	mg/kg			
SPLP Inorganic Elements (µg/L)						
Aluminum		SW6010B SPLP	mg/L			
Antimony		SW6010B SPLP	mg/L			
Arsenic		SW6010B SPLP	mg/L			
Barium		SW6010B SPLP	mg/L			
Beryllium		SW6010B SPLP	mg/L			
Cadmium		SW6010B SPLP	mg/L			
Calcium		SW6010B SPLP	mg/L			
Chromium		SW6010B SPLP	mg/L			
Cobalt		SW6010B SPLP	mg/L			
Copper		SW6010B SPLP	mg/L			
Iron		SW6010B SPLP	mg/L			
Lead		SW6010B SPLP	mg/L			
Magnesium		SW6010B SPLP	mg/L			
Manganese		SW6010B SPLP	mg/L			
Mercury		SW7470A SPLP	mg/L			
Nickel		SW6010B SPLP	mg/L			
Potassium		SW6010B SPLP	mg/L			
Selenium		SW6010B SPLP	mg/L			
Silver		SW6010B SPLP	mg/L			
Sodium		SW6010B SPLP	mg/L			
Thallium		SW6010B SPLP	mg/L			
Vanadium		SW6010B SPLP	mg/L			
Zinc		SW6010B SPLP	mg/L			
TCLP Inorganic Elements (mg/L)						
Arsenic		SW6010B TCLP	mg/L			
Barium		SW6010B TCLP	mg/L			
Cadmium		SW6010B TCLP	mg/L			
Chromium		SW6010B TCLP	mg/L			
Lead		SW6010B TCLP	mg/L			
Selenium		SW6010B TCLP	mg/L			
Silver		SW6010B TCLP	mg/L			
Mercury		SW7470A TCLP	mg/L			
Arsenic Speciation (mg/kg)						
Arsenate		EPA 1632	mg/kg			
Arsenite		EPA 1632	mg/kg			
Inorganic Arsenic		EPA 1632	mg/kg			

Table 4-17 Pre-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP85	MP86	MP87
		Soil Type		T/WR	T/WR	T/WR
		Sample ID		11MP85SS	11MP86SS	11MP87SS
		Method				
Analyte						
Arsenic Bioavailability						
Arsenic (IVBA)		M6020 ICP-MS	mg/L			
Arsenic, total (3050)		M6020 ICP-MS	mg/kg			
Arsenic IVBA% (In Vitro RBA)		Calculation (EPA 920)	%			
Total Solids		CLPSOW390, PART F, D	%			
Mercury Selective Sequential Extraction						
Hg(F0)		EPA 1631	ng/g			
Hg(F1)		BRL SOP No. BR-0013	ng/g			
Hg(F2)		BRL SOP No. BR-0013	ng/g			
Hg(F3)		BRL SOP No. BR-0013	ng/g			
Hg(F4)		BRL SOP No. BR-0013	ng/g			
Hg(F5)		BRL SOP No. BR-0013	ng/g			
Hg(F6)		BRL SOP No. BR-0013	ng/g			
Semi-Volatile Organic Compounds						
1-Methylnaphthalene		SW8270D	µg/kg			
2-Methylnaphthalene		SW8270D	µg/kg			
bis(2-Ethylhexyl)phthalate		SW8270D	µg/kg			
Chrysene		SW8270D	µg/kg			
Dibenzofuran		SW8270D	µg/kg			
Fluorene		SW8270D	µg/kg			
Naphthalene		SW8270D	µg/kg			
Phenanthrene		SW8270D	µg/kg			
Sulfur		SW8270D	µg/kg			
Unknown Aromatic		SW8270D	µg/kg			
Unknown Hydrocarbon		SW8270D	µg/kg			
Unknown Sterol		SW8270D	µg/kg			
Polychlorinated Biphenols (Units)						
Aroclor 1016		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Aroclor 1221		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Aroclor 1232		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Aroclor 1242		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Aroclor 1248		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Aroclor 1254		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Aroclor 1260		SW8082 Reg level 3541 PCB Aroclor	mg/kg	0.019 U	0.019 U	0.019 U
Diesel and Residual Range Organics (mg/kg)						
C10 - C25 DRO		AK102 Alaska Diesel Range for Soil	mg/kg			
Diesel Range Hydrocarbons		AK102/AK103 TPHD	mg/kg			
Motor Oil		AK102/AK103 TPHD	mg/kg			
C25 - C36 RRO		AK103 Alaska Residual Range for Soil	mg/kg			

Key

Bold = detection

Gray shading = exceedance of background

% = percent

µg/kg = micrograms per kilogram

DRO = diesel range organics

IVBA = In-vitro bioaccessibility

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NA = not available/not analyzed

ND = not detected

ng/g = nanograms per gram

RBA = relative bioavailability

RRO = residual range organics

TCLP = toxicity characteristic leaching procedure

TPHD = total petroleum hydrocarbons as diesel

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP01	MP02	MP030405 (Composite)	MP03	MP04	MP05	MP06070809 (Composite)	MP06	MP07
		Soil Type*		N/DN	Stockpiled Ore	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR
		Sample ID		10MP01SS	10MP02SS	10MP030405SS	10MP03SS	10MP04SS	10MP05SS	10MP06070809SS	10MP06SS	10MP07SS
		Method										
Total Inorganic Elements												
Aluminum	19563	SW6010B	mg/kg	15300	3390	13900	15200	16700	14500	10400	11500	10700
Antimony	8	SW6010B	mg/kg	20 J	210 J	5500 J	4720 J	5530 J	4460 J	4420 J	5750 J	8200 J
Arsenic	28.91	SW6010B	mg/kg	100	7310	5580	5200	6670	5660	4520	5640	4280
Barium	237.5	SW6010B	mg/kg	84	134	639	769	750	697	496	580	572
Beryllium	0.5	SW6010B	mg/kg	0.4	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Cadmium	0.4	SW6010B	mg/kg	0.063 U	0.1 U	0.057 U	0.055 U	0.055 U	0.052 U	0.057 U	0.055 U	0.11 U
Calcium	8595	SW6010B	mg/kg	970 J	1400 J	5900 J	3990 J	3760 J	4830 J	4150 J	6470 J	6660 J
Chromium	28.74	SW6010B	mg/kg	24	8	39	46	71	45	34	29	32
Cobalt	11.36	SW6010B	mg/kg	10	35	17.1	17.8	15.2	14.3	19.1	14.2	17
Copper	23.13	SW6010B	mg/kg	32.3	118	81.6	75	73.8	72.9	81.3	77.2	77
Iron	31046	SW6010B	mg/kg	30300	50100	41300	35800	39400	38400	42900	40700	35400
Lead	10.35	SW6010B	mg/kg	9	20	28	38	24	24	22	33	10
Magnesium	4589	SW6010B	mg/kg	3310	450	5850	4930	4370	5490	4470	6010	5320
Manganese	816	SW6010B	mg/kg	302	1190	737	527	502	523	616	596	692
Mercury	1.86	SW7471A	mg/kg	2.6	88	680	710	860	900	750	750	790 J
Nickel	28.45	SW6010B	mg/kg	30	97	51	55	53	45	62	45	55
Potassium	957	SW6010B	mg/kg	880	1770	3880	4030	3880	3930	3220	3270	2930
Selenium	NA	SW6010B	mg/kg	1.9 U	3 U	1.7 U	1.6 U	1.6 U	1.5 U	1.7 U	1.6 U	3.2 U
Silver	NA	SW6010B	mg/kg	0.13 U	0.2 U	0.113 U	0.111 U	0.11 U	0.105 U	0.113 U	0.109 U	0.22 U
Sodium	102.5	SW6010B	mg/kg	47.9 U	77.3 U	370	390	360	370	240	310	82.6 U
Thallium	NA	SW6010B	mg/kg	0.8 U	1.3 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	1.4 U
Vanadium	58.34	SW6010B	mg/kg	47	20	36.2	33.9	33.5	34.7	33.5	29	29
Zinc	66.98	SW6010B	mg/kg	71	159	115	115	110	106	120	95	110
SPLP Inorganic Elements µg/L												
Aluminum		SW6010B SPLP	mg/L	0.36	0.11	0.21				0.26		
Antimony		SW6010B SPLP	mg/L	0.07	0.09	9.25				8.19		
Arsenic		SW6010B SPLP	mg/L	0.05 U	0.44	3.05				2.81		
Barium		SW6010B SPLP	mg/L	0.008	0.004	0.027				0.018		
Beryllium		SW6010B SPLP	mg/L	0.001 U	0.001 U	0.001 U				0.001 U		
Cadmium		SW6010B SPLP	mg/L	0.002 U	0.002 U	0.002 U				0.002 U		
Calcium		SW6010B SPLP	mg/L	0.31	0.19	2.64				2.42		
Chromium		SW6010B SPLP	mg/L	0.005 U	0.107	0.005 U				0.005 U		
Cobalt		SW6010B SPLP	mg/L	0.003 U	0.003 U	0.003 U				0.003 U		
Copper		SW6010B SPLP	mg/L	0.002 U	0.003	0.002 U				0.002		
Iron		SW6010B SPLP	mg/L	0.29	0.52	0.34				0.48		
Lead		SW6010B SPLP	mg/L	0.02 U	0.02 U	0.02 U				0.02 U		
Magnesium		SW6010B SPLP	mg/L	0.11	0.11	1.54				1.64		
Manganese		SW6010B SPLP	mg/L	0.03	0.04	0.01				0.005		
Mercury		SW7470A SPLP	mg/L	0.0001	0.0006	0.03				0.008		
Nickel		SW6010B SPLP	mg/L	0.01 U	0.11	0.01 U				0.01 U		
Potassium		SW6010B SPLP	mg/L	0.8	0.7	1.2				1		
Selenium		SW6010B SPLP	mg/L	0.05 U	0.05 U	0.05 U				0.05 U		
Silver		SW6010B SPLP	mg/L	0.003 U	0.003 U	0.003 U				0.003 U		
Sodium		SW6010B SPLP	mg/L	0.5 U	0.5	0.5 U				0.6		
Thallium		SW6010B SPLP	mg/L	0.05 U	0.05 U	0.05 U				0.05 U		
Vanadium		SW6010B SPLP	mg/L	0.003 U	0.003 U	0.003				0.003 U		
Zinc		SW6010B SPLP	mg/L	0.01 U	0.1	0.01 U				0.01 U		
TCLP Inorganic Elements (mg/L)												
Arsenic		SW6010B TCLP	mg/L			5.7				5.4		
Barium		SW6010B TCLP	mg/L			1.29				0.82		
Cadmium		SW6010B TCLP	mg/L			0.01 U				0.01 U		
Chromium		SW6010B TCLP	mg/L			0.02 U				0.02 U		
Lead		SW6010B TCLP	mg/L			0.1 U				0.1 U		
Selenium		SW6010B TCLP	mg/L			0.2 U				0.2 U		
Silver		SW6010B TCLP	mg/L			0.02 U				0.02 U		
Mercury		SW7470A TCLP	mg/L			0.005				0.0031		

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP08	MP09	MP10	MP11	MP12	MP13	MP14	MP15	MP16	MP17	MP18
		Soil Type*		T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR
		Sample ID		10MP08SS	10MP09SS	10MP10SS	10MP11SS	10MP12SS	10MP13SS	10MP14SS	10MP15SS	10MP16SS	10MP17SS	10MP18SS
		Method												
Total Inorganic Elements														
Aluminum	19563	SW6010B	mg/kg	6440	8210	6800	12500	12000	14600	9920	14800	6570	15700	11300
Antimony	8	SW6010B	mg/kg	1220 J	1990 J	470 J	6980 J	10900 J	12100 J	3400 J	11800 J	1570 J	6180 J	4810 J
Arsenic	28.91	SW6010B	mg/kg	3040	4200	1540	5320	4870	4890	2320	4660	6950	5540	2570
Barium	237.5	SW6010B	mg/kg	286	424	225	796	746	840	462	1160	358	1020	462
Beryllium	0.5	SW6010B	mg/kg	0.8	0.8	0.8	1	1	0.9	0.8	1.1	0.7	1	0.8
Cadmium	0.4	SW6010B	mg/kg	0.055 U	0.056 U	0.054 U	0.052 U	0.11 U	0.11 U	0.055 U	0.12 U	0.052 U	0.052 U	0.054 U
Calcium	8595	SW6010B	mg/kg	3290 J	4840 J	2350 J	4750 J	7180 J	7480 J	3390 J	6650 J	6630 J	5000 J	4340 J
Chromium	28.74	SW6010B	mg/kg	24	33	23	43	35	41	24	30	40	51	27
Cobalt	11.36	SW6010B	mg/kg	21	20.2	22.5	21	19	18	18.5	18	22.3	18.9	17.7
Copper	23.13	SW6010B	mg/kg	79.5	70	83.5	86.7	90	77	72.3	87	54.1	81.9	72.9
Iron	31046	SW6010B	mg/kg	46600	41800	43700	40300	38000	34100	37800	33300	41500	35900	34500
Lead	10.35	SW6010B	mg/kg	29	29	30	19	1 U	1 U	24	20	16	57	16
Magnesium	4589	SW6010B	mg/kg	3640	4430	2040	5420	5960	7130	3180	5350	6880	5230	3690
Manganese	816	SW6010B	mg/kg	688	650	813	785	801	676	874	694	714	690	965
Mercury	1.86	SW7471A	mg/kg	295	560	172	660	304	690	162	217	290	460	136
Nickel	28.45	SW6010B	mg/kg	65	58	64	69	64	64	58	58	56	64	54
Potassium	957	SW6010B	mg/kg	1840	2360	1790	3380	3450	3770	2650	4010	2160	4220	2820
Selenium	NA	SW6010B	mg/kg	1.6 U	1.6 U	1.6 U	1.5 U	3.2 U	3.3 U	1.6 U	3.5 U	1.5 U	1.5 U	1.6 U
Silver	NA	SW6010B	mg/kg	0.11 U	0.111 U	0.107 U	0.103 U	0.22 U	0.22 U	0.111 U	0.23 U	0.104 U	0.104 U	0.108 U
Sodium	102.5	SW6010B	mg/kg	41.6 U	170	40.6 U	310	280	340	200	340	140	390	210
Thallium	NA	SW6010B	mg/kg	0.7 U	0.7 U	0.7 U	0.6 U	1.4 U	1.4 U	0.7 U	1.5 U	0.7 U	0.7 U	0.7 U
Vanadium	58.34	SW6010B	mg/kg	31.4	30.3	39	34.5	32	31	36.4	32	27.6	34.8	35.8
Zinc	66.98	SW6010B	mg/kg	135	107	136	126	122	115	118	125	93	123	112
SPLP Inorganic Elements µg/L														
Aluminum		SW6010B SPLP	mg/L									0.13	0.18	
Antimony		SW6010B SPLP	mg/L									2.79	7.74	
Arsenic		SW6010B SPLP	mg/L									3.87	4.9	
Barium		SW6010B SPLP	mg/L									0.007	0.013	
Beryllium		SW6010B SPLP	mg/L									0.001 U	0.001 U	
Cadmium		SW6010B SPLP	mg/L									0.002 U	0.002 U	
Calcium		SW6010B SPLP	mg/L									1.63	2.03	
Chromium		SW6010B SPLP	mg/L									0.005 U	0.005 U	
Cobalt		SW6010B SPLP	mg/L									0.003 U	0.003 U	
Copper		SW6010B SPLP	mg/L									0.002 U	0.002 U	
Iron		SW6010B SPLP	mg/L									0.11	0.13	
Lead		SW6010B SPLP	mg/L									0.02 U	0.02 U	
Magnesium		SW6010B SPLP	mg/L									1.97	2.22	
Manganese		SW6010B SPLP	mg/L									0.003	0.005	
Mercury		SW7470A SPLP	mg/L									0.0057	0.0147	
Nickel		SW6010B SPLP	mg/L									0.01 U	0.01 U	
Potassium		SW6010B SPLP	mg/L									0.8	1.2	
Selenium		SW6010B SPLP	mg/L									0.05 U	0.05 U	
Silver		SW6010B SPLP	mg/L									0.003 U	0.003 U	
Sodium		SW6010B SPLP	mg/L									0.5 U	0.6	
Thallium		SW6010B SPLP	mg/L									0.05 U	0.05 U	
Vanadium		SW6010B SPLP	mg/L									0.004	0.007	
Zinc		SW6010B SPLP	mg/L									0.01 U	0.01 U	
TCLP Inorganic Elements (mg/L)														
Arsenic		SW6010B TCLP	mg/L									3.2	11	
Barium		SW6010B TCLP	mg/L									1.19	1.01	
Cadmium		SW6010B TCLP	mg/L									0.01 U	0.01 U	
Chromium		SW6010B TCLP	mg/L									0.02 U	0.02 U	
Lead		SW6010B TCLP	mg/L									0.1 U	0.1 U	
Selenium		SW6010B TCLP	mg/L									0.2 U	0.2 U	
Silver		SW6010B TCLP	mg/L									0.02 U	0.02 U	
Mercury		SW7470A TCLP	mg/L									0.0047	0.0033	

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP19	MP20	MP21	MP22	MP23	MP24	MP25	MP26	MP27	MP28	MP29
		Soil Type*		N/DN	F	F	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR
		Sample ID		10MP19SS	10MP20SS	10MP21SS	10MP22SS	10MP23SS	10MP24SS	10MP25SS	10MP26SS	10MP27SS	10MP28SS	10MP29SS
		Method												
Total Inorganic Elements														
Aluminum	19563	SW6010B	mg/kg	13000	7370	5330	6170	11300	5280	13700	14600	12700	12200	14200
Antimony	8	SW6010B	mg/kg	40	40	80	2500	8720	1180	14100	15100	8480	4780	16700
Arsenic	28.91	SW6010B	mg/kg	170	230	360	1960	4380	2020	5400	6420	6100	5350	6170
Barium	237.5	SW6010B	mg/kg	90.3	213	319	346	598	277	882	890	735	682	870
Beryllium	0.5	SW6010B	mg/kg	0.6	0.7	0.8	0.8	0.9	0.7	1	1	1	0.9	0.21 U
Cadmium	0.4	SW6010B	mg/kg	0.06 U	1.1	0.8	0.054 U	0.1 U	1	0.11 U	0.11 U	0.11 U	0.052 U	0.21 U
Calcium	8595	SW6010B	mg/kg	1010	2410	1860	5390	4700	5960	6110	8150	4600	5140	7670
Chromium	28.74	SW6010B	mg/kg	23	25	32	25	30	26	41	49	37	33	41
Cobalt	11.36	SW6010B	mg/kg	16.2	18.2	25.2	26.2	19	23	17	18	19	16.6	18
Copper	23.13	SW6010B	mg/kg	32.4	89.7	96.9	87.9	117	82.3	95	97	139	77	94
Iron	31046	SW6010B	mg/kg	30600	48100	55600	45000	38400	42500	34000	35500	42600	38700	36700
Lead	10.35	SW6010B	mg/kg	9	40	24	28	10	30	80	1 U	220	43	1.9 U
Magnesium	4589	SW6010B	mg/kg	2480	1960	1190	5400	4790	8640	5710	6710	5200	5790	7450
Manganese	816	SW6010B	mg/kg	537	1040	1390	991	892	768	604	829	708	617	739
Mercury	1.86	SW7471A	mg/kg	38	62	63	106	261	440	1340	1620	250	820	440
Nickel	28.45	SW6010B	mg/kg	40	66	80	79	60	77	56	62	61	53	60
Potassium	957	SW6010B	mg/kg	810	1680	1570	1820	3250	1770	3760	3870	3840	3860	3980
Selenium	NA	SW6010B	mg/kg	1.8 U	1.6 U	1.6 U	1.6 U	3 U	1.6 U	3.2 U	3.1 U	3.2 U	1.5 U	6.3 U
Silver	NA	SW6010B	mg/kg	0.12 U	0.108 U	0.106 U	0.107 U	0.2 U	0.11 U	0.21 U	0.21 U	0.22 U	0.104 U	0.43 U
Sodium	102.5	SW6010B	mg/kg	45.2 U	40.8 U	40.1 U	40.4 U	260	41.7 U	350	370	340	350	161 U
Thallium	NA	SW6010B	mg/kg	0.7 U	0.7 U	0.7 U	0.7 U	1.3 U	0.7 U	1.3 U	1.3 U	1.4 U	0.7 U	2.7 U
Vanadium	58.34	SW6010B	mg/kg	45.4	39.8	49.5	31.6	33	27.3	31	34	32	31.1	35
Zinc	66.98	SW6010B	mg/kg	83	386	209	160	117	152	113	122	108	108	120
SPLP Inorganic Elements µg/L														
Aluminum		SW6010B SPLP	mg/L							0.09	0.13	0.09		0.1
Antimony		SW6010B SPLP	mg/L							9.24	11.2	10.7		31.3
Arsenic		SW6010B SPLP	mg/L							3.82	4.89	3.66		6
Barium		SW6010B SPLP	mg/L							0.014 J	0.007 J	0.009 J		0.006 U
Beryllium		SW6010B SPLP	mg/L							0.001 U	0.001 U	0.001 U		0.002 U
Cadmium		SW6010B SPLP	mg/L							0.002 U	0.002 U	0.002 U		0.004 U
Calcium		SW6010B SPLP	mg/L							1.77	1.46	2.41		1.4
Chromium		SW6010B SPLP	mg/L							0.005 U	0.005 U	0.005 U		0.01 U
Cobalt		SW6010B SPLP	mg/L							0.003 U	0.003 U	0.003 U		0.006 U
Copper		SW6010B SPLP	mg/L							0.002 U	0.002 U	0.002 U		0.004 U
Iron		SW6010B SPLP	mg/L							0.05 U	0.06	0.07		0.1 U
Lead		SW6010B SPLP	mg/L							0.02 U	0.02 U	0.02 U		0.04 U
Magnesium		SW6010B SPLP	mg/L							2.16	2.4	1.81		5.3
Manganese		SW6010B SPLP	mg/L							0.003	0.003	0.011		0.004
Mercury		SW7470A SPLP	mg/L							0.021 J	0.012 J	0.0015 J		0.007 J
Nickel		SW6010B SPLP	mg/L							0.01 U	0.01 U	0.01 U		0.02 U
Potassium		SW6010B SPLP	mg/L							1.2	1.2	1.3		2
Selenium		SW6010B SPLP	mg/L							0.05 U	0.05 U	0.05 U		0.1 U
Silver		SW6010B SPLP	mg/L							0.003 U	0.003 U	0.003 U		0.006 U
Sodium		SW6010B SPLP	mg/L							0.5	0.5 U	0.5		1 U
Thallium		SW6010B SPLP	mg/L							0.05 U	0.05 U	0.05 U		0.1 U
Vanadium		SW6010B SPLP	mg/L							0.006	0.009	0.004		0.008
Zinc		SW6010B SPLP	mg/L							0.01 U	0.01 U	0.01 U		0.02 U
TCLP Inorganic Elements (mg/L)														
Arsenic		SW6010B TCLP	mg/L							5.7	9	7.3		13.8
Barium		SW6010B TCLP	mg/L							0.64	0.45	0.72		0.42
Cadmium		SW6010B TCLP	mg/L							0.01 U	0.01 U	0.01 U		0.01 U
Chromium		SW6010B TCLP	mg/L							0.02 U	0.02 U	0.02 U		0.02 U
Lead		SW6010B TCLP	mg/L							0.1 U	0.1 U	0.1 U		0.1 U
Selenium		SW6010B TCLP	mg/L							0.2 U	0.2 U	0.2 U		0.2 U
Silver		SW6010B TCLP	mg/L							0.02 U	0.02 U	0.02 U		0.02 U
Mercury		SW7470A TCLP	mg/L							0.0032	0.0055	0.0028		0.0031

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP30	MP31	MP32	MP33	MP34	MP35	MP36	MP37	MP38	MP39	MP40
		Soil Type*		T/WR	B/WB	FT	N/DN	FT	T/WR	FT	N/DN or F	T/WR	T/WR	T/WR
		Sample ID		10MP30SS	10MP31SS	10MP32SS	10MP33SS	10MP34SS	10MP35SS	10MP36SS	10MP37SS	10MP38SS	10MP39SS	10MP40SS
		Method												
Total Inorganic Elements														
Aluminum	19563	SW6010B	mg/kg	8560	14700	3100	12000	2410	11900	3240	12100	10900	10800	11700
Antimony	8	SW6010B	mg/kg	720	7	1430	9	780	1680	690	20	760	1910	267
Arsenic	28.91	SW6010B	mg/kg	2930	19	9880	18	8510	2390	7050	60	992	1770	375
Barium	237.5	SW6010B	mg/kg	263	76.2	126	112	101	474	145	144	207	401	162
Beryllium	0.5	SW6010B	mg/kg	0.7	0.4	0.7	0.3	0.7	0.6	0.8	0.5	0.6	0.6	0.5
Cadmium	0.4	SW6010B	mg/kg	0.057 U	0.3	0.12 U	0.032 U	0.11 U	0.059 U	0.059 U	0.7	0.023 U	0.056 U	0.2
Calcium	8595	SW6010B	mg/kg	3670	976	1670	3900	1520	3640	3310	2050	2170	3570	1760
Chromium	28.74	SW6010B	mg/kg	22	21.5	19	18.7	10	37	18	24	22.9	34	25.4
Cobalt	11.36	SW6010B	mg/kg	15.8	7.4	16	5.9	16	21.3	16.9	20.3	20.1	16.2	13.6
Copper	23.13	SW6010B	mg/kg	63.7	17.9	71	20.2	73	46.2	64.2	35.4	44.4	40.5	38.2
Iron	31046	SW6010B	mg/kg	31200	26100	44300	16800	43300	29900	49400	34400	27400	31600	26300
Lead	10.35	SW6010B	mg/kg	57	7	180	8	160	43	198	9	17	12	9
Magnesium	4589	SW6010B	mg/kg	4460	2340	1390	2640	680	4130	4080	3800	3630	3450	3380
Manganese	816	SW6010B	mg/kg	539	258	708	158	814	764	1090	480	540	486	310
Mercury	1.86	SW7471A	mg/kg	400	0.28	127	1.46	79	183	75	3.6	154	42	15
Nickel	28.45	SW6010B	mg/kg	52	20	48	18	52	61	54	44	49	49	39
Potassium	957	SW6010B	mg/kg	1920	670	1600	880	1180	2190	1490	1150	1440	2110	1280
Selenium	NA	SW6010B	mg/kg	1.7 U	0.76 U	3.5 U	0.93 U	3.2 U	1.7 U	1.7 U	1.7 U	0.67 U	1.6 U	0.7 U
Silver	NA	SW6010B	mg/kg	0.114 U	0.051 U	0.24 U	0.063 U	0.22 U	0.118 U	0.118 U	0.117 U	0.045 U	0.111 U	0.047 U
Sodium	102.5	SW6010B	mg/kg	42.9 U	70	90.4 U	90	81.7 U	44.5 U	44.5 U	44.1 U	80	41.9 U	70
Thallium	NA	SW6010B	mg/kg	0.7 U	0.32 U	1.5 U	0.4 U	1.4 U	0.7 U	0.7 U	0.7 U	0.28 U	0.7 U	0.3 U
Vanadium	58.34	SW6010B	mg/kg	29.4	47.5	21	32.2	20	35.6	25.3	41.1	35.6	34.1	39.3
Zinc	66.98	SW6010B	mg/kg	94	51	112	38	109	90	110	88	90	84	94
SPLP Inorganic Elements µg/L														
Aluminum		SW6010B SPLP	mg/L			0.05 U		0.13 J		0.1 J				
Antimony		SW6010B SPLP	mg/L			3.66		0.48		0.51				
Arsenic		SW6010B SPLP	mg/L			2.31		0.7 J		0.57 J				
Barium		SW6010B SPLP	mg/L			0.003 U		0.003 U		0.003 U				
Beryllium		SW6010B SPLP	mg/L			0.001 U		0.001 U		0.001 U				
Cadmium		SW6010B SPLP	mg/L			0.002 U		0.002 U		0.002 U				
Calcium		SW6010B SPLP	mg/L			0.45		0.51		1.2				
Chromium		SW6010B SPLP	mg/L			0.005 U		0.005 U		0.005 U				
Cobalt		SW6010B SPLP	mg/L			0.003 U		0.003 U		0.003 U				
Copper		SW6010B SPLP	mg/L			0.005		0.002 U		0.002 U				
Iron		SW6010B SPLP	mg/L			0.12		0.26 J		0.28 J				
Lead		SW6010B SPLP	mg/L			0.02 U		0.02 U		0.02 U				
Magnesium		SW6010B SPLP	mg/L			0.67		0.43		0.98				
Manganese		SW6010B SPLP	mg/L			0.004		0.007 J		0.007 J				
Mercury		SW7470A SPLP	mg/L			0.0033 J		0.0012 J		0.0014 J				
Nickel		SW6010B SPLP	mg/L			0.01 U		0.01 U		0.01 U				
Potassium		SW6010B SPLP	mg/L			2.4		0.5 U		0.5 U				
Selenium		SW6010B SPLP	mg/L			0.05 U		0.05 U		0.05 U				
Silver		SW6010B SPLP	mg/L			0.003 U		0.003 U		0.003 U				
Sodium		SW6010B SPLP	mg/L			0.5		0.5 U		0.5 U				
Thallium		SW6010B SPLP	mg/L			0.05 U		0.05 U		0.05 U				
Vanadium		SW6010B SPLP	mg/L			0.003 U		0.003 U		0.003 U				
Zinc		SW6010B SPLP	mg/L			0.01 U		0.01 U		0.01 U				
TCLP Inorganic Elements (mg/L)														
Arsenic		SW6010B TCLP	mg/L			2.8		0.9		0.7				
Barium		SW6010B TCLP	mg/L			0.02 U		0.02 U		0.02 U				
Cadmium		SW6010B TCLP	mg/L			0.01 U		0.01 U		0.01 U				
Chromium		SW6010B TCLP	mg/L			0.02 U		0.02 U		0.02 U				
Lead		SW6010B TCLP	mg/L			0.1 U		0.1 U		0.1 U				
Selenium		SW6010B TCLP	mg/L			0.2 U		0.2 U		0.2 U				
Silver		SW6010B TCLP	mg/L			0.02 U		0.02 U		0.02 U				
Mercury		SW7470A TCLP	mg/L			0.005		0.0013		0.0017				

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP30	MP31	MP32	MP33	MP34	MP35	MP36	MP37	MP38	MP39	MP40
		Soil Type*		T/WR	B/WB	FT	N/DN	FT	T/WR	FT	N/DN or F	T/WR	T/WR	T/WR
		Sample ID		10MP30SS	10MP31SS	10MP32SS	10MP33SS	10MP34SS	10MP35SS	10MP36SS	10MP37SS	10MP38SS	10MP39SS	10MP40SS
		Method												
Arsenite Speciation (mg/kg)														
Arsenate		EPA 1632	mg/kg			13100 J		12000 J		8020 J				
Arsenite		EPA 1632	mg/kg			191 J		27.5 J		59.5 J				
Inorganic Arsenic		EPA 1632	mg/kg			13300 J		12000 J		8080 J				
Arsenic Bioavailability														
Arsenic (IVBA)		M6020 ICP-MS	mg/L											
Arsenic, total (3050)		M6020 ICP-MS	mg/Kg											
Arsenic IVBA% (In Vitro RBA)		Calculation (EPA 920)	%											
Total Solids		CLPSOW390, PART F, D	%											
Mercury Selective Sequential Extraction														
Hg(F0)		EPA 1631	ng/g			7.54		2.98 U		3.07 U				
Hg(F1)		BRL SOP No. BR-0013	ng/g			1090 J		560 J		442 J				
Hg(F2)		BRL SOP No. BR-0013	ng/g			406 J		318 J		51.3 J				
Hg(F3)		BRL SOP No. BR-0013	ng/g			980 J		1380 J		727 J				
Hg(F4)		BRL SOP No. BR-0013	ng/g			27000 J		23800 J		14900 J				
Hg(F5)		BRL SOP No. BR-0013	ng/g			215000		195000		218000				
Hg(F6)		BRL SOP No. BR-0013	ng/g			7160 J		7230 J		7600 J				
Semi-Volatile Organic Compounds														
1-Methylnaphthalene		SW8270D	µg/kg			2.7 U		2.6 U		2.6 U				
2-Methylnaphthalene		SW8270D	µg/kg			3 U		2.9 U		3 U				
4-Bromophenyl Phenyl Ether		SW8270C Low Level Semivolatile C	µg/kg											
4-Methylphenol		SW8270C Low Level Semivolatile C	µg/kg											
Acenaphthene		SW8270C Low Level Semivolatile C	µg/kg											
Acenaphthylene		SW8270C Low Level Semivolatile C	µg/kg											
Anthracene		SW8270C Low Level Semivolatile C	µg/kg											
Benzoic Acid		SW8270C Low Level Semivolatile C	µg/kg											
Benzyl Alcohol		SW8270C Low Level Semivolatile C	µg/kg											
bis(2-Ethylhexyl)phthalate		SW8270D	µg/kg			13 J		15 J		220				
Chrysene		SW8270C Low Level Semivolatile C	µg/kg											
Chrysene		SW8270D	µg/kg			5.8 U		5.6 U		5.8 U				
Dibenzofuran		SW8270C Low Level Semivolatile C	µg/kg											
Diethyl Phthalate		SW8270C Low Level Semivolatile C	µg/kg											
Diethylphthalate		SW8270D	µg/kg			3.7 U		3.6 U		3.7 U				

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP67	MP68	OP01	MP17	MP25	MP32	MP34	MP36	MP70	MP71	MP72
		Soil Type*		T/WR	??????	Tailings	T/WR	T/WR	FT	FT	FT	N/DN (RDCA)	N/DN	F
		Sample ID		10MP67SS	10MP68SS	10OP01SS	11MP17SS	11MP25SS	11MP32SS	11MP34SS	11MP36SS	11MP70SS	11MP71SS	11MP72SS
		Method												
Dimethyl Phthalate		SW8270C Low Level Semivolatile C	µg/kg									160		
Docosanoic acid		SW8270C Low Level Semivolatile C	µg/kg									1300 J		
Fluorene		SW8270C Low Level Semivolatile C	µg/kg									2.5 J		
Hexachlorobenzene		SW8270C Low Level Semivolatile C	µg/kg									1.3 J		
Naphthalene		SW8270D	µg/kg											
Pentachlorophenol		SW8270D	µg/kg											
Phenanthrene		SW8270C Low Level Semivolatile C	µg/kg									4.2 J		
Phenanthrene		SW8270D	µg/kg											
Phenol		SW8270C Low Level Semivolatile C	µg/kg									4.6 J		
Pyrene		SW8270C Low Level Semivolatile C	µg/kg									2.8 J		
Sulfur		SW8270D	µg/kg											
Unknown		SW8270C Low Level Semivolatile C	µg/kg									5300 J		
Unknown		SW8270D	µg/kg											
Unknown Alkane		SW8270C Low Level Semivolatile C	µg/kg									4000 J		
Unknown Alkene		SW8270C Low Level Semivolatile C	µg/kg									2000 J		
Unknown Aromatic		SW8270D	µg/kg											
Unknown Branched Alkane		SW8270C Low Level Semivolatile C	µg/kg									1500 J		
Unknown Hydrocarbon		SW8270D	µg/kg											
Unknown Organic Acid		SW8270D	µg/kg											
Unknown Sterol		SW8270C Low Level Semivolatile C	µg/kg									3200 J		
Unknown Sterol		SW8270D	µg/kg											
Polychlorinated Biphenols														
Aroclor 1016		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Aroclor 1221		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Aroclor 1232		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Aroclor 1242		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Aroclor 1248		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Aroclor 1254		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Aroclor 1260		SW8082 Reg level 3541 PCB Aroclor	mg/Kg											0.019 U
Diesel and Residual Range Organics (mg/kg)														
C10 - C25 DRO		AK102 Alaska Diesel Range for Soil	mg/kg									39		
Diesel Range Hydrocarbons		AK102/AK103 TPHD	mg/kg											
Motor Oil		AK102/AK103 TPHD	mg/kg											
C25 - C36 RRO		AK103 Alaska Residual Range for S	mg/kg									420		

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP73	MP74	MP75	MP76	MP77	MP78	MP79
		Soil Type*		F	F	F	T/WR	T/WR	T/WR	T/WR
		Sample ID		11MP73SS	11MP74SS	11MP75SS	11MP76SS	11MP77SS	11MP78SS	11MP79SS
		Method								
Analyte										
Total Inorganic Elements										
Aluminum	19563	SW6010B	mg/kg							
Antimony	8	SW6010B	mg/kg							
Arsenic	28.91	SW6010B	mg/kg							
Barium	237.5	SW6010B	mg/kg							
Beryllium	0.5	SW6010B	mg/kg							
Cadmium	0.4	SW6010B	mg/kg							
Calcium	8595	SW6010B	mg/kg							
Chromium	28.74	SW6010B	mg/kg							
Cobalt	11.36	SW6010B	mg/kg							
Copper	23.13	SW6010B	mg/kg							
Iron	31046	SW6010B	mg/kg							
Lead	10.35	SW6010B	mg/kg							
Magnesium	4589	SW6010B	mg/kg							
Manganese	816	SW6010B	mg/kg							
Mercury	1.86	SW7471A	mg/kg							
Nickel	28.45	SW6010B	mg/kg							
Potassium	957	SW6010B	mg/kg							
Selenium	NA	SW6010B	mg/kg							
Silver	NA	SW6010B	mg/kg							
Sodium	102.5	SW6010B	mg/kg							
Thallium	NA	SW6010B	mg/kg							
Vanadium	58.34	SW6010B	mg/kg							
Zinc	66.98	SW6010B	mg/kg							
SPLP Inorganic Elements µg/L										
Aluminum		SW6010B SPLP	mg/L							
Antimony		SW6010B SPLP	mg/L							
Arsenic		SW6010B SPLP	mg/L							
Barium		SW6010B SPLP	mg/L							
Beryllium		SW6010B SPLP	mg/L							
Cadmium		SW6010B SPLP	mg/L							
Calcium		SW6010B SPLP	mg/L							
Chromium		SW6010B SPLP	mg/L							
Cobalt		SW6010B SPLP	mg/L							
Copper		SW6010B SPLP	mg/L							
Iron		SW6010B SPLP	mg/L							
Lead		SW6010B SPLP	mg/L							
Magnesium		SW6010B SPLP	mg/L							
Manganese		SW6010B SPLP	mg/L							
Mercury		SW7470A SPLP	mg/L							
Nickel		SW6010B SPLP	mg/L							
Potassium		SW6010B SPLP	mg/L							
Selenium		SW6010B SPLP	mg/L							
Silver		SW6010B SPLP	mg/L							
Sodium		SW6010B SPLP	mg/L							
Thallium		SW6010B SPLP	mg/L							
Vanadium		SW6010B SPLP	mg/L							
Zinc		SW6010B SPLP	mg/L							
TCLP Inorganic Elements (mg/L)										
Arsenic		SW6010B TCLP	mg/L							
Barium		SW6010B TCLP	mg/L							
Cadmium		SW6010B TCLP	mg/L							
Chromium		SW6010B TCLP	mg/L							
Lead		SW6010B TCLP	mg/L							
Selenium		SW6010B TCLP	mg/L							
Silver		SW6010B TCLP	mg/L							
Mercury		SW7470A TCLP	mg/L							

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP73	MP74	MP75	MP76	MP77	MP78	MP79
		Soil Type*		F	F	F	T/WR	T/WR	T/WR	T/WR
		Sample ID		11MP73SS	11MP74SS	11MP75SS	11MP76SS	11MP77SS	11MP78SS	11MP79SS
		Method								
Analyte										
Arsenic Speciation (mg/kg)										
Arsenate		EPA 1632	mg/kg							
Arsenite		EPA 1632	mg/kg							
Inorganic Arsenic		EPA 1632	mg/kg							
Arsenic Bioavailability										
Arsenic (IVBA)		M6020 ICP-MS	mg/L							
Arsenic, total (3050)		M6020 ICP-MS	mg/Kg							
Arsenic IVBA% (In Vitro RBA)		Calculation (EPA 920)	%							
Total Solids		CLPSOW390, PART F, D	%							
Mercury Selective Sequential Extraction										
Hg(F0)		EPA 1631	ng/g							
Hg(F1)		BRL SOP No. BR-0013	ng/g							
Hg(F2)		BRL SOP No. BR-0013	ng/g							
Hg(F3)		BRL SOP No. BR-0013	ng/g							
Hg(F4)		BRL SOP No. BR-0013	ng/g							
Hg(F5)		BRL SOP No. BR-0013	ng/g							
Hg(F6)		BRL SOP No. BR-0013	ng/g							
Semi-Volatile Organic Compounds										
1-Methylnaphthalene		SW8270D	µg/kg							
2-Methylnaphthalene		SW8270D	µg/kg							
4-Bromophenyl Phenyl Ether		SW8270C Low Level Semivolatile C	µg/kg							
4-Methylphenol		SW8270C Low Level Semivolatile C	µg/kg							
Acenaphthene		SW8270C Low Level Semivolatile C	µg/kg							
Acenaphthylene		SW8270C Low Level Semivolatile C	µg/kg							
Anthracene		SW8270C Low Level Semivolatile C	µg/kg							
Benzoic Acid		SW8270C Low Level Semivolatile C	µg/kg							
Benzyl Alcohol		SW8270C Low Level Semivolatile C	µg/kg							
bis(2-Ethylhexyl)phthalate		SW8270D	µg/kg							
Chrysene		SW8270C Low Level Semivolatile C	µg/kg							
Chrysene		SW8270D	µg/kg							
Dibenzofuran		SW8270C Low Level Semivolatile C	µg/kg							
Diethyl Phthalate		SW8270C Low Level Semivolatile C	µg/kg							
Diethylphthalate		SW8270D	µg/kg							

Table 4-18 Post-1955 Main Processing Area Surface Soil Results	Background Screening Criteria	Station ID	Units	MP73	MP74	MP75	MP76	MP77	MP78	MP79
		Soil Type*		F	F	F	T/WR	T/WR	T/WR	T/WR
		Sample ID		11MP73SS	11MP74SS	11MP75SS	11MP76SS	11MP77SS	11MP78SS	11MP79SS
		Method								
Analyte										
Dimethyl Phthalate		SW8270C Low Level Semivolatile C	µg/kg							
Docosanoic acid		SW8270C Low Level Semivolatile C	µg/kg							
Fluorene		SW8270C Low Level Semivolatile C	µg/kg							
Hexachlorobenzene		SW8270C Low Level Semivolatile C	µg/kg							
Naphthalene		SW8270D	µg/kg							
Pentachlorophenol		SW8270D	µg/kg							
Phenanthrene		SW8270C Low Level Semivolatile C	µg/kg							
Phenanthrene		SW8270D	µg/kg							
Phenol		SW8270C Low Level Semivolatile C	µg/kg							
Pyrene		SW8270C Low Level Semivolatile C	µg/kg							
Sulfur		SW8270D	µg/kg							
Unknown		SW8270C Low Level Semivolatile C	µg/kg							
Unknown		SW8270D	µg/kg							
Unknown Alkane		SW8270C Low Level Semivolatile C	µg/kg							
Unknown Alkene		SW8270C Low Level Semivolatile C	µg/kg							
Unknown Aromatic		SW8270D	µg/kg							
Unknown Branched Alkane		SW8270C Low Level Semivolatile C	µg/kg							
Unknown Hydrocarbon		SW8270D	µg/kg							
Unknown Organic Acid		SW8270D	µg/kg							
Unknown Sterol		SW8270C Low Level Semivolatile C	µg/kg							
Unknown Sterol		SW8270D	µg/kg							
Polychlorinated Biphenols										
Aroclor 1016		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Aroclor 1221		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Aroclor 1232		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Aroclor 1242		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Aroclor 1248		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Aroclor 1254		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Aroclor 1260		SW8082 Reg level 3541 PCB Aroclor	mg/Kg	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Diesel and Residual Range Organics (mg/kg)										
C10 - C25 DRO		AK102 Alaska Diesel Range for Soil	mg/kg							
Diesel Range Hydrocarbons		AK102/AK103 TPHD	mg/kg							
Motor Oil		AK102/AK103 TPHD	mg/kg							
C25 - C36 RRO		AK103 Alaska Residual Range for S	mg/kg							

