Salt Chuck Mine Superfund Site, **Preliminary Findings for 2012 Remedial Investigation Field Sampling Activities, February 27, 2013.**

Statement to add to first page of the 2012 data report:

> *This memorandum is intended to provide a broad overview of the results of the 2012 field investigation. The screening levels and certain analytical data reported herein do not match information presented in the 2014 Remedial Investigation Report. Please refer to data presented in the 2014 Remedial Investigation Report for decision-making purposes.*

Statement to add to each 2012 data table:

> *The screening levels, non-detect values, and calculated PAH concentrations in this table do not match information presented in 2014 Remedial Investigation Report. Do not use these data for decision-making purposes (use the data presented in the 2014 Remedial Investigation Report).*

Salt Chuck Mine – Preliminary Findings for 2012 Remedial Investigation Field Sampling Activities

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DATE: February 27, 2013

1 Introduction and Summary of Preliminary Findings

This technical memorandum provides a summary of the sampling and analytical programs conducted in 2012 at the Salt Chuck Mine in the Tongass National Forest, Alaska. The primary objective of the 2012 sampling program was to collect samples from a variety of media to fill data gaps associated with characterizing the nature and extent of contamination related to historical operations at the mine. The samples from this investigation will be used in conjunction with other data to support the remedial investigation (RI) and feasibility study (FS) being conducted for the site by the U.S. Environmental Protection Agency (USEPA). The work presented in this report was conducted in accordance with the RI Quality Assurance Project Plan (RI QAPP) prepared by CH2MHILL and approved by the USEPA on June 8, 2012.

Salt Chuck Mine was added to the EPA National Priorities List on March 4, 2010. For the purposes of the RI/FS, the Salt Chuck Mine site includes both the upland areas that lie on lands managed by the United States Department of Agriculture, Forest Service (Forest Service) and those adjacent areas and impacted environments within State-owned tidelands (referred to as the Upland and Intertidal Areas in this technical memorandum).

The scope of work for the 2012 investigation included collection and analysis of samples from the following locations and media:

- Intertidal Area - sediment and tailings, marine surface water, bivalves, and vegetation
- Upland Area – soil, tailings, waste rock, groundwater, surface water, sediment and vegetation
- Background Locations – intertidal sediment, bivalves, fresh surface water and sediment, upland and intertidal vegetation

This report is a summary of the field activities and laboratory results for the 2012 field investigation and contains limited interpretation of the results. The intent is not to provide detailed analysis and interpretation of data, but to provide a brief overview of results in relation to the data quality objectives DQOs and conservative screening levels identified in the RI QAPP, so that patterns and trends in the data can be recognized and areas for further investigation identified. It should be noted that the screening levels used in this report are solely to provide a perspective for identifying the nature and extent of contamination. They are not intended to infer the existence of unacceptable risk. The risk assessment

to be conducted as part of this RI will provide site-specific estimates of risk intended for management decision making.

The following preliminary findings are based on evaluation of 2012 results and relevant 2011 pre-RI and previous investigation results:

- Intertidal Area:
  - There are sufficient data to conclude that intertidal sediments in Salt Chuck Bay are adversely affected by releases from tailings and other sources at the site. The primary contaminants of interest are copper and other mine-related metals, but small localized areas near the former mill are also affected by chemicals associated with petroleum and coal tar releases. PCBs are not contaminants of interest for sediment or other media in the Intertidal Area.
  - The sediment from areas where copper concentrations are highest (i.e., greater than about 800 mg/kg) appears to be toxic to marine worms and clams.
  - Intertidal surface water in Salt Chuck Bay may be adversely impacted by releases of metals from tailings and other sources at the Site.
  - Clams in Salt Chuck Bay contain concentrations of some metals in excess of screening levels and above levels observed in background locations; levels of these metals are associated with proximity to the former mill area. The occurrence of arsenic in clams does not appear to be related to releases at the Site because similar arsenic concentrations were detected in clams throughout Salt Chuck Bay and in the background location at Browns Bay.
  - Concentrations of metals in sea asparagus (*Salicornia spp.*) samples collected at the Site are higher than concentrations in background sea asparagus samples. The sea asparagus samples with the highest metals concentrations occur primarily in the cove east of the barge slip.
- Upland Area:
  - The non-time critical removal action (NTCRA) conducted by the Forest Service in 2011 removed tailings beneath and around the former mill building where feasible. Based on sampling conducted by the Forest Service after the NTCRA, metals-contaminated tailings remain in unexcavated areas around and beneath the former mill, as well as in upland tailings piles.
  - Metals-contaminated soil and tailings in the vicinity of the former assay building were removed during the NTCRA.
  - Soil and tailings contaminated by releases of petroleum and coal tar were removed during the NTCRA. Low levels of petroleum and coal tar chemicals remain in unexcavated areas around and beneath the former mill. None of the results are high enough to suggest a previously unidentified source.
  - Upland tailings and waste rock piles outside of the former mill area contain concentrations of petroleum hydrocarbons and coal tar chemicals above screening levels.
  - Groundwater in the former mill area is affected by petroleum and coal tar chemicals and by metals in tailings. Significant volumes of tailings and waste rock, and petroleum/PAH-contaminated soil were removed down to bedrock in the area of the former mill during the NTCRA. The reported concentrations of petroleum and PAHs in groundwater are below levels suggestive of free product.

  - Affected groundwater may discharge to the intertidal portion of Salt Chuck Bay adjacent to the former mill.
  - Upland surface water and sediment are generally unaffected by releases from the Site. However, ponded water within the main adit and sediment in the Unnamed Stream near the adit contain concentrations of copper and other metals above screening levels.
  - Concentrations of some metals appear elevated in vegetation growing in upland tailings piles, relative to levels at background areas.
- Background Conditions:
  - Sufficient data have been collected to characterize background conditions in all media except intertidal surface water.

2 Background

Salt Chuck Mine is located approximately 4½ miles south-southwest of Thorne Bay, Alaska, at the northern end of Kasaan Bay, on Prince of Wales Island (Figure 1). The mine is located in the Tongass National Forest, Outer Ketchikan County, within Township 72 South, Range 84 East, Sections 16 and 17, Copper River Meridian, Alaska. Salt Chuck Bay, from which the mine takes its name, is a shallow, restricted water body bordering the mine site to the south and forms the northernmost arm of Kasaan Bay (Figure 1). The Salt Chuck Mine site is accessible by water or by road, the last ½-mile of which is newly constructed and remains gated. Thorne Bay (population 471) is the closest year-around population, and is accessible from the site by road. The Organized Village of Kasaan (Kasaan, population 49) is the nearest community by water and is located 10 miles southeast of the site on the eastern side of Kasaan Bay.

2.1 Site Description

The upland portion of the Site covers approximately 45 acres and includes the Salt Chuck mine and former mill site (Figure 2). The mine is uphill and approximately ½-mile north of the former mill.

The mine area includes the glory hole and adits where ore was removed, a railway and locomotive for transporting ore to the mill, a variety of dilapidated structures, and numerous waste rock piles. The mine area is relatively steep and heavily vegetated.

The former mill was the subject of a NTCRA conducted by the Forest Service in 2011. Prior to the NTCRA, the mill site contained a large roller mill, workshops, bunkhouses, above-ground storage tanks (ASTs) reportedly used to store coal tar for use as floatation agent in ore processing, fuel drum caches, and other support facilities for the mining camp. The mill was constructed over and surrounded by tailings and waste rock piles. The structures, tanks, and fuel drum cache were removed and exposed contaminated soil, tailings, and waste rock were excavated to bedrock during the NTCRA. The excavated areas were then backfilled, graded, covered and revegetated (North Wind, 2012).

The Upland Area is drained by a small unnamed stream (hereafter “Unnamed Stream”) that originates northeast of the site at Power Lake, cuts across the mine site, and discharges into Lake Ellen Creek just below the shoreline at Salt Chuck Bay, near the former mill site. At high tide, seawater from Salt Chuck Bay inundates the lower portions of Lake Ellen Creek and Unnamed Stream.

The Intertidal Area is defined by the area below mean high tide but above mean low tide, and encompasses approximately 80 acres south of the mill site and extends around an unnamed island (hereafter “Unnamed Island”) in the middle of Salt Chuck Bay (Figure 2). The intertidal zone is covered by fucus, gravel, mollusk shell fragments, and beach grasses, but areas closest to the former mill site

consist of mud flats mixed with tailings, with little vegetation. There is an abundance of shellfish located in the intertidal area of Salt Chuck Bay adjacent to the site. Example shellfish species include blue mussel, littleneck clam, butter clam, softshell clam, and cockles.

The Intertidal Area adjacent to the former mill is dominated by a large spit composed of roughly 100,000 cubic yards (CY) of tailings from the mill. Accumulations of tailings are also evident along the shoreline where Unnamed Stream joins Lake Ellen Creek. The saturated intertidal tailings are not contained in a manner that prevents contaminants within the tailings from migrating into the waters of Salt Chuck Bay. The tailings, outlying sediment, and intertidal portion of Lake Ellen Creek are exposed at low tide.

2.2 History

The first claims at Salt Chuck Mine were staked in 1905, when the mine was originally was known as the Goodro Mine (BLM, 1998). The mine and mill operated from 1905 to 1941 and processed over 326,000 tons of ore. The primary ores produced from the mine were copper, gold, silver, and platinum group elements, most notably palladium. Salt Chuck Mine was the most important copper producer in the Ketchikan Mining District, the only single lode palladium mine in Alaska, and of national importance as a palladium producer in the 1920s. The discovery that the ore contained palladium/platinum led to construction of the mill with a capacity of processing 30 tons of ore per day in 1917, and expanded to a capacity of 300 tons per day in 1923.

Considerable historic mining activity has occurred in the mineral-rich region where the Salt Chuck Mine site is located (Maas et al., 1995). Nearby historic mines include the Rush and Brown Mine located on the west slope of Lake Ellen, the Venus Mine located about 1½ miles southwest of the site, in an area that drains southward into Karta Bay, and the Haida Mine located northeast of Browns Bay about 2 ½ miles southeast of the site. Pure Nickel, Inc. currently holds active mining claims covering about 2,700 acres at and near the Salt Chuck Mine site.

2.3 2012 Remedial Investigation Objectives

The 2012 sampling and analysis program was detailed in the RI QAPP. The QAPP identified six primary data quality objective (DQO) problem statements that guided the sample collection and analytical approach for the field event. The problem statements are listed below:

1. **Nature and Extent of Contamination in the Intertidal Area** - The nature and extent of contamination in Salt Chuck Bay is not adequately defined to characterize potential risks to human health and the environment and/or support a remedial decision.
2. **Background** – There are insufficient data to reliably distinguish naturally-occurring concentrations of metals from Site-related contamination.
3. **Characterize Upland Contamination** – There are insufficient data to characterize potential upland source areas, evaluate possible risks to human health and the environment, and/or support a remedial decision.
4. **Correlation of X-ray fluorescence and analytical results** – An efficient field screening method such as X-ray fluorescence (XRF) is needed to provide quick turn-around field decisions. There are insufficient data to correlate XRF readings with laboratory-determined metal concentrations for the Site.
5. **Human Health Risk Assessment** – Contaminants may be present in Site environmental media at levels that pose unacceptable risks to current or future users.
6. **Ecological Risk Assessment** - Contaminants may be present in Site environmental media at levels that pose unacceptable risks to ecological receptors.

3 Summary of 2012 Field Investigation Activities

The 2012 field investigation was conducted by CH2MHILL from July 27 through August 2, 2012. The field team included geologists, engineers, and biologists with experience conducting extensive multi-media sampling efforts at remote locations. Others present during the field work included:

- Jacques Gusmano, EPA project manager - July 27 – 30, 2012
- Michael Wilcox, Forest Service – July 27 – 30, 2012
- Anne Marie Palmieri, Alaska Department of Environmental Conservation (ADEC) – July 27, 2012
- Neli Nelson, Organized Village of Kasaan– July 27, 2012

Field work began on the 27th with review of the NTCRA work performed by the Forest Service in the upland portion of the Site, reconnaissance of the mine and mill areas, and consultation with Forest Service and ADEC personnel regarding proposed upland sampling locations and target analytes. Sampling activities began on July 28, 2012 and included collection of the environmental media samples, quality assurance/quality control (QA/QC) samples and other data identified in the RI QAPP (CH2MHILL, 2012). The samples collected in 2012 are listed by area and medium in tables provided in Appendix A. Field instrument readings obtained during surface water and groundwater sampling are provided in Appendix B.

Upland Area sample locations are shown on Figure 3. Intertidal Area sample locations are shown on Figure 4. Background area sample locations at Browns Bay, Power Lake, Lake Ellen, Lake Ellen Creek, and Boardwalk Lodge are shown on Figures 5.

In addition, XRF readings were recorded for selected unsaturated soil, tailing, and waste rock samples. Two XRF measurements were obtained for each sample: a moist measurement, and measurement following drying of the sample in an oven.

The sampling program was conducted in accordance with the QAPP. However, conditions encountered in the field required some changes to sample locations and/or target analyte lists, as shown on Table 1.

4 Laboratory Analysis, Data Validation, and Data Reduction

Samples collected during the 2012 sampling event were packaged and shipped under chain-of-custody protocol to the following laboratories for analysis:

- Applied Sciences Laboratory (ASL)
- Manchester Environmental Laboratory (EPA laboratory)
- Northwester Aquatic Sciences (bioassay laboratory)

All samples were analyzed for metals. Depending on medium and location, selected samples were also analyzed for total organic carbon (TOC), polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons, polychlorinated biphenyls (PCBs), acid-volatile sulfide/simultaneously extracted metals (AVS/SEM), toxicity to bivalves and polychaetes, net acid generating potential, toxicity characteristic leaching procedure (TCLP) metals, and grain size.

Laboratory analyses and data reporting for each lab were consistent with the procedures defined in the RI QAPP (CH2MHILL, 2012). The analytical data packages were reviewed and validated according to the protocols identified in the QAPP. Data from the EPA laboratory were validated by the EPA. Data from

other laboratories were validated by CH2MHILL[1]. The data with assigned validation codes were then uploaded to the Site database maintained by CH2MHILL. Sample location data, as determined in the field using geographic positioning system (GPS) equipment and/or relative position to known structures or features, were linked to the analytical data in the Site geographic information system (GIS) database. The data were then reviewed for completeness (i.e., were all samples and target analytes accounted for and did all samples have accurate locations?). Any discrepancies were resolved through consultation with the field team, laboratory personnel, and the project chemist.

4.1 Processing for Multiple Methods

For certain analytes and media, more than one result per analyte per sample was reported due to dilutions/re-extractions or reporting by different laboratories. Multiple results for samples were processed or "reduced" prior to finalization of the database to ensure use of consistent data when making decisions about the presence or absence of contamination and risk. ADEC guidance was followed to identify the best results for each sample, as follows:

- If more than one contaminant result was reported due to multiple analyses by a single method, the highest detected value was used. Note, rejected (R-flagged) results were not included in such determinations – these data were always rejected as unusable.
- If all results were reported as nondetect (ND) by multiple analyses or methods, the undetected result with the lowest method detection limit (MDL) was selected for reporting.

4.2 Wet Weight Conversion

Analytical results for bivalve samples were reported by the laboratory as dry weight concentrations. However, the screening levels used to identify contaminants in tissue are based on wet weight concentrations. Therefore, the dry weight results for each sample were converted to wet weight values using the measured moisture content of each specific sample according to the following formula:

Wet weight concentration = Dry weight concentration x (1 – percent moisture/100)

Bivalve results reported herein are therefore provided on a wet-weight basis. Vegetation results are also provided on a wet-weight basis.

5 Summary of 2012 Sample Results Relative to Data Quality Objectives

This section summarizes the 2012 RI results in the context of the primary DQOs for the 2012 field investigation. The intent is not to provide detailed analysis and interpretation of data, but to provide a brief overview of results in relation to the DQOs and screening levels identified in the RI QAPP so that patterns and trends in the data are recognized and areas for further investigation can be identified. It should be noted that the screening levels used herein are solely to provide a perspective for identifying the nature and extent of contamination, and they are not intended to infer the existence of unacceptable risk. Rather, the risk assessment to be conducted as part of this RI will provide site-specific estimates of risk intended for management decision making.

The following summaries are supported by tables wherein the analytical results for each sample group are compared to risk-based screening levels and other criteria that were identified in the RI QAPP. These tables are organized by location, medium, and sample identification number. Field duplicate and normal results are presented as separate samples. Sample results with detected exceedances of the

[1] Validation reports for the 2012 field investigation will be provided in the RI Report.

listed screening level are indicated by bold font and gray shading; ND results with MDLs in excess of the screening levels are indicated by gray shading only.

5.1 Nature and Extent of Contamination in the Intertidal Area – Salt Chuck Bay

The following media and locations were sampled to evaluate the nature and extent of contamination in the Intertidal Area at Salt Chuck Bay:

- Intertidal sediment and tailings at the mouths of Unnamed Stream and Lake Ellen Creek and in Salt Chuck Bay
- Intertidal surface water at the mouths of Unnamed Stream and Lake Ellen Creek and in Salt Chuck Bay
- Bivalves in Salt Chuck Bay
- Intertidal vegetation in Salt Chuck Bay

5.1.1 Intertidal Sediment

A total of 40 intertidal surface sediment/tailings and 2 subsurface sediment/tailings samples were collected from Salt Chuck Bay. All samples were analyzed for metals, PAHs, TOC, and petroleum hydrocarbons as diesel range organics (DRO) and residual range organics (RRO). Selected samples were also analyzed for AVS/SEM, grain size, net acid generating potential, TCLP, and polychaete and bivalve bioassays. Several samples added were also inadvertently analyzed for PCBs although evaluation of 2011 sediment data concluded that PCBs were not potential chemicals of concern for the Intertidal Area. Analytical results for metals, PAHs, and PCBs are compared to screening levels [effects range low (ERL) and effects range medium (ERM) NOAA marine benchmarks (Long et al., 1995; Buchman, 2008)] in Table 2. Bioassay results are summarized in Tables 3 through 5. Results for the remaining sediment/tailings analyses are provided in Table 6.

Metals

Concentrations of copper in all 42 of the 2012 Salt Chuck Bay sediment/tailings samples exceeded the ERL and concentrations in 30 of these samples also exceeded the ERM. As shown in Figure 6, the samples with exceedances of the ERM (orange symbols) are clustered in the area adjacent to and east/northeast of the former mill where tailings are exposed. ERM exceedances also occur north and southwest of Unnamed Island, but concentrations of copper in samples collected from the sediment deposit southeast of the mouth of Lake Ellen Creek exceeded only the ERL. The lower levels of copper in this area may indicate a different sediment source and/or mixing of tailings with natural sediments carried by Lake Ellen Creek.

Cadmium, lead, mercury, silver, and zinc were at concentrations detected sporadically (1 to 3 samples) at concentrations exceeding their respective ERLs but not ERMs. Several of these ERL exceedances occurred in one sample (SCSD-902) collected northeast of the barge slip at the former mill.

Based on comparison to metals results for sediment samples collected in Browns Bay, where no ERL or ERM exceedances were identified (see Section 5.2.1), elevated concentrations of metals in Salt Chuck Bay sediment appear to be related to releases from the site.

PAHs and Petroleum Hydrocarbons

Concentrations of individual PAHs, high molecular weight PAHs (HPAHs), low molecular weight PAHs (LPAHs), and total PAHs exceeded the ERLs in several sediment/tailings samples (SCSD-901, SCSD-902, and SCSD-903) collected adjacent to the former mill. Elevated concentrations of DRO and RRO were also

detected in these samples (there are no ERLs or ERMs for these petroleum hydrocarbon mixtures). The sources of the PAH and petroleum contamination appear to be historical releases and migration/discharge of contaminated surface water or groundwater from the former mill where coal tar and diesel contamination were removed during the NTCRA (see Section 5.3). The area of PAH contamination in sediment, based on LPAH and HPAH exceedances, is generally directly adjacent to the former mill site, as shown in Figure 7 (SCSD- 901, 902, and 903) and is bounded by sediment samples without LPAH or HPAH exceedances. An elevated concentration of HPAH (primary benzo(a)pyrene, benzo(b)fluoranthene, and pyrene) also occurs in SCSD-316 approximately 1,000 feet south of the barge slip. The source of the HPAHs is unknown and extent of this contamination is not bounded by other samples to the south and east.

PCBs

PCB aroclors were not detected in any of the samples that were inadvertently analyzed for these chemicals. These results are consistent with the 2011 sediment results, which determined that PCBs were not potential chemicals of concern for the Intertidal Area.

Bioassays

The results of the 2012 sediment toxicity tests (bioassays) conducted on samples from 20 locations (plus 2 field duplicates) are summarized in Table 3. Of the 20 locations tested, significant polychaete toxicity was observed for sediment from 14 locations, and bivalve toxicity was seen for sediment from 12 locations (see Figure 8 for locations where toxicity was seen). The measured effects data are summarized in Tables 4 and 5, for polychaetes and bivalves, respectively. The results indicate that there was good spatial correspondence in the degree of toxicity observed between the two species tested.

Also provided in Tables 4 and 5 are the corresponding sediment copper concentrations detected during 2012. Copper is assumed to provide the best signature of tailings releases, and may be a major contributor to toxicity. The results indicate a relatively strong association between copper concentrations and toxic responses. The highest copper concentration without observed toxicity for either species was 806 mg/kg observed at location SCSD-331, immediately west of Unnamed Island, and downstream of Lake Ellen Creek during extreme low tide (this sample was also tested as a field duplicate with the same non-toxicity observed). However, there were four locations with copper levels less than 806 mg/kg where toxicity was observed (645 mg/kg at SCSD-306; 700 mg/kg at SCSD-308; 534 mg/kg at SCSD-309; and 544 mg/kg at SCSD-310). These four samples came from the same general area immediately east of the former mill. The difference in the toxicity seen for these four locations compared to the toxicity seen at SCSD-331 where the copper level is higher may reflect differing tailings geochemistry and/or potential influences from other co-occurring chemicals.

The most toxic sediment appears closest to the former mill where copper concentrations are also highest. The farthest extent of observed sediment toxicity from the former mill seems to be on the east side of Unnamed Island. Sediment from location SCSD-326 was found to be toxic, whereas the adjacent location SCSD-317 was found to have non-toxic sediment. This likely delineates toxic conditions on the east side of the island. Toxic conditions are not apparent on the west side of Unnamed Island in Salt Chuck Bay or in the background area at Browns Bay (see Section 5.2.1).

Other Analyses

The results of other analyses used to characterize the intertidal sediment/tailings in the intertidal portion of the Site are listed in Table 6. The results of these analyses are needed for other aspects of the RI, risk assessment, and feasibility study planning and are not considered in the nature and extent of contamination evaluation. Nonetheless, the following patterns are apparent in the data:

- TOC – Concentrations of TOC in sediment/tailings range from ND (MDL of 280 mg/kg) to 40,900 mg/kg (4.09 percent). No relationships between TOC and other parameters (such as the commonly seen inverse relationship with grain size) are apparent in the data. Samples with low to moderate TOC are typically fine grained and samples with high TOC may be fine or coarser grained. Sampling records also do not show discernible relationships between visible organic matter and TOC concentrations.
- Grain Size – Most of the intertidal sediment/tailings samples consisted primarily of very fine sand. Only a few samples obtained from the intertidal channel of Lake Ellen Creek were made up of coarse sand or gravel (Locations SCSD-324 and SCSD-327).
- AVS/SEM – This analysis determines the form of divalent metals available for toxicity in sediment and will be used in the risk assessment. High levels of AVS relative to SEM would suggest that divalent metals in sediment are less likely to result in adverse biological effects to infauna. However, all samples except one indicated considerably higher concentrations of SEM than AVS, indicating that sediment toxicity is not meaningfully influenced by the presence of sulfide.
- TCLP – this analysis determines whether leachate from a sample is classified as hazardous (thereby requiring disposal as a hazardous waste) and supports selection of waste disposal alternatives. The J-qualified concentration of barium in the sample collected from the intertidal tailings spit (SCTL-502) was slightly above the toxicity standard listed in 40 CFR 261.24. All other results were ND or below the toxicity standards.
- Net acid generating potential – the results of this analysis are used to evaluate the balance between the acid-production and acid-consumption properties of mine-waste material and support selection of waste disposal alternatives. The methodology and detailed findings of the acid-base evaluation are presented in a separate technical memorandum (CH2MHILL, 2013). In general, the evaluation found that the sample collected at SCTL-502 would not generate acid in the long-term and that no further testing was required.

5.1.2 Intertidal Surface Water

Five intertidal surface water samples collected in Salt Chuck Bay were analyzed for total and dissolved metals. The results are compared to marine surface water screening levels in Table 7. These screening levels are based on U.S. ambient water quality criteria (AWQC) for protection of marine organisms (generally chronic exposure, but acute exposure values are used if no chronic value is available).

Concentrations of total and dissolved copper exceeded the screening level in most of the intertidal surface water samples (an anomalous ND result for total copper at SCSW-101 is the only exception). The highest concentrations of copper occurred in samples collected in the intertidal portion of Unnamed Stream and Lake Ellen Creek adjacent to the former mill site (SCSW-102) and near seeps from tailings areas (SCSW-314 and SCSW-316), but exceedances of screening levels also occur further out in Salt Chuck Bay (SCSW-321) and in the intertidal portion of Lake Ellen Creek (SCSW-101). One sample near the former mill (SCSW-102) also had exceedances of the screening levels for total cobalt and total

manganese. Concentrations of total and dissolved iron also exceeded the screening level in most samples.

The comparability of the intertidal surface water results to background levels has not been evaluated because no intertidal surface water samples were collected in a background area as part of the 2011 or 2012 investigations. This data gap will be addressed in 2013 sampling.

5.1.3 Bivalves

A total of 14 bivalve samples (mostly softshell clams, but some cockles, littleneck clams, and butter clams) were collected from Salt Chuck Bay. All samples were analyzed for metals. Selected samples from near the former mill were also analyzed for PAHs. Wet-weight analytical results for metals and PAHs are compared to conservative consumption-based screening levels in Tables 8 (metals) and 9 (PAHs).

Metals

Concentrations of arsenic in all 14 of the 2012 bivalve samples from Salt Chuck Bay exceeded the tissue screening level. Similar levels of arsenic were also observed in the background samples collected in Browns Bay (see Section 5.2.2). Moreover, there does not appear to be an association between arsenic levels in bivalves and proximity to the mine site, or any association with copper levels. Therefore, the occurrence of arsenic in bivalves at Salt Chuck Bay does not appear to be related to releases at the Site. Copper and vanadium exceedances occurred in two samples located along the northeastern side of the cove adjacent to the former mill site (SCTISS-311 and SCTISS-316); a third vanadium exceedances occurred at SCTISS-312. High levels of copper were also found in the sediment in this area.

PAHs

Concentrations of total PAHs exceeded the tissue screening level in 7 of the bivalve samples collected in Salt Chuck Bay; six of these samples were softshell clams and one was a cockle (SCTISS-331). The sample with the highest concentration (SCTISS-316) was obtained from the low-tide channel of Lake Ellen Creek approximately 1,000 feet south of the former barge slip. An elevated concentration of HPAHs (primary benzo(a)pyrene, benzo(b)fluoranthene, and pyrene) was also detected in the sediment collected at this location. The source of the PAHs at this location is unknown.

5.1.4 Intertidal Vegetation

A total of 16 intertidal vegetation samples (all sea asparagus) were collected from Salt Chuck Bay. All samples were analyzed for metals. Wet-weight analytical results are presented in Table 10. Risk-based screening levels have not been identified for vegetation so the evaluation is limited to comparisons of metals concentrations with background area results. Concentrations of metals in Intertidal Area sea asparagus samples were 3 to 20 times higher than concentrations in background area sea asparagus samples. The samples with the highest metals concentrations came from two locations in the cove east of the barge slip (SCIV-309 and SCIV-312). The reason for higher concentrations in this area is unknown.

5.2 Background Conditions

Four nearby areas with environmental conditions similar to those of the Upland and Intertidal Areas at the Site, but without known contaminant sources were identified as background locations for the environmental media collected at the Site. The following media and locations were sampled to characterize background conditions for the intertidal and upland portions of the Site:

- Background intertidal sediment in Browns Bay
- Background intertidal vegetation in Browns Bay

- Background bivalves in Browns Bay
- Background soil near Browns Bay and Lake No. 3 and the hill west of the former mill
- Background fresh surface water in Lake No. 3, Lake Ellen Creek, and Unnamed Stream
- Background sediment in Lake Ellen Creek, and Unnamed Stream
- Background upland vegetation near Browns Bay, Lake No. 3, and Boardwalk Lodge

5.2.1 Background Area Sediment

All sediment samples were analyzed for metals, PAHs, TOC, and petroleum hydrocarbons. Selected samples were also analyzed for AVS/SEM, grain size, and polychaete and bivalve bioassays. Analytical results for metals and PAHs are compared to ERLs and ERMs in Table 2. Low levels of metals and organics were detected in the samples, but none of the concentrations exceeded the ERLs or ERMs.

Two sediment samples collected in Browns Bay (SCSD-331 and SCSD-336) are included in the bioassay results presented in Table 3. As shown in Figure 8, the background area sediments were not toxic to polychaetes or bivalves.

4.2.2 Background Area Bivalves

A total of 13 bivalve samples (a mixture of softshell clams, cockles, littleneck clams, and/or butter clams) were collected from Browns Bay. All samples were analyzed for metals. Wet-weight analytical results for metals and PAHs are compared to human health-based screening levels for consumption of fish tissue in Tables 8 and 9.

Concentrations of arsenic in all of the background area bivalve samples exceeded the fish tissue screening level. This is due to the very conservative assumptions associated with the screening value used for arsenic. While other metals were detected in the tissue samples, all concentrations were below screening levels. For the most part, concentrations of PAHs in the background samples were lower than those detected in Salt Chuck Bay bivalves and below screening levels. However, the concentration of detected total PAHs in one background cockle sample (SCTISS-336) was over two orders of magnitude higher than the total PAH concentration in all Intertidal Area bivalve samples except for the sample collected at SCTISS-316. The source of the PAHs in this background sample is unknown.

5.2.3 Background Area Intertidal Vegetation

Six samples of sea asparagus were collected from the intertidal portion of Browns Bay. All samples were analyzed for metals. Wet weight analytical results are presented in Table 10. Concentrations of metals were generally lower in the sea asparagus samples collected in the background area than levels seen in Salt Chuck Bay.

5.2.4 Background Area Soil

Soil samples were collected from background locations near Browns Bay and Lake No. 3 and the hill west of the former mill. The samples were analyzed for metals, PAHs, petroleum hydrocarbons as DRO and RRO, and PCBs. The analytical results are compared to soil screening levels (generally EPA residential RSLs and ADEC Method Two cleanup levels for petroleum) in Table 11.

Concentrations of arsenic, chromium, cobalt and manganese in the soil samples collected near Lake No. 3 (SCSS-515 [normal and field duplicate]) exceeded their respective screening levels. Concentrations of arsenic and chromium in the soil sample collected above the former mill (SCSS-901) also exceeded their screening levels. Only arsenic exceeded its soil screening level in the soil samples (normal and field duplicate) collected near Browns Bay (SCSS-903). Overall concentrations of metals in the Lake No. 3 normal sample were higher than those in the corresponding FD and in other background locations and

may indicate that geologic conditions in this area are more variable or different than in the other background locations. Based on these results, it appears that naturally occurring levels of arsenic, chromium, cobalt, and manganese in area soils can be higher than the conservative risk-based values used for screening. The valence state of soil chromium is unknown, but was conservatively screened assuming its form was as hexavalent chromium.

Trace levels of PAHs and organics were detected in the background soil samples. However, none of the concentrations exceeded the soil screening levels.

5.2.5 Background Area Freshwater Sediment

Sediment samples were collected from 5 background locations in Lake Ellen Creek and in Unnamed Stream upstream of the Salt Chuck Mine. The samples were analyzed for metals, TOC, AVS/SEM, and grain size. The analytical results for metals are compared to freshwater sediment screening levels, which are generally based on threshold effects concentration (TEC) or upper effect threshold (UET) for freshwater organisms, in Table 12. The results for other analyses are presented in Table 13.

Metals

Concentrations of aluminum, barium, copper, mercury, selenium, and vanadium in the sediment samples collected along Unnamed Creek upstream of the mine (SCSD-510 and SCSD-511) exceeded their respective screening levels. The concentration of zinc at SCSD-510 also exceeded its screening level. No screening level exceedances were identified in the sample collected at the western inlet structure for Unnamed Creek at Power Lake (SCSD-512) or in the normal sample obtained at SCSD-513 in Lake Ellen Creek. However concentrations of copper, manganese and vanadium exceeded the screening levels in the field duplicate sample collected at SCSD-513. Concentrations of copper and vanadium also exceeded the screening levels at the most upstream Lake Ellen Creek sample. Based on these results, local geology may have an influence on background metals concentrations in freshwater sediment, such that they are enriched above screening levels.

Other Analyses

The results of other analyses used to characterize background area freshwater sediment are listed in Table 13. The results of these analyses are needed to evaluate the comparability of the background data set to freshwater sediment samples collected within the Upland Area of the Site.

- TOC – Concentrations of TOC in freshwater sediment in the background areas range from 5,310 (0.53 percent) to 395,000 mg/kg (39.5 percent). Samples from Unnamed Stream have significantly more TOC than samples from Lake Ellen Creek. This may be a function of grain size, as the samples collected in Lake Ellen Creek consist of very coarse sand and gravel, while the samples from Unnamed Stream are very fine and medium sand.
- Grain Size – The freshwater sediment samples from Power Lake and Unnamed Stream are primarily fine to medium sand. Samples from Lake Ellen Creek consist of very coarse sand and gravel.
- AVS/SEM – The results of this analysis will be used for comparison to upland freshwater sediment sample results. All samples indicated higher concentrations of SEM than AVS, indicating that sediment toxicity of divalent metals (if any) would not be meaningfully influenced by the presence of sulfide.

5.2.6 Background Area Fresh Surface Water

Surface water samples were collected from 5 background locations in Lake Ellen Creek and in Unnamed Stream upstream of the Salt Chuck Mine. The samples were analyzed for metals and hardness. The

analytical results are compared to fresh surface water screening levels, which are generally based on AWQC for freshwater organisms, in Table 14.

Concentrations of aluminum in all of the samples exceeded the screening level. The concentration of total copper at SCSS-510 and total and dissolved iron at SCSS-513 also exceeded the screening levels. The surface water results indicate that, with the exception of aluminum, background concentrations of metals are unlikely to impact interpretation of upland surface water results.

5.2.6 Background Upland Vegetation

Seven samples, representing a range of upland vegetation (huckleberry, blueberry, alder, skunk cabbage, salmonberry, and crabapple) were collected from background locations at Lake No. 3 and Boardwalk Lodge. All samples were analyzed for metals. Wet weight analytical results are presented in Table 15. Concentrations of metals were generally lower in the vegetation samples collected in the background area than levels from site tailings areas.

5.3 Characterize Upland Contamination

The following media and locations were sampled to characterize potential upland source areas in the vicinity of the Salt Chuck mine and mill:

- Upland soil in the vicinity of known or suspected sources areas at the Salt Chuck mine and mill
- Upland waste rock in the vicinity of the Salt Chuck mine and mill
- Upland tailings in the vicinity of the Salt Chuck mine and mill (does not include intertidal tailings)
- Upland (freshwater) sediment samples in the vicinity of the Salt Chuck mine and mill
- Upland (freshwater) surface water samples in the vicinity of the Salt Chuck mine and mill

5.3.1 Upland Soil

Ten soil samples were collected from 9 upland locations at the former mine and mill. The samples were obtained from surface materials that were not classified as tailings or waste rock based on visual observation. The samples were analyzed for metals, PAHs, petroleum hydrocarbons as DRO and RRO, and PCBs. One sample was analyzed for grain size. The analytical results for metals, PAHs, DRO, and RRO are compared to soil screening levels (generally EPA residential RSLs and ADEC Method Two cleanup levels) in Table 11. Grain size results are presented in Table 16.

Metals

Concentrations of arsenic and chromium in all samples where the metals were detected exceeded their respective screening levels (8 of 10 arsenic samples, 7 of 10 chromium samples). The concentrations reported in upland soil are similar to those reported in the background soil data set and likely reflect naturally occurring background levels of the metals. High concentrations of iron were reported in the samples collected at SCSS-504 and SCSS-505, located on the western side of the former mill. The valence state of soil chromium is unknown, but was conservatively screened assuming its form was as hexavalent chromium.

PAHs and Petroleum Hydrocarbons

Benzo(a)pyrene and DRO were detected in excess of screening levels at SCSS-506, SCSS-512, and SCSS-513. SCSS-506 is located on the western margin of the former mill, where coal tar saturated soil was excavated, and SCSS-512 and SCSS-13 are located in the vicinity of the former coal tar ASTs and fuel drum caches east of the former mill.

PCBs

No PCBs were detected in the soil samples collected at the site.

Grain Size

Grain size results for SCSS-501 are listed in Table 16 and indicate that soil in this area is composed of a mixture of very fine sand, medium sand, and gravel.

5.3.2 Tailings

Seven samples were collected from 5 locations in tailings piles located in the vicinity of the former mill. Five samples were obtained of surface (0 to 0.5 feet below ground surface [ft bgs]) material and 2 samples were obtained from 1 to 1.5 ft bgs at two of the locations. All of the samples were analyzed for metals, PAHs, PCBs, and petroleum hydrocarbons as DRO and RRO. Selected samples were analyzed for TOC, TCLP, net acid generating potential, sulfur forms, and grain size. The analytical results for metals, PAHs, PCBs, DRO and RRO are compared to soil screening levels (generally EPA residential RSLs and ADEC Method Two cleanup levels) in Table 17. Results for the remaining analyses are provided in Table 18.

Metals

Concentrations of arsenic and chromium exceeded their screening levels in all of the tailings samples. The concentrations in the tailings samples are in the same range as the upland soil samples and the background soil samples and likely reflect naturally occurring background levels. An elevated concentration of cobalt in the deeper sample collected at SCTL-501, but the concentration was only slightly above the screening level. Elevated concentrations of iron were reported in the samples collected at SCTL-504 and SCTL-505 located in the tailings piles west of Unnamed Stream.

PAHs and Petroleum Hydrocarbons

Benzo(a)pyrene was detected at concentrations above the screening level in 6 of the 7 tailings samples. Dibenz(a,h)anthracene was also detected in excess of its screening level in 1 of the samples. The exceedances were all J-qualified with estimated concentrations less than 4 times the screening level. Trace levels of petroleum hydrocarbons were also detected in the samples, but concentrations were all below screening levels.

PCBs

No PCBs were detected in the tailings samples collected around the former mill.

Other Analyses

The results of other analyses used to characterize the tailings in the upland portion of the Site are listed in Table 18. The results of these analyses are needed for other aspects of the RI and are not considered in the nature and extent of contamination evaluation. Nonetheless, the following patterns are apparent in the data:

- TOC – Concentrations of TOC in tailings range from 308 to 440 mg/kg.
- Grain Size –The tailings samples consisted primarily of very fine sand.
- TCLP –The J-qualified concentrations of barium in both samples collected from the tailings piles were slightly above the toxicity standard listed in 40 CFR 261.24. The concentration of lead in leachate from one of the samples (SSTL-504) was almost 10 times higher than the allowable standard for lead.

- Net acid generating potential and sulfur forms – The methodology and detailed findings of the acid-base evaluation are presented in a separate technical memorandum (CH2MHILL, 2013). In general, the evaluation found that the tailings samples would not generate acid in the long-term and that no further testing was required.

5.3.3 Waste Rock

Seventeen samples were collected from 16 locations at waste rock piles located in the vicinity of the former mill and mine. All samples were obtained from finer-grained materials around the margins of the waste rock piles, which are generally composed of cobbles and boulders that cannot be effectively sampled and analyzed. Sixteen of samples were analyzed for metals (the sample collected at SCWR-513, is the only exception) and 13 of the samples were also analyzed for PAHs, PCBs, and petroleum hydrocarbons as DRO and RRO (exceptions are SCWR-501, SCWR-502, and SCWR-503 located in waste rock piles near the glory hole portion of the mine area). Selected samples were analyzed for TCLP, net acid generating potential, and sulfur forms. The analytical results for metals, PAHs, PCBs, DRO and RRO are compared to soil screening levels (generally EPA residential RSLs and ADEC Method Two cleanup levels) in Table 19. Results for the remaining analyses are provided in Table 20.

Metals

Concentrations of arsenic and chromium exceeded their screening levels in all of the waste rock samples where the metals were detected. The concentrations in the waste rock samples are in the same range as the upland soil samples and the background soil samples and likely reflect naturally-occurring background levels. Elevated concentrations of cobalt, copper, and iron occurred in several waste rock samples, but the concentrations are only slightly above the screening levels, with the exception of copper at SCWR-510 (located along the former rail line, in the southern part of the mine area) and iron SCWR-512 (located at the end of the rail line in the northern portion of the former mill area).

PAHs and Petroleum Hydrocarbons

Benzo(a)pyrene was detected at concentrations above the screening level in 2 of the 13 waste rock samples analyzed for PAHs (SCWR-505 and SCWR-511 located in the mine area). Benzo(a)anthracene was also detected in excess of its screening level at SCWR-511. The exceedances were all J-qualified with estimated concentrations less than 4 times the screening level. The concentration of DRO at SCWR-509 (in the mine area) also slightly exceeded its screening level. Concentrations of DRO and RRO several times the screening levels were reported in the waste rock sample collected just north of the former mill complex (SCWR-514).

PCBs

No PCBs were detected in the waste rock samples collected around the mine and former mill areas.