*Soil types defined in Table A-1

Key

Bold = detection

% = percent

µg/kg = micrograms per kilogram

µg/L = micrograms per liter

DRO = diesel range organics

Gray shading = exceedance of background

IVBA In-vitro bioaccessibility

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

RBA = relative bioavailability

RRO = residual range organics

SPLP = synthetic precipitation leaching procedure

TCLP = toxicity characteristic leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-19 Red Devil Creek Downstream Alluvial Area Surface Soil Results		Background Screening Criteria	Station ID	Units	RD01	RD02	RD03	RD04	RD05	RD06	RD07	RD20
			Soil Type*		N/DN	T/W/R	T/W/R	T/W/R	N/DN	F	F	T/W/R
Analyte			Sample ID		10RD01SS	10RD02SS	10RD03SS	10RD04SS	10RD05SS	10RD06SS	10RD07SS	10RD20SS
			Method									
Total Inorganic Elements												
Aluminum	19563	SW6010B		mg/kg	16100	10200	11700	11800	11500	9070	10800	9440
Antimony	8	SW6010B		mg/kg	0.61 U	530 J	479 J	381 J	39 J	677 J	30 J	974 J
Arsenic	28.91	SW6010B		mg/kg	39	1280	950	1210	67	1250	76	1310
Barium	237.5	SW6010B		mg/kg	204	287	265	248	165	215	120	218
Beryllium	0.5	SW6010B		mg/kg	0.5	0.6	0.6	0.6	0.4	0.5	0.5	0.7
Cadmium	0.4	SW6010B		mg/kg	0.6	0.056 U	0.3	0.026 U	0.4	0.026 U	0.3	0.022 U
Calcium	8595	SW6010B		mg/kg	6450 J	4540 J	10400 J	3300 J	3560 J	2300 J	1930 J	2610
Chromium	28.74	SW6010B		mg/kg	31.1	26	26	29.6	22.8	25.7	21.5	24
Cobalt	11.36	SW6010B		mg/kg	11.2	14.5	10.5	15.5	9.6	11.9	12.2	12.4
Copper	23.13	SW6010B		mg/kg	28.2	40.3	29.5	38.1	22.2	35.7	32.3	81.8
Iron	31046	SW6010B		mg/kg	29800	30600	27700	28600	18400	23300	21100	27100
Lead	10.35	SW6010B		mg/kg	8 J	11 J	7 J	10 J	7 J	11 J	8 J	11
Magnesium	4589	SW6010B		mg/kg	5850	5240	7040	4760	3560	3320	2720	4470
Manganese	816	SW6010B		mg/kg	635	622	542	545	221	356	312	434
Mercury	1.86	SW7471A		mg/kg	1.74	43	28	99	3.8	186	16	75
Nickel	28.45	SW6010B		mg/kg	33	43	35	46	25	35	32	38
Potassium	957	SW6010B		mg/kg	1560	1710	1870	1710	900	1350	950	1560
Selenium	NA	SW6010B		mg/kg	0.88 U	1.6 U	0.71 U	0.77 U	0.8 U	0.76 U	0.7 U	0.63 U
Silver	NA	SW6010B		mg/kg	0.059 U	0.112 U	0.048 U	0.052 U	0.055 U	0.051 U	0.048 U	0.043 U
Sodium	103	SW6010B		mg/kg	250	170	220	140	90	80	70	120
Thallium	NA	SW6010B		mg/kg	0.37 U	0.7 U	0.3 U	0.32 U	0.34 U	0.32 U	0.3 U	0.27 U
Vanadium	58.34	SW6010B		mg/kg	42.4	30.3	30.7	34.9	35.7	29.7	37.8	28.8
Zinc	66.98	SW6010B		mg/kg	93 J	93 J	83 J	110 J	76 J	76 J	69 J	80
SPLP Inorganic Elements (µg/L)												
Aluminum		SW6010B SPLP		mg/L				1.86		1.93		
Antimony		SW6010B SPLP		mg/L				0.62		1.29		
Arsenic		SW6010B SPLP		mg/L				0.54		0.66		
Barium	R	SW6010B SPLP		mg/L				0.068		0.071		
Beryllium		SW6010B SPLP		mg/L				0.001 U		0.001 U		
Cadmium		SW6010B SPLP		mg/L				0.002 U		0.002 U		
Calcium		SW6010B SPLP		mg/L				1.26		1.01		
Chromium		SW6010B SPLP		mg/L				0.005		0.005 U		
Cobalt		SW6010B SPLP		mg/L				0.003 U		0.003 U		
Copper		SW6010B SPLP		mg/L				0.007		0.008		
Iron		SW6010B SPLP		mg/L				2.01		1.78		
Lead		SW6010B SPLP		mg/L				0.02 U		0.02 U		
Magnesium		SW6010B SPLP		mg/L				0.61		0.61		
Manganese		SW6010B SPLP		mg/L				0.041		0.025		
Mercury		SW7470A SPLP		mg/L				0.037		0.04		
Nickel		SW6010B SPLP		mg/L				0.01 U		0.01 U		
Potassium		SW6010B SPLP		mg/L				0.6		0.5		
Selenium		SW6010B SPLP		mg/L				0.05 U		0.05 U		
Silver		SW6010B SPLP		mg/L				0.003 U		0.003 U		
Sodium		SW6010B SPLP		mg/L				6.5		8.2		
Thallium		SW6010B SPLP		mg/L				0.05 U		0.05 U		
Vanadium		SW6010B SPLP		mg/L				0.006		0.006		
Zinc		SW6010B SPLP		mg/L				0.01 U		0.01 U		
Arsenic Speciation (mg/kg)												
Arsenate		EPA 1632		mg/kg				1160 J		1380 J		
Arsenite		EPA 1632		mg/kg				27.8 J		33.7 J		
Inorganic Arsenic		EPA 1632		mg/kg				1190 J		1410 J		

Table 4-19 Red Devil Creek Downstream Alluvial Area Surface Soil Results		Background Screening Criteria	Station ID	Units	RD01	RD02	RD03	RD04	RD05	RD06	RD07	RD20
			Soil Type*		N/DN	T/W/R	T/W/R	T/W/R	N/DN	F	F	T/W/R
Analyte	Method				10RD01SS	10RD02SS	10RD03SS	10RD04SS	10RD05SS	10RD06SS	10RD07SS	10RD20SS
Mercury Selective Sequential Extraction												
Hg(F0)	EPA 1631		ng/g					12.5		3.82 U		
Hg(F1)	BRL SOP No. BR-0013		ng/g					1910		1550		
Hg(F2)	BRL SOP No. BR-0013		ng/g					206		63		
Hg(F3)	BRL SOP No. BR-0013		ng/g					5260 J		4510 J		
Hg(F4)	BRL SOP No. BR-0013		ng/g					23900		64500		
Hg(F5)	BRL SOP No. BR-0013		ng/g					158000		597000		
Hg(F6)	BRL SOP No. BR-0013		ng/g					7040 J		28800 J		

*Soil types defined in Table A-1

Key

Bold = detection

% = percent

Gray shading = exceedance of background

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

SPLP = synthetic precipitation leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

µg/L = micrograms per liter

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-20 Red Devil Creek Upstream Alluvial Area Surface Soil Results	Background Screening Criteria	Station ID	Units	RD08	RD09	RD30
		Soil Type*		N/DN	N/DN	N/DN
		Sample ID		10RD08SS	10RD09SS	11RD30SS
		Method				
Analyte						
Total Inorganic Elements						
Aluminum	19563	SW6010B	mg/kg	13800	17300	
Antimony	8	SW6010B	mg/kg	1.2 U	1.4 UJ	
Arsenic	28.91	SW6010B	mg/kg	30	20	
Barium	237.5	SW6010B	mg/kg	157	162	
Beryllium	0.5	SW6010B	mg/kg	0.5	0.5	
Cadmium	0.4	SW6010B	mg/kg	0.6	0.07 U	
Calcium	8595	SW6010B	mg/kg	1230 J	3240	
Chromium	28.74	SW6010B	mg/kg	25	28	
Cobalt	11.36	SW6010B	mg/kg	15.6	16	
Copper	23.13	SW6010B	mg/kg	35.5	23.4	
Iron	31046	SW6010B	mg/kg	31700	37300	
Lead	10.35	SW6010B	mg/kg	11 J	9	
Magnesium	4589	SW6010B	mg/kg	3380	4660	
Manganese	816	SW6010B	mg/kg	595	936	
Mercury	1.86	SW7471A	mg/kg	0.9	2	
Nickel	28.45	SW6010B	mg/kg	44	33 J	
Potassium	957	SW6010B	mg/kg	940	890	
Selenium	NA	SW6010B	mg/kg		1.7 U	2.1 U
Silver	NA	SW6010B	mg/kg	0.115 U	0.14 U	
Sodium	102.5	SW6010B	mg/kg	43.4 U	52.9 U	
Thallium	NA	SW6010B	mg/kg	0.7 U	0.9 U	
Vanadium	58.34	SW6010B	mg/kg	42.5	48	
Zinc	66.98	SW6010B	mg/kg	89 J	73	
SPLP Inorganic Elements (µg/L)						
Aluminum		SW6010B SPLP	mg/L		1.19 J	
Antimony		SW6010B SPLP	mg/L		0.05 U	
Arsenic		SW6010B SPLP	mg/L		0.05 J	
Barium		SW6010B SPLP	mg/L		0.056 J	
Beryllium		SW6010B SPLP	mg/L		0.001 U	
Cadmium		SW6010B SPLP	mg/L		0.002 U	
Calcium		SW6010B SPLP	mg/L		1.49	
Chromium		SW6010B SPLP	mg/L		0.005 U	
Cobalt		SW6010B SPLP	mg/L		0.003 U	
Copper		SW6010B SPLP	mg/L		0.003	
Iron		SW6010B SPLP	mg/L		2.64 J	
Lead		SW6010B SPLP	mg/L		0.02 U	
Magnesium		SW6010B SPLP	mg/L		0.75	
Manganese		SW6010B SPLP	mg/L		0.046 J	
Mercury		SW7470A SPLP	mg/L		0.0001 UJ	
Nickel		SW6010B SPLP	mg/L		0.01 U	
Potassium		SW6010B SPLP	mg/L		0.5 U	
Selenium		SW6010B SPLP	mg/L		0.05 U	
Silver		SW6010B SPLP	mg/L		0.003 U	
Sodium		SW6010B SPLP	mg/L		0.5 UJ	
Thallium		SW6010B SPLP	mg/L		0.05 U	
Vanadium		SW6010B SPLP	mg/L		0.004	
Zinc		SW6010B SPLP	mg/L		0.01 U	
Arsenic Speciation (mg/kg)						
Arsenate		EPA 1632	mg/kg		195 J	
Arsenite		EPA 1632	mg/kg		2.36 J	
Inorganic Arsenic		EPA 1632	mg/kg		197 J	
Arsenic Bioavailability						
Arsenic (IVBA)		M6020 ICP-MS	mg/L			0.0835
Arsenic, total (3050)		M6020 ICP-MS	mg/kg			23.1
Arsenic IVBA% (In Vitro RBA)		Calculation (EPA 920)	%			36.1 J
Total Solids		CLPSOW390, PART F, D	%			45.3
Mercury Selective Sequential Extraction						
Hg(F0)		EPA 1631	ng/g		3.29 U	
Hg(F1)		BRL SOP No. BR-0013	ng/g		38.3	
Hg(F2)		BRL SOP No. BR-0013	ng/g		4.9	
Hg(F3)		BRL SOP No. BR-0013	ng/g		2550 J	
Hg(F4)		BRL SOP No. BR-0013	ng/g		360	
Hg(F5)		BRL SOP No. BR-0013	ng/g		999	
Hg(F6)		BRL SOP No. BR-0013	ng/g		2.2 U	

*Soil types defined in Table A-1

Key

Bold = detection

% = percent

µg/L = micrograms per kilogram

Gray shading = exceedance of background

IVBA = In-vitro bioavailability

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

RBA = relative bioavailability

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-21 Dolly Sluice and Delta Surface Soil Results	Background Screening Criteria	Station ID	Units	DS01	DS02	DS03
		Soil Type*		SO	SO	N/DN
		Sample ID		10DS01SS	10DS02SS	10DS03SS
		Method				
Analyte						
Total Inorganic Elements						
Aluminum	19563	SW6010B	mg/kg	4770	7770	8200
Antimony	8	SW6010B	mg/kg	40 J	40 J	21 J
Arsenic	28.91	SW6010B	mg/kg	1010	550	355
Barium	237.5	SW6010B	mg/kg	171	174	166
Beryllium	0.5	SW6010B	mg/kg	0.8	0.6	0.6
Cadmium	0.4	SW6010B	mg/kg	0.055 U	0.058 U	0.5
Calcium	8595	SW6010B	mg/kg	1080	2530	1760
Chromium	28.74	SW6010B	mg/kg	20	21	18.9
Cobalt	11.36	SW6010B	mg/kg	17	12.6	17.5
Copper	23.13	SW6010B	mg/kg	57.4	37.5	49.3
Iron	31046	SW6010B	mg/kg	46400	32100	28800
Lead	10.35	SW6010B	mg/kg	12	9	10
Magnesium	4589	SW6010B	mg/kg	880	3000	2090
Manganese	816	SW6010B	mg/kg	759	598	833
Mercury	1.86	SW7471A	mg/kg	71	22	16
Nickel	28.45	SW6010B	mg/kg	54	42	39
Potassium	957	SW6010B	mg/kg	1270	1290	1210
Selenium	NA	SW6010B	mg/kg	1.6 U	1.7 U	0.71 U
Silver	NA	SW6010B	mg/kg	0.111 U	0.115 U	0.048 U
Sodium	102.5	SW6010B	mg/kg	41.8 U	150	70
Thallium	NA	SW6010B	mg/kg	0.7 U	0.7 U	0.3 U
Vanadium	58.34	SW6010B	mg/kg	33.2	31	32.2
Zinc	66.98	SW6010B	mg/kg	116	98	93
SPLP Inorganic Elements (µg/L)						
Aluminum		SW6010B SPLP	mg/L	0.25		
Antimony		SW6010B SPLP	mg/L	0.06		
Arsenic		SW6010B SPLP	mg/L	0.05 U		
Barium		SW6010B SPLP	mg/L	0.008		
Beryllium		SW6010B SPLP	mg/L	0.001 U		
Cadmium		SW6010B SPLP	mg/L	0.002 U		
Calcium		SW6010B SPLP	mg/L	0.37		
Chromium		SW6010B SPLP	mg/L	0.005 U		
Cobalt		SW6010B SPLP	mg/L	0.003 U		
Copper		SW6010B SPLP	mg/L	0.004		
Iron		SW6010B SPLP	mg/L	0.47		
Lead		SW6010B SPLP	mg/L	0.02 U		
Magnesium		SW6010B SPLP	mg/L	0.14		
Manganese		SW6010B SPLP	mg/L	0.021		
Mercury		SW7470A SPLP	mg/L	0.0016 J		
Nickel		SW6010B SPLP	mg/L	0.01 U		
Potassium		SW6010B SPLP	mg/L	1		
Selenium		SW6010B SPLP	mg/L	0.05 U		
Silver		SW6010B SPLP	mg/L	0.003 U		
Sodium		SW6010B SPLP	mg/L	0.6		
Thallium		SW6010B SPLP	mg/L	0.05 U		
Vanadium		SW6010B SPLP	mg/L	0.003 U		
Zinc		SW6010B SPLP	mg/L	0.01 U		
Arsenic Speciation (mg/kg)						
Arsenate		EPA 1632	mg/kg	1330 J		
Arsenite		EPA 1632	mg/kg	3.78 J		
Inorganic Arsenic		EPA 1632	mg/kg	1330 J		
Mercury Selective Sequential Extraction						
Hg(F0)		EPA 1631	ng/g	3.82 U		
Hg(F1)		BRL SOP No. BR-0013	ng/g	446		
Hg(F2)		BRL SOP No. BR-0013	ng/g	125		
Hg(F3)		BRL SOP No. BR-0013	ng/g	7810 J		
Hg(F4)		BRL SOP No. BR-0013	ng/g	194000		
Hg(F5)		BRL SOP No. BR-0013	ng/g	1630000		
Hg(F6)		BRL SOP No. BR-0013	ng/g	79600 J		

*Soil types defined in Table A-1

Key

Bold = detection

% = percent

µg/L = micrograms per liter

Gray shading = exceedance of background

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

SPLP = synthetic precipitation leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-22 Rice Sluice and Delta Surface Soil Results	Background Screening Criteria	Station ID	Units	RS01	RS02	RS03
		Soil Type*		SO	SO	SO or N/DN
		Sample ID		10RS01SS	10RS02SS	10RS03SS
		Method				
Analyte						
Total Inorganic Elements						
Aluminum	19563	SW6010B	mg/kg	14600	14000	10600
Antimony	8	SW6010B	mg/kg	34 J	9 J	0.53 UJ
Arsenic	28.91	SW6010B	mg/kg	29	30	110
Barium	237.5	SW6010B	mg/kg	202 J	188 J	154 J
Beryllium	0.5	SW6010B	mg/kg	0.5	0.6	0.4
Cadmium	0.4	SW6010B	mg/kg	0.6	0.6	0.4
Calcium	8595	SW6010B	mg/kg	7220	5950	1860
Chromium	28.74	SW6010B	mg/kg	30.5	29.4	20.6
Cobalt	11.36	SW6010B	mg/kg	11	10.9	13.4
Copper	23.13	SW6010B	mg/kg	28	26.9	31.4
Iron	31046	SW6010B	mg/kg	29900	29300	24800
Lead	10.35	SW6010B	mg/kg	9	8	8
Magnesium	4589	SW6010B	mg/kg	5860	5830	2960
Manganese	816	SW6010B	mg/kg	655	609	719
Mercury	1.86	SW7471A	mg/kg	1.25	1.15	3.57
Nickel	28.45	SW6010B	mg/kg	33	32	32
Potassium	957	SW6010B	mg/kg	1290	1360	880
Selenium	NA	SW6010B	mg/kg	0.88 U	0.78 U	0.77 U
Silver	NA	SW6010B	mg/kg	0.06 U	0.053 U	0.052 U
Sodium	102.5	SW6010B	mg/kg	210	210	70
Thallium	NA	SW6010B	mg/kg	0.37 U	0.33 U	0.32 U
Vanadium	58.34	SW6010B	mg/kg	40.3	39.6	33.6
Zinc	66.98	SW6010B	mg/kg	103	93	72
SPLP Inorganic Elements (µg/L)						
Aluminum		SW6010B SPLP	mg/L	0.06		
Antimony		SW6010B SPLP	mg/L	0.05 U		
Arsenic		SW6010B SPLP	mg/L	0.05 U		
Barium		SW6010B SPLP	mg/L	0.012		
Beryllium		SW6010B SPLP	mg/L	0.001 U		
Cadmium		SW6010B SPLP	mg/L	0.002 U		
Calcium		SW6010B SPLP	mg/L	7.02		
Chromium		SW6010B SPLP	mg/L	0.005 U		
Cobalt		SW6010B SPLP	mg/L	0.003 U		
Copper		SW6010B SPLP	mg/L	0.002		
Iron		SW6010B SPLP	mg/L	0.2		
Lead		SW6010B SPLP	mg/L	0.02 U		
Magnesium		SW6010B SPLP	mg/L	0.86		
Manganese		SW6010B SPLP	mg/L	0.005		
Mercury		SW7470A SPLP	mg/L	0.0001 U		
Nickel		SW6010B SPLP	mg/L	0.01 U		
Potassium		SW6010B SPLP	mg/L	0.5 U		
Selenium		SW6010B SPLP	mg/L	0.05 U		

Table 4-22 Rice Sluice and Delta Surface Soil Results	Background Screening Criteria	Station ID	Units	RS01	RS02	RS03
		Soil Type*		SO	SO	SO or N/DN
		Sample ID		10RS01SS	10RS02SS	10RS03SS
		Method				
Analyte						
Silver		SW6010B SPLP	mg/L	0.003 U		
Sodium		SW6010B SPLP	mg/L	0.5 U		
Thallium		SW6010B SPLP	mg/L	0.05 U		
Vanadium		SW6010B SPLP	mg/L	0.003 U		
Zinc		SW6010B SPLP	mg/L	0.01 U		
Arsenic Speciation (mg/kg)						
Arsenate		EPA 1632	mg/kg	23.3 J		
Arsenite		EPA 1632	mg/kg	1.82 J		
Inorganic Arsenic		EPA 1632	mg/kg	65.26		
Mercury Selective Sequential Extraction						
Hg(F0)		EPA 1631	ng/g	4.94 U		
Hg(F1)		BRL SOP No. BR-0013	ng/g	3.46		
Hg(F2)		BRL SOP No. BR-0013	ng/g	0.63 B		
Hg(F3)		BRL SOP No. BR-0013	ng/g	1090 J		
Hg(F4)		BRL SOP No. BR-0013	ng/g	268		
Hg(F5)		BRL SOP No. BR-0013	ng/g	254		
Hg(F6)		BRL SOP No. BR-0013	ng/g	3.03 U		

*Soil types defined in Table A-1

Key

Bold = detection

Gray shading = exceedance of background

% = percent

µg/L = micrograms per liter

J = Analyte detected but relative percent difference was outside control limits therefore concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

SPLP = synthetic precipitation leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-23 Surface Mined Area Surface Soil Results	Background Screening Criteria	Station ID		Units	SM18	SM19	SM20	SM21	SM22	SM23	SM24	SM25	SM26	SM27	SM28	SM29	SM30	SM13	SM18	SM28	
		Soil Type*	N/DN		N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN
		Sample ID	10SM18SS		10SM19SS	10SM20SS	10SM21SS	10SM22SS	10SM23SS	10SM24SS	10SM25SS	10SM26SS	10SM27SS	10SM28SS	10SM29SS	10SM30SS	11SM13SS	11SM18SS	11SM28SS		
		Method																			
Analyte																					
Total Inorganic Elements																					
Aluminum	19563	SW6010B	mg/kg	5660	6670	13900	16800	14600	13000	11900	9000	12400	11000	13900	13200	20300					
Antimony	8	SW6010B	mg/kg	1.2 UJ	20 J	0.48 UJ	0.47 UJ	0.49 UJ	508 J	1.2 UJ	1.1 UJ	0.49 UJ	1.2 UJ	109 J	0.5 UJ	0.54 UJ					
Arsenic	28.91	SW6010B	mg/kg	230	670	9	39	17	223	0.9 U	40	13	20	177	11	46					
Barium	237.5	SW6010B	mg/kg	253	148	121	220	147	163	149	103	132	180	145	136	213					
Beryllium	0.5	SW6010B	mg/kg	1.3	0.9	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.6					
Cadmium	0.4	SW6010B	mg/kg	0.6	0.054 U	0.3	0.3	0.4	0.023 U	0.7	0.6	0.4	0.8	0.023 U	0.2	0.3					
Calcium	8595	SW6010B	mg/kg	2460	2090	1590	2200	2580	1990	940	600	1400	1420	1780	2350	2490					
Chromium	28.74	SW6010B	mg/kg	12	17	21	27.2	27	22.5	24	22	20.2	21	22.8	23.8	30.2					
Cobalt	11.36	SW6010B	mg/kg	19.2	18.6	5.9	11.1	12.1	9.5	17.3	18.5	11.1	19.1	9.8	8.7	12.2					
Copper	23.13	SW6010B	mg/kg	71.9	57.3	18.7	28.2	25.3	25	53.1	46.4	28.2	40.5	23.5	19.7	31.7					
Iron	31046	SW6010B	mg/kg	35200	34300	17900	23700	23800	20100	36700	37100	23200	29500	19900	21000	28100					
Lead	10.35	SW6010B	mg/kg	16	12	6	9	7	6	12	11	8	11	6	6	11					
Magnesium	4589	SW6010B	mg/kg	710	1760	3430	4270	4260	3890	3690	1660	3130	2450	3950	4350	4970					
Manganese	816	SW6010B	mg/kg	1250	776	153	476	367	316	870	1030	517	1090	435	319	481					
Mercury	1.86	SW7471A	mg/kg	11 J	14 J	0.11 J	2 J	0.05 J	8.2 J	0.26 J	0.9 J	0.64 J	1.9 J	17 J	0.17 J	1.9 J					
Nickel	28.45	SW6010B	mg/kg	57	59	19	28	23	25	46	55	26	35	26	22	33					
Potassium	957	SW6010B	mg/kg	1500	1520	600	820	810	750	690	760	810	1280	740	830	1100					
Selenium	NA	SW6010B	mg/kg	1.7 U	1.6 U	0.7 U	0.68 U	0.7 U	0.67 U	1.7 U	1.6 U	0.7 U	1.7 U	0.68 U	0.72 U	0.78 U					
Silver	NA	SW6010B	mg/kg	0.113 U	0.108 U	0.047 U	0.046 U	0.048 U	0.045 U	0.112 U	0.112 U	0.048 U	0.117 U	0.046 U	0.049 U	0.053 U					
Sodium	103	SW6010B	mg/kg	42.5 U	40.6 U	90	110	110	100	42.4 U	42.1 U	80	44.3 U	80	110	120					
Thallium	NA	SW6010B	mg/kg	0.7 U	0.7 U	0.29 U	0.29 U	0.3 U	0.28 U	0.7 U	0.7 U	0.3 U	0.7 U	0.29 U	0.3 U	0.33 U					
Vanadium	58.34	SW6010B	mg/kg	23	30.6	35.8	46.8	47.9	35.5	41.6	43.7	37.3	37.8	36.4	40	51.9					
Zinc	66.98	SW6010B	mg/kg	139	110	45	67	61	56	108	109	62	85	52	50	75					
SPLP Inorganic Elements (µg/L)																					
Aluminum		SW6010B SPLP	mg/L	0.34	1.01		0.26		0.66				0.78	0.35							
Antimony		SW6010B SPLP	mg/L	0.05 U	0.05 U		0.05 U		1.43				0.05 U	0.38							
Arsenic		SW6010B SPLP	mg/L	0.05 U	0.07		0.05 U		0.09				0.05 U	0.05 U							
Barium		SW6010B SPLP	mg/L	0.006	0.015		0.005		0.016				0.021	0.012							
Beryllium		SW6010B SPLP	mg/L	0.001 U	0.001 U		0.001 U		0.001 U				0.001 U	0.001 U							
Cadmium		SW6010B SPLP	mg/L	0.002 U	0.002 U		0.002 U		0.002 U				0.002 U	0.002 U							
Calcium		SW6010B SPLP	mg/L	0.31	0.44		0.19		0.44				0.6	0.41							
Chromium		SW6010B SPLP	mg/L	0.005 U	0.005 U		0.005 U		0.005 U				0.005 U	0.005 U							
Cobalt		SW6010B SPLP	mg/L	0.003 U	0.003 U		0.003 U		0.003 U				0.003 U	0.003 U							
Copper		SW6010B SPLP	mg/L	0.002 U	0.005		0.002 U		0.005				0.006	0.003							
Iron		SW6010B SPLP	mg/L	0.25	1.5		0.2		0.57				0.98	0.58							
Lead		SW6010B SPLP	mg/L	0.02 U	0.02 U		0.02 U		0.02 U				0.02 U	0.02 U							
Magnesium		SW6010B SPLP	mg/L	0.05	0.12		0.07		0.33				0.21	0.23							
Manganese		SW6010B SPLP	mg/L	0.01	0.03		0.004		0.018				0.066	0.044							
Mercury		SW7470A SPLP	mg/L	0.0003 J	0.002 J		0.0001 U		0.001 J				0.0002 J	0.0014 J							
Nickel		SW6010B SPLP	mg/L	0.01 U	0.01 U		0.01 U		0.01 U				0.01 U	0.01 U							
Potassium		SW6010B SPLP	mg/L	0.5 U	0.5		0.5 U		0.5 U				0.9	0.5 U							
Selenium		SW6010B SPLP	mg/L	0.05 U	0.05 U		0.05 U		0.05 U				0.05 U	0.05 U							
Silver		SW6010B SPLP	mg/L	0.003 U	0.003 U		0.003 U		0.003 U				0.003 U	0.003 U							
Sodium		SW6010B SPLP	mg/L	0.6	0.8		0.6		0.6				0.9	0.5 U							
Thallium		SW6010B SPLP	mg/L	0.05 U	0.05 U		0.05 U		0.05 U				0.05 U	0.05 U							
Vanadium		SW6010B SPLP	mg/L	0.003 U	0.004		0.003 U		0.003 U				0.003 U	0.003 U							
Zinc		SW6010B SPLP	mg/L	0.01 U	0.01		0.01 U		0.01 U				0.01 U	0.01 U							
Arsenic Speciation (mg/kg)																					
Arsenate		EPA 1632	mg/kg	777 J	851 J		59.8 J		306 J				24.6 J	337 J							
Arsenite		EPA 1632	mg/kg	3.58 J	2.43 J		0.543 J		4.6 J				0.307 J	39.5							
Inorganic Arsenic		EPA 1632	mg/kg	781 J	853 J		60.3 J		311 J				24.9 J	352 J							
Arsenic Bioavailability																					
Arsenic (IVBA)		M6020 ICP-MS	mg/L															0.4242 J	0.1611 J	0.1963 J	
Arsenic, total (3050)		M6020 ICP-MS	mg/Kg															558	407	45.7	
Arsenic IVBA% (In Vitro RBA)		Calculation (EPA 920)	%															7.6 J	3.9 J	43 J	
Total Solids		CLPSOW390, PART F, D	%															77.9	83.5	74.9	
Mercury Selective Sequential Extraction																					
Hg(F0)		EPA 1631	ng/g	3.76 U	2.74 U		4.57		3.32 U				9.31	4.21							
Hg(F1)		BRL SOP No. BR-0013	ng/g	50	189		21.9		147				24.8	318							
Hg(F2)		BRL SOP No. BR-0013	ng/g	73.2	130		3.08		8.33				3.56	177							
Hg(F3)		BRL SOP No. BR-0013	ng/g	2350 J	1020 J		648 J		2880 J				1570 J	1870 J							
Hg(F4)		BRL SOP No. BR-0013	ng/g	45.4 U	3770		311		1420				157	6550							
Hg(F5)		BRL SOP No. BR-0013	ng/g	10800 J	25500		1490		8040				443	16900							
Hg(F6)		BRL SOP No. BR-0013	ng/g	1750	3250 J		2.25 U		351 J				2.15 U	774 J							

*Soil Types defined in Table A-1

Key

Bold = detection

Gray shading = exceedance of background

% = percent

µg/L = micrograms per liter

IVBA = In-vitro bioaccessibility

J = Analyte detected but relative percent difference was outside control limits therefore concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

RBA = Relative bioavailability

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-24 Pre-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	MP51	MP52	MP56	MP62	MP62	MP66	MP66	MP66	MP54	MP54	MP51	
		Geographic Area		Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955
		Environmental Type*		B/WB	B/WB	B/WB	B/WB	B/WB	B/WB	B/WB	B/WB	B/WB	N/DN or F	N/DN or F	F N/DN
		Sample ID		11MP51SB14	11MP52SB26	11MP56SB10	11MP62SB14	11MP62SB24	11MP66SB10	11MP66SB16	11MP66SB18	11MP54SB04	11MP54SB06	11MP51SB08	
Analyte	Method														
Arsenic Speciation															
Arsenite	EPA 1632-As3-CRYO-T	mg/kg													
Arsenate	EPA 1632-As-Cryo-S-Speciation	mg/kg													
Inorganic Arsenic	EPA 1632-Total Inorganic As - Solid	mg/kg													
Arsenate	EPA 1632-Total Metals	mg/kg													
Arsenite	EPA 1632-Total Metals	mg/kg													
Inorganic Arsenic	EPA 1632-Total Metals	mg/kg													
Mercury Selective Sequential Extraction															
Hg(F1)	SOP BR-0013	ng/g													
Hg(F2)	SOP BR-0013	ng/g													
Hg(F3)	SOP BR-0013	ng/g													
Hg(F4)	SOP BR-0013	ng/g													
Hg(F5)	SOP BR-0013	ng/g													
Semi-Volatile Organic Compounds															
2-Methylnaphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		77					12000		1900			110 U	
9-Octadecenamide, (Z)-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		2600 J											
Acenaphthene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		14 U					410 J		270 J			70 U	
Bis(2-ethylhexyl) Phthalate	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		70 U					700 U		700 U			350 U	
Fluorene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		27 J					1200		850			55 U	
Heptadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg												3700 J	
Heptylcyclohexane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg							3900 J						
Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		130					3500		810			120 U	
Octadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg									11000 J			2400 J	
Pentadecane, 2,6,10,14-tetramethyl	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		1300 J					39000 J		56000 J			4700 J	
Pentadecane, 2,6,10-trimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg							6400 J						
Phenanthrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		30 J					980		630			70 U	
Tetradecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg									5700 J			2300 J	
Tricosane, 2-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Tridecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		230 J										7200 J	
Undecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg									15000 J			5400 J	
Undecane, 2,6-dimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg									7900 J			3800 J	
Undecane, 2-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		210 J											
Unknown	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg							8500 J		8000 J			2500 J	
Unknown Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		640 J					4600 J		20000 J				
Unknown Branched Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		540 J					4400 J		5000 J			6400 J	
Unknown Branched Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg							4600 J						
Unknown Substituted Aromatic	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg		230 J											
Diesel and Residual Range Organics															
C10 - C25 DRO	AK102-Alaska Diesel Range for Soil	mg/kg		75 J					2500 J		7300 J			2100 J	
C25 - C36 RRO	AK103-Alaska Residual Range for Soil	mg/kg		24 J					82 J		530 J			1400 J	

Table 4-24 Pre-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	MP51	MP53	MP59	MP45	MP47	MP49	MP52	MP53	MP56	MP56	MP57	
		Geographic Area		Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955
		Environmental Type*		F T/WR	F T/WR	N/DN (loess)	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN
		Sample ID		F T/WR	F T/WR	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN
Analyte	Method			11MP51SB04	11MP53SB04	11MP59SB14	11MP45SB12	11MP47SB26	11MP49SB14	11MP52SB10	11MP53SB08	11MP56SB04	11MP56SB06	11MP57SB06	
Total Inorganic Elements															
Aluminum	16300	SW6010B	mg/kg	3130	6420	10900	4110	5130	12000 J	10800	6020	11300	10400	10300	
Antimony	6.25	SW6010B	mg/kg	247 J	2220 J	570 J			94.6 J		262 J	696 J	1190 J	57.8 J	
Antimony	6.25	SW6020A	mg/kg				16.5 J	23.9 J		73.8 J					
Arsenic	12.8	SW6010B	mg/kg		2110 J								715 J		
Arsenic	12.8	SW6020A	mg/kg	879		366 J	152	111	35.6 J	76.1 J	625 J	421		581 J	
Barium	200	SW6010B	mg/kg												
Barium	200	SW6020A	mg/kg	90.1	177	101	126	138	104	107	103	167	198	89.1	
Beryllium	0.484	SW6020A	mg/kg	0.576	0.607	0.286 J	0.441	0.756	0.282 J	0.278 J	0.541 J	0.34	0.398	0.425 J	
Cadmium	0.614	SW6020A	mg/kg	0.461	0.42	0.198	0.595	0.496	0.153	0.21	0.455	0.174	0.514	0.295	
Calcium	2740	SW6010B	mg/kg	2150	2610	2090	1970 J	1970 J	2590 J	2950	2840	2020	2190	1930	
Chromium	24.6	SW6020A	mg/kg	10.8	15.8	19.7 J	13.8	16.7	19.9 J	19.3 J	15.2 J	16.9	22	17.1 J	
Cobalt	19.1	SW6020A	mg/kg	14.3	11.9	10.7 J	13.9	9.57	6.02 J	5.7 J	11.1 J	6.81	9.25	10.9 J	
Copper	59.7	SW6020A	mg/kg	59.1	54.4	19.1	47.1 J	57.2 J	16 J	17.3	60.2	18.8	56.8	22.5	
Iron	39300	SW6010B	mg/kg	39600	49200	32400	36900	33400	17900	14800	35500	16800	37200	37900	
Lead	14.3	SW6020A	mg/kg	13.1	13.2	5.2 J	12.3	15.7	4.83 J	6.25 J	13.7 J	4.86	59.8	8.55 J	
Magnesium	4910	SW6010B	mg/kg	1820	2440	3730	1020 J	2020 J	4250 J	4130	1860	3830	3260	2510	
Manganese	1280	SW6010B	mg/kg	388	494	817	767	326	221	170	430	317	378	492	
Mercury	3.92	SW7471A	mg/kg	70.7 J	6110 J	16.4 J	1020 J	16 J	38.5 J	18.8 J	108 J	86.6 J	2030 J	15.2 J	
Nickel	52.2	SW6020A	mg/kg	49.8	35.8	22.4	41.5	30.2	19.9	18.2	37.3	19.6	27.2	25.7	
Potassium	1080	SW6010B	mg/kg	940	1460 J	743 J	1040	1270	775 J	913 J	1150 J	804 J	854	823 J	
Selenium	0.52	SW7742	mg/kg	1.06	0.35 J	0.21	0.58	0.68	0.05 J	0.04 J	0.53	0.19	0.46	0.32	
Silver	0.32	SW6020A	mg/kg	0.181	0.125	0.093	0.173	0.325	0.071	0.066	0.14	0.09	0.158	0.083	
Sodium	92.2	SW6010B	mg/kg	37.1 J	89.5	107	49.9	66.9	177	263	52	107	86.8	54.9	
Thallium	0.10	SW6020A	mg/kg	0.154	0.142	0.072	0.116	0.088	0.065	0.084	0.11	0.096	0.114	0.082	
Vanadium	38.4	SW6020A	mg/kg	18	25.9	33.6 J	25.3	34.3	30.1 J	27.6 J	28.1 J	24.2	34.1	35.6 J	
Zinc	106	SW6020A	mg/kg	94.7 J	96 J	51.9	96.2 J	108 J	43.8 J	50.9	123	45.8 J	461 J	58.3	
Low Level Mercury															
Mercury		EPA 1631 Appendix	ng/g	50800 J						306 J			126000 J		
SPLP Inorganic Elements															
Aluminum		SW6010B-SPLP	µg/L							2320 J			2260 J		
Antimony		SW6010B-SPLP	µg/L							241 J			2930		
Arsenic		SW6010B-SPLP	µg/L							86 J			204		
Barium		SW6010B-SPLP	µg/L							27.9 J			36.4 J		
Beryllium		SW6010B-SPLP	µg/L							0.2 U			0.15 U		
Cadmium		SW6010B-SPLP	µg/L							0.8 U			2 U		
Calcium		SW6010B-SPLP	µg/L							1210			10 U		
Chromium		SW6010B-SPLP	µg/L							3.8 J			4.5 J		
Cobalt		SW6010B-SPLP	µg/L							2 U			2 U		
Copper		SW6010B-SPLP	µg/L							5 U			5.6 J		
Iron		SW6010B-SPLP	µg/L							2530			2250		
Lead		SW6010B-SPLP	µg/L							8 U			15 U		
Magnesium		SW6010B-SPLP	µg/L							619			818		
Manganese		SW6010B-SPLP	µg/L							20.1			24.2		
Mercury		SW7470A-SPLP	µg/L							4.51			65.5		
Nickel		SW6010B-SPLP	µg/L							4.3 J			3.1 J		
Potassium		SW6010B-SPLP	µg/L							445			493		
Selenium		SW6010B-SPLP	µg/L							30 U			20 U		
Silver		SW6010B-SPLP	µg/L							7.6 J			8 J		
Sodium		SW6010B-SPLP	µg/L							7820 J			6860 J		
Thallium		SW6010B-SPLP	µg/L							30 U			20 U		
Vanadium		SW6010B-SPLP	µg/L							9.8 J			6.6 J		
Zinc		SW6010B-SPLP	µg/L							47.6 J			28.5 J		
TCLP Inorganic Elements															
Arsenic		SW6010B-TCLP	mg/L							0.13			0.32		
Barium		SW6010B-TCLP	mg/L							0.492 J			0.639 J		
Cadmium		SW6010B-TCLP	mg/L							0.002 U			0.002 U		
Chromium		SW6010B-TCLP	mg/L							0.003 U			0.003 U		
Lead		SW6010B-TCLP	mg/L							0.02 U			0.02 U		
Mercury		SW7470A-TCLP	mg/L							0.004 U			0.0158		
Selenium		SW6010B-TCLP	mg/L							0.02 U			0.02 U		
Silver		SW6010B-TCLP	mg/L							0.007 U			0.007 U		

Table 4-24 Pre-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	MP57	MP58	MP60	MP61	MP61	MP63	MP63	MP66	MP55	MP45	MP46	
		Geographic Area		Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	
		Environmental Type*		N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN	N/DN B/WB	T/WR	T/WR
		Sample ID		11MP57SB08	11MP58SB12	11MP60SB24	11MP61SB04	11MP61SB06	11MP63SB04	11MP63SB06	11MP66SB06	11MP55SB06	11MP45SB04	11MP46SB04	
Analyte	Method														
Arsenic Speciation															
Arsenite	EPA 1632-As3-CRYO-T	mg/kg													
Arsenate	EPA 1632-As-Cryo-S-Speciation	mg/kg													
Inorganic Arsenic	EPA 1632-Total Inorganic As - Solid	mg/kg													
Arsenate	EPA 1632-Total Metals	mg/kg													
Arsenite	EPA 1632-Total Metals	mg/kg													
Inorganic Arsenic	EPA 1632-Total Metals	mg/kg													
Mercury Selective Sequential Extraction															
Hg(F1)	SOP BR-0013	ng/g													
Hg(F2)	SOP BR-0013	ng/g													
Hg(F3)	SOP BR-0013	ng/g													
Hg(F4)	SOP BR-0013	ng/g													
Hg(F5)	SOP BR-0013	ng/g													
Semi-Volatile Organic Compounds															
2-Methylnaphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										2.2 U	110 U		
9-Octadecenamide, (Z)-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										650 J			
Acenaphthene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										1.4 U	70 U		
Bis(2-ethylhexyl) Phthalate	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										10 J	350 U		
Fluorene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										1.1 U	81 J		
Heptadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Heptylcyclohexane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										24	160 U		
Octadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Pentadecane, 2,6,10,14-tetramethyl	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Pentadecane, 2,6,10-trimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Phenanthrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										1.9 J	73 J		
Tetradecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Tricosane, 2-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										60 J			
Tridecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Undecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Undecane, 2,6-dimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Undecane, 2-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Unknown	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										89 J	2700 J		
Unknown Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										76 J	7900 J		
Unknown Branched Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg										60 J	4400 J		
Unknown Branched Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Unknown Substituted Aromatic	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg													
Diesel and Residual Range Organics															
C10 - C25 DRO	AK102-Alaska Diesel Range for Soil	mg/kg										1.5 UJ	3800 Y		
C25 - C36 RRO	AK103-Alaska Residual Range for Soil	mg/kg										3.3 UJ	68 J		

Table 4-24 Pre-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	MP46	MP47	MP47	MP48	MP48	MP49	MP52	MP57	MP58	MP58	MP59
		Geographic Area		Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955
		Environmental Type*		T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR	T/WR
		Sample ID Method		11MP46SB12	11MP47SB04	11MP47SB22	11MP48SB04	11MP48SB08	11MP49SB06	11MP52SB06	11MP57SB04	11MP58SB04	11MP58SB08	11MP59SB04
Analyte														
Total Inorganic Elements														
Aluminum	16300	SW6010B	mg/kg	2260 J	2650 J	3180	3670	3410 J	5320	7340	9140	2150	7310	2340
Antimony	6.25	SW6010B	mg/kg	3150 J	1750 J	481 J	1010 J	324 J	303	3770 J	28900 J	40.7 J	19600 J	215 J
Antimony	6.25	SW6020A	mg/kg											
Arsenic	12.8	SW6010B	mg/kg		3840 J	1470	2730 J	2550 J	2810	2690 J	9460 J		4460 J	2870 J
Arsenic	12.8	SW6020A	mg/kg	449 J								819		
Barium	200	SW6010B	mg/kg											
Barium	200	SW6020A	mg/kg	141	139	133	152	110	110	300	161	138	446	139
Beryllium	0.484	SW6020A	mg/kg	0.595 J	0.582 J	0.542	0.706	0.619 J	0.518	0.551 J	0.313 J	0.763	0.327	0.874
Cadmium	0.614	SW6020A	mg/kg	0.509	0.452	0.621	0.477	0.451	0.381	0.522	0.826	0.487	0.271	0.623
Calcium	2740	SW6010B	mg/kg	5640 J	4400 J	5270 J	3020	4900 J	3280	4270	11600	12700	3090	4270
Chromium	24.6	SW6020A	mg/kg	12.4 J	11.9 J	17.9	13.8	27.3 J	15.1	19.9 J	14.1 J	11.2	16.8	12.6
Cobalt	19.1	SW6020A	mg/kg	18 J	17.4 J	17.7	15.2	14.6 J	12.2	11.7 J	7.38 J	21.9	5.5	20.9
Copper	59.7	SW6020A	mg/kg	78.7 J	61.3 J	61.6 J	47.1	50.3 J	47.6	49.6	28.1	74.8	26.9	82
Iron	39300	SW6010B	mg/kg	43600	40400	47300	39200	44400	43400	36900	44700	37500	27900	37000
Lead	14.3	SW6020A	mg/kg	7.5 J	6.99 J	12.1	13.2	13.7 J	12.5	0.767 J	0.25 J	19.1	0.047 J	26.4
Magnesium	4910	SW6010B	mg/kg	10200 J	8220 J	11400 J	3120	5870 J	2080	4820	2370	11300	2150	7630
Manganese	1280	SW6010B	mg/kg	845	707	794	627	639	454	760	435	1150	247	882
Mercury	3.92	SW7471A	mg/kg	219 J	939 J	303 J	131 J	304 J	134	500 J	2070 J	69.4 J	622 J	423 J
Nickel	52.2	SW6020A	mg/kg	64.3	61	62.3	41.7	57.6	39.2	40.3	20.2	61.4	18.6	73
Potassium	1080	SW6010B	mg/kg	1350 J	1340 J	1360	1170 J	1420 J	1370	2120 J	1010 J	1240 J	1440	1350 J
Selenium	0.52	SW7742	mg/kg	1.03	1.49	0.84	0.41 J	1.03 J	0.8	0.81	2.27	0.64	3.04	0.73
Silver	0.32	SW6020A	mg/kg	0.358	0.324	0.255	0.195	0.193	0.191	0.21	0.25	0.25	0.196	0.307
Sodium	92.2	SW6010B	mg/kg	67.4	68.6	71	61.3	64.2	103	266	88	49	96.5	37.4 J
Thallium	0.10	SW6020A	mg/kg	0.096	0.134	0.111	0.149	0.169	0.171	0.207	0.158	0.094	0.257	0.219
Vanadium	38.4	SW6020A	mg/kg	17.6 J	21.4 J	20.8	23.1	25.5 J	21	19.6 J	20.1 J	23.2	14.2	15.8
Zinc	106	SW6020A	mg/kg	108 J	98.2 J	107 J	88.4 J	102 J	81.8	88	141	112 J	41.7 J	120 J
Low Level Mercury														
Mercury		EPA 1631 Appendix	ng/g							1580000 J			1220000 J	
SPLP Inorganic Elements														
Aluminum		SW6010B-SPLP	µg/L							809 J			325 J	
Antimony		SW6010B-SPLP	µg/L							3100 J			26200	
Arsenic		SW6010B-SPLP	µg/L							841			4880	
Barium		SW6010B-SPLP	µg/L							20 J			48.3 J	
Beryllium		SW6010B-SPLP	µg/L							0.2 U			0.15 U	
Cadmium		SW6010B-SPLP	µg/L							0.8 U			2 U	
Calcium		SW6010B-SPLP	µg/L							2950			6410 X	
Chromium		SW6010B-SPLP	µg/L							3 U			2.5 U	
Cobalt		SW6010B-SPLP	µg/L							2 U			2 U	
Copper		SW6010B-SPLP	µg/L							5 U			3 U	
Iron		SW6010B-SPLP	µg/L							1870			490	
Lead		SW6010B-SPLP	µg/L							8 U			15 U	
Magnesium		SW6010B-SPLP	µg/L							2660			3920	
Manganese		SW6010B-SPLP	µg/L							17.8			74.9	
Mercury		SW7470A-SPLP	µg/L							9.4			25.2	
Nickel		SW6010B-SPLP	µg/L							2.1 J			2.8 J	
Potassium		SW6010B-SPLP	µg/L							1040			1030	
Selenium		SW6010B-SPLP	µg/L							30 U			20 U	
Silver		SW6010B-SPLP	µg/L							5 U			7.7 J	
Sodium		SW6010B-SPLP	µg/L							8440 J			7150 J	
Thallium		SW6010B-SPLP	µg/L							30 U			20 U	
Vanadium		SW6010B-SPLP	µg/L							5 U			3 U	
Zinc		SW6010B-SPLP	µg/L							20.8 J			6.7 J	
TCLP Inorganic Elements														
Arsenic		SW6010B-TCLP	mg/L					0.12		0.53			6.97	
Barium		SW6010B-TCLP	mg/L					0.366 J		0.323 J			0.385 J	
Cadmium		SW6010B-TCLP	mg/L					0.002 U		0.002 U			0.002 U	
Chromium		SW6010B-TCLP	mg/L					0.003 U		0.004 J			0.003 U	
Lead		SW6010B-TCLP	mg/L					0.02 U		0.02 U			0.02 U	
Mercury		SW7470A-TCLP	mg/L					0.0074		0.004 U			0.004 U	
Selenium		SW6010B-TCLP	mg/L					0.02 U		0.02 U			0.02 U	
Silver		SW6010B-TCLP	mg/L					0.007 U		0.007 U			0.007 U	

Table 4-24 Pre-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	MP60	MP60	MP51	MP59	MP45	MP48	MP49	MP55	MP62	MP50
		Geographic Area		Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955
		Environmental Type*		T/WR	T/WR	T/WR F	T/WR N	T/WR N/DN	T/WR N/DN	T/WR N/DN	T/WR N/DN	T/WR N/DN	T/WR N/DN
		Sample ID		11MP60SB04	11MP60SB14	11MP51SB06	11MP59SB12	11MP45SB10	11MP48SB12	11MP49SB10	11MP55SB04	11MP62SB04	11MP50SB04
Analyte	Method												
Total Inorganic Elements													
Aluminum	16300	SW6010B	mg/kg	2160	2300 J	8410	13900	3240 J	11200	13500	6270	8510	2230 J
Antimony	6.25	SW6010B	mg/kg		240 J	863 J	441 J	104 J	361 J	1240 J	50.6 J	973 J	
Antimony	6.25	SW6020A	mg/kg	181 J									5 J
Arsenic	12.8	SW6010B	mg/kg		3120 J	2210 J			1090 J				
Arsenic	12.8	SW6020A	mg/kg	2510			319 J	282 J		348 J	253	416 J	230 J
Barium	200	SW6010B	mg/kg										
Barium	200	SW6020A	mg/kg	145	116	189	144	132	222	135	97.3	112	117
Beryllium	0.484	SW6020A	mg/kg	0.88	0.746 J	0.386 J	0.404 J	0.542 J	0.428	0.338 J	0.615	0.37 J	0.5 J
Cadmium	0.614	SW6020A	mg/kg	0.387	0.5	0.319	0.192	0.449	0.19	0.25	0.442	0.199	0.821
Calcium	2740	SW6010B	mg/kg	5980	5170 J	13700	5170	6650 J	2120	3110	1720	6350	1150 J
Chromium	24.6	SW6020A	mg/kg	10.1	17 J	28.1 J	20.2 J	12.8 J	29.8	20.3 J	14.7	15.4 J	17.7 J
Cobalt	19.1	SW6020A	mg/kg	17.7	22 J	10.8 J	9.29 J	16.5 J	9.41	6.84 J	16.6	9.59 J	14.5 J
Copper	59.7	SW6020A	mg/kg	57.9	66.4 J	83.1	26.2	51.6 J	26.6	18.8	46.1	24.2	38.4 J
Iron	39300	SW6010B	mg/kg	40800	46200	36700	29600	38800	27300	24800	35400	24900	50700
Lead	14.3	SW6020A	mg/kg	15.1	15.2 J	18.2 J	6.91 J	12.4 J	8.66	5.36 J	11.5	8.18 J	10.2 J
Magnesium	4910	SW6010B	mg/kg	8040	8410 J	5300	6580	4650 J	3580	5090	1320	5770	316 J
Manganese	1280	SW6010B	mg/kg	845	976	531	441	957	239	378	1240	463	947
Mercury	3.92	SW7471A	mg/kg	276 J	348 J	438 J	31.1 J	265 J	51.9 J	263 J	30.4 J	906 J	18 J
Nickel	52.2	SW6020A	mg/kg	56.1	82.8	38.7	26.8	46.6	37.5	20.9	48.5	35.8	49.5
Potassium	1080	SW6010B	mg/kg	1240	1390 J	1520 J	926 J	1170 J	739 J	1150 J	1150 J	1150 J	999 J
Selenium	0.52	SW7742	mg/kg	0.95	1.52	0.62	0.34	0.58	0.22	0.48	0.34	0.58	1.23
Silver	0.32	SW6020A	mg/kg	0.227	0.304	0.187	0.471	0.189	0.089	0.165	0.156	0.158	0.2
Sodium	92.2	SW6010B	mg/kg	47.8	69	241	118	54.8	116	181	50.7	66.4	26.8 J
Thallium	0.10	SW6020A	mg/kg	0.17	0.158	0.264	0.083	0.087	0.211	0.115	0.079	0.086	0.094
Vanadium	38.4	SW6020A	mg/kg	20.7	19.1 J	42.1 J	34.9 J	25.7 J	29.5	30.7 J	30.7	29.1 J	29.5 J
Zinc	106	SW6020A	mg/kg	101 J	115 J	288	62	97.8 J	54.2 J	52.9	152 J	58.6	123 J
Low Level Mercury													
Mercury		EPA 1631 Appendix	ng/g		456000 J		6330 J						
SPLP Inorganic Elements													
Aluminum		SW6010B-SPLP	µg/L		359 J	1010 J	1090 J		539				
Antimony		SW6010B-SPLP	µg/L		319	2220 J	3080 J		721				
Arsenic		SW6010B-SPLP	µg/L		452	614	208		80 J				
Barium		SW6010B-SPLP	µg/L		8.4 J	11.1 J	18.7 J		11 J				
Beryllium		SW6010B-SPLP	µg/L		0.2 U	0.2 U	0.2 U		0.2 U				
Cadmium		SW6010B-SPLP	µg/L		0.8 U	0.8 U	0.8 U		0.8 U				
Calcium		SW6010B-SPLP	µg/L		3330	55800	1380		2950				
Chromium		SW6010B-SPLP	µg/L		3 U	3 U	3 U		3 U				
Cobalt		SW6010B-SPLP	µg/L		2 U	2 U	2 U		2 U				
Copper		SW6010B-SPLP	µg/L		5 U	17.8	5.1 J		5 U				
Iron		SW6010B-SPLP	µg/L		268	4.2 J	1690		1160				
Lead		SW6010B-SPLP	µg/L		8 U	8 U	8 U		8 U				
Magnesium		SW6010B-SPLP	µg/L		4470	52.8 J	2560		1450				
Manganese		SW6010B-SPLP	µg/L		2.6 J	0.4 U	15.7		7.5				
Mercury		SW7470A-SPLP	µg/L		1.44	0.88 J	2.43		5.98				
Nickel		SW6010B-SPLP	µg/L		2 U	2 U	3 J		2 U				
Potassium		SW6010B-SPLP	µg/L		730	323 J	399 J		541				
Selenium		SW6010B-SPLP	µg/L		30 U	30 U	30 U		30 U				
Silver		SW6010B-SPLP	µg/L		11.6 J	5 U	10.4 J		5.7 J				
Sodium		SW6010B-SPLP	µg/L		6510 J	3360 J	1680 J		5750 J				
Thallium		SW6010B-SPLP	µg/L		30 U	30 U	30 U		30 UJ				
Vanadium		SW6010B-SPLP	µg/L		5 U	9.2 J	5 U		5 U				
Zinc		SW6010B-SPLP	µg/L		55 J	34.8 J	22 J		76.6 J				
TCLP Inorganic Elements													
Arsenic		SW6010B-TCLP	mg/L		0.8	0.14	0.42						
Barium		SW6010B-TCLP	mg/L		0.55 J	0.551 J	0.906 J						
Cadmium		SW6010B-TCLP	mg/L		0.002 U	0.002 U	0.002 U						
Chromium		SW6010B-TCLP	mg/L		0.007 J	0.003 U	0.003 U						
Lead		SW6010B-TCLP	mg/L		0.02 U	0.02 U	0.02 U						
Mercury		SW7470A-TCLP	mg/L		0.004 U	0.004 U	0.004 U						
Selenium		SW6010B-TCLP	mg/L		0.02 U	0.02 U	0.02 U						
Silver		SW6010B-TCLP	mg/L		0.007 U	0.007 U	0.007 U						

Table 4-24 Pre-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	MP60	MP60	MP51	MP59	MP45	MP48	MP49	MP55	MP62	MP50
		Geographic Area		Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955	Pre-1955
		Environmental Type*		T/WR	T/WR	T/WR F	T/WR N	T/WR N/DN	T/WR N/DN	T/WR N/DN	T/WR N/DN	T/WR N/DN	T/WR B/WB
		Sample ID		11MP60SB04	11MP60SB14	11MP51SB06	11MP59SB12	11MP45SB10	11MP48SB12	11MP49SB10	11MP55SB04	11MP62SB04	11MP50SB04
Analyte	Method												
Arsenic Speciation													
Arsenite	EPA 1632-As3-CRYO-T	mg/kg		488	637								
Arsenate	EPA 1632-As-Cryo-S-Speciation	mg/kg		1820	1860								
Inorganic Arsenic	EPA 1632-Total Inorganic As - Solid	mg/kg		2310	2500								
Arsenate	EPA 1632-Total Metals	mg/kg											
Arsenite	EPA 1632-Total Metals	mg/kg											
Inorganic Arsenic	EPA 1632-Total Metals	mg/kg											
Mercury Selective Sequential Extraction													
Hg(F1)	SOP BR-0013	ng/g		311		102							
Hg(F2)	SOP BR-0013	ng/g		1.34		2.92							
Hg(F3)	SOP BR-0013	ng/g		4370		2800							
Hg(F4)	SOP BR-0013	ng/g		15200		51.4							
Hg(F5)	SOP BR-0013	ng/g		423000 J		2660							
Semi-Volatile Organic Compounds													
2-Methylnaphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
9-Octadecenamide, (Z)-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Acenaphthene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Bis(2-ethylhexyl) Phthalate	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Fluorene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Heptadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Heptylcyclohexane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Octadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Pentadecane, 2,6,10,14-tetramethyl	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Pentadecane, 2,6,10-trimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Phenanthrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Tetradecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Tricosane, 2-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Tridecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Undecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Undecane, 2,6-dimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Undecane, 2-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Unknown	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Unknown Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Unknown Branched Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Unknown Branched Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Unknown Substituted Aromatic	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg											
Diesel and Residual Range Organics													
C10 - C25 DRO	AK102-Alaska Diesel Range for Soil	mg/kg											
C25 - C36 RRO	AK103-Alaska Residual Range for Soil	mg/kg											

* Environmental types defined in Table A-1

Key

Bold = detection

% = percent

µg/kg = micrograms per kilogram

µg/L = micrograms per liter

DRO = diesel range organics

Gray shading = exceedance of background

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

RRO = residual range organics

SPLP = synthetic

TCLP = toxicity characteristic leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-25 Post-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID		MP01	MP01	MP01	MP10	MP10	MP11	MP11	MP11	MP12	MP12	MP12	MP13	MP13	
		Geographic Area		Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955
		Environmental Type*		N/DN	N/DN	N/DN	B/WB	B/WB	T/WB	N/DN	N/DN	N/DN	F	N/DN	B/WB	F	N/DN
		Sample ID		11MP01SB04	11MP01SB12	11MP01SB16	11MP10SB04	11MP10SB06	11MP11SB04	11MP11SB06	11MP11SB08	11MP12SB06	11MP12SB12	11MP12SB16	11MP13SB04	11MP13SB06	
Analyte		Method	Units														
Total Inorganic Elements																	
Aluminum	16300	SW6010B	mg/kg	14400 J	14200 J	5180	3000 J	2830 J	7280	12500	6980	4840	3490	3630	2440	2620	
Antimony	6.25	SW6010B	mg/kg						5760 J	323 J		184 J		46.5 J	50.1 J		
Antimony	6.25	SW6020A	mg/kg	0.94 J	0.245 J	0.501 J	8.09 J	3.38 J			5.86 J		0.547 J			11.5 J	
Arsenic	12.8	SW6010B	mg/kg						3740 J	471 J	38.2 J		91				
Arsenic	12.8	SW6020A	mg/kg	10.3 J	12.5 J	34	25.5 J	15.6 J				562		665	126	79.1	
Barium	200	SW6010B	mg/kg														
Barium	200	SW6020A	mg/kg	147	148	75.4	133	126	394 J	194 J	188 J	147	90.5	86.6	99.4	197	
Beryllium	0.484	SW6020A	mg/kg	0.431	0.536	0.597	0.334	0.305	0.636	0.535	0.578	0.483	0.584	0.781	0.386	0.513	
Cadmium	0.614	SW6020A	mg/kg	0.331	0.372	0.449	0.413	0.303	0.543 J	0.431 J	0.495 J	0.527	0.648	0.901	0.48	0.659	
Calcium	2740	SW6010B	mg/kg	1240	2430	1750 J	3090	2660	3930 J	1390 J	943 J	1410 J	1490 J	1710 J	1400 J	1590 J	
Chromium	24.6	SW6020A	mg/kg	19.6	26.3	8.18 J	13.5	14.1	18 J	19.9 J	20.1 J	14.5 J	11.9	10.6 J	13.3	15.3 J	
Cobalt	19.1	SW6020A	mg/kg	13.3	15.8	25	13.8	15.7	16.2	11.7	12.1	15	18.2	22	13.7	18.3	
Copper	59.7	SW6020A	mg/kg	32.4 J	47.1 J	65.7 J	35.2 J	25.4 J	59 J	38.2 J	41.5 J	47.8 J	79.3 J	117 J	42.9 J	65.4 J	
Iron	39300	SW6010B	mg/kg	31200	53100	43300	51500	41300	45700	39800	25700	38000	42300	35400	35200	33700	
Lead	14.3	SW6020A	mg/kg	9.92	11.9	13.3 J	8.31	6.73	0.299 J	10.8 J	11.1 J	10.4 J	16.1 J	22.5 J	11 J	16 J	
Magnesium	4910	SW6010B	mg/kg	3630	4870	1760 J	680	758	4590 J	1760 J	2060 J	1120 J	732 J	865 J	626 J	679 J	
Manganese	1280	SW6010B	mg/kg	611	507	563 J	731	697	900	701	219	913 J	758	661 J	974	925 J	
Mercury	3.92	SW7471A	mg/kg	0.435	0.361	1.56 J	3.6	5.63	163 J	71.2 J	0.914 J	55.4 J	1.5	11.5 J	16.6	23.9 J	
Nickel	52.2	SW6020A	mg/kg	34	47.6	70.7 J	47	43.8	47.6 J	40.4 J	43 J	45.8 J	53.5	92.4 J	46.9	55 J	
Potassium	1080	SW6010B	mg/kg	855 J	1290 J	1130 J	876 J	816 J	1900 J	984 J	1130 J	1120 J	1280 J	1340 J	824 J	902 J	
Selenium	0.52	SW7742	mg/kg	0.17	0.32	0.29	0.34	0.29	0.66	0.25	0.36	0.59	0.55	0.57	0.61	0.7	
Silver	0.32	SW6020A	mg/kg	0.095	0.182	0.186	0.118	0.094	0.263 J	0.12 J	0.118 J	0.259	0.229	0.357	0.222	0.208	
Sodium	92.2	SW6010B	mg/kg	57	53.2	37.2	45.1	44.6	117	42.6	34.9	39.3	36.1	373	25.3	23.4	
Thallium	0.10	SW6020A	mg/kg	0.085	0.07	0.091	0.065	0.068	0.167	0.082	0.096	0.089	0.076	0.098	0.066	0.088	
Vanadium	38.4	SW6020A	mg/kg	35.5	36.8	22.9	31.6	35.7	20.7	31.6	34.1	24.8	26.7	26.5	23.3	33	
Zinc	106	SW6020A	mg/kg	76.1 J	107 J	120	82.6 J	72.8 J	88.6 J	81.7 J	96.1 J	89.9	128	227	103	118	
Low Level Mercury																	
Mercury		EPA 1631 Appendix	ng/g									5100					
SPLP Inorganic Elements																	
Aluminum		SW6010B-SPLP	µg/L			1870 J		1800	1490 J								
Antimony		SW6010B-SPLP	µg/L			20 UJ		24 J	5710 J								
Arsenic		SW6010B-SPLP	µg/L			20 U		20 U	3080								
Barium		SW6010B-SPLP	µg/L			34 J		47.8 J	35.5 J								
Beryllium		SW6010B-SPLP	µg/L			0.2 U		0.2 U	0.2 U								
Cadmium		SW6010B-SPLP	µg/L			0.8 U		0.8 U	0.8 U								
Calcium		SW6010B-SPLP	µg/L			697 J		1240	2730								
Chromium		SW6010B-SPLP	µg/L			3 U		3 U	3.9 J								
Cobalt		SW6010B-SPLP	µg/L			2 U		2.4 J	2 U								
Copper		SW6010B-SPLP	µg/L			12.2		5 U	6.5 J								
Iron		SW6010B-SPLP	µg/L			4720 J		4530	2570								
Lead		SW6010B-SPLP	µg/L			8 U		8 U	8 U								
Magnesium		SW6010B-SPLP	µg/L			314		353	3680								
Manganese		SW6010B-SPLP	µg/L			35.4		120	43.6								
Mercury		SW7470A-SPLP	µg/L			1.08		2.24	37.8								
Nickel		SW6010B-SPLP	µg/L			7.2 J		6.5 J	5.7 J								
Potassium		SW6010B-SPLP	µg/L			1170		777	1070								
Selenium		SW6010B-SPLP	µg/L			30 U		30 U	30 U								
Silver		SW6010B-SPLP	µg/L			11.2 J		9.4 J	6.2 J								
Sodium		SW6010B-SPLP	µg/L			7340 J		8310 J	7750 J								
Thallium		SW6010B-SPLP	µg/L			30 U		30 U	30 U								
Vanadium		SW6010B-SPLP	µg/L			6.9 J		7.4 J	8.1 J								
Zinc		SW6010B-SPLP	µg/L			35.8 J		53.8 J	31.4 J								
TCLP Inorganic Elements																	
Arsenic		SW6010B-TCLP	mg/L					0.01 U	7.58								
Barium		SW6010B-TCLP	mg/L					0.423 J	0.332 J								
Cadmium		SW6010B-TCLP	mg/L					0.002 U	0.002 U								
Chromium		SW6010B-TCLP	mg/L					0.003 U	0.003 J								
Lead		SW6010B-TCLP	mg/L					0.02 U	0.02 U								
Mercury		SW7470A-TCLP	mg/L					0.004 U	0.0113								
Selenium		SW6010B-TCLP	mg/L					0.02 U	0.02 U								
Silver		SW6010B-TCLP	mg/L					0.007 U	0.007 U								
Arsenic Speciation																	
Arsenite		EPA 1632-As3-CRYO-T	mg/kg			0.346			209								
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg			42.6			2680								
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg			43			2890								
Arsenate		EPA 1632-Total Metals	mg/kg														
Arsenite		EPA 1632-Total Metals	mg/kg														
Inorganic Arsenic		EPA 1632-Total Metals	mg/kg														
Mercury Selective Sequential Extraction																	
Hg(F1)		SOP BR-0013	ng/g									162					
Hg(F2)		SOP BR-0013	ng/g									360 J					
Hg(F3)		SOP BR-0013	ng/g									323 J					
Hg(F4)		SOP BR-0013	ng/g									1050					
Hg(F5)		SOP BR-0013	ng/g									2300					

Table 4-25 Post-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID		MP26	MP27	MP27	MP28	MP28	MP28	MP29	MP29	MP29	MP30	MP30	MP30	MP31		
		Geographic Area		Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	
		Environmental Type*		T/WR	N/DN	N/DN	T/WR	N/DN	N/DN	N/DN	T/WR	T/WR	T/WR	T/WR	T/WR	N/DN	N/DN	B/WB
		Sample ID		Units		11MP26SB16	11MP27SB04	11MP27SB06	11MP28SB06	11MP28SB08	11MP28SB10	11MP29SB06	11MP29SB10	11MP29SB16	11MP30SB06	11MP30SB12	11MP30SB16	11MP31SB04
Analyte		Method																
Total Inorganic Elements																		
Aluminum	16300	SW6010B	mg/kg	11400 J	11800	9270	9030	6720	12400 J	12100 J	9580	10300	8910	10700	10900	2640 J		
Antimony	6.25	SW6010B	mg/kg	1280 J	131 J	53.8 J	15400 J	212 J	723 J	15800 J	12600 J	12900 J	12800 J	4310 J	195 J			
Antimony	6.25	SW6020A	mg/kg													2.34 J		
Arsenic	12.8	SW6010B	mg/kg				7350	361		7360 J	5580	4540	8670	3990 J				
Arsenic	12.8	SW6020A	mg/kg	808 J	20.8	93.4			222 J						255	19.7 J		
Barium	200	SW6010B	mg/kg								664							
Barium	200	SW6020A	mg/kg	196	175	154	619	208	135	717		1020	758	172 J	124 J	79.2		
Beryllium	0.484	SW6020A	mg/kg	0.452	0.538	0.435	0.724	0.509	0.387	0.597	0.676	0.705	0.687	0.381	0.379	0.551		
Cadmium	0.614	SW6020A	mg/kg	0.352	0.381	0.321	0.371	0.603	0.27	0.353	0.354	0.344	0.325	0.132 J	0.289 J	0.33		
Calcium	2740	SW6010B	mg/kg	2980	999 J	1320 J	5710 J	1310 J	1870	6490	6770 J	5440 J	9670 J	4230 J	2360 J	2200		
Chromium	24.6	SW6020A	mg/kg	14.9	17.2 J	20.9 J	17.5 J	16.7	17.2	32.4	29.4	23.5 J	59.6 J	18.6 J	20.6 J	11		
Cobalt	19.1	SW6020A	mg/kg	13.1	13.1	11.1	10.5	18.4	9.64	8.64	12.2	11.8	16.5	7.48	16	14.3		
Copper	59.7	SW6020A	mg/kg	32.4 J	27.1 J	23.3 J	60.3 J	48.2 J	26.5 J	46.8 J	51.1 J	61.9 J	91.5 J	20.3 J	23.4 J	55.9 J		
Iron	39300	SW6010B	mg/kg	26700	34900	38100	31900	36700	24800	48500	32000	33400	35100	30800	18900	23600		
Lead	14.3	SW6020A	mg/kg	9.32	9.07 J	8.57 J	0.027 J	13.4 J	7.85	0.18	0.055 J	0.155 J	0.19 J	5.44 J	7.83 J	11.9		
Magnesium	4910	SW6010B	mg/kg	3630	3540 J	3190 J	5750 J	2210 J	3230	7620	6900 J	6960 J	8710 J	5550 J	4990 J	520		
Manganese	1280	SW6010B	mg/kg	671	887 J	687 J	570 J	664	775	1720	665	630 J	706 J	367	179	187		
Mercury	3.92	SW7471A	mg/kg	44.2	0.532 J	3.32 J	434 J	42.1	56.9	89.4	163	66.7 J	2370 J	136 J	73.7 J	1.92		
Nickel	52.2	SW6020A	mg/kg	31.4	30 J	26.5 J	37.1 J	45.9	27.7	31	50.5	42.9 J	81.4 J	24.1 J	36.8 J	41		
Potassium	1080	SW6010B	mg/kg	2050 J	754 J	845 J	3120 J	1020 J	1320 J	4140 J	3200 J	3200 J	3320 J	2080 J	806 J	1160 J		
Selenium	0.52	SW7742	mg/kg	0.36 J	0.11	0.14	1.17	0.44	0.41	0.91	1.1	0.54	6.07	0.59	3.04	0.47		
Silver	0.32	SW6020A	mg/kg	0.15	0.109	0.11	0.249	0.239	0.147	0.229	0.232	0.223	0.212	0.186 J	0.096 J	0.129		
Sodium	92.2	SW6010B	mg/kg	164	40.1	47.9	219	37.3	114	362	258	259	246	150	119	46.8		
Thallium	0.10	SW6020A	mg/kg	0.151	0.088	0.082	0.306	0.129	0.107	0.554	0.423	0.281	0.432	0.126	0.084	0.068		
Vanadium	38.4	SW6020A	mg/kg	25.5	35	33.7	16.5	29.5	33.4	18	17	18.3	24.6	26.1	27.9	32.1		
Zinc	106	SW6020A	mg/kg	72.6 J	63.1	56.1	69.8	89	67.7 J	76 J	69.1	75.4	77.3 J	51.1 J	68.6 J	95.1 J		
Low Level Mercury																		
Mercury		EPA 1631 Appendix	ng/g				231000	23000					2040000					
SPLP Inorganic Elements																		
Aluminum		SW6010B-SPLP	µg/L				2020 J				155		558 J					
Antimony		SW6010B-SPLP	µg/L				16400 J				75300 J		14500 J					
Arsenic		SW6010B-SPLP	µg/L				4830				3730 J		5320					
Barium		SW6010B-SPLP	µg/L				35 J			8 J			17.8 J					
Beryllium		SW6010B-SPLP	µg/L				0.2 U			0.2 U			0.2 U					
Cadmium		SW6010B-SPLP	µg/L				0.8 U			0.8 UJ			0.8 U					
Calcium		SW6010B-SPLP	µg/L				3120			3880			4480					
Chromium		SW6010B-SPLP	µg/L				5.3 J			3 U			3 U					
Cobalt		SW6010B-SPLP	µg/L				2 U			2 U			2 U					
Copper		SW6010B-SPLP	µg/L				5 U			5 U			5 U					
Iron		SW6010B-SPLP	µg/L				1450 J			114			538 J					
Lead		SW6010B-SPLP	µg/L				8 U			8 U			8 U					
Magnesium		SW6010B-SPLP	µg/L				5940			10600			4000					
Manganese		SW6010B-SPLP	µg/L				15.6			8.5			9.3					
Mercury		SW7470A-SPLP	µg/L				32.4			1.9			356					
Nickel		SW6010B-SPLP	µg/L				2 U			2 U			2 U					
Potassium		SW6010B-SPLP	µg/L				2090			3020			1270					
Selenium		SW6010B-SPLP	µg/L				30 U			30 UJ			30 U					
Silver		SW6010B-SPLP	µg/L				5.7 J			5 J			12.4 J					
Sodium		SW6010B-SPLP	µg/L				7590 J			6120 J			7330 J					
Thallium		SW6010B-SPLP	µg/L				30 U			30 U			30 U					
Vanadium		SW6010B-SPLP	µg/L				11.3			8 J			6.7 J					
Zinc		SW6010B-SPLP	µg/L				25.3 J			14.6 J			14.6 J					
TCLP Inorganic Elements																		
Arsenic		SW6010B-TCLP	mg/L				10.3						15.7					
Barium		SW6010B-TCLP	mg/L				0.3 U						0.3 U					
Cadmium		SW6010B-TCLP	mg/L				0.002 U						0.002 U					
Chromium		SW6010B-TCLP	mg/L				0.003 U						0.003 U					
Lead		SW6010B-TCLP	mg/L				0.02 U						0.02 U					
Mercury		SW7470A-TCLP	mg/L				0.0064 J						0.0051 J					
Selenium		SW6010B-TCLP	mg/L				0.02 U						0.02 U					
Silver		SW6010B-TCLP	mg/L				0.007 U						0.007 U					
Arsenic Speciation																		
Arsenite		EPA 1632-As3-CRYO-T	mg/kg				257						375					
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg				4560						2840					
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg				4810						3210					
Arsenate		EPA 1632-Total Metals	mg/kg															
Arsenite		EPA 1632-Total Metals	mg/kg															
Inorganic Arsenic		EPA 1632-Total Metals	mg/kg															
Mercury Selective Sequential Extraction																		
Hg(F1)		SOP BR-0013	ng/g				6830	253 J					36600					
Hg(F2)		SOP BR-0013	ng/g				2000 J	13.5 J					96300 J					
Hg(F3)		SOP BR-0013	ng/g				3950 J	4360 J					96900 J					
Hg(F4)		SOP BR-0013	ng/g				27500	777 J					106000					
Hg(F5)		SOP BR-0013	ng/g				261000	5700 J					2020000					

Table 4-25 Post-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID		MP36	MP37	MP37	MP37	MP38	MP38	MP38	MP39	MP39	MP39	MP40	MP40	
		Geographic Area		Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955
		Environmental Type*		B/WB	N/DN or F	N/DN or F	B/WB	T/WR (+ possible FT)	TWR N/DN	N/DN	T/WR	T/WR	N/DN or F	T/WR	T/WR	T/WR
		Sample ID		11MP36SB16	11MP37SB06	11MP37SB08	11MP37SB16	11MP38SB10	11MP38SB14	11MP38SB16	11MP39SB06	11MP39SB08	11MP39SB12	11MP40SB06	11MP40SB08	
Analyte		Method	Units													
Total Inorganic Elements																
Aluminum	16300	SW6010B	mg/kg	3490 J	10500 J	8760 J	2880 J	10100 J	7340 J	6430 J	10100	13800 J	7270	11200 J	9900	
Antimony	6.25	SW6010B	mg/kg		103 J	255 J		6080 J	1250 J	413 J	5430 J	2180 J	527 J	347 J	1460 J	
Antimony	6.25	SW6020A	mg/kg	5.43			2.03									
Arsenic	12.8	SW6010B	mg/kg								3240		666		2390	
Arsenic	12.8	SW6020A	mg/kg	208 J	97.2 J	126 J	71.3 J	3590 J	680 J	706 J		866 J		276 J		
Barium	200	SW6010B	mg/kg													
Barium	200	SW6020A	mg/kg	61.1	122	159	201	589	152	113	936	358	205	120	370	
Beryllium	0.484	SW6020A	mg/kg	0.705	0.445	0.371	0.546	0.542	0.347	0.416	0.463	0.368	0.403	0.346	0.44	
Cadmium	0.614	SW6020A	mg/kg	0.655	0.308	0.303	0.567	0.3	0.215	0.21	0.263	0.224	0.26	0.155	0.253	
Calcium	2740	SW6010B	mg/kg	2640 J	2190 J	5430 J	1640 J	3650 J	1990 J	1510 J	4080 J	4060	3230 J	1950	1720 J	
Chromium	24.6	SW6020A	mg/kg	12.3	21.7	17.9	15.1	30.1	11.4	18.8	21.5	23.7	16.2	16.9	26.2 J	
Cobalt	19.1	SW6020A	mg/kg	13.4	13.5	10.6	21	13	10.3	17.3	9.18	7.35	13	6.83	8.87	
Copper	59.7	SW6020A	mg/kg	90.7	35.9	24.1	53.4	53.9	18.6	28.3	28.5 J	21.7 J	22.8 J	19.4 J	31.6 J	
Iron	39300	SW6010B	mg/kg	51200	33700	16100	53600	32100	31800	39300	25200	18700	32100	23200	27200	
Lead	14.3	SW6020A	mg/kg	27.5	16.3	12.3	12.7	9.26	5.94	8.05	4.38 J	7.55	8.63 J	8.27	6.63 J	
Magnesium	4910	SW6010B	mg/kg	6140 J	3420 J	2230 J	1080 J	5720 J	3720 J	3070 J	3980 J	3810	3580 J	3230	2750 J	
Manganese	1280	SW6010B	mg/kg	1660	609	501	1260	475	367	404	432	322	697	246	359	
Mercury	3.92	SW7471A	mg/kg	14 J	9.74 J	20.6 J	4.32 J	315 J	446 J	93.3 J	81.1	43.8	111	10.3	185 J	
Nickel	52.2	SW6020A	mg/kg	56.2	34.5	26.5	61.2	50.2	30.9	67.7	35.3	29.4	38.3	22.5	30.7 J	
Potassium	1080	SW6010B	mg/kg	1310	852	694	808	3000	1500	1480	3100 J	1670 J	820 J	1030 J	2550 J	
Selenium	0.52	SW7742	mg/kg	2	0.74	2.44	0.85	1.41	1.01	0.61	1.02	0.45 J	0.38	0.45	0.61	
Silver	0.32	SW6020A	mg/kg	0.384	0.133	0.127	0.265	0.203	0.133	0.131	0.163	0.123	0.097	0.097	0.141	
Sodium	92.2	SW6010B	mg/kg	56.8	74.1	52	27.4	239	105	98	195	163	50.9	72.2	145	
Thallium	0.10	SW6020A	mg/kg	0.11	0.085	0.1	0.118	0.395	0.102	0.098	0.349	0.185	0.09	0.085	0.2	
Vanadium	38.4	SW6020A	mg/kg	27.5	37.6	28.4	27.8	21.2	15.1	24.4	18.5	23.9	21.8	29.4	18	
Zinc	106	SW6020A	mg/kg	107	77	56.6	125	69.6	49.3	82.4	45.6	50.8 J	67	55 J	49.1	
Low Level Mercury																
Mercury		EPA 1631 Appendix	ng/g					519000				39700			161000	
SPLP Inorganic Elements																
Aluminum		SW6010B-SPLP	µg/L					434			1180				1510 J	
Antimony		SW6010B-SPLP	µg/L					6720			4300 J				1290 J	
Arsenic		SW6010B-SPLP	µg/L					862			2750 J				582	
Barium		SW6010B-SPLP	µg/L					19.2 J			34.7 J				40.5 J	
Beryllium		SW6010B-SPLP	µg/L					0.2 U			0.2 U				0.2 U	
Cadmium		SW6010B-SPLP	µg/L					0.9 J			0.8 UJ				0.8 U	
Calcium		SW6010B-SPLP	µg/L					3000			5560				2020	
Chromium		SW6010B-SPLP	µg/L					3.4 J			3.8 J				5.1 J	
Cobalt		SW6010B-SPLP	µg/L					2 U			2 U				2 U	
Copper		SW6010B-SPLP	µg/L					5 U			5 U				5 U	
Iron		SW6010B-SPLP	µg/L					333 J			520				2660 J	
Lead		SW6010B-SPLP	µg/L					8 U			8 U				8 U	
Magnesium		SW6010B-SPLP	µg/L					2590			3080				1540	
Manganese		SW6010B-SPLP	µg/L					4.8 J			10.6				34.5	
Mercury		SW7470A-SPLP	µg/L					10.3			10.9				37.1	
Nickel		SW6010B-SPLP	µg/L					2 U			2.7 J				4.9 J	
Potassium		SW6010B-SPLP	µg/L					904			2200				948	
Selenium		SW6010B-SPLP	µg/L					30 U			30 UJ				30 U	
Silver		SW6010B-SPLP	µg/L					5 U			12.3 J				6.3 J	
Sodium		SW6010B-SPLP	µg/L					8970 J			5130 J				9350 J	
Thallium		SW6010B-SPLP	µg/L					30 U			30 U				30 U	
Vanadium		SW6010B-SPLP	µg/L					5 U			8.1 J				5.6 J	
Zinc		SW6010B-SPLP	µg/L					14.1 J			61.5 J				41.3 J	
TCLP Inorganic Elements																
Arsenic		SW6010B-TCLP	mg/L													
Barium		SW6010B-TCLP	mg/L													
Cadmium		SW6010B-TCLP	mg/L													
Chromium		SW6010B-TCLP	mg/L													
Lead		SW6010B-TCLP	mg/L													
Mercury		SW7470A-TCLP	mg/L													
Selenium		SW6010B-TCLP	mg/L													
Silver		SW6010B-TCLP	mg/L													
Arsenic Speciation																
Arsenite		EPA 1632-As3-CRYO-T	mg/kg								506				191	
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg								3230				1470	
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg								3730				1660	
Arsenate		EPA 1632-Total Metals	mg/kg					2000 J								
Arsenite		EPA 1632-Total Metals	mg/kg					1080 J								
Inorganic Arsenic		EPA 1632-Total Metals	mg/kg					3080								
Mercury Selective Sequential Extraction																
Hg(F1)		SOP BR-0013	ng/g					3990				648 J			2570 J	
Hg(F2)		SOP BR-0013	ng/g					18.9 J				2.23 J			322 J	
Hg(F3)		SOP BR-0013	ng/g					9210 J				33200 J			2770 J	
Hg(F4)		SOP BR-0013	ng/g					43800 J				2130 J			21800 J	
Hg(F5)		SOP BR-0013	ng/g					475000 J				23700 J			240000 J	

Table 4-25 Post-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID		MP40	MP41	MP41	MP89	MP89	MP89
		Geographic Area		Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955
		Environmental Type*		B/WB	B/WB	B/WB	F	N/DN	B/WB
		Sample ID	Units	11MP40SB10	11MP41SB04	11MP41SB06	11MP89SB06	11MP89SB12	11MP89SB30
Analyte	Method								
Total Inorganic Elements									
Aluminum	16300	SW6010B	mg/kg	7380	7330	2990	8300	13700	5280
Antimony	6.25	SW6010B	mg/kg	868 J			419 J	48.8 J	
Antimony	6.25	SW6020A	mg/kg		1.04 J	1.14 J			46.1 J
Arsenic	12.8	SW6010B	mg/kg	1150					
Arsenic	12.8	SW6020A	mg/kg		30.7 J	59.8 J	490	123	28.7
Barium	200	SW6010B	mg/kg						
Barium	200	SW6020A	mg/kg	347	154 J	152 J	146	99.8	79.6
Beryllium	0.484	SW6020A	mg/kg	0.356	0.638	0.784	0.428	0.387	0.47
Cadmium	0.614	SW6020A	mg/kg	0.335	0.494 J	0.912 J	0.271	0.153	0.254
Calcium	2740	SW6010B	mg/kg	1680 J	825 J	1140 J	1570	1660	663
Chromium	24.6	SW6020A	mg/kg	21.3	17 J	11.1 J	16	17.1	16.8
Cobalt	19.1	SW6020A	mg/kg	11.5	16.9	27	8.27	5.58	8.07
Copper	59.7	SW6020A	mg/kg	30.2 J	41.7 J	139 J	31	15.3	36.1
Iron	39300	SW6010B	mg/kg	33200	49300	41800	26300	19700	33700
Lead	14.3	SW6020A	mg/kg	6.92 J	9.68	20.5	7.36	7.13	9.29
Magnesium	4910	SW6010B	mg/kg	3360 J	1480 J	578 J	3120	3770	936
Manganese	1280	SW6010B	mg/kg	743	942	1010	281	153	168
Mercury	3.92	SW7471A	mg/kg	119	2.07	3.55	251 J	1.71 J	0.932 J
Nickel	52.2	SW6020A	mg/kg	40	34.5 J	86.8 J	25.1	16.5	39.7
Potassium	1080	SW6010B	mg/kg	1310 J	832	1100	867 J	693 J	966
Selenium	0.52	SW7742	mg/kg	0.41	0.45	0.61	0.27	0.25	0.24
Silver	0.32	SW6020A	mg/kg	0.153	0.131	0.179	0.091	0.093	0.113
Sodium	92.2	SW6010B	mg/kg	76.5	36 J	24 J	89.3	77.3	40.4
Thallium	0.10	SW6020A	mg/kg	0.109	0.106	0.131	0.109	0.089	0.09
Vanadium	38.4	SW6020A	mg/kg	22.8	33	29.7	24.5	31.1	31.9
Zinc	106	SW6020A	mg/kg	70.1	76.8 J	153 J	55.8 J	52.1 J	85.7 J
Low Level Mercury									
Mercury		EPA 1631 Appendix	ng/g			3140 J			
SPLP Inorganic Elements									
Aluminum		SW6010B-SPLP	µg/L			1400 J			
Antimony		SW6010B-SPLP	µg/L			20 U			
Arsenic		SW6010B-SPLP	µg/L			20 U			
Barium		SW6010B-SPLP	µg/L			36.8 J			
Beryllium		SW6010B-SPLP	µg/L			0.2 U			
Cadmium		SW6010B-SPLP	µg/L			0.8 U			
Calcium		SW6010B-SPLP	µg/L			340 J			
Chromium		SW6010B-SPLP	µg/L			5.8 J			
Cobalt		SW6010B-SPLP	µg/L			2 U			
Copper		SW6010B-SPLP	µg/L			9.3 J			
Iron		SW6010B-SPLP	µg/L			2760			
Lead		SW6010B-SPLP	µg/L			8 U			
Magnesium		SW6010B-SPLP	µg/L			133 J			
Manganese		SW6010B-SPLP	µg/L			53.1			
Mercury		SW7470A-SPLP	µg/L			1.13			
Nickel		SW6010B-SPLP	µg/L			6 J			
Potassium		SW6010B-SPLP	µg/L			831			
Selenium		SW6010B-SPLP	µg/L			30 U			
Silver		SW6010B-SPLP	µg/L			5 U			
Sodium		SW6010B-SPLP	µg/L			8710 J			
Thallium		SW6010B-SPLP	µg/L			30 U			
Vanadium		SW6010B-SPLP	µg/L			5.3 J			
Zinc		SW6010B-SPLP	µg/L			19.7 J			
TCLP Inorganic Elements									
Arsenic		SW6010B-TCLP	mg/L						
Barium		SW6010B-TCLP	mg/L						
Cadmium		SW6010B-TCLP	mg/L						
Chromium		SW6010B-TCLP	mg/L						
Lead		SW6010B-TCLP	mg/L						
Mercury		SW7470A-TCLP	mg/L						
Selenium		SW6010B-TCLP	mg/L						
Silver		SW6010B-TCLP	mg/L						
Arsenic Speciation									
Arsenite		EPA 1632-As3-CRYO-T	mg/kg						
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg						
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg						
Arsenate		EPA 1632-Total Metals	mg/kg			10.4 J			
Arsenite		EPA 1632-Total Metals	mg/kg			0.284 J			
Inorganic Arsenic		EPA 1632-Total Metals	mg/kg			10.7			
Mercury Selective Sequential Extraction									
Hg(F1)		SOP BR-0013	ng/g			26.7 J			
Hg(F2)		SOP BR-0013	ng/g			55.7 J			
Hg(F3)		SOP BR-0013	ng/g			11.3 J			
Hg(F4)		SOP BR-0013	ng/g			1240 J			
Hg(F5)		SOP BR-0013	ng/g			1580 J			

Table 4-25 Post-1955 Main Processing Area Subsurface Soil Results	Background Screening Criteria	Station ID	MP40	MP41	MP41	MP89	MP89	MP89
		Geographic Area	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955	Post-1955
		Environmental Type*	B/WB	B/WB	B/WB	F	N/DN	B/WB
		Sample ID	11MP40SB10	11MP41SB04	11MP41SB06	11MP89SB06	11MP89SB12	11MP89SB30
Analyte	Method	Units						
Semi-Volatile Organic Compounds								
.beta.-Sitosterol	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
.gamma.-Sitosterol	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
2-Methylnaphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
4-Chloroaniline	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Acenaphthene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Benzo(a)pyrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Benzo(b)fluoranthene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Benzo(g,h,i)perylene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Benzo(k)fluoranthene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Benzyl Alcohol	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Bis(2-ethylhexyl) Phthalate	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Chrysene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Cyclopropane, 1-pentyl-2-propyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Decane, 4-methyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Dibenz(a,h)anthracene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Dibenzofuran	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Diethyl Phthalate	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Docosanoic acid	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Dodecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Dodecane, 2,6,11-trimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Fluorene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Heptadecane, 2,6,10,15-tetramethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Heptadecane, 2,6-dimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Hexadecane, 2,6,10,14-tetramethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Hexadecanoic acid, butyl ester	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Indeno(1,2,3-cd)pyrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Naphthalene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
N-Nitrosodiphenylamine	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Nonadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Octadecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Octadecanoic acid, butyl ester	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Octane, 3,6-dimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Oleic Acid	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Pentadecane, 2,6,10,14-tetramethyl	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Phenanthrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Pyrene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Tetradecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Tridecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Undecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Undecane, 2,6-dimethyl-	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Unknown	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Unknown Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Unknown Branched Alkane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Unknown branched undecane	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Unknown Carboxylic Acid	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Unknown Cyclic Hydrocarbon	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Z-1,6-Undecadiene	SW8270C-Low Level Semivolatile Organics using LVI	µg/kg						
Diesel and Residual Range Organics								
C10 - C25 DRO	AK102-Alaska Diesel Range for Soil	mg/kg						
C25 - C36 RRO	AK103-Alaska Residual Range for Soil	mg/kg						