Other Analyses

The results of other analyses used to characterize the waste rock in the upland portion of the Site are listed in Table 20. The results of these analyses are needed for other aspects of the RI and are not considered in the nature and extent of contamination evaluation. Nonetheless, the following patterns are apparent in the data:

- TCLP –The J-qualified concentrations of barium in the leachate from SCWR-501 was slightly above the toxicity standard listed in 40 CFR 261.24.
- Net acid generating potential and sulfur forms – The methodology and detailed findings of the acid-base evaluation are presented in a separate technical memorandum (CH2MHILL, 2013). In

general, the evaluation found that the waste rock samples would not generate acid in the long-term and that no further testing was required.

5.3.4 Groundwater

A total of 6 groundwater samples were collected from monitoring wells installed in the vicinity of the former coal tar ASTs and fuel storage areas during the NTCRA at the mill (Figure 9). The wells were purged and sampled according to the procedures described in the RI QAPP. All samples were to be analyzed for PAHs, petroleum hydrocarbons as DRO and RRO, total and dissolved metals, and general water quality parameters (alkalinity, chloride, carbonate, and sulfate). Water quality parameters recorded during sampling are listed in Appendix B. However, there was insufficient groundwater recovery at GW-02 to allow for collection of sufficient sample volume for the full suite of analyses. Consequently, the sample collected at GW-02 was not analyzed for total and dissolved metals or water quality parameters. In addition, the sample obtained at GW-05 contained high amounts of suspended solids possibly related to a broken grout seal making filtration for the dissolved sample aliquot difficult.

Analytical results for PAHs, DRO, RRO, and total and dissolved metals are compared to groundwater screening levels in Table 21. Because groundwater at the site might discharge to marine surface water in Salt Chuck Bay, the screening level for each analyte consists of the lowest value among the following criteria:

- Federal AWQC for aquatic life.
- Federal maximum contaminant levels (MCLs) for drinking water, or EPA regional screening levels (RSLs) for tap water, if no MCL.
- 18 AAC 75 Table C groundwater cleanup levels, if no AWQC or RSL values are available.

Drinking water standards are used here for screening purposes only. Groundwater in the Upland Area is unlikely to be developed for drinking water in the future, due to the presence of more readily available surface water sources, and low yields in bedrock aquifers.

Metals

Concentrations of several total and dissolved metals exceeded the screening levels in one or more monitoring wells. Concentrations of total and dissolved copper were highest at GW-03, with levels of 508 and 152 ug/L respectively, compared to the marine chronic AWQC-based criterion of 3.1 ug/L. GW-03 is located in the portion of the former mill where a large volume of tailings and metal debris were removed during the NTCRA, whereas the wells with lower metals concentrations are located in soil around the perimeter of the NTCRA area.

PAHs and Petroleum Hydrocarbons

Concentrations of PAHs and/or petroleum hydrocarbons as DRO and RRO were detected above screening levels in wells located near or downgradient of former ASTs and fuel drum caches (GW-01, GW-02, and GW-06), as well as one well located near the center of the former mill building (GW-04). With the exception of naphthalene and phenanthrene at GW-01 and naphthalene at GW-06, the magnitudes of screening level exceedances were very low (less than 2 times the screening level). Although petroleum hydrocarbons and PAHs were also detected in wells installed in the upland tailings north and south of the former mill buildings (GW-03 and GW-05), the concentrations were below screening levels.

Other Analyses

The results of other general chemistry analyses used to characterize groundwater are listed in Table 22. The results of these analyses are needed for other aspects of the RI, and are not considered in the nature and extent of contamination evaluation.

5.3.5 Upland Surface Water

Surface water samples used to characterize fresh surface water conditions at the Site were obtained from 6 locations along Unnamed Stream near the mine and mill, from ponded water at the mouth of the W1 adit (SCSW-508), and from the stream bed of a small side channel of Unnamed Stream (SCSW-506) southeast of the W1 adit . All samples were analyzed for hardness and metals (both dissolved and total). The most downstream sample located near the former mill (SCSW-501) was also analyzed for DRO and RRO to evaluate potential releases from operations or fuel storage at the former mill.

Analytical results for total and dissolved metals, DRO and RRO are compared to fresh surface water screening levels in Table 14. These screening levels are based on AWQC for protection of freshwater organisms (chronic exposure). Water quality parameters recorded during sampling are listed in Appendix B.

Metals

Total and dissolved metals results in the upland fresh surface water samples were generally below screening levels. The exceptions were total and dissolved aluminum which exceeded the screening level at all surface water sample locations except SCSW-508; total manganese at SCSW-502; and total and dissolved copper and selenium at SCSW-508. The aluminum concentrations in the upland surface water data set are consistent with those of the background fresh surface water data set and likely represent naturally occurring background levels. The concentrations of total and dissolved copper at SCSW-508 were more than 10 times higher than copper concentrations in other surface water samples and well above copper levels detected in the background surface water data set. Sample SCSW-508 was collected from ponded water at the mouth of W1 adit, and was not attenuated by dilution from non-mine sources like the other surface water samples collected along Unnamed Stream. Surface water samples collected immediately downstream of the adit discharge confluence with Unnamed Stream did not exhibit exceedances of screening levels for copper and selenium.

Petroleum Hydrocarbons

Very low, J-qualified concentrations of DRO and GRO were detected in both the filtered and unfiltered sample collected from Unnamed Stream at SCSW-501. There are no AWQC for these petroleum mixtures but all detections were well below levels suggesting the presence of free product or other deleterious effects.

5.3.6 Upland Sediment

Upland sediment samples were collected along Unnamed Stream at most of the same locations as the upland surface water samples (sediment from ponded water at SCSW-508 was not sampled). All samples were analyzed for TOC, metals, AVS/SEM , and grain size. The most downstream sample, located near the former mill (SCSD-501) was also analyzed for PAHs, PCBs, GRO, DRO and RRO to evaluate potential releases from the former mill.

Analytical results for metals, PAHs and PCBs are compared to freshwater sediment screening levels in Table 12. These screening levels are based primarily on freshwater sediment TEC and UET benchmarks (Buchman, 2008). Results for the remaining sediment analyses are provided in Table 13.

Metals

A variety of metals were detected in excess of their screening levels in the upland fresh sediment data set. In most cases, the metals concentrations are less than 2 times the screening levels and are consistent with the concentrations of the metals in the background freshwater sediment data set. However, the results for the sample collected at SCSD-509, located between the glory hole and the southern portion of the mine, are much higher than the other upland and background freshwater sediment results. The reason for the elevated metals concentrations is unknown, but could reflect geologic variability.

PAHs and Petroleum Hydrocarbons

Very low, J-qualified concentrations of PAHs, DRO, and RRO were detected in the sediment sample collected from Unnamed Stream at SCSD-501. The estimated PAH concentrations were below their respective screening levels. There are no freshwater sediment benchmarks for petroleum mixtures but the DRO and RRO detections were well below levels suggesting the presence of free product or other deleterious effects.

PCBs

PCBs were not detected in the sample collected at SCSD-501.

Other Analyses

The results of other analyses used to characterize the tailings in the upland portion of the Site are listed in Table 13. The results of these analyses are needed for other aspects of the RI and are not considered in the nature and extent of contamination evaluation. Nonetheless, the following patterns are apparent in the data:

- TOC – Concentrations of TOC in freshwater sediment range from 19,000 to 278,000mg/kg.
- Grain Size –The sediment samples consist primarily of coarse sand and gravel.
- AVS/SEM - – This analysis determines the form of divalent metals available for toxicity in sediment and will be used in the risk assessment. All samples indicated higher concentrations of SEM than AVS, indicating that sediment toxicity of divalent metals (if any) would not be meaningfully influenced by the presence of sulfide.

5.3.7 Upland Vegetation

Fifteen samples, representing a range of upland vegetation (huckleberry, alder, skunk cabbage, salmonberry, and crabapple) were collected from Upland Area locations around the mine and former mill. All samples were analyzed for metals. Wet weight analytical results are presented in Table 15.

Concentrations of metals in the Upland Area samples were generally higher than in the vegetation samples collected in the background area. The samples with the highest metals concentrations tended to come from vegetation growing in tailings piles. For example, concentrations of copper, cobalt, chromium, cadmium and iron were highest in the skunk cabbage sample collected near the D14 tailings pile located next to Unnamed Stream (SCUV-503). Similarly, concentrations of aluminum and barium were highest in the huckleberry sample collected from a shrub located on the tailings spit near the former mill (SCUV-502).

5.4 Correlation of X-ray Fluorescence and Analytical Results

XRF readings from selected soil, tailing, and waste rock samples obtained in the upland mill and mine sites were compared to laboratory analytical results to develop a correlation factor for copper so that

field XRF readings can be used to reliably identify areas of copper contamination during future sampling and remediation events. The laboratory results and field XRF readings for wet and dried samples are listed in Table 23 and shown on Figure 10.

XRF readings for both the wet and dried samples were not in good agreement with laboratory-measured copper concentrations for the entire range of concentrations analyzed (~55 to 43,700 mg/kg). Even when the samples with the highest copper concentrations (greater than 20,000 mg/kg) are excluded from the data set (Figure 11), there is very poor agreement between XRF and laboratory results. XRF was successfully used as a field screening tool during the NTCRA and the instrument was calibrated and operated according to manufacturer instructions during the 2012 field investigation so the reason for the disparate reading is unknown.

5.5 Human and Ecological Risk Assessments

The 2012 data will be used in conjunction with the 2011 data and other applicable historical and upcoming results to determine whether contaminants are present in Site environmental media at levels that pose unacceptable risks to current or future users or to associated wildlife. Methods for conducting the human health and ecological risk assessments are presented in the Risk Assessment Work Plan (CH2MHILL 2013).

6 Conclusions

The following conclusions are based on review of the 2012 data and relevant 2011 pre-RI and previous investigation results:

- Intertidal Area:
  - There are sufficient data to conclude that intertidal sediments in Salt Chuck Bay are adversely affected by releases from tailings and other sources at the site. The primary contaminants of interest are copper and other mine-related metals, but small localized areas near the former mill are also affected by PAHs associated with petroleum and coal tar releases. PCBs are not contaminants of interest for sediment or other media in the Intertidal Area.
  - The sediment from areas where copper concentrations are highest (i.e., greater than about 800 mg/kg) appears to be toxic to polychaetes and bivalves.
  - Intertidal surface water in Salt Chuck Bay may be adversely impacted by releases of metals from tailings and other sources at the Site.
  - Clams in Salt Chuck Bay contain concentrations of some metals in excess of screening levels and above levels observed in background locations; levels of these metals are associated with proximity to the former mill area. The occurrence of arsenic in clams does not appear to be related to releases at the Site because similar arsenic concentrations were detected in clams throughout Salt Chuck Bay and in the background location at Browns Bay.
  - Concentrations of metals in sea asparagus samples collected at the Site are higher than concentrations in background sea asparagus samples. The sea asparagus samples with the highest metals concentrations occur primarily in the cove east of the barge slip.
- Upland Area:
  - The NTCRA conducted by the Forest Service in 2011 removed tailings beneath and around the former mill building where feasible. Based on sampling conducted by the Forest Service after

the NTCRA, metals-contaminated tailings remain in unexcavated areas around and beneath the former mill, as well as in upland tailings piles.

  - Metals-contaminated soil and tailings in the vicinity of the former assay building were removed during the NTCRA.
  - Soil and tailings contaminated by releases of petroleum and coal tar were removed during the NTCRA. Low levels of petroleum and PAHs remain in unexcavated areas around and beneath the former mill. None of the results are high enough to suggest a previously unidentified source.
  - Upland tailings and waste rock piles outside of the former mill area contain concentrations of petroleum hydrocarbons and PAHs above screening levels.
  - Groundwater in the former mill area is affected by petroleum and PAHs and by metals in tailings. Significant volumes of tailings and waste rock, and petroleum/PAH-contaminated soil were removed down to bedrock in the area of the former mill during the NTCRA. The reported concentrations of petroleum and PAHs in groundwater are below levels suggestive of free product.
  - Affected groundwater may discharge to the intertidal portion of Salt Chuck Bay adjacent to the former mill.
  - Upland surface water and sediment are generally unaffected by releases from the Site. However, ponded water within the main adit and sediment in the Unnamed Stream near the adit contain concentrations of copper and other metals above screening levels.
  - Concentrations of some metals appear elevated in vegetation growing in upland tailings piles, relative to levels at background areas.

- Background Conditions:
  - Sufficient data have been collected to characterize background conditions in all media except intertidal surface water.
- Correlation of XRF and Analytical Results
  - There was very poor correlation between XRF results for wet and dried samples and laboratory results. The reason for the poor performance of the XRF during the field investigation is unknown.

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Figures

0 0.25 0.5 Miles

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Figure 1
Site Location Map
Salt Chuck Mine, Alaska

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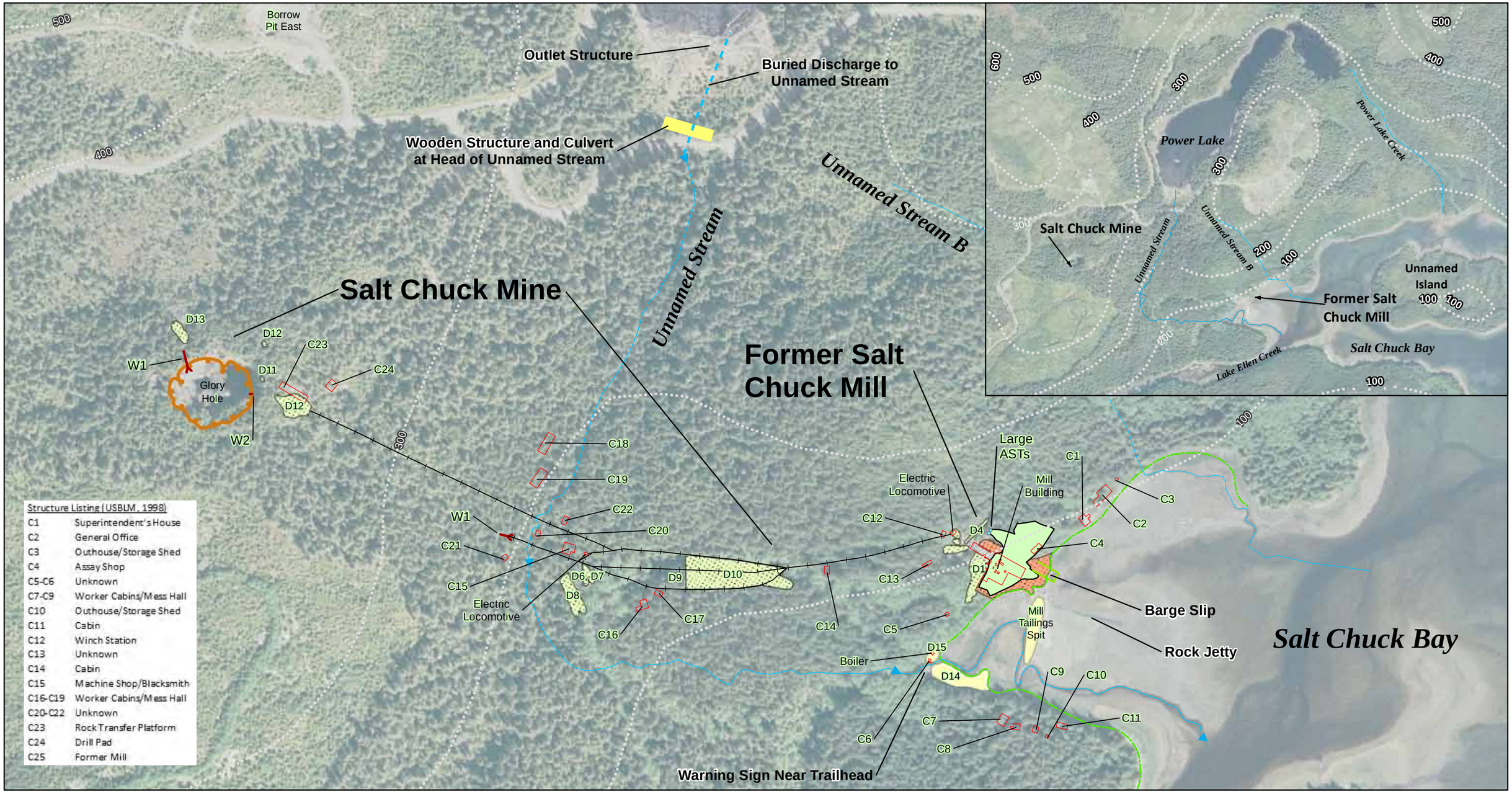

Approximate Shoreline(Mean High Tide)
Train Route
Adit or Tunnel
Streams/Creek
100-foot Contour Line (TNF)
Former Above Ground Storage Tanks
Tailings and Contaminated Soil Removal Area (Backfilled and Covered)
Building
Glory Hole

Mine Waste Type
Waste Rock Pile
Waste Rock Pile and Tailings
Tailings

N

0 500 1,000 Feet

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Stream, with modifications based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

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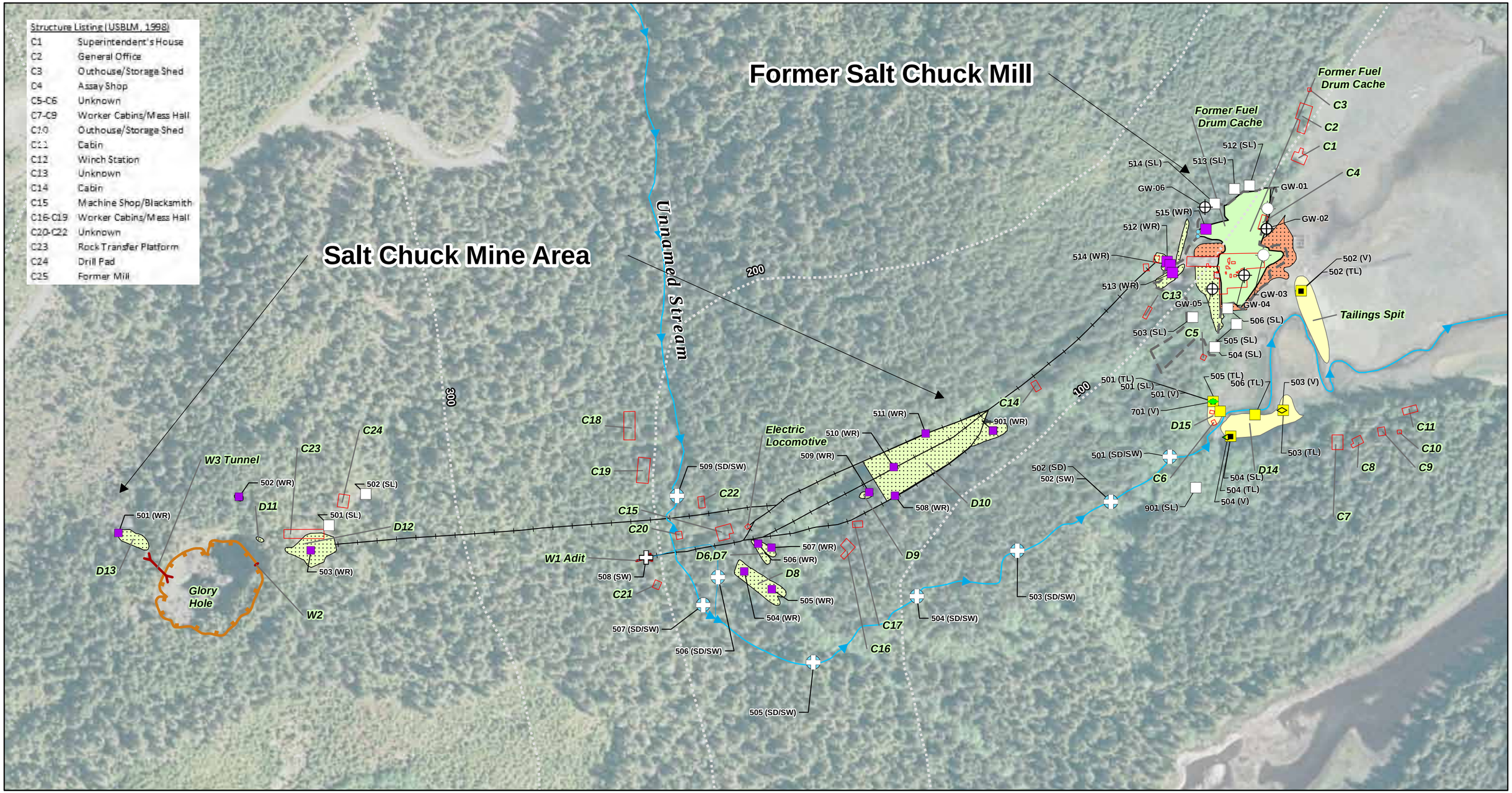
Figure 2
Aerial Photograph and Site Features
Salt Chuck Mine, Alaska

EPA



Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Train, Stream, Trenched Water, with modification based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest
(4) GPS coordinates adjusted based on best available data for the site

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Figure 3
Upland Sample Locations
Salt Chuck Mine and Mill
Salt Chuck Mine, Alaska

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EPA

Former Salt Chuck Mill
Unnamed Island
Salt Chuck Bay
Lake Ellen Creek
Unnamed Stream
300
200
100
306 (SD)
306 (V)
601 (V)
310 (SD)
302 (SD)
302 (V)
903 (SD)
902 (SD)
901 (SD)
301 (SD)
308 (SD)
305 (SD)
305 (V)
307 (SD)
102 (SW)
402 (SD)
401 (SD)
304 (SD)
304 (V)
303 (SD)
312 (B)
312 (V)
312 (SD)
309 (V)
309 (SD)
316 (B)
316 (SD/SW)
316 (V)
311 (SD)
311 (B)
314 (SD/SW)
313 (SD)
101 (SW)
315 (SD)
315 (B)
322 (SD)
321 (SD/SW)
320 (V)
320 (B)
320 (SD)
319 (V)
319 (SD)
318 (V)
318 (SD)
602 (V)
325 (SD)
325 (B)
325 (V)
323 (SD)
324 (SD)
326 (SD)
317 (B)
317 (SD)
328 (SD)
330 (V)
330 (SD)
330 (B)
329 (V)
329 (B)
329 (SD)
327 (SD)
327 (V)
331 (B)
331 (SD)
601 (B)
332 (SD)

- Subsurface Soil (SL)
- Vegetation (V)
- Bivalve Tissue (B)
- Surface Water (SW)
- Subsurface Sediment (SD)
- Surface Sediment/Bioassay (SD)
- Surface Sediment (SD)
- 100-foot Contour Line (TNF)
- Water Flow Direction
- Approximate Shoreline (Mean High Tide)
- Stream/Creek
- Building
- Tailings and Contaminated Soil Removal Area (Backfilled and Covered)

N

0 375 750 Feet

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Stream, with modifications based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

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Figure 4
Salt Chuck Bay
Intertidal Sample Locations
Salt Chuck Mine, Alaska

EPA

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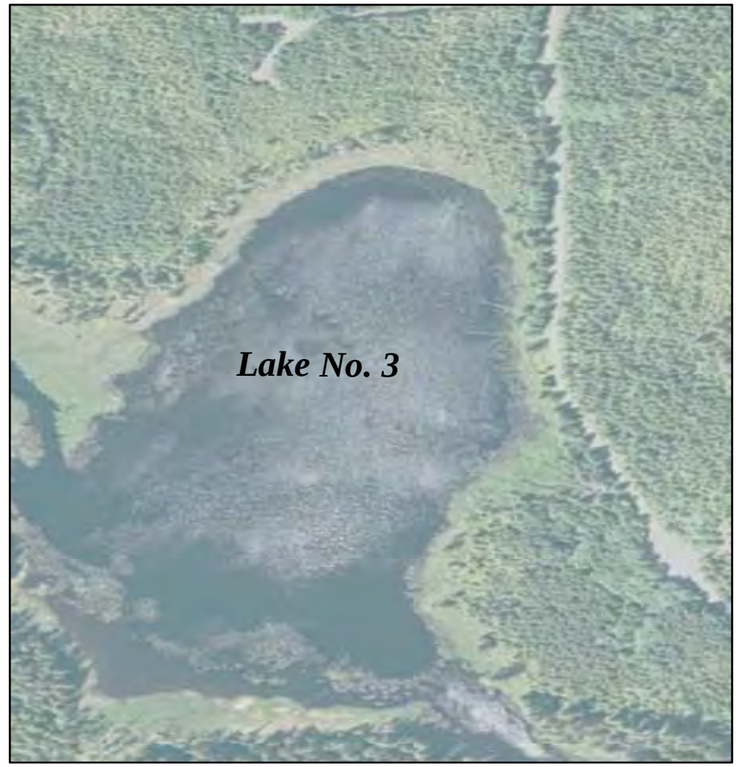

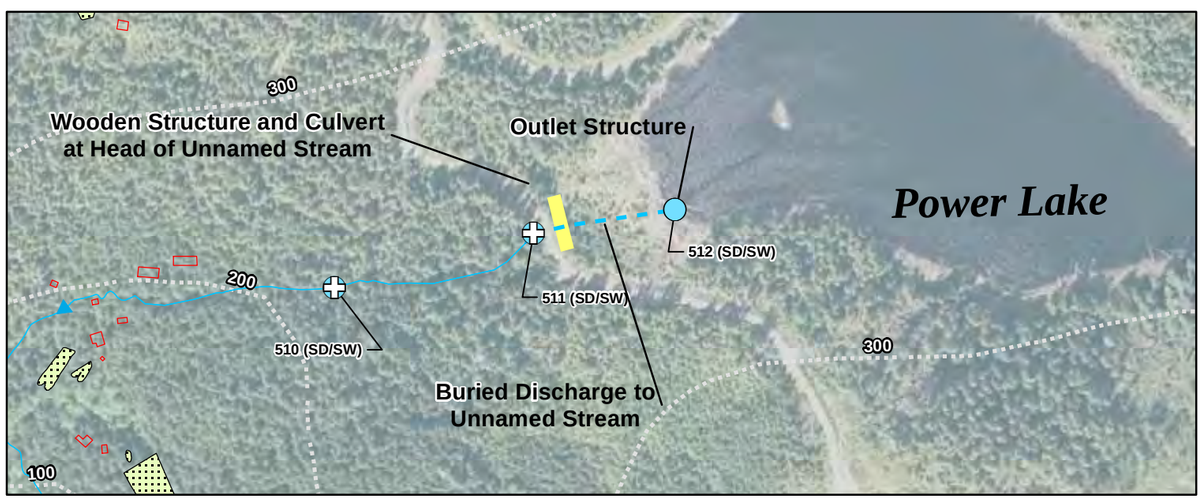

- Vegetation (V)
- Bivalve Tissue (B)
- Surface Water (SW)
- Surface Sediment (SD)
- 100-foot Contour Line (TNF)
- Buried Discharge
- Stream/Creek
- Water Flow Direction

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Train, Stream, Trenched Water, with modification based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

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Figure 5
Background/Reference Sample Locations
Browns Bay, Lake No. 3, Unnamed Stream, Lake Ellen Creek, and Boardwalk Lodge
Salt Chuck Mine, Alaska

EPA

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Former Salt Chuck Mill

Unnamed Island

Salt Chuck Bay

Unnamed Stream

Lake Ellen Creek

300

200

200

SCSD-328

SCSD-330

317 (SD)

SCSD-326

322 (SD)

(SD) 325

321 (SD)

323 (SD)

316 (SD)

312 (SD)

310 (SD)

306 (SD)

309 (SD)

903 (SD)

902 (SD)

302 (SD)

901-1-1.5 (SD)

901 (SD)

301 (T)

308 (SD)

311 (SD)

305 (SD)

307 (SD)

304 (SD)

402 (SD)

401 (SD)

303 (SD)

314 (SD)

313 (SD)

320 (SD)

324 (SD)

319 (SD)

315 (SD)

318 (SD)

327 (SD)

SCSD-329

SCSD-331

SCSD-332

2012 Sediment or Tailing Sample Location
Detected sediment cooper concentration exceeds ERL
Detected sediment cooper concentration exceeds both ERL and ERM

100-foot Contour Line (TNF)
Approximate Shoreline (Mean High Tide)
Water Flow Direction
Stream/Creek

Tailings and Contaminated Soil Removal Area (Backfilled and Covered)
Building

Effects Range Low (ERL) = 34 (mg/kg)
Effects Range Medium (ERM) = 270 (mg/kg)

0 150 300 Feet

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Stream, with modifications based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

NOAA Effects Range Low (ERL) and Effects Range Medium (ERM) marine benchmarks (Long et al., 1995; Buchman, 2008)

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Figure 6
2012 Copper Concentration in Intertidal Sediment / Tailings Samples at Salt Chuck Bay
Salt Chuck Mine, Alaska

EPA

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Former Salt Chuck Mill

Unnamed Island

Salt Chuck Bay

Lake Ellen Creek

Unnamed Stream

326 (SD)
903 (SD)
312 (SD)
902 (SD)
306 (SD)
316 (SD)
309 (SD)
308 (SD)
901 (SD)
305 (SD)
311 (SD)
301 (SD)
307 (SD)
314 (SD)
329 (SD)
315 (SD)
331 (SD)
401 (SD)
313 (SD)
332 (SD)

300
200
100
100
100
100
100
100

HPAHs > ERL; LPAHs > ERL & ERM

HPAHs > ERL; LPAHs < ERL

HPAHs < ERL; LPAHs > ERL

HPAHs and LPAHs < ERL

LPAHs – low molecular weight polycyclic aromatic hydrocarbons
HPAH – high molecular weight polycyclic aromatic hydrocarbons

ERL = effects range low (NOAA marine benchmarks)
ERM = effects range medium (NOAA marine benchmarks)

100-foot Contour Line (TNF)
Approximate Shoreline (Mean High Tide)
Stream/Creek

Building
Tailings and Contaminated Soil Removal Area (Backfilled and Covered)

N

0 375 750 Feet

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Stream, with modifications based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

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Figure 7
Comparison of Intertidal Sediment/Tailing Sample Results to Sediment Screening Levels for LPAHs and HPAHs
Salt Chuck Bay
Salt Chuck Mine, Alaska

EPA

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Former
Salt Chuck Mill

Unnamed Island

Salt Chuck Bay

Lake Ellen Creek

Unnamed Stream

Browns Bay

Gosti Island

Unnamed Island

328 (SD)
326 (SD)
322 (SD)
306 (SD)
310 (SD)
309 (SD)
308 (SD)
305 (SD)
301 (SD)
307 (SD)
304 (SD)
302 (SD)
303 (SD)
313 (SD)
323 (SD)
324 (SD)
327 (SD)
331 (SD)
333 (SD)
336 (SD)

300
200
100

- Not Toxic to Polychaete or Bivalve
- Toxic to Polychaete Only
- Toxic to both Polychaete and Bivalve
- Sediment Sample Locations No Bioassay Tests

- 100-foot Contour Line (TNF)
- Approximate Shoreline (Mean High Tide)
- Stream/Creek
- Building
- Tailings and Contaminated Soil Removal Area (Backfilled and Covered)

N

0 375 750 Feet

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Stream, with modifications based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

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Figure 8
Summary of Bioassay Results
Sediment Sample Locations
Salt Chuck Bay
Salt Chuck Mine, Alaska

EPA

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Groundwater (GW)
Former Above Ground Storage Tanks
100-foot Contour Line (TNF)
Water Flow Direction
Approximate Shoreline (Mean High Tide)
Stream/Creek
Building
Tailings and Contaminated Soil Removal Area (Backfilled and Covered)

N

0 100 200 Feet

Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Source Documents: Figures 2-2 and 2-3, URS, Salt Chuck Mine Report, March 2010. Features: C-Series, D-Series, Mean High Tide, Stream, with modifications based on site observations from 2012 RI investigation.
(3) TNF = Tongass National Forest

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Figure 9
Groundwater Sample Locations
Salt Chuck Mine, Alaska

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EPA

Figure 10. Comparison of Laboratory and XRF Copper Concentrations - All Data

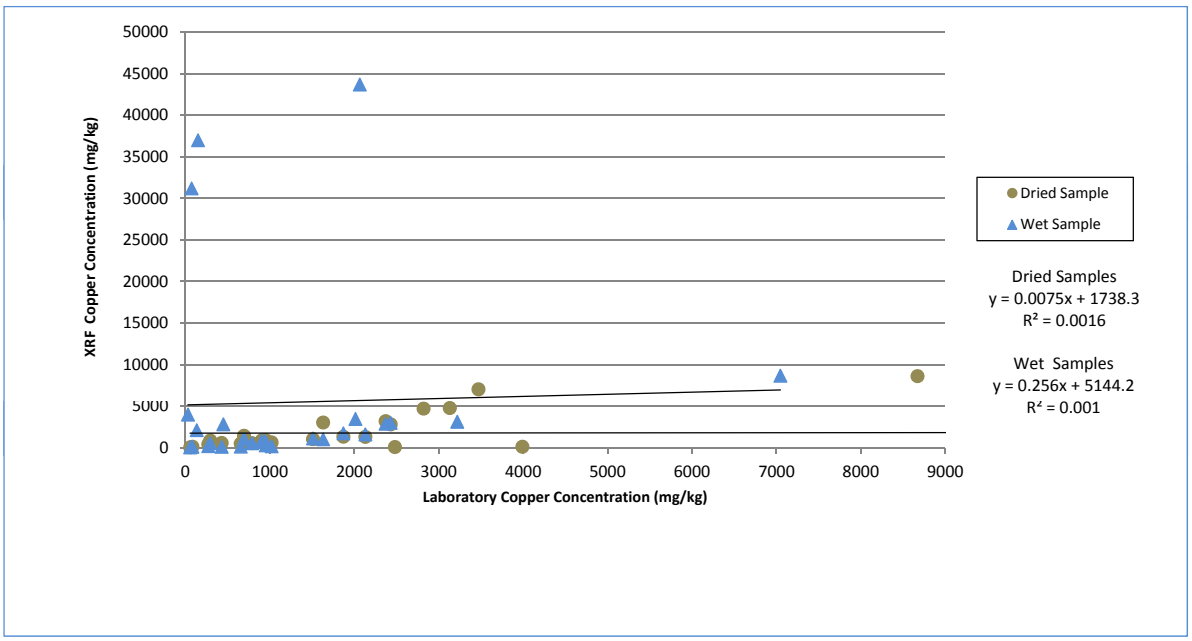
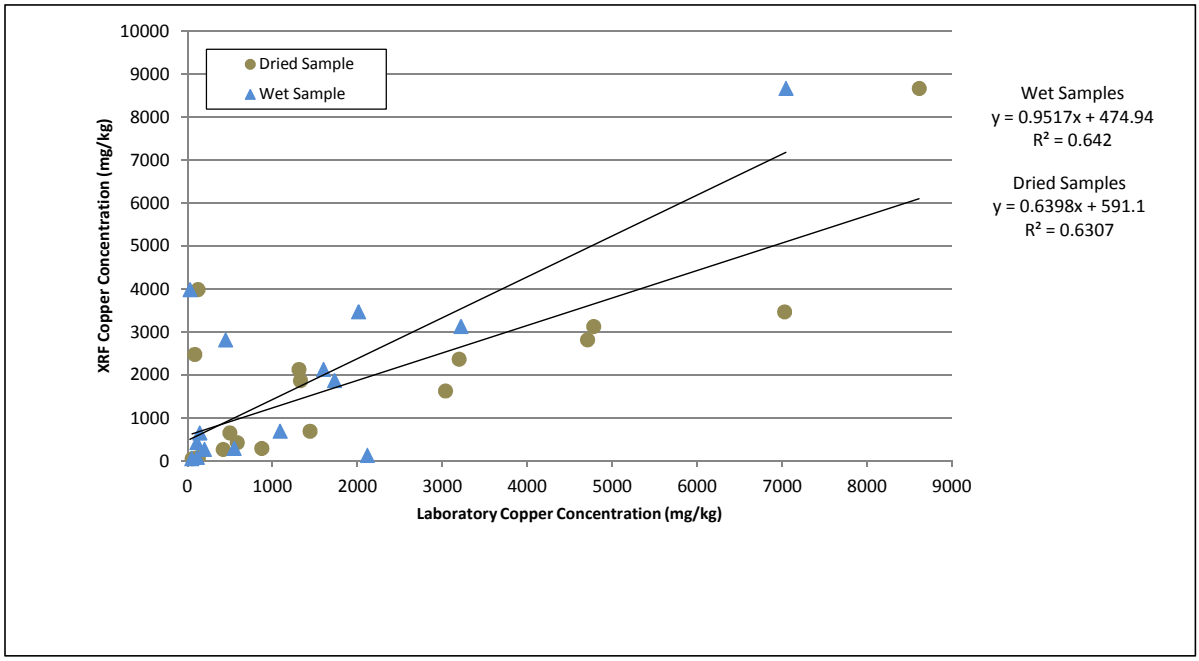


Figure 11. Comparison of Laboratory and XRF Copper Concentrations - Results < 20,000 mg/kg



Tables

Table 1

Deviations from the 2012 RI QAPP

Salt Chuck Mine, Alaska

Description of Change	Affected Sample Location(s)	Reason for Change	Impact on Remedial Investigation?
Did not collect planned tissue samples at three locations	SCTISS-314, -321, and -332	Number of individuals of the targeted bivalve species did not meet minimum sample volume requirements	None - other samples results are available to characterize bivalve tissue at site.
Collected additional bivalve species at one location	SCTISS-336	Provide additional data to support characterization of bivalves	Provides additional data
Did not collect intertidal vegetation samples at five locations	SCIV-311, -314, -315, -317, and -321	Targeted species biomass too small to meet minimum sample volume requirements	None - substituted samples from locations listed below.
Collected intertidal vegetation samples at five additional locations	SCIV-302, -304, -305, -306, -309, -318, -319, -325, -327, -329, and -330	Replacement sample locations for SCIV-311, -314, -315, -317, and -321	None - replacements for unsampled locations above
Did not collect sample aliquots for total/dissolved metals, alkalinity, sulfate, chloride, and hardness analyses at one groundwater sample location	GW-02	Well went dry and did not recover - insufficient sample volume for all target analytical suites	None, missing analytical data does not impact petroleum/PAH plume delineation
Did not collect samples at five soil sample locations	SCSS-507 through -511	Surface soil at planned locations consisted primarily of organic matter, insufficient mineral soil for analysis.	None - samples replaced with intertidal sediment samples (SCSD-901, -902, and -903) down slope from planned locations.
Collected intertidal sediment samples at five additional locations and added GRO and PCBs analyses to these sample locations (in addition to typical suite of sediment analyses)	SCSD-901, -902, -903, and -901-1-1.5	Replacement samples for SCSS-507 through -511	None - replacements for unsampled locations above
Did not collect sample at one Background soil sample location	SCSS-516	Location inaccessible (remoteness of location and tidal conditions)	None -sample replaced with background soil sample SCSS-903
Collected additional surface soil and waste rock samples at new site and background sample locations	SCSS-901, SCSS-903, and SCWR-901	Additional surface soil and waste rock sample collected to characterize conditions at site; additional background surface soil sample to replace SCSS-516 above.	Provides additional data
Did not collect upland vegetation sample at one location	SCUV-516	Targeted species biomass too small to meet minimum sample volume requirements	None - substituted sample from SCUV-901.
Collected upland vegetation samples at three additional locations and one replacement location	SCUV-337, -502, -515, and -901	Replace SCUV-516 and to provide additional data to support characterization of upland vegetation	Replacement of unsampled location and provide additional data
Collected up to six species (instead of two) of upland vegetation samples at 3 sample locations	SCUV-337, -502, and -515	Provide additional data to support characterization of upland vegetation	Provides additional data
Collected additional subsurface sample of tailings at one location	SCTL-502-1-1.5	Provide additional data to support characterization of upland tailings	Provides additional data
Added TOC, grain size, net acid generating potential, and TCLP metals analyses to one upland tailing sample location	SCTL-502	Provide additional data to support characterization of upland tailings	Provides additional data
Did not collect sample aliquots for metals, DRO, RRO, GRO, PAHs, and PCBs analyses at one waste rock sample location	SCWR-513	Material at the sample location consisted primarily of large (>3 inches) waste rock, with insufficient finer-grained material to meet the minimum sample volume requirements	Possible - waste rock pile characterization may be hampered by lack of data

Table 1

Deviations from the 2012 RI QAPP

Salt Chuck Mine, Alaska

Description of Change	Affected Sample Location(s)	Reason for Change	Impact on Remedial Investigation?
Did not collect surface and/or subsurface samples at two waste rock sample locations	SCWR-516, -510-1-1.5, and -516-1-1.5	Waste rock pile at SCWR-516 (surface and subsurface location) covered during NTCRA. Waste rock pile at SCWR-510 consisted primarily of larger material (>3 inches) and it was not possible to collect subsurface sample using the sampling methods described in the QAPP	Possible - waste rock pile characterization may be hampered by lack of data
Did not analyze DRO, RRO, GRO, PAHs, and PCBs at several freshwater sediment, surface soil, and waste rock sample locations	SCSD-502 through -507, -509 through -514, SCSS-501 and -502, and SCWR-501 through -503	No known sources for these analytes in vicinity of sample locations	None - these analytes are not likely to be present outside of the former mill area
Did not collect freshwater sediment sample at one location	SCSD-508	Location in ponded water at entrance to mine adit. Sediment inaccessible due to safety concerns.	Possible - Local impact of mine drainage on sediment in Unnamed Stream may be hampered by lack of data.
Did not collect freshwater sediment sample at one background location	SCSD-515	Sediment at location consisted primarily of organic matter, insufficient sediment for analysis.	None - other samples results are available to characterize background sediment concentrations
Did not collect samples for DRO and RRO analyses at several freshwater surface water sample locations	SCSW-502 through -515	No known sources for these analytes in vicinity of sample locations	None - these analytes are not likely to be present outside of the former mill area
XRF measurements were not collected for several samples	SCTL-501-1-1.5 (Wet), SCSS-503, -504, -505, -506, -515, -901, and -903 (Wet and Dried), SCWR-510 and -513 (Wet and Dried)	Insufficient sample volume was retained for processing and XRF measurements.	None - missing data is unlikely to influence XRF reliablity assessment