* Environmental types defined in Table A-1

Key

- % = percent
- µg/kg = micrograms per kilogram
- µg/L = micrograms per liter
- DRO = diesel range organics
- J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.
- mg/kg = milligrams per kilogram
- mg/L = milligrams per liter
- ng/g = nanograms per gram
- ng/L = nanograms per liter
- RRO = residual range organics
- SPLP = synthetic precipitation leaching procedure
- TCLP = toxicity characteristic leaching procedure
- U = Analyte was analyzed for but not detected. Value provided is reporting limit.
- UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-26 Red Devil Creek Downstream Alluvial Area and Delta Subsurface Soil Results	Background Screening Criteria	Station ID	Units	RD01	RD01	RD01	RD02	RD02	RD02	RD03	RD03	RD03	RD04	RD04	RD04	RD05	RD05	RD05		
		Environmental Type*		N/DN	KRA	KRA	T/WR	T/WR	T/WR N/DN	T/WR	T/WR	T/WR	N/DN	N/DN	KRA	N/DN	N/DN	N/DN	N/DN	B/WB
		Sample ID Method		11RD01SB04	11RD01SB10	11RD01SB14	11RD02SB04	11RD02SB06	11RD02SB10	11RD03SB06	11RD03SB08	11RD03SB10	11RD04SB04	11RD04SB08	11RD04SB12	11RD05SB08	11RD05SB12	11RD05SB16		
Total Inorganic Elements (mg/kg)																				
Aluminum	16300	SW6010B	mg/kg	14800	14800	14600	12100	10600	8630	9160	5330	8240	13000	13800	13400	11700	7370	2500		
Antimony	6.25	SW6010B	mg/kg				1950 J	868 J	92 J	2710 J	844 J	545 J	149 J	95 J			18 J			
Antimony	6.25	SW6020A	mg/kg	0.657 J	0.352 J	0.359 J									1.09	1.33		0.669		
Arsenic	12.8	SW6020A	mg/kg	10.3 J	3.36 J	8.74 J	1880 J	1410 J	181 J	3510 J	1790 J	503 J	40.7	102	8.75	7.86	36	41.2		
Barium	200	SW6020A	mg/kg	124 J	167 J	140 J	310 J	254 J	95.4 J	553 J	227 J	113 J	129	180	180	124	82.2	78.5		
Beryllium	0.484	SW6020A	mg/kg	0.375	0.477	0.479	0.532	0.503	0.39	0.798	0.511	0.432	0.379	0.413	0.379	0.402	0.509	0.637		
Cadmium	0.614	SW6020A	mg/kg	0.17 J	0.252 J	0.437 J	0.29 J	0.332 J	0.273 J	0.419 J	0.282 J	0.315 J	0.157 J	0.349 J	0.35 J	0.21 J	0.49 J	0.545 J		
Calcium	2740	SW6010B	mg/kg	1280 J	3120 J	3540 J	117000 J	32700 J	1740 J	6660 J	2380 J	1890 J	2560	2700	2410	2410	1830	768		
Chromium	24.6	SW6020A	mg/kg	22.6 J	28.2 J	27.6 J	29 J	25.6 J	19	27.1 J	23.5 J	21.1 J	23.3 J	25.5 J	21.4 J	20.6 J	21.7 J	16.9 J		
Cobalt	19.1	SW6020A	mg/kg	6.02	9.65	10.8	13.1	12.3	16.4	16.7	12.6	16.5	6.46 J	9.2 J	6.33 J	6.16 J	19 J	14.5 J		
Copper	59.7	SW6020A	mg/kg	19.1 J	30 J	29 J	74.5 J	45.1 J	20.4 J	57.1 J	34 J	32.6 J	18.3	24.9	21.4	23.5	45.9	86.1		
Iron	39300	SW6010B	mg/kg	19600	23200	22900	30700	30800	61100	41100	32300	34600	28200	29600	16700	19300	23500	41400		
Lead	14.3	SW6020A	mg/kg	8.06	9.64	10.1	8.05	10.3	5.66	5.78	11.7	8.8	8.37	8.51	7.87	6.29	10.8	21.5		
Magnesium	4910	SW6010B	mg/kg	3900 J	6180 J	6630 J	5710 J	4880 J	3740 J	7010 J	3370 J	3520 J	4790 J	5710	4030 J	4390 J	2650 J	821 J		
Manganese	1280	SW6010B	mg/kg	117	222	221	451	477	561	786	591	399	272	261	160	141	178	915		
Mercury	3.92	SW7471A	mg/kg	0.154	0.064	0.063	94.5	30.6	1.78	340	471	70.3	1.26 J	4.95 J	0.137 J	0.283 J	1.04 J	1.25 J		
Nickel	52.2	SW6020A	mg/kg	20.9 J	33.8 J	31.7 J	33.1 J	35.3 J	35 J	49.2 J	40.3 J	47.5 J	21.6 J	29.4 J	23 J	21.7 J	50.6 J	78.6 J		
Potassium	1080	SW6010B	mg/kg	657	1280	1570	2140	1680	792	3190	1470	874	904 J	1020 J	722 J	710 J	829 J	904 J		
Selenium	0.52	SW7742	mg/kg	0.54	0.54	0.48	0.34 J	0.4 J	0.46	0.8	0.8	0.67	0.37	0.26	0.7	0.2	0.38	0.59		
Silver	0.319	SW6020A	mg/kg	0.139	0.175	0.216	0.106	0.132	0.033	0.191	0.142	0.089	0.126 J	0.17 J	0.141 J	0.08 J	0.192 J	0.321 J		
Sodium	92.2	SW6010B	mg/kg	81.2 J	210 J	230 J	876 J	335 J	39.5 J	259 J	393 J	50 J	110	136	98	96.1	50.5	22.7		
Thallium	0.103	SW6020A	mg/kg	0.108	0.137	0.17	0.754	0.203	0.051	0.388	0.251	0.113	0.12	0.129	0.106	0.075	0.139	0.107		
Vanadium	38.4	SW6020A	mg/kg	33.4	40.7	38.7	31.4	30	31.4	25.3	22.4	28.2	33.9 J	33.4 J	32.3 J	35.5 J	35.9 J	44.6 J		
Zinc	106	SW6020A	mg/kg	55.9 J	87.4 J	90.4 J	176 J	120 J	76.1 J	97.2 J	75.1 J	88.2 J	61.2 J	76.2 J	61 J	53.5 J	89.1 J	128 J		
Low Level Mercury (ng/g)																				
Mercury		EPA 1631 Appendix	ng/g							364000 J	332000 J	54100 J								
SPLP Inorganic Elements (µg/L)																				
Aluminum		SW6010B-SPLP	µg/L							1050 J										
Antimony		SW6010B-SPLP	µg/L							4450										
Arsenic		SW6010B-SPLP	µg/L							2630										
Barium		SW6010B-SPLP	µg/L							24.1 J										
Beryllium		SW6010B-SPLP	µg/L							0.2 U										
Cadmium		SW6010B-SPLP	µg/L							0.8 U										
Calcium		SW6010B-SPLP	µg/L							4000										
Chromium		SW6010B-SPLP	µg/L							5.3 J										
Cobalt		SW6010B-SPLP	µg/L							2 U										
Copper		SW6010B-SPLP	µg/L							5 U										
Iron		SW6010B-SPLP	µg/L							747 X										
Lead		SW6010B-SPLP	µg/L							8 U										
Magnesium		SW6010B-SPLP	µg/L							4190										
Manganese		SW6010B-SPLP	µg/L							9.7										
Nickel		SW6010B-SPLP	µg/L							2 U										
Potassium		SW6010B-SPLP	µg/L							1100										
Selenium		SW6010B-SPLP	µg/L							30 U										
Silver		SW6010B-SPLP	µg/L							5 U										
Sodium		SW6010B-SPLP	µg/L							11300 J										
Thallium		SW6010B-SPLP	µg/L							30 U										
Vanadium		SW6010B-SPLP	µg/L							8.1 J										
Zinc		SW6010B-SPLP	µg/L							14.1 J										
Mercury		SW7470A-SPLP	µg/L							18										
Arsenic Speciation (mg/kg dry)																				
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg				1360 J			3350 J								66.9 J		
Arsenite		EPA 1632-As3-CRYO-T	mg/kg				730 J			2200 J								0.602 J		
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg				2090			5550								67.5		
Mercury Selective Sequential Extraction (ng/g dry)																				
Hg(F1)		SOP BR-0013	ng/g							7080 J	15000 J	1950 J								
Hg(F2)		SOP BR-0013	ng/g							44.7 J	8040 J	30.7 J								
Hg(F3)		SOP BR-0013	ng/g							8010 J	8520 J	1490 J								
Hg(F4)		SOP BR-0013	ng/g							52900 J	51900 J	12200 J								
Hg(F5)		SOP BR-0013	ng/g							250000 J	225000 J	40900 J								

Table 4-26 Red Devil Creek Downstream Alluvial Area and Delta Subsurface Soil Results	Background Screening Criteria	Station ID	Units	RD06	RD06	RD06	RD07	RD07	RD07	RD20	RD20	RD20
		Environmental Type*		F	N/DN	B/WB	F	N/DN	B/WB	N/DN	B/WB	B/WB
		Sample ID		11RD06SB04	11RD06SB08	11RD06SB12	11RD07SB04	11RD07SB10	11RD07SB12	11RD20SB06	11RD20SB18	11RD20SB20
		Method										
Total Inorganic Elements (mg/kg)												
Aluminum	16300	SW6010B	mg/kg	12700	9600	4350	12200	4330	1530	10400	3540	2880
Antimony	6.25	SW6010B	mg/kg							163 J		
Antimony	6.25	SW6020A	mg/kg	6.23	11.3	0.763	4.96	1.32	0.321	7.69		13.5
Arsenic	12.8	SW6020A	mg/kg	18.1	42.5	19.6	11.1	22.2	25.9	21.5	128	128
Barium	200	SW6020A	mg/kg	99.9	78.2	78.9	92.3	63.1	113	103	121	139
Beryllium	0.484	SW6020A	mg/kg	0.381	0.39	0.592	0.353	0.541	0.535	0.387	0.53	0.597
Cadmium	0.614	SW6020A	mg/kg	0.204 J	0.242 J	0.469 J	0.206 J	0.394 J	0.709 J	0.25 J	0.462 J	0.693 J
Calcium	2740	SW6010B	mg/kg	1660	1800	1660	2890	1520	3450	1960	1980	1650
Chromium	24.6	SW6020A	mg/kg	20.9 J	20.4 J	12.1 J	19.6 J	14.4 J	12.6 J	19.8 J	16.3 J	14.5 J
Cobalt	19.1	SW6020A	mg/kg	7.66 J	9.98 J	12.3 J	9.54 J	9.57 J	10.1 J	10.4 J	16.6 J	20.7 J
Copper	59.7	SW6020A	mg/kg	22.3	23.2	132	19.7	65	68.4	18.5	50	70.1
Iron	39300	SW6010B	mg/kg	19600	20900	19400	21900	35500	96500	23700	37000	50400
Lead	14.3	SW6020A	mg/kg	7.7	7.38	14.7	7.87	12.1	15	6.54	11.9	14.4
Magnesium	4910	SW6010B	mg/kg	3800 J	3410 J	3040 J	3330 J	1780 J	8410 J	3120 J	1540 J	1330 J
Manganese	1280	SW6010B	mg/kg	207	212	358	253	583	0.03 U	242	1290	1850
Mercury	3.92	SW7471A	mg/kg	14.1 J	5.53 J	1.61 J	2.27 J	1.94 J	10.6 J	3.89 J	59.4 J	14.9 J
Nickel	52.2	SW6020A	mg/kg	23.1 J	27.1 J	33.8 J	26.4 J	41.7 J	38.5 J	29.1 J	48.2 J	73.4 J
Potassium	1080	SW6010B	mg/kg	630 J	744 J	1810 J	660 J	881 J	960 J	767 J	1330 J	1650 J
Selenium	0.52	SW7742	mg/kg	0.23	0.3	1.03	1.35	0.45	1.26	0.54	0.49	0.7
Silver	0.319	SW6020A	mg/kg	0.102 J	0.107 J	0.554 J	0.11 J	0.21 J	0.248 J	0.109 J	0.195 J	0.277 J
Sodium	92.2	SW6010B	mg/kg	74.6	73.6	45.4	64.1	27.6	56.6	46.9	50.7	54.2
Thallium	0.103	SW6020A	mg/kg	0.083	0.068	0.105	0.088	0.075	0.139	0.066	0.08	0.095
Vanadium	38.4	SW6020A	mg/kg	39.1 J	33.2 J	26 J	32.5 J	29 J	31.5 J	30.6 J	33 J	34.3 J
Zinc	106	SW6020A	mg/kg	56.9 J	71.6 J	110 J	61.7 J	90.8 J	106 J	66.5 J	100 J	136 J
Low Level Mercury (ng/g)												
Mercury		EPA 1631 Appendix	ng/g						10800		44600	10300
SPLP Inorganic Elements (µg/L)												
Aluminum		SW6010B-SPLP	µg/L									1520
Antimony		SW6010B-SPLP	µg/L									269 J
Arsenic		SW6010B-SPLP	µg/L									20 U
Barium		SW6010B-SPLP	µg/L									35.2 J
Beryllium		SW6010B-SPLP	µg/L									0.2 U
Cadmium		SW6010B-SPLP	µg/L									0.8 U
Calcium		SW6010B-SPLP	µg/L									696 J
Chromium		SW6010B-SPLP	µg/L									4.5 J
Cobalt		SW6010B-SPLP	µg/L									2.3 J
Copper		SW6010B-SPLP	µg/L									8.7 J
Iron		SW6010B-SPLP	µg/L									4430 J
Lead		SW6010B-SPLP	µg/L									9.4 J
Magnesium		SW6010B-SPLP	µg/L									586
Manganese		SW6010B-SPLP	µg/L									102
Nickel		SW6010B-SPLP	µg/L									5.6 J
Potassium		SW6010B-SPLP	µg/L									1040
Selenium		SW6010B-SPLP	µg/L									30 U
Silver		SW6010B-SPLP	µg/L									5 U
Sodium		SW6010B-SPLP	µg/L									12000
Thallium		SW6010B-SPLP	µg/L									30 U
Vanadium		SW6010B-SPLP	µg/L									8.2 J
Zinc		SW6010B-SPLP	µg/L									18 J
Mercury		SW7470A-SPLP	µg/L									1.09
Arsenic Speciation (mg/kg dry)												
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg									50.6 J
Arsenite		EPA 1632-As3-CRYO-T	mg/kg									87 J
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg									138
Mercury Selective Sequential Extraction (ng/g dry)												
Hg(F1)		SOP BR-0013	ng/g						97.1 J		71.2 J	35.9
Hg(F2)		SOP BR-0013	ng/g						33.3 J		2.25 J	0.82 J
Hg(F3)		SOP BR-0013	ng/g						510 J		647 J	82.7 J
Hg(F4)		SOP BR-0013	ng/g						1060 J		894 J	1380 J
Hg(F5)		SOP BR-0013	ng/g						2260 J		29600 J	6590 J

* Environmental types defined in Table A-1

Key

% = percent

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

ng/L = nanograms per liter

SPLP = synthetic precipitation leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

µg/kg = micrograms per kilogram

µg/L = micrograms per liter

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-27 Dolly Sluice Delta Subsurface Soil Results	Background Screening Criteria	Station ID	Units	DS01	DS01	DS01	DS02	DS02	DS02
		Environmental Type*		SO	SO	KRA	SO	SO	KRA
		Sample ID		11DS01SB06	11DS01SB10	11DS01SB16	11DS02SB04	11DS02SB10	11DS02SB14
		Method							
Analyte									
Total Inorganic Elements (mg/kg)									
Aluminum	16300	SW6010B	mg/kg	4080	4940	9690	5930	4950	12100
Antimony	6.25	SW6020A	mg/kg	11.6	11.4	1.4	31.5 J	122 J	0.886 J
Arsenic	12.8	SW6020A	mg/kg	1200	234	13.3	360 J	205 J	12 J
Barium	200	SW6020A	mg/kg	317	141	123	123 J	110 J	149 J
Beryllium	0.484	SW6020A	mg/kg	0.623	0.608	0.375	0.637	0.776	0.424
Cadmium	0.614	SW6020A	mg/kg	0.532 J	0.509 J	0.268 J	0.466 J	0.54 J	0.396 J
Calcium	2740	SW6010B	mg/kg	960	1220	2170	1560 J	1410 J	2970 J
Chromium	24.6	SW6020A	mg/kg	23.1 J	14.7 J	23.4 J	17.2 J	18.5 J	24.8 J
Cobalt	19.1	SW6020A	mg/kg	16 J	13.4 J	9.87 J	12	16.2	9.55
Copper	59.7	SW6020A	mg/kg	53.7	40.9	19.8	46.9 J	62.9 J	26 J
Iron	39300	SW6010B	mg/kg	41500	37400	19400	47900	64000	22100
Lead	14.3	SW6020A	mg/kg	12.1	10	6.76	10.7	12.4	8.55
Magnesium	4910	SW6010B	mg/kg	895	1200 J	4470 J	2070 J	1180 J	5160 J
Manganese	1280	SW6010B	mg/kg	822	851	250	965	832	224
Mercury	3.92	SW7471A	mg/kg	326 J	48.2 J	1.46 J	133	16.4	0.168
Nickel	52.2	SW6020A	mg/kg	39.7 J	36.9 J	27.3 J	38.2 J	51 J	29.7 J
Potassium	1080	SW6010B	mg/kg	759 J	878 J	871 J	947	962	1020
Selenium	0.52	SW7742	mg/kg	0.65	0.55	0.31	0.74	0.48	0.51
Silver	0.319	SW6020A	mg/kg	0.141 J	0.146 J	0.088 J	0.222	0.143	0.134
Sodium	92.2	SW6010B	mg/kg	25.3	30.3	102	68.8 J	39.4 J	171 J
Thallium	0.103	SW6020A	mg/kg	0.123	0.107	0.102	0.112	0.093	0.138
Vanadium	38.4	SW6020A	mg/kg	27 J	24.9 J	31.2 J	23.6	28.2	35.3
Zinc	106	SW6020A	mg/kg	93.6 J	83.3 J	68.3 J	93.5 J	117 J	80.4 J
Low Level Mercury (ng/g)									
Mercury		EPA 1631 Appendix	ng/g	227000					
SPLP Inorganic Elements (µg/L)									
Aluminum		SW6010B-SPLP	µg/L	948					
Antimony		SW6010B-SPLP	µg/L	42.5 J					
Arsenic		SW6010B-SPLP	µg/L	38 J					
Barium		SW6010B-SPLP	µg/L	24.5 J					
Beryllium		SW6010B-SPLP	µg/L	0.2 U					
Cadmium		SW6010B-SPLP	µg/L	0.8 U					
Calcium		SW6010B-SPLP	µg/L	305 J					
Chromium		SW6010B-SPLP	µg/L	3 U					
Cobalt		SW6010B-SPLP	µg/L	2 U					
Copper		SW6010B-SPLP	µg/L	5 U					
Iron		SW6010B-SPLP	µg/L	3230 J					
Lead		SW6010B-SPLP	µg/L	8.9 J					
Magnesium		SW6010B-SPLP	µg/L	113 J					
Manganese		SW6010B-SPLP	µg/L	64.4					
Nickel		SW6010B-SPLP	µg/L	4.8 J					
Potassium		SW6010B-SPLP	µg/L	471					
Selenium		SW6010B-SPLP	µg/L	30 U					
Silver		SW6010B-SPLP	µg/L	5 U					
Sodium		SW6010B-SPLP	µg/L	8660 J					
Thallium		SW6010B-SPLP	µg/L	30 U					
Vanadium		SW6010B-SPLP	µg/L	5 U					
Zinc		SW6010B-SPLP	µg/L	21 J					
Mercury		SW7470A-SPLP	µg/L	5.92 J					

Table 4-27 Dolly Sluice Delta Subsurface Soil Results	Background Screening Criteria	Station ID	Units	DS01	DS01	DS01	DS02	DS02	DS02
		Environmental Type*		SO	SO	KRA	SO	SO	KRA
		Sample ID		11DS01SB06	11DS01SB10	11DS01SB16	11DS02SB04	11DS02SB10	11DS02SB14
		Method							
Arsenic Speciation (mg/kg dry)									
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg	1100 J					
Arsenite		EPA 1632-As3-CRYO-T	mg/kg	11.8 J					
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg	1110					
Mercury Selective Sequential Extraction (ng/g dry)									
Hg(F1)		SOP BR-0013	ng/g	527					
Hg(F2)		SOP BR-0013	ng/g	2900 J					
Hg(F3)		SOP BR-0013	ng/g	2090 J					
Hg(F4)		SOP BR-0013	ng/g	5560 J					
Hg(F5)		SOP BR-0013	ng/g	204000 J					

* Environmental types defined in Table A-1

Key

% = percent

µg/L = micrograms per liter

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

ng/L = nanograms per liter

SPLP = synthetic precipitation leaching procedure

Table 4-28 Rice Sluice Delta Subsurface Soil Results	Background Screening Criteria	Station ID	Units	RS01	RS01	RS01	RS02	RS02	RS02
		Environmental Type*		SO	SO	SO	SO	SO	KRA
		Sample ID		11RS01SB04	11RS01SB08	11RS01SB12	11RS02SB04	11RS02SB08	11RS02SB14
		Method							
Analyte									
Total Inorganic Elements (mg/kg)									
Aluminum	16300	SW6010B	mg/kg	11500	6180	11800	8920	3940	14000
Antimony	6.25	SW6020A	mg/kg	24.7 J	68.7 J	25.8 J	24.4 J	34.5 J	1.17 J
Arsenic	12.8	SW6020A	mg/kg	54.7 J	142 J	50 J	138 J	93.4 J	8.01 J
Barium	200	SW6020A	mg/kg	137 J	104 J	124 J	103 J	94.6 J	154 J
Beryllium	0.484	SW6020A	mg/kg	0.354	0.484	0.384	0.584	0.64	0.481
Cadmium	0.614	SW6020A	mg/kg	0.326 J	0.43 J	0.281 J	0.464 J	0.492 J	0.429 J
Calcium	2740	SW6010B	mg/kg	11100 J	1690 J	2370 J	6250 J	1550 J	3210 J
Chromium	24.6	SW6020A	mg/kg	21.1 J	25.1 J	22.3 J	19.1 J	27.4 J	28 J
Cobalt	19.1	SW6020A	mg/kg	8.08	12.9	8.67	23.9	15.5	9.93
Copper	59.7	SW6020A	mg/kg	22.2 J	55.2 J	26.7 J	39.6 J	46 J	29.2 J
Iron	39300	SW6010B	mg/kg	29400	66100	41400	38300	51400	23300
Lead	14.3	SW6020A	mg/kg	9.79	28.6	17.6	11.6	12.9	9.89
Magnesium	4910	SW6010B	mg/kg	6160 J	1930 J	4860 J	3810 J	1070 J	5940 J
Manganese	1280	SW6010B	mg/kg	526	509	292	1160	1190	235
Mercury	3.92	SW7471A	mg/kg	6.44	27.9	7.44	33.1	8.07	0.198
Nickel	52.2	SW6020A	mg/kg	25 J	43.3 J	26.5 J	42.3 J	49.8 J	30.4 J
Potassium	1080	SW6010B	mg/kg	1230	1060	893	998	878	1210
Selenium	0.52	SW7742	mg/kg	0.38	0.4	0.35	0.32	0.48	0.5
Silver	0.319	SW6020A	mg/kg	0.145	0.261	0.153	0.099	0.11	0.156
Sodium	92.2	SW6010B	mg/kg	226 J	57.5 J	149 J	114 J	28.8 J	184 J
Thallium	0.103	SW6020A	mg/kg	0.14	0.083	0.104	0.093	0.082	0.166
Vanadium	38.4	SW6020A	mg/kg	28.1	30.7	30.5	35.5	39.7	39.3
Zinc	106	SW6020A	mg/kg	73.6 J	103 J	71.6 J	83.1 J	114 J	87.5 J
Low Level Mercury (ng/g)									
Mercury		EPA 1631 Appendix	ng/g			5290 J			
SPLP Inorganic Elements (µg/L)									
Aluminum		SW6010B-SPLP	µg/L			1720 J			
Antimony		SW6010B-SPLP	µg/L			87.6			
Arsenic		SW6010B-SPLP	µg/L			20 U			
Barium		SW6010B-SPLP	µg/L			26.1 J			
Beryllium		SW6010B-SPLP	µg/L			0.2 U			
Cadmium		SW6010B-SPLP	µg/L			0.8 U			
Calcium		SW6010B-SPLP	µg/L			2850			
Chromium		SW6010B-SPLP	µg/L			4.8 J			
Cobalt		SW6010B-SPLP	µg/L			2 U			
Copper		SW6010B-SPLP	µg/L			5 U			
Iron		SW6010B-SPLP	µg/L			1920			
Lead		SW6010B-SPLP	µg/L			11.2 J			
Magnesium		SW6010B-SPLP	µg/L			2030			
Manganese		SW6010B-SPLP	µg/L			14.1			
Nickel		SW6010B-SPLP	µg/L			2.9 J			
Potassium		SW6010B-SPLP	µg/L			492			
Selenium		SW6010B-SPLP	µg/L			30 U			
Silver		SW6010B-SPLP	µg/L			5 U			
Sodium		SW6010B-SPLP	µg/L			11900 J			
Thallium		SW6010B-SPLP	µg/L			30 U			
Vanadium		SW6010B-SPLP	µg/L			5 U			
Zinc		SW6010B-SPLP	µg/L			26.2 J			
Mercury		SW7470A-SPLP	µg/L			0.4 U			

Table 4-28 Rice Sluice Delta Subsurface Soil Results	Background Screening Criteria	Station ID	Units	RS01	RS01	RS01	RS02	RS02	RS02
		Environmental Type*		SO	SO	SO	SO	SO	KRA
		Sample ID		11RS01SB04	11RS01SB08	11RS01SB12	11RS02SB04	11RS02SB08	11RS02SB14
		Method							
Analyte									
Arsenic Speciation (mg/kg dry)									
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg				55.2 J		
Arsenite		EPA 1632-As3-CRYO-T	mg/kg				16.7 J		
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg				71.9		
Mercury Selective Sequential Extraction (ng/g dry)									
Hg(F1)		SOP BR-0013	ng/g			18 J			
Hg(F2)		SOP BR-0013	ng/g			0.7 J			
Hg(F3)		SOP BR-0013	ng/g			776 J			
Hg(F4)		SOP BR-0013	ng/g			1950 J			
Hg(F5)		SOP BR-0013	ng/g			1680 J			

* Environmental types defined in Table A-1

Key

% = percent

µg/L = micrograms per liter

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

ng/L = nanograms per liter

SPLP = synthetic precipitation leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-29 Surface Mined Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	SM10	SM11	SM10	SM10	SM11	SM11	SM31
		Environmental Type*		N/DN	N/DN (Loess)	B/WB	B/WB	B/WB	B/WB	B/WB
		Sample ID		11SM10SB04	11SM11SB04	11SM10SB10	11SM10SB12	11SM11SB14	11SM11SB16	11SM31SB06
		Method								
Total Inorganic Elements (mg/kg)										
Aluminum	16300	SW6010B	mg/kg	10000	16800	2210	2790	5980	3080	2130
Antimony	6.25	SW6020A	mg/kg	2.49 J	0.25 J	6.15 J	4.28 J	1.5 J	1.43 J	8.57 J
Arsenic	12.8	SW6020A	mg/kg	200 J	8.67 J	6240 J	1690 J	122 J	261 J	273 J
Barium	200	SW6020A	mg/kg	139 J	157 J	220 J	81.5 J	220 J	118 J	71.7 J
Beryllium	0.484	SW6020A	mg/kg	0.595	0.403	0.588	0.828	0.76	0.905	0.981
Cadmium	0.614	SW6020A	mg/kg	0.358 J	0.249 J	0.457 J	0.855 J	1.13 J	1.22 J	0.776 J
Calcium	2740	SW6010B	mg/kg	1860 J	1770 J	1430 J	1380 J	1720 J	1740 J	1440 J
Chromium	24.6	SW6020A	mg/kg	16.9 J	22.4 J	11.9 J	9.8 J	10.3 J	12 J	8.22 J
Cobalt	19.1	SW6020A	mg/kg	13.2	10.4	10.8	19.8	17.9	25.8	12.3
Copper	59.7	SW6020A	mg/kg	39.6 J	17.6 J	52 J	91.7 J	76.7 J	96.8 J	70.4 J
Iron	39300	SW6010B	mg/kg	35400	28500	64700	49100	66400	55000	54900
Lead	14.3	SW6020A	mg/kg	9.59	7.54	15.7	25	15.8	21.3	16.8
Magnesium	4910	SW6010B	mg/kg	2740 J	5170 J	385 J	527 J	1300 J	692 J	381 J
Manganese	1280	SW6010B	mg/kg	635	525	549	802	2170	1330	459
Mercury	3.92	SW7471A	mg/kg	11.8	0.032	48.3	17.9	7.18	6.93	15.2
Nickel	52.2	SW6020A	mg/kg	35 J	23 J	35.6 J	59.5 J	64.3 J	99.1 J	52.1 J
Potassium	1080	SW6010B	mg/kg	846	667	1220	1350	1180	1290	1190
Selenium	0.52	SW7742	mg/kg	0.23	0.25	2.59	0.62	0.87	1.01	0.5
Silver	0.319	SW6020A	mg/kg	0.139	0.083	0.179	0.292	0.244	0.377	0.243
Sodium	92.2	SW6010B	mg/kg	78.4 J	153 J	53.1 J	49.9 J	47 J	38 J	38 J
Thallium	92.2	SW6020A	mg/kg	0.11	0.097	1.54	0.54	0.146	0.121	0.087
Vanadium	38.4	SW6020A	mg/kg	29.4	37.8	19.1	18.9	19.7	25.3	14.8
Zinc	106	SW6020A	mg/kg	75.1 J	60.8 J	77 J	137 J	109 J	168 J	113 J
Low Level Mercury (ng/g)										
Mercury		EPA 1631 Appendix	ng/g			31300 J				24800 J
SPLP Inorganic Elements (µg/L)										
Aluminum		SW6010B-SPLP	µg/L			1560 J				1630 J
Antimony		SW6010B-SPLP	µg/L			20 U				20 U
Arsenic		SW6010B-SPLP	µg/L			661				42 J
Barium		SW6010B-SPLP	µg/L			40.5 J				37.5 J
Beryllium		SW6010B-SPLP	µg/L			0.2 U				0.2 U
Cadmium		SW6010B-SPLP	µg/L			1.4 J				1.2 J
Calcium		SW6010B-SPLP	µg/L			486 J				384 J
Chromium		SW6010B-SPLP	µg/L			5.4 J				4.8 J
Cobalt		SW6010B-SPLP	µg/L			3.1 J				2 U
Copper		SW6010B-SPLP	µg/L			7.4 J				10.1
Iron		SW6010B-SPLP	µg/L			4840				6080
Lead		SW6010B-SPLP	µg/L			9.6 J				8 U
Magnesium		SW6010B-SPLP	µg/L			142 J				136 J
Manganese		SW6010B-SPLP	µg/L			69.2				45.4
Nickel		SW6010B-SPLP	µg/L			5.7 J				8 J
Potassium		SW6010B-SPLP	µg/L			827				1050
Selenium		SW6010B-SPLP	µg/L			30 U				30 U
Silver		SW6010B-SPLP	µg/L			5 U				5 U
Sodium		SW6010B-SPLP	µg/L			9290 J				9450 J
Thallium		SW6010B-SPLP	µg/L			30 U				30 U
Vanadium		SW6010B-SPLP	µg/L			6.3 J				6.3 J
Zinc		SW6010B-SPLP	µg/L			33.7 J				34.6 J
Mercury		SW7470A-SPLP	µg/L			9.58				4.2

Table 4-29 Surface Mined Area Subsurface Soil Results	Background Screening Criteria	Station ID	Units	SM10	SM11	SM10	SM10	SM11	SM11	SM31
		Environmental Type*		N/DN	N/DN (Loess)	B/WB	B/WB	B/WB	B/WB	B/WB
		Sample ID		11SM10SB04	11SM11SB04	11SM10SB10	11SM10SB12	11SM11SB14	11SM11SB16	11SM31SB06
		Method								
Arsenic Speciation (mg/kg dry)										
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg			4120 J				468 J
Arsenite		EPA 1632-As3-CRYO-T	mg/kg			50.9 J				8.44 J
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg			4170				476
Mercury Selective Sequential Extraction (ng/g dry)										
Hg(F1)		SOP BR-0013	ng/g			403 J				514 J
Hg(F2)		SOP BR-0013	ng/g			2390 J				1700 J
Hg(F3)		SOP BR-0013	ng/g			1100 J				1290 J
Hg(F4)		SOP BR-0013	ng/g			7450 J				5930 J
Hg(F5)		SOP BR-0013	ng/g			8770 J				11200 J

* Environmental types defined in Table A-1

Key

% = percent

µg/L = micrograms per liter

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

ng/g = nanograms per gram

ng/L = nanograms per liter

SPLP = synthetic precipitation leaching procedure

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

ug/kg = micrograms per kilogram

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID		Units	MW01	MW03	MW04	MW06	MW07	MW08	MW10	MW14
		Geographic Area			Post-1955 MPA	Post-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA
		Sample ID			10MW01GW	10MW03GW	10MW04GW	10MW06GW	10MW07GW	11MP01GW	11MP14GW	11MP25GW
		Method										
Analyte												
Total Inorganic Elements												
Aluminum	405	SW6010B	µg/L	14.8 U	14.8 U	14.8 U	14.8 U			175	108	125 J
Antimony	0.505 J	SW6020A	µg/L	1.8	748	29.1	5.4			1.59	6.49	79.5 J
Arsenic	13.5	SW6020A	µg/L	10.6	57.8	8.8	28.1			0.6	96.9	6650
Barium	83.3	SW6020A	µg/L	100	31.4	35	79.3			39.1	88.1	73.6
Beryllium	0.018 J	SW6020A	µg/L	0.027 U	0.027 U	0.027 U	0.027 U			0.01 J	0.021	0.007 J
Cadmium	0.017 J	SW6020A	µg/L	0.022 U	0.022 U	0.2	0.022 U			0.013 J	0.011 J	0.032
Calcium	20600	SW6010B	µg/L	26300	20200	33000	32600			10600	21200	21000
Chromium	4.95	SW6020A	µg/L	0.053 U	0.053 U	0.053 U	0.053 U			0.67	2.27	0.88
Cobalt	1.14	SW6020A	µg/L	0.7	0.007 U	1.6	1.4			0.103	0.582	6.81
Copper	0.48	SW6020A	µg/L	0.232 U	0.232 U	1.5	0.232 U			0.45	1.3	1.25
Iron	8990	SW6010B	µg/L	22400	7.2 U	7.2 U	1780			299	1150	18700
Lead	0.311	SW6020A	µg/L	0.2 U	0.2 U	0.2 U	0.2 U			0.102	0.339	0.218
Magnesium	11300	SW6010B	µg/L	16300	20700	43700	29700			7820	31400	17100
Manganese	1120	SW6020A	µg/L	914	0.02 U	1040	569			3.68	128	3310
Nickel	2.68	SW6020A	µg/L	1	1.3	35.4	2.3			1.16	2.64	4.97
Potassium	708	SW6010B	µg/L	69.1 U	830	880	750			485	1060	706
Selenium	ND	SW6020A	µg/L	0.125 U	0.9	0.125 U	0.125 U			0.4 J	0.3 U	0.2 U
Silver	0.016 J	SW6020A	µg/L	0.009 U	0.009 U	0.009 U	0.009 U			0.005 J	0.006 J	0.004 U
Sodium	2800	SW6010B	µg/L	7580	2580	4880	4340			1150	3720	3020
Thallium	0.009 J	SW6020A	µg/L	0.003 U	0.003 U	0.003 U	0.003 U			0.005 U	0.005 U	0.005 U
Vanadium	0.55	SW6020A	µg/L	1.7	0.2	0.026 U	0.026 U			0.27	0.59	1.34
Zinc	1.3	SW6020A	µg/L	0.81 U	0.81 U	13	0.81 U			0.8	1.9	5.4
Total Low Level Mercury												
Mercury, Total	54.1	EPA 1631	ng/L	16.7	16.5	150	1.85			21.5	532	759
Dissolved Inorganic Elements												
Aluminum, Dissolved	8.3 J	SW6010B-Diss	µg/L	14.8 U	14.8 U	14.8 U	14.8 U			140	3.4 J	4 J
Antimony, Dissolved	0.522 J	SW6020A-Diss	µg/L	1.4	724	30	5.2			4.9	1.58	53.8 J
Arsenic, Dissolved	13.9	SW6020A-Diss	µg/L	9	55.8	8.8	26.3			0.4	92.1	6660
Barium, Dissolved	87.7	SW6020A-Diss	µg/L	85.9	31.8	35.7	79.2			29	36.7	68.5
Beryllium, Dissolved	0.01 J	SW6020A-Diss	µg/L	0.027 U	0.027 U	0.027 U	0.027 U			0.027 U	0.006 U	0.01 J
Cadmium, Dissolved	0.008 J	SW6020A-Diss	µg/L		0.022 U	0.2 J	0.022 U			0.022 U	0.009 J	0.005 U
Calcium, Dissolved	20400	SW6010B-Diss	µg/L	23900	22200	34000	32000			7180	10500	21000
Chromium, Dissolved	1.43	SW6020A-Diss	µg/L	0.053 U	0.053 U	0.053 U	0.053 U			1.8	0.5	0.44
Cobalt, Dissolved	1.21	SW6020A-Diss	µg/L	0.7	0.007 U	1.7	1.4			0.2	0.027	0.23
Copper, Dissolved	0.34	SW6020A-Diss	µg/L	0.232 U	0.232 U	1.8	0.232 U			1.1	0.21	0.1
Iron, Dissolved	8760	SW6010B-Diss	µg/L	19100	7.2 U	7.2 U	1680			60	3 U	529
Lead, Dissolved	0.244	SW6020A-Diss	µg/L	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.008 J	0.008 J
Magnesium, Dissolved	11400	SW6010B-Diss	µg/L	14900	22700	45200	29100			2900	7740	31700
Manganese, Dissolved	1190	SW6020A-Diss	µg/L	712	0.02 U	1030	575			10.1	0.649	116
Nickel, Dissolved	1.84	SW6020A-Diss	µg/L	0.9	1.1	34.6	2.3			1.8	0.85	1.01
Potassium, Dissolved	730	SW6010B-Diss	µg/L	69.1 U	870	880	730			500	453	1010
Selenium, Dissolved	ND	SW6020A-Diss	µg/L	0.125 U	0.9	0.125 U	0.125 U			0.125 U	0.3 J	0.3 U
Silver, Dissolved	0.004 J	SW6020A-Diss	µg/L	0.009 U	0.009 U	0.009 U	0.009 U			0.009 U	0.004 U	0.004 U
Sodium, Dissolved	2810	SW6010B-Diss	µg/L	7040	2730	4850	4120			2480	1160	3760
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.003 U	0.003 U	0.003 U	0.003 U			0.003 U	0.005 U	0.007 J
Vanadium, Dissolved	0.74	SW6020A-Diss	µg/L	1.4	0.026 U	0.026 U	0.026 U			1	0.04 J	0.09 J
Zinc, Dissolved	0.4 J	SW6020A-Diss	µg/L	0.81 U	0.81 U	15	0.81 U			17	0.3 J	0.2 J
Dissolved Low Level Mercury												
Mercury, Dissolved	1.14	EPA 1631	ng/L	8.5	6.47	149	0.15 U			12.1	1	0.62 J
Arsenic Speciation												
Arsenate		EPA 1632	µg/L	2.34						0.161	2.61 J	
Arsenite		EPA 1632	µg/L	7.23						0.003 U	89.6 J	
Inorganic Arsenic		EPA 1632	µg/L	9.57						0.17	92.2	
Methylmercury												
Methylmercury	0.1 J	EPA 1630	ng/L	1.71	0.02 U	0.081	0.02 U			0.1 J	0.05 U	0.54

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID	Units	MW01	MW03	MW04	MW06	MW07	MW08	MW10	MW14
		Geographic Area		Post-1955 MPA	Post-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA
		Sample ID		10MW01GW	10MW03GW	10MW04GW	10MW06GW	10MW07GW	11MP01GW	11MP14GW	11MP25GW
Analyte	Method										
Semi-Volatile Organic Compounds											
Toluene	SW8260C Volatile Organics in Water	µg/L									0.09 J
Bis(2-ethylhexyl) Phthalate	SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L									
Unknown Hydrocarbon	SW8270D	µg/L	2 J		0 U						
Gasoline, Diesel and Residual Range Organics											
Gasoline Range Organics	AK101 AK 101 Gasoline Range Organics	µg/L	60 U								13 U
Diesel Range Organics	AK102 Alaska Diesel Range for Water	µg/L	20 U		110						43 J
Residual Range Organics	AK103 Alaska Residual Range for Water	µg/L	50 U		50 U						82 J
General Chemistry											
Bicarbonate	A2320 General Chemistry Parameters	mg/L	124	113	92.8	180	30.3	56.5	181	99.5	
Carbonate	A2320 General Chemistry Parameters	mg/L	1 U	1 U	1 U	1 U	1 U	3 U	3 U	3 U	
Hydroxide	SM 2320	mg/L	1 U	1 U	1 U	1 U	1 U				
Chloride	EPA 300.0 General Chemistry Parameters	mg/L	0.7	0.5	0.5	0.8	0.8	0.6	0.59	0.55	
Fluoride	EPA 300.0 General Chemistry Parameters	mg/L	0.1	0.022 U	0.1	0.1	0.022 U	0.11 J	0.18 J	0.22 J	
Sulfate	EPA 300.0 General Chemistry Parameters	mg/L	38.9	35.4	180	29	3.5	4.41	11.3	34.7	
Nitrate+Nitrite as Nitrogen	EPA 353.2 General Chemistry Parameters	mg/L	0.005 U	0.109	0.011	0.001 U		0.501	0.009 U	0.009 U	
Nitrate+Nitrite as Nitrogen	EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L									
Total Dissolved Solids	A2540C General Chemistry Parameters	mg/L						65	185	157	
Total Suspended Solids	A2540D General Chemistry Parameters	mg/L						5	21	50	
Total Dissolved Solids	EPA 160.1	mg/L	230	158	343	218					
Total Suspended Solids	EPA 160.2	mg/L	20.4	1.1 U	2.1 U	2.4					
Field Parameters											
Temperature	Field Test	°C	13.16	5.41	6.67	5.14		3.60	5.37	3.75	
pH	Field Test	N/A	6.330	6.30	6.16	6.72		6.49	7.59	6.53	
ORP	Field Test	mV	-41	0.00	0.00	0.00		211	-137	-36	
Conductance	Field Test	mS/cm	0.355	0.307	0.565	0.432		0.103	0.289	0.336	
Turbidity	Field Test	NTU	2.2	0.00	0.00	0.00		0.00	50.10	0.00	
Dissolved Oxygen	Field Test	mg/L	0.27	2.97	0.00	0.00		NR	NR	30.89	

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID		Units	MW15	MW16	MW18	MW19	MW20	MW21	MW22
		Geographic Area			Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA
		Sample ID	Method		11MP29GW	11MP30GW	11MP31GW	11MP33GW	11MP38GW	11MP39GW	11MP40GW
Analyte											
Total Inorganic Elements											
Aluminum	405	SW6010B	µg/L	28.3 J	202	525	1460 J	8.8 J	12.1 J	36.9 J	
Antimony	0.505 J	SW6020A	µg/L	13100	678	1.04 J	0.6 J	566 J	5860	297	
Arsenic	13.5	SW6020A	µg/L	5620	1020	1.3	5.6	161	1760	80.4	
Barium	83.3	SW6020A	µg/L	93.6	46.9	83.7	73.4	38.3	114	52.9	
Beryllium	0.018 J	SW6020A	µg/L	0.006 U	0.015 J	0.068	0.11	0.006 U	0.006 U	0.006 U	
Cadmium	0.017 J	SW6020A	µg/L	0.027	0.151	0.028 J	0.087	0.005 J	0.008 J	0.018 J	
Calcium	20600	SW6010B	µg/L	50300	24800	16700	19700	20100	31200	14700	
Chromium	4.95	SW6020A	µg/L	0.59	0.83	1.67	6.46	0.16 J	0.08 J	0.22	
Cobalt	1.14	SW6020A	µg/L	0.299	7.36	2.28	3.89	0.18	0.071	0.106	
Copper	0.48	SW6020A	µg/L	1.63	1.08	2.29	6.29	0.29	1.11	1.4	
Iron	8990	SW6010B	µg/L	33.6	10600	1720	5570	24.1	5.8 J	104	
Lead	0.311	SW6020A	µg/L	0.029	0.201	0.861	2.02	0.024	0.019 J	0.137	
Magnesium	11300	SW6010B	µg/L	71900	42400	14200	13700	15100	27500	11900	
Manganese	1120	SW6020A	µg/L	11.7	4750	543	141	5.65	5.55	17.6	
Nickel	2.68	SW6020A	µg/L	13.2	4.01	6.5	12.1	1.3	1.51	2.06	
Potassium	708	SW6010B	µg/L	2380	2000	932	1380	523	1800	259 J	
Selenium	ND	SW6020A	µg/L	5.4	0.3 U	0.3 U	1	1.1	0.3 J	0.3 U	
Silver	0.016 J	SW6020A	µg/L	0.004 U	0.004 J	0.012 J	0.035	0.005 J	0.011 J	0.013 J	
Sodium	2800	SW6010B	µg/L	5400	4950	2330 J	2350 J	2330	5210	2560	
Thallium	0.009 J	SW6020A	µg/L	0.005 U	0.015 J	0.008 J	0.029	0.005 U	0.007 J	0.006 J	
Vanadium	0.55	SW6020A	µg/L	2.11	1.06	1.06	3.88	0.24	1.38	0.43	
Zinc	1.3	SW6020A	µg/L	5.6	3.6	4.1	9.4	1.4	1.1	1.6	
Total Low Level Mercury											
Mercury, Total	54.1	EPA 1631	ng/L	2910	1210	50.4	413	1610	141	981	
Dissolved Inorganic Elements											
Aluminum, Dissolved	8.3 J	SW6010B-Diss	µg/L	3.7 J	15.3 J	2 U	2.1 J	4.9 J	5.1 J	16.8 J	
Antimony, Dissolved	0.522 J	SW6020A-Diss	µg/L	13100	658	0.654 J	0.317 J	616 J	5950	294	
Arsenic, Dissolved	13.9	SW6020A-Diss	µg/L	5590	1010	0.7	2.9	173	1770	77.3	
Barium, Dissolved	87.7	SW6020A-Diss	µg/L	92.3	43.4	72	46.3	39.8	115	51.1	
Beryllium, Dissolved	0.01 J	SW6020A-Diss	µg/L	0.006 U	0.009 J	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	
Cadmium, Dissolved	0.008 J	SW6020A-Diss	µg/L	0.023	0.13	0.014 J	0.029	0.008 J	0.007 J	0.007 J	
Calcium, Dissolved	20400	SW6010B-Diss	µg/L	49400	25500	16200	18700	20000	31400	14500	
Chromium, Dissolved	1.43	SW6020A-Diss	µg/L	0.71	0.43	0.24	0.66	0.5	0.2 J	0.33	
Cobalt, Dissolved	1.21	SW6020A-Diss	µg/L	0.298	7.14	1.65	1.41	0.171	0.074	0.08	
Copper, Dissolved	0.34	SW6020A-Diss	µg/L	1.59	0.48	0.22	0.14	0.28	1.07	1.19	
Iron, Dissolved	8760	SW6010B-Diss	µg/L	7.2 J	10600	621	51.7	3.4 J	6.6 J	15.8 J	
Lead, Dissolved	0.244	SW6020A-Diss	µg/L	0.014 J	0.008 J	0.012 J	0.014 J	0.005 U	0.007 J	0.044	
Magnesium, Dissolved	11400	SW6010B-Diss	µg/L	73500	43600	14000	12900	15200	27500	12000	
Manganese, Dissolved	1190	SW6020A-Diss	µg/L	11	5070	493	54.1	5.63	6.52	15.6	
Nickel, Dissolved	1.84	SW6020A-Diss	µg/L	12.9	3.59	4.75	5.74	1.46	1.47	1.93	
Potassium, Dissolved	730	SW6010B-Diss	µg/L	2480	2000	719	323 J	535	1810	211 J	
Selenium, Dissolved	ND	SW6020A-Diss	µg/L	4.9	0.3 U	0.3 U	0.9 J	0.8 J	0.4 J	0.3 U	
Silver, Dissolved	0.004 J	SW6020A-Diss	µg/L	0.004 U	0.004 U	0.004 U	0.013 J	0.004 U	0.008 J	0.004 U	
Sodium, Dissolved	2810	SW6010B-Diss	µg/L	5620	5070	2310	2300 J	2330	5230	2590	
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.005 U	0.012 J	0.005 U	0.012 J	0.005 U	0.005 U	0.005 U	
Vanadium, Dissolved	0.74	SW6020A-Diss	µg/L	2.03	0.71	0.03 J	0.16 J	0.19 J	1.28	0.34	
Zinc, Dissolved	0.4 J	SW6020A-Diss	µg/L	5.7	2.8	1.1	0.3 J	0.8	1	1	
Dissolved Low Level Mercury											
Mercury, Dissolved	1.14	EPA 1631	ng/L	2200	285	2.7	0.54 J	277	80.2	527	
Arsenic Speciation											
Arsenate		EPA 1632	µg/L	4520		0.415	3.08	188	1640		
Arsenite		EPA 1632	µg/L	13 J		0.306 J	2.07 J	1.1	5.19 J		
Inorganic Arsenic		EPA 1632	µg/L	4530		0.721	5.15	189	1640		
Methylmercury											
Methylmercury	0.1 J	EPA 1630	ng/L	0.52 J	0.9 J	0.05 UJ	0.06 J	0.07 J	0.09 J	1.14	