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:					SCSD-301	SCSD-302	SCSD-303	SCSD-304	SCSD-305	SCSD-306	SCSD-307	SCSD-308	SCSD-309	SCSD-310	SCSD-311
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-301-07292012	SCSD-302-07302012	SCSD-303-07302012	SCSD-304-07292012	SCSD-305-07292012	SCSD-306-07292012	SCSD-307-07302012	SCSD-308-07302012	SCSD-309-07292012	SCSD-310-07302012	SCSD-311-07282012
Sample Type:					N	N	N	N	N	N	N	N	N	N	N
Sample Date:					07/29/12	07/30/12	07/30/12	07/29/12	07/29/12	07/29/12	07/30/12	07/30/12	07/29/12	07/30/12	07/28/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]												
ChemGroup	Analyte	Unit	ERL	ERM											
Metals	Aluminum	mg/Kg	NE	NE	10,400	11,900	10,400	12,200	11,700	8,890	16,500	8,860	9,700	8,560	10,500
Metals	Antimony	mg/Kg	NE	NE	1.2 UJ	1.1 UJ	1.1 UJ	0.95 UJ	1.1 UJ	1.1 UJ	1.2 U	1.3 UJ	1 UJ	0.92 UJ	1.3 UJ
Metals	Arsenic	mg/Kg	8.2	70	2.1 J	1.6	2.4	1.8 J	1.5	1.5	1.7	2.1	1.5	0.76	2.7 J
Metals	Barium	mg/Kg	NE	NE	7.8	7.5 J	7.6 J	14	12.2	11.7	15.6	9.5 J	13.3	10.7 J	14.7
Metals	Beryllium	mg/Kg	NE	NE	0.59 U	0.55 UJ	0.55 UJ	0.48 U	0.53 U	0.56 U	0.6 U	0.66 U	0.5 U	0.46 UJ	0.63 U
Metals	Cadmium	mg/Kg	1.2	9.6	0.59 U	0.55 UJ	0.55 UJ	0.48 U	0.53 U	0.56 U	0.6 U	0.66 UJ	0.5 U	0.46 UJ	0.63 U
Metals	Calcium	mg/Kg	NE	NE	6,220	8,060	10,900	15,500	10,900	5,970	19,200	5,510	6,010	9,580	7,190
Metals	Chromium	mg/Kg	81	370	2.6	2.9	2.4	1.8	1.8 J	2.4 J	3.9	2.7	3.9 J	1.7	3.4 J
Metals	Cobalt	mg/Kg	NE	NE	21.9	24.3	21.1	23.4	21	20.7	28.4	18.4	22.1	16.4	23.1 J
Metals	Copper	mg/Kg	34	270	**2,530**	**2,650 J**	**2,550 J**	**1,100**	**1,010**	**645**	**1,250**	**700 J**	**534**	**544 J**	**841 J**
Metals	Iron	mg/Kg	NE	NE	70,500	60,000	71,800	58,500	58,900	54,500	69,300	64,000	51,500	56,400	54,100 J
Metals	Lead	mg/Kg	46.7	218	11.4	2	1.2	1	0.9	3.1	1.2	**52.8**	3	0.85	2.3 J
Metals	Magnesium	mg/Kg	NE	NE	10,300	11,900	10,100	12,900	11,700	8,840	14,900	9,180	9,760	8,970	11,000
Metals	Manganese	mg/Kg	NE	NE	357	417	369	435	383	330	508	280	383	286	386
Metals	Mercury	mg/Kg	0.15	0.71	0.15	0.049 J	0.082 J	0.056 J	0.051 J	**0.21**	0.11 J	0.094 J	0.048 J	0.056 J	0.1 J
Metals	Nickel	mg/Kg	20.9	51.6	12.5 J	13.6 J	12.1 J	12 J	11.3	11	16.4	9.8 J	11.3	7.9 J	11.8
Metals	Potassium	mg/Kg	NE	NE	523 U	523 UJ	528 UJ	666	691	612	765	623 UJ	574 U	585	720
Metals	Selenium	mg/Kg	NE	NE	2.3 J	0.66 J	1.2 J	0.56 J	0.33 J	0.25 J	0.33 J	0.43 J	0.25 J	0.17 J	0.63 J
Metals	Silver	mg/Kg	1	3.7	0.59 U	0.96 J	0.59 J	0.48 U	0.53 U	0.56 U	0.6 U	0.66 UJ	0.5 U	0.46 UJ	0.63 U
Metals	Sodium	mg/Kg	NE	NE	329 J	523 UJ	896	1,970	2,190	1,960	1,990	3,450	1,890	1,540	3,580
Metals	Thallium	mg/Kg	NE	NE	0.59 U	0.55 UJ	0.55 UJ	0.48 U	0.53 U	0.56 U	0.6 U	0.66 UJ	0.5 U	0.46 U	0.63 U
Metals	Vanadium	mg/Kg	NE	NE	263	186	194	230	261	276	276	212	251	171	218
Metals	Zinc	mg/Kg	150	410	55.9 J	47 J	37.7 J	39.9 J	34.8 J	39.2 J	48.6 J	39.5 J	69.7 J	26.7 J	44.4 J
HPAH	2-Methylnaphthalene	ug/Kg	NE	NE	3.9 U	2.7 J	3.7 U	0.87 J	16 U	4.2 U	7.9 U	8.4 U	16 U	7.9 U	43 U
HPAH	Benz(a)anthracene	ug/Kg	261	1,600	9.4	8.2	4.3	3.9 J	35	12 J	19	14	18 J	7.5 J	61
HPAH	Benzo(a)pyrene	ug/Kg	430	1,600	12	7.6	3.7	5 J	37 J	18 J	23	20	54 J	19	100
HPAH	Benzo(b)fluoranthene	ug/Kg	NE	NE	18	13	3.8	6.6 J	37 J	32 J	26	30	52	19	120
HPAH	Benzo(ghi)perylene	ug/Kg	NE	NE	4.5	3.9	0.79 J	6.7 J	15 J	4.2 U	8.2	11	42 J	16	22 J
HPAH	Benzo(k)fluoranthene	ug/Kg	NE	NE	5.8	3.2 J	1.4 J	1.7 J	14 J	5	9.2	7.3 J	19 J	4.1 J	43 J
HPAH	Chrysene	ug/Kg	384	2,800	13	8.5	3.7	3.8 J	37	10	14	14	20	7.6 J	70
HPAH	Dibenz[a,h]anthracene	ug/Kg	63.4	260	2.5 J	2 J	3.7 U	1.8 J	7.4 J	3.5 J	3.7 J	4.2 J	11 J	4.3 J	16 J
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	NE	NE	13	11	2.8 J	11 J	32	29 J	19	22	71	39	83
HPAH	Pyrene	ug/Kg	665	2,600	13	15	8.2	5.1 J	74 J	20	26	25	25	9	170
HPAH	Total HPAH	ug/Kg	1,700	9,600	91.2 J	72.4 J	28.69 J	45.6 J	288.4 J	129.5 J	148.1 J	147.5 J	312 J	125.5 J	685 J
LPAH	Acenaphthene	ug/Kg	16	500	3.9 U	3.7 U	3.7 U	4.2 UJ	16 U	4.2 U	7.9 U	1.7 J	16 U	7.9 U	43 U
LPAH	Acenaphthylene	ug/Kg	44	640	3.3 J	1.8 J	0.78 J	5.1 J	6.5 J	3.9 J	13	3.8 J	17	9.8	15 J
LPAH	Anthracene	ug/Kg	85.3	1,100	2.6 J	1.8 J	3.7 U	2.2 J	20	3.6 J	5.8 J	4.1 J	4.3 J	2.2 J	9.6 J
LPAH	Fluoranthene	ug/Kg	600	5,100	9.7	9.7	6.3	3.8 J	68	17	31	23	21	6.3 J	54
LPAH	Fluorene	ug/Kg	NE	NE	3.9 U	0.79 J	3.7 U	4.2 UJ	16 U	1.5 J	7.9 U	8.4 U	16 U	7.9 U	43 U
LPAH	Naphthalene	ug/Kg	160	2,100	1 J	3.7 U	3.7 U	4.2 UJ	16 U	4.2 U	7.9 U	8.4 U	16 U	7.9 U	43 U
LPAH	Phenanthrene	ug/Kg	240	1,500	3.2 J	4.9	2.5 J	2.2 J	49	13	8.9	7.2 J	16 U	7.9 U	43 U
LPAH	Total LPAH	ug/Kg	552	3,160	19.8 J	18.99 J	9.58 J	13.3 J	143.5 J	39 J	58.7 J	39.8 J	42.3 J	18.3 J	78.6 J
PAH	Total PAH	ug/Kg	4,022	44,792	111 J	91.39 J	38.27 J	58.9 J	431.9 J	168.5 J	206.8 J	187.3 J	354.3 J	143.8 J	763.6 J

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:					SCSD-301	SCSD-302	SCSD-303	SCSD-304	SCSD-305	SCSD-306	SCSD-307	SCSD-308	SCSD-309	SCSD-310	SCSD-311
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-301-07292012	SCSD-302-07302012	SCSD-303-07302012	SCSD-304-07292012	SCSD-305-07292012	SCSD-306-07292012	SCSD-307-07302012	SCSD-308-07302012	SCSD-309-07292012	SCSD-310-07302012	SCSD-311-07282012
Sample Type:					N	N	N	N	N	N	N	N	N	N	N
Sample Date:					07/29/12	07/30/12	07/30/12	07/29/12	07/29/12	07/29/12	07/30/12	07/30/12	07/29/12	07/30/12	07/28/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]												
ChemGroup	Analyte	Unit	ERL	ERM											
PCB	Aroclor 1016	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1221	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1232	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1242	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1248	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1254	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1260	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1262	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Aroclor 1268	ug/Kg	NE	NE	--	--	--	42 UJ	--	--	--	--	--	--	--
PCB	Total PCBs	ug/Kg	22.7	180	--	--	--	42 UJ	--	--	--	--	--	--	--
TPH	Diesel range organics	mg/Kg	NE	NE	12.3 J	3.04 J	1.52 J	2.41 J	25.7 J	4.67 J	2.99 J	5.66 J	4.65 J	2.87 J	6.43 J
TPH	Gasoline range organics	mg/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
TPH	Oil Range Organics	mg/Kg	NE	NE	54.6 J	34.9 J	4.11 J	5.34 J	65 J	12.6 J	8 J	11.8 J	11 J	5.56 J	16.5 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

ug/Kg = micrograms per kilogram
mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected.
-- = not analyzed

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)
NE = not established

BOLD	= detected result exceeds ERL screening criteria.
Not Bold	= analyte not detected but method reporting limit exceeds ERL screening criteria.
BOLD	= detected result exceeds the ERM screening criteria.

ERL = Effects range low
ERM = Effects range medium
NOAA = National Oceanic and Atmospheric Administration

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-312	SCSD-313	SCSD-314	SCSD-315	SCSD-316	SCSD-316	SCSD-317	SCSD-318	SCSD-319	SCSD-319	SCSD-320
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-312-07282012	SCSD-313-07302012	SCSD-314-08012012	SCSD-315-08012012	SCSD-316-08012012	SCSD-605-08012012	SCSD-317-08012012	SCSD-318-07312012	SCSD-319-07312012	SCSD-603-0731201	SCSD-320-07312012
Sample Type:					N	N	N	N	N	FD	N	N	N	FD	N
Sample Date:					07/28/12	07/30/12	08/01/12	08/01/12	08/01/12	08/01/12	08/01/12	07/31/12	07/31/12	07/31/12	07/31/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]												
ChemGroup	Analyte	Unit	ERL	ERM											
Metals	Aluminum	mg/Kg	NE	NE	9,120	16,000 J	10,800	14,400 J	16,200	13,000	11,400	16,700	24,700	17,400	17,700
Metals	Antimony	mg/Kg	NE	NE	1.2 UJ	1.2 UJ	0.94 UJ	0.9 UJ	0.93 UJ	1 UJ	1.2 U	1 UJ	1.4 U	1.2 U	1.1 UJ
Metals	Arsenic	mg/Kg	8.2	70	2 J	2.8	3.3 J	4.3	1.7 J	1.8 J	2.5	5.6 J	6.4	5.5	6.4 J
Metals	Barium	mg/Kg	NE	NE	11	20.4	13.3	9.8	34.3	34.5	14.3	13.7	18.5	11	7.6
Metals	Beryllium	mg/Kg	NE	NE	0.62 U	0.6 UJ	0.47 U	0.45 UJ	0.46 U	0.51 U	0.62 U	0.52 U	0.71 U	0.62 U	0.57 U
Metals	Cadmium	mg/Kg	1.2	9.6	0.62 U	0.6 UJ	0.47 U	0.45 UJ	0.46 U	0.51 U	0.62 U	0.52 U	0.71 U	0.62 U	0.57 U
Metals	Calcium	mg/Kg	NE	NE	5,610	12,400	11,700	4,500	15,000	11,500	11,500	7,510	8,730	6,310	6,710
Metals	Chromium	mg/Kg	81	370	2.8 J	4.2	4.3	13.9	3.3	4.4	4.3	17.8	44.1	27	11.3
Metals	Cobalt	mg/Kg	NE	NE	19.9 J	30.2	18.6	11.1	32.3	36.9	17.4	12.3	15.8	12.2	7.9
Metals	Copper	mg/Kg	34	270	**476 J**	**1,140**	**804**	**78.2**	**1,310**	**1,230**	**354**	**43.5**	**66.1**	**50.5**	**55.3**
Metals	Iron	mg/Kg	NE	NE	68,400 J	60,800 J	44,400	30,900 J	48,600	51,700	47,200	30,600	48,800	34,600	35,700
Metals	Lead	mg/Kg	46.7	218	2.4 J	1.7	2.3	1.9	2.4	2.2	1.5	2.2	2.6	3.2	3.9
Metals	Magnesium	mg/Kg	NE	NE	9,400	14,700	11,100	12,700	18,000	14,600	10,800	13,700	25,600	13,700	17,500
Metals	Manganese	mg/Kg	NE	NE	331	516	385	444	586	662	310	754	826	599	326
Metals	Mercury	mg/Kg	0.15	0.71	0.057 J	0.11 J	0.084 J	0.012 J	**0.17**	0.13	0.035 J	0.13 U	0.0099 J	0.0094 J	0.021 J
Metals	Nickel	mg/Kg	20.9	51.6	10	16.4	10.4 J	11.2	15.4 J	18.6 J	9.6	13.7 J	**33.1**	**21.8**	9.4 J
Metals	Potassium	mg/Kg	NE	NE	596	846	619	550	1,370	1,120	844	923	706	805	643
Metals	Selenium	mg/Kg	NE	NE	0.41 J	3 UJ	0.66 J	2.3 UJ	1.1 J	1.2 J	0.53 J	0.36 J	0.18 J	0.21 J	0.35 J
Metals	Silver	mg/Kg	1	3.7	0.62 U	0.9	0.48	0.45 UJ	0.78	0.74	0.62 U	0.52 U	0.71 U	0.62 U	0.57 U
Metals	Sodium	mg/Kg	NE	NE	3,160	2,870	1,900	2,100	3,110	2,140	3,690	2,620	2,490	2,850	2,930
Metals	Thallium	mg/Kg	NE	NE	0.62 U	0.6 U	0.47 U	0.45 U	0.46 U	0.51 U	0.62 U	0.52 U	0.71 U	0.62 U	0.57 U
Metals	Vanadium	mg/Kg	NE	NE	196	278	188	120	274	334	152	137	109	103	94.7
Metals	Zinc	mg/Kg	150	410	36.5 J	52.2 J	41.8 J	44 J	56.9 J	63.2 J	37 J	53.1 J	57.2 J	45.8 J	35.6 J
HPAH	2-Methylnaphthalene	ug/Kg	NE	NE	1.1 J	44 U	4.5 U	4.3 UJ	17 U	22 U	4.7 U	3.9 U	3.9 U	4 U	4.2 U
HPAH	Benz(a)anthracene	ug/Kg	261	1,600	9.9	60	17	3.5 J	**280**	250	7.5	4.7	1 J	1.5 J	3.3 J
HPAH	Benzo(a)pyrene	ug/Kg	430	1,600	14	77	14	9.8 J	**440**	420	9.5	5.6	1.4 J	1.9 J	6.2
HPAH	Benzo(b)fluoranthene	ug/Kg	NE	NE	21	74	17	13 J	500	420	12	6.8	2 J	2.7 J	8.8
HPAH	Benzo(ghi)perylene	ug/Kg	NE	NE	2.2 J	12 J	2.7 J	3.8 J	140	92	1.5 J	1.7 J	3.9 U	4 U	4.2 U
HPAH	Benzo(k)fluoranthene	ug/Kg	NE	NE	5.3	26 J	5.3	4.5 J	150	140	3.9 J	1.8 J	3.9 U	4 U	2.7 J
HPAH	Chrysene	ug/Kg	384	2,800	9.1	57	19	5.3 J	290	270	8.2	5.5	1.4 J	2.1 J	4.4
HPAH	Dibenz[a,h]anthracene	ug/Kg	63.4	260	2.7 J	8.9 J	1.9 J	2 J	59	39	1.3 J	0.91 J	3.9 U	4 U	1.2 J
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	NE	NE	14	36 J	9.5	10 J	330	210	6.6	4.7	2 J	2.1 J	6.1
HPAH	Pyrene	ug/Kg	665	2,600	17	150	32	12 J	490	570	13	9.7	1.7 J	3.5 J	9.2
HPAH	Total HPAH	ug/Kg	1,700	9,600	95.2 J	500.9 J	118.4 J	63.9 J	**2,679**	**2,411**	63.5 J	41.41 J	9.5 J	13.8 J	41.9 J
LPAH	Acenaphthene	ug/Kg	16	500	4.4 U	44 U	4.5 U	4.3 UJ	17 U	22 U	4.7 U	3.9 U	3.9 U	4 U	4.2 U
LPAH	Acenaphthylene	ug/Kg	44	640	4.1 J	26 J	2.4 J	2.2 J	28	28	2.4 J	1.3 J	0.91 J	1.2 J	1.8 J
LPAH	Anthracene	ug/Kg	85.3	1,100	2.4 J	13 J	3.7 J	1 J	26	18 J	1.5 J	3.9 U	3.9 U	4 U	0.93 J
LPAH	Fluoranthene	ug/Kg	600	5,100	16	65	29	4.1 J	270	220	9	5.6	1.4 J	2.1 J	5.1
LPAH	Fluorene	ug/Kg	NE	NE	0.91 J	44 U	4.5 U	4.3 UJ	17 U	22 U	4.7 U	3.9 U	3.9 U	4 U	4.2 U
LPAH	Naphthalene	ug/Kg	160	2,100	1.5 J	44 U	1.1 J	1.2 J	8.2 J	7.8 J	4.7 U	0.82 J	0.85 J	0.8 J	0.87 J
LPAH	Phenanthrene	ug/Kg	240	1,500	4.6	13 J	6	1.9 J	14 J	8.3 J	2.9 J	1.3 J	3.9 U	4 U	1.4 J
LPAH	Total LPAH	ug/Kg	552	3,160	29.51 J	117 J	42.2 J	10.4 J	346.2 J	282.1 J	15.8 J	9.02 J	3.16 J	4.1 J	10.1 J
PAH	Total PAH	ug/Kg	4,022	44,792	124.71 J	617.9 J	160.6 J	74.3 J	3,025 J	2,693 J	79.3 J	50.43 J	12.66 J	17.9 J	52 J

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-312	SCSD-313	SCSD-314	SCSD-315	SCSD-316	SCSD-316	SCSD-317	SCSD-318	SCSD-319	SCSD-319	SCSD-320
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-312-07282012	SCSD-313-07302012	SCSD-314-08012012	SCSD-315-08012012	SCSD-316-08012012	SCSD-605-08012012	SCSD-317-08012012	SCSD-318-07312012	SCSD-319-07312012	SCSD-603-0731201	SCSD-320-07312012
Sample Type:					N	N	N	N	N	FD	N	N	N	FD	N
Sample Date:					07/28/12	07/30/12	08/01/12	08/01/12	08/01/12	08/01/12	08/01/12	07/31/12	07/31/12	07/31/12	07/31/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]												
ChemGroup	Analyte	Unit	ERL	ERM											
PCB	Aroclor 1016	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1221	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1232	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1242	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1248	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1254	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1260	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1262	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Aroclor 1268	ug/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
PCB	Total PCBs	ug/Kg	22.7	180	--	--	--	--	--	--	--	--	--	--	--
TPH	Diesel range organics	mg/Kg	NE	NE	34.4 J	15.5 J	40.5	5.91 J	28.1	108	34.1	5.53 J	1.09 J	9.66 J	9.87 J
TPH	Gasoline range organics	mg/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--	--
TPH	Oil Range Organics	mg/Kg	NE	NE	68.5 J	31.3 J	117 J	12.1 J	42.2 J	153	69.9 J	10.4 J	6.6 J	12.9 J	23.1 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

ug/Kg = micrograms per kilogram
mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected.
-- = not analyzed

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)
NE = not established

BOLD	= detected result exceeds ERL screening criteria.
Not Bold	= analyte not detected but method reporting limit exceeds ERL screening criteria.
BOLD	= detected result exceeds the ERM screening criteria.

ERL = Effects range low
ERM = Effects range medium
NOAA = National Oceanic and Atmospheric Administration

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-321	SCSD-322	SCSD-323	SCSD-324	SCSD-325	SCSD-326	SCSD-327	SCSD-328	SCSD-329	SCSD-330
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-321-08012012	SCSD-322-08012012	SCSD-323-07312012	SCSD-324-08012012	SCSD-325-07312012	SCSD-326-07312012	SCSD-327-07312012	SCSD-328-08012012	SCSD-329-07312012	SCSD-330-08012012
Sample Type:					N	N	N	N	N	N	N	N	N	N
Sample Date:					08/01/12	08/01/12	07/31/12	08/01/12	07/31/12	07/31/12	07/31/12	08/01/12	07/31/12	08/01/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]											
ChemGroup	Analyte	Unit	ERL	ERM										
Metals	Aluminum	mg/Kg	NE	NE	10,100	9,080	13,400 J	11,100	13,600	11,600 J	9,790 J	13,800	11,100	13,600 J
Metals	Antimony	mg/Kg	NE	NE	1 U	1 UJ	0.94 UJ	1 UJ	1.3 U	0.92 UJ	1.3 UJ	1.3 UJ	1.3 U	1.2 UJ
Metals	Arsenic	mg/Kg	8.2	70	2	2.1	2.8	4.7 J	3.1	1.3	4.7	2.9	3.8	3.4
Metals	Barium	mg/Kg	NE	NE	10.2	10.6 J	10.9	12.3	12.5	14.5	14.9	13.4 J	20	14.4
Metals	Beryllium	mg/Kg	NE	NE	0.52 U	0.52 UJ	0.47 UJ	0.52 U	0.63 U	0.46 UJ	0.67 UJ	0.66 UJ	0.67 U	0.59 UJ
Metals	Cadmium	mg/Kg	1.2	9.6	0.52 U	0.52 UJ	0.47 UJ	0.52 U	0.63 U	0.46 UJ	0.67 UJ	0.66 UJ	0.67 U	0.59 UJ
Metals	Calcium	mg/Kg	NE	NE	6,350	7,530	40,100	11,300	7,940	13,100	103,000	8,770	68,500	58,100
Metals	Chromium	mg/Kg	81	370	2.1	2.6	21.5	16.1	9.1	2.1	10.7	10.6	10.9	14
Metals	Cobalt	mg/Kg	NE	NE	18.1	16.9	15.4	13	12.2	23.9	7.7	13	8.4	10.4
Metals	Copper	mg/Kg	34	270	**1,140**	**832 J**	**280**	**100**	**172**	**1,060**	**94.1**	**150 J**	**119**	**57.3**
Metals	Iron	mg/Kg	NE	NE	50,300	59,300	34,200 J	25,400	36,600	52,900 J	21,500 J	35,600	23,000	26,200 J
Metals	Lead	mg/Kg	46.7	218	1.5	1.4	1.4	2.4	2.1	1.1	2.1	1.6	2	2.1
Metals	Magnesium	mg/Kg	NE	NE	9,760	8,990	16,100	9,470	11,300	12,400	8,480	10,900	9,100	10,900
Metals	Manganese	mg/Kg	NE	NE	309	285	345	470	344	405	339	354	322	379
Metals	Mercury	mg/Kg	0.15	0.71	0.028 J	0.038 J	0.042 J	0.024 J	0.042 J	0.072 J	0.04 J	0.014 J	0.027 J	0.0074 J
Metals	Nickel	mg/Kg	20.9	51.6	9	8.8 J	20.5	14.1 J	9.7	12	9.4	10.8 J	9.7	12
Metals	Potassium	mg/Kg	NE	NE	425	603	634	693	782	709	790	841	866	632 UJ
Metals	Selenium	mg/Kg	NE	NE	0.8 J	0.65 J	2.4 UJ	0.41 J	0.33 J	2.3 UJ	3.4 UJ	0.31 J	0.32 J	2.9 UJ
Metals	Silver	mg/Kg	1	3.7	0.62	0.52 UJ	0.47 UJ	0.52 U	0.63 U	0.63	0.67 UJ	0.66 UJ	0.67 U	0.59 UJ
Metals	Sodium	mg/Kg	NE	NE	1,320	2,910	2,820	2,750	3,670	2,070	5,360	3,540	5,100	2,840
Metals	Thallium	mg/Kg	NE	NE	0.52 U	0.52 UJ	0.47 U	0.52 U	0.63 U	0.46 U	0.67 UJ	0.66 UJ	0.67 U	0.59 U
Metals	Vanadium	mg/Kg	NE	NE	139	157	123	119	121	232	85.2	128	93.3	103
Metals	Zinc	mg/Kg	150	410	36 J	32.4 J	37.3 J	46 J	37.7 J	40.5 J	35.4 J	38.7 J	37.4 J	41.3 J
HPAH	2-Methylnaphthalene	ug/Kg	NE	NE	4.1 U	4.3 U	12 U	1.1 J	4.2 U	13 UJ	4.6 UJ	4.3 U	4.5 U	0.84 J
HPAH	Benz(a)anthracene	ug/Kg	261	1,600	8.3	7.3	9.4 J	3.5 J	5.8	11 J	2.8 J	12	5.3	0.89 J
HPAH	Benzo(a)pyrene	ug/Kg	430	1,600	7.3	7.1	48	4.3	8.6	29 J	3.2 J	4.3 J	8.9	0.84 J
HPAH	Benzo(b)fluoranthene	ug/Kg	NE	NE	9.1	9.3	58	6.4	15	39 J	4.7 J	7	11	1.3 J
HPAH	Benzo(ghi)perylene	ug/Kg	NE	NE	1.1 J	4.3 U	11 J	4.2 U	3 J	6.6 J	4.6 UJ	1.3 J	1.5 J	4.1 U
HPAH	Benzo(k)fluoranthene	ug/Kg	NE	NE	2.8 J	2.8 J	19	2 J	3.7 J	10 J	1.6 J	2.1 J	3.2 J	4.1 U
HPAH	Chrysene	ug/Kg	384	2,800	8.7	7.9	13	4.3	7.8	12 J	4.1 J	3.5 J	7.1	0.98 J
HPAH	Dibenz[a,h]anthracene	ug/Kg	63.4	260	1 J	1.2 J	7.6 J	0.92 J	2.1 J	4.4 J	4.6 UJ	4.3 U	1 J	4.1 U
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	NE	NE	4.9	6	39	4.9	11	22 J	3.1 J	3.8 J	5.3	0.96 J
HPAH	Pyrene	ug/Kg	665	2,600	14	12	16	7.1	7.4	32 J	5.5 J	4.6	9.3	1.2 J
HPAH	Total HPAH	ug/Kg	1,700	9,600	57.2 J	53.6 J	221 J	33.42 J	64.4 J	166 J	25 J	38.6 J	52.6 J	6.17 J
LPAH	Acenaphthene	ug/Kg	16	500	4.1 U	4.3 U	12 U	4.2 U	4.2 U	13 UJ	4.6 UJ	4.3 U	4.5 U	4.1 U
LPAH	Acenaphthylene	ug/Kg	44	640	1.4 J	1.6 J	5.8 J	1.7 J	2.8 J	4.4 J	1.4 J	1.2 J	2 J	4.1 U
LPAH	Anthracene	ug/Kg	85.3	1,100	1.3 J	1.9 J	2.5 J	0.86 J	1.6 J	3.4 J	4.6 UJ	4.3 U	1.7 J	4.1 U
LPAH	Fluoranthene	ug/Kg	600	5,100	11	10	5.9 J	5.1	5.7	20 J	3.6 J	3 J	11	1.1 J
LPAH	Fluorene	ug/Kg	NE	NE	4.1 U	4.3 U	12 U	4.2 U	4.2 U	13 UJ	4.6 UJ	4.3 U	4.5 U	4.1 U
LPAH	Naphthalene	ug/Kg	160	2,100	4.1 U	4.3 U	12 U	1.9 J	1.2 J	13 UJ	4.6 UJ	0.89 J	1.1 J	4.1 U
LPAH	Phenanthrene	ug/Kg	240	1,500	2.8 J	2.4 J	12 U	2.6 J	1.6 J	6.4 J	1.1 J	1 J	3.2 J	0.95 J
LPAH	Total LPAH	ug/Kg	552	3,160	16.5 J	15.9 J	14.2 J	12.16 J	12.9 J	34.2 J	6.1 J	6.09 J	19 J	2.05 J
PAH	Total PAH	ug/Kg	4,022	44,792	73.7 J	69.5 J	235.2 J	45.58 J	77.3 J	200.2 J	31.1 J	44.69 J	71.6 J	8.22 J

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-321	SCSD-322	SCSD-323	SCSD-324	SCSD-325	SCSD-326	SCSD-327	SCSD-328	SCSD-329	SCSD-330
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-321-08012012	SCSD-322-08012012	SCSD-323-07312012	SCSD-324-08012012	SCSD-325-07312012	SCSD-326-07312012	SCSD-327-07312012	SCSD-328-08012012	SCSD-329-07312012	SCSD-330-08012012
Sample Type:					N	N	N	N	N	N	N	N	N	N
Sample Date:					08/01/12	08/01/12	07/31/12	08/01/12	07/31/12	07/31/12	07/31/12	08/01/12	07/31/12	08/01/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]											
ChemGroup	Analyte	Unit	ERL	ERM										
PCB	Aroclor 1016	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1221	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1232	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1242	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1248	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1254	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1260	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1262	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Aroclor 1268	ug/Kg	NE	NE	--	--	--	42 U	--	--	--	--	--	--
PCB	Total PCBs	ug/Kg	22.7	180	--	--	--	42 U	--	--	--	--	--	--
TPH	Diesel range organics	mg/Kg	NE	NE	11 J	14.4 J	11.7 J	11.4 J	14.1 J	13.7 J	14.2 J	14.1 J	14.6 J	10.1 J
TPH	Gasoline range organics	mg/Kg	NE	NE	--	--	--	--	--	--	--	--	--	--
TPH	Oil Range Organics	mg/Kg	NE	NE	30.8 J	37.4 J	29.6 J	33.6 J	26.2 J	35.6 J	43.4 J	37.1 J	30.4 J	27.4 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

ug/Kg = micrograms per kilogram
mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected.
-- = not analyzed

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)
NE = not established

BOLD	= detected result exceeds ERL screening criteria.
Not Bold	= analyte not detected but method reporting limit exceeds ERL screening criteria.
BOLD	= detected result exceeds the ERM screening criteria.

ERL = Effects range low
ERM = Effects range medium
NOAA = National Oceanic and Atmospheric Administration

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-330	SCSD-331	SCSD-332	SCSD-401	SCSD-401	SCSD-401	SCSD-402	SCSD-901	SCSD-901	SCSD-902
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-604-0801201	SCSD-331-07312012	SCSD-332-08012012	SCSD-401-07282012	SCSD-401-07302012	SCSD-701-0730201FD	SCSD-402-07302012	SCSD-901-07292012	SCSD-901-07292012-1-1.5	SCSD-902-08012012
Sample Type:					FD	N	N	N	N	FD	N	N	N	N
Sample Date:					08/01/12	07/31/12	08/01/12	07/28/12	07/30/12	07/30/12	07/30/12	07/29/12	07/29/12	08/01/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5
			Marine Benchmarks[a]											
ChemGroup	Analyte	Unit	ERL	ERM										
Metals	Aluminum	mg/Kg	NE	NE	10,400	13,100	13,600	--	13,200	17,100	11,500	8,900	13,300	9,220 J
Metals	Antimony	mg/Kg	NE	NE	0.96 U	1.3 U	0.97 UJ	--	1.1 UJ	1.7 UJ	0.95 UJ	1.5 UJ	0.97 UJ	1.3 UJ
Metals	Arsenic	mg/Kg	8.2	70	2.3	2.5	5.2 J	--	2.2	3.1	1.6	3.5	3.1	3.4
Metals	Barium	mg/Kg	NE	NE	10.6	16.6	17.9	--	12.4 J	20.2 J	7.1 J	14.8 J	13.2 J	22.7
Metals	Beryllium	mg/Kg	NE	NE	0.48 U	0.67 U	0.49 U	--	0.57 UJ	0.84 UJ	0.48 UJ	0.77 UJ	0.48 UJ	0.63 UJ
Metals	Cadmium	mg/Kg	1.2	9.6	0.48 U	0.67 U	0.49 U	--	0.57 UJ	0.84 UJ	0.48 UJ	0.77 UJ	0.48 UJ	**3.8**
Metals	Calcium	mg/Kg	NE	NE	65,800	13,500	25,200	--	14,900	17,000	7,570	5,200	6,430	5,590
Metals	Chromium	mg/Kg	81	370	9.7	4.4	11.6	--	2.3	4	1.8	9	12	5.7
Metals	Cobalt	mg/Kg	NE	NE	8.1	22.7	13.5	--	26.7	38	18.7	11.3	7.3	19.9
Metals	Copper	mg/Kg	34	270	**47.4**	**806**	**330**	--	**3,110 J**	**3,870 J**	**1,430 J**	**3,210 J**	**111 J**	**1,190**
Metals	Iron	mg/Kg	NE	NE	20,800	52,800	38,700	--	79,200	112,000	42,300	45,500	21,600	80,700 J
Metals	Lead	mg/Kg	46.7	218	1.5	1.6	3.1	--	1.1	1.3	2.3	13.1	1.8	**56.1**
Metals	Magnesium	mg/Kg	NE	NE	8,580	12,800	12,300	--	13,300	17,700	9,980	6,920	8,500	9,150
Metals	Manganese	mg/Kg	NE	NE	276	386	364	--	496	703	314	294	299	324
Metals	Mercury	mg/Kg	0.15	0.71	0.0055 J	0.055 J	0.065	--	0.14	0.12 J	0.06 J	0.051 J	0.1 U	**0.17**
Metals	Nickel	mg/Kg	20.9	51.6	8.7	12	12.3 J	--	13.8 J	20.2 J	9.5 J	8.3 J	7.7 J	15.6
Metals	Potassium	mg/Kg	NE	NE	602	958	1,280	--	593	782 UJ	467 UJ	766 UJ	507 UJ	542
Metals	Selenium	mg/Kg	NE	NE	0.16 J	0.71 J	1.1 J	--	0.99 J	1.1 J	0.69 J	4.6 J	0.45 J	3.1 UJ
Metals	Silver	mg/Kg	1	3.7	0.48 U	0.67 U	0.49 U	--	0.85 J	1 J	0.5 J	**1.5 J**	0.48 UJ	0.63
Metals	Sodium	mg/Kg	NE	NE	3,130	3,820	10,500	--	590	782 UJ	467 UJ	766 UJ	507 UJ	2,390
Metals	Thallium	mg/Kg	NE	NE	0.48 U	0.67 U	0.49 U	--	0.57 UJ	0.84 U	0.48 UJ	0.77 U	0.48 UJ	0.63 U
Metals	Vanadium	mg/Kg	NE	NE	75.2	183	155	--	240	346	121	114	72.7	243
Metals	Zinc	mg/Kg	150	410	30.4 J	44.3 J	43.7 J	--	44.4 J	63.3 J	34.5 J	94.9 J	30.3 J	**163 J**
HPAH	2-Methylnaphthalene	ug/Kg	NE	NE	4.3 U	4.5 U	13 U	--	3.8 UJ	3.7 U	3.5 U	61 UJ	48 UJ	17 J
HPAH	Benz(a)anthracene	ug/Kg	261	1,600	1.5 J	14	20	--	10 J	16	1.8 J	22 J	48 UJ	**1,300**
HPAH	Benzo(a)pyrene	ug/Kg	430	1,600	2.2 J	18	42	--	8.5 J	13	1.9 J	28 J	48 UJ	**1,300**
HPAH	Benzo(b)fluoranthene	ug/Kg	NE	NE	3.3 J	24	51	--	9 J	14	2.5 J	27 J	48 UJ	1,600
HPAH	Benzo(ghi)perylene	ug/Kg	NE	NE	4.3 U	3.1 J	5 J	--	2.9 J	0.91 J	3.5 U	61 UJ	48 UJ	81
HPAH	Benzo(k)fluoranthene	ug/Kg	NE	NE	4.3 U	6.9	16	--	3.2 J	4.7	0.85 J	61 UJ	48 UJ	400
HPAH	Chrysene	ug/Kg	384	2,800	2.2 J	15	23	--	8.4 J	14	2 J	28 J	48 UJ	**1,300**
HPAH	Dibenz[a,h]anthracene	ug/Kg	63.4	260	4.3 U	2.2 J	6.1 J	--	1.4 J	1.8 J	3.5 U	61 UJ	48 UJ	**87**
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	NE	NE	2 J	10	32	--	8 J	9.8	1.6 J	17 J	48 UJ	330
HPAH	Pyrene	ug/Kg	665	2,600	4.4	27	44	--	19 J	32	4	170 J	110 J	**3,200**
HPAH	Total HPAH	ug/Kg	1,700	9,600	15.6 J	120.2 J	239.1 J	--	70.4 J	106.21 J	14.65 J	292 J	110 J	**9,598**
LPAH	Acenaphthene	ug/Kg	16	500	4.3 U	4.5 U	13 U	--	3.8 UJ	3.7 U	3.5 U	**41 J**	**48 J**	**23**
LPAH	Acenaphthylene	ug/Kg	44	640	3.2 J	3.1 J	9.6 J	--	1.6 J	1.9 J	0.7 J	13 J	**48 UJ**	**430**
LPAH	Anthracene	ug/Kg	85.3	1,100	1.1 J	2.7 J	10 J	--	2.3 J	3.3 J	3.5 U	**240 J**	**310 J**	**460**
LPAH	Fluoranthene	ug/Kg	600	5,100	2.6 J	16	27	--	15 J	27	2.8 J	120 J	200 J	**2,900**
LPAH	Fluorene	ug/Kg	NE	NE	4.3 U	4.5 U	13 U	--	3.8 UJ	3.7 U	3.5 U	78 J	170 J	61
LPAH	Naphthalene	ug/Kg	160	2,100	4.3 U	1.2 J	13 U	--	0.83 J	3.7 U	3.5 U	61 UJ	48 UJ	27 U
LPAH	Phenanthrene	ug/Kg	240	1,500	0.98 J	4.2 J	18	--	6.8 J	11	1.9 J	28 J	18 J	**630**
LPAH	Total LPAH	ug/Kg	552	3,160	7.88 J	27.2 J	64.6 J	--	26.53 J	43.2 J	5.4 J	520 J	**746 J**	**4,504**
PAH	Total PAH	ug/Kg	4,022	44,792	23.48 J	147.4 J	303.7 J	--	96.93 J	149.41 J	20.05 J	812 J	856 J	**14,102**

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-330	SCSD-331	SCSD-332	SCSD-401	SCSD-401	SCSD-401	SCSD-402	SCSD-901	SCSD-901	SCSD-902
Area					Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:					SCSD-604-0801201	SCSD-331-07312012	SCSD-332-08012012	SCSD-401-07282012	SCSD-401-07302012	SCSD-701-0730201FD	SCSD-402-07302012	SCSD-901-07292012	SCSD-901-07292012-1-1.5	SCSD-902-08012012
Sample Type:					FD	N	N	N	N	FD	N	N	N	N
Sample Date:					08/01/12	07/31/12	08/01/12	07/28/12	07/30/12	07/30/12	07/30/12	07/29/12	07/29/12	08/01/12
Depth (ft):					0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5
			Marine Benchmarks[a]											
ChemGroup	Analyte	Unit	ERL	ERM										
PCB	Aroclor 1016	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1221	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1232	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1242	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1248	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1254	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1260	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1262	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Aroclor 1268	ug/Kg	NE	NE	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
PCB	Total PCBs	ug/Kg	22.7	180	--	--	--	--	--	--	--	60 UJ	48 UJ	44 U
TPH	Diesel range organics	mg/Kg	NE	NE	12.7 J	11.4 J	44	9.86 J	3.59 J	4.52 J	3.19 J	138	26.1 J	217
TPH	Gasoline range organics	mg/Kg	NE	NE	--	--	--	0.671 J	--	--	--	0.205 J	0.141 J	0.156 J
TPH	Oil Range Organics	mg/Kg	NE	NE	35 J	28.5 J	99.5 J	39.6 J	11.7 J	13.7 J	9.19 J	94.3 J	43.9 J	460

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

ug/Kg = micrograms per kilogram
mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected.
-- = not analyzed

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)
NE = not established

BOLD = detected result exceeds ERL screening criteria.

Not Bold = analyte not detected but method reporting limit exceeds ERL screening criteria.

BOLD = detected result exceeds the ERM screening criteria.

ERL = Effects range low
ERM = Effects range medium
NOAA = National Oceanic and Atmospheric Administration

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-903	SCTL-502	SCTL-502	SCSD-333	SCSD-334	SCSD-335	SCSD-336	SCSD-337
Area					Intertidal	Intertidal	Intertidal	Background	Background	Background	Background	Background
Activity ID:					SCSD-903-08012012	SCTL-502-07292012	SCTL-502-07292102-1-1.5	SCSD-333-08022012	SCSD-334-08022012	SCSD-335-08022012	SCSD-336-08022012	SCSD-337-08022012
Sample Type:					N	N	N	N	N	N	N	N
Sample Date:					08/01/12	07/29/12	07/29/12	8/2/2012	8/2/2012	8/2/2012	8/2/2012	8/2/2012
Depth (ft):					0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]									
ChemGroup	Analyte	Unit	ERL	ERM								
Metals	Aluminum	mg/Kg	NE	NE	13,500	8,930	8,800	16,400	10,600 J	12,900 J	9,340 J	11,900 J
Metals	Antimony	mg/Kg	NE	NE	1 UJ	1 UJ	0.92 UJ	1.2 U	0.83 UJ	1.3 UJ	1.1 UJ	1.2 UJ
Metals	Arsenic	mg/Kg	8.2	70	6.7 J	1.8	2.5	2.8	4.7	4.8	3	3.2
Metals	Barium	mg/Kg	NE	NE	18.8	5.2 UJ	8.3	10.5	14.2	11.3	16	7.6
Metals	Beryllium	mg/Kg	NE	NE	0.51 U	0.52 UJ	0.46 U	0.58 U	0.41 UJ	0.63 UJ	0.54 UJ	0.6 UJ
Metals	Cadmium	mg/Kg	1.2	9.6	0.51 U	0.52 UJ	0.46 U	0.58 U	0.41 UJ	0.63 UJ	0.54 UJ	0.6 UJ
Metals	Calcium	mg/Kg	NE	NE	7,870	5,330	6,130	8,320	5,070	19,500	33,500	9,270
Metals	Chromium	mg/Kg	81	370	7.4	2.2	2.7 J	10.6	9.7	11.2	11.8	6.6
Metals	Cobalt	mg/Kg	NE	NE	26.3	22.1	23.6	4.8	8.1	8.7	6.4	6.4
Metals	Copper	mg/Kg	34	270	**483**	**1,510 J**	**2,130**	13.3	20.7	20.5	12.2	14.1
Metals	Iron	mg/Kg	NE	NE	91,900	60,300	57,900	25,700	19,600 J	23,600 J	16,700 J	20,800 J
Metals	Lead	mg/Kg	46.7	218	**132**	3	1.2	1.3	1.2	1.5	1.4	1.3
Metals	Magnesium	mg/Kg	NE	NE	12,800	9,280	9,540	14,200	9,530	10,900	8,100	10,100
Metals	Manganese	mg/Kg	NE	NE	477	363	395	262	509	378	284	347
Metals	Mercury	mg/Kg	0.15	0.71	**0.45**	0.078 J	0.028 J	0.14 U	0.11 U	0.0038 J	0.0038 J	0.12 U
Metals	Nickel	mg/Kg	20.9	51.6	13.4 J	11.6 J	14.2	8.2	8	10.8	8.4	7.2
Metals	Potassium	mg/Kg	NE	NE	694	183 J	436 U	625	475 UJ	582 UJ	503 UJ	505 UJ
Metals	Selenium	mg/Kg	NE	NE	0.8 J	0.53 J	0.93 J	0.2 J	2.1 UJ	3.2 UJ	2.7 UJ	3 UJ
Metals	Silver	mg/Kg	1	3.7	0.51 U	0.71 J	1	0.58 U	0.41 UJ	0.63 UJ	0.54 UJ	0.6 UJ
Metals	Sodium	mg/Kg	NE	NE	1,210	377 UJ	436 U	2,880	1,750	2,910	3,280	2,030
Metals	Thallium	mg/Kg	NE	NE	0.51 U	0.52 UJ	0.46 U	0.58 U	0.41 U	0.63 UJ	0.54 U	0.6 U
Metals	Vanadium	mg/Kg	NE	NE	317	195	282	67.5	92.3	92.4	70.7	74.7
Metals	Zinc	mg/Kg	150	410	77.9 J	53.3 J	40.1 J	35.3 J	37 J	39.6 J	29.8 J	32.3 J
HPAH	2-Methylnaphthalene	ug/Kg	NE	NE	24 J	7.1 UJ	14 U	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Benz(a)anthracene	ug/Kg	261	1,600	**980**	33 J	38	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Benzo(a)pyrene	ug/Kg	430	1,600	**970**	32 J	42 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Benzo(b)fluoranthene	ug/Kg	NE	NE	1,100	39 J	47 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Benzo(ghi)perylene	ug/Kg	NE	NE	190	7.1 UJ	3.8 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Benzo(k)fluoranthene	ug/Kg	NE	NE	290	12 J	19	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Chrysene	ug/Kg	384	2,800	**1,000**	30 J	35	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Dibenz[a,h]anthracene	ug/Kg	63.4	260	**100**	5.4 J	7.2 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	NE	NE	400	27 J	28	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Pyrene	ug/Kg	665	2,600	**1,700**	49 J	57	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
HPAH	Total HPAH	ug/Kg	1,700	9,600	**6,730**	227.4 J	277 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
LPAH	Acenaphthene	ug/Kg	16	500	**29 J**	7.1 UJ	14 U	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
LPAH	Acenaphthylene	ug/Kg	44	640	**160**	5.2 J	4 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
LPAH	Anthracene	ug/Kg	85.3	1,100	**240**	3.8 J	5.2 J	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
LPAH	Fluoranthene	ug/Kg	600	5,100	**1,400**	35 J	48	4.2 U	0.86 J	0.84 J	4.2 U	4.2 U
LPAH	Fluorene	ug/Kg	NE	NE	51 J	7.1 UJ	14 U	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
LPAH	Naphthalene	ug/Kg	160	2,100	38 J	7.1 UJ	14 U	4.2 U	4.3 U	4.2 U	4.2 U	4.2 U
LPAH	Phenanthrene	ug/Kg	240	1,500	**590**	3.7 J	8.3 J	4.2 U	2 J	4.2 U	4.2 U	4.2 U
LPAH	Total LPAH	ug/Kg	552	3,160	**2,508 J**	47.7 J	65.5 J	4.2 U	2.86 J	0.84 J	4.2 U	4.2 U
PAH	Total PAH	ug/Kg	4,022	44,792	**9,238 J**	275.1 J	342.5 J	4.2 U	2.86 J	0.84 J	4.2 U	4.2 U

Table 2
Intertidal and Background Sediment/Tailings Sample Results for Metals, F
Salt Chuck Mine, Alaska

Location:					SCSD-903	SCTL-502	SCTL-502	SCSD-333	SCSD-334	SCSD-335	SCSD-336	SCSD-337
Area					Intertidal	Intertidal	Intertidal	Background	Background	Background	Background	Background
Activity ID:					SCSD-903-08012012	SCTL-502-07292012	SCTL-502-07292102-1-1.5	SCSD-333-08022012	SCSD-334-08022012	SCSD-335-08022012	SCSD-336-08022012	SCSD-337-08022012
Sample Type:					N	N	N	N	N	N	N	N
Sample Date:					08/01/12	07/29/12	07/29/12	8/2/2012	8/2/2012	8/2/2012	8/2/2012	8/2/2012
Depth (ft):					0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
			Marine Benchmarks[a]									
ChemGroup	Analyte	Unit	ERL	ERM								
PCB	Aroclor 1016	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1221	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1232	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1242	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1248	ug/Kg	NE	NE	78 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1254	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1260	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1262	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Aroclor 1268	ug/Kg	NE	NE	50 U	35 UJ	35 U	--	--	--	--	--
PCB	Total PCBs	ug/Kg	22.7	180	50 U	35 UJ	35 U	--	--	--	--	--
TPH	Diesel range organics	mg/Kg	NE	NE	86.8	2.86 J	4.97 J	7.16 J	10 J	24.2	5.22 J	5.58 J
TPH	Gasoline range organics	mg/Kg	NE	NE	0.671 J	0.192 J	0.502 J	--	--	--	--	--
TPH	Oil Range Organics	mg/Kg	NE	NE	340	7.78 J	21.4 J	19.3 J	27.6 J	54.1 J	13.6 J	24.8 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

ug/Kg = micrograms per kilogram
mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected.
-- = not analyzed

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)
NE = not established

BOLD	= detected result exceeds ERL screening criteria.
Not Bold	= analyte not detected but method reporting limit exceeds ERL screening criteria.
BOLD	= detected result exceeds the ERM screening criteria.

ERL = Effects range low
ERM = Effects range medium
NOAA = National Oceanic and Atmospheric Administration

Table 3
Summary of Sediment Toxicity Results
Salt Chuck Mine, Alaska

Sample description	Location	Polychaete *Neanthes arenaceodentata*	Bivalve *Mytilus galloprovincialis*
12314500 (NAS #4138G)	SCSD-301	✓	✓
12314501 (NAS #4161G)	SCSD-302	✓	✓
12314502FD (NAS #4151G-dup)	SCSD-303 FD	✓	✓
12314502 (NAS #4151G)	SCSD-303	✓	✓
12314503 (NAS #4144G)	SCSD-304	✓	✓
12314504 (NAS #4145G)	SCSD-305	✓	✓
12314505 (NAS #4141G)	SCSD-306	✓	✓
12314510 (NAS #4148G)	SCSD-307	✓	✓
12314511 (NAS #4159G)	SCSD-308	✓	
12314512 (NAS #4142G)	SCSD-309	✓	✓
12314513 (NAS #4152G)	SCSD-310	✓	✓
12314516 (NAS #4149G)	SCSD-313	✓	✓
12314524 (NAS #4160G)	SCSD-322	✓	
12314525 (NAS #4165G)	SCSD-323		
12314526 (NAS #4150G)	SCSD-324		
12314528 (NAS #4163G)	SCSD-326	✓	✓
12314529 (NAS #4164G)	SCSD-327		
12314530 (NAS #4162G)	SCSD-328		
12314533 (NAS #4166G)	SCSD-331		
12314718 (NAS #4167G)	SCSD-331FD		
12314535 NAS #4168G)	SCSD-333		
12314538 (NAS #4169G)	SCSD-336		

Notes:
✓ = Significantly toxicity when compared with the control sediment and/or reference area results.

Table 4

20-Day Sediment Toxicity Results for *Neanthes arenaceodentata* Exposed to Undiluted Marine Sediments

Salt Chuck Mine, Alaska

Sample description	Location	Copper Concentration (mg/kg)		Percent Survival (20-days)	Individual dry wt. (mg)	Individual biomass (mg)	rate (mg/day/worm)
12314501 (NAS #4161G)	SCSD-302**	2,650	J	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314502FD (NAS #4151G-dup)	SCSD-303 FD**	2,550	J	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314502 (NAS #4151G)	SCSD-303**	2,550	J	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314500 (NAS #4138G)	SCSD-301**	2,530		0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314510 (NAS #4148G)	SCSD-307**	1,250		0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314516 (NAS #4149G)	SCSD-313	1,140		4.0 ± 8.9*[ab]	1.3*[ab]	0.3*[ab]	0.04*[ab]
12314503 (NAS #4144G)	SCSD-304**	1,100		0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314528 (NAS #4163G)	SCSD-326	1,060		0.0 ± 0.0*[ab]	0.0 ± 0.0*	0.0 ± 0.0*	0.0 ± 0.0*
12314504 (NAS #4145G)	SCSD-305**	1,010		0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314524 (NAS #4160G)	SCSD-322	832	J	96.0 ± 8.9	5.5 ± 4.5*[ab]	5.4 ± 4.6*[ab]	0.25 ± 0.23*[ab]
12314533 (NAS #4166G)	SCSD-331	806		96.0 ± 8.9	18.5 ± 2.6	17.7 ± 2.3	0.90 ± 0.13
12314718 (NAS #4167G)	SCSD-331FD	806		100.0 ± 0.0	17.5 ± 0.3	17.5 ± 0.3	0.85 ± 0.02
12314511 (NAS #4159G)	SCSD-308**	700	J	92.0 ± 11.0	6.3 ± 1.1*[ab]	5.8 ± 1.6*[ab]	0.29 ± 0.06*[ab]
12314505 (NAS #4141G)	SCSD-306**	645		6.7 ± 16.3*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314513 (NAS #4152G)	SCSD-310**	544	J	8.0 ± 17.9*[ab]	0.5*[ab]	0.2*[ab]	0.0 ± 0.0*[ab]
12314512 (NAS #4142G)	SCSD-309**	534		0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]	0.0 ± 0.0*[ab]
12314525 (NAS #4165G)	SCSD-323	280		100.0 ± 0.0	13.1 ± 2.7	13.1 ± 2.7	0.63 ± 0.14
12314530 (NAS #4162G)	SCSD-328	150	J	100.0 ± 0.0	16.8 ± 1.8	16.8 ± 1.8	0.81 ± 0.09
12314526 (NAS #4150G)	SCSD-324	100		100.0 ± 0.0	14.9 ± 1.9	14.9 ± 1.9	0.72 ± 0.10
12314529 (NAS #4164G)	SCSD-327	94.1		100.0 ± 0.0	17.9 ± 1.7	17.9 ± 1.7	0.87 ± 0.09
12314535 NAS #4168G)	SCSD-333	13.3		96.0 ± 8.9	14.7 ± 0.9	14.1 ± 1.6	0.71 ± 0.04
12314538 (NAS #4169G)	SCSD-336	12.2		100.0 ± 0.0	15.1 ± 2.8	15.1 ± 2.8	0.73 ± 0.14
Control (NAS #4146G)	---	---		100.0 ± 0.0	16.2 ± 4.1	16.2 ± 4.1	0.78 ± 0.20

Notes:

Means and standard deviations (n=5) of percent survival, individual dry weight, individual biomass, and individual growth rate are provided.

** These results are from a definitive test (only undiluted test results listed)

* Mean value significantly lower than that in the control sediment ($p < 0.05$).

[a] Mean value significantly lower than that in Background sediment 12314535 (SCSD-333).

[b] Mean value significantly lower than that in Background sediment 12314538 (SCSD-336).

Table 5

Sediment Toxicity Results for *Mytilus galloprovincialis* larvae Exposed to Undiluted Marine Sediment Elutriates

Salt Chuck Mine, Alaska

Sample Description	Location	Copper Concentration (mg/kg)		Proportion of Normal Surviving Larvae	Proportion of Surviving Larvae
12314501 (NAS #4161G)	SCSD-302**	2,650	J	0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314502FD (NAS #4151G-dup)	SCSD-303 FD**	2,550	J	0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314502 (NAS #4151G)	SCSD-303**	2,550	J	0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314500 (NAS #4138G)	SCSD-301**	2,530		0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314510 (NAS #4148G)	SCSD-307**	1,250		0.000 ± 0.000*ab	0.013 ± 0.008*ab
12314516 (NAS #4149G)	SCSD-313	1,140		0.002 ± 0.002*ab	0.915 ± 0.087
12314503 (NAS #4144G)	SCSD-304**	1,100		0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314528 (NAS #4163G)	SCSD-326	1,060		0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314504 (NAS #4145G)	SCSD-305**	1,010		0.000 ± 0.000*ab	0.000 ± 0.000*ab
12314524 (NAS #4160G)	SCSD-322	832	J	0.960 ± 0.047	0.973 ± 0.052
12314533 (NAS #4166G)	SCSD-331	806		0.984 ± 0.012	0.993 ± 0.016
12314718 (NAS #4167G)	SCSD-331FD	806		0.944 ± 0.051	0.956 ± 0.051
12314511 (NAS #4159G)	SCSD-308**	700	J	0.942 ± 0.019	0.991 ± 0.020
12314505 (NAS #4141G)	SCSD-306**	645		0.000 ± 0.000*ab	0.980 ± 0.045
12314513 (NAS #4152G)	SCSD-310**	544	J	0.000 ± 0.000*ab	0.032 ± 0.015*ab
12314512 (NAS #4142G)	SCSD-309**	534		0.000 ± 0.000*ab	0.002 ± 0.004*ab
12314525 (NAS #4165G)	SCSD-323	280		0.970 ± 0.030	0.984 ± 0.025
12314530 (NAS #4162G)	SCSD-328	150	J	0.982 ± 0.009	0.998 ± 0.004
12314526 (NAS #4150G)	SCSD-324	100		0.955 ± 0.032	0.966 ± 0.035
12314529 (NAS #4164G)	SCSD-327	94.1		0.951 ± 0.024	0.956 ± 0.266
12314535 NAS #4168G)	SCSD-333	13.3		0.943 ± 0.043	0.947 ± 0.044
12314538 (NAS #4169G)	SCSD-336	12.2		0.953 ± 0.055	0.982 ± 0.037

Notes:

Means and standard deviations (n=5) of proportion of normal and total surviving larvae are provided.

** These results are from a definitive test (only undiluted test results listed)

* Mean value significantly lower than that in the seawater control ($p < 0.05$).

[a] Mean value significantly lower than that in elutriate of Background sediment 12314535 (SCSD-333).

[b] Mean value significantly lower than that in elutriate of Background sediment 12314538 (SCSD-336).

Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-301	SCSD-302	SCSD-303	SCSD-304	SCSD-305	SCSD-306	SCSD-307	SCSD-308	SCSD-309	SCSD-310	SCSD-311
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:				SCSD-301-07292012	SCSD-302-07302012	SCSD-303-07302012	SCSD-304-07292012	SCSD-305-07292012	SCSD-306-07292012	SCSD-307-07302012	SCSD-308-07302012	SCSD-309-07292012	SCSD-310-07302012	SCSD-311-07282012
Sample Type:				N	N	N	N	N	N	N	N	N	N	N
Sample Date:				07/29/12	07/30/12	07/30/12	07/29/12	07/29/12	07/29/12	07/30/12	07/30/12	07/29/12	07/30/12	07/28/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]											
Genchem	Organic carbon	mg/kg	NE	1,130	590	280 U	720	678	2,710	455	4,340	2,060	224	2,390
Metal (SEM)	Cadmium	ug/l	NE	1.02 J	4.02 J	0.84 J	2.55 J	0.363 J	1.1 J	5.01	1.12 J	1.09 J	1.43 J	--
SEM	Copper	ug/l	NE	59,100	152,000	124,000	47,700	41,400	15,900	45,800	8,340	19,900	20,200	--
SEM	Lead	ug/l	NE	510	50.9	51.6	19.6	25.5	95.6	41.9	450	106	16.2	--
SEM	Nickel	ug/l	NE	62.2 J	155	103	93.9	33	61.8 J	140	32.8	47.2 J	31.7	--
SEM	Zinc	ug/l	NE	811	166	399	139	90.8	279	451	493	904	116	--
SEM	Acid Volatile Sulfide (AVS)	mg/kg	NE	0.127 UJ	1.7 U	1.73 U	1.94 U	2.69 UJ	48.6 J	1.97 U	43.9	0.129 UJ	1.84 U	--
SEM	AVS	umol/g	NE	0	0	0	0	0	1.5	0	1.4	0	0	--
SEM	SEM	umol/g	NE	22	51	43	18	22	6.5	18	3.6	8.0	7.4	--
SEM	SEM/AVS Ratio	umol/g	NE	1 U	1 U	1 U	1 U	1 U	4.3	1 U	2.6	1 U	1 U	--
Grain Size	Particle size, 3 inch, (76.20mm)	g	NE	0	0	0	0	0	0	0	0	0	0	--
Grain Size	Particle size, 2 inch, (50.80mm)	g	NE	0	0	0	0	0	0	0	0	0	0	--
Grain Size	Particle size, 1.5 inch (38.1mm)	g	NE	0	0	0	0	0	0	0	0	0	0	--
Grain Size	Particle size, 1 inch (25.40mm)	g	NE	0	0	0	0	0	0	0	0	0	0	--
Grain Size	Particle size, 3/4 inch (19.05mm)	g	NE	0	0	0	0	0	0	0	0	0	0	--
Grain Size	Particle size, 3/8 inch (9.525mm)	g	NE	0	3.2	0	0	0	0	0	0	0	0	--
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	NE	2.5	3.3	0.80	0.40	0	0.10	0.90	0	0	0	--
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	NE	3.5	10	1.0	0.20	0	0.80	0.50	0.70	0	0	--
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	NE	1.9	3.2	0	0.60	0	0.51	0	2.2	0.57	0.93	--
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	NE	7.6	6.4	1.2	1.8	0.59	5.6	1.4	16	5.7	11	--
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	NE	39	48	26	19	2.4	24	8.3	62	37	77	--
Grain Size	(0.106mm)	g	NE	220	391	340	277	135	167	112	297	259	462	--
Grain Size	(0.075mm)	g	NE	93	137	123	159	190	148	96	97	113	156	--
Grain Size	Particle size, Hydrometer (.040 mm)	mg/l	NE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	--
Grain Size	Particle size, Hydrometer (.026 mm)	mg/l	NE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	--
Grain Size	Particle size, Hydrometer (.015 mm)	mg/l	NE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	--
Grain Size	Particle size, Hydrometer (.011 mm)	mg/l	NE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	--
Grain Size	Particle size, Hydrometer (.008 mm)	mg/l	NE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	--
Grain Size	Particle size, Hydrometer (0.004mm)	mg/l	NE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	--
Grain Size	Total Sample Weight	g	NE	491.4	838	601.7	619.4	605.2	522.4	876.4	672.2	575.9	966.1	--
Metals, TCLP	Arsenic	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Barium	mg/l	0.1 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Cadmium	mg/l	0.001 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Chromium	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Lead	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Mercury	ug/l	0.2 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Selenium	mg/l	0.001 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Silver	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--

Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-301	SCSD-302	SCSD-303	SCSD-304	SCSD-305	SCSD-306	SCSD-307	SCSD-308	SCSD-309	SCSD-310	SCSD-311
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:				SCSD-301-07292012	SCSD-302-07302012	SCSD-303-07302012	SCSD-304-07292012	SCSD-305-07292012	SCSD-306-07292012	SCSD-307-07302012	SCSD-308-07302012	SCSD-309-07292012	SCSD-310-07302012	SCSD-311-07282012
Sample Type:				N	N	N	N	N	N	N	N	N	N	N
Sample Date:				07/29/12	07/30/12	07/30/12	07/29/12	07/29/12	07/29/12	07/30/12	07/30/12	07/29/12	07/30/12	07/28/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]											
Net Acid Generating Potential	Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Acid Production Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Net Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Neutralization Potential Ratio	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Moisture content	wt%	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Sulfur Total	wt%	NE	--	--	--	--	--	--	--	--	--	--	--

Notes:

TCLP = toxicity characteristic leaching procedure
SEM/AVS Ratio = ratio of umol/g values
*AVS is nondetect

mg/L = milligrams per liter
mg/Kg = milligrams per kilogram
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media
ug/L = micrograms per liter
umo/g dry sed = micromole per gram, dry sediment
wt% = weight percent

-- = not analyzed

FD = field duplicate
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

a = The screening levels for freshwater were selected from the lowest of the following sources:

1) ADEC (2008) criteria for noncarcinogens, consumption of aquatic organisms only
2) USEPA (2009) AWQC: Human Health for Consumption of Organism Only, unless otherwise noted
3) ADEC (2008) Environmental media-specific conservative screening values
4) ASTM (2009) Z

BOLD	= detected result exceeds screening criteria
Not Bold	= analyte not detected but method reporting limit exceeds screening

ADEC = Alaska Department of Environmental Conservation
ASTM = American Society for testing and materials
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Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-312	SCSD-313	SCSD-314	SCSD-315	SCSD-316	SCSD-316	SCSD-317	SCSD-318	SCSD-319	SCSD-319	SCSD-320
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:				SCSD-312-07282012	SCSD-313-07302012	SCSD-314-08012012	SCSD-315-08012012	SCSD-605-0801201	SCSD-316-08012012	SCSD-317-08012012	SCSD-318-07312012	SCSD-603-0731201	SCSD-319-07312012	SCSD-320-07312012
Sample Type:				N	N	N	N	FD	N	N	N	FD	N	N
Sample Date:				07/28/12	07/30/12	08/01/12	08/01/12	08/01/12	08/01/12	08/01/12	07/31/12	07/31/12	07/31/12	07/31/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]											
Genchem	Organic carbon	mg/kg	NE	7,270	2,150	10,100	14,000	3,070	1,830	9,400	16,700	16,900	15,900	15,500
Metal (SEM)	Cadmium	ug/l	NE	--	1.45 J	--	--	--	--	--	--	--	--	--
SEM	Copper	ug/l	NE	--	6,540	--	--	--	--	--	--	--	--	--
SEM	Lead	ug/l	NE	--	49.5	--	--	--	--	--	--	--	--	--
SEM	Nickel	ug/l	NE	--	37.5	--	--	--	--	--	--	--	--	--
SEM	Zinc	ug/l	NE	--	243	--	--	--	--	--	--	--	--	--
SEM	Acid Volatile Sulfide (AVS)	mg/kg	NE	--	2.06 U	--	--	--	--	--	--	--	--	--
SEM	AVS	umol/g	NE	--	0	--	--	--	--	--	--	--	--	--
SEM	SEM	umol/g	NE	--	2.8	--	--	--	--	--	--	--	--	--
SEM	SEM/AVS Ratio	umol/g	NE	--	1 U	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, 3 inch, (76.20mm)	g	NE	--	0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, 2 inch, (50.80mm)	g	NE	--	0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, 1.5 inch (38.1mm)	g	NE	--	0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, 1 inch (25.40mm)	g	NE	--	0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, 3/4 inch (19.05mm)	g	NE	--	0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, 3/8 inch (9.525mm)	g	NE	--	9.1	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	NE	--	4.9	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	NE	--	5.0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	NE	--	5.3	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	NE	--	6.7	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	NE	--	24	--	--	--	--	--	--	--	--	--
Grain Size	(0.106mm)	g	NE	--	162	--	--	--	--	--	--	--	--	--
Grain Size	(0.075mm)	g	NE	--	107	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Hydrometer (.040 mm)	mg/l	NE	--	1.0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Hydrometer (.026 mm)	mg/l	NE	--	1.0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Hydrometer (.015 mm)	mg/l	NE	--	1.0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Hydrometer (.011 mm)	mg/l	NE	--	1.0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Hydrometer (.008 mm)	mg/l	NE	--	1.0	--	--	--	--	--	--	--	--	--
Grain Size	Particle size, Hydrometer (0.004mm)	mg/l	NE	--	1.0	--	--	--	--	--	--	--	--	--
Grain Size	Total Sample Weight	g	NE	--	832.8	--	--	--	--	--	--	--	--	--
Metals, TCLP	Arsenic	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Barium	mg/l	0.1 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Cadmium	mg/l	0.001 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Chromium	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Lead	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Mercury	ug/l	0.2 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Selenium	mg/l	0.001 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Silver	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--

Table 6
Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size
Salt Chuck Mine, Alaska

Location:				SCSD-312	SCSD-313	SCSD-314	SCSD-315	SCSD-316	SCSD-316	SCSD-317	SCSD-318	SCSD-319	SCSD-319	SCSD-320
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:				SCSD-312-07282012	SCSD-313-07302012	SCSD-314-08012012	SCSD-315-08012012	SCSD-605-0801201	SCSD-316-08012012	SCSD-317-08012012	SCSD-318-07312012	SCSD-603-0731201	SCSD-319-07312012	SCSD-320-07312012
Sample Type:				N	N	N	N	FD	N	N	N	FD	N	N
Sample Date:				07/28/12	07/30/12	08/01/12	08/01/12	08/01/12	08/01/12	08/01/12	07/31/12	07/31/12	07/31/12	07/31/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]											
Net Acid Generating Potential	Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Acid Production Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Net Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Neutralization Potential Ratio	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Moisture content	wt%	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Sulfur Total	wt%	NE	--	--	--	--	--	--	--	--	--	--	--

Notes:

TCLP = toxicity characteristic leaching procedure
SEM/AVS Ratio = ratio of umol/g values
*AVS is nondetect

mg/L = milligrams per liter
mg/Kg = milligrams per kilogram
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media
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umo/g dry sed = micromole per gram, dry sediment
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-- = not analyzed

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2) USEPA (2009) AWQC: Human Health for Consumption of Organism Only, unless otherwise noted
3) ADEC (2009) Environmental media-specific conservative screening values
4) ASTM (2009) Ecotoxicity

BOLD	= detected result exceeds screening criteria
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ADEC = Alaska Department of Environmental Conservation
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Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-321	SCSD-322	SCSD-323	SCSD-324	SCSD-325	SCSD-326	SCSD-327	SCSD-328	SCSD-328	SCSD-329	SCSD-330
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:				SCSD-321-08012012	SCSD-322-08012012	SCSD-323-07312012	SCSD-324-08012012	SCSD-325-07312012	SCSD-326-07312012	SCSD-327-07312012	SCSD-608-0801201	SCSD-328-08012012	SCSD-329-07312012	SCSD-604-0801201
Sample Type:				N	N	N	N	N	N	N	FD	N	N	FD
Sample Date:				08/01/12	08/01/12	07/31/12	08/01/12	07/31/12	07/31/12	07/31/12	08/01/12	08/01/12	07/31/12	08/01/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]											
Genchem	Organic carbon	mg/kg	NE	3,540	6,020	3,520	17,900	13,500	980	17,100		6,310	6,990	7,490
Metal (SEM)	Cadmium	ug/l	NE	--	0.646 J	1.18 J	2.15 J	--	0.627 J	3.47 J	5.26	4.47 J	--	--
SEM	Copper	ug/l	NE	--	9,880	1,420	1,890	--	16,900	2,270	1,190	1,060	--	--
SEM	Lead	ug/l	NE	--	19.9	16.2 J	40	--	23.1	23.7 J	20.6	26.7	--	--
SEM	Nickel	ug/l	NE	--	17.2 J	29.1 J	29.6	--	18.2 J	48.8 J	26.6	26.9	--	--
SEM	Zinc	ug/l	NE	--	119	166	237	--	112	326	273	277	--	--
SEM	Acid Volatile Sulfide (AVS)	mg/kg	NE	--	23.4	3.16	1.53 J	--	2.11 U	2.02 U	26.5	57.2	--	--
SEM	AVS	umol/g	NE	--	0.73	0.098	0.047	--	0	0	0.83	1.8	--	--
SEM	SEM	umol/g	NE	--	4.1	0.58	0.87	--	7.0	1.1	0.60	0.57	--	--
SEM	SEM/AVS Ratio	umol/g	NE	--	5.6	5.9	18	--	1 U	1 U	0.73	0.32	--	--
Grain Size	Particle size, 3 inch, (76.20mm)	g	NE	--	0	0	0	--	0	0	--	0	--	--
Grain Size	Particle size, 2 inch, (50.80mm)	g	NE	--	0	0	0	--	0	0	--	0	--	--
Grain Size	Particle size, 1.5 inch (38.1mm)	g	NE	--	0	0	0	--	0	0	--	0	--	--
Grain Size	Particle size, 1 inch (25.40mm)	g	NE	--	0	0	0	--	0	0	--	0	--	--
Grain Size	Particle size, 3/4 inch (19.05mm)	g	NE	--	0	0	0	--	0	13	--	0	--	--
Grain Size	Particle size, 3/8 inch (9.525mm)	g	NE	--	5.5	91	91	--	0	285	--	0	--	--
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	NE	--	15	59	140	--	0	112	--	1.0	--	--
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	NE	--	21	69	142	--	0	83	--	2.6	--	--
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	NE	--	11	66	91	--	0	74	--	17	--	--
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	NE	--	24	95	45	--	0.95	64	--	33	--	--
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	NE	--	94	152	34	--	6.6	87	--	59	--	--
Grain Size	(0.106mm)	g	NE	--	240	267	77	--	340	167	--	284	--	--
Grain Size	(0.075mm)	g	NE	--	61	34	28	--	264	27	--	87	--	--
Grain Size	Particle size, Hydrometer (.040 mm)	mg/l	NE	--	1.0	1.0	1.0	--	1.0	1.0	--	1.0	--	--
Grain Size	Particle size, Hydrometer (.026 mm)	mg/l	NE	--	1.0	1.0	1.0	--	1.0	1.0	--	1.0	--	--
Grain Size	Particle size, Hydrometer (.015 mm)	mg/l	NE	--	1.0	1.0	1.0	--	1.0	1.0	--	1.0	--	--
Grain Size	Particle size, Hydrometer (.011 mm)	mg/l	NE	--	1.0	1.0	1.0	--	1.0	1.0	--	1.0	--	--
Grain Size	Particle size, Hydrometer (.008 mm)	mg/l	NE	--	1.0	1.0	1.0	--	1.0	1.0	--	1.0	--	--
Grain Size	Particle size, Hydrometer (0.004mm)	mg/l	NE	--	1.0	1.0	1.0	--	1.0	1.0	--	1.0	--	--
Grain Size	Total Sample Weight	g	NE	--	565.1	937	758.4	--	948.9	1,086	--	610.7	--	--
Metals, TCLP	Arsenic	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Barium	mg/l	0.1 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Cadmium	mg/l	0.001 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Chromium	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Lead	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Mercury	ug/l	0.2 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Selenium	mg/l	0.001 b	--	--	--	--	--	--	--	--	--	--	--
Metals, TCLP	Silver	mg/l	0.005 b	--	--	--	--	--	--	--	--	--	--	--

Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-321	SCSD-322	SCSD-323	SCSD-324	SCSD-325	SCSD-326	SCSD-327	SCSD-328	SCSD-328	SCSD-329	SCSD-330
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Activity ID:				SCSD-321-08012012	SCSD-322-08012012	SCSD-323-07312012	SCSD-324-08012012	SCSD-325-07312012	SCSD-326-07312012	SCSD-327-07312012	SCSD-608-0801201	SCSD-328-08012012	SCSD-329-07312012	SCSD-604-0801201
Sample Type:				N	N	N	N	N	N	N	FD	N	N	FD
Sample Date:				08/01/12	08/01/12	07/31/12	08/01/12	07/31/12	07/31/12	07/31/12	08/01/12	08/01/12	07/31/12	08/01/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]											
Net Acid Generating Potential	Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Acid Production Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Net Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Neutralization Potential Ratio	t CaCO3/1000t	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Moisture content	wt%	NE	--	--	--	--	--	--	--	--	--	--	--
Net Acid Generating Potential	Sulfur Total	wt%	NE	--	--	--	--	--	--	--	--	--	--	--

Notes:

TCLP = toxicity characteristic leaching procedure
SEM/AVS Ratio = ratio of umol/g values
*AVS is nondetect

mg/L = milligrams per liter
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Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-330	SCSD-331	SCSD-332	SCSD-401	SCSD-401	SCSD-401	SCSD-402	SCTL-502	SCSD-333	SCSD-334
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Background	Background
Activity ID:				SCSD-330-08012012	SCSD-331-07312012	SCSD-332-08012012	SCSD-701-0730201	SCSD-401-07282012	SCSD-401-07302012	SCSD-402-07302012	SCTL-502-07292012	SCSD-333-08022012	SCSD-334-08022012
Sample Type:				N	N	N	FD	N	N	N	N	N	N
Sample Date:				08/01/12	07/31/12	08/01/12	07/30/12	07/28/12	07/30/12	07/30/12	07/29/12	8/2/2012	8/2/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]										
Genchem	Organic carbon	mg/kg	NE	6,700	7,560	23,100	551	40,900	630	859	1,530	19,000	31,800
Metal (SEM)	Cadmium	ug/l	NE	--	2.87 J	--	--	3.21 J	--	--	--	3.17 J	--
SEM	Copper	ug/l	NE	--	5,660	--	--	1,150	--	--	--	144	--
SEM	Lead	ug/l	NE	--	23.2	--	--	128	--	--	--	30.7	--
SEM	Nickel	ug/l	NE	--	32.3	--	--	21 J	--	--	--	34.8	--
SEM	Zinc	ug/l	NE	--	230	--	--	458	--	--	--	267	--
SEM	Acid Volatile Sulfide (AVS)	mg/kg	NE	--	38.7	--	--	0.136 UJ	--	--	--	1.95 U	--
SEM	AVS	umol/g	NE	--	1.21	--	--	0	--	--	--	0	--
SEM	SEM	umol/g	NE	--	2.7	--	--	0.67	--	--	--	0.17	--
SEM	SEM/AVS Ratio	umol/g	NE	--	2.2	--	--	1 U	--	--	--	1 U	--
Grain Size	Particle size, 3 inch, (76.20mm)	g	NE	--	0	--	--	0	--	--	0	0	--
Grain Size	Particle size, 2 inch, (50.80mm)	g	NE	--	0	--	--	0	--	--	0	0	--
Grain Size	Particle size, 1.5 inch (38.1mm)	g	NE	--	0	--	--	0	--	--	0	0	--
Grain Size	Particle size, 1 inch (25.40mm)	g	NE	--	0	--	--	0	--	--	0	0	--
Grain Size	Particle size, 3/4 inch (19.05mm)	g	NE	--	0	--	--	19	--	--	0	0	--
Grain Size	Particle size, 3/8 inch (9.525mm)	g	NE	--	2.0	--	--	96	--	--	0	24.9	--
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	NE	--	2.2	--	--	101	--	--	0.20	148.8	--
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	NE	--	0.40	--	--	112	--	--	0.80	297.3	--
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	NE	--	1.8	--	--	113	--	--	0.49	149	--
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	NE	--	24	--	--	78	--	--	8.4	74	--
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	NE	--	112	--	--	24	--	--	98	52	--
Grain Size	(0.106mm)	g	NE	--	547	--	--	11	--	--	247	107	--
Grain Size	(0.075mm)	g	NE	--	191	--	--	2.2	--	--	53	31	--
Grain Size	Particle size, Hydrometer (.040 mm)	mg/l	NE	--	1.0	--	--	1.0	--	--	1.0	1.002	--
Grain Size	Particle size, Hydrometer (.026 mm)	mg/l	NE	--	1.0	--	--	1.0	--	--	1.0	1.002	--
Grain Size	Particle size, Hydrometer (.015 mm)	mg/l	NE	--	1.0	--	--	1.0	--	--	1.0	1.002	--
Grain Size	Particle size, Hydrometer (.011 mm)	mg/l	NE	--	1.0	--	--	1.0	--	--	1.0	1.001	--
Grain Size	Particle size, Hydrometer (.008 mm)	mg/l	NE	--	1.0	--	--	1.0	--	--	1.0	1.001	--
Grain Size	Particle size, Hydrometer (0.004mm)	mg/l	NE	--	1.0	--	--	1.0	--	--	1.0	1.001	--
Grain Size	Total Sample Weight	g	NE	--	1,198	--	--	585.6	--	--	513.3	931.6	--
Metals, TCLP	Arsenic	mg/l	0.005 b	--	--	--	--	--	--	--	0.045 U		
Metals, TCLP	Barium	mg/l	0.1 b	--	--	--	--	--	--	--	**0.12 J**	--	--
Metals, TCLP	Cadmium	mg/l	0.001 b	--	--	--	--	--	--	--	0.005 U	--	--
Metals, TCLP	Chromium	mg/l	0.005 b	--	--	--	--	--	--	--	0.01 U	--	--
Metals, TCLP	Lead	mg/l	0.005 b	--	--	--	--	--	--	--	0.03 U	--	--
Metals, TCLP	Mercury	ug/l	0.2 b	--	--	--	--	--	--	--	0.05 U	--	--
Metals, TCLP	Selenium	mg/l	0.001 b	--	--	--	--	--	--	--	0.05 U	--	--
Metals, TCLP	Silver	mg/l	0.005 b	--	--	--	--	--	--	--	0.01 UJ	--	--

Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-330	SCSD-331	SCSD-332	SCSD-401	SCSD-401	SCSD-401	SCSD-402	SCTL-502	SCSD-333	SCSD-334
Area				Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Background	Background
Activity ID:				SCSD-330-08012012	SCSD-331-07312012	SCSD-332-08012012	SCSD-701-0730201	SCSD-401-07282012	SCSD-401-07302012	SCSD-402-07302012	SCTL-502-07292012	SCSD-333-08022012	SCSD-334-08022012
Sample Type:				N	N	N	FD	N	N	N	N	N	N
Sample Date:				08/01/12	07/31/12	08/01/12	07/30/12	07/28/12	07/30/12	07/30/12	07/29/12	8/2/2012	8/2/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]										
Net Acid Generating Potential	Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	6.0	--	--
Net Acid Generating Potential	Acid Production Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	1.3	--	--
Net Acid Generating Potential	Net Neutralization Potential	t CaCO3/1000t	NE	--	--	--	--	--	--	--	4.7	--	--
Net Acid Generating Potential	Neutralization Potential Ratio	t CaCO3/1000t	NE	--	--	--	--	--	--	--	4.5	--	--
Net Acid Generating Potential	Moisture content	wt%	NE	--	--	--	--	--	--	--	7.7	--	--
Net Acid Generating Potential	Sulfur Total	wt%	NE	--	--	--	--	--	--	--	0.042	--	--

Notes:

TCLP = toxicity characteristic leaching procedure
SEM/AVS Ratio = ratio of umol/g values
*AVS is nondetect

mg/L = milligrams per liter
mg/Kg = milligrams per kilogram
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media
ug/L = micrograms per liter
umo/g dry sed = micromole per gram, dry sediment
wt% = weight percent