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID	Units	MW15	MW16	MW18	MW19	MW20	MW21	MW22
		Geographic Area		Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA	Post-1955 MPA
		Sample ID		11MP29GW	11MP30GW	11MP31GW	11MP33GW	11MP38GW	11MP39GW	11MP40GW
Analyte	Method									
Semi-Volatile Organic Compounds										
Toluene		SW8260C Volatile Organics in Water	µg/L							
Bis(2-ethylhexyl) Phthalate		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L			1.9 U	2.1 U	1.9 U	1.9 U	1.9 U
Unknown Hydrocarbon		SW8270D	µg/L							
Gasoline, Diesel and Residual Range Organics										
Gasoline Range Organics		AK101 AK 101 Gasoline Range Organics	µg/L							
Diesel Range Organics		AK102 Alaska Diesel Range for Water	µg/L			11 U	110 J	14 J	62 J	38 J
Residual Range Organics		AK103 Alaska Residual Range for Water	µg/L			19 UJ	60 J	19 UJ	69 J	19 U
General Chemistry										
Bicarbonate		A2320 General Chemistry Parameters	mg/L	91.7	148	95.5	100	103	172	84.5
Carbonate		A2320 General Chemistry Parameters	mg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Hydroxide		SM 2320	mg/L							
Chloride		EPA 300.0 General Chemistry Parameters	mg/L	0.54	0.51	0.4	0.36 J	0.38 J	0.39 J	0.54
Fluoride		EPA 300.0 General Chemistry Parameters	mg/L	0.06 J	0.3 J	0.18 J	0.14 J	0.11 J	0.15 J	0.15 J
Sulfate		EPA 300.0 General Chemistry Parameters	mg/L	345	112	10.4 J	6	17.9	25.7	4.4
Nitrate+Nitrite as Nitrogen		EPA 353.2 General Chemistry Parameters	mg/L	0.641	0.009 U	0.009 UJ	0.136	0.132	0.009 U	0.009 U
Nitrate+Nitrite as Nitrogen		EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L							
Total Dissolved Solids		A2540C General Chemistry Parameters	mg/L	586	310	91	80	96	182	69
Total Suspended Solids		A2540D General Chemistry Parameters	mg/L	5 U	35.5	48.5	154	5 U	5 U	5 U
Total Dissolved Solids		EPA 160.1	mg/L							
Total Suspended Solids		EPA 160.2	mg/L							
Field Parameters										
Temperature		Field Test	°C	5.79	5.56	3.04	2.47	3.77	4.34	8.07
pH		Field Test	N/A	6.73	6.66	6.54	7.31	6.76	6.88	6.64
ORP		Field Test	mV	202	-33	41	49	201	194	171
Conductance		Field Test	mS/cm	0.677	0.419	0.218	0.217	0.232	0.383	0.178
Turbidity		Field Test	NTU	0.00	0.00	36.20	207.00	0.00	0.00	0.00
Dissolved Oxygen		Field Test	mg/L	NR	NR	0.45	3.98	NR	NR	NR

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID		Units	MW29	MW26	MW27	MW24	MW23	MW28	MW25	MW17	
		Geographic Area			Surface Mined Area	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Post-1955 MPA
		Sample ID			11MP41GW	11MP52GW	11MP60GW	11MP62GW	11MP66GW	11MP88GW	11MP89GW	11MP91GW	
		Method											
Analyte													
Total Inorganic Elements													
Aluminum	405	SW6010B	µg/L	397	43 J	20.9 J	553	81.7	316	240	440		
Antimony	0.505 J	SW6020A	µg/L	1.21	26.2	9.16 J	101 J	2.4 J	19.3 J	5.86 J	53.9		
Arsenic	13.5	SW6020A	µg/L	36.9	78	22.6	7.4	9.2	32.8	6.2	28.5		
Barium	83.3	SW6020A	µg/L	224	365	56.6	29.4	210	59.7	55	53		
Beryllium	0.018 J	SW6020A	µg/L	0.059	0.026	0.017 J	0.033	0.019 J	0.06	0.021	0.028		
Cadmium	0.017 J	SW6020A	µg/L	0.076	0.094	0.139	0.032 J	0.013 J	0.052	0.117	0.028		
Calcium	20600	SW6010B	µg/L	64800	65700	96700	35500	37300	43900	35000	23100		
Chromium	4.95	SW6020A	µg/L	10.6	1.39	1.36	1.15	0.31	6.29	1.03	4.7		
Cobalt	1.14	SW6020A	µg/L	9.48	40.5	1.74	2.12	3.01	5.26	4.77	0.843		
Copper	0.48	SW6020A	µg/L	3.6	1	1.57	1.97 J	0.73	3.48	2.32	1.54		
Iron	8990	SW6010B	µg/L	2670	12500	39.5	1370	6450	3510	609	1100		
Lead	0.311	SW6020A	µg/L	0.63	0.154	0.076	0.81 J	0.187	0.728	0.257	0.794		
Magnesium	11300	SW6010B	µg/L	68800	42500	55400	27100	30000	31400	24200	16500		
Manganese	1120	SW6020A	µg/L	778	7370	1040	107	905	1480	207	62.2		
Nickel	2.68	SW6020A	µg/L	28.3	32.9	35.9	4.11	4.74	16	13.9	4.7		
Potassium	708	SW6010B	µg/L	2190	4930	2080	1050	1390	3140	972	627		
Selenium	ND	SW6020A	µg/L	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.4 J		
Silver	0.016 J	SW6020A	µg/L	0.009 J	0.004 U	0.007 J	0.049 J	0.005 J	0.015 J	0.017 J	0.015 J		
Sodium	2800	SW6010B	µg/L	4570	7640	20000	19400	8710	13000	6410	2760		
Thallium	0.009 J	SW6020A	µg/L	0.015 J	0.075	0.016 J	0.006 J	0.008 J	0.012 J	0.012 J	0.016 J		
Vanadium	0.55	SW6020A	µg/L	1.56	0.12 J	0.15 J	1.96	0.26	1.19	0.44	0.75		
Zinc	1.3	SW6020A	µg/L	15	13.9	22	5.4 J	4.7	11.9	11.4	2.7		
Total Low Level Mercury													
Mercury, Total	54.1	EPA 1631	ng/L	247	237	411	56500	261	4000	452	6070		
Dissolved Inorganic Elements													
Aluminum, Dissolved	8.3 J	SW6010B-Diss	µg/L	2 U	2 U	19.6 J	2.6 J	6.7 J	8.3 J	12.7 J	2 U		
Antimony, Dissolved	0.522 J	SW6020A-Diss	µg/L	0.837	32.3	8.48 J	79.9 J	1.87 J	9.18 J	3.71 J	9.16		
Arsenic, Dissolved	13.9	SW6020A-Diss	µg/L	31.1	68.3	22.1	5.1	8	8.4	3.6	4.9		
Barium, Dissolved	87.7	SW6020A-Diss	µg/L	206	348	52	23.3	197	50	54.1	39.9		
Beryllium, Dissolved	0.01 J	SW6020A-Diss	µg/L	0.016 J	0.021	0.024	0.006 U	0.016 J	0.007 J	0.013 J	0.006 U		
Cadmium, Dissolved	0.008 J	SW6020A-Diss	µg/L	0.058	0.071	0.122	0.006 J	0.007 J	0.022	0.086	0.012 J		
Calcium, Dissolved	20400	SW6010B-Diss	µg/L	62700	66000	100000	34500	36600	42000	34400	23000		
Chromium, Dissolved	1.43	SW6020A-Diss	µg/L	2.81	0.42	0.84	0.26	0.18 J	0.81	0.86	0.83		
Cobalt, Dissolved	1.21	SW6020A-Diss	µg/L	8.32	41.5	1.55	1.32	2.67	4.18	4.76	0.196		
Copper, Dissolved	0.34	SW6020A-Diss	µg/L	0.95	0.5	1.34	0.22	0.13	0.82	1.45	0.14		
Iron, Dissolved	8760	SW6010B-Diss	µg/L	1040	11300	8.9 J	3 U	5970	211	10.9 J	10.1 J		
Lead, Dissolved	0.244	SW6020A-Diss	µg/L	0.024	0.012 J	0.014 J	0.005 U	0.013 J	0.009 J	0.014 J	0.005 J		
Magnesium, Dissolved	11400	SW6010B-Diss	µg/L	67400	41400	54500	27000	29900	29300	24300	16400		
Manganese, Dissolved	1190	SW6020A-Diss	µg/L	694	7050	1020	79.8	851	1340	206	2.62		
Nickel, Dissolved	1.84	SW6020A-Diss	µg/L	24.8	32.7	34.5	2.33	4.21	10.8	13.5	2.63		
Potassium, Dissolved	730	SW6010B-Diss	µg/L	1860	4620	1890	861	1300	2260	788	415		
Selenium, Dissolved	ND	SW6020A-Diss	µg/L	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.6 J		
Silver, Dissolved	0.004 J	SW6020A-Diss	µg/L	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.007 J	0.004 U		
Sodium, Dissolved	2810	SW6010B-Diss	µg/L	4300	7510	19600	20000	8800	11700	6450	2770		
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.007 J	0.059	0.012 J	0.005 U	0.005 U	0.005 U	0.006 J	0.005 U		
Vanadium, Dissolved	0.74	SW6020A-Diss	µg/L	0.1 J	0.06 J	0.12 J	0.34	0.06 J	0.04 J	0.09 J	0.03 U		
Zinc, Dissolved	0.4 J	SW6020A-Diss	µg/L	11.3	13.5	20.7	1.6	3.1	6.3	10.1	0.5 J		
Dissolved Low Level Mercury													
Mercury, Dissolved	1.14	EPA 1631	ng/L	0.71 J	33.8	277	6.11	2.39	10.9	44.7	9.49		
Arsenic Speciation													
Arsenate		EPA 1632	µg/L	28.2		18	6.05		7.43	5			
Arsenite		EPA 1632	µg/L	10.9		2.57 J	1.16 J		6.75 J	0.42 J			
Inorganic Arsenic		EPA 1632	µg/L	39.1		20.6	7.21		14.2	5.42			
Methylmercury													
Methylmercury	0.1 J	EPA 1630	ng/L	0.05 U	0.48 J	0.07 J	0.23 J	0.05 UJ	0.4 J	0.07 J	0.2 J		

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID	Units	MW29	MW26	MW27	MW24	MW23	MW28	MW25	MW17
		Geographic Area		Surface Mined Area	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Post-1955 MPA
		Sample ID		11MP41GW	11MP52GW	11MP60GW	11MP62GW	11MP66GW	11MP88GW	11MP89GW	11MP91GW
Analyte	Method										
Semi-Volatile Organic Compounds											
Toluene	SW8260C Volatile Organics in Water	µg/L									
Bis(2-ethylhexyl) Phthalate	SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L									
Unknown Hydrocarbon	SW8270D	µg/L									
Gasoline, Diesel and Residual Range Organics											
Gasoline Range Organics	AK101 AK 101 Gasoline Range Organics	µg/L									
Diesel Range Organics	AK102 Alaska Diesel Range for Water	µg/L									
Residual Range Organics	AK103 Alaska Residual Range for Water	µg/L									
General Chemistry											
Bicarbonate	A2320 General Chemistry Parameters	mg/L	398	276	242	192	226	225	162	124	
Carbonate	A2320 General Chemistry Parameters	mg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Hydroxide	SM 2320	mg/L									
Chloride	EPA 300.0 General Chemistry Parameters	mg/L	0.69	0.65	1.25	0.66	0.71	0.64	1.09	0.47	
Fluoride	EPA 300.0 General Chemistry Parameters	mg/L	0.15 J	0.23 J	0.14 J	0.15 J	0.12 J	0.2 J	0.11 J	0.13 J	
Sulfate	EPA 300.0 General Chemistry Parameters	mg/L	45.1	107	293	38.3	12.7	46	36.8	8.13	
Nitrate+Nitrite as Nitrogen	EPA 353.2 General Chemistry Parameters	mg/L	0.009 U	0.009 UJ	0.009 U	0.351	0.009 UJ	0.009 UJ	0.162	0.009 U	
Nitrate+Nitrite as Nitrogen	EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L									
Total Dissolved Solids	A2540C General Chemistry Parameters	mg/L	405	418	656	237	225	266	206	124	
Total Suspended Solids	A2540D General Chemistry Parameters	mg/L	65	23	5 U	29	23.5	48.5	14	21.5	
Total Dissolved Solids	EPA 160.1	mg/L									
Total Suspended Solids	EPA 160.2	mg/L									
Field Parameters											
Temperature	Field Test	°C	5.83	5.02	4.67	5.77	4.63	5.32	4.06	3.83	
pH	Field Test	N/A	6.69	7.05	6.65	6.87	6.87	7.06	6.52	7.72	
ORP	Field Test	mV	20	-18	170	12.9	-58	-82	165	147	
Conductance	Field Test	mS/cm	0.782	0.691	0.878	0.336	0.368	0.472	0.359	0.239	
Turbidity	Field Test	NTU	41.00	6.30	0.30	19.90	0.00	50.70	34.20	11.20	
Dissolved Oxygen	Field Test	mg/L	1.38	0.99	2.63	NR	NR	0.89	0.33	5.37	

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID		Units	MW01	MW03	MW04	MW06	MW32	MW33
		Geographic Area			Post-1955 MPA	Post-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Red Devil Creek Delta	Red Devil Creek Delta
		Sample ID			11MW01GW	11MW03GW	11MW04GW	11MW06GW	11RD05GW	11RD20GW
		Method								
Analyte										
Total Inorganic Elements										
Aluminum	405	SW6010B	µg/L	37.9 J	14.2 J	13.3 J	22.3 J	533	103	
Antimony	0.505 J	SW6020A	µg/L	1.9	917	27.9	5.51	2.15 J	427 J	
Arsenic	13.5	SW6020A	µg/L	3.3	58.9	8	25.8	7.3	15.2	
Barium	83.3	SW6020A	µg/L	69.9	28.2	34.8	75.9	44.3	41.5	
Beryllium	0.018 J	SW6020A	µg/L	0.016 J	0.006 U	0.006 U	0.006 U	0.089	0.006 J	
Cadmium	0.017 J	SW6020A	µg/L	0.017 J	0.022	0.224	0.013 J	0.22	0.045	
Calcium	20600	SW6010B	µg/L	18800	22300	34900	31100	13200	18400	
Chromium	4.95	SW6020A	µg/L	0.52	0.28	0.42	0.05 J	1.02	0.43	
Cobalt	1.14	SW6020A	µg/L	0.333	0.045	1.71	1.24	7.48	0.745	
Copper	0.48	SW6020A	µg/L	0.45	0.53	1.29	0.09 J	3.82	0.87	
Iron	8990	SW6010B	µg/L	4620	15.3 J	33.6	1720	1590	294	
Lead	0.311	SW6020A	µg/L	0.149	0.025	0.035	0.035	0.755	0.166	
Magnesium	11300	SW6010B	µg/L	11400	26900	44300	29000	9800	13200	
Manganese	1120	SW6020A	µg/L	306	1.12	1120	536	597	212	
Nickel	2.68	SW6020A	µg/L	0.9	1.6	32.6	2.28	29.9	7.94	
Potassium	708	SW6010B	µg/L	454	1150	846	837	1750	1120 J	
Selenium	ND	SW6020A	µg/L	0.5 J	0.7 J	0.3 U	0.3 U	1.1	0.3 U	
Silver	0.016 J	SW6020A	µg/L	0.004 J	0.004 U	0.004 U	0.01 J	0.028	0.024	
Sodium	2800	SW6010B	µg/L	2780	2550	4560	4430	1780	5710	
Thallium	0.009 J	SW6020A	µg/L	0.005 U	0.005 U	0.005 U	0.007 J	0.024	0.011 J	
Vanadium	0.55	SW6020A	µg/L	0.81	0.25	0.09 J	0.03 U	1.82	0.56	
Zinc	1.3	SW6020A	µg/L	2.5	1.3	13.2	1.9	13.8	3.1	
Total Low Level Mercury										
Mercury, Total	54.1	EPA 1631	ng/L	25.4	47.7	155	7.25	306	115	
Dissolved Inorganic Elements										
Aluminum, Dissolved	8.3 J	SW6010B-Diss	µg/L	11 J	5.5 J	11 J	2.4 J	11 J	2 U	
Antimony, Dissolved	0.522 J	SW6020A-Diss	µg/L	1.64	861	27.2	5.3	1.74 J	420 J	
Arsenic, Dissolved	13.9	SW6020A-Diss	µg/L	3	56	7.8	24.8	6.3	14.4	
Barium, Dissolved	87.7	SW6020A-Diss	µg/L	68	27.9	34.4	73.6	40.6	38	
Beryllium, Dissolved	0.01 J	SW6020A-Diss	µg/L	0.012 J	0.006 U	0.006 J	0.006 U	0.041	0.006 U	
Cadmium, Dissolved	0.008 J	SW6020A-Diss	µg/L	0.011 J	0.016 J	0.229	0.011 J	0.187	0.03	
Calcium, Dissolved	20400	SW6010B-Diss	µg/L	18200	22000	35400	31100	14000	18600	
Chromium, Dissolved	1.43	SW6020A-Diss	µg/L	0.24	0.49	0.3	0.09 J	0.1 J	0.28	
Cobalt, Dissolved	1.21	SW6020A-Diss	µg/L	0.308	0.037	1.64	1.19	7.83	0.598	
Copper, Dissolved	0.34	SW6020A-Diss	µg/L	0.24	0.41	1.34	0.08 J	1.06	0.44	
Iron, Dissolved	8760	SW6010B-Diss	µg/L	4820	3 U	24	1680	3 U	3 U	
Lead, Dissolved	0.244	SW6020A-Diss	µg/L	0.015 J	0.005 U	0.012 J	0.011 J	0.009 J	0.005 U	
Magnesium, Dissolved	11400	SW6010B-Diss	µg/L	12000	26200	46200	29000	10500	13400	
Manganese, Dissolved	1190	SW6020A-Diss	µg/L	310	0.606	1120	547	602	196	
Nickel, Dissolved	1.84	SW6020A-Diss	µg/L	0.79	1.65	30.3	2.42	29.1	7.02	
Potassium, Dissolved	730	SW6010B-Diss	µg/L	422	1100	897	820	1470	1030	
Selenium, Dissolved	ND	SW6020A-Diss	µg/L	0.7 J	0.5 J	0.3 U	0.3 U	0.9 J	0.3 U	
Silver, Dissolved	0.004 J	SW6020A-Diss	µg/L	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	
Sodium, Dissolved	2810	SW6010B-Diss	µg/L	3020	2530	4820	4430	1880	5770	
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.014 J	0.005 U	
Vanadium, Dissolved	0.74	SW6020A-Diss	µg/L	0.65	0.23	0.1 J	0.03 U	0.08 J	0.29	
Zinc, Dissolved	0.4 J	SW6020A-Diss	µg/L	0.9	1.1	12.8	1.2	9.2	2.3	
Dissolved Low Level Mercury										
Mercury, Dissolved	1.14	EPA 1631	ng/L	6.19	9.09	83.8	0.9 J	3.65	4.58	
Arsenic Speciation										
Arsenate		EPA 1632	µg/L	1.93 J				1.7 J	15.2	
Arsenite		EPA 1632	µg/L	1.44 J				5.23 J	0.245	
Inorganic Arsenic		EPA 1632	µg/L	3.37 J				6.92	15.4	
Methylmercury										
Methylmercury	0.1 J	EPA 1630	ng/L	0.85	0.05 UJ	0.07 J	0.05 U	0.08 J	0.05 U	

Table 4-30 Groundwater Results	Background Screening Criteria	Station ID	Units	MW01	MW03	MW04	MW06	MW32	MW33
		Geographic Area		Post-1955 MPA	Post-1955 MPA	Pre-1955 MPA	Pre-1955 MPA	Red Devil Creek Delta	Red Devil Creek Delta
		Sample ID		11MW01GW	11MW03GW	11MW04GW	11MW06GW	11RD05GW	11RD20GW
Analyte	Method								
Semi-Volatile Organic Compounds									
Toluene	SW8260C Volatile Organics in Water	µg/L	1.8						
Bis(2-ethylhexyl) Phthalate	SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L	1.9 U		5.7 J			1.9 U	1.9 U
Unknown Hydrocarbon	SW8270D	µg/L							
Gasoline, Diesel and Residual Range Organics									
Gasoline Range Organics	AK101 AK 101 Gasoline Range Organics	µg/L	13 U						
Diesel Range Organics	AK102 Alaska Diesel Range for Water	µg/L	22 J		200 J			40 J	59 J
Residual Range Organics	AK103 Alaska Residual Range for Water	µg/L	19 UJ		620 J			19 UJ	19 UJ
General Chemistry									
Bicarbonate	A2320 General Chemistry Parameters	mg/L	81.3	118	95.4	183		61	89.7
Carbonate	A2320 General Chemistry Parameters	mg/L	3 U	3 U	3 U	3 U		3 U	3 U
Hydroxide	SM 2320	mg/L							
Chloride	EPA 300.0 General Chemistry Parameters	mg/L	0.51	0.41	0.34 J	0.56		0.41	0.74
Fluoride	EPA 300.0 General Chemistry Parameters	mg/L	0.11 J	0.05 J	0.13 J	0.14 J		0.11 J	0.13 J
Sulfate	EPA 300.0 General Chemistry Parameters	mg/L	21.3	53.5	183	25.5		17.5	20.7
Nitrate+Nitrite as Nitrogen	EPA 353.2 General Chemistry Parameters	mg/L			0.043 J			0.841	0.282
Nitrate+Nitrite as Nitrogen	EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L	0.241	0.151			0.009 U		
Total Dissolved Solids	A2540C General Chemistry Parameters	mg/L	115	182	351 J	195		82	130
Total Suspended Solids	A2540D General Chemistry Parameters	mg/L	5 U	5 U	5 UJ	5 U		25	5 U
Total Dissolved Solids	EPA 160.1	mg/L							
Total Suspended Solids	EPA 160.2	mg/L							
Field Parameters									
Temperature	Field Test	°C	7.41	7.06	7.28	4.01		4.29	3.19
pH	Field Test	N/A	6.41	6.7	6.38	6.73		6.08	6.6
ORP	Field Test	mV	32	230	162	-24		224	196
Conductance	Field Test	mS/cm	0.22	0.301	0.577	0.399		0.143	0.228
Turbidity	Field Test	NTU	2.65	0.00	6.61	0.00		21.40	0.00
Dissolved Oxygen	Field Test	mg/L	0.00	5.62	0.00	0.00		NR	NR

Key

Bold = detection

°C = Degrees Celsius

µg/L = micrograms per liter

Gray shading = exceedance of background

J = Analyte detected but relative percent difference was outside control limits therefore concentration is estimated.

mg/L = milligrams per liter

mS/cm = Millisiemens per Centimeter

mV = Millivolt

N/A = not applicable

ng/L = nanograms per liter

NTU = Nephelometric Turbidity Unit

ORP = Oxidation reduction potential

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-31 Surface Water Results	Background Screening Criteria	Station ID	Units	RD02	RD02	RD03	RD03	RD11	RD10	RD04	RD04
		Sample ID		10RD02SW	11RD02SW	10RD03SW	11RD03SW	11RD11SW	11RD10SW	10RD04SW	11RD04SW
		Method									
Analyte											
Total Inorganic Elements											
Aluminum	80	SW6010B-Total	µg/L	14.8 U	16.6 J	14.8 U	18.4 J	30.9 J	20.1 J	14.8 U	14.1 J
Antimony	1.52	SW6020A-Total	µg/L	1.3	1.42 J	1.5	1.51	8.81	1.95	11	17.3
Arsenic	1.1	SW6020A-Total	µg/L	1	1	0.9	0.8	6.7	1	8.2	11.3 J
Barium	26.4	SW6020A-Total	µg/L	25.2	21.6	23.4	21.2	32.1	22.3	24	22
Beryllium	ND	SW6020A-Total	µg/L	0.027 U	0.006 U	0.027 U	0.006 U	0.006 U	0.006 U	0.027 U	0.006 U
Cadmium	ND	SW6020A-Total	µg/L	0.022 U	0.005 U	0.022 U	0.006 J	0.005 U	0.005 U	0.022 U	0.005 U
Calcium	18400	SW6010B-Total	µg/L	18500	17300	18400	16800	8580	17200	18600	16600
Chromium	0.43	SW6020A-Total	µg/L	0.053 U	0.22	0.053 U	0.23	0.22	0.37	0.053 U	0.28
Cobalt	0.066	SW6020A-Total	µg/L	0.007 U	0.061	0.007 U	0.046	0.677	0.06	0.007 U	0.059
Copper	0.37	SW6020A-Total	µg/L	0.232 U	0.29	0.232 U	0.28	0.71	0.35	0.232 U	0.33
Iron	138	SW6010B-Total	µg/L	190	131	140	118	2470	128	190	147
Iron	138	SW6020A-Total	µg/L								
Lead	0.021	SW6020A-Total	µg/L	0.2 U	0.008 J	0.2 U	0.013 J	0.021	0.018 J	0.2 U	0.012 J
Magnesium	9680	SW6010B-Total	µg/L	9660	9370	9690	9070	4460	9410	9870	9010
Manganese	17.5	SW6020A-Total	µg/L	29.5	19.1	11.8	11.8	86.4	13.3	15.4	14.6
Nickel	0.44	SW6020A-Total	µg/L	0.081 U	0.36	0.081 U	0.39	1.38	0.46	0.081 U	0.43
Potassium	218 J	SW6010B-Total	µg/L	69.1 U	233 J	69.1 U	239 J	50 U	214 J	69.1 U	254 J
Selenium	0.5 J	SW6020A-Total	µg/L	0.125 U	0.5 J	0.125 U	0.4 J	0.3 U	0.3 U	0.125 U	0.4 J
Silver	ND	SW6020A-Total	µg/L	0.009 U	0.004 U	0.009 U	0.012 J	0.004 U	0.004 U	0.009 U	0.004 U
Sodium	1580	SW6010B-Total	µg/L	1700	1460	1730	1440	2370	1740	1820	1530
Thallium	ND	SW6020A-Total	µg/L	0.003 U	0.005 U	0.003 U	0.007 J	0.005 U	0.005 U	0.003 U	0.005 U
Vanadium	0.3	SW6020A-Total	µg/L	0.026 U	0.1 J	0.026 U	0.16 J	0.22	0.15 J	0.026 U	0.12 J
Zinc	0.5 J	SW6020A-Total	µg/L	0.81 U	0.2 U	0.81 U	0.2 U	2.1	0.4 J	0.81 U	0.2 U
Total Low Level Mercury											
Mercury, Total	2.63	EPA 1631-Total	ng/L	2.83	3.94	2.33	4.5		4.27	15.8	20.4
Dissolved Inorganic Elements											
Aluminum, Dissolved	11.9 J	SW6010B-Diss	µg/L	14.8 U	8.7 J	14.8 U			10.2 J	14.8 U	7 J
Antimony, Dissolved	1.4 J	SW6020A-Diss	µg/L	1.2	1.41 J	1.4	1.5		1.57	10.4	17.4
Arsenic, Dissolved	0.9	SW6020A-Diss	µg/L	0.9	1	0.8	0.9		0.8	7.8	10.6
Barium, Dissolved	24	SW6020A-Diss	µg/L	24.3	21	22.8	21.2		20.7	23.6	21.8
Beryllium, Dissolved	ND	SW6020A-Diss	µg/L	0.027 U	0.006 U	0.027 U	0.006 U		0.006 U	0.027 U	0.006 U
Cadmium, Dissolved	ND	SW6020A-Diss	µg/L	0.022 U	0.005 U	0.022 U	0.005 U		0.005 U	0.022 U	0.005 U
Calcium, Dissolved	19200	SW6010B-Diss	µg/L	19000	17200	18600			16800	18600	16700
Chromium, Dissolved	0.23	SW6020A-Diss	µg/L	0.053 U	0.2	0.053 U	0.21		0.3	0.053 U	0.28
Cobalt, Dissolved	0.056	SW6020A-Diss	µg/L	0.007 U	0.058	0.007 U	0.042		0.044	0.007 U	0.049
Copper, Dissolved	0.27	SW6020A-Diss	µg/L	0.232 U	0.36	0.232 U	0.26		0.29	0.232 U	0.34
Iron, Dissolved	100	SW6010B-Diss	µg/L	150	105	100			88.8	140	111
Lead, Dissolved	ND	SW6020A-Diss	µg/L	0.2 U	0.014 J	0.2 U	0.005 U		0.005 U	0.2 U	0.006 J
Magnesium, Dissolved	10200	SW6010B-Diss	µg/L	9990	9280	9870			9440	9930	8930
Manganese, Dissolved	15.9	SW6020A-Diss	µg/L	24.9	18.5	8.2	8.49		9.41	13.6	12.1
Nickel, Dissolved	0.35	SW6020A-Diss	µg/L	0.081 U	0.58	0.081 U	0.32		0.37	0.081 U	0.44
Potassium, Dissolved	220 J	SW6010B-Diss	µg/L	69.1 U	256 J	69.1 U			215 J	69.1 U	267 J
Selenium, Dissolved	0.5 J	SW6020A-Diss	µg/L	0.125 U	0.6 J	0.125 U	0.3 J		0.3 U	0.125 U	0.4 J
Silver, Dissolved	ND	SW6020A-Diss	µg/L	0.009 U	0.004 U	0.009 U	0.004 U		0.004 U	0.009 U	0.004 U
Sodium, Dissolved	1610	SW6010B-Diss	µg/L	1680	1450	1690			1760	1770	1500
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.003 U	0.005 U	0.003 U	0.005 U		0.005 U	0.003 U	0.005 U
Vanadium, Dissolved	0.13 J	SW6020A-Diss	µg/L	0.026 U	0.11 J	0.026 U	0.11 J		0.12 J	0.026 U	0.1 J
Zinc, Dissolved	ND	SW6020A-Diss	µg/L	0.81 U	0.2 U	0.81 U	0.2 U		0.2 U	0.81 U	0.2 U
Dissolved Low Level Mercury											
Mercury, Dissolved	6.37	EPA 1631-Diss	ng/L	2.23	2.13	1.92	3.02		3.53	5.6	6.81
Arsenic Speciation											
Arsenate		EPA 1632 As-Cryo-W-Speciation	µg/L	0.862	0.828 J				0.595	1.58	8.36 J
Arsenite		EPA 1632 As3-CRYO-W	µg/L	0.122	0.089 J	1			0.227	0.342	0.961 J
Inorganic Arsenic		EPA 1632 Total Inorganic As - Water	µg/L	0.984	0.917 J				0.822	1.92	9.32 J

Table 4-31 Surface Water Results	Background Screening Criteria	Station ID	Units	RD02	RD02	RD03	RD03	RD11	RD10	RD04	RD04
		Sample ID		10RD02SW	11RD02SW	10RD03SW	11RD03SW	11RD11SW	11RD10SW	10RD04SW	11RD04SW
Analyte		Method									
Methylmercury											
Methylmercury	0.08 J	EPA 1630	ng/L	0.101	0.08 J	0.091	0.09 J		0.08 J	0.115	0.08 J
Semi-Volatile Organic Compounds											
1-Methylnaphthalene		SW8270D	µg/L			0.48 U				0.48 U	
2-Methylnaphthalene		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L				0.24 U	0.24 U	0.24 U		0.24 U
2-Methylnaphthalene		SW8270D	µg/L			0.48 U				0.48 U	
Naphthalene		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L				0.37 U	0.37 U	0.37 U		0.37 U
Unknown Hydrocarbon		SW8270D	µg/L			2 J				0 U	
Gasoline, Diesel and Residual Range Organics											
Gasoline Range Organics		AK 101	mg/L								
Diesel Range Organics		AK 102	mg/L								
Residual Range Organics		AK 103	mg/L								
General Chemistry											
Bicarbonate		A2320 General Chemistry Parameters	mg/L	79.5	74.2	78.9	74		73.1	77.3	72.4
Carbonate		A2320 General Chemistry Parameters	mg/L	1 U	3 U	1 U	1 U		3 U	1 U	3 U
Hydroxide		A2320 General Chemistry Parameters	mg/L	1 U		1 U				1 U	
Hydroxide		SM 2320	mg/L								
Total Dissolved Solids		A2540C General Chemistry Parameters	mg/L		76		51		71		82
Total Suspended Solids		A2540D General Chemistry Parameters	mg/L		5 U		5 U		5 U		5 U
Total Dissolved Solids		EPA 160.1	mg/L	84		81.5				87.5	
Total Suspended Solids		EPA 160.2	mg/L	1 U		1.1 U				1.1 U	
Chloride		EPA 300.0 General Chemistry Parameters	mg/L	0.4	0.36 J	0.5	0.39 J		0.38 J	0.5	0.38 J
Fluoride		EPA 300.0 General Chemistry Parameters	mg/L	0.022 U	0.05 J	0.022 U	0.08 J		0.06 J	0.022 U	0.07 J
Sulfate		EPA 300.0 General Chemistry Parameters	mg/L	10.8	9.55	10.1	8.63		8.69	10.3	9.1
Nitrate+Nitrite as Nitrogen		EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L	0.14	0.192	0.145	0.178		0.169	0.148	0.185
Field Parameters											
Temperature		Field Test	°C	5.84	6.69	5.95	6.38	5.75	5.13	5.66	5.00
pH		Field Test	N/A	7.45	7.66	7.39	7.58	7.06	7.08	7.34	6.66
ORP		Field Test	mV	101	114	87	94	-26	68	42	15
Conductance		Field Test	mS/cm	0.194	0.163	0.190	0.161	0.091	0.160	0.190	0.162
Turbidity		Field Test	NTU	0.79	0.00	0.00	0.00	60.60	0.00	0.77	0.00
Dissolved Oxygen		Field Test	mg/L	14.1	12.11	13.13	10.06	18.68	11.50	16.32	16.00
Total Dissolved Solids		Field Test	g/L	0.1	0.106	0.123	0.104	0.059	0.104	0.124	0.106

Table 4-31 Surface Water Results	Background Screening Criteria	Station ID	Units	RD05	RD05	RD12	RD09	RD09	RD06	RD06	RD07
		Sample ID		10RD05SW	11RD05SW	11RD12SW	10RD09SW	11RD09SW	10RD06SW	11RD06SW	10RD07SW
		Method									
Analyte											
Total Inorganic Elements											
Aluminum	80	SW6010B-Total	µg/L	14.8 U	6.5 J	18.7 J	14.8 U	22.6 J	14.8 U	20.1 J	14.8 U
Antimony	1.52	SW6020A-Total	µg/L	26.7	32.6	61.6	108	126 J	141	162 J	158
Arsenic	1.1	SW6020A-Total	µg/L	903	1030	22.5	73.1	73.1	79.6	85.3	80.5
Barium	26.4	SW6020A-Total	µg/L	102	103	22.8	29.2	25.5	29.5	28.3	29.8
Beryllium	ND	SW6020A-Total	µg/L	0.027 U	0.009 J	0.006 U	0.027 U	0.006 U	0.027 U	0.006 U	0.027 U
Cadmium	ND	SW6020A-Total	µg/L	0.022 U	0.005 U	0.005 U	0.022 U	0.005 U	0.022 U	0.005 U	0.022 U
Calcium	18400	SW6010B-Total	µg/L	34400	36000	17400	18700	17500	19600	17800	18900
Chromium	0.43	SW6020A-Total	µg/L	0.053 U	0.15 J	0.25	0.053 U	0.57	0.053 U	0.27	0.053 U
Cobalt	0.066	SW6020A-Total	µg/L	5.3	5.24	0.058	0.3	0.244	0.3	0.274	0.2
Copper	0.37	SW6020A-Total	µg/L	0.232 U	0.45	0.38	0.232 U	0.47	0.232 U	0.45	0.232 U
Iron	138	SW6010B-Total	µg/L	2160	2390	137	190	205	180	199	150
Iron	138	SW6020A-Total	µg/L								
Lead	0.021	SW6020A-Total	µg/L	0.2 U	0.079	0.013 J	0.2 U	0.024	0.2 U	0.02 J	0.2 U
Magnesium	9680	SW6010B-Total	µg/L	33700	37100	9800	10900	10500	11600	10600	11300
Manganese	17.5	SW6020A-Total	µg/L	379	354	13.3	26.5	26.4	30.5	32.7	27.6
Nickel	0.44	SW6020A-Total	µg/L	19.2	17.1	0.45	1.1	1.25	1.1	1.18	1
Potassium	218 J	SW6010B-Total	µg/L	1130	1210	225 J	69.1 U	312 J	69.1 U	299 J	69.1 U
Selenium	0.5 J	SW6020A-Total	µg/L	0.125 U	0.2 U	0.5 J	0.125 U	0.4 J	0.125 U	0.3 J	0.125 U
Silver	ND	SW6020A-Total	µg/L	0.009 U	0.004 U	0.004 U	0.009 U	0.004 U	0.009 U	0.004 U	0.009 U
Sodium	1580	SW6010B-Total	µg/L	12800	12900	1810	2320	2050	2580	2130	2440
Thallium	ND	SW6020A-Total	µg/L	0.003 U	0.005 U	0.005 U	0.003 U	0.005 U	0.003 U	0.005 U	0.003 U
Vanadium	0.3	SW6020A-Total	µg/L	0.026 U	0.1 J	0.15 J	0.026 U	0.14 J	0.026 U	0.15 J	0.026 U
Zinc	0.5 J	SW6020A-Total	µg/L	0.81 U	1.7	0.3 J	0.81 U	0.5	0.81 U	0.3 J	0.81 U
Total Low Level Mercury											
Mercury, Total	2.63	EPA 1631-Total	ng/L	43.4	63	71.1	183	312	208	214	233
Dissolved Inorganic Elements											
Aluminum, Dissolved	11.9 J	SW6010B-Diss	µg/L	14.8 U	3.5 J	7 J	14.8 U	11.1 J	14.8 U	15 J	14.8 U
Antimony, Dissolved	1.4 J	SW6020A-Diss	µg/L	3.2	1.37	60.1	101	124 J	130	148 J	143
Arsenic, Dissolved	0.9	SW6020A-Diss	µg/L	857	856	21.8	67.8	69.8	74.2	74.7	73.7
Barium, Dissolved	24	SW6020A-Diss	µg/L	98.7	99.5	22.3	28.2	25.2	28.6	25.9	28.5
Beryllium, Dissolved	ND	SW6020A-Diss	µg/L	0.027 U	0.012 J	0.006 U	0.027 U	0.006 U	0.027 U	0.006 U	0.027 U
Cadmium, Dissolved	ND	SW6020A-Diss	µg/L	0.022 U	0.005 U	0.005 U	0.022 U	0.005 U	0.022 U	0.005 U	0.022 U
Calcium, Dissolved	19200	SW6010B-Diss	µg/L	35000	36000	16900	19400	17700	19200	17900	19100
Chromium, Dissolved	0.23	SW6020A-Diss	µg/L	0.053 U	0.16 J	0.21	0.053 U	0.18 J	0.053 U	0.11 J	0.053 U
Cobalt, Dissolved	0.056	SW6020A-Diss	µg/L	4.9	4.35	0.049	0.2	0.21	0.2	0.229	0.007 U
Copper, Dissolved	0.27	SW6020A-Diss	µg/L	0.232 U	0.15	0.35	0.232 U	0.35	0.232 U	0.32	0.232 U
Iron, Dissolved	100	SW6010B-Diss	µg/L	2020	2180	89.7	130	149	110	140	90
Lead, Dissolved	ND	SW6020A-Diss	µg/L	0.2 U	0.005 J	0.005 U	0.2 U	0.008 J	0.2 U	0.005 U	0.2 U
Magnesium, Dissolved	10200	SW6010B-Diss	µg/L	34800	36400	9460	11400	10600	11500	10900	11500
Manganese, Dissolved	15.9	SW6020A-Diss	µg/L	380	345	10.8	24.9	23.6	28.8	27.5	24.6
Nickel, Dissolved	0.35	SW6020A-Diss	µg/L	17	10.9	0.43	0.8	0.92	1	0.99	0.9
Potassium, Dissolved	220 J	SW6010B-Diss	µg/L	1130	1170	230 J	69.1 U	293 J	69.1 U	287 J	69.1 U
Selenium, Dissolved	0.5 J	SW6020A-Diss	µg/L	0.125 U	0.2 U	0.4 J	0.125 U	0.3 J	0.125 U	0.3 J	0.125 U
Silver, Dissolved	ND	SW6020A-Diss	µg/L	0.009 U	0.004 U	0.004 U	0.009 U	0.004 U	0.009 U	0.004 U	0.009 U
Sodium, Dissolved	1610	SW6010B-Diss	µg/L	13000	12500 J	1720	2300	2060	2430	2180	2460
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.003 U	0.005 U	0.005 U	0.003 U	0.005 U	0.003 U	0.005 U	0.003 U
Vanadium, Dissolved	0.13 J	SW6020A-Diss	µg/L	0.026 U	0.07 J	0.14 J	0.026 U	0.13 J	0.026 U	0.09 J	0.026 U
Zinc, Dissolved	ND	SW6020A-Diss	µg/L	0.81 U	0.2 U	0.3 J	0.81 U	0.5 J	0.81 U	0.2 U	0.81 U
Dissolved Low Level Mercury											
Mercury, Dissolved	6.37	EPA 1631-Diss	ng/L	3.04	2.42	13.9	14.1	10.9	15.4	13.3	16.4
Arsenic Speciation											
Arsenate		EPA 1632 As-Cryo-W-Speciation	µg/L	70	234	21.3			51.5	55.7	
Arsenite		EPA 1632 As3-CRYO-W	µg/L	667	510	0.714			14.7	19.5 J	
Inorganic Arsenic		EPA 1632 Total Inorganic As - Water	µg/L	737	745	22			66.2	75.1	

Table 4-31 Surface Water Results	Background Screening Criteria	Station ID	Units	RD05	RD05	RD12	RD09	RD09	RD06	RD06	RD07
		Sample ID		10RD05SW	11RD05SW	11RD12SW	10RD09SW	11RD09SW	10RD06SW	11RD06SW	10RD07SW
Analyte		Method									
Methylmercury											
Methylmercury	0.08 J	EPA 1630	ng/L	0.491	0.62	0.09 J	0.144	0.13	0.141	0.14	0.123
Semi-Volatile Organic Compounds											
1-Methylnaphthalene		SW8270D	µg/L	1.5			0.48 U		0.48 U		0.48 U
2-Methylnaphthalene		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L		1.2 J	0.24 U		0.24 U		0.24 U	
2-Methylnaphthalene		SW8270D	µg/L	1.5			0.48 U		0.48 U		0.48 U
Naphthalene		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L		0.68 J	0.37 U		0.37 U		0.37 U	
Unknown Hydrocarbon		SW8270D	µg/L	0 U			3 J		0 U		0 U
Gasoline, Diesel and Residual Range Organics											
Gasoline Range Organics		AK 101	mg/L								
Diesel Range Organics		AK 102	mg/L								
Residual Range Organics		AK 103	mg/L								
General Chemistry											
Bicarbonate		A2320 General Chemistry Parameters	mg/L	229	243	73.3	85.4	80.3	87.8	81.2	87.8
Carbonate		A2320 General Chemistry Parameters	mg/L	1 U	3 U	3 U	1 U	3 U	1 U	3 U	1 U
Hydroxide		A2320 General Chemistry Parameters	mg/L	1 U			1 U		1 U		1 U
Hydroxide		SM 2320	mg/L								
Total Dissolved Solids		A2540C General Chemistry Parameters	mg/L		244	72		81		78	
Total Suspended Solids		A2540D General Chemistry Parameters	mg/L		5 U	5 U		5 U		5 U	
Total Dissolved Solids		EPA 160.1	mg/L	110			116		83		115
Total Suspended Solids		EPA 160.2	mg/L	3.6			1.1 U		1.1 U		1.1 U
Chloride		EPA 300.0 General Chemistry Parameters	mg/L	0.6	0.46	0.35 J	0.5	0.36 J	0.5	0.37 J	0.5
Fluoride		EPA 300.0 General Chemistry Parameters	mg/L	0.1	0.13 J	0.07 J	0.022 U	0.05 J	0.022 U	0.04 J	0.022 U
Sulfate		EPA 300.0 General Chemistry Parameters	mg/L	28.5	27.7	9.07	13	11.9	13.2	12.2	13.2
Nitrate+Nitrite as Nitrogen		EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L	0.001 U	0.009 U	0.156	0.116	0.192	0.127	0.182	0.143
Field Parameters											
Temperature		Field Test	°C	3.79	6.77	5.09	4.84	6.77	4.43	6.59	4.22
pH		Field Test	N/A	6.11	5.37	5.97	7.16	7.71	6.98	7.62	6.56
ORP		Field Test	mV	-143	-38	71	57	9	113	86	177
Conductance		Field Test	mS/cm	0.524	0.387	0.177	0.215	0.166	0.072	0.168	0.220
Turbidity		Field Test	NTU	2.19	4.63	0.00	0.98	0.00	4.06	0.00	0.21
Dissolved Oxygen		Field Test	mg/L	16.29	9.00	13.61	14.55	15.61	15.06	9.77	16.96
Total Dissolved Solids		Field Test	g/L	0.335	0.251	0.115	0.14	0.108	0.046	0.109	0.143