-- = not analyzed

FD = field duplicate
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

a = The screening levels for freshwater were selected from the lowest of the following sources:

1) ADEC (2008) criteria for noncarcinogens, consumption of aquatic organisms only
2) USEPA (2009) AWQC: Human Health for Consumption of Organism Only, unless otherwise noted
3) ADEC (2008) Environmental media-specific conservative screening values
4) ASTM (2009) Z

BOLD	= detected result exceeds screening criteria
Not Bold	= analyte not detected but method reporting limit exceeds screening

ADEC = Alaska Department of Environmental Conservation
ASTM = American Society for testing and materials
AWQC = Ambient Water Quality Criteria
USEPA = U.S. Environmental Protection Agency

Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size

Salt Chuck Mine, Alaska

Location:				SCSD-335	SCSD-336	SCSD-337
Area				Background	Background	Background
Activity ID:				SCSD-335-08022012	SCSD-336-08022012	SCSD-337-08022012
Sample Type:				N	N	N
Sample Date:				8/2/2012	8/2/2012	8/2/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]			
Genchem	Organic carbon	mg/kg	NE	13,000	10,400	23,300
Metal (SEM)	Cadmium	ug/l	NE	--	1.92 J	--
SEM	Copper	ug/l	NE	--	67.1	--
SEM	Lead	ug/l	NE	--	50 U	--
SEM	Nickel	ug/l	NE	--	19.3 J	--
SEM	Zinc	ug/l	NE	--	178	--
SEM	Acid Volatile Sulfide (AVS)	mg/kg	NE	--	1.91 U	--
SEM	AVS	umol/g	NE	--	0	--
SEM	SEM	umol/g	NE	--	0.10	--
SEM	SEM/AVS Ratio	umol/g	NE	--	1 U	--
Grain Size	Particle size, 3 inch, (76.20mm)	g	NE	--	0	--
Grain Size	Particle size, 2 inch, (50.80mm)	g	NE	--	0	--
Grain Size	Particle size, 1.5 inch (38.1mm)	g	NE	--	0	--
Grain Size	Particle size, 1 inch (25.40mm)	g	NE	--	0	--
Grain Size	Particle size, 3/4 inch (19.05mm)	g	NE	--	35.9	--
Grain Size	Particle size, 3/8 inch (9.525mm)	g	NE	--	544	--
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	NE	--	210.3	--
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	NE	--	114	--
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	NE	--	172	--
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	NE	--	135	--
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	NE	--	94	--
Grain Size	(0.106mm)	g	NE	--	115	--
Grain Size	(0.075mm)	g	NE	--	15	--
Grain Size	Particle size, Hydrometer (.040 mm)	mg/l	NE	--	1.005	--
Grain Size	Particle size, Hydrometer (.026 mm)	mg/l	NE	--	1.004	--
Grain Size	Particle size, Hydrometer (.015 mm)	mg/l	NE	--	1.003	--
Grain Size	Particle size, Hydrometer (.011 mm)	mg/l	NE	--	1.003	--
Grain Size	Particle size, Hydrometer (.008 mm)	mg/l	NE	--	1.003	--
Grain Size	Particle size, Hydrometer (0.004mm)	mg/l	NE	--	1.002	--
Grain Size	Total Sample Weight	g	NE	--	1,507	--
Metals, TCLP	Arsenic	mg/l	0.005 b			
Metals, TCLP	Barium	mg/l	0.1 b	--	--	--
Metals, TCLP	Cadmium	mg/l	0.001 b	--	--	--
Metals, TCLP	Chromium	mg/l	0.005 b	--	--	--
Metals, TCLP	Lead	mg/l	0.005 b	--	--	--
Metals, TCLP	Mercury	ug/l	0.2 b	--	--	--
Metals, TCLP	Selenium	mg/l	0.001 b	--	--	--
Metals, TCLP	Silver	mg/l	0.005 b	--	--	--

Table 6

Intertidal and Background Sediment/Tailings Sample Results for TOC, SEM, Metals (TCLP),

Net Acid Generating Potential, and Particle Size
Salt Chuck Mine, Alaska

Location:				SCSD-335	SCSD-336	SCSD-337
Area				Background	Background	Background
Activity ID:				SCSD-335-08022012	SCSD-336-08022012	SCSD-337-08022012
Sample Type:				N	N	N
Sample Date:				8/2/2012	8/2/2012	8/2/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]			
Net Acid Generating Potential	Neutralization Potential	t CaCO3/1000t	NE	--	--	--
Net Acid Generating Potential	Acid Production Potential	t CaCO3/1000t	NE	--	--	--
Net Acid Generating Potential	Net Neutralization Potential	t CaCO3/1000t	NE	--	--	--
Net Acid Generating Potential	Neutralization Potential Ratio	t CaCO3/1000t	NE	--	--	--
Net Acid Generating Potential	Moisture content	wt%	NE	--	--	--
Net Acid Generating Potential	Sulfur Total	wt%	NE	--	--	--

Notes:

TCLP = toxicity characteristic leaching procedure
SEM/AVS Ratio = ratio of umol/g values
*AVS is nondetect

mg/L = milligrams per liter
mg/Kg = milligrams per kilogram
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media
ug/L = micrograms per liter
umo/g dry sed = micromole per gram, dry sediment
wt% = weight percent

-- = not analyzed

FD = field duplicate
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

a = The screening levels for freshwater were selected from the lowest of the following sources:

1) ADEC (2008) criteria for noncarcinogens, consumption of aquatic organisms only
2) USEPA (2009) AWQC: Human Health for Consumption of Organism Only, unless otherwise noted
3) ADEC (2009) Environmental media-specific conservative screening values
4) ASTM (2009) Z

BOLD	= detected result exceeds screening criteria
Not Bold	= analyte not detected but method reporting limit exceeds screening

ADEC = Alaska Department of Environmental Conservation
ASTM = American Society for testing and materials
AWQC = Ambient Water Quality Criteria
USEPA = U.S. Environmental Protection Agency

Table 7
Intertidal Surface Water Analytical Results, Metals (ug/L)
Salt Chuck Mine, Alaska

Location:		SCSW-101		SCSW-102		SCSW-314		SCSW-316		SCSW-321	
Activity ID:		SCSW-101-08012012		SCSW-102-07312012		SCSW-314-08012012		SCSW-316-08012012		SCSW-321-08012012	
Sample Type:		N		N		N		N		N	
Date Sampled:		8/1/2012		7/31/2012		8/1/2012		8/1/2012		8/1/2012	
Fraction:		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Chem Name	Screening Level										
Aluminum	NE	308	339	239	966	197	309	191	330	268	410
Antimony	500 [a]	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	36 [a]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	200 [a]	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U
Beryllium	100 [a]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	8.8 [a]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Calcium	NE	6,710	6,450	5,000 U	5,000 U	7,250	7,050	12,200	11,500	8,870	8,070
Chromium	27.4 [a]	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Cobalt	1 [a]	1 U	1 U	1 U	**1.6**	1 U	1 U	1 U	1 U	1 U	1 U
Copper	3.1 [a]	**3.7**	2.2	**9.2**	**24.8**	**11.6**	**26.7**	**12.9**	**30.3**	**7.8**	**16.5**
Iron	50 [a]	**730**	**872 J**	**496**	**1,620 J**	**389**	**555 J**	**393**	**546 J**	**697**	**875 J**
Lead	8.1 [a]	1 U	1 U	1 U	1.4	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	NE	12,900	12,400	5,000 U	5,000 U	13,400	13,200	27,800	26,100	17,900	16,200
Manganese	100 [a]	37.7	40.4	22.7	**148**	16.6	28.7	18.4	30.2	37.1	47.4
Mercury	0.94 [a]	0.2 U	0.2 U	0.024 J	0.2 U	0.058 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	8.2 [a]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Potassium	NE	4,130 J	4,070 J	1,410 J	1,410 J	4,280 J	4,300 J	9,080	8,740	5,850	5,390
Selenium	71 [a]	0.78 J	0.68 J	0.19 J	0.3 J	0.81 J	0.77 J	1.7 J	1.9 J	1.1 J	0.96 J
Silver	0.95 [b]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sodium	NE	107,000	103,000	30,400	28,100	111,000	110,000	235,000	222,000	150,000	136,000
Thallium	17 [a]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	50 [a]	5 U	5 U	5 U	5.3	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	81 [a]	2.1	2 U	3.4	5.1	2.2	2 U	3.6	2 U	2.6	2.2

Notes:

ug/L = micrograms per liter
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown

Screening:

a = NOAA SQuiRT Table (marine chronic)

b = NOAA SQuiRT Table (marine acute)

NE = not established

BOLD = detected result exceeds screening level

not bold = analyte not detected but method reporting limit exceeds

the associated screening level
NOAA = National Oceanic and Atmospheric Administration

SQuiRT = Screening Quick Background Table. Buchman, M. F., 2008. NOAA Screening Quick Background Tables, NOAA OR&R Report 08-1, Seattle WA, Office of Response

and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

NE = not established

-- Not applicable

Table 8
Intertidal and Background Bivalve Sample Results for Metals (wet-weight basis)
Salt Chuck Mine, Alaska

Analyte Name:					Moisture	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury
Units:					%	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Level [a]:					NE	1,400	0.54	0.0033	270	NE	0.49	NE	NE	54	NE	0.8	NE	190	0.049
Area	Location	Activity ID	Date Collected	Sample Type															
Intertidal	SCTISS-311-SC	SCTISS-311-SC-20120728	07/28/12	N	78.5	1,193	0.043 U	**3.3**	3.1	0.17 U	0.14	1.6	1.6	**58**	6,171	0.26	1,165	29	0.015
Intertidal	SCTISS-312-SC	SCTISS-312-SC-20120728	07/28/12	N	80.7	666	0.041 U	**4.1**	2.0	0.16 U	0.14	3.1	1.3	36	7,315	0.37	1,087	18	0.0068
Intertidal	SCTISS-315-SC	SCTISS-315-SC-20120801	08/01/12	N	84.5	456	0.031 U	**2.5**	1.5	0.12 U	0.25	2.6	0.47	9.1	1,829	0.19	722	15	0.0056
Intertidal	SCTISS-316-SC	SCTISS-316-SC-20120801	08/01/12	N	81.4	1,125	0.037 U	**3.2**	2.8	0.15 U	0.16	2.3	1.7	**73**	5,134	0.39	1,209	33	0.0093
Intertidal	SCTISS-317-SC	SCTISS-317-SC-20120801	08/01/12	N	83.1	353	0.032 U	**2.6**	1.4	0.13 U	0.19	0.51	0.46	12	1,514	0.096	684	9.5	0.0046
Intertidal	SCTISS-320-SC	SCTISS-320-SC-20120731	07/31/12	N	83.6	302	0.034 U	**2.3**	0.98	0.13 U	0.16	1.2	0.30	7.8	1,548	0.12	656	6.8	0.0049
Intertidal	SCTISS-325-SC	SCTISS-325-SC-20120731	07/31/12	N	82.3	464	0.035 U	**2.8**	1.7	0.14 U	0.30	1.6	0.51	14	1,697	0.16	797	13	0.0062
Intertidal	SCTISS-329-BC	SCTISS-329-BC-20120731	07/31/12	N	80	25	0.040 U	**5.6**	0.20 U	0.16 U	0.16	0.52	0.17	3.1	88	0.100 U	604	1.4	0.0028
Intertidal	SCTISS-329-CO	SCTISS-329-CO-20120731	07/31/12	N	80.3	68	0.039 U	**1.6**	0.37	0.16 U	0.085	0.24	0.077	2.3	207	0.10 U	502	2.2	0.0037
Intertidal	SCTISS-329-LN	SCTISS-329-LN-20120731	07/31/12	N	81	29	0.036 U	**4.5**	1.0	0.15 U	0.44	0.29	0.16	3.5	119	0.091 U	587	1.6	0.0039
Intertidal	SCTISS-330-SC	SCTISS-330-SC-20120801	08/01/12	N	83.1	203	0.035 U	**1.8**	1.0	0.14 U	0.32	1.1	0.25	5.8	549	0.088 U	578	12	0.0047
Intertidal	SCTISS-331-BC	SCTISS-331-BC-20120731	07/31/12	N	78.8	16	0.042 U	**5.6**	0.23	0.17 U	0.13	0.55	0.20	5.3	82	0.11 U	575	1.2	0.0046
Intertidal	SCTISS-331-CO	SCTISS-331-CO-20120731	07/31/12	N	80.7	59	0.039 U	**1.4**	0.35	0.15 U	0.079	0.19	0.10	3.9	251	0.097 U	479	2.0	0.0026
Intertidal	SCTISS-601-CO	SCTISS-601-CO-20120731	07/31/12	N	79.3	52	0.039 U	**1.4**	0.25	0.15 U	0.081	0.14	0.087	3.1	215	0.095 U	480	1.8	0.0028
Background	SCTISS-333-SC	SCTISS-333-SC-20120802	08/02/12	N	82.1	243	0.038 U	**2.1**	0.95	0.15 U	0.32	1.8	0.21	2.7	700	0.093 U	644	9.5	0.0044
Background	SCTISS-334-BC	SCTISS-334-BC-20120802	08/02/12	N	80.8	7.3	0.036 U	**4.7**	0.19	0.15 U	0.18	0.40	0.13	1.7	50	0.090 U	540	0.93	0.0026
Background	SCTISS-334-LN	SCTISS-334-LN-20120802	08/02/12	N	81	4.6 U	0.038 U	**3.7**	0.67	0.15 U	0.42	0.11	0.12	1.9	39	0.095 U	530	0.99	0.0029
Background	SCTISS-334-SC	SCTISS-334-SC-20120802	08/02/12	N	81.8	123	0.036 U	**1.7**	0.84	0.15 U	0.29	0.73	0.14	2.9	224	0.091 U	575	4.5	0.0039
Background	SCTISS-335-BC	SCTISS-335-BC-20120802	08/02/12	N	81.2	18	0.039 U	**5.3**	1.5	0.16 U	0.21	0.49	0.15	2.3	63	0.098 U	664	1.2	0.0028
Background	SCTISS-335-CO	SCTISS-335-CO-20120802	08/02/12	N	79.7	31	0.041 U	**1.5**	0.28	0.16 U	0.099	0.095	0.055	0.55	100	0.10 U	473	1.1	0.0032
Background	SCTISS-335-SC	SCTISS-335-SC-20120802	08/02/12	N	79.9	85	0.040 U	**2.3**	0.70	0.16 U	0.28	0.26	0.11	2.8	308	0.098 U	517	2.4	0.0032
Background	SCTISS-336-BC	SCTISS-336-BC-20120802	08/02/12	N	78.2	19	0.044 U	**4.1**	0.31	0.17 U	0.16	0.31	0.14	1.7	52	0.11 U	543	1.1	0.0032
Background	SCTISS-336-CO	SCTISS-336-CO-20120802	08/02/12	N	79.4	35	0.020 U	**0.81**	0.23	0.16 U	0.047	0.076	0.021	0.29	104	0.049 U	451	0.54	0.0034
Background	SCTISS-336-LN	SCTISS-336-LN-20120802	08/02/12	N	79.6	4.7 U	0.039 U	**5.7**	1.4	0.16 U	0.49	0.15	0.14	1.3	50	0.098 U	532	0.90	0.0034
Background	SCTISS-336-SC	SCTISS-336-SC-20120802	08/02/12	N	80.3	123	0.037 U	**2.2**	1.00	0.15 U	0.37	1.6	0.15	2.7	276	0.095 U	546	3.4	0.0047
Background	SCTISS-337-SC	SCTISS-337-SC-20120802	08/02/12	N	82.2	130	0.036 U	**2.2**	0.77	0.14 U	0.34	1.4	0.15	3.1	440	0.091 U	559	3.6	0.0035
Background	SCTISS-602-SC	SCTISS-602-SC-20120802	08/02/12	N	82.5	198	0.033 U	**2.0**	1.1	0.13 U	0.25	1.2	0.16	2.3	476	0.082 U	606	4.5	0.0030

Notes:

mg/Kg = milligrams per kilogram - wet weight
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

[a]Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEPA 2011).

NE = not established

BOLD = detected result exceeds screening level

USEPA = U.S. Environmental Protection Agency

Table 8
Intertidal and Background Bivalve Sample Results for Metals (wet-weight basis)
Salt Chuck Mine, Alaska

Analyte Name:					Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units:					mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Level [a]:					27	2457	6.8	0.014	6.8	410
Area	Location	Activity ID	Date Collected	Sample Type						
Intertidal	SCTISS-311-SC	SCTISS-311-SC-20120728	07/28/12	N	1.3	0.47	0.054	0.013	**26**	12
Intertidal	SCTISS-312-SC	SCTISS-312-SC-20120728	07/28/12	N	2.0	0.44	0.019 J	0.0099 U	**20**	11
Intertidal	SCTISS-315-SC	SCTISS-315-SC-20120801	08/01/12	N	1.6	0.54	0.017 J	0.0078 U	5.4	12
Intertidal	SCTISS-316-SC	SCTISS-316-SC-20120801	08/01/12	N	1.9	0.47	0.061 J	0.0093 U	**22**	12
Intertidal	SCTISS-317-SC	SCTISS-317-SC-20120801	08/01/12	N	0.54	0.54	0.022 J	0.0080 U	6.1	11
Intertidal	SCTISS-320-SC	SCTISS-320-SC-20120731	07/31/12	N	1.7	0.44	0.015 J	0.0084 U	3.8	8.9
Intertidal	SCTISS-325-SC	SCTISS-325-SC-20120731	07/31/12	N	0.90	0.53	0.023	0.011	6.4	12
Intertidal	SCTISS-329-BC	SCTISS-329-BC-20120731	07/31/12	N	0.52	0.40	0.046	0.012	0.36	13
Intertidal	SCTISS-329-CO	SCTISS-329-CO-20120731	07/31/12	N	0.32	0.47	0.0049 UJ	0.010 U	0.61	12
Intertidal	SCTISS-329-LN	SCTISS-329-LN-20120731	07/31/12	N	0.42	0.72	0.023 J	0.0092 U	0.42	12
Intertidal	SCTISS-330-SC	SCTISS-330-SC-20120801	08/01/12	N	0.85	0.47	0.042	0.011	2.0	12
Intertidal	SCTISS-331-BC	SCTISS-331-BC-20120731	07/31/12	N	0.51	0.40	0.064 J	0.011 U	0.40	13
Intertidal	SCTISS-331-CO	SCTISS-331-CO-20120731	07/31/12	N	0.31	0.44	0.0056	0.011	0.91	10
Intertidal	SCTISS-601-CO	SCTISS-601-CO-20120731	07/31/12	N	0.27	0.37	0.0070	0.0096 U	0.77	10
Background	SCTISS-333-SC	SCTISS-333-SC-20120802	08/02/12	N	1.5	0.55	0.077 J	0.0093 U	1.5	11
Background	SCTISS-334-BC	SCTISS-334-BC-20120802	08/02/12	N	0.48	0.36	0.86	0.013	0.13	12
Background	SCTISS-334-LN	SCTISS-334-LN-20120802	08/02/12	N	0.48	0.49	0.17 J	0.0095 U	0.086	13
Background	SCTISS-334-SC	SCTISS-334-SC-20120802	08/02/12	N	0.58	0.44	0.095	0.011	0.69	10
Background	SCTISS-335-BC	SCTISS-335-BC-20120802	08/02/12	N	0.51	0.41	0.70 J	0.0097 U	0.18	14
Background	SCTISS-335-CO	SCTISS-335-CO-20120802	08/02/12	N	0.28	0.47	3.2 J	0.010 U	0.19	10
Background	SCTISS-335-SC	SCTISS-335-SC-20120802	08/02/12	N	0.24	0.48	0.14 J	0.0098 U	0.60	10
Background	SCTISS-336-BC	SCTISS-336-BC-20120802	08/02/12	N	0.44	0.33	0.52	0.012	0.15	13
Background	SCTISS-336-CO	SCTISS-336-CO-20120802	08/02/12	N	0.12	0.19	0.0039	0.0049 U	0.12	4.8
Background	SCTISS-336-LN	SCTISS-336-LN-20120802	08/02/12	N	0.43	0.47	0.049 J	0.0098 U	0.13	14
Background	SCTISS-336-SC	SCTISS-336-SC-20120802	08/02/12	N	0.71	0.51	0.17	0.012	0.69	11
Background	SCTISS-337-SC	SCTISS-337-SC-20120802	08/02/12	N	1.4	0.48	0.082	0.0094	1.2	11
Background	SCTISS-602-SC	SCTISS-602-SC-20120802	08/02/12	N	0.67	0.47	0.10 J	0.0082 U	1.2	10

Notes:

mg/Kg = milligrams per kilogram - wet weight
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

[a]Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEPA 2011).

NE = not established

BOLD = detected result exceeds screening level

USEPA = U.S. Environmental Protection Agency

Table 9
Intertidal and Background Bivalve Sample Results for PAHs (wet-weight basis
Salt Chuck Mine, Alaska

					High-Molecular Weight PAHs (HPAH)									Low-Molecular Weight PAHs (LPAH)			
Analyte Name:					Benz(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(ghi) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Indeno(1,2,3-cd)pyrene	Pyrene	Acenaphthene	Acenaphthylene	Anthracene	Fluoranthene
Units:					mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Criteria:[a]					0.0043	0.000673	0.0043	0.0043	0.043	0.43	0.00043	0.0043	41	81	81	410	54
Area	Location	Activity ID	Date Collected	Sample Type													
Intertidal	SCTISS-311-SC	SCTISS-311-SC-20120728	07/28/12	N	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U	0.00020855 U
Intertidal	SCTISS-312-SC	SCTISS-312-SC-20120728	07/28/12	N	0.0003474	**0.0006755**	0.0008685	0.0012545	0.0003088	0.0005018	0.0002509 U	0.0007334	0.0013317	0.00019107 U	0.000193 U	0.000193	0.0010422
Intertidal	SCTISS-315-SC	SCTISS-315-SC-20120801	08/01/12	N	0.00015035 U	0.0002635	0.0003875	0.0004495	0.00015035 U	0.00015035 U	0.00015035 U	0.00031	0.000217 U	0.00015035 U	0.00015035 U	0.00015035 U	0.0001705 U
Intertidal	SCTISS-316-SC	SCTISS-316-SC-20120801	08/01/12	N	**0.006138**	**0.008742**	**0.009486**	**0.007812**	0.00279	0.005952	**0.0010974**	0.004278	0.009486	0.00017856 U	0.0016182	0.0008742	0.003906
Intertidal	SCTISS-317-SC	SCTISS-317-SC-20120801	08/01/12	N	0.00016393 U	0.000338	0.0004056	0.0005408	0.000169	0.00016393 U	0.00016393 U	0.0002366	0.0003718	0.00016393 U	0.00016393 U	0.00016393 U	0.0002366 U
Intertidal	SCTISS-320-SC	SCTISS-320-SC-20120731	07/31/12	N	0.00016236 U	0.00016236 U	0.0001968	0.00016236 U	0.00016236 U	0.00016236 U	0.00016236 U	0.00016236 U	0.0002296 U	0.00016236 U	0.00016236 U	0.00016236 U	0.000164 U
Intertidal	SCTISS-325-SC	SCTISS-325-SC-20120731	07/31/12	N	0.00016992 U	0.0003009	0.0004425	0.0008142	0.00016992 U	0.00016992 U	0.00016992 U	0.0003717	0.0002832	0.00016992 U	0.00016992 U	0.00016992 U	0.0002478 U
Intertidal	SCTISS-329-BC	SCTISS-329-BC-20120731	07/31/12	N	0.000196 U	0.00022 U	0.000196 U	0.000196 U	0.000196 U	0.000196 U	0.00022 U	0.000196 U	0.000196 U	0.000196 U	0.000196 U	0.000196 U	0.000196 U
Intertidal	SCTISS-329-CO	SCTISS-329-CO-20120731	07/31/12	N	0.00019306 U	0.0003546 U	0.0002561 U	0.00019306 U	0.00019306 U	0.00019306 U	0.00019306 U	0.00019306 U	0.00019503 U	0.00019306 U	0.00019306 U	0.00019306 U	0.0002167 U
Intertidal	SCTISS-329-LN	SCTISS-329-LN-20120731	07/31/12	N	0.0001862 U	0.000266 U	0.0001862 U	0.0001862 U	0.0001862 U	0.0001862 U	0.000209 U	0.0001862 U	0.00019 U	0.0001862 U	0.0001862 U	0.0001862 U	0.0001862 U
Intertidal	SCTISS-330-SC	SCTISS-330-SC-20120801	08/01/12	N	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U	0.00016055 U
Intertidal	SCTISS-331-BC	SCTISS-331-BC-20120731	07/31/12	N	0.00020988 U	0.00020988 U	0.00020988 U	0.00020988 U	0.00020988 U	0.00020988 U	0.00020988 U	0.00020988 U	0.0002968 U	0.00020988 U	0.00020988 U	0.00020988 U	0.000212 U
Intertidal	SCTISS-331-CO	SCTISS-331-CO-20120731	07/31/12	N	0.00018914 U	0.0003281	0.000386	0.00018914 U	0.00018914 U	0.00018914 U	0.00018914 U	0.00018914 U	0.0002895	0.00018914 U	0.00018914 U	0.00018914 U	0.000193 U
Intertidal	SCTISS-601-CO	SCTISS-601-CO-20120731	07/31/12	N	0.00019251 U	0.0002691	0.0003519	0.00019251 U	0.00019251 U	0.00019251 U	0.000207 U	0.00019251 U	0.0003312	0.00019251 U	0.00019251 U	0.00019251 U	0.0002484 U
Background	SCTISS-333-SC	SCTISS-333-SC-20120802	08/02/12	N	0.00016826 U	0.00016826 U	0.00016826 U	0.00016826 U	0.00016826 U	0.00016826 U	0.00016826 U	0.000179 U	0.00016826 U	0.00016826 U	0.00016826 U	0.00016826 U	0.00016826 U
Background	SCTISS-334-BC	SCTISS-334-BC-20120802	08/02/12	N	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U	0.00019008 U
Background	SCTISS-334-LN	SCTISS-334-LN-20120802	08/02/12	N	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U	0.0001881 U
Background	SCTISS-334-SC	SCTISS-334-SC-20120802	08/02/12	N	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U	0.00018018 U
Background	SCTISS-335-BC	SCTISS-335-BC-20120802	08/02/12	N	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U	0.00018612 U
Background	SCTISS-335-CO	SCTISS-335-CO-20120802	08/02/12	N	0.00019285 U	0.00019285 U	0.00019285 U	0.00019285 U	0.00019285 U	0.00019285 U	0.00019285 U	0.000203 U	0.00019285 U	0.00019285 U	0.00019285 U	0.00019285 U	0.00019285 U
Background	SCTISS-335-SC	SCTISS-335-SC-20120802	08/02/12	N	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U	0.00019095 U
Background	SCTISS-336-BC	SCTISS-336-BC-20120802	08/02/12	N	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 UJ	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 U	0.00021582 U
Background	SCTISS-336-CO	SCTISS-336-CO-20120802	08/02/12	N	0.0006386	**0.002678**	0.00309	0.002472	0.0009888	0.001236	**0.0004532**	0.0014214	0.004326	0.00019776 U	0.0007004 U	0.0004326	0.0010094
Background	SCTISS-336-LN	SCTISS-336-LN-20120802	08/02/12	N	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.00020196 U	0.0002244 U
Background	SCTISS-336-SC	SCTISS-336-SC-20120802	08/02/12	N	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U	0.00019503 U
Background	SCTISS-337-SC	SCTISS-337-SC-20120802	08/02/12	N	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U	0.00017444 U
Background	SCTISS-602-SC	SCTISS-602-SC-20120802	08/02/12	N	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U	0.00017325 U

Notes:

mg/Kg = milligrams per kilogram
FD = field duplicate
N = normal sample
-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

[a]Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEPA 2011).

NE = not established

BOLD = detected result exceeds screening criteria

NOT BOLD = analyte not detected but method reporting limit exceeds screening criteria

USEPA = U.S. Environmental Protection Agency

Table 9
Intertidal and Background Bivalve Sample Results for PAHs (wet-weight basis
Salt Chuck Mine, Alaska

Analyte Name:					Naphthalene	Phenanthrene	Total HPAH	Total LPAH	Total PAH
Units:					mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Criteria:[a]					27	410	NE	NE	0.000673
Area	Location	Activity ID	Date Collected	Sample Type					
Intertidal	SCTISS-311-SC	SCTISS-311-SC-20120728	07/28/12	N	0.0002795 U	0.00020855 U	0.00097 U	0.0013 U	0.0013 U
Intertidal	SCTISS-312-SC	SCTISS-312-SC-20120728	07/28/12	N	0.0002702 U	0.00019107 U	0.0312	0.0064	**0.0376**
Intertidal	SCTISS-315-SC	SCTISS-315-SC-20120801	08/01/12	N	0.0001705 U	0.00015035 U	0.0091	0.0011 U	**0.0091**
Intertidal	SCTISS-316-SC	SCTISS-316-SC-20120801	08/01/12	N	0.0003534 U	0.0004092	0.2999	0.0366	**0.3365**
Intertidal	SCTISS-317-SC	SCTISS-317-SC-20120801	08/01/12	N	0.0002197 U	0.00016393 U	0.0122	0.0014 U	**0.0122**
Intertidal	SCTISS-320-SC	SCTISS-320-SC-20120731	07/31/12	N	0.0002132 U	0.00016236 U	0.0012	0.0013 U	**0.0012**
Intertidal	SCTISS-325-SC	SCTISS-325-SC-20120731	07/31/12	N	0.0002124 U	0.00017346 U	0.0125	0.0014 U	**0.0125**
Intertidal	SCTISS-329-BC	SCTISS-329-BC-20120731	07/31/12	N	0.00024 U	0.000196 U	0.0011 U	0.0012 U	0.0012 U
Intertidal	SCTISS-329-CO	SCTISS-329-CO-20120731	07/31/12	N	0.0002167 U	0.00019306 U	0.0018 U	0.0011 U	0.0011 U
Intertidal	SCTISS-329-LN	SCTISS-329-LN-20120731	07/31/12	N	0.000247 U	0.0001862 U	0.0014 U	0.0013 U	0.0013 U
Intertidal	SCTISS-330-SC	SCTISS-330-SC-20120801	08/01/12	N	0.0002197 U	0.00016055 U	0.00095 U	0.0013 U	0.0013 U
Intertidal	SCTISS-331-BC	SCTISS-331-BC-20120731	07/31/12	N	0.0002544 U	0.00020988 U	0.0014 U	0.0012 U	0.0012 U
Intertidal	SCTISS-331-CO	SCTISS-331-CO-20120731	07/31/12	N	0.0002509 U	0.00018914 U	0.0052	0.0013 U	**0.0052**
Intertidal	SCTISS-601-CO	SCTISS-601-CO-20120731	07/31/12	N	0.0002277 U	0.00019251 U	0.0046	0.0012 U	**0.0046**
Background	SCTISS-333-SC	SCTISS-333-SC-20120802	08/02/12	N	0.0001969 U	0.00016826 U	0.001 U	0.0011 U	0.0011 U
Background	SCTISS-334-BC	SCTISS-334-BC-20120802	08/02/12	N	0.0002304 U	0.00019008 U	0.00099 U	0.0012 U	0.0012 U
Background	SCTISS-334-LN	SCTISS-334-LN-20120802	08/02/12	N	0.000285 U	0.0001881 U	0.00099 U	0.0015 U	0.0015 U
Background	SCTISS-334-SC	SCTISS-334-SC-20120802	08/02/12	N	0.0002366 U	0.00018018 U	0.00099 U	0.0013 U	0.0013 U
Background	SCTISS-335-BC	SCTISS-335-BC-20120802	08/02/12	N	0.0002444 U	0.00018612 U	0.00099 U	0.0013 U	0.0013 U
Background	SCTISS-335-CO	SCTISS-335-CO-20120802	08/02/12	N	0.0002233 U	0.00019285 U	0.001 U	0.0011 U	0.0011 U
Background	SCTISS-335-SC	SCTISS-335-SC-20120802	08/02/12	N	0.0002613 U	0.00019095 U	0.00095 U	0.0013 U	0.0013 U
Background	SCTISS-336-BC	SCTISS-336-BC-20120802	08/02/12	N	0.0003052 U	0.0002398 U	0.00099 U	0.0014 U	0.0014 U
Background	SCTISS-336-CO	SCTISS-336-CO-20120802	08/02/12	N	0.0003502 U	0.0002678 U	0.084	0.007	**0.091**
Background	SCTISS-336-LN	SCTISS-336-LN-20120802	08/02/12	N	0.0002856 U	0.000204 U	0.00099 U	0.0014 U	0.0014 U
Background	SCTISS-336-SC	SCTISS-336-SC-20120802	08/02/12	N	0.0002364 U	0.00019503 U	0.00099 U	0.0012 U	0.0012 U
Background	SCTISS-337-SC	SCTISS-337-SC-20120802	08/02/12	N	0.0002492 U	0.00017444 U	0.00098 U	0.0014 U	0.0014 U
Background	SCTISS-602-SC	SCTISS-602-SC-20120802	08/02/12	N	0.000245 U	0.00017325 U	0.00099 U	0.0014 U	0.0014 U

Notes:

mg/Kg = milligrams per kilogram
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[a]Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEPA 2011).

NE = not established

BOLD = detected result exceeds screening criteria

NOT BOLD = analyte not detected but method reporting limit exceeds screening criteria

USEPA = U.S. Environmental Protection Agency

Table 10

Intertidal and Background Vegetation Sample Results for Metals (weight weight)

Salt Chuck Mine, Alaska

Analyte Name:						Moisture	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium
Units:						%	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Criteria:																		
Area	Location	Location ID	Activity ID	Date Collected	Sample Type													
Intertidal	Salt Chuck Bay	SCIV-302-SA	SCIV-302-SA-20120801	08/01/12	N	92.4	13	0.013 U	0.0099 J	0.065 U	0.0016 U	0.0013 U	0.022	0.018 J	3.4	59	0.033 U	610
Intertidal	Salt Chuck Bay	SCIV-304-SA	SCIV-304-SA-20120729	07/29/12	N	91.1	28	0.015 U	0.032 J	0.098	0.0020 U	0.0015 U	0.066	0.024	2.5	96	0.038 U	660
Intertidal	Salt Chuck Bay	SCIV-305-SA	SCIV-305-SA-20120729	07/29/12	N	91.7	20	0.016 U	0.031 J	0.091	0.0020 U	0.0016 U	0.083	0.022	2.1	82	0.039 U	613
Intertidal	Salt Chuck Bay	SCIV-306-SA	SCIV-306-SA-20120729	07/29/12	N	92	21	0.015 U	0.035 J	0.10	0.0019 U	0.0015 U	0.088	0.028	2.4	85	0.038 U	553
Intertidal	Salt Chuck Bay	SCIV-309-SA	SCIV-309-SA-20120729	07/29/12	N	89.9	66	0.017 U	0.076 J	0.20	0.0021 U	0.0045	0.33	0.063	3.3	237	0.044	660
Intertidal	Salt Chuck Bay	SCIV-312-SA	SCIV-312-SA-20120729	07/29/12	N	91.8	74	0.015 U	0.098 J	0.14	0.0019 U	0.0015 U	0.16	0.072	3.4	274	0.051	551
Intertidal	Salt Chuck Bay	SCIV-316-SA	SCIV-316-SA-20120801	08/01/12	N	93.2	12	0.013 U	0.020 J	0.063 U	0.0016 U	0.0015	0.023	0.013 J	1.3	43	0.031 U	579
Intertidal	Salt Chuck Bay	SCIV-318-SA	SCIV-318-SA-20120801	08/01/12	N	92.2	5.1	0.014 U	0.014 J	0.071 U	0.0018 U	0.0014 U	0.014 U	0.0059 J	0.92	17	0.036 U	591
Intertidal	Salt Chuck Bay	SCIV-319-SA	SCIV-319-SA-20120801	08/01/12	N	91.7	5.0	0.015 U	0.013 J	0.075 U	0.0019 U	0.0015 U	0.015 U	0.0050 J	0.99	15	0.037 U	649
Intertidal	Salt Chuck Bay	SCIV-320-SA	SCIV-320-SA-20120731	07/31/12	N	92.9	20	0.011 U	0.034 J	0.059	0.0015 U	0.0011 U	0.030	0.017 J	1.2	62	0.029 U	520
Intertidal	Salt Chuck Bay	SCIV-325-SA	SCIV-325-SA-20120731	07/31/12	N	93.5	16	0.012 U	0.027 J	0.057 U	0.0014 U	0.0012 U	0.029	0.012 J	0.99	51	0.029 U	557
Intertidal	Salt Chuck Bay	SCIV-327-SA	SCIV-327-SA-20120731	07/31/12	N	92	8.4	0.014 U	0.019 J	0.070 U	0.0018 U	0.0025	0.018	0.0072 J	1.0	28	0.034 U	602
Intertidal	Salt Chuck Bay	SCIV-329-SA	SCIV-329-SA-20120731	07/31/12	N	92.6	6.7	0.013 U	0.017 J	0.063 U	0.0016 U	0.0015	0.013 U	0.024	0.92	23	0.031 U	555
Intertidal	Salt Chuck Bay	SCIV-330-SA	SCIV-330-SA-20120801	08/01/12	N	93.1	24	0.014 U	0.046 J	0.12	0.0017 U	0.0014	0.054	0.027	1.0	70	0.035 U	472
Intertidal	Salt Chuck Bay	SCIV-601-SA	SCIV-601-SA-20120729	07/29/12	N	91.6	22	0.016 U	0.033 J	0.081 U	0.0020 U	0.0016 U	0.062	0.027	2.2	83	0.040 U	575
Intertidal	Salt Chuck Bay	SCIV-602-SA	SCIV-602-SA-20120801	08/01/12	N	92.2	4.4	0.015 U	0.022 J	0.073 U	0.0018 U	0.0015 U	0.015	0.0065	0.94	18	0.037 U	551
Background	Browns Bay	SCIV-333-SA	SCIV-333-SA-20120802	08/02/12	N	92.2	1.8	0.014 U	0.0094 J	0.069 U	0.0017 U	0.0020	0.014 U	0.030	0.42	7.6	0.034 U	551
Background	Browns Bay	SCIV-334-SA	SCIV-334-SA-20120802	08/02/12	N	92.4	1.1 U	0.014 U	0.0065 J	0.074 U	0.0018 U	0.0016	0.017	0.0084	0.27	4.8	0.037 U	540
Background	Browns Bay	SCIV-335-SA	SCIV-335-SA-20120802	08/02/12	N	92.4	5.6	0.014 U	0.0091 J	0.070 U	0.0017 U	0.0020	0.014 U	0.0032	0.25	7.7	0.035 U	583
Background	Browns Bay	SCIV-336-SA	SCIV-336-SA-20120802	08/02/12	N	92.8	4.5	0.014 U	0.013 J	0.071 U	0.0018 U	0.0017	0.033	0.0048	0.22	17	0.035 U	559
Background	Browns Bay	SCIV-337-SA	SCIV-337-SA-20120802	08/02/12	N	92.2	1.2	0.013 U	0.011 J	0.066 U	0.0016 U	0.0013 U	0.013 U	0.0064 J	0.31	4.8	0.034 U	588
Background	Browns Bay	SCIV-603-SA	SCIV-603-SA-20120802	08/02/12	N	91.8	1.1 U	0.016 U	0.0072 J	0.076 U	0.0019 U	0.0017	0.058	0.012	0.39	6.2	0.038 U	565

Notes:

mg/Kg = milligrams per kilogram

N = normal sample

-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.

U = The analyte was analyzed for, but not detected at the method reporting limit shown.