Table 4-31 Surface Water Results	Background Screening Criteria	Station ID	Units	RD07	RD08	RD08
		Sample ID		11RD07SW	10RD08SW	11RD08SW
		Method				
Analyte						
Total Inorganic Elements						
Aluminum	80	SW6010B-Total	µg/L	19.3 J	14.8 U	19.4 J
Antimony	1.52	SW6020A-Total	µg/L	167 J	170	184
Arsenic	1.1	SW6020A-Total	µg/L	80	85.6	78.1
Barium	26.4	SW6020A-Total	µg/L	26.5	30.8	26.2
Beryllium	ND	SW6020A-Total	µg/L	0.006 U	0.027 U	0.006 U
Cadmium	ND	SW6020A-Total	µg/L	0.005 J	0.022 U	0.005 U
Calcium	18400	SW6010B-Total	µg/L	18000	19600	17900
Chromium	0.43	SW6020A-Total	µg/L	0.28	0.053 U	0.52
Cobalt	0.066	SW6020A-Total	µg/L	0.23	0.2	0.23
Copper	0.37	SW6020A-Total	µg/L	0.53	0.5	0.48 J
Iron	138	SW6010B-Total	µg/L	186	140	189
Iron	138	SW6020A-Total	µg/L			
Lead	0.021	SW6020A-Total	µg/L	0.026	0.2 U	0.029 J
Magnesium	9680	SW6010B-Total	µg/L	10700	11600	11000
Manganese	17.5	SW6020A-Total	µg/L	28.2	24.5	32
Nickel	0.44	SW6020A-Total	µg/L	1.13	1	1.23
Potassium	218 J	SW6010B-Total	µg/L	292 J	69.1 U	312 J
Selenium	0.5 J	SW6020A-Total	µg/L	0.4 J	0.125 U	0.5 J
Silver	ND	SW6020A-Total	µg/L	0.004 U	0.009 U	0.008 J
Sodium	1580	SW6010B-Total	µg/L	2150	2590	2430
Thallium	ND	SW6020A-Total	µg/L	0.005 U	0.003 U	0.005 U
Vanadium	0.3	SW6020A-Total	µg/L	0.12 J	0.026 U	0.14 J
Zinc	0.5 J	SW6020A-Total	µg/L	0.3 J	0.81 U	0.5 J
Total Low Level Mercury						
Mercury, Total	2.63	EPA 1631-Total	ng/L	200	385	239
Dissolved Inorganic Elements						
Aluminum, Dissolved	11.9 J	SW6010B-Diss	µg/L	11.1 J	14.8 U	19.7 J
Antimony, Dissolved	1.4 J	SW6020A-Diss	µg/L	163 J	158	184
Arsenic, Dissolved	0.9	SW6020A-Diss	µg/L	73.1	75.4	80.9
Barium, Dissolved	24	SW6020A-Diss	µg/L	26.2	29.5	27.3
Beryllium, Dissolved	ND	SW6020A-Diss	µg/L	0.006 U	0.027 U	0.006 U
Cadmium, Dissolved	ND	SW6020A-Diss	µg/L	0.005 U	0.022 U	0.005 U
Calcium, Dissolved	19200	SW6010B-Diss	µg/L	17800	19400	17900
Chromium, Dissolved	0.23	SW6020A-Diss	µg/L	0.33	0.053 U	0.39
Cobalt, Dissolved	0.056	SW6020A-Diss	µg/L	0.197	0.007 U	0.236
Copper, Dissolved	0.27	SW6020A-Diss	µg/L	0.32	0.232 U	0.5
Iron, Dissolved	100	SW6010B-Diss	µg/L	104	70	176
Lead, Dissolved	ND	SW6020A-Diss	µg/L	0.005 U	0.2 U	0.037
Magnesium, Dissolved	10200	SW6010B-Diss	µg/L	11000	11600	11000
Manganese, Dissolved	15.9	SW6020A-Diss	µg/L	24.3	20.1	27.5
Nickel, Dissolved	0.35	SW6020A-Diss	µg/L	1	0.8	1.26
Potassium, Dissolved	220 J	SW6010B-Diss	µg/L	286 J	69.1 U	382 J
Selenium, Dissolved	0.5 J	SW6020A-Diss	µg/L	0.3 J	0.125 U	0.3 U
Silver, Dissolved	ND	SW6020A-Diss	µg/L	0.004 U	0.009 U	0.009 J
Sodium, Dissolved	1610	SW6010B-Diss	µg/L	2190	2490	2430
Thallium, Dissolved	ND	SW6020A-Diss	µg/L	0.005 U	0.003 U	0.005 U
Vanadium, Dissolved	0.13 J	SW6020A-Diss	µg/L	0.09 J	0.026 U	0.13 J
Zinc, Dissolved	ND	SW6020A-Diss	µg/L	0.2 U	0.81 U	1
Dissolved Low Level Mercury						
Mercury, Dissolved	6.37	EPA 1631-Diss	ng/L	13.5	15.5	12.4
Arsenic Speciation						
Arsenate		EPA 1632 As-Cryo-W-Speciation	µg/L		83	76.9 J
Arsenite		EPA 1632 As3-CRYO-W	µg/L		3.76	10.2
Inorganic Arsenic		EPA 1632 Total Inorganic As - Water	µg/L		86.8	87.1 J

Table 4-31 Surface Water Results	Background Screening Criteria	Station ID	Units	RD07	RD08	RD08
		Sample ID		11RD07SW	10RD08SW	11RD08SW
Analyte		Method				
Methylmercury						
Methylmercury	0.08 J	EPA 1630	ng/L	0.14	0.129	0.12
Semi-Volatile Organic Compounds						
1-Methylnaphthalene		SW8270D	µg/L		0.48 U	
2-Methylnaphthalene		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L	0.24 U		0.24 U
2-Methylnaphthalene		SW8270D	µg/L		0.48 U	
Naphthalene		SW8270C Base Neutral/Acid Semivolatile Organic compounds	µg/L	0.37 U		0.37 U
Unknown Hydrocarbon		SW8270D	µg/L		0 U	
Gasoline, Diesel and Residual Range Organics						
Gasoline Range Organics		AK 101	mg/L			
Diesel Range Organics		AK 102	mg/L			
Residual Range Organics		AK 103	mg/L			
General Chemistry						
Bicarbonate		A2320 General Chemistry Parameters	mg/L	81.3	87	81.9
Carbonate		A2320 General Chemistry Parameters	mg/L	3 U	1 U	3 U
Hydroxide		A2320 General Chemistry Parameters	mg/L		1 U	
Hydroxide		SM 2320	mg/L			
Total Dissolved Solids		A2540C General Chemistry Parameters	mg/L	84		89
Total Suspended Solids		A2540D General Chemistry Parameters	mg/L	5 U		5 U
Total Dissolved Solids		EPA 160.1	mg/L		220	
Total Suspended Solids		EPA 160.2	mg/L		1.1 U	
Chloride		EPA 300.0 General Chemistry Parameters	mg/L	0.45	0.5	0.37 J
Fluoride		EPA 300.0 General Chemistry Parameters	mg/L	0.09 J	0.022 U	0.06 J
Sulfate		EPA 300.0 General Chemistry Parameters	mg/L	11.9	13.1	12.1
Nitrate+Nitrite as Nitrogen		EPA 353.2 Nitrogen, Total Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	mg/L	0.173	0.115	0.169
Field Parameters						
Temperature		Field Test	°C	6.31	4.40	5.60
pH		Field Test	N/A	7.57	6.27	7.49
ORP		Field Test	mV	80	2.53	36
Conductance		Field Test	mS/cm	0.170	0.229	0.120
Turbidity		Field Test	NTU	0.00	0.59	0.00
Dissolved Oxygen		Field Test	mg/L	10.75	13.9	11.66
Total Dissolved Solids		Field Test	g/L	0.11	0.149	0.077

Key

Bold = detection

°C = Degrees Celsius

g/L = grams per liter

Gray shading = exceedance of background

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/L = milligrams per liter

mS/cm = Millisiemens per Centimeter

mV = Millivolt

N/A = not applicable

ng/L = nanograms per liter

NTU = Nephelometric Turbidity Unit

ORP = Oxidation reduction potential

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

µg/L = micrograms per liter

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-32 Red Devil Creek Sediment Results	Background Screening Criteria	Station ID	Units	RD01	RD02	RD03	RD11	RD10	RD04	RD05	RD12	RD09	RD06	RD07	RD08
		Sample ID		10RD01SD	10RD02SD	10RD03SD	11RD11SD	11RD10SD	10RD04SD	10RD05SD	11RD12SD	10RD09SD	10RD06SD	10RD07SD	10RD08SD
Analyte		Method													
Total Inorganic Elements															
Aluminum	10800	SW6010B-Total	mg/kg	10800	14700	9340	9930	7290	9350	910	10600	11900	10200	9620	8440
Antimony	ND	SW6010B-Total	mg/kg	0.54 UJ	1.2 UJ	1.2 UJ			2510 J	1590 J	6360 J	3600 J	4060 J	3430 J	1900 J
Antimony	ND	SW6020A-Total	mg/kg				7.39 J	5.71 J							
Arsenic	65	SW6010B-Total	mg/kg	65	50	60			2290	130000	3610 J	2920	2950	2370	1890
Arsenic	65	SW6020A-Total	mg/kg				32.5	62							
Barium	159	SW6010B-Total	mg/kg	159	278	146			401	1990		521	459	542	379
Barium	159	SW6020A-Total	mg/kg				130 J	119			985 J				
Beryllium	0.5	SW6010B-Total	mg/kg	0.5	0.4	0.6			0.9	1.39 U		0.9	0.8	0.8	0.7
Beryllium	0.5	SW6020A-Total	mg/kg				0.311	0.417			0.705				
Cadmium	0.3	SW6010B-Total	mg/kg	0.3	0.059 U	0.06 U			0.062 U	1.4 U		0.057 U	0.059 U	0.06 U	0.057 U
Cadmium	0.3	SW6020A-Total	mg/kg				0.163 J	0.232			0.317 J				
Calcium	2380	SW6010B-Total	mg/kg	2380	6170	1960	2070 J	1660 J	5530	23400	3450 J	4080	3910	5000	4190
Chromium	20.4	SW6010B-Total	mg/kg	20.4	25	19			29	18.1 U		29	31	32	25
Chromium	20.4	SW6020A-Total	mg/kg				14.9 J	11.8 J			47.4 J				
Cobalt	12.3	SW6010B-Total	mg/kg	12.3	13.7	16.5			17.8	50		20.5	21.5	22.3	14.7
Cobalt	12.3	SW6020A-Total	mg/kg				8.69	11.9			12.5				
Copper	21.7	SW6010B-Total	mg/kg	21.7	23.4	24.4			45.7	30 J		55.6 J	58.2 J	55.5 J	39.9 J
Copper	21.7	SW6020A-Total	mg/kg				13.2 J	14.9 J			45.7 J				
Iron	32100	SW6010B-Total	mg/kg	32100	29200	38300	33200	36100	52000	344000	28900	35200	39200	34000	31000
Lead	8	SW6010B-Total	mg/kg	8	7	8			14	12.5 U		12	11	13	7
Lead	8	SW6020A-Total	mg/kg				6.22 J	7.99 J			1.72 J				
Magnesium	2990	SW6010B-Total	mg/kg	2990	4110	2710	3250 J	2780 J	8690	6440	5200 J	5440	5530	7700	4960
Manganese	579	SW6010B-Total	mg/kg	579	2610	1310	854	1480	1350	986	552	1250	1560	1690	784
Mercury	0.18	SW7471A-Total	mg/kg	0.18	0.55	0.42	1.57 J	0.232 J	36	8.6 J	77 J	46 J	63 J	60 J	79 J
Nickel	32	SW6010B-Total	mg/kg	32	30	38			67	240		64	61	62	49
Nickel	32	SW6020A-Total	mg/kg				22 J	26 J			47.2 J				
Potassium	1200	SW6010B-Total	mg/kg	1200	1300	900	636 J	510 J	2660	814 U	2870 J	2850	2810	2770	2320
Selenium	ND	SW6010B-Total	mg/kg	0.78 U	1.7 U	1.8 U			1.8 U	41 U		1.7 U	1.7 U	1.8 U	1.7 U
Selenium	ND	SW7742-Total	mg/kg				0.39	0.33			0.62				
Silver	ND	SW6010B-Total	mg/kg	0.053 U	0.117 U	0.12 U			0.124 U	2.8 U		0.113 U	0.117 U	0.12 U	0.113 U
Silver	ND	SW6020A-Total	mg/kg				0.062 J	0.04			0.135 J				
Sodium	ND	SW6010B-Total	mg/kg	19.9 U	44.3 U	45.4 U	39.6	21.1	240	1050 U	225	270	250	230	210
Thallium	ND	SW6010B-Total	mg/kg	0.33 U	0.7 U	0.8 U			0.8 U	17.4 U		0.7 U	0.7 U	0.7 U	0.7 U
Thallium	ND	SW6020A-Total	mg/kg				0.055	0.043			0.297				
Vanadium	35.4	SW6010B-Total	mg/kg	35.4	39.3	37.9			32.2	4.2 U		26.8	25	27.6	25.1
Vanadium	35.4	SW6020A-Total	mg/kg				24.7	25.9			22.8				
Zinc	80	SW6010B-Total	mg/kg	80	78	91			106	120		96	100	91	83
Zinc	80	SW6020A-Total	mg/kg				51.1 J	58.6			65.7 J				
Arsenic Speciation															
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg	48.7 J	50.4 J	53.7 J		53.9	2480 J	182000 J	2160	2930 J	4180 J	3680 J	2330 J
Arsenite		EPA 1632-As3-CRYO-T	mg/kg	4.13 J	4.39 J	1.34 J		1.7	57.8 J	5960 J	333	104 J	155 J	88.2 J	63.2 J
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg	52.8 J	54.8 J	55 J		55.6	2540 J	188000 J	2490	3030 J	4340 J	3770 J	2390 J
Mercury Selective Sequential Extraction															
Hg(F0)		EPA 1631	ng/g	3.36 U		2.48 U		297	2.92 U	13.2 U	41500		2.36 U		18.5
Hg(F1)		BRL SOP No. BR-0013	ng/g	1.19 J		2.55 J		3	529 J	7.24 J	79.4 J		640 J		1180 J
Hg(F2)		BRL SOP No. BR-0013	ng/g	0.25 U		0.39 J		1.14 J	107 J	7.09 J	4.94 J		166 J		27.6 J
Hg(F3)		BRL SOP No. BR-0013	ng/g	57.3 J		212 J		194 J	3840 J	6580 J	1890 J		5090 J		1360 J
Hg(F4)		BRL SOP No. BR-0013	ng/g	17.3 J		146 J		37.3	23700 J	1280 J	4090 J		21900 J		17700 J
Hg(F5)		BRL SOP No. BR-0013	ng/g	24.7		643		166	969000	2550 M	17200 J		100000		142000
Hg(F6)		BRL SOP No. BR-0013	ng/g	4.98 J		25.9 J			22.9 J	63000 J			3040 J		7550 J
Methylmercury															
Methylmercury	0.000177	CAS SOP	ng/g					0.1 J			0.4 J				
Methylmercury	0.000177	EPA 1630	ng/g	0.177	7.02	0.218			0.766	12.7		0.69	0.993	0.578	1
Semi-volatile Organic Compounds															
gamma.-Sitosterol		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				390 J	230 J							
Benzo(b)fluoranthene		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				1.5 J	1.2 U							
Benzoic Acid		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				220	96 U							
Benzyl Alcohol		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				3.1 J	2.1 U							
Diethyl Phthalate		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				1.7 J	1.3 U							
Di-n-butyl Phthalate		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				9 J	7.9 U							
Docosanoic acid		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				710 J	190 J							
Heptacosane		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg					270 J							
Pentachlorophenol (PCP)		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				22 J	20 U							

Table 4-32 Red Devil Creek Sediment Results Analyte	Background Screening Criteria	Station ID	Units	RD01	RD02	RD03	RD11	RD10	RD04	RD05	RD12	RD09	RD06	RD07	RD08
		Sample ID		10RD01SD	10RD02SD	10RD03SD	11RD11SD	11RD10SD	10RD04SD	10RD05SD	11RD12SD	10RD09SD	10RD06SD	10RD07SD	10RD08SD
		Method													
Phenanthrene		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				1.9 J	2.1 J							
Phenol		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				4.1 J	2 U							
Unknown		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				700 J	180 J							
Unknown Alkane		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg					99 J							
Unknown Alkene		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg					240 J							
Unknown Carboxylic Acid		SW8270C-Low Level Semivolatile Organics using LVI	µg/kg				370 J	130 J							
Total Organic Carbon															
Carbon, Total Organic (TOC)		SW9060M-Total Organic Carbon, Modified for Matrix	%	1.47	8.33	0.951	1.3	0.501	1.02	2.28	0.476	0.882	0.868	0.827	0.94

Key

Bold = detection

Gray shading = exceedance of background

% = percent

µg/kg = micrograms per kilogram

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ND = not detected

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-33 Kuskokwim River Sediment Results	Background Screening Criteria	Station ID	Units	KR02	KR03	KR04	KR07	KR10	KR11	KR05	KR06	KR08	KR09	KR14	KR15	KR16	KR17
		Sample ID		10KR02SD	10KR03SD	10KR04SD	10KR07SD	10KR10SD	10KR11SD	11KR05SD	11KR06SD	11KR08SD	11KR09SD	11KR14SD	11KR15SD	11KR16SD	11KR17SD
		Method															
Total Inorganic Elements																	
Aluminum	13600	SW6010B-Total	mg/kg	9750	17000	12600	4510	7080	10600	6460 J	12100 J	9550 J	9770 J	11300 J	6810 J	13500 J	8610 J
Antimony	0.351	SW6010B-Total	mg/kg	1280 J	10 J	0.62 U	40 J	1.2 U	0.56 U								
Antimony	0.351	SW6020A-Total	mg/kg							99	2.1	5.48	9.51	5.41 J	272 J	15.2	4.26
Arsenic	14.64	SW6010B-Total	mg/kg	1790	60	30	800	160	21								
Arsenic	14.64	SW6020A-Total	mg/kg							135 J	17.5 J	52 J	20.9 J	12.5 J	414 J	39.2 J	17.5 J
Barium	167.7	SW6010B-Total	mg/kg	418	227	161	145	151	138								
Barium	167.7	SW6020A-Total	mg/kg							91.6 J	128 J	120 J	122 J	116 J	124 J	152 J	111 J
Beryllium	0.472	SW6010B-Total	mg/kg	0.8	0.6	0.5	0.8	0.6	0.4								
Beryllium	0.472	SW6020A-Total	mg/kg							0.344	0.293	0.297	0.501	0.283	0.268	0.339	0.334
Cadmium	0.596	SW6010B-Total	mg/kg	0.058 U	0.6	0.4	0.061 U	0.056 U	0.4								
Cadmium	0.596	SW6020A-Total	mg/kg							0.27 J	0.281 J	0.282 J	0.338 J	0.251 J	0.219 J	0.342 J	0.345 J
Calcium	7202	SW6010B-Total	mg/kg	2920	6020	5920	1630	2950	6440	1810 J	6830 J	5230 J	5670 J	3930 J	1550 J	7480 J	4390 J
Chromium	25.13	SW6010B-Total	mg/kg	25	36	26.7	18	17	23.3								
Chromium	25.13	SW6020A-Total	mg/kg							14.2 J	20.1 J	18.3 J	21.1 J	19.7 J	11.1 J	21.9 J	17.7 J
Cobalt	13.7	SW6010B-Total	mg/kg	14.8	12.8	9.9	18	15.1	9.2								
Cobalt	13.7	SW6020A-Total	mg/kg							9.36 J	7.14 J	7.78 J	10.8 J	6.93 J	7.69 J	8.14 J	10 J
Copper	35.47	SW6010B-Total	mg/kg	37.2 J	31 J	22 J	56.5 J	41.9 J	19.6 J								
Copper	35.47	SW6020A-Total	mg/kg							25.1	19	18.8	26.8	15	20.3	23.2	24.9
Iron	33456	SW6010B-Total	mg/kg	29100	33900	25100	48100	31200	23200	33400	25900	24000	32400	24200	19800	29900	26000
Lead	11.98	SW6010B-Total	mg/kg	7	10	7	10	10	6								
Lead	11.98	SW6020A-Total	mg/kg							7.78 J	7.32 J	6.71 J	9.34 J	6.62 J	6.06 J	8.82 J	9.27 J
Magnesium	6042	SW6010B-Total	mg/kg	4530	6450	5410	990	2580	4970	2890	6150	4910	4800	5330	2410	6720	4060
Manganese	981.6	SW6010B-Total	mg/kg	750	712	429	684	735	451	708	557	505	649	404	5410	586	527
Mercury	0.133	SW7471A-Total	mg/kg	56 J	2.1 J	0.82 J	13.2 J	3.6 J	0.52 J	119 J	0.169 J	1.15 J	0.566 J	0.387 J	39.2 J	2.36 J	0.442 J
Nickel	38.6	SW6010B-Total	mg/kg	48	35	28	55	38	27								
Nickel	38.6	SW6020A-Total	mg/kg							25.7	23.1	23.8	30.9	19.4	21	25.3	26.1
Potassium	1160	SW6010B-Total	mg/kg	2190	1960	1440	1120	1070	1250	749	1380	1080	1280	1070	1070	1520	996
Selenium	0.702	SW6010B-Total	mg/kg	1.7 U	1.2 U	0.9 U	1.8 U	1.7 U	0.81 U								
Selenium	0.702	SW7742-Total	mg/kg							0.39	0.39	0.31	0.5	0.42	0.55 J	0.52	0.39
Silver	0.128	SW6010B-Total	mg/kg	0.116 U	0.081 U	0.061 U	0.121 U	0.113 U	0.055 U								
Silver	0.128	SW6020A-Total	mg/kg							0.198	0.167	0.128	0.172	0.141	0.098	0.229	0.15
Sodium	161.3	SW6010B-Total	mg/kg	220	240	210	45.7 U	42.6 U	180	77.5	187	144	145	143	82.5	200	113
Thallium	0.116	SW6010B-Total	mg/kg	0.7 U	0.5 U	0.38 U	0.8 U	0.7 U	0.34 U								
Thallium	0.116	SW6020A-Total	mg/kg							0.076	0.12	0.105	0.123	0.104	0.09	0.136	0.109
Vanadium	36.07	SW6010B-Total	mg/kg	27.3	48.5	36.9	32.5	31.4	31.8								
Vanadium	36.07	SW6020A-Total	mg/kg							22.4 J	26.1 J	23.6 J	30.1 J	25.5 J	16.6 J	28.6 J	27.7 J
Zinc	128.7	SW6010B-Total	mg/kg	83	105	80	119	99	75								
Zinc	128.7	SW6020A-Total	mg/kg							76.6 J	71.7 J	67.9 J	93.9 J	65.3 J	53.8 J	80 J	82.1 J
Arsenic Speciation																	
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg	1900 J	40.9 J	29.1 J	1020 J	175 J	23.2 J	184	20.5	47.5	58.4	54.7	1710	38.7	34.5
Arsenite		EPA 1632-As3-CRYO-T	mg/kg	42.5 J	15.1 J	2.63 J	2.49 J	3.24 J	4.595	47.3 J	5.56 J	7.49 J	9.75 J	12.7 J	152 J	31.8 J	5.48 J
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg	1940 J	56 J	31.7 J	1020 J	178 J	49.88	231	26	55	68.2	67.4	1860	70.5	39.9
Mercury Selective Sequential Extraction																	
Hg(F0)		EPA 1631	ng/g	3.49 U		3.88 U	6.13		3.97 U								
Hg(F1)		BRL SOP No. BR-0013	ng/g	797 J		5.2 J	93.1 J		7.34 J								
Hg(F2)		BRL SOP No. BR-0013	ng/g	38.7 J		0.28 U	12.5 J		1.54 J								
Hg(F3)		BRL SOP No. BR-0013	ng/g	1520 J		572 J	684 J		351 J								
Hg(F4)		BRL SOP No. BR-0013	ng/g	10700 J		403 J	2040 J		343 J								
Hg(F5)		BRL SOP No. BR-0013	ng/g	175000		4380	831000		259								
Hg(F6)		BRL SOP No. BR-0013	ng/g	288 J		91.5 J	16200 J		32.5 J								
Methylmercury																	
Methylmercury	0.145	CAS SOP	ng/g							0.73	0.24 J	0.43 J	0.3 J	0.2 J	2.64	1.33	0.32 J
Methylmercury	0.145	EPA 1630	ng/g	0.592	0.812	0.285	0.009 U	0.654	0.184								
Total Organic Carbon																	
Carbon, Total Organic (TOC)		SW9060M-Total Organic Carbon, Modified for Matrix	%	0.594	1.64	0.612	0.586	0.513	0.426	0.342	0.511	0.486	0.538	0.534	0.32	1.43	1

Table 4-33 Kuskokwim River Sediment Results		Background Screening Criteria	Station ID		Units	KR28	KR29	KR30	KR34	KR35	KR36	KR37	KR38	KR39	KR40
Analyte	Sample ID		Method	11KR28SD		11KR29SD	11KR30SD	11KR34SD	11KR35SD	11KR36SD	11KR37SD	11KR38SD	11KR39SD	11KR40SD	
Total Inorganic Elements															
Aluminum	13600	SW6010B-Total	mg/kg	7170	4340	4530	7050	7020	18400	12400	6010	2050	9750		
Antimony	0.351	SW6010B-Total	mg/kg	589 J	360 J	894 J	1060 J	1420 J			753	149			
Antimony	0.351	SW6020A-Total	mg/kg						7.72 J	5.57 J			57.1 J		
Arsenic	14.64	SW6010B-Total	mg/kg			938 J		1280 J			918				
Arsenic	14.64	SW6020A-Total	mg/kg	304 J	502 J		958 J		19.2 J	19.4 J		79.3	123 J		
Barium	167.7	SW6010B-Total	mg/kg												
Barium	167.7	SW6020A-Total	mg/kg	105	187	242	220	398	131	130	179 J	88.4 J	132		
Beryllium	0.472	SW6010B-Total	mg/kg												
Beryllium	0.472	SW6020A-Total	mg/kg	0.245	0.357	0.374	0.47	0.438	0.347	0.336	0.367	0.469	0.363		
Cadmium	0.596	SW6010B-Total	mg/kg												
Cadmium	0.596	SW6020A-Total	mg/kg	0.254	0.222	0.204	0.301	0.294	0.256	0.272	0.213 J	0.663 J	0.308		
Calcium	7202	SW6010B-Total	mg/kg	19400	1960	2270	2770	2740	8550	7570	2280	2060	4250		
Chromium	25.13	SW6010B-Total	mg/kg												
Chromium	25.13	SW6020A-Total	mg/kg	6.22 J	15.1 J	19.7 J	16.5 J	18.4 J	22.8 J	21.5 J	18.9 J	11.4 J	17.6 J		
Cobalt	13.7	SW6010B-Total	mg/kg												
Cobalt	13.7	SW6020A-Total	mg/kg	9.02	11.3	8.64	11.1	10.6	8.54	8.16	7.3	18.2	9.08		
Copper	35.47	SW6010B-Total	mg/kg												
Copper	35.47	SW6020A-Total	mg/kg	13.2 J	24.4 J	23.5 J	29.5 J	28.2 J	18.8 J	18.7 J	23 J	87.5 J	21.3 J		
Iron	33456	SW6010B-Total	mg/kg	34900	25700	24400	28300	31100	43300	28700	19600	32300	26800		
Lead	11.98	SW6010B-Total	mg/kg												
Lead	11.98	SW6020A-Total	mg/kg	5.5	5.79	5.84	6.88	5.94	7.03	6.7	3.94	14.1	6.74		
Magnesium	6042	SW6010B-Total	mg/kg	11400	1660	3290	4890	5100	9370	6340	3090 J	6030 J	4600		
Manganese	981.6	SW6010B-Total	mg/kg	949	522	828	908	666	849	555	466 J	1220 J	567		
Mercury	0.133	SW7471A-Total	mg/kg	33.6 J	38.9 J	24.2 J	104 J	46.1 J	0.827 J	0.208 J	19 J	1.73 J	40 J		
Nickel	38.6	SW6010B-Total	mg/kg												
Nickel	38.6	SW6020A-Total	mg/kg	21.1	31.5	29.5	37.8	31.1	25.6	24.3	27.5 J	65.1 J	25.5		
Potassium	1160	SW6010B-Total	mg/kg	803	791	1150	1590	1320	1830	1390	1500 J	1280 J	990		
Selenium	0.702	SW6010B-Total	mg/kg												
Selenium	0.702	SW7742-Total	mg/kg	0.33	0.22	0.19 J	0.24	0.16 J	0.39	0.35	0.15 U	2.11	0.36		
Silver	0.128	SW6010B-Total	mg/kg												
Silver	0.128	SW6020A-Total	mg/kg	0.111	0.156	0.112	0.111	0.097	0.201	0.145	0.108	0.41	0.127		
Sodium	161.3	SW6010B-Total	mg/kg	62.6	48	75.5	139	125	262	193	163	56.1	119		
Thallium	0.116	SW6010B-Total	mg/kg												
Thallium	0.116	SW6020A-Total	mg/kg	0.653	0.084	0.419	0.158	0.229	0.109	0.125	0.145	0.107	0.107		
Vanadium	36.07	SW6010B-Total	mg/kg												
Vanadium	36.07	SW6020A-Total	mg/kg	10.9	19.5	20.7	20.7	15.1	29.5	28.3	16	25.8	24.1		
Zinc	128.7	SW6010B-Total	mg/kg												
Zinc	128.7	SW6020A-Total	mg/kg	50.7 J	67.6 J	56.7 J	84.1 J	68.6 J	72.1 J	69.9 J	50.8 J	132 J	65.4 J		
Arsenic Speciation															
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg												
Arsenite		EPA 1632-As3-CRYO-T	mg/kg												
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg												
Mercury Selective Sequential Extraction															
Hg(F0)		EPA 1631	ng/g												
Hg(F1)		BRL SOP No. BR-0013	ng/g												
Hg(F2)		BRL SOP No. BR-0013	ng/g												
Hg(F3)		BRL SOP No. BR-0013	ng/g												
Hg(F4)		BRL SOP No. BR-0013	ng/g												
Hg(F5)		BRL SOP No. BR-0013	ng/g												
Hg(F6)		BRL SOP No. BR-0013	ng/g												
Methylmercury															
Methylmercury	0.145	CAS SOP	ng/g	1.34 J		0.64 J	1.25 J			0.17 J			1.45 J		
Methylmercury	0.145	EPA 1630	ng/g												
Total Organic Carbon															
Carbon, Total Organic (TOC)		SW9060M-Total Organic Carbon, Modified for Matrix	%	0.621	0.627	0.378	0.563	0.471	0.757	0.84	0.307	2.05	1.16		

Table 4-33 Kuskokwim River Sediment Results		Background Screening Criteria	Station ID		Units	KR41	KR42	KR43	KR44	KR45	KR46	KR47
Analyte	Method		11KR41SD	11KR42SD		11KR43SD	11KR44SD	11KR45SD	11KR46SD	11KR47SD		
Total Inorganic Elements												
Aluminum	13600	SW6010B-Total	mg/kg		6390	3850	9110	3450	9560	7600	7380	
Antimony	0.351	SW6010B-Total	mg/kg									
Antimony	0.351	SW6020A-Total	mg/kg		25 J	64.1 J	40.2	21.6 J	0.237 J	31.9	24.6	
Arsenic	14.64	SW6010B-Total	mg/kg									
Arsenic	14.64	SW6020A-Total	mg/kg		54.8 J	254 J	55	0.57 J	4.41 J	87.2	77.8	
Barium	167.7	SW6010B-Total	mg/kg									
Barium	167.7	SW6020A-Total	mg/kg		66.6	193	118 J	4.12	89.8	107 J	70.1 J	
Beryllium	0.472	SW6010B-Total	mg/kg									
Beryllium	0.472	SW6020A-Total	mg/kg		0.211	0.546	0.587	0.008 J	0.505	0.411	0.289	
Cadmium	0.596	SW6010B-Total	mg/kg									
Cadmium	0.596	SW6020A-Total	mg/kg		0.16	0.657	0.515 J	0.017 J	0.153	0.561 J	0.202 J	
Calcium	7202	SW6010B-Total	mg/kg		2000	1320	2090	2110	10900	1710	1950	
Chromium	25.13	SW6010B-Total	mg/kg									
Chromium	25.13	SW6020A-Total	mg/kg		15.3 J	8.78 J	27.7 J	0.65 J	18.8 J	25 J	15 J	
Cobalt	13.7	SW6010B-Total	mg/kg									
Cobalt	13.7	SW6020A-Total	mg/kg		7.14	14.8	11.4	0.369	15.8	13.9	8.44	
Copper	35.47	SW6010B-Total	mg/kg									
Copper	35.47	SW6020A-Total	mg/kg		11.6 J	40.4 J	48.5 J	0.68 J	21.5 J	41.5 J	21.1 J	
Iron	33456	SW6010B-Total	mg/kg		37900	39400	31100	55600	26200	25200	22800	
Lead	11.98	SW6010B-Total	mg/kg									
Lead	11.98	SW6020A-Total	mg/kg		3.13	9.28	14.8	0.05	8.97	9.78	5.95	
Magnesium	6042	SW6010B-Total	mg/kg		2910	2050	4550 J	1760	4250	3770 J	3960 J	
Manganese	981.6	SW6010B-Total	mg/kg		2530	1250	1220 J	1170	1730	1060 J	626 J	
Mercury	0.133	SW7471A-Total	mg/kg		14.2 J	4.36 J	12 J	7.19 J	0.199 J	4.75 J	7.18 J	
Nickel	38.6	SW6010B-Total	mg/kg									
Nickel	38.6	SW6020A-Total	mg/kg		21.3	39.5	48.2 J	0.78	31.1	50.4 J	23.2 J	
Potassium	1160	SW6010B-Total	mg/kg		764	964	784 J	854	922	824 J	1080 J	
Selenium	0.702	SW6010B-Total	mg/kg									
Selenium	0.702	SW7742-Total	mg/kg		0.3	0.36	0.87	0.61	0.17	0.58	0.46	
Silver	0.128	SW6010B-Total	mg/kg									
Silver	0.128	SW6020A-Total	mg/kg		0.118	0.099	0.122	0.106	0.086	0.153	0.087	
Sodium	161.3	SW6010B-Total	mg/kg		74.7	42.8	52.8	40.4	61.6	57.7	66.2	
Thallium	0.116	SW6010B-Total	mg/kg									
Thallium	0.116	SW6020A-Total	mg/kg		0.056	0.128	0.096	0.011 J	0.06	0.08	0.07	
Vanadium	36.07	SW6010B-Total	mg/kg									
Vanadium	36.07	SW6020A-Total	mg/kg		19.5	11.4	29.3	1.72	30.8	23.5	21.2	
Zinc	128.7	SW6010B-Total	mg/kg									
Zinc	128.7	SW6020A-Total	mg/kg		50.1 J	87.6 J	119 J	1.2 J	81.8 J	92 J	54.1 J	
Arsenic Speciation												
Arsenate		EPA 1632-As-Cryo-S-Speciation	mg/kg									
Arsenite		EPA 1632-As3-CRYO-T	mg/kg									
Inorganic Arsenic		EPA 1632-Total Inorganic As - Solid	mg/kg									
Mercury Selective Sequential Extraction												
Hg(F0)		EPA 1631	ng/g									
Hg(F1)		BRL SOP No. BR-0013	ng/g									
Hg(F2)		BRL SOP No. BR-0013	ng/g									
Hg(F3)		BRL SOP No. BR-0013	ng/g									
Hg(F4)		BRL SOP No. BR-0013	ng/g									
Hg(F5)		BRL SOP No. BR-0013	ng/g									
Hg(F6)		BRL SOP No. BR-0013	ng/g									
Methylmercury												
Methylmercury	0.145	CAS SOP	ng/g						0.15 J			
Methylmercury	0.145	EPA 1630	ng/g									
Total Organic Carbon												
Carbon, Total Organic (TOC)		SW9060M-Total Organic Carbon, Modified for Matrix	%		0.274	0.313	0.643	0.379	0.326	0.722	0.567	

Key

Bold = detection

Gray shading = exceedance of background

% = percent

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

UJ = Indicates the compound of analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Table 4-34 Blueberry Leaves and Stems Vegetation Results		Background Screening Criteria	Station ID	Units	SM18	SM24
			Sample ID		11SM18BL	11SM24BL
Analyte	Method		Blueberry Leaves and Stems		Blueberry Leaves and Stems	
Total Metals						
Aluminum	56.7	SW6010B	mg/kg dry weight	59.7	64.6	
Antimony	0.441	SW6020A	mg/kg dry weight	0.096 J	0.131 J	
Arsenic	0.22	SW6020A	mg/kg dry weight	0.15 J	0.08 J	
Barium	56.4	SW6020A	mg/kg dry weight	68	50.4	
Beryllium	0.019	SW6020A	mg/kg dry weight	0.003 U	0.003 J	
Cadmium	0.416	SW6020A	mg/kg dry weight	1.2	0.332	
Calcium	3100	SW6010B	mg/kg dry weight	2400	2430	
Chromium	ND	SW6010B	mg/kg dry weight	0.2 J	0.2 U	
Cobalt	0.105	SW6020A	mg/kg dry weight	0.035	0.099	
Copper	7.87	SW6020A	mg/kg dry weight	3.58	5.97	
Iron	37.3	SW6010B	mg/kg dry weight	20.3	25.6	
Lead	0.085	SW6020A	mg/kg dry weight	0.061	0.067	
Magnesium	1600	SW6010B	mg/kg dry weight	902	1120	
Manganese	1530	SW6010B	mg/kg dry weight	1430	1630	
Mercury	0.05	SW7471B	mg/kg dry weight	0.034 J	0.023 J	
Nickel	2.01	SW6020A	mg/kg dry weight	6.68	1.89	
Potassium	5180	SW6010B	mg/kg dry weight	3930	4340	
Selenium	ND	SW7742	mg/kg dry weight	0.15 U	0.15 U	
Silver	0.035	SW6020A	mg/kg dry weight	0.008 U	0.008 U	
Sodium	24.67	SW6010B	mg/kg dry weight	12.9 J	12.2 J	
Thallium	0.019	SW6020A	mg/kg dry weight	0.005 J	0.006 J	
Vanadium	0.07	SW6020A	mg/kg dry weight	0.03 J	0.03 J	
Zinc	48.9	SW6020A	mg/kg dry weight	31.3 J	42.6 J	
Total Solids						
Total Solids		60°C Oven Dry	%	36.9	34.7	
Methylmercury (ng/g)						
Methylmercury	ND	CAS SOP	ng/g dry weight	4 U	4 U	

Key:

Bold = detection

% = percent

Gray shading = exceedance of background

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ND = non detect

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-35 Green Alder Bark Vegetation Results	Background Screening Criteria	Station ID	Units	MP20	MP27	MP34	MP38	MP44	SM07	SM11	SM18
		Sample ID		11MP20GA	11MP27GA	11MP34GA	11MP38GA	11MP44GA	11SM07GA	11SM11GA	11SM18GA
		Method		Green Alder Bark	Green Alder Bark	Green Alder Bark	Green Alder Bark	Green Alder Bark	Green Alder Bark	Green Alder Bark	Green Alder Bark
Analyte											
Total Metals											
Aluminum	8.7	SW6010B	mg/kg dry weight	8	8.4	9.2	12.2	3.7	17.3	24.2	9.7
Antimony	0.139	SW6020A	mg/kg dry weight	1.96 J	3.35 J	0.635 J	2.58 J	0.435 J	0.375 J	0.009 U	0.165 J
Arsenic	0.1	SW6020A	mg/kg dry weight	0.26	0.43	0.91	0.35	0.23 J	0.47 J	0.06 U	0.13 J
Barium	34	SW6020A	mg/kg dry weight	117	51.1	2.35	86.1	46.5	167	203	181
Beryllium	ND	SW6020A	mg/kg dry weight	0.003 U	0.003 U	0.013 J	0.003 U	0.005 J	0.015 J	0.003 U	0.007 J
Cadmium	0.029	SW6020A	mg/kg dry weight	0.036	0.003 U	0.014 J	0.003 U	0.056	0.107	0.061	0.129
Calcium	5070	SW6010B	mg/kg dry weight	5350	5050	5990	4650	4560	10300	5980	10800
Chromium	1.1	SW6010B	mg/kg dry weight	0.2 U	1.4 J	0.2 U	0.3 J	0.2 U	0.2 U	0.2 U	0.2 U
Cobalt	0.079	SW6020A	mg/kg dry weight	0.148	0.064	0.191	0.267 J	0.074	0.528	0.177	0.171
Copper	6.4	SW6020A	mg/kg dry weight	6.28	4.62	5.22	5.52	5.19	6.64	5.59	4.33
Iron	27.9	SW6010B	mg/kg dry weight	19.3	34.9	24.5	30.6	17.6	32.2	18.7	19.9
Lead	0.07	SW6020A	mg/kg dry weight	0.066	0.067	0.113	0.108	0.06	0.102	0.068	0.106
Magnesium	637	SW6010B	mg/kg dry weight	537	871	967	965	731	582	630	529
Manganese	229	SW6010B	mg/kg dry weight	602	91.2	477	197	707	1140	245	462
Mercury	0.056	SW7471B	mg/kg dry weight	0.157	0.243	0.289 J	0.252	0.027 J	0.043 J	0.036	0.017 J
Nickel	0.32	SW6020A	mg/kg dry weight	2.17	0.72	3.47	1.93	2.42	4.15	0.96	2.66
Potassium	2760	SW6010B	mg/kg dry weight	1680	2090	2220	2010	2610	2150	2070	1530
Selenium	ND	SW7742	mg/kg dry weight	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.03 U	0.22 J
Silver	ND	SW6020A	mg/kg dry weight	0.193	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U
Sodium	51.3 J	SW6010B	mg/kg dry weight	12.7 J	15.4 J	13.4 J	12.9 J	12.2 J	14.1 J	17 J	9.8 J
Thallium	ND	SW6020A	mg/kg dry weight	0.002 U	0.002 U	0.013 J	0.002 U	0.008 J	0.03	0.002 U	0.006 J
Vanadium	0.05	SW6020A	mg/kg dry weight	0.06	0.05	0.06 J	0.07	0.03 J	0.06 J	0.07	0.04 J
Zinc	66.9 J	SW6020A	mg/kg dry weight	43.7	42.4	35.9 J	43.5	54.9 J	108 J	43.4	49 J
Total Solids											
Total Solids		60°C Oven Dry	%	41.1	36.4	33.5	38.8	32.6	30.8	31.9	40.1
Methylmercury (ng/g)											
Methylmercury	ND	CAS SOP	ng/g dry weight		3.7 U	4 U			4 U	4 U	

Key:

Bold = detection

Gray shading = exceedance of background

% = percent

#

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ND = non detect

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-36 White Spruce Needles Vegetation Results	Background Screening Criteria	Station ID	Units	MP20	MP31	MP34	MP38	MP91	SM07	SM11	SM18
		Sample ID		11MP20WS	11MP31WS	11MP34WS	11MP38WS	11MP91WS	11SM07WS	11SM11WS	11SM18WS
		Method		White Spruce Needles	White Spruce Needles	White Spruce Needles	White Spruce Needles	White Spruce Needles	White Spruce Needles	White Spruce Needles	White Spruce Needles
Analyte											
Total Metals											
Aluminum	68.8	SW6010B	mg/kg dry weight	172	15	7.5	52.8	5.1	0.4 U	56.5	8.6
Antimony	1.49	SW6020A	mg/kg dry weight	0.667 J	1.22 J	0.686 J	15.1 J	0.343 J	0.226 J	0.199 J	0.573 J
Arsenic	0.11	SW6020A	mg/kg dry weight	0.82	0.71	0.41 J	11.1	0.23 J	0.31	0.11 J	0.13
Barium	80.4	SW6020A	mg/kg dry weight	70.8	14.4	4.16	36.2	37.4	57.1	23	85.3
Beryllium	0.007	SW6020A	mg/kg dry weight	0.008 J	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.008 J	0.003 U
Cadmium	0.032	SW6020A	mg/kg dry weight	0.069	0.191	0.028	0.017	0.052	0.053	0.01 J	0.043
Calcium	7590	SW6010B	mg/kg dry weight	9920	5790	6710	4650	3940	6810	4650	6610
Chromium	ND	SW6010B	mg/kg dry weight	0.5 J	0.2 U	0.2 U	1.3 J	0.2 U	0.7 J	0.2 U	0.8
Cobalt	0.094	SW6020A	mg/kg dry weight	0.303	0.258	0.224	0.217	0.074	0.14	0.051	0.106
Copper	2.335	SW6020A	mg/kg dry weight	4.42	2.41	2.13	2.26	2.77	2.04	1.32	1.22
Iron	24.96	SW6010B	mg/kg dry weight	201	31.8	23.3	206	20.2	29.4	29.9	20.1
Lead	0.044	SW6020A	mg/kg dry weight	0.466	0.05	0.053	0.128	0.027 J	0.02	0.039 J	0.034
Magnesium	988	SW6010B	mg/kg dry weight	958	548	773	894	904	637	683	600
Manganese	1590	SW6010B	mg/kg dry weight	1340	2990	963	162	218	810	312	589
Mercury	0.056	SW7471B	mg/kg dry weight	0.641 J	0.965	0.264 J	5.64	0.036 J	0.04	0.032 J	0.05
Nickel	1.39	SW6020A	mg/kg dry weight	5.23	4.28	3.26	4.35	1.29	4.02	0.67	6.35
Potassium	5930	SW6010B	mg/kg dry weight	4300	5700	6090	7000	7740	4030	3450	4500
Selenium	ND	SW7742	mg/kg dry weight	0.15 U	0.03 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Silver	0.154	SW6020A	mg/kg dry weight	0.016 J	0.029	0.016 J	0.114	0.016 J	0.034	0.008 U	0.043
Sodium	13.5	SW6010B	mg/kg dry weight	24.8 J	13.9 J	8.6 J	6.2 J	6 J	7.1 J	9.5 J	5 J
Thallium	0.015	SW6020A	mg/kg dry weight	0.002 U	0.002 U	0.002 U	0.021 J	0.005 J	0.002 U	0.002 U	0.002 U
Vanadium	0.05	SW6020A	mg/kg dry weight	0.47	0.05	0.04 J	0.21	0.03 J	0.03	0.04 J	0.03
Zinc	54.8	SW6020A	mg/kg dry weight	44.8 J	19.4	18.4 J	44.7	53.2 J	35.6	19 J	48.5
Total Solids											
Total Solids		60°C Oven Dry	%	28.7	31.7	37.1	39.6	32.3	36.6	36.2	40.4
Methylmercury (ng/g)											
Methylmercury	ND	CAS SOP	ng/g dry weight	3.9 U		3.9 U			3.7 U	4 U	

Key:

Bold = detection

Gray shading = exceedance of background

% = percent

J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ND = non detect

ng/g = nanograms per gram

U = Analyte was analyzed for but not detected. Value provided is reporting limit.