Table 10

Intertidal and Background Vegetation Sample Results for Metals (weight weight)

Salt Chuck Mine, Alaska

Analyte Name:						Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units:						mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Criteria:												
Area	Location	Location ID	Activity ID	Date Collected	Sample Type							
Intertidal	Salt Chuck Bay	SCIV-302-SA	SCIV-302-SA-20120801	08/01/12	N	0.011 U	0.024	0.0033 U	0.0022 J	0.0033 U	0.23	1.9
Intertidal	Salt Chuck Bay	SCIV-304-SA	SCIV-304-SA-20120729	07/29/12	N	0.013 U	0.044	0.0038 U	0.0020 UJ	0.0038 U	0.41	0.90
Intertidal	Salt Chuck Bay	SCIV-305-SA	SCIV-305-SA-20120729	07/29/12	N	0.014 U	0.048	0.0039 U	0.0040 J	0.0039 U	0.37	0.95
Intertidal	Salt Chuck Bay	SCIV-306-SA	SCIV-306-SA-20120729	07/29/12	N	0.012 U	0.074	0.0038 U	0.0038 J	0.0038 U	0.36	1.4
Intertidal	Salt Chuck Bay	SCIV-309-SA	SCIV-309-SA-20120729	07/29/12	N	0.012 U	0.21	0.0060	0.0021 UJ	0.0042 U	1.0	2.5
Intertidal	Salt Chuck Bay	SCIV-312-SA	SCIV-312-SA-20120729	07/29/12	N	0.015	0.11	0.0050	0.0019 UJ	0.0037 U	1.2	1.4
Intertidal	Salt Chuck Bay	SCIV-316-SA	SCIV-316-SA-20120801	08/01/12	N	0.012 U	0.041	0.0031 U	0.0016 UJ	0.0031 U	0.17	1.2
Intertidal	Salt Chuck Bay	SCIV-318-SA	SCIV-318-SA-20120801	08/01/12	N	0.0092 U	0.044	0.0036 U	0.0018 UJ	0.0036 U	0.061	1.0
Intertidal	Salt Chuck Bay	SCIV-319-SA	SCIV-319-SA-20120801	08/01/12	N	0.0090 U	0.061	0.0037 U	0.0019 UJ	0.0037 U	0.048	1.1
Intertidal	Salt Chuck Bay	SCIV-320-SA	SCIV-320-SA-20120731	07/31/12	N	0.0069 U	0.066	0.0029 U	0.0015 UJ	0.0029 U	0.24	1.2
Intertidal	Salt Chuck Bay	SCIV-325-SA	SCIV-325-SA-20120731	07/31/12	N	0.013 U	0.047	0.0029 U	0.0014 UJ	0.0029 U	0.20	1.2
Intertidal	Salt Chuck Bay	SCIV-327-SA	SCIV-327-SA-20120731	07/31/12	N	0.0074 U	0.096	0.0034 U	0.0018 UJ	0.0034 U	0.10	1.4
Intertidal	Salt Chuck Bay	SCIV-329-SA	SCIV-329-SA-20120731	07/31/12	N	0.013 U	0.081	0.0031 U	0.0016 UJ	0.0031 U	0.081	1.0
Intertidal	Salt Chuck Bay	SCIV-330-SA	SCIV-330-SA-20120801	08/01/12	N	0.012 U	0.055	0.0035	0.0017 UJ	0.0035 U	0.28	1.2
Intertidal	Salt Chuck Bay	SCIV-601-SA	SCIV-601-SA-20120729	07/29/12	N	0.0084 U	0.045	0.0040 U	0.0020 UJ	0.0040 U	0.35	1.4
Intertidal	Salt Chuck Bay	SCIV-602-SA	SCIV-602-SA-20120801	08/01/12	N	0.013 U	0.045	0.0037 U	0.0018 UJ	0.0037 U	0.070	1.0
Background	Browns Bay	SCIV-333-SA	SCIV-333-SA-20120802	08/02/12	N	0.014 U	0.13	0.0034 U	0.0017 UJ	0.0034 U	0.016	0.94
Background	Browns Bay	SCIV-334-SA	SCIV-334-SA-20120802	08/02/12	N	0.014 U	0.11	0.0037 U	0.0018 UJ	0.0037 U	0.011	0.78
Background	Browns Bay	SCIV-335-SA	SCIV-335-SA-20120802	08/02/12	N	0.014 U	0.091	0.0035 U	0.0017 UJ	0.0035 U	0.015	1.0
Background	Browns Bay	SCIV-336-SA	SCIV-336-SA-20120802	08/02/12	N	0.013 U	0.094	0.0035 U	0.0030 J	0.0035 U	0.032	1.1
Background	Browns Bay	SCIV-337-SA	SCIV-337-SA-20120802	08/02/12	N	0.014 U	0.23	0.0034 U	0.0016 UJ	0.0034 U	0.0078	1.0
Background	Browns Bay	SCIV-603-SA	SCIV-603-SA-20120802	08/02/12	N	0.014 U	0.073	0.0038 U	0.0019 UJ	0.0038 U	0.012	0.96

Notes:

mg/Kg = milligrams per kilogram

N = normal sample

-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.

U = The analyte was analyzed for, but not detected at the method reporting limit shown.

Table 11
Background and Upland Soil Sample Results Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCSS-515	SCSS-515	SCSS-901	SCSS-903	SCSS-903	SCSS-501	SCSS-502	SCSS-503	SCSS-504
Area				Background	Background	Background	Background	Background	Upland	Upland	Upland	Upland
Activity ID:				SCSS-515-07302012	SCSS-702-08012012FD	SCSS-901-08012012	SCSS-903-08022012	SCSS-703-08022012FD	SCSS-501-07272012	SCSS-502-07272012	SCSS-503-07282012	SCSS-504-07282012
Sample Type:				N	FD	N	N	FD	N	N	N	N
Sample Date:				7/30/2012	8/1/2012	8/1/2012	8/2/2012	8/2/2012	7/27/2012	7/27/2012	7/28/2012	7/28/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]									
Metals	Aluminum	mg/Kg	77,000	26,200	7,500	10,000	5,050 J	5,150 J	7,000	19,700	16,600	6,930
Metals	Antimony	mg/Kg	31	2.2 UJ	1.2 U	1 UJ	2.8 UJ	2.7 UJ	1.5 UJ	1.7 UJ	1.7 UJ	1.6 UJ
Metals	Arsenic	mg/Kg	0.39	**18.2**	**1.2**	**2.7 J**	**1.8**	**2.5**	**1.1 J**	**1.3 J**	**4.5 J**	**1.6 J**
Metals	Barium	mg/Kg	15,000	26.4 J	9.9	20.2	14 UJ	13.6 UJ	62.6	32.9	40.7	9.7
Metals	Beryllium	mg/Kg	160	1.1 UJ	0.58 U	0.5 U	1.4 UJ	1.4 UJ	0.77 U	0.84 U	0.84 U	0.8 U
Metals	Cadmium	mg/Kg	70	1.1 UJ	0.58 U	0.5 U	1.4 UJ	1.4 UJ	0.77 U	1.1	0.84 U	0.8 U
Metals	Calcium	mg/Kg	NE	4,990	3,370	4,160	8,780	9,080	4,430	15,700	6,220	5,480
Metals	Chromium	mg/Kg	0.29 b	**24.2**	**3.6**	**7.2**	2.8 UJ	2.7 UJ	**4.6 J**	**11.7 J**	**6.9 J**	**2.6 J**
Metals	Cobalt	mg/Kg	23	**39.3**	9.5	16.2	10.2	15.8	11 J	17.1 J	14.6 J	18.9 J
Metals	Copper	mg/Kg	3,100	27.6 J	112	186	16.9	22.8	2,080 J	381 J	122 J	390 J
Metals	Iron	mg/Kg	55,000	54,700	25,600	35,600	3,710 J	3,940 J	43,700 J	37,000 J	47,100 J	**55,500 J**
Metals	Lead	mg/Kg	400	9.3	2.6	4.6	3.2	4.4	115 J	4.1 J	6.4 J	52.6 J
Metals	Magnesium	mg/Kg	NE	10,800	5,470	7,220	6,220	6,350	3,400	9,380	3,460	6,790
Metals	Manganese	mg/Kg	1,800	**1,910**	261	490	1,160	1,550	725	377	636	409
Metals	Mercury	mg/Kg	10	0.22	0.087 J	0.11	0.29	0.34	1.9	0.17	0.1 J	0.29
Metals	Nickel	mg/Kg	1,500	12.3 J	4.6	8.3 J	3.6	4.8	5.2	13	5.7	8.6
Metals	Potassium	mg/Kg	NE	1,180 UJ	222 J	320 J	1,420 UJ	1,380 UJ	640 U	527 J	603 U	667 U
Metals	Selenium	mg/Kg	390	1.2 J	0.24 J	0.6 J	7 UJ	6.8 UJ	1.6 J	0.84 J	0.7 J	1.1 J
Metals	Silver	mg/Kg	390	1.1 UJ	0.58 U	0.5 U	1.4 UJ	1.4 UJ	0.94	0.84 U	0.84 U	1.2
Metals	Sodium	mg/Kg	NE	1,180 UJ	565 U	122 J	11,000	11,900	640 U	874 U	603 U	667 U
Metals	Thallium	mg/Kg	0.78	1.1 UJ	0.58 U	0.5 U	1.4 U	1.4 U	0.77 U	0.84 U	0.84 U	0.8 U
Metals	Vanadium	mg/Kg	390	154	81.7	160	7	9.8	224	213	154	154
Metals	Zinc	mg/Kg	23,000	40.3 J	19 J	35.7 J	15.6 J	13.1 J	43.7 J	101 J	53.2 J	56.4 J
PAH	2-Methylnaphthalene	ug/Kg	NE	11 UJ	6.8 U	5.4 U	--	--	--	--	2.9 J	2.4 J
PAH	Benz(a)anthracene	ug/Kg	150	11 UJ	7.9	6.1	--	--	--	--	7.1	21
PAH	Benzo(a)pyrene	ug/Kg	15	11 UJ	8.9	6.8	--	--	--	--	3.9 J	14
PAH	Benzo(b)fluoranthene	ug/Kg	150	11 UJ	30	16	--	--	--	--	6.6	51
PAH	Benzo(ghi)perylene	ug/Kg	1100000 c	11 UJ	6.8 U	2.2 J	--	--	--	--	6 U	2.4 J
PAH	Benzo(k)fluoranthene	ug/Kg	1,500	11 UJ	6 J	3.4 J	--	--	--	--	1.9 J	11
PAH	Chrysene	ug/Kg	15,000	11 UJ	16	11	--	--	--	--	6.1	47
PAH	Dibenz[a,h]anthracene	ug/Kg	15	11 UJ	4.6 J	2.8 J	--	--	--	--	6 U	5.5 J
PAH	Indeno[1,2,3-cd]pyrene	ug/Kg	150	11 UJ	14	9	--	--	--	--	2.6 J	12
PAH	Pyrene	ug/Kg	1,700,000	11 UJ	9.8	8.4	--	--	--	--	15	46
PAH	Total HPAH	ug/Kg	NE	11 UJ	97.2 J	65.7 J	--	--	--	--	43.2 J	209.9 J
PAH	Acenaphthene	ug/Kg	3,400,000	11 UJ	6.8 U	5.4 U	--	--	--	--	6 U	11 U
PAH	Acenaphthylene	ug/Kg	2,300,000 c	11 UJ	7	4.7 J	--	--	--	--	2 J	4.5 J
PAH	Anthracene	ug/Kg	17,000,000	11 UJ	2.8 J	2 J	--	--	--	--	2.3 J	5.6 J
PAH	Fluoranthene	ug/Kg	2,300,000	11 UJ	6.7 J	5.8	--	--	--	--	13	44
PAH	Fluorene	ug/Kg	2,300,000	11 UJ	6.8 U	5.4 U	--	--	--	--	1.9 J	11 U
PAH	Naphthalene	ug/Kg	3,600	2.5 J	2.5 J	2.2 J	--	--	--	--	2.9 J	4.8 J
PAH	Phenanthrene	ug/Kg	16,800,000 c	11 UJ	2.6 J	2.1 J	--	--	--	--	12	13
PAH	Total LPAH	ug/Kg	NE	2.5 J	21.6 J	16.8 J	--	--	--	--	34.1 J	71.9 J
PAH	Total PAH	ug/Kg	NE	2.5 UJ	118.8 J	82.5 J	--	--	--	--	77.3 J	281.8 J

Table 11
Background and Upland Soil Sample Results Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCSS-515	SCSS-515	SCSS-901	SCSS-903	SCSS-903	SCSS-501	SCSS-502	SCSS-503	SCSS-504
Area				Background	Background	Background	Background	Background	Upland	Upland	Upland	Upland
Activity ID:				SCSS-515-07302012	SCSS-702-08012012FD	SCSS-901-08012012	SCSS-903-08022012	SCSS-703-08022012FD	SCSS-501-07272012	SCSS-502-07272012	SCSS-503-07282012	SCSS-504-07282012
Sample Type:				N	FD	N	N	FD	N	N	N	N
Sample Date:				7/30/2012	8/1/2012	8/1/2012	8/2/2012	8/2/2012	7/27/2012	7/27/2012	7/28/2012	7/28/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]									
PCB	Aroclor 1016	ug/Kg	3,900	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1221	ug/Kg	140	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1232	ug/Kg	140	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1242	ug/Kg	220	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1248	ug/Kg	220	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1254	ug/Kg	220	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1260	ug/Kg	220	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1262	ug/Kg	220 d	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Aroclor 1268	ug/Kg	220 d	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
PCB	Total PCBs	ug/Kg	220	110 UJ	68 U	55 U	--	--	--	--	59 U	54 U
TPH	Diesel range organics	mg/Kg	230 c	102	85.2	50.8	--	--	--	--	74.5 J	166 J
TPH	Gasoline range organics[1]	mg/Kg	260 c	3.49 J	0.399 J	1.43 J	--	--	--	--	12.3 UJ	3.66 J
TPH	Oil Range Organics	mg/Kg	9,700 c	320 J	342	285	--	--	--	--	156 J	1,020

Notes:
PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

mg/Kg = milligrams per kilogram
ug/Kg = micrograms per kilogram
N = normal sample
FD = field duplicate sample
-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

[1]Two sets of gasoline range organics were run using different retention time (RT) markers. The first set used EPA 8015 RT markers,

the second set used AK101 RT markers as needed
a = Resident Soil RSL (USEPA, 2012) unless otherwise indicated
b = RSL for Chromium (VI)
c = Most stringent ADEC Method Two Soil Cleanup Level listed for the above 40 inch zone (ADEC, 2012)
d= RSL for total PCBs

NE = not established
BOLD = detected result exceeds screening level.
Not Bold = analyte not detected but method reporting limit exceeds screening level.

ADEC = Alaska Department of Environmental Conservation
ERL = Effects range low
RSL = Regional Screening Level
USEPA = U.S. Environmental Protection Agency

Table 11
Background and Upland Soil Sample Results Sample Results for Metal
Salt Chuck Mine, Alaska

Location:				SCSS-505	SCSS-506	SCSS-512	SCSS-512	SCSS-513	SCSS-514
Area				Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCSS-505-07282012	SCSS-506-07282012	SCSS-512-07282012	SCSS-701-0728201FD	SCSS-513-07282012	SCSS-514-07282012
Sample Type:				N	N	N	FD	N	N
Sample Date:				7/28/2012	7/28/2012	7/28/2012	7/28/2012	7/28/2012	7/28/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]						
Metals	Aluminum	mg/Kg	77,000	6,950	1,210	1,490	460	613	15,000
Metals	Antimony	mg/Kg	31	1.2 UJ	1.7 UJ	1.5 UJ	1.3 UJ	2.3 UJ	1.4 UJ
Metals	Arsenic	mg/Kg	0.39	**1 J**	**1.8 J**	0.76 UJ	0.63 UJ	1.2 UJ	**4.4 J**
Metals	Barium	mg/Kg	15,000	9.4	8.6 U	53.6	19.2	18.1	29.1
Metals	Beryllium	mg/Kg	160	0.59 U	0.86 U	0.76 U	0.63 U	1.2 U	0.7 U
Metals	Cadmium	mg/Kg	70	0.59 U	0.86 U	0.76 U	0.63 U	1.2 U	0.7 U
Metals	Calcium	mg/Kg	NE	5,280	6,100	6,860	2,650	6,810	4,780
Metals	Chromium	mg/Kg	0.29 b	**1.4 J**	1.7 UJ	1.5 UJ	1.3 U	2.3 UJ	**15.7 J**
Metals	Cobalt	mg/Kg	23	19.7 J	1.9 J	1.6 J	0.63 U	1.2 UJ	10.9 J
Metals	Copper	mg/Kg	3,100	1,810 J	282 J	44 J	21.1	29.6 J	88 J
Metals	Iron	mg/Kg	55,000	**65,700 J**	8,060 J	3,990 J	1,130	2,480 J	31,200 J
Metals	Lead	mg/Kg	400	3.4 J	15.8 J	4.5 J	1.2	6 J	12.6 J
Metals	Magnesium	mg/Kg	NE	7,450	1,770	1,080	372 J	1,050 J	8,760
Metals	Manganese	mg/Kg	1,800	421	55.3	61.9	21.5	45	457
Metals	Mercury	mg/Kg	10	0.053 J	0.13	0.45	0.2	0.38	0.1 J
Metals	Nickel	mg/Kg	1,500	9.1	1.9	2	0.67 J	2.5	11.5
Metals	Potassium	mg/Kg	NE	581 U	535 J	1,040	594 U	1,150 U	728 U
Metals	Selenium	mg/Kg	390	2.6 J	0.95 J	0.3 J	0.17 J	0.29 J	0.22 J
Metals	Silver	mg/Kg	390	2.3	0.86 U	0.76 U	0.63 U	1.2 U	0.7 U
Metals	Sodium	mg/Kg	NE	581 U	927 U	750 U	179 J	1,150 U	728 U
Metals	Thallium	mg/Kg	0.78	0.59 U	0.86 U	0.76 U	0.63 U	1.2 U	0.7 U
Metals	Vanadium	mg/Kg	390	172	10.6	10.2	3.6	5.8 U	124
Metals	Zinc	mg/Kg	23,000	40.9 J	68.2 J	40.3 J	15.4 J	16.8 J	54.5 J
PAH	2-Methylnaphthalene	ug/Kg	NE	4.4 U	4 J	2.5 J	48 U	44 UJ	1.6 J
PAH	Benz(a)anthracene	ug/Kg	150	10	51 J	35	60	65 J	7
PAH	Benzo(a)pyrene	ug/Kg	15	4.4 J	**25 J**	11 J	**60**	**69 J**	6.7
PAH	Benzo(b)fluoranthene	ug/Kg	150	11	45 J	21 J	82	110 J	11
PAH	Benzo(ghi)perylene	ug/Kg	1100000 c	1.5 J	12 UJ	5 J	12 J	13 J	1.5 J
PAH	Benzo(k)fluoranthene	ug/Kg	1,500	2.6 J	16 J	5.9 J	31 J	38 J	3.5 J
PAH	Chrysene	ug/Kg	15,000	7.1	49 J	61	76	84 J	9.8
PAH	Dibenz[a,h]anthracene	ug/Kg	15	2 J	8.8 J	2.8 J	48 U	10 J	4.7 U
PAH	Indeno[1,2,3-cd]pyrene	ug/Kg	150	5.4	11 J	4.8 J	25 J	44 J	3.7 J
PAH	Pyrene	ug/Kg	1,700,000	11	91 J	57	160	130 J	19
PAH	Total HPAH	ug/Kg	NE	55 J	296.8 J	203.5 J	506 J	563 J	62.2 J
PAH	Acenaphthene	ug/Kg	3,400,000	4.4 U	12 UJ	10 U	48 U	44 UJ	4.7 U
PAH	Acenaphthylene	ug/Kg	2,300,000 c	1.6 J	6.3 J	5.1 J	20 J	14 J	2.3 J
PAH	Anthracene	ug/Kg	17,000,000	4.4 U	10 J	16	32 J	12 J	4.7 U
PAH	Fluoranthene	ug/Kg	2,300,000	8.4	67 J	25	150	130 J	19
PAH	Fluorene	ug/Kg	2,300,000	4.4 U	3 J	10 U	9.7 J	44 UJ	4.7 U
PAH	Naphthalene	ug/Kg	3,600	1.1 J	7 J	5.6 J	48 U	44 UJ	2.4 J
PAH	Phenanthrene	ug/Kg	16,800,000 c	3 J	30 J	14	97	49 J	12
PAH	Total LPAH	ug/Kg	NE	14.1 J	123.3 J	65.7 J	308.7 J	205 J	35.7 J
PAH	Total PAH	ug/Kg	NE	69.1 J	420.1 J	269.2 J	814.7 J	768 J	97.9 J

Table 11
Background and Upland Soil Sample Results Sample Results for Metal
Salt Chuck Mine, Alaska

Location:				SCSS-505	SCSS-506	SCSS-512	SCSS-512	SCSS-513	SCSS-514
Area				Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCSS-505-07282012	SCSS-506-07282012	SCSS-512-07282012	SCSS-701-0728201FD	SCSS-513-07282012	SCSS-514-07282012
Sample Type:				N	N	N	FD	N	N
Sample Date:				7/28/2012	7/28/2012	7/28/2012	7/28/2012	7/28/2012	7/28/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]						
PCB	Aroclor 1016	ug/Kg	3,900	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1221	ug/Kg	140	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1232	ug/Kg	140	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1242	ug/Kg	220	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1248	ug/Kg	220	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1254	ug/Kg	220	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1260	ug/Kg	220	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1262	ug/Kg	220 d	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Aroclor 1268	ug/Kg	220 d	43 U	120 UJ	100 U	94 U	150 UJ	46 U
PCB	Total PCBs	ug/Kg	220	43 U	120 UJ	100 U	94 U	150 UJ	46 U
TPH	Diesel range organics	mg/Kg	230 c	87.7 J	**402 J**	**1,300 J**	**918 J**	**486 J**	177 J
TPH	Gasoline range organics[1]	mg/Kg	260 c	5.4 J	104 UJ	16.3 J	10.8 J	3.95 J	1.21 J
TPH	Oil Range Organics	mg/Kg	9,700 c	640	2,370	3,880	3,640	1,210	342

Notes:
PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbons

mg/Kg = milligrams per kilogram
ug/Kg = micrograms per kilogram
N = normal sample
FD = field duplicate sample
-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit showr

[1]Two sets of gasoline range organics were run using different retention time (RT) mark
the second set used AK101 RT markers as needed

a = Resident Soil RSL (USEPA, 2012) unless otherwise indicated
b = RSL for Chromium (VI)
c = Most stringent ADEC Method Two Soil Cleanup Level listed for the above 40 inch a
d= RSL for total PCBs

NE = not established
BOLD = detected result exceeds screening level.
Not Bold = analyte not detected but method reporting limit exceeds scr

ADEC = Alaska Department of Environmental Conservation
ERL = Effects range low
RSL = Regional Screening Level
USEPA = U.S. Environmental Protection Agency

Table 12
Background and Upland Sediment Sample Results Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCSD-510	SCSD-511	SCSD-512	SCSD-513	SCSD-513	SCSD-514	SCSD-501	SCSD-502	SCSD-503	SCSD-504
Area				Background	Background	Background	Background	Background	Background	Upland	Upland	Upland	Upland
Activity ID:				SCSD-510-07282012	SCSD-511-07282012	SCSD-512-07282012	SCSD-702-0731201	SCSD-513-07312012	SCSD-514-07312012	SCSD-501-07282012	SCSD-502-07272012	SCSD-503-07272012	SCSD-504-07272012
Sample Type:				N	N	N	FD	N	N	N	N	N	N
Sample Date:				7/28/2012	7/28/2012	7/28/2012	7/31/2012	7/31/2012	7/31/2012	7/28/2012	7/27/2012	7/27/2012	7/27/2012
Depth (ft):				0 - 0.5	0.5	0.5	0.5	0.5	0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening level[a]										
Metals	Aluminum	mg/Kg	18,000 b,e	**21,000**	**31,000**	1,140	11,900	10,900	16,400	**18,500**	17,600	16,900	12,300
Metals	Antimony	mg/Kg	3	3.3 UJ	6.6 UJ	1 UJ	1.1 UJ	1 U	1.1 U	1.3 UJ	4 UJ	0.85 UJ	1.4 UJ
Metals	Arsenic	mg/Kg	9.79	2.7 J	4 J	0.52 UJ	6.1 J	1.7	2.3	4.2 J	3.7 J	3.5 J	5.2 J
Metals	Barium	mg/Kg	48	**50.4**	**42**	5.2 U	5.6	5.1 U	5.6 U	18.6	24.3	26	20
Metals	Beryllium	mg/Kg	NE	1.7 U	3.3 U	0.52 U	0.53 U	0.51 U	0.56 U	0.64 U	2 U	0.43 U	0.71 U
Metals	Cadmium	mg/Kg	0.99	1.7 U	3.3 U	0.52 U	0.53 U	0.51 U	0.56 U	0.64 U	2 U	0.43 U	0.71 U
Metals	Calcium	mg/Kg	NE	10,700	6,870	640	4,850	5,670	8,450	7,550	11,500	3,510	3,040
Metals	Chromium	mg/Kg	43.4	19.8	27.5	1 U	6.6	2.5	5.3	9.8 J	9.6 J	18.4 J	12 J
Metals	Cobalt	mg/Kg	50 d	9.5	3.4	0.52 U	31.1	3.1	8.8	15 J	7.9 J	16.7 J	21.8 J
Metals	Copper	mg/Kg	31.6	**133**	**316**	5.9	**59.2**	14.1	**200**	**55.6 J**	**96.7 J**	24.2 J	**43.5 J**
Metals	Iron	mg/Kg	40,000	12,200	3,010	805	28,300	27,100	29,100	39,000 J	26,200 J	**42,000 J**	**53,400 J**
Metals	Lead	mg/Kg	35.8	5.3	4.8	0.97	12.7	0.7	0.9	9.6 J	4.9 J	7.4 J	**38.2 J**
Metals	Magnesium	mg/Kg	NE	5,300	1,600 J	182 J	10,900	6,670	14,900	13,600	7,490	13,500	4,780
Metals	Manganese	mg/Kg	1,100	239	82.6	16.2	**1,130**	107	267	575	605	630	885
Metals	Mercury	mg/Kg	0.18	**0.25**	**0.47**	0.019 J	0.0056 J	0.11 U	0.13 U	0.075 J	0.092 J	0.025 J	0.13 J
Metals	Nickel	mg/Kg	22.7	10.4 J	11.3 J	0.54 J	9.7 J	4.1	6.4	10.3	6.9	9.8	9.9
Metals	Potassium	mg/Kg	NE	1,740 U	3,350 U	523 U	446	215 J	394 J	595 U	391 J	119 J	125 J
Metals	Selenium	mg/Kg	1 b,c	**2.2** J	**6.2** J	0.18 J	2.7 U	0.44 J	2.8 U	0.18 J	**2.3 J**	2.1 U	0.28 J
Metals	Silver	mg/Kg	4.5	1.7 U	3.3 U	0.52 U	0.53 U	0.51 U	0.56 U	0.64 U	2 U	0.43 U	0.71 U
Metals	Sodium	mg/Kg	NE	162 J	231 J	11.8 J	324 J	513 U	586 U	595 U	2,110 U	431 U	704 U
Metals	Thallium	mg/Kg	NE	1.7 U	3.3 U	0.52 U	0.53 U	0.51 U	0.56 U	0.64 U	2 U	0.43 U	0.71 U
Metals	Vanadium	mg/Kg	57 b,e	**117**	**154**	2.6 U	**213**	30.2	**68.1**	**123**	**90**	**189**	**266**
Metals	Zinc	mg/Kg	121	**131** J	26.7 J	2.6 J	88.3 J	12.2 J	26.4 J	59.1 J	34.1 J	63.7 J	68.5 J
HPAH	2-Methylnaphthalene	ug/Kg	NE	--	--	--	--	--	--	12 UJ	--	--	--
HPAH	Benz(a)anthracene	ug/Kg	108	--	--	--	--	--	--	24 J	--	--	--
HPAH	Benzo(a)pyrene	ug/Kg	32	--	--	--	--	--	--	26 J	--	--	--
HPAH	Benzo(b)fluoranthene	ug/Kg	2,800 f	--	--	--	--	--	--	38 J	--	--	--
HPAH	Benzo(ghi)perylene	ug/Kg	300	--	--	--	--	--	--	12 UJ	--	--	--
HPAH	Benzo(k)fluoranthene	ug/Kg	13,400	--	--	--	--	--	--	11 J	--	--	--
HPAH	Chrysene	ug/Kg	170	--	--	--	--	--	--	29 J	--	--	--
HPAH	Dibenz[a,h]anthracene	ug/Kg	6.2	--	--	--	--	--	--	5.6 J	--	--	--
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	330	--	--	--	--	--	--	29 J	--	--	--
HPAH	Pyrene	ug/Kg	200	--	--	--	--	--	--	52 J	--	--	--
HPAH	Total HPAH	ug/Kg	NE	--	--	--	--	--	--	214.6 J	--	--	--
LPAH	Acenaphthene	ug/Kg	290	--	--	--	--	--	--	2.6 J	--	--	--
LPAH	Acenaphthylene	ug/Kg	160	--	--	--	--	--	--	9.5 J	--	--	--
LPAH	Anthracene	ug/Kg	570	--	--	--	--	--	--	29 J	--	--	--
LPAH	Fluoranthene	ug/Kg	420	--	--	--	--	--	--	72 J	--	--	--
LPAH	Fluorene	ug/Kg	77	--	--	--	--	--	--	5.2 J	--	--	--
LPAH	Naphthalene	ug/Kg	180	--	--	--	--	--	--	7.8 J	--	--	--
LPAH	Phenanthrene	ug/Kg	200	--	--	--	--	--	--	56 J	--	--	--
LPAH	Total LPAH	ug/Kg	NE	--	--	--	--	--	--	182.1 J	--	--	--
PAH	Total PAH	ug/Kg	NE	--	--	--	--	--	--	396.7 J	--	--	--

Table 12
Background and Upland Sediment Sample Results Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCSD-510	SCSD-511	SCSD-512	SCSD-513	SCSD-513	SCSD-514	SCSD-501	SCSD-502	SCSD-503	SCSD-504
Area				Background	Background	Background	Background	Background	Background	Upland	Upland	Upland	Upland
Activity ID:				SCSD-510-07282012	SCSD-511-07282012	SCSD-512-07282012	SCSD-702-0731201	SCSD-513-07312012	SCSD-514-07312012	SCSD-501-07282012	SCSD-502-07272012	SCSD-503-07272012	SCSD-504-07272012
Sample Type:				N	N	N	FD	N	N	N	N	N	N
Sample Date:				7/28/2012	7/28/2012	7/28/2012	7/31/2012	7/31/2012	7/31/2012	7/28/2012	7/27/2012	7/27/2012	7/27/2012
Depth (ft):				0 - 0.5	0.5	0.5	0.5	0.5	0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening level[a]										
PCB	Aroclor 1016	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1221	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1232	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1242	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1248	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1254	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1260	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1262	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Aroclor 1268	ug/Kg	60 g	--	--	--	--	--	--	59 U	--	--	--
PCB	Total PCBs	ug/Kg	60 g	--	--	--	--	--	--		--	--	--
TPH	Diesel range organics	mg/Kg	NE	--	--	--	--	--	--	19.3 J	--	--	--
TPH	Gasoline range organics[1]	mg/Kg	NE	--	--	--	--	--	--	6.59 UJ	--	--	--
TPH	Oil Range Organics	mg/Kg	NE	--	--	--	--	--	--	85.5 J	--	--	--

Notes:

mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample
-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

[1]Two sets of gasoline range organics were run using different retention time (RT) markers. The first set used EPA 8015 RT markers,

the second set used AK101 RT markers as needed
a = freshwater sediment TEC/UET (Buchman, 2008) unless otherwise indicated
b = NOAA marine AET (Buchman, 2008)
c = Lowest AET for amphipods (Buchman, 2008)
d = LEL (Lowest Effect Level; Buchman, 2008)
e = Lowest AET based on Neanthes bioassay (Buchman, 2008)

f = Sediment Cleanup Objectives for Commencement Bay (USEPA, 1993) or screening

levels for DMMP Chemistry Values (DMMP, 2011)
g = criteria for Total PCBs

NE = not established

BOLD = detected result exceeds screening level

Not Bold = analyte not detected but method reporting limit exceeds the associated screening level

AET = Apparent effects threshold
DMMP = Dredged Material Management Program
ERL = Effects range low
ERM = Effects range medium
LEL = Lowest effect level
TEC = Threshold effects concentration
UET = Upper effects threshold
USEPA = U.S. Environmental Protection Agency

Table 12
Background and Upland Sediment Sample Results Sample Results for
Salt Chuck Mine, Alaska

Location:				SCSD-505	SCSD-506	SCSD-507	SCSD-509
Area				Upland	Upland	Upland	Upland
Activity ID:				SCSD-505-07282012	SCSD-506-07282012	SCSD-507-07282012	SCSD-509-07282012
Sample Type:				N	N	N	N
Sample Date:				7/28/2012	7/28/2012	7/28/2012	7/28/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening level[a]				
Metals	Aluminum	mg/Kg	18,000 b,e	**18,900**	16,200	14,900	**48,900**
Metals	Antimony	mg/Kg	3	0.97 UJ	1.3 UJ	1.1 UJ	2 UJ
Metals	Arsenic	mg/Kg	9.79	5.5 J	6 J	5.3 J	**12.8 J**
Metals	Barium	mg/Kg	48	19	33	35.4	**57.2**
Metals	Beryllium	mg/Kg	NE	0.48 U	0.63 U	0.56 U	1 U
Metals	Cadmium	mg/Kg	0.99	0.48 U	0.63 U	0.56 U	**1 U**
Metals	Calcium	mg/Kg	NE	4,170	5,620	4,560	13,300
Metals	Chromium	mg/Kg	43.4	12.4 J	11.3 J	12	38.9
Metals	Cobalt	mg/Kg	50 d	28.2 J	23.5 J	33.5	**72.9**
Metals	Copper	mg/Kg	31.6	**65.3 J**	**69.4 J**	**149**	**78.6**
Metals	Iron	mg/Kg	40,000	**83,500 J**	**73,400 J**	**47,800**	**416,000**
Metals	Lead	mg/Kg	35.8	**59 J**	**94.2 J**	25.8	**429**
Metals	Magnesium	mg/Kg	NE	11,700	6,500	6,310	28,900
Metals	Manganese	mg/Kg	1,100	**1,320**	**1,690**	904	**3,360**
Metals	Mercury	mg/Kg	0.18	0.13	0.072 J	**0.32**	0.093 J
Metals	Nickel	mg/Kg	22.7	10.7	12.8	13.5 J	**45 J**
Metals	Potassium	mg/Kg	NE	163 J	264 J	568 U	1,100
Metals	Selenium	mg/Kg	1 b,c	0.41 J	0.2 J	1 J	**5.1 U**
Metals	Silver	mg/Kg	4.5	0.48 U	0.63 U	0.56 U	1 U
Metals	Sodium	mg/Kg	NE	476 U	752 U	84 J	594 J
Metals	Thallium	mg/Kg	NE	0.48 U	0.63 U	0.56 U	1 U
Metals	Vanadium	mg/Kg	57 b,e	**208**	**247**	**270**	**680**
Metals	Zinc	mg/Kg	121	82.3 J	82.9 J	81.9 J	**295 J**
HPAH	2-Methylnaphthalene	ug/Kg	NE	--	--	--	--
HPAH	Benz(a)anthracene	ug/Kg	108	--	--	--	--
HPAH	Benzo(a)pyrene	ug/Kg	32	--	--	--	--
HPAH	Benzo(b)fluoranthene	ug/Kg	2,800 f	--	--	--	--
HPAH	Benzo(ghi)perylene	ug/Kg	300	--	--	--	--
HPAH	Benzo(k)fluoranthene	ug/Kg	13,400	--	--	--	--
HPAH	Chrysene	ug/Kg	170	--	--	--	--
HPAH	Dibenz[a,h]anthracene	ug/Kg	6.2	--	--	--	--
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	330	--	--	--	--
HPAH	Pyrene	ug/Kg	200	--	--	--	--
HPAH	Total HPAH	ug/Kg	NE	--	--	--	--
LPAH	Acenaphthene	ug/Kg	290	--	--	--	--
LPAH	Acenaphthylene	ug/Kg	160	--	--	--	--
LPAH	Anthracene	ug/Kg	570	--	--	--	--
LPAH	Fluoranthene	ug/Kg	420	--	--	--	--
LPAH	Fluorene	ug/Kg	77	--	--	--	--
LPAH	Naphthalene	ug/Kg	180	--	--	--	--
LPAH	Phenanthrene	ug/Kg	200	--	--	--	--
LPAH	Total LPAH	ug/Kg	NE	--	--	--	--
PAH	Total PAH	ug/Kg	NE	--	--	--	--

Table 12
Background and Upland Sediment Sample Results Sample Results for
Salt Chuck Mine, Alaska

Location:				SCSD-505	SCSD-506	SCSD-507	SCSD-509
Area				Upland	Upland	Upland	Upland
Activity ID:				SCSD-505-07282012	SCSD-506-07282012	SCSD-507-07282012	SCSD-509-07282012
Sample Type:				N	N	N	N
Sample Date:				7/28/2012	7/28/2012	7/28/2012	7/28/2012
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening level[a]				
PCB	Aroclor 1016	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1221	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1232	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1242	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1248	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1254	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1260	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1262	ug/Kg	60 g	--	--	--	--
PCB	Aroclor 1268	ug/Kg	60 g	--	--	--	--
PCB	Total PCBs	ug/Kg	60 g	--	--	--	--
TPH	Diesel range organics	mg/Kg	NE	--	--	--	--
TPH	Gasoline range organics[1]	mg/Kg	NE	--	--	--	--
TPH	Oil Range Organics	mg/Kg	NE	--	--	--	--

Notes:

mg/Kg = milligrams per kilogram
FD = field duplicate sample
N = normal sample
-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit show

[1]Two sets of gasoline range organics were run using different retention time (RT) mark

the second set used AK101 RT markers as needed
a = freshwater sediment TEC/UET (Buchman, 2008) unless otherwise indicated
b = NOAA marine AET (Buchman, 2008)
c = Lowest AET for amphipods (Buchman, 2008)
d = LEL (Lowest Effect Level; Buchman, 2008)
e = Lowest AET based on Neanthes bioassay (Buchman, 2008)

f = Sediment Cleanup Objectives for Commencement Bay (USEPA, 1993) or screenin

levels for DMMP Guidelines Chemistry Values (DMMP, 2011)
g = criteria for total PCBs

NE = not established

BOLD = detected result exceeds screening level

Not Bold = analyte not detected but method reporting limit exceeds the associated screening level

AET = Apparent effects threshold
DMMP = Dredged Material Management Program
ERL = Effects range low
ERM = Effects range medium
LEL = Lowest effect level
TEC = Threshold effects concentration
UET = Upper effects threshold
USEPA = U.S. Environmental Protection Agency

Table 13
Background and Upland Sediment Sample Results Sample Results for Genchem, Metals (SEM), and Grain Size
Salt Chuck Mine, Alaska

Location:			SCSD-510	SCSD-511	SCSD-512	SCSD-513	SCSD-513	SCSD-514	SCSD-501	SCSD-502	SCSD-503	SCSD-504
Area			Background	Background	Background	Background	Background	Background	Upland	Upland	Upland	Upland
Activity ID:			SCSD-510-07282012	SCSD-511-07282012	SCSD-512-07282012	SCSD-513-07312012	SCSD-702-0731201	SCSD-514-07312012	SCSD-501-07282012	SCSD-502-07272012	SCSD-503-07272012	SCSD-504-07272012
Sample Type:			N	N	N	N	FD	N	N	N	N	N
Sample Date:			7/28/2012	7/28/2012	7/28/2012	7/31/2012	7/31/2012	7/31/2012	7/28/2012	7/27/2012	7/27/2012	7/27/2012
Depth (ft):			0 - 0.5	0.5	0.5	0.5	0.5	0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit										
Genchem	Organic carbon	mg/Kg	187,000	395,000	298,000	6,370	5,310	6,320	62,900	278,000	19,800	64,400
Simultaneously Extracted Metal (SEM)	Cadmium	ug/L	1.75 J	1.05 J	0.67 J	1.42 J	1.37 J	0.303 J	2.58 J	0.956 J	2.97 J	1.34 J
SEM	Copper	ug/L	86.7	478	125	1,140	513	102	1,160	556	303	278
SEM	Lead	ug/L	41.6	11.2	27.6	37.3	35.2	10 U	85.6	64.7	93.7	145
SEM	Nickel	ug/L	5.1 J	7.27 J	10.1 J	16.8 J	16.8 J	1.38 J	17.5 J	6.97 J	12.9 J	9.31 J
SEM	Zinc	ug/L	302	77.9	61.1	302	157	16.1 J	458	131	423	203
SEM	Acid Volatile Sulfides (AVS)	mg/Kg	0.158 UJ	0.821 UJ	5.14 UJ	6.11	3.77 J	2.16 U	0.137 UJ	0.752 UJ	0.144 UJ	0.328 UJ
SEM	AVS	umol/g	0	0	0	0.19	0.1	0	0	0	0	0
SEM	SEM	umol/g	1 U	1 U	1 U	2.8	2.3	1 U	0.67	1.6	0.33	0.52
SEM	SEM'AVS_Ratio	umol/g	0.19	1.4	3.3	0.54	0.27	0.052	1 U	1 U	1 U	1 U
Grain Size	Particle size, 3 inch, (76.20mm)	g	0	0	0	0	0	0	0	0	0	0
Grain Size	Particle size, 2 inch, (50.80mm)	g	0	0	0	0	0	0	0	0	0	0
Grain Size	Particle size, 1.5 inch (38.1mm)	g	0	0	0	0	0	0	0	0	0	0
Grain Size	Particle size, 1 inch (25.40mm)	g	0	0	0	24.6	0	0	57	0	52.9	66.6
Grain Size	Particle size, 3/4 inch (19.05mm)	g	0	0	0	49.3	101.5	159.7	0	11.4	67.3	0
Grain Size	Particle size, 3/8 inch (9.525mm)	g	0	0	0	272.4	190.7	467.3	164.2	9.2	269.1	76.9
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	0	0	1.4	353.2	219.8	254	142.3	1.8	175.1	55.6
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	0	0	1.1	288.2	252.5	181.2	151	5	169.4	72.1
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	0.46	0.33	0.41	229	243	162	122	6.2	131	39
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	8.1	9.7	5.6	101	112	214	65	8.8	62	49
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	8.9	8.7	2.4	28	31	85	24	6.4	25	44
Grain Size	Particle size, Sieve No. 140, 150 mesh, (0.106mm)	g	12	10	2.6	10	14	50	12	7.9	22	47
Grain Size	Particle size, Sieve No. 200, 200 mesh, (0.075mm)	g	3.5	5.2	1.3	1.2	1.4	6.3	2.3	2.9	4.7	10
Grain Size	Particle size, Hydrometer (.040 mm)	mg/L	1.011	1.016	1.007	1.002	1.002	1.002	1.002	1.009	1.002	1.006
Grain Size	Particle size, Hydrometer (.026 mm)	mg/L	1.007	1.014	1.006	1.002	1.002	1.002	1.002	1.007	1.002	1.005
Grain Size	Particle size, Hydrometer (.015 mm)	mg/L	1.006	1.009	1.002	1.002	1.001	1.002	1.002	1.006	1.002	1.004
Grain Size	Particle size, Hydrometer (.011 mm)	mg/L	1.003	1.004	1.002	1.002	1.001	1.001	1.002	1.002	1.001	1.002
Grain Size	Particle size, Hydrometer (.008 mm)	mg/L	1.002	1.002	1.002	1.001	1.001	1.001	1.001	1.002	1.001	1.002
Grain Size	Particle size, Hydrometer (0.004mm)	mg/L	1.001	1.001	1.002	1.001	1.001	1	1.001	1.001	1.001	1.001
Grain Size	Total Sample Weight	g	71.6	84.7	32.6	1,375	1,183	1,615	759	80.9	1,002	510