Table 4-37 Horestail Pond Vegetation Results	Background Screening Criteria	Station ID	Units	MP84	MP85	MP86	MP87
		Sample ID		11MP84PV	11MP85PV	11MP86PV	11MP87PV
		Method		Horsetail Pond Veg	Horsetail Pond Veg	Horsetail Pond Veg	Horsetail Pond Veg
Analyte							
Total Metals							
Aluminum	292	SW6010B	mg/kg dry weight	74.3	12.2	8.3	54.6
Antimony	1.05	SW6020A	mg/kg dry weight	4.92 J	42.2 J	97.4 J	71.3 J
Arsenic	3.23	SW6020A	mg/kg dry weight	32.1	175	309	72.5
Barium	120	SW6020A	mg/kg dry weight	28.2	18.2	23.1	30
Beryllium	0.013 J	SW6020A	mg/kg dry weight	0.006 J	0.003 J	0.004 J	0.005 J
Cadmium	0.053	SW6020A	mg/kg dry weight	0.22	0.017 J	0.009 J	0.01 J
Calcium	20300	SW6010B	mg/kg dry weight	13300	15700	14100	14700
Chromium	0.5 J	SW6010B	mg/kg dry weight	0.2 U	0.2 U	0.2 J	0.2 U
Cobalt	0.77	SW6020A	mg/kg dry weight	0.438	0.886	0.308	0.62
Copper	5.02	SW6020A	mg/kg dry weight	9.62	5.48	3.4	3.67
Iron	618	SW6010B	mg/kg dry weight	282	124	163	177
Lead	0.207	SW6020A	mg/kg dry weight	1.18	0.395	0.32	0.472
Magnesium	6020	SW6010B	mg/kg dry weight	6340	9870	13400	9990
Manganese	1480	SW6010B	mg/kg dry weight	199	145	46.8	71
Mercury	0.071 J	SW7471B	mg/kg dry weight	2.7 J	3.17 J	0.923 J	0.78 J
Nickel	1.45	SW6020A	mg/kg dry weight	1.11	3.09	3.14	3.06
Potassium	15300	SW6010B	mg/kg dry weight	22300	39500	30300	15400
Selenium	0.18 J	SW7742	mg/kg dry weight	0.81	0.15 U	0.15 U	0.15 U
Silver	0.048	SW6020A	mg/kg dry weight	0.008 U	0.008 U	0.008 U	0.008 U
Sodium	2010	SW6010B	mg/kg dry weight	377	76.8	57.1	56
Thallium	0.018 J	SW6020A	mg/kg dry weight	0.017 J	0.066	0.083	0.026
Vanadium	0.73	SW6020A	mg/kg dry weight	0.29	0.05 J	0.09 J	0.17 J
Zinc	38.2 J	SW6020A	mg/kg dry weight	55.7 J	45 J	36 J	44.2 J
Total Solids							
Total Solids		60°C Oven Dry	%	10.3	15.9	19	25.8
Methylmercury (ng/g)							
Methylmercury	ND	CAS SOP	ng/g dry weight	6.9 J			

Key:

Bold = detection

Gray shading = exceedance of background

% = percent

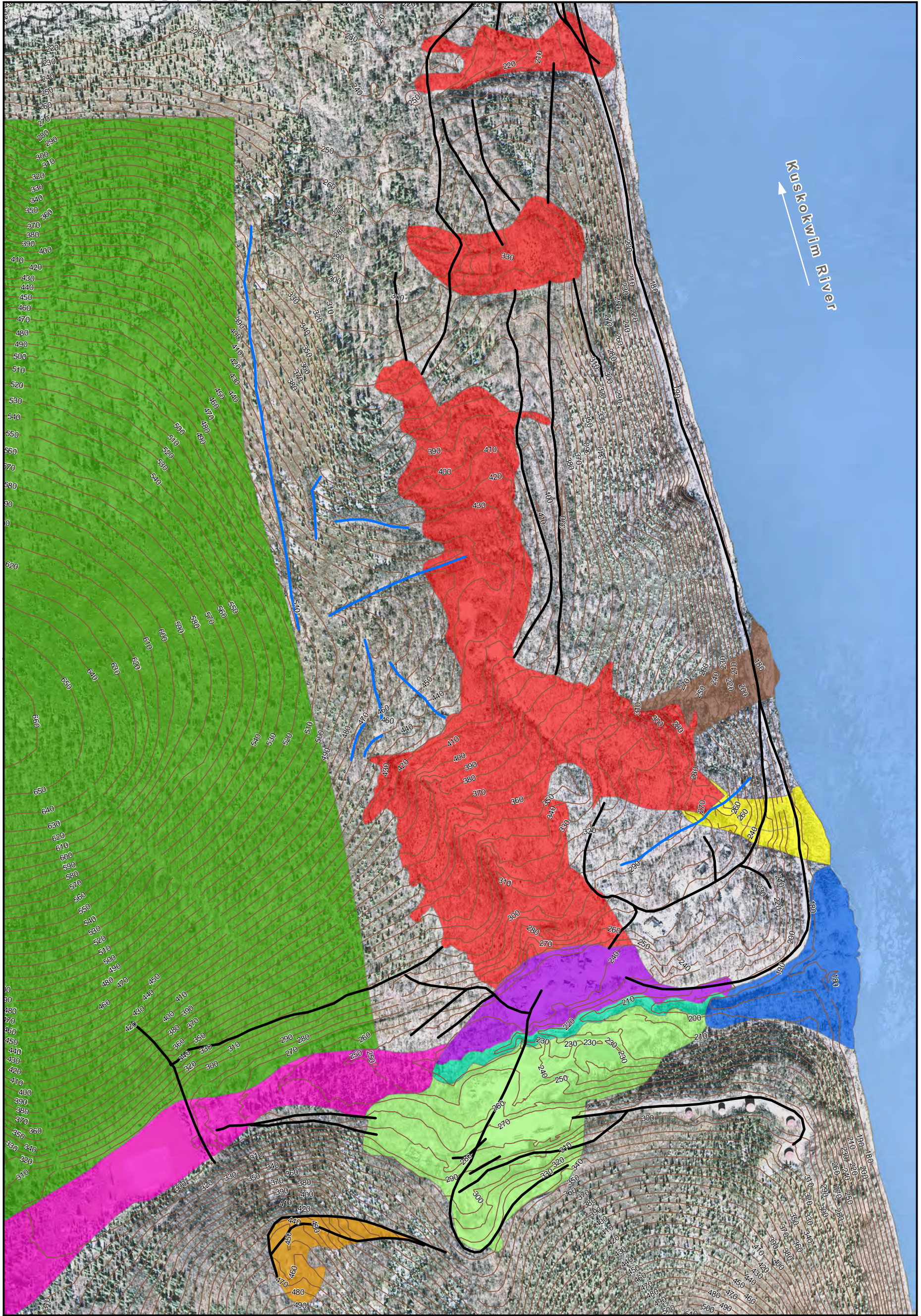
J = Analyte detected but relative percent difference was outside control limits; therefore, concentration is estimated.

mg/kg = milligrams per kilogram

ND = non detect

ng/g = nanograms per gram

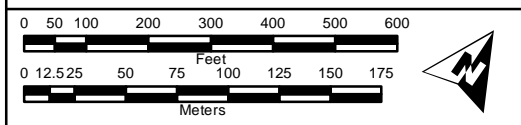
U = Analyte was analyzed for but not detected. Value provided is reporting limit.

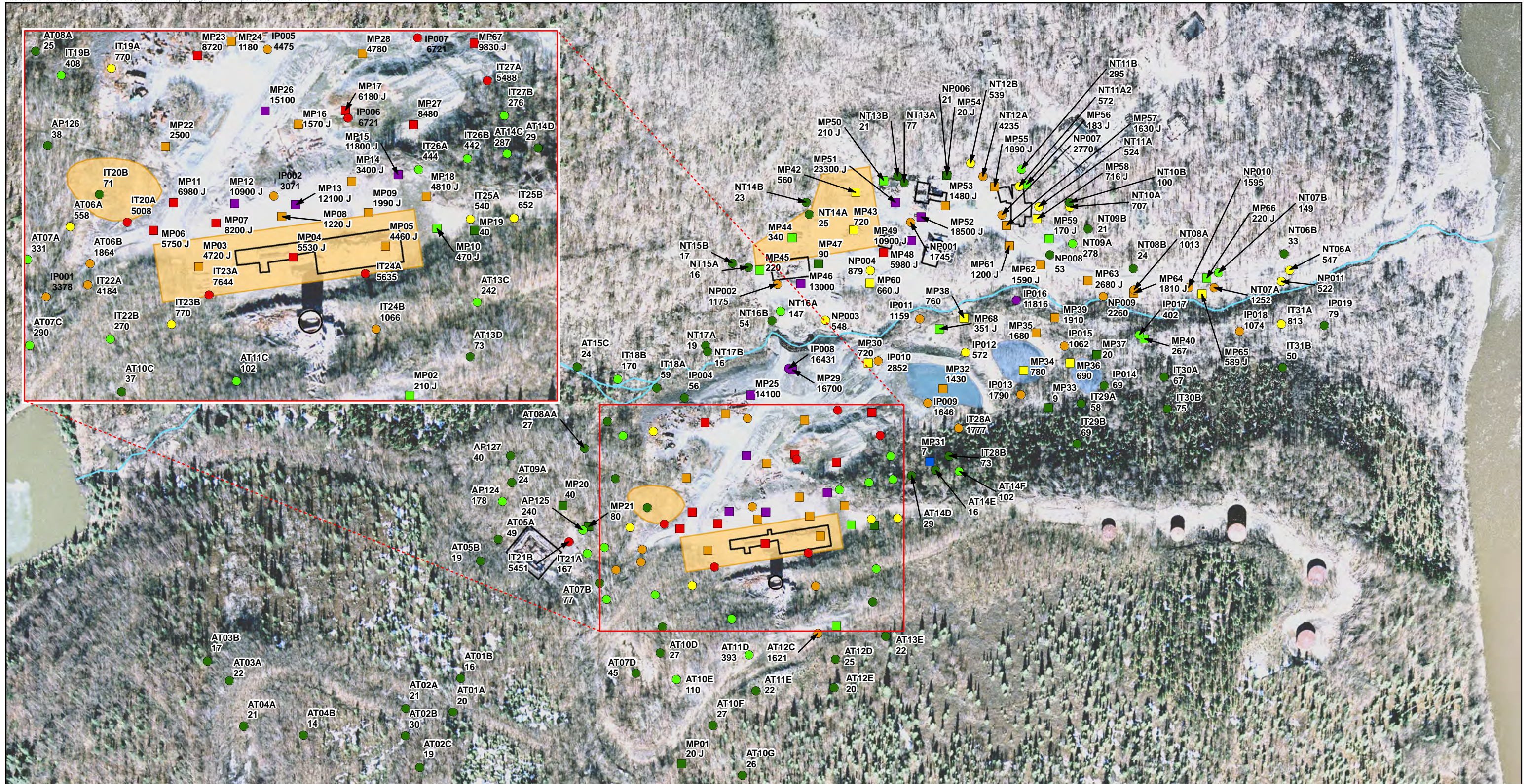


- | | |
|---|--|
| — Access Road | Red Devil Creek Downstream Alluvial Area and Delta |
| — Exploration Trench | Red Devil Creek Upstream Alluvial Area |
| Area of Surface Mining | Rice Sluice and Delta |
| Area of Surface Exploration South of the Post-1955 Main Processing Area | Upland Background Area |
| Dolly Sluice and Delta | — Topographic Contour (10 ft. interval) |
| Kuskokwim River | |
| Post-1955 Main Processing Area | |
| Pre-1955 Main Processing Area | |
| Red Devil Creek | |

RED DEVIL MINE
Red Devil, Alaska

Figure 4-1
Geographic Areas of Site





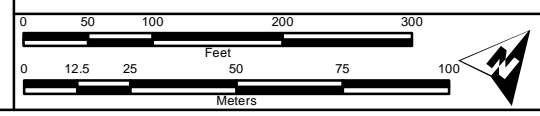
- < 8 mg/kg
- 8 - 100 mg/kg
- 100 - 500 mg/kg
- 500 - 1,000 mg/kg
- 1,000 - 5,000 mg/kg
- 5,000 - 10,000 mg/kg
- > 10,000 mg/kg

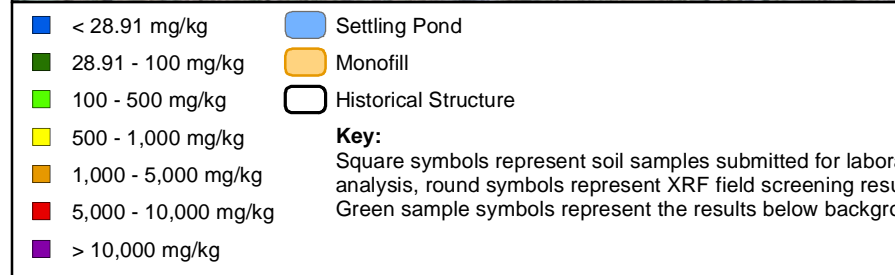
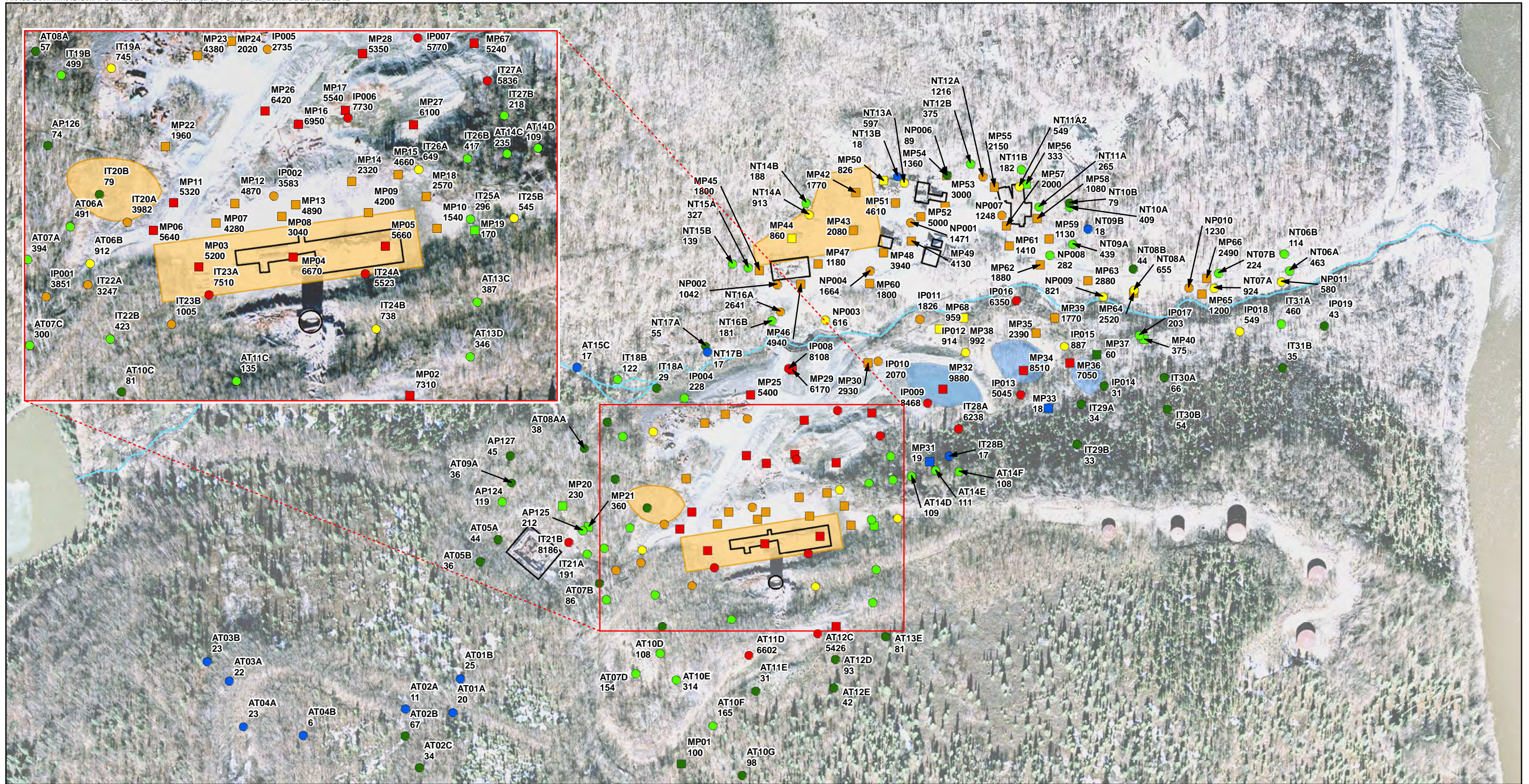
- Settling Pond
- Monofill
- Historical Structure

Key:
 Square symbols represent soil samples submitted for laboratory analysis, round symbols represent XRF field screening results.
 Green sample symbols represent the results below background value.

RED DEVIL MINE
 Red Devil, Alaska

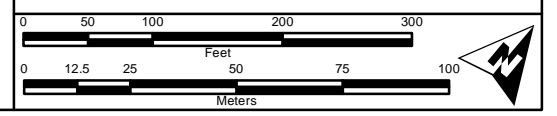
Figure 4-2
 Surface Soil Sample Results
 Main Processing Area
 Antimony

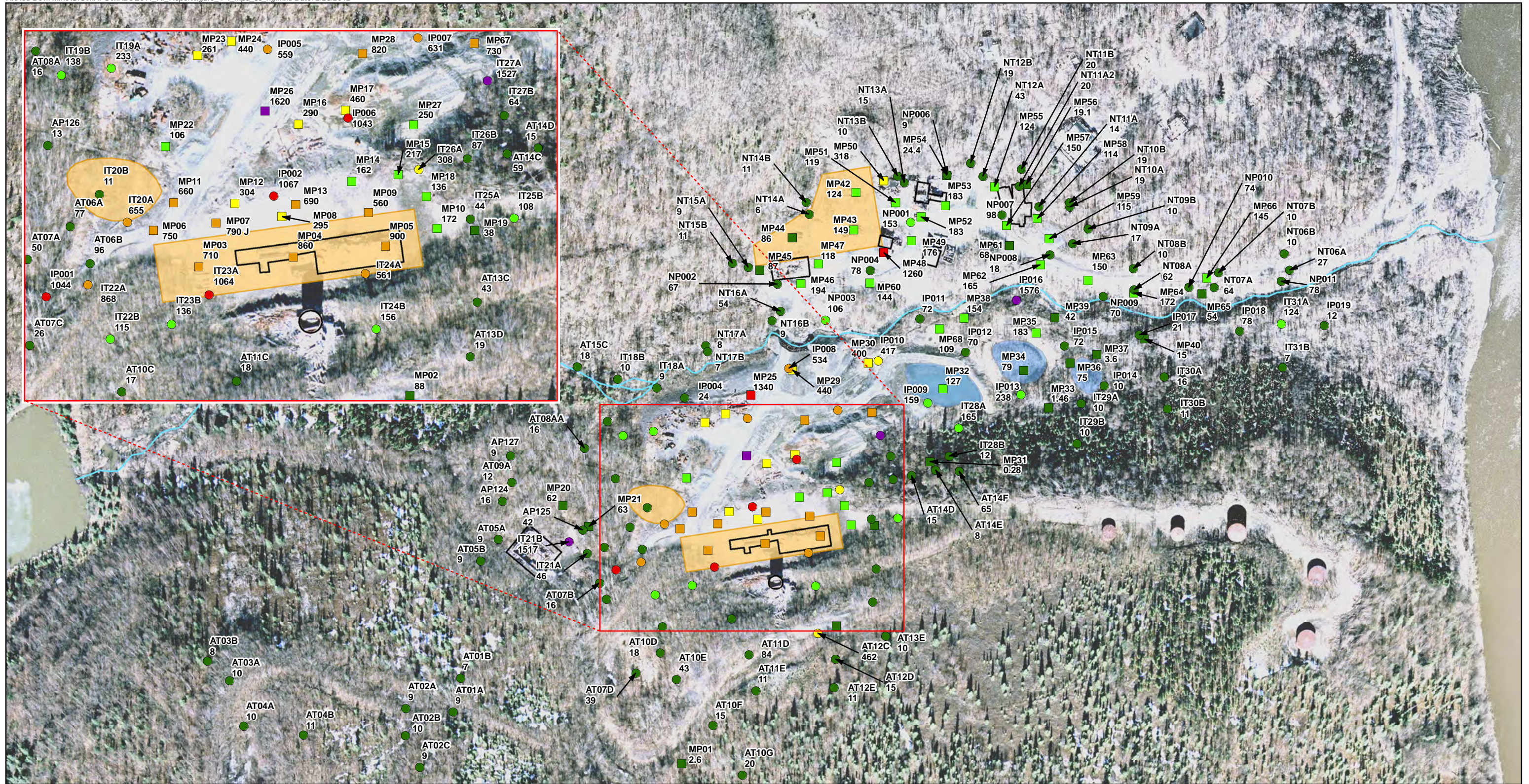




RED DEVIL MINE
 Red Devil, Alaska

Figure 4-3
 Surface Soil Sample Results
 Main Processing Area
 Arsenic



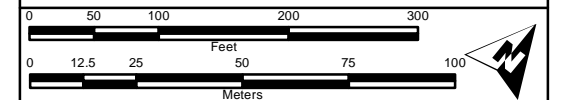


RED DEVIL MINE
 Red Devil, Alaska

Figure 4-4
 Surface Soil Sample Results
 Main Processing Area
 Mercury

- < 1.86 mg/kg
- 1.86 - 100 mg/kg
- 100 - 250 mg/kg
- 250 - 500 mg/kg
- 500 - 1,000 mg/kg
- 1,000 - 1,500 mg/kg
- > 1,500 mg/kg
- Settling Pond
- Monofill
- Historical Structure

Key:
 Square symbols represent soil samples submitted for laboratory analysis, round symbols represent XRF field screening results.
 Green sample symbols represent the results below background value.





<ul style="list-style-type: none"> ■ < 8 mg/kg ■ 8 - 100 mg/kg ■ 100 - 500 mg/kg ■ 500 - 1,000 mg/kg ■ 1,000 - 5,000 mg/kg ■ 5,000 - 10,000 mg/kg ■ > 10,000 mg/kg 	<ul style="list-style-type: none"> ■ Settling Pond ■ Monofill Historical Structure <p>Key: Square symbols represent soil samples submitted for laboratory analysis, round symbols represent XRF field screening results. Green sample symbols represent the results below background value.</p>	<p>RED DEVIL MINE Red Devil, Alaska</p>
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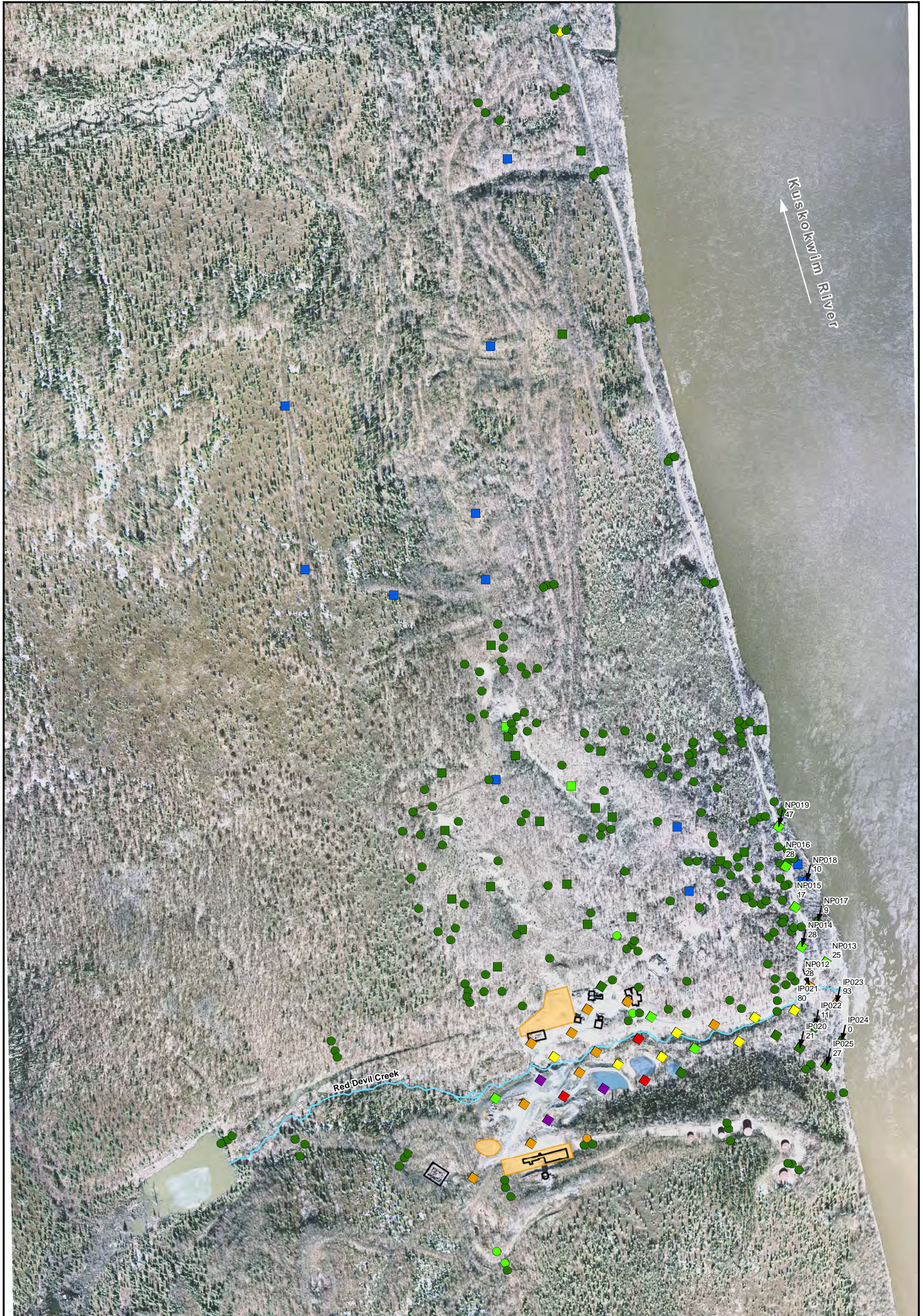
Figure 4-5
Surface Soil Sample Results
Outside Main Processing Area
Antimony

Scale 1:4,000



<ul style="list-style-type: none"> ■ < 28.91 mg/kg ■ 28.91 - 100 mg/kg ■ 100 - 500 mg/kg ■ 500 - 1,000 mg/kg ■ 1,000 - 5,000 mg/kg ■ 5,000 - 10,000 mg/kg ■ > 10,000 mg/kg 	<ul style="list-style-type: none"> Settling Pond Monofill Historical Structure <p>Key: Square symbols represent soil samples submitted for laboratory analysis, round symbols represent XRF field screening results. Green sample symbols represent the results below background value.</p>	<p>RED DEVIL MINE Red Devil, Alaska</p>	<p>Figure 4-6 Surface Soil Sample Results Outside Main Processing Area Arsenic</p>
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Scale 1:4,000



■ < 1.86 mg/kg	■ Settling Pond
■ 1.86 - 100 mg/kg	■ Monofill
■ 100 - 250 mg/kg	 Historical Structure
■ 250 - 500 mg/kg	
■ 500 - 1,000 mg/kg	
■ 1,000 - 1,500 mg/kg	
■ > 1,500 mg/kg	

Key:
 Square symbols represent soil samples submitted for laboratory analysis, round symbols represent XRF field screening results. Green sample symbols represent the results below background value.

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-7
Surface Soil Sample Results
Outside Main Processing Area
Mercury

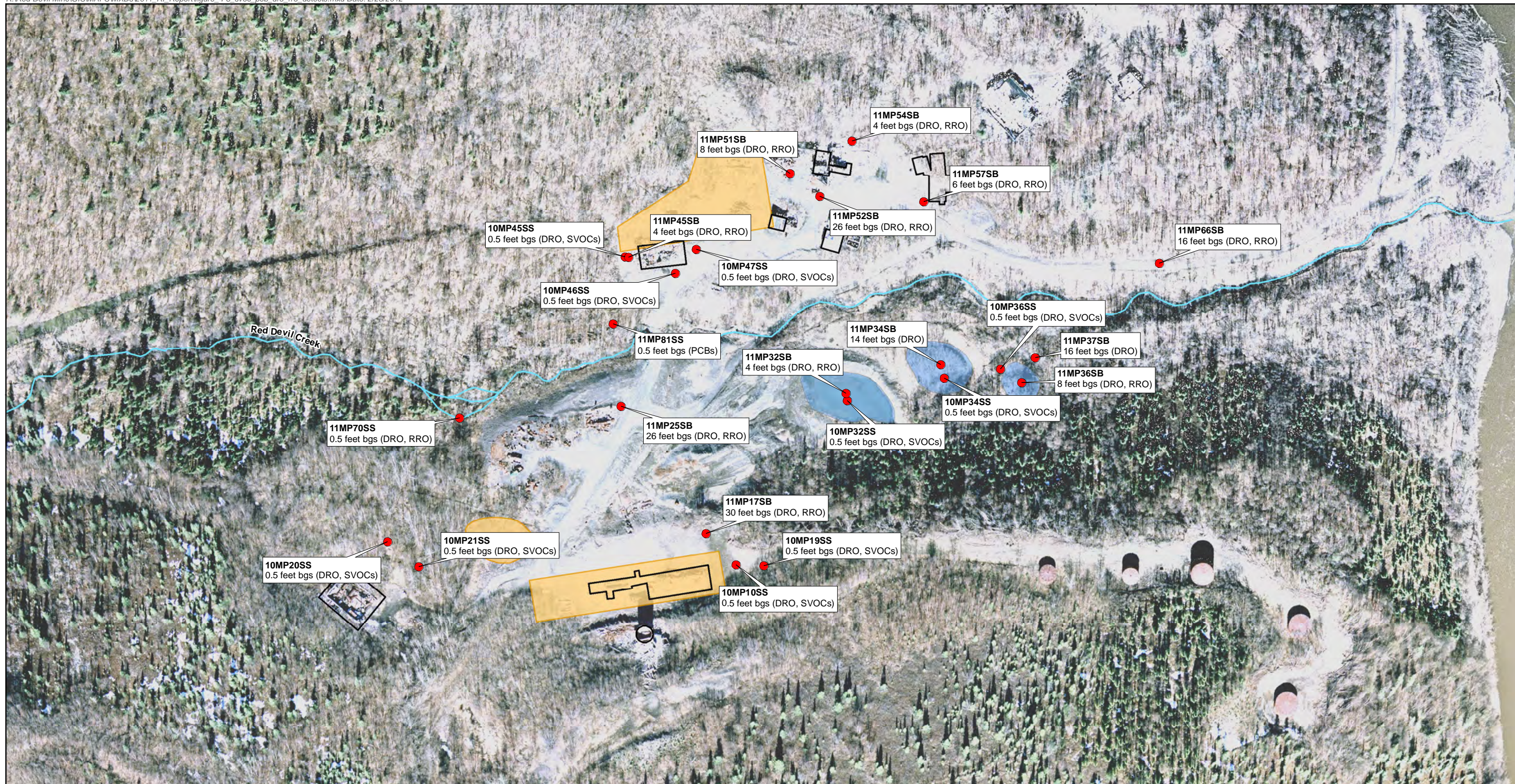
0 100 200 400 600

0 25 50 100 150 200

Feet

Meters

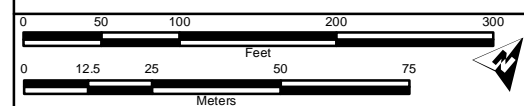
Scale 1:4,000



- Sample Detected Result Location
- Settling Pond
- Monofill
- Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-8
 SVOC's, DRO, RRO, and PCB's
 Detected Results

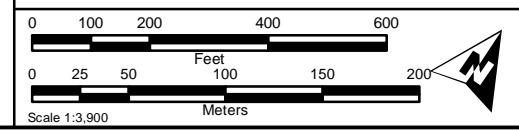




- XRF Road Sample Result Location (ppm)
- Settling Pond
- Monofill
- Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-9
XRF Road Sample Results

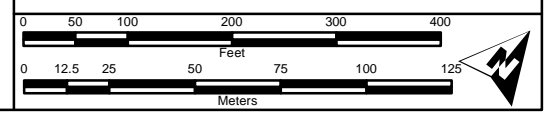




Groundwater Result	Surface Water Result	Settling Pond
■ < 1.59 ug/L	● < 1.52 ug/L	■ Settling Pond
■ 1.59 - 100 ug/L	● 1.52 - 100 ug/L	■ Monofill
■ 100 - 500 ug/L	● 100 - 500 ug/L	□ Historical Structure
■ 500 - 1,000 ug/L	● 500 - 1,000 ug/L	
■ 1,000 - 5,000 ug/L	● 1,000 - 5,000 ug/L	
■ 5,000 - 10,000 ug/L	● 5,000 - 10,000 ug/L	
■ > 10,000 ug/L	● > 10,000 ug/L	

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-10
 2010 Groundwater Sample Results
 (with Surface Water Results Shown)
 Total Antimony

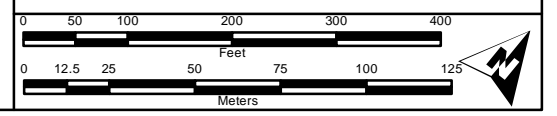




Groundwater Result	Surface Water Result	Settling Pond
■ < 0.6 ug/L	● < 1.1 ug/L	■ Settling Pond
■ 0.6 - 100 ug/L	● 1.1 - 100 ug/L	■ Monofill
■ 100 - 500 ug/L	● 100 - 500 ug/L	□ Historical Structure
■ 500 - 1,000 ug/L	● 500 - 1,000 ug/L	
■ 1,000 - 5,000 ug/L	● 1,000 - 5,000 ug/L	
■ 5,000 - 10,000 ug/L	● 5,000 - 10,000 ug/L	
■ > 10,000 ug/L	● > 10,000 ug/L	

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-11
 2010 Groundwater Sample Results
 (with Surface Water Results Shown)
 Total Arsenic

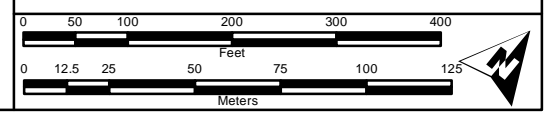




Groundwater Result	Surface Water Result	Symbol
< 0.0584 ng/L	< 0.00263 ng/L	Light Blue Square
0.0584 - 1,000 ng/L	0.00263 - 1,000 ng/L	Orange Square
1,000 - 2,000 ng/L	1,000 - 2,000 ng/L	Light Green Square
2,000 - 5,000 ng/L	2,000 - 5,000 ng/L	Yellow Square
5,000 - 10,000 ng/L	5,000 - 10,000 ng/L	Light Orange Square
10,000 - 50,000 ng/L	10,000 - 50,000 ng/L	Red Square
> 50,000 ng/L	> 50,000 ng/L	Purple Square
		Blue Polygon
		Orange Polygon
		Black Outline

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-12
 2010 Groundwater Sample Results
 (with Surface Water Results Shown)
 Total Mercury

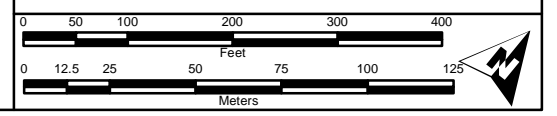




Groundwater Result	Surface Water Result	Symbol
■ < 1.58 ug/L	● < 1.4 ug/L	■ Settling Pond
■ 1.58 - 100 ug/L	● 1.4 - 100 ug/L	■ Monofill
■ 100 - 500 ug/L	● 100 - 500 ug/L	□ Historical Structure
■ 500 - 1,000 ug/L	● 500 - 1,000 ug/L	
■ 1,000 - 5,000 ug/L	● 1,000 - 5,000 ug/L	
■ 5,000 - 10,000 ug/L	● 5,000 - 10,000 ug/L	
■ > 10,000 ug/L	● > 10,000 ug/L	

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-13
 2010 Groundwater Sample Results
 (with Surface Water Results Shown)
 Dissolved Antimony





Groundwater Result	Surface Water Result	Settling Pond
Blue square: < 0.5 ug/L	Blue circle: < 0.9 ug/L	Blue square: Settling Pond
Green square: 0.5 - 100 ug/L	Green circle: 0.9 - 100 ug/L	Orange square: Monofill
Light green square: 100 - 500 ug/L	Light green circle: 100 - 500 ug/L	Black outline: Historical Structure
Yellow square: 500 - 1,000 ug/L	Yellow circle: 500 - 1,000 ug/L	
Orange square: 1,000 - 5,000 ug/L	Orange circle: 1,000 - 5,000 ug/L	
Red square: 5,000 - 10,000 ug/L	Red circle: 5,000 - 10,000 ug/L	
Purple square: > 10,000 ug/L	Purple circle: > 10,000 ug/L	

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-14
 2010 Groundwater Sample Results
 (with Surface Water Results Shown)
 Dissolved Arsenic

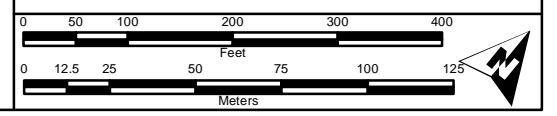


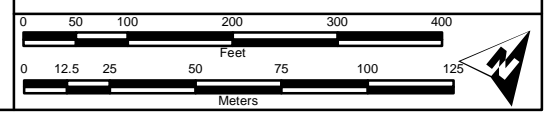
Image Source: Aero-Metric, Inc 5/29/2001



Groundwater Result	Surface Water Result	Symbol	Description
■ < 0.001 ng/L	● < 0.00637 ng/L	■	Settling Pond
■ 0.001 - 1000 ng/L	● 0.00637 - 1,000 ng/L	■	Monofill
■ 1,000 - 2,000 ng/L	● 1,000 - 2,000 ng/L	■	Historical Structure
■ 2,000 - 5,000 ng/L	● 2,000 - 5,000 ng/L		
■ 5,000 - 10,000 ng/L	● 5,000 - 10,000 ng/L		
■ 10,000 - 50,000 ng/L	● 10,000 - 50,000 ng/L		
■ > 50,000 ng/L	● > 50,000 ng/L		

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-15
 2010 Groundwater Sample Results
 (with Surface Water Results Shown)
 Dissolved Mercury

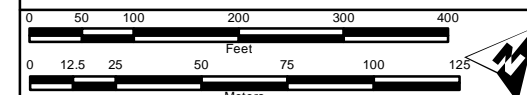




Groundwater Result	Surface Water Result	Symbol
< 1.59 ug/L	< 1.52 ug/L	Blue diamond
1.59 ug/L - 100 ug/L	1.52 - 100 ug/L	Green diamond
100 - 500 ug/L	100 - 500 ug/L	Light green diamond
500 - 1,000 ug/L	500 - 1,000 ug/L	Yellow diamond
1,000 - 5,000 ug/L	1,000 - 5,000 ug/L	Orange diamond
5,000 - 10,000 ug/L	5,000 - 10,000 ug/L	Red diamond
> 10,000 ug/L	< 10,000 ug/L	Purple diamond
		Blue square
		Orange polygon
		Black outline

RED DEVIL MINE
Red Devil, Alaska

Figure 4-16
2011 Groundwater Sample Results
(with Surface Water Results Shown)
Total Antimony

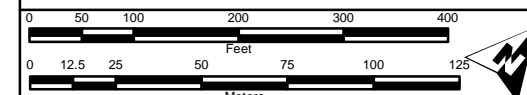




Groundwater Result	Surface Water Result	Symbol
Blue square: < 0.6 ug/L	Blue circle: < 1.1 ug/L	Light blue square: Settling Pond
Green square: 0.6 - 100 ug/L	Green circle: 1.1 - 100 ug/L	Orange square: Monofill
Light green square: 100 - 500 ug/L	Light green circle: 100 - 500 ug/L	Black outline: Historical Structure
Yellow square: 500 - 1,000 ug/L	Yellow circle: 500 - 1,000 ug/L	
Orange square: 1,000 - 5,000 ug/L	Orange circle: 1,000 - 5,000 ug/L	
Red square: 5,000 - 10,000 ug/L	Red circle: 5,000 - 10,000 ug/L	
Purple square: > 10,000 ug/L	Purple circle: > 10,000 ug/L	

RED DEVIL MINE
Red Devil, Alaska

Figure 4-17
2011 Groundwater Sample Results
(with Surface Water Results Shown)
Total Arsenic



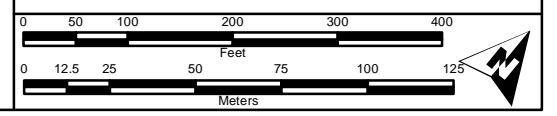


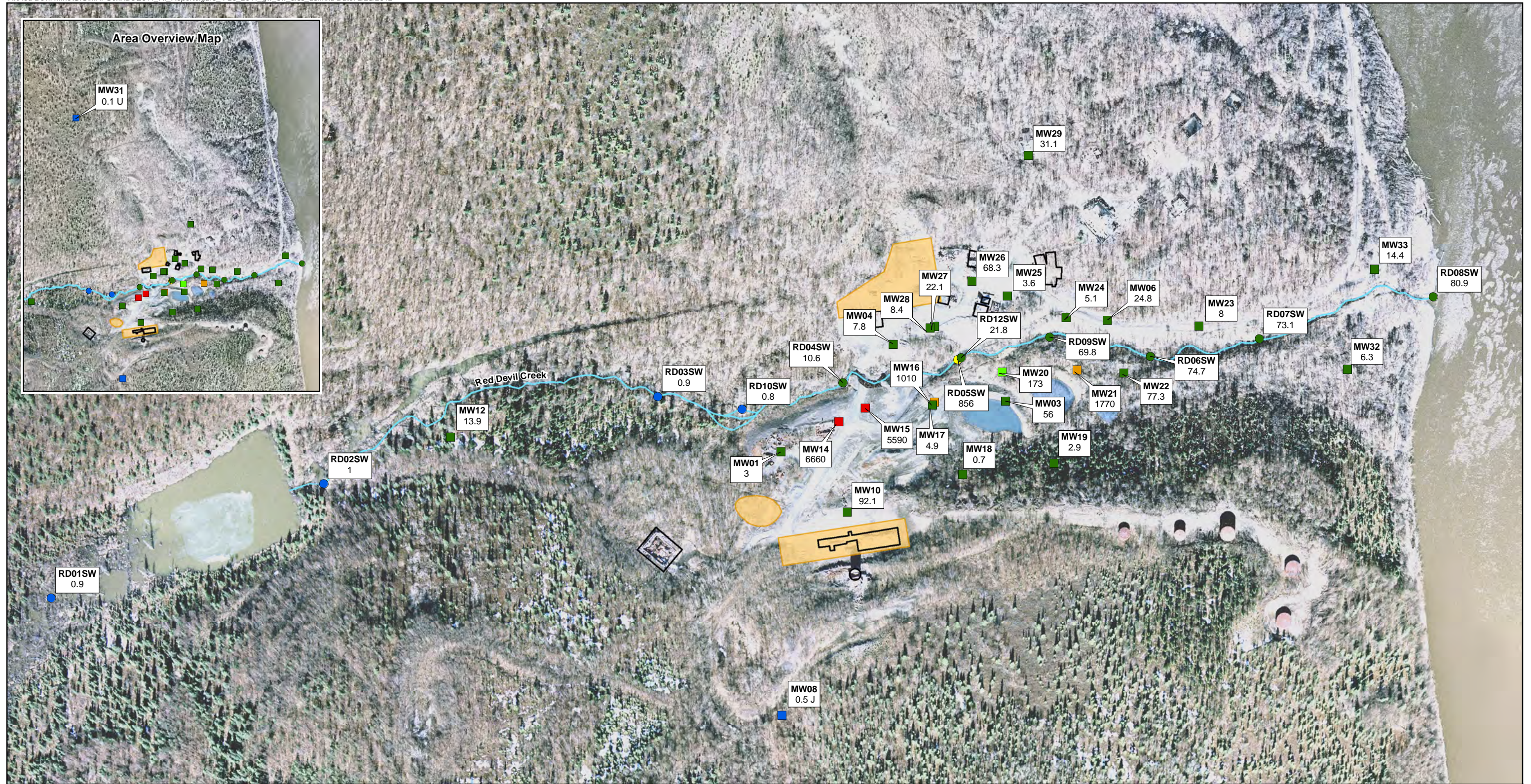


Groundwater Result	Surface Water Result	Settling Pond
■ < 1.58 ug/L	● < 1.4 ug/L	■ Settling Pond
■ 1.58 - 100 ug/L	● 1.4 - 100 ug/L	■ Monofill
■ 100 - 500 ug/L	● 100 - 500 ug/L	■ Historical Structure
■ 500 - 1,000 ug/L	● 500 - 1,000 ug/L	
■ 1,000 - 5,000 ug/L	● 1,000 - 5,000 ug/L	
■ 5,000 - 10,000 ug/L	● 5,000 - 10,000 ug/L	
■ > 10,000 ug/L	● > 10,000 ug/L	

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-19
 2011 Groundwater Sample Results
 (with Surface Water Results Shown)
 Dissolved Antimony

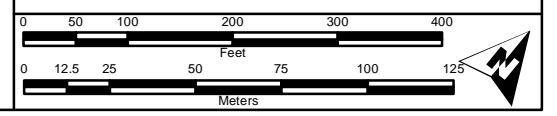




Groundwater Result	Surface Water Result	Symbol
Blue square: < 0.6 ug/L	Blue circle: < 1.1 ug/L	Light blue square: Settling Pond
Green square: 0.6 - 100 ug/L	Green circle: 1.1 - 100 ug/L	Orange square: Monofill
Light green square: 100 - 500 ug/L	Light green circle: 100 - 500 ug/L	Black outline: Historical Structure
Yellow square: 500 - 1,000 ug/L	Yellow circle: 500 - 1,000 ug/L	
Orange square: 1,000 - 5,000 ug/L	Orange circle: 1,000 - 5,000 ug/L	
Red square: 5,000 - 10,000 ug/L	Red circle: 5,000 - 10,000 ug/L	
Purple square: > 10,000 ug/L	Purple circle: > 10,000 ug/L	

RED DEVIL MINE
Red Devil, Alaska

Figure 4-20
2011 Groundwater Sample Results
(with Surface Water Results Shown)
Dissolved Arsenic

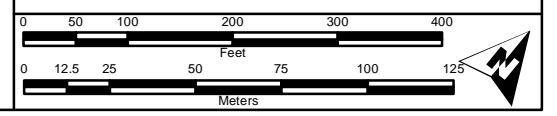




Groundwater Result	Surface Water Result	Settling Pond
■ < 0.001 ng/L	● < 0.00637 ng/L	■ Settling Pond
■ 0.001 - 1,000 ng/L	● 0.00637 - 1,000 ng/L	■ Monofill
■ 1,000 - 2,000 ng/L	● 1,000 - 2,000 ng/L	□ Historical Structure
■ 2,000 - 5,000 ng/L	● 2,000 - 5,000 ng/L	
■ 5,000 - 10,000 ng/L	● 5,000 - 10,000 ng/L	
■ 10,000 - 50,000 ng/L	● 10,000 - 50,000 ng/L	
■ > 50,000 ng/L	● > 50,000 ng/L	

RED DEVIL MINE
Red Devil, Alaska

Figure 4-21
2011 Groundwater Sample Results
(with Surface Water Results Shown)
Dissolved Mercury

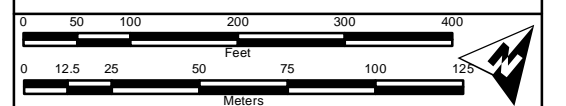




- Surface Water Sample Location
- Settling Pond
- Monofill
- Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-22
 2010 and 2011 Red Devil Creek
 Surface Water Results for Total Arsenic,
 Total Antimony, Total Mercury, and
 Sediment Grainsize





- Surface Water Sample Location
- Settling Pond
- Monofill
- Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-23
 2010 and 2011 Red Devil Creek
 Surface Water Results for Dissolved
 Arsenic, Dissolved Antimony, Dissolved
 Mercury and Sediment Grain Size

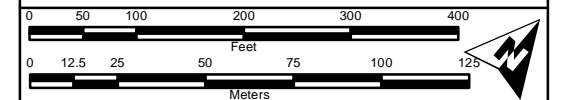


Figure 4-24
 Concentration Versus Linear Distance Chart of 2010 Total Arsenic, Antimony, Mercury,
 and Methyl Mercury in Red Devil Creek Surface Water

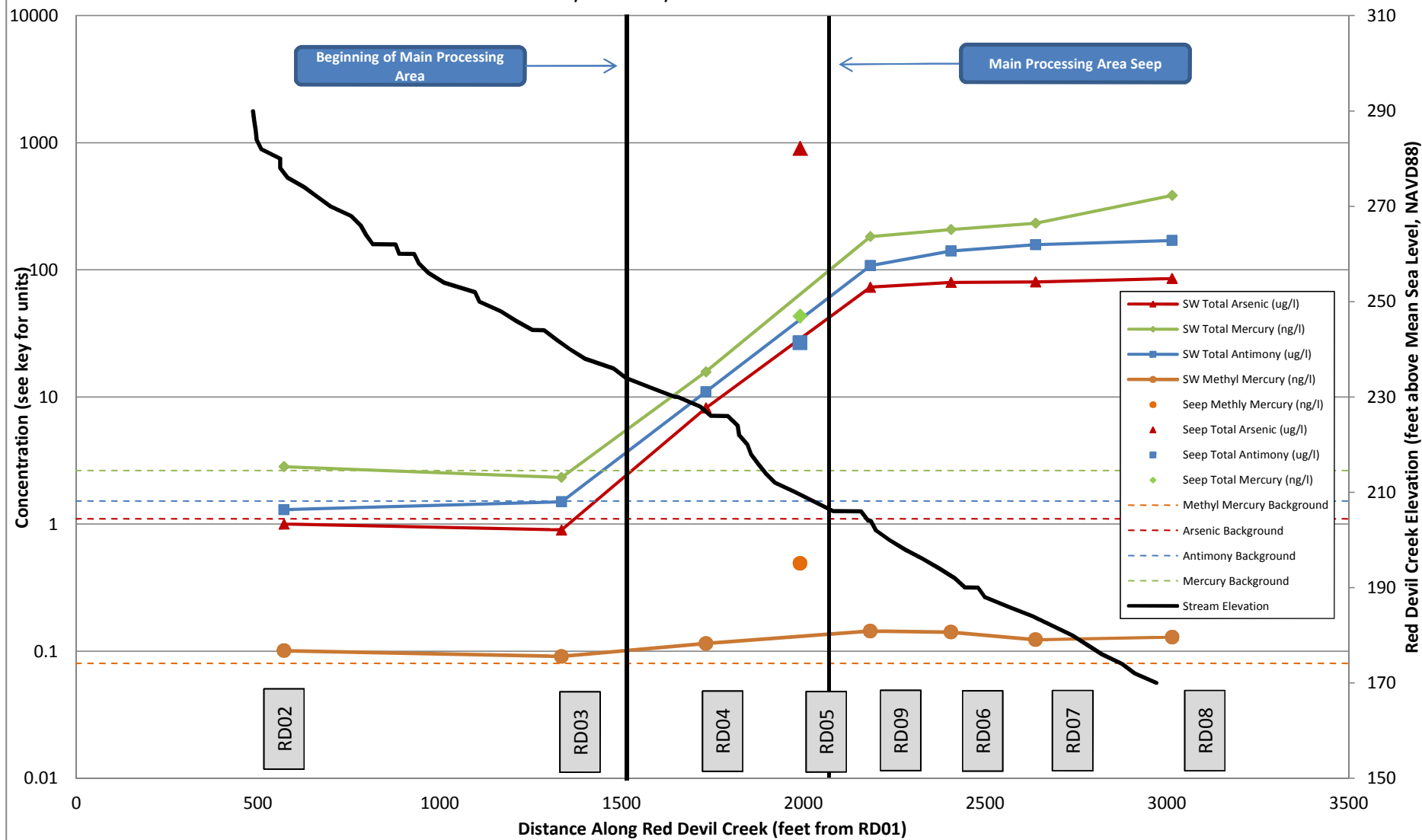


Figure 4-25
 Concentration Versus Linear Distance Chart of 2010 Dissolved Arsenic, Antimony, Mercury, and Methyl Mercury in Red Devil Creek Surface Water

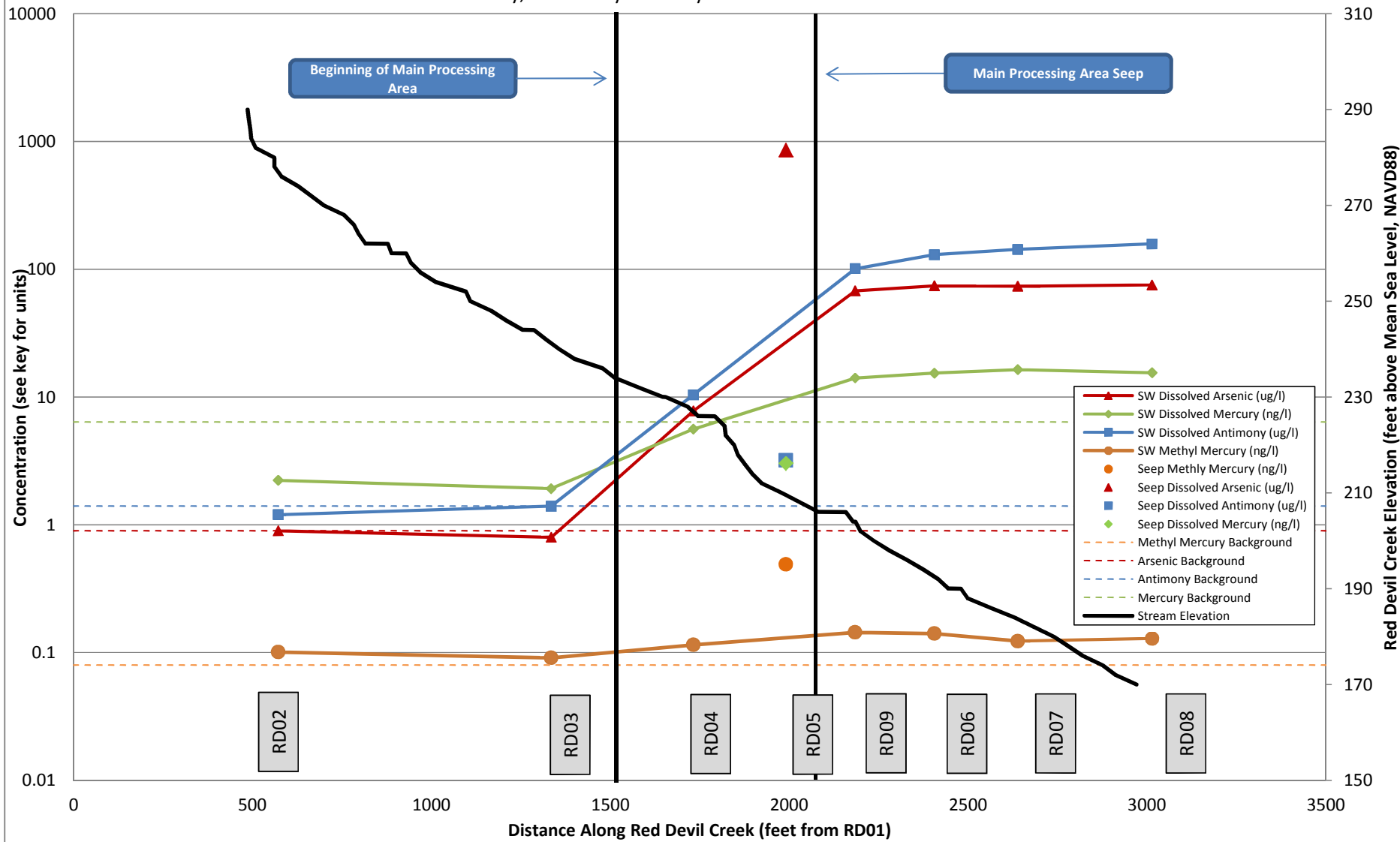


Figure 4-26
 Concentration Versus Linear Distance Chart of 2011 Total Arsenic, Antimony, Mercury, and Methyl Mercury in Red Devil Creek Surface Water

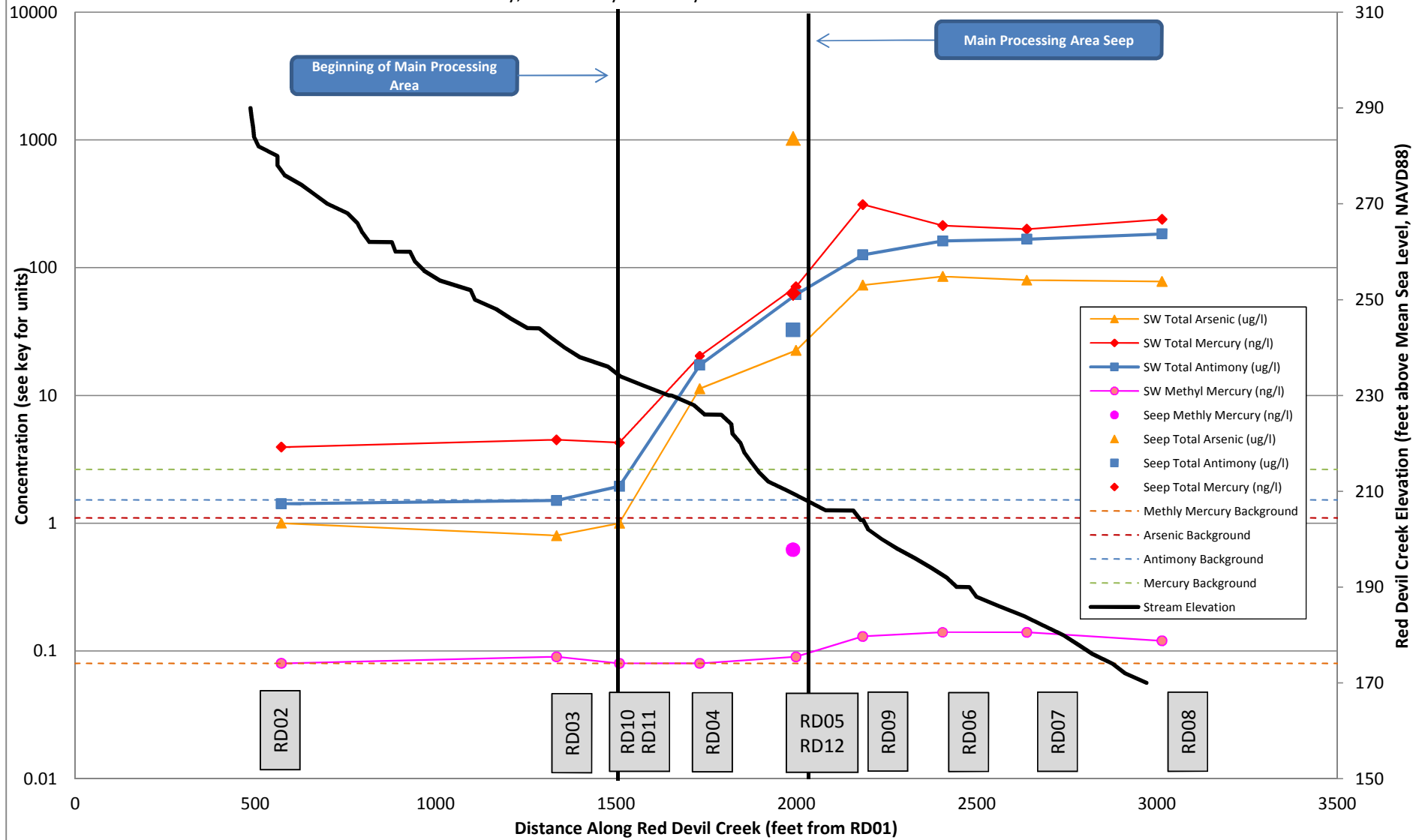
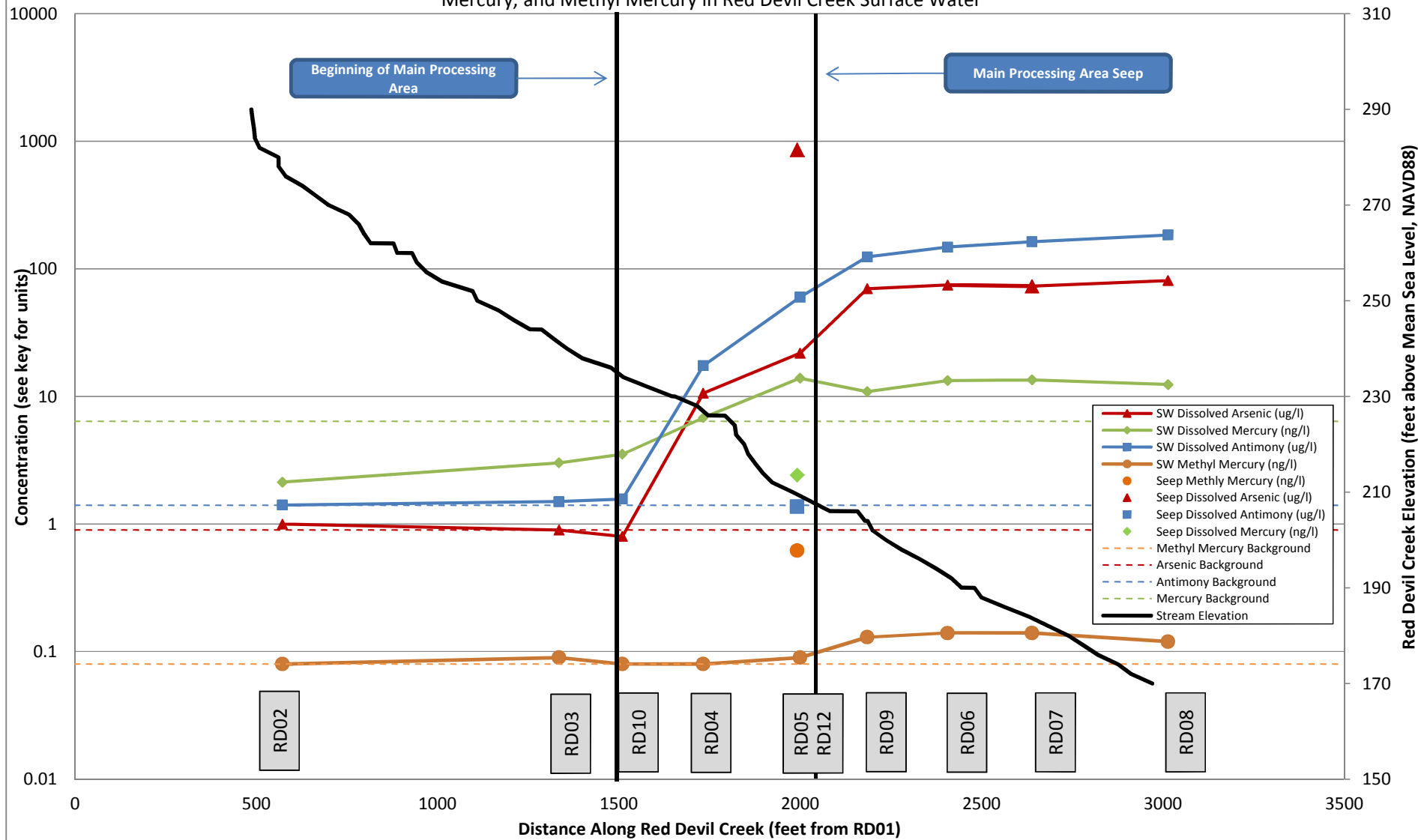
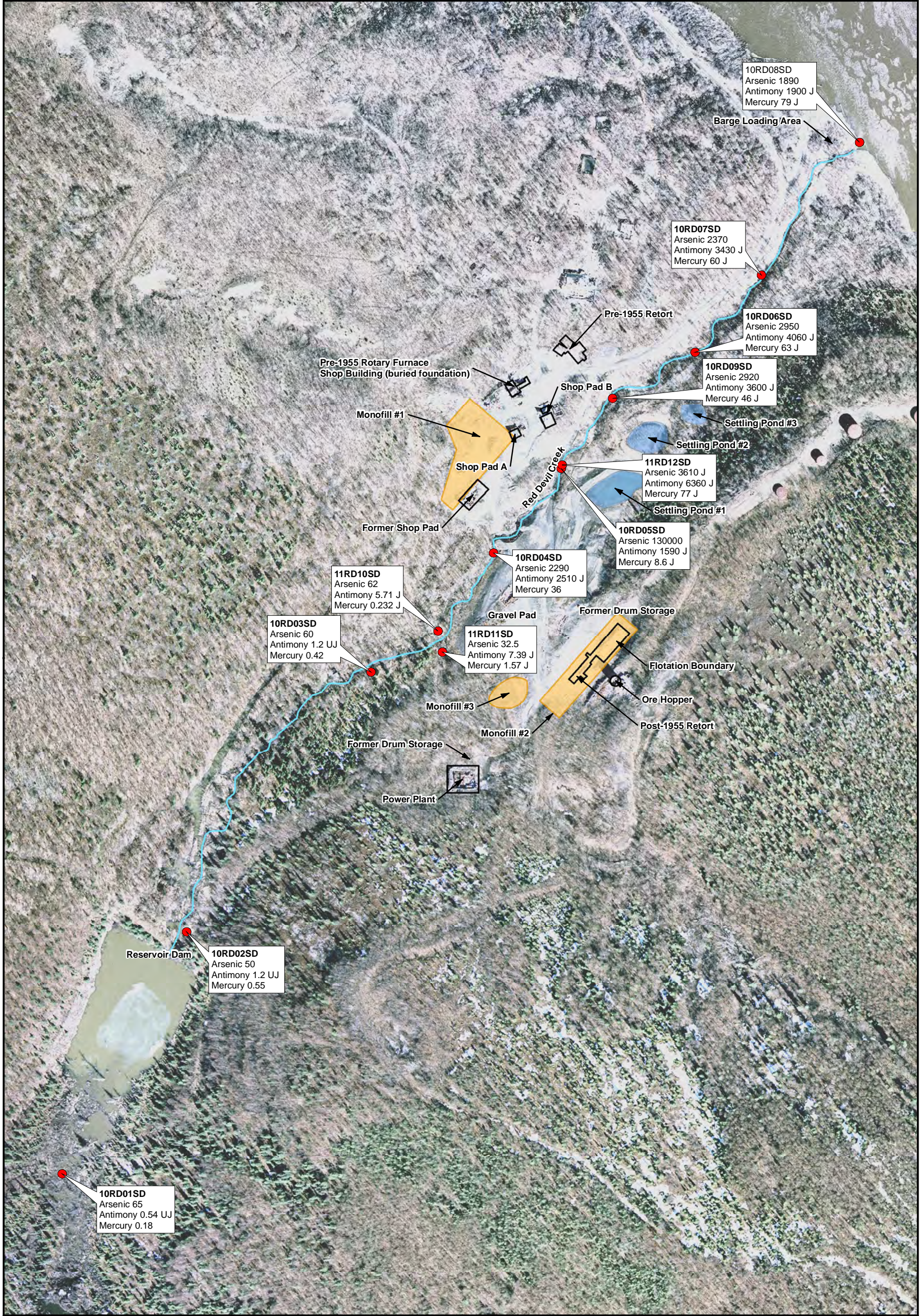


Figure 4-27
 Concentration Versus Linear Distance Chart of 2011 Dissolved Arsenic, Antimony, Mercury, and Methyl Mercury in Red Devil Creek Surface Water

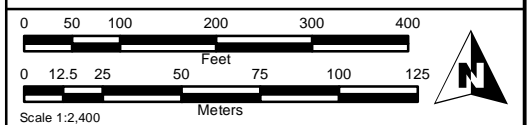


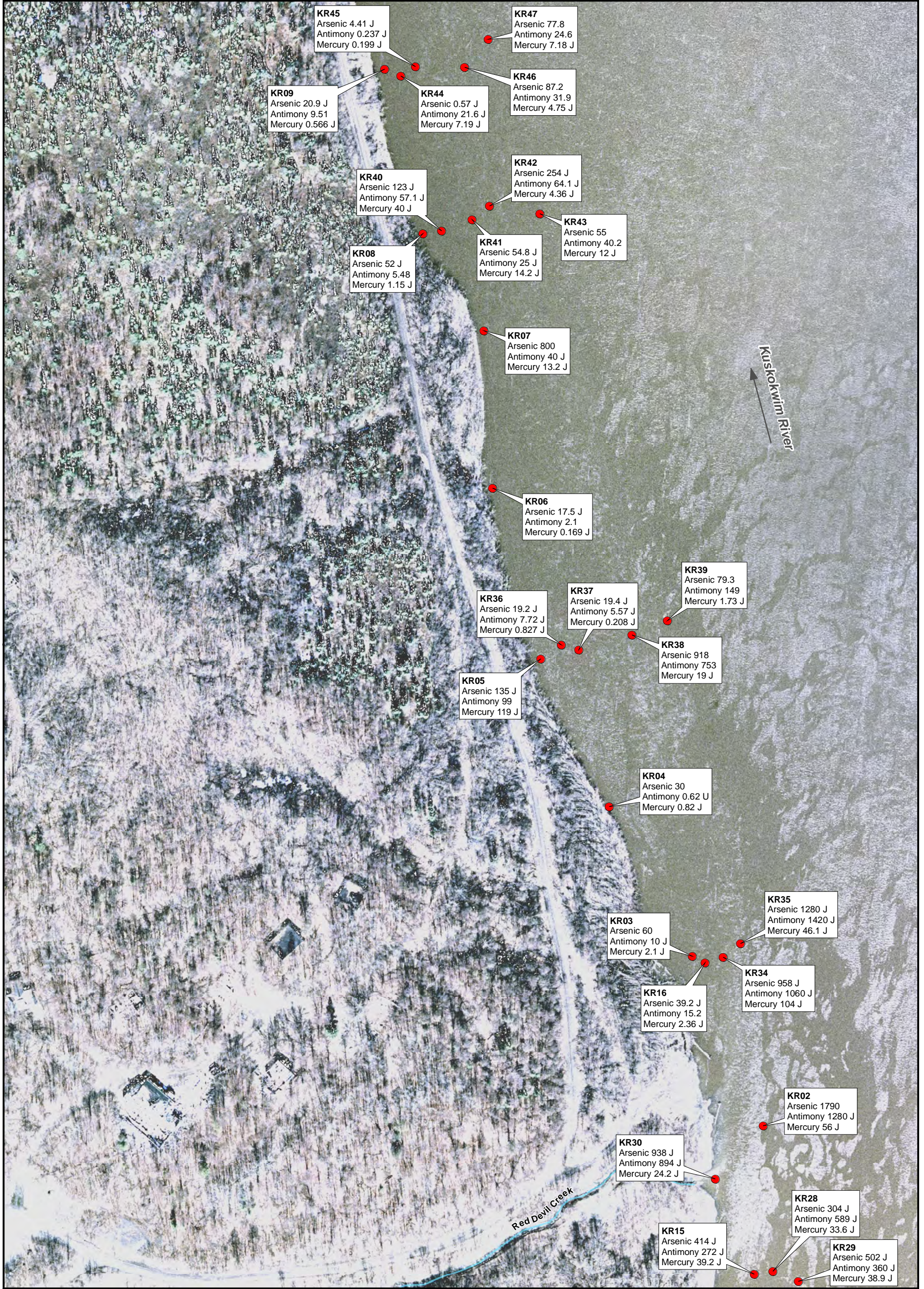


- Sediment Result Location
- Settling Pond
- Monofill
- Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-28
 Red Devil Creek
 Arsenic, Antimony, and Mercury
 Sediment Sample Results

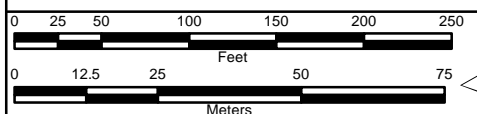


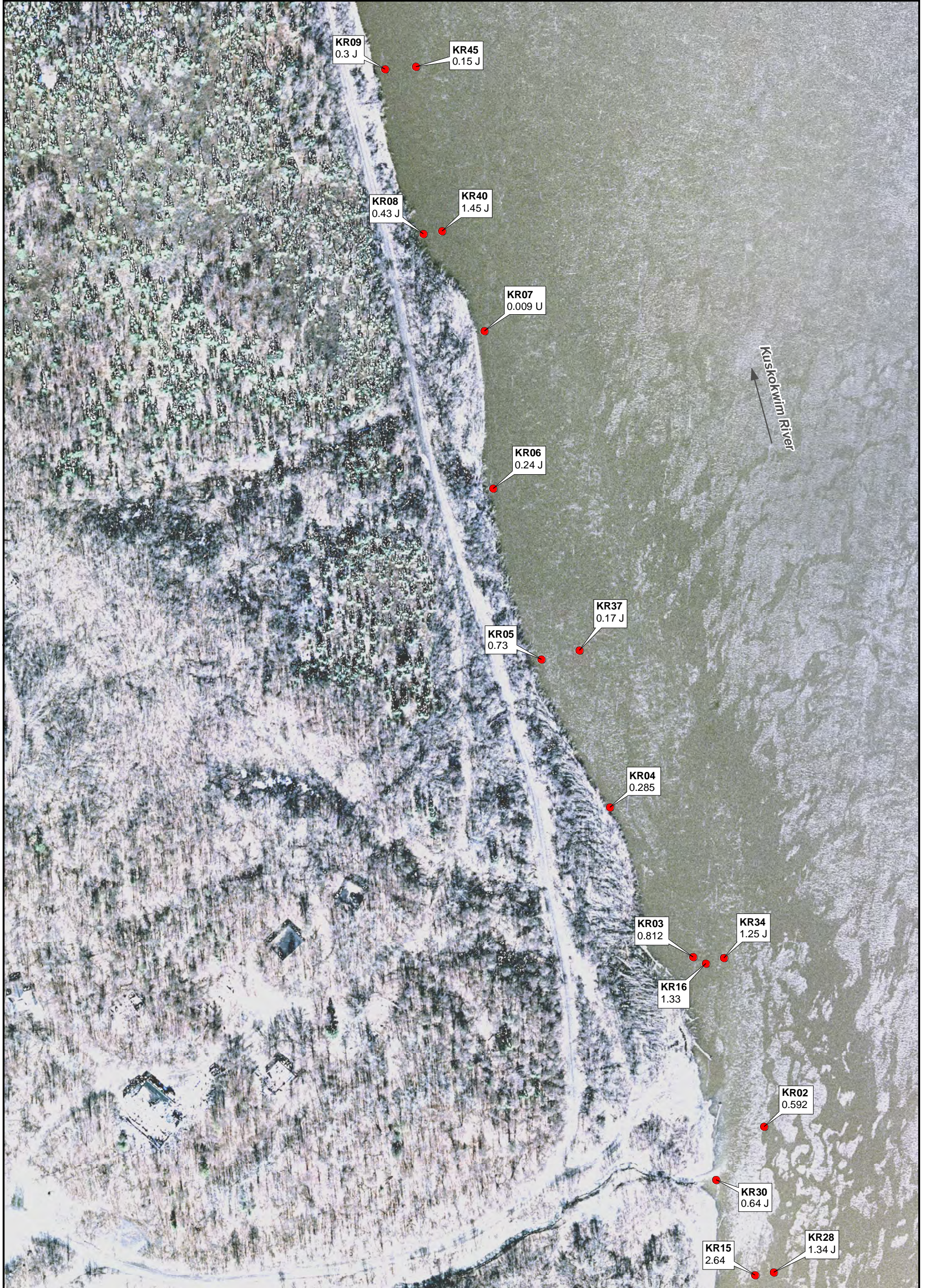


● Sediment Sample Location

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-29
Kuskokwim River
Sediment Sample Results
for Arsenic, Antimony, and Mercury

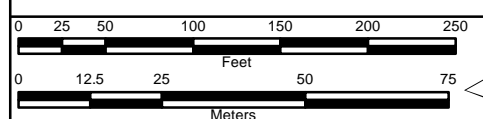


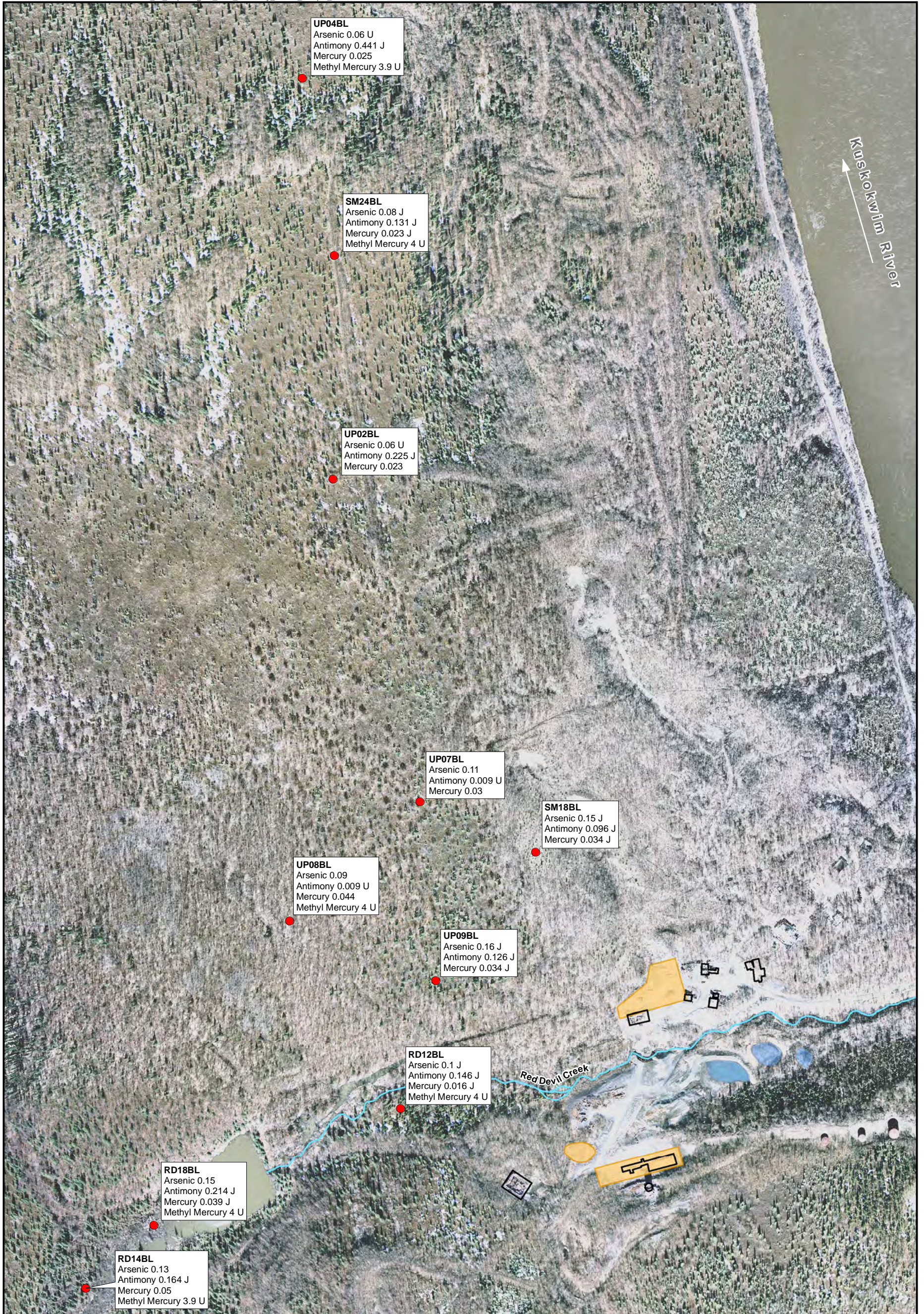


● Sediment Sample Location

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-30
Kuskokwim River
Sediment Sample Results
for Methyl Mercury

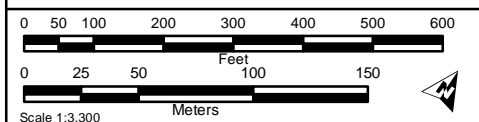


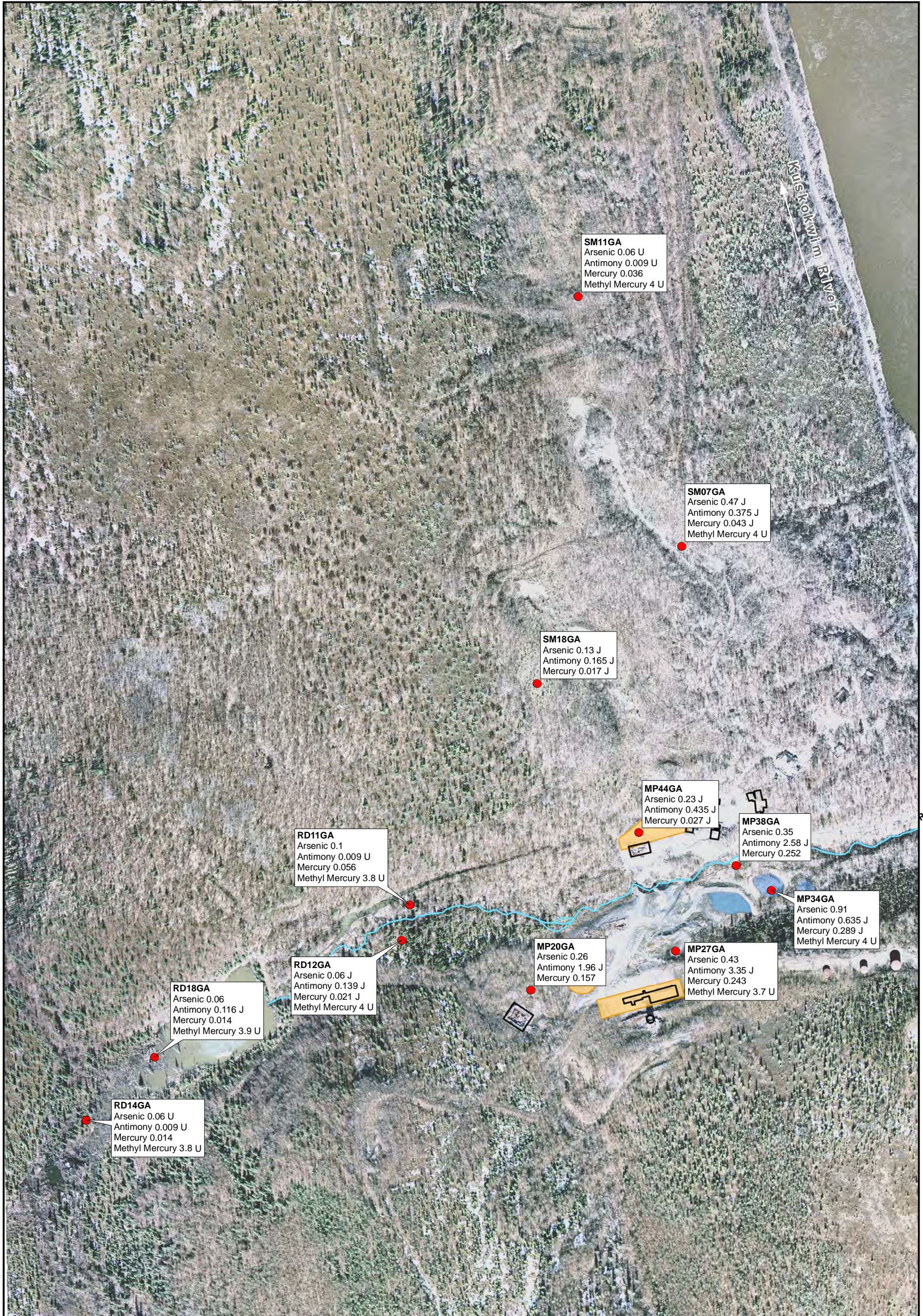


Sample Result
 ● (Arsenic, Antimony, Mercury are reported in mg/kg, Methyl Mercury is ng/g)
 ■ Settling Pond
 ■ Monofill
 □ Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-31
Blueberry Leaves and Stems
Sample Results





Sample Result
 ● (Arsenic, Antimony, Mercury are reported in mg/kg, Methyl Mercury is ng/g)

■ Settling Pond
 ■ Monofill
 □ Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

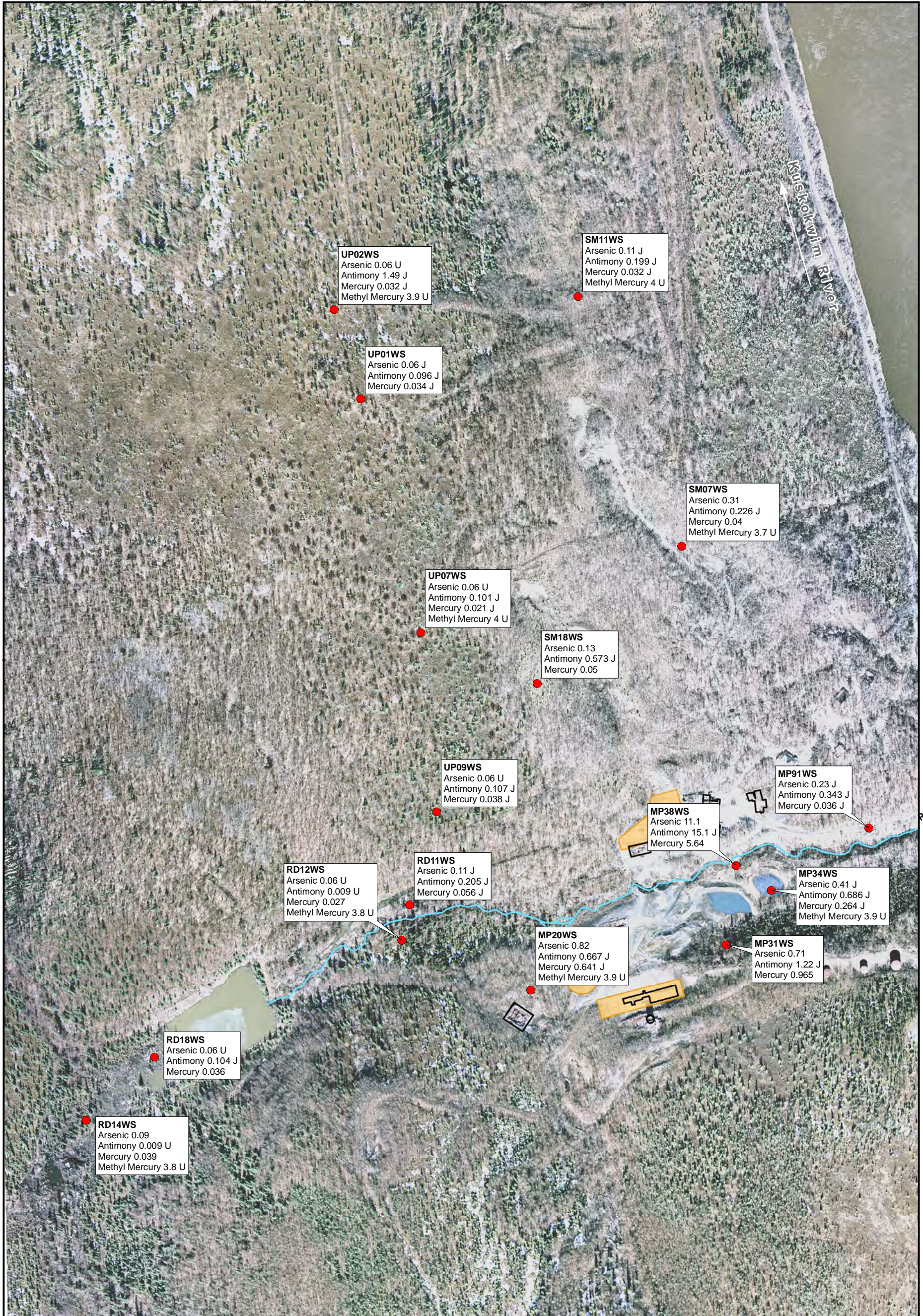
Image Source: Aero-Metric, Inc 5/29/2001

Figure 4-32
Green Alder Bark Sample Results

0 50 100 200 300 400 500 600
 Feet

0 25 50 100 150
 Meters

Scale 1:3,300



UP02WS
 Arsenic 0.06 U
 Antimony 1.49 J
 Mercury 0.032 J
 Methyl Mercury 3.9 U

SM11WS
 Arsenic 0.11 J
 Antimony 0.199 J
 Mercury 0.032 J
 Methyl Mercury 4 U

UP01WS
 Arsenic 0.06 J
 Antimony 0.096 J
 Mercury 0.034 J

SM07WS
 Arsenic 0.31
 Antimony 0.226 J
 Mercury 0.04
 Methyl Mercury 3.7 U

UP07WS
 Arsenic 0.06 U
 Antimony 0.101 J
 Mercury 0.021 J
 Methyl Mercury 4 U

SM18WS
 Arsenic 0.13
 Antimony 0.573 J
 Mercury 0.05

UP09WS
 Arsenic 0.06 U
 Antimony 0.107 J
 Mercury 0.038 J

MP91WS
 Arsenic 0.23 J
 Antimony 0.343 J
 Mercury 0.036 J

MP38WS
 Arsenic 11.1
 Antimony 15.1 J
 Mercury 5.64

RD12WS
 Arsenic 0.06 U
 Antimony 0.009 U
 Mercury 0.027
 Methyl Mercury 3.8 U

RD11WS
 Arsenic 0.11 J
 Antimony 0.205 J
 Mercury 0.056 J

MP34WS
 Arsenic 0.41 J
 Antimony 0.686 J
 Mercury 0.264 J
 Methyl Mercury 3.9 U

MP20WS
 Arsenic 0.82
 Antimony 0.667 J
 Mercury 0.641 J
 Methyl Mercury 3.9 U

MP31WS
 Arsenic 0.71
 Antimony 1.22 J
 Mercury 0.965

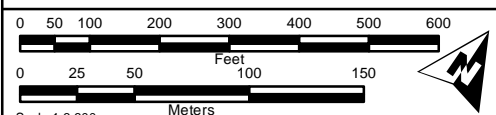
RD18WS
 Arsenic 0.06 U
 Antimony 0.104 J
 Mercury 0.036

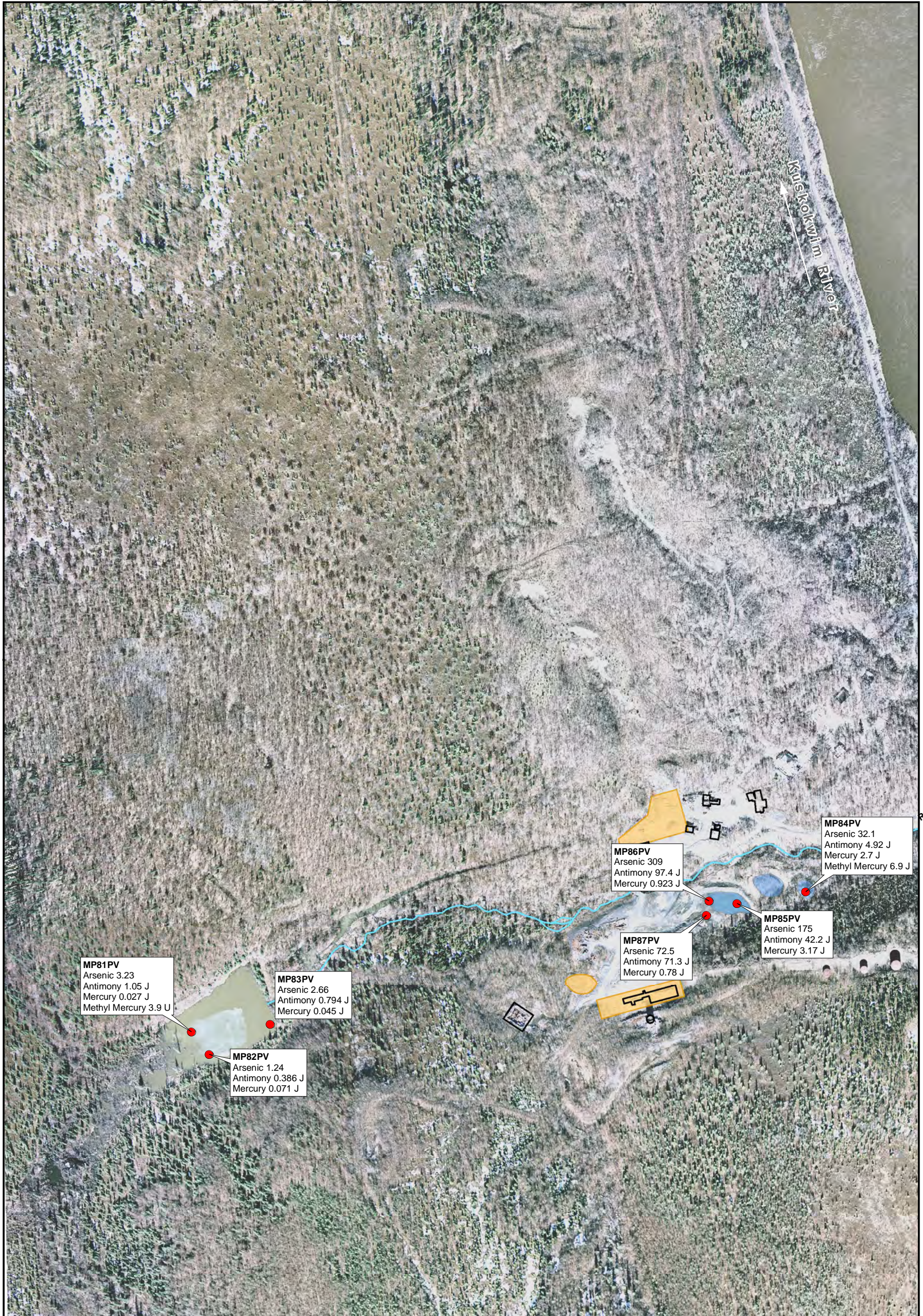
RD14WS
 Arsenic 0.09
 Antimony 0.009 U
 Mercury 0.039
 Methyl Mercury 3.8 U

Sample Result
 ● (Arsenic, Antimony, Mercury are reported in mg/kg,
 Methyl Mercury is ng/g)
 ■ Settling Pond
 ■ Monofill
 □ Historical Structure

RED DEVIL MINE
 Red Devil, Alaska

Figure 4-33
White Spruce Needle
Sample Results





Sample Result

- (Arsenic, Antimony, Mercury are reported in mg/kg, Methyl Mercury is ng/g)
- Settling Pond
- Monofill
- Historical Structure

RED DEVIL MINE

Red Devil, Alaska

Figure 4-34

Horsetail Pond Vegetation

Sample Results

0 50 100 200 300 400 500 600

0 25 50 100 150

Feet

Meters

Scale 1:3,300