Notes:

AVS = Acid Volatile Sulfide
SEM/AVS Ratio = ratio of umol/g values

g = gram
mg/L = mililgrams per liter
mg/Kg = milligrams per liter
ug/L = micrograms per liter
umol/g dry sed = micromole per gram of dry sediment

FD = field duplicate
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

Table 13
Background and Upland Sediment Sample Results Sample Results for Genchem, Metals (SEM), and Grain
Salt Chuck Mine, Alaska

Location:			SCSD-505	SCSD-506	SCSD-507	SCSD-509
Area			Upland	Upland	Upland	Upland
Activity ID:			SCSD-505-07282012	SCSD-506-07282012	SCSD-507-07282012	SCSD-509-07282012
Sample Type:			N	N	N	N
Sample Date:			7/28/2012	7/28/2012	7/28/2012	7/28/2012
Depth (ft):			0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit				
Genchem	Organic carbon	mg/Kg	19,400	62,600	179,000	19,000
Simultaneously Extracted Metal (SEM)	Cadmium	ug/L	4.38 J	4.57 J	2.59 J	6
SEM	Copper	ug/L	1,190	638	521	252
SEM	Lead	ug/L	467	1,500	1,050	1,490
SEM	Nickel	ug/L	11.8 J	10.4 J	14.5 J	24.5 J
SEM	Zinc	ug/L	468	560	440	1,610
SEM	Acid Volatile Sulfides (AVS)	mg/Kg	0.199 UJ	0.47 J	0.133 UJ	0.155 UJ
SEM	AVS	umol/g	0	0.015	0	0
SEM	SEM	umol/g	1.1	0.95	0.50	1.1
SEM	SEM'AVS_Ratio	umol/g	1 U	65	1 U	1 U
Grain Size	Particle size, 3 inch, (76.20mm)	g	0	0	0	0
Grain Size	Particle size, 2 inch, (50.80mm)	g	0	0	0	0
Grain Size	Particle size, 1.5 inch (38.1mm)	g	0	0	0	0
Grain Size	Particle size, 1 inch (25.40mm)	g	0	0	0	0
Grain Size	Particle size, 3/4 inch (19.05mm)	g	64	0	72.4	13.6
Grain Size	Particle size, 3/8 inch (9.525mm)	g	233.1	37.3	190.9	122
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	155	26.9	66.8	98.8
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	175.4	53.7	33.7	125.4
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	104	49	11	88
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	83	63	20	107
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	64	43	18	84
Grain Size	Particle size, Sieve No. 140, 150 mesh, (0.106mm)	g	65	47	23	84
Grain Size	Particle size, Sieve No. 200, 200 mesh, (0.075mm)	g	13	11	5.3	16
Grain Size	Particle size, Hydrometer (.040 mm)	mg/L	1.004	1.007	1.009	1.004
Grain Size	Particle size, Hydrometer (.026 mm)	mg/L	1.004	1.006	1.007	1.003
Grain Size	Particle size, Hydrometer (.015 mm)	mg/L	1.003	1.005	1.004	1.003
Grain Size	Particle size, Hydrometer (.011 mm)	mg/L	1.003	1.003	1.003	1.002
Grain Size	Particle size, Hydrometer (.008 mm)	mg/L	1.001	1.002	1.002	1.002
Grain Size	Particle size, Hydrometer (0.004mm)	mg/L	1.001	1.002	1.002	1.001
Grain Size	Total Sample Weight	g	1,019	406.3	488.9	799.7

Notes:

AVS = Acid Volatile Sulfide
SEM/AVS Ratio = ratio of umol/g values

g = gram
mg/L = mililgrams per liter
mg/Kg = milligrams per liter
ug/L = micrograms per liter
umol/g dry sed = micromole per gram of dry sediment

FD = field duplicate
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

Table 14

Background and Upland Surface Water Sample Results for Hardness, Metals and TPH

Salt Chuck Mine, Alaska

Location:				SCSW-510		SCSW-511		SCSW-512	SCSW-513		SCSW-513		SCSW-514		SCSW-515		SCSW-501		SCSW-501		SCSW-502		SCSW-503		SCSW-504	
Area				Background		Background		Background	Background		Background		Background		Background		Upland		Upland		Upland		Upland		Upland	
Activity ID:				SCSW-510-07282012		SCSW-511-07282012		SCSW-512-07282012	SCSW-513-07312012		SCSW-702-07312012FD		SCSW-514-07312012		SCSW-515-07302012		SCSW-501-07302012		SCSW-701-07302012FD		SCSW-502-07272012		SCSW-503-07272012		SCSW-504-07272012	
Sample Type:				N		N		N	N		FD		N		N		N		FD		N		N		N	
Date Sampled:				7/28/2012		7/28/2012		07/28/12	7/31/2012		7/31/2012		7/31/2012		7/30/2012		7/30/2012		7/30/2012		7/27/2012		7/27/2012		7/27/2012	
Fraction:				Dissolved	Total	Dissolved	Total	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
ChemGroup	Chem Name	Units	Screening Level																							
Genchem	Hardness	mg/L	NE	9.52		9.23		9.03	72.6		72.7		62		11		12.3		12.5		11.1		11.1		10.7	
Metals	Aluminum	ug/L	87 a	**152**	**174**	**165**	**148**	**177**	**289**	**362**	**397**	**289**	**308**	**349**	**283**	**329**	**162**	**202**	**161**	**207**	**142**	**282**	**146**	**219**	**180**	**148**
Metals	Antimony	ug/L	30 a	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals	Arsenic	ug/L	150 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Barium	ug/L	3.9 a	10 U	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 UJ	10 U	10 UJ	10 UJ	10 U
Metals	Beryllium	ug/L	0.66 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Cadmium	ug/L	0.25 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Calcium	ug/L	NE	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	7,510	7,110	7,110	7,460	6,730	6,150	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U
Metals	Chromium	ug/L	74 a	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals	Cobalt	ug/L	3 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Copper	ug/L	9 a	2 U	**9.6**	2 U	2 U	2 U	2.7	2.9	4.5	2.6	3	2.6	2 U	2 U	3.2	3.8	3.2	3.7	2.2	4	2.1	2.5	2.1	2
Metals	Iron	ug/L	1,000 a	301	287	276	271	277	637	**1,110 J**	**1,060 J**	619 J	723	929 J	706	825 J	367	466 J	461	417 J	379	608	342	297	324	304
Metals	Lead	ug/L	2.5 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Magnesium	ug/L	NE	583 J	614 J	558 J	548 J	615 J	15,600	13,700	13,800	15,800	11,700	10,600	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	698 J	725 J	708 J	690 J	655 J	673 J
Metals	Manganese	ug/L	80 a	7.1	14.2	10.6	6.4	9.4	20.7	34.8	35	20.1	24.3	37.8	33.4	36.6	15.9	24.5	15.7	23.7	18	**108**	11.4	16.7	18.1	8.8
Metals	Mercury	ug/L	0.77 a	0.2 U	0.074 J	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	0.023 J	0.2 U	0.041 J	0.2 U	0.026 J	0.2 U	0.2 U	0.2 U	0.2 U	0.032 J	0.2 U	0.2 U
Metals	Nickel	ug/L	52 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Potassium	ug/L	373,000 b	5,000 U	221 J	125 J	5,000 U	145 J	5,280	4,670 J	4,730 J	5,460	3,850 J	3,390 J	226 J	183 J	229 J	164 J	170 J	211 J	5,000 U	210 J	5,000 U	178 J	215 J	5,000 U
Metals	Selenium	ug/L	5 a	5 U	5 U	0.12 J	0.16 J	5 U	0.91 J	0.94 J	0.99 J	1.2 J	0.66 J	0.69 J	0.25 J	5 U	5 U	5 U	5 U	0.17 J	5 U	5 U	0.086 J	0.067 J	0.093 J	5 U
Metals	Silver	ug/L	0.36 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Sodium	ug/L	NE	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	134,000	118,000	118,000	137,000	97,100	88,300	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U
Metals	Thallium	ug/L	0.03 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Vanadium	ug/L	19 a	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.83 J	5 U	5 U	5 U	5 U
Metals	Zinc	ug/L	120 a	2.8	10.5	2 U	2 U	2 U	3.2	2.2	3.9	3	3.2	2 U	3.5	2	2.5	2 U	2 U	2 U	3.4	2.1	2 U	2.4	8.8	2.3
TPH	Diesel range organics	mg/L	NE	--	--	--	--		--	--	--	--	--	--	--	--	59 J	45.4 J	--	--	--	--	--	--	--	--
TPH	Gasoline range organics	mg/L	NE	--	--	--	--		--	--	--	--	--	--	--	--	147 J	115 J	--	--	--	--	--	--	--	--

Notes:

ug/L = micrograms per liter

mg/L = milligrams per liter

J = The analyte was positively identified; the quantitation is an estimation.

U = The analyte was analyzed for, but not detected at the method reporting limit shown

-- = not analyzed

Screening:

a = NOAA SQuiRT Table (freshwater chronic)

b = NOAA SQuiRT Table (freshwater acute)

NE = not established

BOLD = detected result exceeds screening level

not bold = analyte not detected but method reporting limit exceeds the associated screening level

NOAA = National Oceanic and Atmospheric Administration

SQuiRT = Screening Quick Background Table. Buchman, M. F., 2008.

Table 14
Background and Upland Surface Water Sample Results for
Salt Chuck Mine, Alaska

Location:				SCSW-505		SCSW-506		SCSW-507		SCSW-508		SCSW-509	
Area				Upland		Upland		Upland		Upland		Upland	
Activity ID:				SCSW-505-07282012		SCSW-506-07282012		SCSW-507-07282012		SCSW-508-07282012		SCSW-509-07282012	
Sample Type:				N		N		N		N		N	
Date Sampled:				7/28/2012		7/28/2012		7/28/2012		7/28/2012		7/28/2012	
Fraction:				Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
ChemGroup	Chem Name	Units	Screening Level										
Genchem	Hardness	mg/L	NE	10.7		12.3		10.8		89.1		9.64	
Metals	Aluminum	ug/L	87 a	**142**	**181**	**213**	**151**	**178**	**146**	20 U	7 J	**144**	**170**
Metals	Antimony	ug/L	30 a	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals	Arsenic	ug/L	150 a	1 U	1 U	1 U	1 U	1 U	1 U	1.5	1.5	1 U	1 U
Metals	Barium	ug/L	3.9 a	10 U	10 J	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 UJ
Metals	Beryllium	ug/L	0.66 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Cadmium	ug/L	0.25 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Calcium	ug/L	NE	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	32,100	31,600	5,000 U	5,000 U
Metals	Chromium	ug/L	74 a	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals	Cobalt	ug/L	3 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Copper	ug/L	9 a	2	4.1	3.4	2.9	2.3	2 U	**95**	**87.1**	2 U	2 U
Metals	Iron	ug/L	1,000 a	396	325	706	447	343	327	100 U	100 U	311	321
Metals	Lead	ug/L	2.5 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Magnesium	ug/L	NE	659 J	632 J	802 J	871 J	702 J	694 J	3,480 J	3,440 J	627 J	619 J
Metals	Manganese	ug/L	80 a	7.8	17.1	22.5	13.2	15.8	7.8	2.2	2.1	7.4	17
Metals	Mercury	ug/L	0.77 a	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	0.039 J
Metals	Nickel	ug/L	52 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Potassium	ug/L	373,000 b	5,000 U	138 J	192 J	5,000 U	163 J	5,000 U	808 J	5,000 U	5,000 U	211 J
Metals	Selenium	ug/L	5 a	5 U	0.091 J	0.12 J	5 U	0.087 J	0.094 J	**6.1**	**6**	0.084 J	0.075 J
Metals	Silver	ug/L	0.36 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Sodium	ug/L	NE	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	6,150	6,050	5,000 U	5,000 U
Metals	Thallium	ug/L	0.03 a	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Vanadium	ug/L	19 a	5 U	5 U	0.48 J	5 U	5 U	5 U	1.4 J	5 U	5 U	5 U
Metals	Zinc	ug/L	120 a	2 U	2 U	2.4	2.9	3.8	2 U	2.1	4.2	2.8	2.3
TPH	Diesel range organics	mg/L	NE	--	--	--	--	--	--	--	--	--	--
TPH	Gasoline range organics	mg/L	NE	--	--	--	--	--	--	--	--	--	--

Notes:
ug/L = micrograms per liter
mg/L = milligrams per liter
J = The analyte was positively identified; the quantitation is an estimatio
U = The analyte was analyzed for, but not detected at the method repor
-- = not analyzed

Screening:
a = NOAA SQuiRT Table (freshwater chronic)
b = NOAA SQuiRT Table (freshwater acute)
NE = not established

BOLD = detected result exceeds screening level

not bold = analyte not detected but method reporting limit excee
the associated screening level

NOAA = National Oceanic and Atmospheric Administration
SQuiRT = Screening Quick Background Table. Buchman, M. F., 2008.

Table 15

Upland and Background Vegetation Sample Results for Metals (weight weight)

Salt Chuck Mine, Alaska

Analyte Name:						Moisture	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead
Units:						%	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Criteria:																	
Area	Location	Location ID	Activity ID	Date Collected	Sample Type												
Upland	Upland	SCUV-337-ALD	SCUV-337-ALD-20120802	08/02/12	N	68.7	5.09	0.095 U	0.0095 U	0.48 U	0.24 U	0.0095 U	0.095 U	0.17 J	1.4	18	0.24 U
Upland	Upland	SCUV-337-CRAB	SCUV-337-CRAB-20120802	08/02/12	N	64.1	4.5 U	0.09 U	0.015 J	0.6	0.23 U	0.009 U	0.09 U	0.054 J	2.47	29.1	0.23 U
Upland	Upland	SCUV-337-HUCK	SCUV-337-HUCK-20120802	08/02/12	N	63.6	31.8	0.09 U	0.009 U	3.6	0.23 U	0.009 U	0.09 U	0.025 J	1.9	21	0.23 U
Upland	Upland	SCUV-337-HUCKB	SCUV-337-HUCKB-20120802	08/02/12	N	87.6	1.6	0.021 U	0.0021 U	0.96	0.0026 U	0.0021 U	0.021 U	0.0031 J	0.65	2.1	0.051 U
Upland	Upland	SCUV-337-SALB	SCUV-337-SALB-20120802	08/02/12	N	79.2	5.38	0.099 U	0.0099 U	1.8	0.25 U	0.0099 U	0.099 U	0.054 J	1.9	17	0.25 U
Upland	Upland	SCUV-337-SKNK	SCUV-337-SKNK-20120802	08/02/12	N	93.4	3.2	0.013 U	0.0034 J	0.26	0.0017 U	0.033	0.020	0.012	0.39	10	0.034 U
Upland	Upland	SCUV-501-ALD	SCUV-501-ALD-20120729	07/29/12	N	67.4	7.84	0.091 U	0.0091 U	0.71	0.23 U	0.0091 U	0.091 U	0.038	5.89	30.1	0.23 U
Upland	Upland	SCUV-502-ALD	SCUV-502-ALD-20120729	07/29/12	N	61	6.68	0.093 U	0.0093 U	0.54	0.23 U	0.0093 U	0.093 U	0.037	4.59	23.9	0.23 U
Upland	Upland	SCUV-502-HUCK	SCUV-502-HUCK-20120729	07/29/12	N	60.5	63.6	0.084 U	0.0084 U	42.7	0.21 U	0.0084 U	0.084 U	0.029	4.35	33.1	0.21 U
Upland	Upland	SCUV-502-HUCKB	SCUV-502-HUCKB-20120729	07/29/12	N	90.4	2.5	0.017 U	0.0017 U	2.7	0.0021 U	0.0017 U	0.020	0.0020 J	0.85	2.4	0.042 U
Upland	Upland	SCUV-503-CRAB	SCUV-503-CRAB-20120801	08/01/12	N	61.6	16.1	0.096 U	0.0096 U	0.48 U	0.24 U	0.0096 U	0.13	0.049 J	2.87	65.5	0.24 U
Upland	Upland	SCUV-503-SKNK	SCUV-503-SKNK-20120729	07/29/12	N	93.2	39	0.2 U	0.028 J	5.35	0.025 U	0.62	0.37	0.27	10.8	205	0.5 U
Upland	Upland	SCUV-504-ALD	SCUV-504-ALD-20120729	07/29/12	N	67.3	7.72	0.091 U	0.0091 U	0.54	0.23 U	0.0091 U	0.091 U	0.052	5.24	37.6	0.36
Upland	Upland	SCUV-504-SALB	SCUV-504-SALB-20120729	07/29/12	N	62.9	13.4	0.098 U	0.0098 U	3.24	0.25 U	0.013	0.098 U	0.21 J	4.38	130	0.25 U
Upland	Upland	SCUV-701-ALD	SCUV-701-ALD-20120729	07/29/12	N	51.5	11.5	0.089 U	0.0089 U	1.5	0.22 U	0.0089 U	0.089 U	0.067	9.27	57.5	0.22 U
Background	Lake No. 3	SCUV-515-ALD	SCUV-515-ALD-20120730	07/30/12	N	80.2	4.8 U	0.097 U	0.0097 U	1.3	0.24 U	0.0097 U	0.097 U	0.099 J	5.4	14	0.24 U
Background	Lake No. 3	SCUV-515-BB	SCUV-515-BB-20120730	07/30/12	N	88.5	3.1	0.020 U	0.0020 U	1.23	0.0025 U	0.0020 U	0.020 U	0.0029 J	0.48	2.6	0.049 U
Background	Lake No. 3	SCUV-515-CRAB	SCUV-515-CRAB-20120730	07/30/12	N	61.2	4.35 U	0.087 U	0.0087 U	7.23	0.22 U	0.0087 U	0.087 U	0.02	1.4	22.9	0.22 U
Background	Lake No. 3	SCUV-515-HUCK	SCUV-515-HUCK-20120730	07/30/12	N	62.8	53.4	0.089 U	0.0089 U	20	0.22 U	0.0089 U	0.11	0.051	3.14	16	0.26
Background	Lake No. 3	SCUV-515-SALB	SCUV-515-SALB-20120730	07/30/12	N	80.4	6.09	0.097 U	0.0097 U	3.92	0.24 U	0.014	0.097 U	0.094 J	2.1	16	0.24 U
Background	Lake No. 3	SCUV-515-SKNK	SCUV-515-SKNK-20120730	07/30/12	N	94.4	0.55 U	0.011 U	0.0025 J	0.24	0.0014 U	0.0045	0.011 U	0.0062 J	0.21	2.7	0.027 U
Background	Boardwalk Lodge	SCUV-901-HUCKB	SCUV-901-HUCKB-20120801	08/01/12	N	90.3	2.4	0.017 U	0.0017 U	1.2	0.0021 U	0.0017 U	0.048	0.0017 U	0.43	1.3	0.044 U

Notes:

mg/Kg = milligrams per kilogram

N = normal sample

-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.

U = The analyte was analyzed for, but not detected at the method reporting limit shown.

Table 15

Upland and Background Vegetation Sample Results for Metals (weight weight)

Salt Chuck Mine, Alaska

Analyte Name:						Magnesium	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units:						mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Screening Criteria:													
Area	Location	Location ID	Activity ID	Date Collected	Sample Type								
Upland	Upland	SCUV-337-ALD	SCUV-337-ALD-20120802	08/02/12	N	1150	0.012 U	0.095 U	0.024 U	0.012 U	0.024 U	0.014 U	5.45
Upland	Upland	SCUV-337-CRAB	SCUV-337-CRAB-20120802	08/02/12	N	1150	0.0141	0.33	0.023 U	0.011 U	0.023 U	0.014 U	4.9
Upland	Upland	SCUV-337-HUCK	SCUV-337-HUCK-20120802	08/02/12	N	794	0.0175	0.95	0.023 U	0.011 U	0.023 U	0.044	7.63
Upland	Upland	SCUV-337-HUCKB	SCUV-337-HUCKB-20120802	08/02/12	N	79	0.0068 U	0.042	0.0051 U	0.0026 UJ	0.0051 U	0.0031 U	1.0
Upland	Upland	SCUV-337-SALB	SCUV-337-SALB-20120802	08/02/12	N	1770	0.0144	0.15	0.025 U	0.012 U	0.025 U	0.015 U	4.48
Upland	Upland	SCUV-337-SKNK	SCUV-337-SKNK-20120802	08/02/12	N	149	0.015 U	0.017	0.0034 U	0.0038 J	0.0034 U	0.0065	3.5
Upland	Upland	SCUV-501-ALD	SCUV-501-ALD-20120729	07/29/12	N	738	0.012 U	0.47	0.11	0.011 U	0.023 U	0.096	7.09
Upland	Upland	SCUV-502-ALD	SCUV-502-ALD-20120729	07/29/12	N	860	0.012 U	0.24	0.056	0.012 U	0.023 U	0.068	7.56
Upland	Upland	SCUV-502-HUCK	SCUV-502-HUCK-20120729	07/29/12	N	1110	0.0148	0.18	0.029	0.045	0.021 U	0.16	13.3
Upland	Upland	SCUV-502-HUCKB	SCUV-502-HUCKB-20120729	07/29/12	N	84	0.0089 U	0.11	0.0048	0.0021 UJ	0.0042 U	0.0052	1.3
Upland	Upland	SCUV-503-CRAB	SCUV-503-CRAB-20120801	08/01/12	N	1180	0.0129	0.14	0.024 U	0.012 U	0.024 U	0.24	3.35
Upland	Upland	SCUV-503-SKNK	SCUV-503-SKNK-20120729	07/29/12	N	2460	0.026 U	1.8	0.05 U	0.048 J	0.05 U	0.54	42.4
Upland	Upland	SCUV-504-ALD	SCUV-504-ALD-20120729	07/29/12	N	852	0.012 U	0.49	0.041	0.011 U	0.023 U	0.12	6.18
Upland	Upland	SCUV-504-SALB	SCUV-504-SALB-20120729	07/29/12	N	2860	0.0206	0.45	0.025 U	0.012 U	0.025 U	0.18	6.72
Upland	Upland	SCUV-701-ALD	SCUV-701-ALD-20120729	07/29/12	N	1060	0.012 U	0.43	0.22	0.011 U	0.022 U	0.2	10.3
Background	Lake No. 3	SCUV-515-ALD	SCUV-515-ALD-20120730	07/30/12	N	449	0.013 U	2.63	0.024 U	0.012 U	0.024 U	0.017	9.74
Background	Lake No. 3	SCUV-515-BB	SCUV-515-BB-20120730	07/30/12	N	59	0.010 U	0.25	0.0049 U	0.0025 UJ	0.0049 U	0.0030 U	1.0
Background	Lake No. 3	SCUV-515-CRAB	SCUV-515-CRAB-20120730	07/30/12	N	691	0.013 U	0.15	0.022 U	0.011 U	0.022 U	0.015	4.34
Background	Lake No. 3	SCUV-515-HUCK	SCUV-515-HUCK-20120730	07/30/12	N	448	0.0165	0.18	0.022 U	0.011 U	0.022 U	0.019	9.13
Background	Lake No. 3	SCUV-515-SALB	SCUV-515-SALB-20120730	07/30/12	N	1250	0.0125	0.4	0.024 U	0.012 U	0.024 U	0.014 U	2.77
Background	Lake No. 3	SCUV-515-SKNK	SCUV-515-SKNK-20120730	07/30/12	N	146	0.016 U	0.017	0.0027 U	0.0014 UJ	0.0027 U	0.0017 U	1.0
Background	Boardwalk Lodge	SCUV-901-HUCKB	SCUV-901-HUCKB-20120801	08/01/12	N	45	0.0080 U	0.025	0.0044 U	0.0021 UJ	0.0044 U	0.0026 U	0.82

Notes:

mg/Kg = milligrams per kilogram

N = normal sample

-- = not analyzed

J = The analyte was positively identified; the quantitation is an estimation.

U = The analyte was analyzed for, but not detected at the method reporting limit shown.

Table 16

Upland Soil Sample Results, Particle Size Distribution - Weight Retained

Salt Chuck Mine, Alaska

Location ID		SCSS-501
Area		Upland
Activity ID		SCSS-501-07272012
Depth (feet)		0 - 0.5
Sample Date		7/272012
	Units	
Weight	g	138.6
Particle size, 3 inch, (76.20mm)	g	0.0
Particle size, 2 inch, (50.80mm)	g	0.0
Particle size, 1.5 inch (38.1mm)	g	0.0
Particle size, 1 inch (25.40mm)	g	0.0
Particle size, 3/4 inch (19.05mm)	g	0.0
Particle size, 3/8 inch (9.525mm)	g	15.7
Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	4.4
Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	8.8
Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	2.1
Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	10.6
Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	13.6
Particle size, Sieve No. 140, 150 mesh, (0.106mm)	g	19.1
Particle size, Sieve No. 200, 200 mesh, (0.075mm)	g	7.3
Particle size, Hydrometer (.040 mm)	mg/L	1.0
Particle size, Hydrometer (.026 mm)	mg/L	1.0
Particle size, Hydrometer (.015 mm)	mg/L	1.0
Particle size, Hydrometer (.011 mm)	mg/L	1.0
Particle size, Hydrometer (.008 mm)	mg/L	1.0
Particle size, Hydrometer (0.004mm)	mg/L	1.0

Notes:

g = gram

mg/L = mililgrams per liter

Table 17
Upland Tailing Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCTL-501	SCTL-501-1-1.5	SCTL-503	SCTL-504	SCTL-504-1-1.5	SCTL-505	SCTL-506
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCTL-501-07292012	SCTL-501-1-1.5-07292012	SCTL-503-07292012	SCTL-504-07292012	SCTL-504-1-1.5-07292012	SCTL-505-07292012	SCTL-506-07292012
Sample Type:				N	N	N	N	N	N	N
Sample Date:				07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12
Depth (ft):				0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]							
Metals	Aluminum	mg/Kg	77,000	8,860	9,720	8,780	8,890	8,890	8,900	9,230
Metals	Antimony	mg/Kg	31	0.98 UJ	0.98 UJ	1.7 UJ	0.9 UJ	0.87 UJ	1.1 UJ	0.91 UJ
Metals	Arsenic	mg/Kg	0.39	**0.97**	**1.2**	**8.4**	**1.1**	**1.1**	**1.1**	**0.99**
Metals	Barium	mg/Kg	15,000	8	14.9	9.9 J	8.6	10.6	7.5	9.9
Metals	Beryllium	mg/Kg	160	0.49 U	0.49 U	0.85 UJ	0.45 U	0.44 U	0.57 U	0.45 U
Metals	Cadmium	mg/Kg	70	0.49 U	0.49 U	0.85 UJ	0.45 U	0.44 U	0.57 U	0.45 U
Metals	Calcium	mg/Kg	NE	4,740	5,010	11,300	5,540	5,930	5,500	5,430
Metals	Chromium	mg/Kg	0.29 b	**2.1 J**	**1.7 J**	**4**	**1.6 J**	**1.8 J**	**1.8 J**	**1.4 J**
Metals	Cobalt	mg/Kg	23	20.3	**24.9**	13.5	22.1	22.6	20.4	21.7
Metals	Copper	mg/Kg	3,100	904	902	950 J	1,860	1,870	788	944
Metals	Iron	mg/Kg	55,000	30,800	42,500	40,000	**56,900**	**68,000**	**59,900**	41,900
Metals	Lead	mg/Kg	400	0.92	1.2	24.3	0.85	0.93	4.1	0.73
Metals	Magnesium	mg/Kg	NE	9,760	11,000	11,100	9,070	9,020	8,960	9,800
Metals	Manganese	mg/Kg	1,800	338	429	406	374	375	327	359
Metals	Mercury	mg/Kg	10	0.078 J	0.058 J	0.067 J	0.07 J	0.3	0.065 J	0.047 J
Metals	Nickel	mg/Kg	1,500	9.1	11.6	8.9 J	10.5	11.2	10	9.9
Metals	Potassium	mg/Kg	NE	498 U	576 U	1,040	524 U	460 U	478 U	435
Metals	Selenium	mg/Kg	390	0.17 J	0.32 J	2.8 J	0.56 J	0.61 J	0.31 J	0.4 J
Metals	Silver	mg/Kg	390	0.49 U	0.59	0.85 UJ	0.83	0.93	0.57 U	0.45 U
Metals	Sodium	mg/Kg	NE	498 U	576 U	11,700	524 U	460 U	478 U	379 U
Metals	Thallium	mg/Kg	0.78	0.49 U	0.49 U	0.85 UJ	0.45 U	0.44 U	0.57 U	0.45 U
Metals	Vanadium	mg/Kg	390	168	243	114	254	285	227	190
Metals	Zinc	mg/Kg	23,000	36.7 J	41.6 J	31.6 J	35.6 J	35 J	34.4 J	36.6 J
HPAH	2-Methylnaphthalene	ug/Kg	NE	3.6 U	19 U	13 UJ	14 U	15 U	3.8 U	7.3 U
HPAH	Benz(a)anthracene	ug/Kg	150	2.6 J	22 J	17 J	8.4 J	9.6 J	7.5 J	12 J
HPAH	Benzo(a)pyrene	ug/Kg	15	10 J	**62 J**	**16 J**	**30 J**	**34 J**	**16 J**	**25 J**
HPAH	Benzo(b)fluoranthene	ug/Kg	150	27 J	80	30 J	41	40	24 J	39 J
HPAH	Benzo(ghi)perylene	ug/Kg	1,100,000 c	15 J	55	3.4 J	32 J	32	4.6	10 J
HPAH	Benzo(k)fluoranthene	ug/Kg	1,500	4.1	19 J	7.5 J	9.7 J	13 J	4.3	10 J
HPAH	Chrysene	ug/Kg	15,000	9.7 J	43	25 J	16	16	11	19
HPAH	Dibenz[a,h]anthracene	ug/Kg	15	3.7	**16 J**	13 UJ	12 J	11 J	3.1 J	5.6 J
HPAH	Indeno[1,2,3-cd]pyrene	ug/Kg	150	30 J	100	12 J	69 J	72	18 J	38 J
HPAH	Pyrene	ug/Kg	1,700,000	2.6 J	11 J	36 J	16 J	16	8.3 J	8.4 J
PAH	Total HPAH	ug/Kg	NE	104.7 J	408 J	146.9 J	234.1 J	243.6 J	96.8 J	167 J
LPAH	Acenaphthene	ug/Kg	3,400,000	3.6 U	19 U	13 UJ	14 U	15 U	3.8 U	7.3 U
LPAH	Acenaphthylene	ug/Kg	2,300,000 c	3.9	14 J	6.4 J	13 J	14 J	4.3	5.6 J
LPAH	Anthracene	ug/Kg	17,000,000	1.1 J	5.3 J	7.1 J	14 U	3.9 J	1.7 J	1.8 J
LPAH	Fluoranthene	ug/Kg	2,300,000	2.3 J	8.8 J	25 J	6.5 J	8.7 J	5.5	5.8 J
LPAH	Fluorene	ug/Kg	2,300,000	3.6 U	19 U	13 UJ	14 U	15 U	3.8 U	7.3 U
LPAH	Naphthalene	ug/Kg	3,600	3.6 U	19 U	3.7 J	14 U	15 U	3.8 U	7.3 U
LPAH	Phenanthrene	ug/Kg	16,800,000 c	3.6 U	19 U	9.7 J	14 U	15 U	3.8 U	7.3 U

Table 17
Upland Tailing Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCTL-501	SCTL-501-1-1.5	SCTL-503	SCTL-504	SCTL-504-1-1.5	SCTL-505	SCTL-506
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCTL-501-07292012	SCTL-501-1-1.5-07292012	SCTL-503-07292012	SCTL-504-07292012	SCTL-504-1-1.5-07292012	SCTL-505-07292012	SCTL-506-07292012
Sample Type:				N	N	N	N	N	N	N
Sample Date:				07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12
Depth (ft):				0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]							
LPAH	Total LPAH	ug/Kg	NE	7.3 J	28.1 J	51.9 J	19.5 J	26.6 J	11.5 J	13.2 J
PAH	Total PAH	ug/Kg	NE	112 J	436.1 J	198.8 J	253.6 J	270.2 J	108.3 J	180.2 J
PCB	Aroclor 1016	ug/Kg	3,900	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1221	ug/Kg	140	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1232	ug/Kg	140	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1242	ug/Kg	220	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1248	ug/Kg	220	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1254	ug/Kg	220	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1260	ug/Kg	220	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1262	ug/Kg	220 d	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Aroclor 1268	ug/Kg	220 d	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
PCB	Total PCBs	ug/Kg	220	36 U	39 U	120 UJ	35 U	38 U	38 U	37 U
TPH	Diesel range organics	mg/Kg	230 c	2.74 J	4.02 J	44 J	2.92 J	3.45 J	5.82 J	4.08 J
TPH	Gasoline range organics	mg/Kg	260 c	1.09 J	0.293 J	0.371 J	3.77 U	2.66 U	0.53 J	0.486 J
TPH	Oil Range Organics	mg/Kg	9,700 c	7.97 J	9.41 J	102 J	12.8 J	11.3 J	25 J	9.96 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbon

mg/Kg = milligrams per kilogram
ug/Kg = micrograms per kilogram
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.
= -- not analyzed

a = Resident Soil RSL (USEPA, 2012) unless otherwise indicated
b = RSL for Chromium (VI)
c = Most stringent ADEC Method Two Soil Cleanup Level listed for the above 40 inch zone (ADEC, 2012)
d = RSL for total PCBs

NE = not established

BOLD = detected result exceeds screening level

Not Bold = analyte not detected but method reporting limit exceeds the associated screening level

ADEC = Alaska Department of Environmental Conservation
RSL = Regional Screening Level
USEPA = U.S. Environmental Protection Agency

Table 18
Upland Tailing Sample Results for TOC, Metals (TCLP), Net Acid Generating Potential, Sulfur Forms, and Grain Size
Salt Chuck Mine, Alaska

Location:				SCTL-501	SCTL-504
Activity ID:				SCTL-501-07292012	SCTL-504-07292012
Sample Type:				N	N
Sample Date:				07/29/12	07/29/12
Depth (ft):				0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Criteria		
Genchem	Organic carbon	mg/Kg		308	440
Metals, TCLP	Arsenic	mg/L	0.005 a	0.045 U	0.045 U
Metals, TCLP	Barium	mg/L	0.1 a	**0.14 J**	**0.13 J**
Metals, TCLP	Cadmium	mg/L	0.001 a	0.005 U	0.005 U
Metals, TCLP	Chromium	mg/L	0.005 a	0.01 U	0.01 U
Metals, TCLP	Lead	mg/L	0.005 a	0.03 U	**0.046**
Metals, TCLP	Mercury	ug/L	0.2 a	0.05 U	0.05 U
Metals, TCLP	Selenium	mg/L	0.001 a	0.05 U	0.05 U
Metals, TCLP	Silver	mg/L	0.005 a	0.01 UJ	0.01 UJ
Net Acid Genenerating Potentia	Neutralization Potential	t CaCO3/1000t	NE	5.0	4.0
Net Acid Genenerating Potentia	Acid Production Potential	t CaCO3/1000t	NE	1.9	2.5
Net Acid Genenerating Potentia	Net Neutralization Potential	t CaCO3/1000t	NE	3.1	1.5
Net Acid Genenerating Potentia	Neutralization Potential Ratio	t CaCO3/1000t	NE	2.6	1.6
Net Acid Genenerating Potentia	Moisture content	wt%	NE	10	5.9
Sulfur Forms	Sulfur, Total	wt%	NE	0.061	0.080
Sulfur Forms	Sulfur, Sulfate	wt%	NE	0.070	0.080
Sulfur Forms	Sulfur, Pyritic	wt%	NE	0.01 U	0.01 U
Sulfur Forms	Sulfur, Residual	wt%	NE	0.01 U	0.01 U
Grain Size	Weight	g	NE	511.2	419.7
Grain Size	Particle size, 3 inch, (76.20mm)	g	NE	0	0
Grain Size	Particle size, 2 inch, (50.80mm)	g	NE	0	0
Grain Size	Particle size, 1.5 inch (38.1mm)	g	NE	0	0
Grain Size	Particle size, 1 inch (25.40mm)	g	NE	0	0
Grain Size	Particle size, 3/4 inch (19.05mm)	g	NE	0	0
Grain Size	Particle size, 3/8 inch (9.525mm)	g	NE	0	0
Grain Size	Particle size, Sieve No. 04, 4 mesh, (4.75mm)	g	NE	0	0
Grain Size	Particle size, Sieve No. 10, 9 mesh, (2.00mm)	g	NE	0	0
Grain Size	Particle size, Sieve No. 20, 20 mesh, (0.850mm)	g	NE	1.5	0.41
Grain Size	Particle size, Sieve No. 40, 35 mesh, (0.425mm)	g	NE	54	10.0
Grain Size	Particle size, Sieve No. 60, 60 mesh, (0.250mm)	g	NE	132	57
Grain Size	Particle size, Sieve No. 140, 150 mesh, (0.106mm)	g	NE	212	185
Grain Size	Particle size, Sieve No. 200, 200 mesh, (0.075mm)	g	NE	54	76
Grain Size	Particle size, Hydrometer (0.004mm)	mg/L	NE	1.0	1.0
Grain Size	Particle size, Hydrometer (.008 mm)	mg/L	NE	1.0	1.0
Grain Size	Particle size, Hydrometer (.011 mm)	mg/L	NE	1.0	1.0
Grain Size	Particle size, Hydrometer (.015 mm)	mg/L	NE	1.0	1.0
Grain Size	Particle size, Hydrometer (.026 mm)	mg/L	NE	1.0	1.0
Grain Size	Particle size, Hydrometer (.040 mm)	mg/L	NE	1.0	1.0

Notes:

TCLP = toxicity characteristic leaching procedure
mg/L = milligrams per liter
g = gram
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media
wt% = weight percent
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.

a = 40 CFR 261.24

BOLD = detected result exceeds criteria

Not Bold = analyte not detected but method reporting limit exceeds criteria

ADEC = Alaska Department of Environmental Conservation
ASTM = American Society for testing and materials
AWQC = Ambient Water Quality Criteria
USEPA = U.S. Environmental Protection Agency

Table 19
Upland WasteRock Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCWR-501	SCWR-502	SCWR-503	SCWR-504	SCWR-505	SCWR-506	SCWR-507	SCWR-508	SCWR-509	SCWR-510
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCWR-501-07272012	SCWR-502-07272012	SCWR-503-07272012	SCWR-504-07292012	SCWR-505-07292012	SCWR-506-07292012	SCWR-507-07292012	SCWR-508-07292012	SCWR-509-07292012	SCWR-510-07292012
Sample Type:				N	N	N	N	N	N	N	N	N	N
Sample Date:				07/27/12	07/27/12	07/27/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]										
Metals	Aluminum	mg/Kg	77,000	11,400	17,100	1,680	26,700	21,500	15,500	19,000	14,800	4,450	20,400
Metals	Antimony	mg/Kg	31	1 UJ	1.8 UJ	2.5 UJ	1 UJ	1.8 UJ	0.85 UJ	0.86 UJ	1.5 UJ	3.3 UJ	1.1 UJ
Metals	Arsenic	mg/Kg	0.39	**0.78 J**	**1.6 J**	1.2 UJ	**0.98**	**6.2**	**0.9**	**1**	**14.4**	**1.6 U**	**1.3**
Metals	Barium	mg/Kg	15,000	18.4	16.4	12.4 U	14.6	63.3	10	9.7	28.9	39.1	75.2 J
Metals	Beryllium	mg/Kg	160	0.52 U	0.9 U	1.2 U	0.52 U	0.91 U	0.42 U	0.43 U	0.73 U	1.6 U	0.53 UJ
Metals	Cadmium	mg/Kg	70	0.52 U	0.9 U	1.2 U	0.52 U	0.91 U	0.42 U	0.43 U	0.73 U	1.6 U	0.53 UJ
Metals	Calcium	mg/Kg	NE	5,050	3,750	9,080	13,800	7,790	7,410	16,400	8,260	22,600	12,800
Metals	Chromium	mg/Kg	0.29 b	1 UJ	**7.2 J**	2.5 UJ	**39.1 J**	**15.2 J**	**2.9 J**	**2.2 J**	**4.9 J**	**3.3 UJ**	1.1 UJ
Metals	Cobalt	mg/Kg	23	**27.8 J**	8.9 J	1.2 J	**41.2**	**33.6**	**26.1**	**32.8**	**26.2**	4.5	**33.4**
Metals	Copper	mg/Kg	3,100	**3,130 J**	270 J	428 J	81.2	654	293	693	1,630	2,820	**20,700 J**
Metals	Iron	mg/Kg	55,000	36,800 J	41,100 J	5,840 J	**55,800**	**93,800**	37,200	42,300	35,100	12,200	**55,600**
Metals	Lead	mg/Kg	400	3.3 J	5 J	3.2 J	0.8	76.6	2.4	1.2	28.6	17	2.7
Metals	Magnesium	mg/Kg	NE	13,700	5,450	1,310 J	27,700	8,010	17,500	20,700	15,800	1,460 J	19,300
Metals	Manganese	mg/Kg	1,800	515	512	307	572	1,360	530	732	1,070	400	680
Metals	Mercury	mg/Kg	10	0.25	0.18	0.26	0.79	1.5	0.33	0.53	0.67	0.92	0.67
Metals	Nickel	mg/Kg	1,500	9.7	4.8	1.2	138	14.5	8.2	6	10.6	4.1	11.1 J
Metals	Potassium	mg/Kg	NE	395	807 U	621 J	498 U	951 U	546 U	440 U	596 U	1,890 U	566
Metals	Selenium	mg/Kg	390	2.4 J	0.33 J	0.61 J	2.6 U	2.4 J	2.1 U	2.1 U	1.1 J	6.5 J	12.9 J
Metals	Silver	mg/Kg	390	2.3	0.9 U	1.2 U	0.52 U	0.91 U	0.42 U	0.43 U	1.4	1.6 U	5.6 J
Metals	Sodium	mg/Kg	NE	370 U	807 U	1,340 U	3,580	951 U	546 U	440 U	596 U	1,890 U	495 UJ
Metals	Thallium	mg/Kg	0.78	0.52 U	0.9 U	1.2 U	0.52 U	0.91 U	0.42 U	0.43 U	0.73 U	1.6 U	0.53 UJ
Metals	Vanadium	mg/Kg	390	170	196	11.1	192	316	230	315	202	54.9	242
Metals	Zinc	mg/Kg	23,000	51.6 J	25.1 J	15.1 J	45.1 J	141 J	57.9 J	67 J	55.1 J	26.2 J	65 J
PAH	2-Methylnaphthalene	ug/Kg	NE	--	--	--	3.7 U	13 U	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Benz(a)anthracene	ug/Kg	150	--	--	--	3.7 U	34 J	3.8 U	3.5 U	1.7 J	4.3 J	2.9 J
PAH	Benzo(a)pyrene	ug/Kg	15	--	--	--	3.7 U	**31 J**	3.8 U	3.5 U	5.8 U	3.5 J	2.4 J
PAH	Benzo(b)fluoranthene	ug/Kg	150	--	--	--	0.9 J	30 J	0.92 J	3.5 U	3.5 J	6.7 J	3 J
PAH	Benzo(ghi)perylene	ug/Kg	1,100,000 c	--	--	--	3.7 U	13 U	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Benzo(k)fluoranthene	ug/Kg	1,500	--	--	--	3.7 U	5.3 J	3.8 U	3.5 U	5.8 U	14 U	0.99 J
PAH	Chrysene	ug/Kg	15,000	--	--	--	3.7 U	26 J	0.91 J	3.5 U	3.2 J	9.5 J	2.8 J
PAH	Dibenz[a,h]anthracene	ug/Kg	15	--	--	--	3.7 U	13 U	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Indeno[1,2,3-cd]pyrene	ug/Kg	150	--	--	--	3.7 U	7.5 J	0.79 J	3.5 U	1.2 J	14 U	2.7 J
PAH	Pyrene	ug/Kg	1,700,000	--	--	--	0.79 J	68 J	0.87 J	3.5 U	4.4 J	13 J	4.5
PAH	Total HPAH	ug/Kg	NE	--	--	--	1.69 J	201.8 J	3.49 J	180 U	14 J	37 J	19.29 J
PAH	Acenaphthene	ug/Kg	3,400,000	--	--	--	3.7 U	13 U	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Acenaphthylene	ug/Kg	2,300,000 c	--	--	--	3.7 U	2.8 J	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Anthracene	ug/Kg	17,000,000	--	--	--	3.7 U	19 J	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Fluoranthene	ug/Kg	2,300,000	--	--	--	3.7 U	60 J	1.3 J	3.5 U	2.8 J	11 J	3 J
PAH	Fluorene	ug/Kg	2,300,000	--	--	--	3.7 U	3.1 J	3.8 U	3.5 U	5.8 U	14 U	3.5 U
PAH	Naphthalene	ug/Kg	3,600	--	--	--	3.7 U	13 U	3.8 U	3.5 U	5.8 U	14 U	0.9 J
PAH	Phenanthrene	ug/Kg	16,800,000 c	--	--	--	3.7 U	39 J	3.8 U	3.5 U	5.8 U	20	0.97 J
PAH	Total LPAH	ug/Kg	NE	--	--	--	190 U	123.9 J	1.3 J	180 U	2.8 J	31 J	4.87 J
PAH	Total PAH	ug/Kg	NE	--	--	--	1.69 J	325.7 J	4.79 J	180 U	16.8 J	68 J	24.16 J
PCB	Aroclor 1016	ug/Kg	3,900	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1221	ug/Kg	140	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1232	ug/Kg	140	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1242	ug/Kg	220	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1248	ug/Kg	220	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1254	ug/Kg	220	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1260	ug/Kg	220	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1262	ug/Kg	220 d	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
PCB	Aroclor 1268	ug/Kg	220 d	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U

Table 19
Upland WasteRock Sample Results for Metals, PAH, PCB, and TPH
Salt Chuck Mine, Alaska

Location:				SCWR-501	SCWR-502	SCWR-503	SCWR-504	SCWR-505	SCWR-506	SCWR-507	SCWR-508	SCWR-509	SCWR-510
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCWR-501-07272012	SCWR-502-07272012	SCWR-503-07272012	SCWR-504-07292012	SCWR-505-07292012	SCWR-506-07292012	SCWR-507-07292012	SCWR-508-07292012	SCWR-509-07292012	SCWR-510-07292012
Sample Type:				N	N	N	N	N	N	N	N	N	N
Sample Date:				07/27/12	07/27/12	07/27/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Unit	Screening Level[a]										
PCB	PCB Total	ug/Kg	220	--	--	--	37 U	130 U	38 U	35 U	58 U	280 U	35 U
TPH	Diesel range organics	mg/Kg	230 b	--	--	--	9.84 J	202	16 J	3.02 J	59.3	**366**	13 J
TPH	Gasoline range organics	mg/Kg	260 b	--	--	--	0.756 J	6.13 J	1.34 J	0.487 J	1.44 J	30.7 J	0.765 J
TPH	Oil Range Organics	mg/Kg	9,700 b	--	--	--	65.3 J	426	92.9 J	11 J	140	965	76.9 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
PCB = polychlorinated biphenyls
TPH = total petroleum hydrocarbon

mg/Kg = milligrams per kilogram
ug/Kg = micrograms per kilogram
FD = field duplicate sample
N = normal sample

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.
= -- not analyzed

a = Resident Soil RSL (USEPA, 2012) unless otherwise indicated
b = RSL for Chromium (VI)
c = Most stringent ADEC Method Two Soil Cleanup Level listed for the above 40 inch zone (ADEC, 2012)
d = RSL for total PCBs

NE = not established

BOLD = detected result exceeds screening level

Not Bold = analyte not detected but method reporting limit exceeds the associated screening level

ADEC = Alaska Department of Environmental Conservation
RSL = Regional Screening Level
USEPA = U.S. Environmental Protection Agency

Table 20
Upland WasteRock Sample Results for Metals (TCLP) Net Generating Acid Potential, and Sulfur Form
Salt Chuck Mine, Alaska

Location:				SCWR-501	SCWR-502	SCWR-503	SCWR-505	SCWR-506	SCWR-507	SCWR-508	SCWR-510	SCWR-512
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				SCWR-501-07272012	SCWR-502-07272012	SCWR-503-07272012	SCWR-505-07292012	SCWR-506-07292012	SCWR-507-07292012	SCWR-508-07292012	SCWR-510-07292012	SCWR-512-07292012
Sample Type:				N	N	N	N	N	N	N	N	N
Sample Date:				07/27/12	07/27/12	07/27/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12	07/29/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Criteria	Units									
Metals, TCLP	Arsenic	0.005 a	mg/L	--	--	--	--	--	--	--	0.045 U	--
Metals, TCLP	Barium	0.1 a	mg/L	--	--	--	--	--	--	--	**0.24 J**	--
Metals, TCLP	Cadmium	0.001 a	mg/L	--	--	--	--	--	--	--	0.005 U	--
Metals, TCLP	Chromium	0.005 a	mg/L	--	--	--	--	--	--	--	0.01 U	--
Metals, TCLP	Lead	0.005 a	mg/L	--	--	--	--	--	--	--	0.03 U	--
Metals, TCLP	Mercury	0.2 a	ug/L	--	--	--	--	--	--	--	0.05 U	--
Metals, TCLP	Selenium	0.001 a	mg/L	--	--	--	--	--	--	--	0.05 U	--
Metals, TCLP	Silver	0.005 a	mg/L	--	--	--	--	--	--	--	0.01 UJ	--
Net Acid Generating Potential	Neutralization Potential	NE	t CaCO3/1,000 t	9	5	17	16	43	29	35	23	22
Net Acid Generating Potential	Acid Production Potential	NE	t CaCO3/1,000 t	2.3	1.8	1.3	1.8	3.7	2.0	2.3	2.3	3.5
Net Acid Generating Potential	Net Neutralization Potential	NE	t CaCO3/1,000 t	6.7	3.2	16	14	39	27	33	21	19
Net Acid Generating Potential	Neutralization Potential Ratio	NE	t CaCO3/1,000 t	3.9	2.9	13	8.9	12	14	15	10	6.3
Net Acid Generating Potential	Moisture content	NE	wt%	0.51	0.76	1.1	1.3	3.5	0.84	0.95	1.5	0.91
Sulfur Forms	Sulfur Total	NE	wt%	0.074	0.056	0.041	0.058	0.12	0.066	0.074	0.072	0.11
Sulfur Forms	Sulfur Sulfate	NE	wt%	0.07	0.06	--	--	--	--	--	--	--
Sulfur Forms	Sulfur, Pyritic	NE	wt%	0.01 U	0.01 U	--	--	--	--	--	--	--
Sulfur Forms	Sulfur, Residual	NE	wt%	0.01 U	0.01 U	--	--	--	--	--	--	--

Notes:

TCLP = toxicity characteristic leaching procedure
Net Acid Generating Potential Data are reported on a moisture free basis.

N = normal sample
-- = not analyzed
Net Neutralization Potential (also referred to as Acid-base Accounting) = NP - AP
Neutralization Potential Ratio = NP/AP

mg/L = milligrams per liter
wt% = weight percent
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.
= -- not analyzed

a = 40 CFR 261.24

BOLD = detected result exceeds criteria

Not Bold = analyte not detected but method reporting limit exceeds criteria

ADEC = Alaska Department of Environmental Conservation

ASTM = American Society for testing and materials

AWQC = Ambient Water Quality Criteria
USEPA = U.S. Environmental Protection Agency

Table 20
Upland WasteRock Sample Results for Metals (TCLP) Net Generating Acid Potential, and Sulfur Form
Salt Chuck Mine, Alaska

Location:				SCWR-501	SCWR-513	SCWR-514	SCWR-515
Area				Upland	Upland	Upland	Upland
Activity ID:				SCWR-501-07272012	SCWR-513-07292012	SCWR-514-07292012	SCWR-515-07292012
Sample Type:				N	N	N	N
Sample Date:				07/27/12	07/29/12	07/29/12	07/29/12
Depth (ft):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
ChemGroup	Analyte	Criteria	Units				
Metals, TCLP	Arsenic	0.005 a	mg/L	--	--	--	--
Metals, TCLP	Barium	0.1 a	mg/L	--	--	--	--
Metals, TCLP	Cadmium	0.001 a	mg/L	--	--	--	--
Metals, TCLP	Chromium	0.005 a	mg/L	--	--	--	--
Metals, TCLP	Lead	0.005 a	mg/L	--	--	--	--
Metals, TCLP	Mercury	0.2 a	ug/L	--	--	--	--
Metals, TCLP	Selenium	0.001 a	mg/L	--	--	--	--
Metals, TCLP	Silver	0.005 a	mg/L	--	--	--	--
Net Acid Generating Potential	Neutralization Potential	NE	t CaCO3/1,000 t	9	13	8	12
Net Acid Generating Potential	Acid Production Potential	NE	t CaCO3/1,000 t	2.3	6.3	3.7	3.7
Net Acid Generating Potential	Net Neutralization Potential	NE	t CaCO3/1,000 t	6.7	6.7	4.3	8.3
Net Acid Generating Potential	Neutralization Potential Ratio	NE	t CaCO3/1,000 t	3.9	2.1	2.1	3.2
Net Acid Generating Potential	Moisture content	NE	wt%	0.51	1.0	0.89	1.6
Sulfur Forms	Sulfur Total	NE	wt%	0.074	0.20	0.12	0.12
Sulfur Forms	Sulfur Sulfate	NE	wt%	0.07	0.12	0.12	0.1
Sulfur Forms	Sulfur, Pyritic	NE	wt%	0.01 U	0.01 U	0.01 U	0.01 U
Sulfur Forms	Sulfur, Residual	NE	wt%	0.01 U	0.08	0.01	0.03

Notes:

TCLP = toxicity characteristic leaching procedure
Net Acid Generating Potential Data are reported on a moisture free basis.

N = normal sample
-- = not analyzed
Net Neutralization Potential (also referred to as Acid-base Accounting) = NP - AP
Neutralization Potential Ratio = NP/AP

mg/L = milligrams per liter
wt% = weight percent
t CaCO3/1,000 t = tons of calcium carbonate required to neutralize 1,000 tons of sample media

J = The analyte was positively identified; the quantitation is an estimation.
U = The analyte was analyzed for, but not detected at the method reporting limit shown.
= -- not analyzed

a = 40 CFR 261.24

BOLD = detected result exceeds criteria

Not Bold = analyte not detected but method reporting limit exceeds criteria

ADEC = Alaska Department of Environmental Conservation

ASTM = American Society for testing and materials

AWQC = Ambient Water Quality Criteria
USEPA = U.S. Environmental Protection Agency

Table 21
Groundwater Sample Results for Metals, PAH, and TPH
Salt Chuck Mine, Alaska

Location:				GW-01	GW-02	GW-02	GW-03	GW-04	GW-05	GW-06
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				GW-01-07312012	GW-02-07312012	GW-02-08012012*	GW-03-08012012	GW-04-08012012	GW-05-08012012	GW-06-08012012
Sample Type:				N	N	N	N	N	N	N
Sample Date:				07/31/12	07/31/12	08/01/12	08/01/12	08/01/12	08/01/12	08/01/12
ChemGroup	Analyte	Unit	Screening Level							
Metals, Dissolved	Aluminum	ug/L	16,000 a	178	--	--	57.9	70	7.6 J	243
Metals, Dissolved	Antimony	ug/L	6 b	2 U	--	--	2 U	2 U	2 U	2 U
Metals, Dissolved	Arsenic	ug/L	10 b	1 U	--	--	1.6	10	1 U	1 U
Metals, Dissolved	Barium	ug/L	200 c	10 UJ	--	--	10 U	10 U	10 U	10 UJ
Metals, Dissolved	Beryllium	ug/L	16 b	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Dissolved	Cadmium	ug/L	6.9 b	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Dissolved	Calcium	ug/L	NE	9,230	--	--	19,400	36,700	29,500	5,000 U
Metals, Dissolved	Chromium	ug/L	27.4 c	2 U	--	--	2 U	2 U	2 U	2 U
Metals, Dissolved	Cobalt	ug/L	1 c	**2.6**	--	--	**1.3**	**1.7**	**1.4**	1 U
Metals, Dissolved	Copper	ug/L	3.1 c	2.1	--	--	**152**	2 U	2 U	2 U
Metals, Dissolved	Iron	ug/L	50 c	**798**	--	--	**7,230**	**5,840**	**1,300**	**247**
Metals, Dissolved	Lead	ug/L	8.1 c	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Dissolved	Magnesium	ug/L	NE	5,000 U	--	--	1,690 J	3,330 J	2,720 J	5,000 U
Metals, Dissolved	Manganese	ug/L	100 c	**459**	--	--	**262**	**1,370**	**1,780**	18.2
Metals, Dissolved	Mercury	ug/L	0.94 d	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U
Metals, Dissolved	Nickel	ug/L	8.2 c	1 U	--	--	1.1	3.5	1 U	1 U
Metals, Dissolved	Potassium	ug/L	NE	366 J	--	--	5,000 U	5,000 U	5,000 U	5,000 U
Metals, Dissolved	Selenium	ug/L	71 c	5 U	--	--	0.15 J	0.099 J	5 U	5 U
Metals, Dissolved	Silver	ug/L	0.95 c	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Dissolved	Sodium	ug/L	NE	5,110	--	--	9,050	7,800	5,050	9,260
Metals, Dissolved	Thallium	ug/L	2 b	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Dissolved	Vanadium	ug/L	50 c	5 U	--	--	5 U	5 U	5 U	5 U
Metals, Dissolved	Zinc	ug/L	81 c	2.2	--	--	66.6	32.6	3.3	4.4
Metals, Total	Aluminum	ug/L	16,000 a	222	--	--	440	334	**17,500**	11,400
Metals, Total	Antimony	ug/L	6 b	2 U	--	--	2 U	2 U	2 U	2 U
Metals, Total	Arsenic	ug/L	10 b	1 U	--	--	1.7	1 U	**13.5**	3
Metals, Total	Barium	ug/L	200 c	10 U	--	--	11.2 J	10 UJ	44.2 J	125
Metals, Total	Beryllium	ug/L	16 b	1 U	--	--	1 U	1 U	1 U	1.1
Metals, Total	Cadmium	ug/L	6.9 b	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Total	Calcium	ug/L	NE	9,330	--	--	18,900	40,400	30,000	5,030
Metals, Total	Chromium	ug/L	27.4 c	2 U	--	--	2 U	2 U	12.3	2 U
Metals, Total	Cobalt	ug/L	1 c	**2.5**	--	--	**1.4**	**1.6**	**14.6**	**2**
Metals, Total	Copper	ug/L	3.1 c	2.6	--	--	**508**	**3.4**	**298**	**6.7**
Metals, Total	Iron	ug/L	50 c	**686 J**	--	--	**7,170**	**21,300**	**1,460**	**2,140 J**
Metals, Total	Lead	ug/L	8.1 c	1 U	--	--	2	1 U	5.2	**16.4**
Metals, Total	Magnesium	ug/L	NE	5,000 U	--	--	1,660 J	10,100	2,770 J	5,000 U
Metals, Total	Manganese	ug/L	100 c	**481**	--	--	**235**	**1,810**	**1,710**	**101**
Metals, Total	Mercury	ug/L	0.94 d	0.2 U	--	--	0.2 U	0.39	0.2 U	0.2 U
Metals, Total	Nickel	ug/L	8.2 c	1 U	--	--	1.4	1 U	**10.2**	5.2
Metals, Total	Potassium	ug/L	NE	292 J	--	--	1,250 J	2,300 J	561 J	874 J
Metals, Total	Selenium	ug/L	71 c	0.11 J	--	--	0.37 J	0.16 J	5 U	0.33 J
Metals, Total	Silver	ug/L	0.95 c	**1 U**	--	--	1 U	1 U	1 U	1 U
Metals, Total	Sodium	ug/L	NE	5,000 U	--	--	9,250	8,400	5,240	9,630
Metals, Total	Thallium	ug/L	2 b	1 U	--	--	1 U	1 U	1 U	1 U
Metals, Total	Vanadium	ug/L	50 c	5 U	--	--	3.8 J	1.4 J	**92.2**	5 U
Metals, Total	Zinc	ug/L	81 c	2 U	--	--	75.5	5.1	**135**	31.6
HPAH	2-Methylnaphthalene	ug/L	NE	3.4 J	--	0.4 U	0.1 U	0.3 U	0.1 U	0.13 J
HPAH	Benz(a)anthracene	ug/L	0.2 e	1 UJ	--	**0.23 J**	0.038 J	0.17 J	0.1 U	0.096 J
HPAH	Benzo(a)pyrene	ug/L	0.2 b	1 UJ	--	0.17 J	0.022 J	0.16 J	0.1 U	0.083 J
HPAH	Benzo(b)fluoranthene	ug/L	0.2 e	1 UJ	--	0.17 J	0.027 J	0.16 J	0.1 U	0.087 J
HPAH	Benzo(ghi)perylene	ug/L	1,100 f	1 UJ	--	0.17 J	0.1 U	0.16 J	0.1 U	0.082 J
HPAH	Benzo(k)fluoranthene	ug/L	0.29 a	1 UJ	--	0.16 J	0.1 U	0.16 J	0.1 U	0.085 J
HPAH	Chrysene	ug/L	2.9 a	1 UJ	--	0.2 J	0.034 J	0.16 J	0.1 U	0.091 J
HPAH	Dibenz[a,h]anthracene	ug/L	0.2 e	1 UJ	--	0.16 J	0.1 U	0.16 J	0.1 U	0.086 J
HPAH	Indeno[1,2,3-cd]pyrene	ug/L	0.2 e	1 UJ	--	0.17 J	0.1 U	0.17 J	0.1 U	0.091 J
HPAH	Pyrene	ug/L	87 a	0.37 J	--	0.32 J	0.17	0.2 J	0.1 U	0.12 J
HPAH	Total HPAH	ug/L	NE	0.37 J	--	1.75 J	0.291 J	1.5 J	0.1 U	0.821 J

Table 21
Groundwater Sample Results for Metals, PAH, and TPH
Salt Chuck Mine, Alaska

Location:				GW-01	GW-02	GW-02	GW-03	GW-04	GW-05	GW-06
Area				Upland	Upland	Upland	Upland	Upland	Upland	Upland
Activity ID:				GW-01-07312012	GW-02-07312012	GW-02-08012012*	GW-03-08012012	GW-04-08012012	GW-05-08012012	GW-06-08012012
Sample Type:				N	N	N	N	N	N	N
Sample Date:				07/31/12	07/31/12	08/01/12	08/01/12	08/01/12	08/01/12	08/01/12
ChemGroup	Analyte	Unit	Screening Level							
LPAH	Acenaphthene	ug/L	40 c	14 J	--	1.5	0.11	1.2	0.032 J	0.4
LPAH	Acenaphthylene	ug/L	2,200 f	0.24 J	--	0.13 J	0.1 U	0.063 J	0.1 U	0.3 U
LPAH	Anthracene	ug/L	300 d	0.54 J	--	0.19 J	0.052 J	0.18 J	0.1 U	0.088 J
LPAH	Fluoranthene	ug/L	11 c	0.52 J	--	0.35 J	0.14	0.21 J	0.1 U	0.12 J
LPAH	Fluorene	ug/L	220 a	6.5 J	--	0.23 J	0.21	0.79	0.1 U	0.25 J
LPAH	Naphthalene	ug/L	0.2 e	**55 J**	--	0.4 U	0.04 J	0.1 J	0.1 U	**1.5**
LPAH	Phenanthrene	ug/L	0.4 f	**3.7 J**	--	0.16 J	0.1 U	0.16 J	0.1 U	0.2 J
LPAH	Total LPAH	ug/L	NE	80.5 J	--	2.56 J	0.552 J	2.703 J	0.032 J	2.558 J
PAH	Total PAH	ug/L	NE	80.87 J	--	4.31 J	0.843 J	4.203 J	0.032 J	3.379 J
TPH	Diesel range organics	ug/L	1,500 f	373	335	**1,600**	683	1,400	76.5 J	59.5 J
TPH	Gasoline range organics	ug/L	2,200 f	32.4 J	100 UJ	--	45.9 J	100 U	100 U	100 UJ
TPH	Oil Range Organics	ug/L	1,100 f	154 J	149 J	**1,110**	467 J	**1,710**	161 J	125 J

Notes:

PAH = polycyclic aromatic hydrocarbons
HPAH = heavy molecular weight PAH
LPAH = low molecular weight PAH
TPH = total petroleum hydrocarbon

ug/L = micrograms per liter
N = normal sample

BOLD = detected result exceeds screening level

Not Bold = analyte not detected but method reporting limit exceeds the associated screening level

J = The analyte was positively identified; the quantitation is an

U = The analyte was analyzed for, but not detected at the

-- not applicable

*sample recorded on two separate chain of custody forms and analyzed in two separate lab batches.

Screening Level Source:
a = Tapwater RSL
b = MCL
c = NOAA SQuiRT Table (marine chronic)
d = NOAA SQuiRT Table (marine acute)
e = MCL for BAP
f = 18 AAC 75 Table C

BAP = benzo(a)pyrene
AAC = Alaska Adminstrative Code
MCL = Maximum Contaminant Level
NOAA = National Oceanic and Atmospheric Administration
SQuiRT = Screening Quick Background Table. Buchman, M. F., 2008. NOAA Screening Quick Background Tables, NOAA OR&R Report 08-1, Seattle WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.
RSL = Regional Screening Levels

Table 22

Upland Groundwater Sample Results for General Chemistry (mg/L)

Salt Chuck Mine, Alaska

Location:	GW-01	GW-03	GW-04	GW-05	GW-06
Area	Upland	Upland	Upland	Upland	Upland
Activity ID:	GW-01-07312012	GW-03-08012012	GW-04-08012012	GW-05-08012012	GW-06-08012012
Date Sampled:	7/31/2012	8/1/2012	8/1/2012	8/1/2012	8/1/2012
Chem Name					
Alkalinity	29.3	47.7	95.2	74.3	8.13
Chloride	8.02	11.3	4.08	6.63	8.71
Hardness, carbonate	32.3	49.9	113	82.7	31.6
Sulfate	2.5	6.94	22.5	14	4.29

Notes:

mg/L = milligrams per liter

Table 23

Comparison of 2012 Laboratory and XRF Copper Concentrations

Salt Chuck Mine, Alaska

Sample ID	Sample Type	Laboratory Copper Concentration (mg/kg)	XRF Copper Measurement (mg/kg)	Percent deviation[a]
SCSD-510	wet	133	2117.23	1491.9
SCSS-501	dried	43700	2827.53	-93.5
SCSS-501	wet	43700	2063.89	-95.3
SCSS-502	dried	37000	466.57	-98.7
SCSS-502	wet	37000	148.52	-99.6
SCSS-512	dried	3990	122.76	-96.9
SCSS-512	wet	3990	29.47	-99.3
SCSS-513	dried	2480	85.2	-96.6
SCSS-513	wet	2480	< LOD	--
SCSS-514	dried	31200	123.18	-99.6
SCSS-514	wet	31200	72.66	-99.8
SCTL-501	dried	904	887.96	-1.8
SCTL-501	wet	904	845.66	-6.5
SCTL-501	wet	904	708.48	-21.6
SCTL-501-1-1.5	dried	902	738.54	-18.1
SCTL-502	dried	1510	1033.1	-31.6
SCTL-502	wet	1510	1115.19	-26.1
SCTL-502-1-1.5	dried	2130	1311.44	-38.4
SCTL-502-1-1.5	wet	2130	1600.58	-24.9
SCTL-503	dried	950	911.83	-4.0
SCTL-503	wet	950	283.59	-70.1
SCTL-504-1-1.5	dried	1870	1329.06	-28.9
SCTL-504-1-1.5	wet	1870	1730.81	-7.4
SCTL-505	dried	788	551.9	-30.0
SCTL-505	wet	788	533.3	-32.3
SCTL-506	dried	944	632.43	-33.0
SCTL-506	wet	944	783.9	-17.0
SCWR-501	dried	3130	4781.39	52.8
SCWR-501	wet	3130	3219.17	2.8
SCWR-502	dried	270	419.45	55.4
SCWR-502	wet	270	198.18	-26.6
SCWR-503	dried	428	584.75	36.6
SCWR-503	wet	428	108.18	-74.7
SCWR-504	dried	81.2	127.26	56.7
SCWR-504	wet	81.2	113.92	40.3
SCWR-505	dried	654	497.71	-23.9
SCWR-505	wet	654	143.34	-78.1
SCWR-506	dried	293	873.57	198.1
SCWR-506	wet	293	548.28	87.1
SCWR-507	dried	693	1441.82	108.1
SCWR-507	wet	693	1089.73	57.2
SCWR-508	dried	1630	3036.64	86.3
SCWR-508	wet	1630	1018.93	-37.5
SCWR-509	dried	2820	4708.98	67.0
SCWR-509	wet	2820	448.13	-84.1
SCWR-511	dried	1020	641.98	-37.1
SCWR-511	wet	1020	178.81	-82.5
SCWR-512	dried	3470	7029.58	102.6
SCWR-512	wet	3470	2013.4	-42.0
SCWR-514	dried	8670	8614.71	-0.6
SCWR-514	wet	8670	7045.86	-18.7
SCWR-515	dried	55.2	54.36	-1.5
SCWR-515	wet	55.2	48.78	-11.6
SCWR-701	dried	2370	3197.01	34.9
SCWR-701	wet	2370	2882	21.6
SCWR-901	dried	2430	2813.98	15.8
SCWR-901	wet	2430	2995.58	23.3

Note:

Concentration below the RED LINE indicates detected laboratory concentration is above the copper screening level for upland soil, tailings, and waste rocks (3,100 mg/kg)

a = Percent deviation = (XRF Concentration - Laboratory Concentration) / Laboratory Concentration *100

LOD = level of detection

-- = Not applicable

Appendixes

Appendix A
2012 Sample Information

Table A-1

2012 Intertidal and Background Sediment/Tailings Sample Information

Salt Chuck Mine

							Analyses								
Location ID	Area	Media	Activity ID[1]	Depth (feet)[2]	Sample Type	Sample Date	TOC	Metals	Metals, TCLP	Simultaneously Extracted Metals (SEM)	PAH	PCB	TPH	Net Acid Generating Potential	Grain Size
SCSD-301	Intertidal	Sediment	SCSD-301-07292012	0 - 0.5	N	07/29/12	x	x		x	x		x		x
SCSD-302	Intertidal	Sediment	SCSD-302-07302012	0 - 0.5	N	07/30/12	x	x		x	x		x		x
SCSD-303	Intertidal	Sediment	SCSD-303-07302012	0 - 0.5	N	07/30/12	x	x		x	x		x		x
SCSD-304	Intertidal	Sediment	SCSD-304-07292012	0 - 0.5	N	07/29/12	x	x		x	x	x	x		x
SCSD-305	Intertidal	Sediment	SCSD-305-07292012	0 - 0.5	N	07/29/12	x	x		x	x		x		x
SCSD-306	Intertidal	Sediment	SCSD-306-07292012	0 - 0.5	N	07/29/12	x	x		x	x		x		x
SCSD-307	Intertidal	Sediment	SCSD-307-07302012	0 - 0.5	N	07/30/12	x	x		x	x		x		x
SCSD-308	Intertidal	Sediment	SCSD-308-07302012	0 - 0.5	N	07/30/12	x	x		x	x		x		x
SCSD-309	Intertidal	Sediment	SCSD-309-07292012	0 - 0.5	N	07/29/12	x	x		x	x		x		x
SCSD-310	Intertidal	Sediment	SCSD-310-07302012	0 - 0.5	N	07/30/12	x	x		x	x		x		x
SCSD-311	Intertidal	Sediment	SCSD-311-07282012	0 - 0.5	N	07/28/12	x	x			x		x		
SCSD-312	Intertidal	Sediment	SCSD-312-07282012	0 - 0.5	N	07/28/12	x	x			x		x		
SCSD-313	Intertidal	Sediment	SCSD-313-07302012	0 - 0.5	N	07/30/12	x	x		x	x		x		x
SCSD-314	Intertidal	Sediment	SCSD-314-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-315	Intertidal	Sediment	SCSD-315-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-316	Intertidal	Sediment	SCSD-316-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-316	Intertidal	Sediment	SCSD-605-08012012FD	0 - 0.5	FD	08/01/12	x	x			x		x		
SCSD-317	Intertidal	Sediment	SCSD-317-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-318	Intertidal	Sediment	SCSD-318-07312012	0 - 0.5	N	07/31/12	x	x			x		x		
SCSD-319	Intertidal	Sediment	SCSD-319-07312012	0 - 0.5	N	07/31/12	x	x			x		x		
SCSD-319	Intertidal	Sediment	SCSD-603-07312012FD	0 - 0.5	FD	07/31/12	x	x			x		x		
SCSD-320	Intertidal	Sediment	SCSD-320-07312012	0 - 0.5	N	07/31/12	x	x			x		x		
SCSD-321	Intertidal	Sediment	SCSD-321-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-322	Intertidal	Sediment	SCSD-322-08012012	0 - 0.5	N	08/01/12	x	x		x	x		x		x
SCSD-323	Intertidal	Sediment	SCSD-323-07312012	0 - 0.5	N	07/31/12	x	x		x	x		x		x
SCSD-324	Intertidal	Sediment	SCSD-324-08012012	0 - 0.5	N	08/01/12	x	x		x	x	x	x		x
SCSD-325	Intertidal	Sediment	SCSD-325-07312012	0 - 0.5	N	07/31/12	x	x			x		x		
SCSD-326	Intertidal	Sediment	SCSD-326-07312012	0 - 0.5	N	07/31/12	x	x		x	x		x		x
SCSD-327	Intertidal	Sediment	SCSD-327-07312012	0 - 0.5	N	07/31/12	x	x		x	x		x		x
SCSD-328	Intertidal	Sediment	SCSD-328-08012012	0 - 0.5	N	08/01/12	x	x		x	x		x		x
SCSD-328	Intertidal	Sediment	SCSD-608-08012012FD	0 - 0.5	FD	08/01/12				x					
SCSD-329	Intertidal	Sediment	SCSD-329-07312012	0 - 0.5	N	07/31/12	x	x			x		x		
SCSD-330	Intertidal	Sediment	SCSD-330-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-330	Intertidal	Sediment	SCSD-604-08012012FD	0 - 0.5	FD	08/01/12	x	x			x		x		
SCSD-331	Intertidal	Sediment	SCSD-331-07312012	0 - 0.5	N	07/31/12	x	x		x	x		x		x
SCSD-332	Intertidal	Sediment	SCSD-332-08012012	0 - 0.5	N	08/01/12	x	x			x		x		
SCSD-401	Intertidal	Sediment	SCSD-401-07282012	0 - 0.5	N	07/28/12	x			x			x		x
SCSD-401	Intertidal	Sediment	SCSD-401-07302012	0 - 0.5	N	07/30/12	x	x			x		x		
SCSD-401	Intertidal	Sediment	SCSD-701-07302012FD	0 - 0.5	FD	07/30/12	x	x			x		x		
SCSD-402	Intertidal	Sediment	SCSD-402-07302012	0 - 0.5	N	07/30/12	x	x			x		x		
SCSD-901	Intertidal	Sediment	SCSD-901-07292012	0 - 0.5	N	07/29/12		x			x	x	x		
SCSD-901-1-1.5	Intertidal	Sediment	SCSD-901-1-1.5-07292012	1 - 1.5	N	07/29/12		x			x	x	x		
SCSD-902	Intertidal	Sediment	SCSD-902-08012012	0 - 0.5	N	08/01/12		x			x	x	x		
SCSD-903	Intertidal	Sediment	SCSD-903-08012012	0 - 0.5	N	08/01/12		x			x	x	x		
SCTL-502	Intertidal	Tailing	SCTL-502-07292012	0 - 0.5	N	07/29/12	x	x	x		x	x	x	x	x
SCTL-502-1-1.5	Intertidal	Tailing	SCTL-502-1-1.5-07292012	1 - 1.5	N	07/29/12		x			x	x	x		

Table A-1

2012 Intertidal and Background Sediment/Tailings Sample Information

Salt Chuck Mine

							Analyses								
Location ID	Area	Media	Activity ID[1]	Depth (feet)[2]	Sample Type	Sample Date	TOC	Metals	Metals, TCLP	Simultaneously Extracted Metals (SEM)	PAH	PCB	TPH	Net Acid Generating Potential	Grain Size
SCSD-333	Background	Sediment	SCSD-333-08022012	0 - 0.5	N	08/02/12	x	x		x	x		x		x
SCSD-334	Background	Sediment	SCSD-334-08022012	0 - 0.5	N	08/02/12	x	x			x		x		
SCSD-335	Background	Sediment	SCSD-335-08022012	0 - 0.5	N	08/02/12	x	x			x		x		
SCSD-336	Background	Sediment	SCSD-336-08022012	0 - 0.5	N	08/02/12	x	x		x	x		x		x
SCSD-337	Background	Sediment	SCSD-337-08022012	0 - 0.5	N	08/02/12	x	x			x		x		

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
TOC = Total organic carbon, includes Method PSEP-TOC
Metals = includes Methods ICP-MS, ICP-AES
SEM = simultaneously extracted metals, method SW6010B
PAH = polycyclic aromatic hydrocarbons, methods CLP SOM01.2 SVOC/CLP SOM01.2 SVOC-SIM
PCB = polychlorinated biphenyls; includes Method SOM01.2
TPH = total petroleum hydrocarbon; includes Methods AK102/103
Net Acid Generating = methods E1915, 1.3.1, 3.2.1 through 3.2.4
Particle size distribution = incudes method ASTM D422
N = normal environmental sample
FD = field duplicate sample

AES = atomic emission spectroscopy
ASTM = American Society for testing and materials
CLP = contract laboratory program
ICP = inductively coupled plasma
MS = mass spectrometry
PSEP = Puget Sound Estuary Protocols
SIM = selected iron monitoring
SVOC = semi-volatile organic compounds

Table A-2

2012 Intertidal Surface Water Sample Information

Salt Chuck Mine

Location ID	Area	Activity ID[1]	Sample Type	Sample Date	METALS	
					Dissolved	Total
SCSW-101	Intertidal	SCSW-101-08012012	N	8/1/2012	x	x
SCSW-102	Intertidal	SCSW-102-07312012	N	7/31/2012	x	x
SCSW-314	Intertidal	SCSW-314-08012012	N	8/1/2012	x	x
SCSW-316	Intertidal	SCSW-316-08012012	N	8/1/2012	x	x
SCSW-321	Intertidal	SCSW-321-08012012	N	8/1/2012	x	x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.

Metals = includes Methods ICP-AES, ICP-MS, and Hg

N = normal environmental sample

AES = atomic emission spectroscopy
Hg = mercury
ICP = inductively coupled plasma
MS = mass spectrometry

Table A-3
2012 Bivalve Sample Information
Salt Chuck Mine

						Analyses	
Area	Location ID	Media	Activity ID[1]	Sample Type	Sample Date	% Moisture	Metals
Intertidal	SCTISS-311-SC	Tissue	SCTISS-311-SC-20120728	N	7/28/2012	x	x
Intertidal	SCTISS-312-SC	Tissue	SCTISS-312-SC-20120728	N	7/28/2012	x	x
Intertidal	SCTISS-315-SC	Tissue	SCTISS-315-SC-20120801	N	8/1/2012	x	x
Intertidal	SCTISS-316-SC	Tissue	SCTISS-316-SC-20120801	N	8/1/2012	x	x
Intertidal	SCTISS-317-SC	Tissue	SCTISS-317-SC-20120801	N	8/1/2012	x	x
Intertidal	SCTISS-320-SC	Tissue	SCTISS-320-SC-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-325-SC	Tissue	SCTISS-325-SC-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-329-BC	Tissue	SCTISS-329-BC-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-329-CO	Tissue	SCTISS-329-CO-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-329-LN	Tissue	SCTISS-329-LN-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-330-SC	Tissue	SCTISS-330-SC-20120801	N	8/1/2012	x	x
Intertidal	SCTISS-331-BC	Tissue	SCTISS-331-BC-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-331-CO	Tissue	SCTISS-331-CO-20120731	N	7/31/2012	x	x
Intertidal	SCTISS-601-CO	Tissue	SCTISS-601-CO-20120731	N	7/31/2012	x	x
Background	SCTISS-333-SC	Tissue	SCTISS-333-SC-20120802	N	8/2/2012	x	x
Background	SCTISS-334-BC	Tissue	SCTISS-334-BC-20120802	N	8/2/2012	x	x
Background	SCTISS-334-LN	Tissue	SCTISS-334-LN-20120802	N	8/2/2012	x	x
Background	SCTISS-334-SC	Tissue	SCTISS-334-SC-20120802	N	8/2/2012	x	x
Background	SCTISS-335-BC	Tissue	SCTISS-335-BC-20120802	N	8/2/2012	x	x
Background	SCTISS-335-CO	Tissue	SCTISS-335-CO-20120802	N	8/2/2012	x	x
Background	SCTISS-335-SC	Tissue	SCTISS-335-SC-20120802	N	8/2/2012	x	x
Background	SCTISS-336-BC	Tissue	SCTISS-336-BC-20120802	N	8/2/2012	x	x
Background	SCTISS-336-CO	Tissue	SCTISS-336-CO-20120802	N	8/2/2012	x	x
Background	SCTISS-336-LN	Tissue	SCTISS-336-LN-20120802	N	8/2/2012	x	x
Background	SCTISS-336-SC	Tissue	SCTISS-336-SC-20120802	N	8/2/2012	x	x
Background	SCTISS-337-SC	Tissue	SCTISS-337-SC-20120802	N	8/2/2012	x	x
Background	SCTISS-602-SC	Tissue	SCTISS-602-SC-20120802	N	8/2/2012	x	x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
Metals = includes Methods ICP-MS, ICP-AES
N = normal environmental sample

AES = atomic emission spectroscopy
ICP = inductively coupled plasma
MS = mass spectrometry

Table A-4
2012 Upland and Background Soil Sample Information
Salt Chuck

							Analyses			
Location ID	Area	Media	Activity ID[1]	Depth	Sample Type	Sample Date	Metals	PAH	PCB	TPH
SCSS-501	Upland	Soil	SCSS-501-07272012	0 - .5	N	07/27/12	x			
SCSS-502	Upland	Soil	SCSS-502-07272012	0 - .5	N	07/27/12	x			
SCSS-503	Upland	Soil	SCSS-503-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-504	Upland	Soil	SCSS-504-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-505	Upland	Soil	SCSS-505-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-506	Upland	Soil	SCSS-506-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-512	Upland	Soil	SCSS-512-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-512	Upland	Soil	SCSS-701-07282012FD	0 - .5	FD	07/28/12	x	x	x	x
SCSS-513	Upland	Soil	SCSS-513-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-514	Upland	Soil	SCSS-514-07282012	0 - .5	N	07/28/12	x	x	x	x
SCSS-515	Background	Soil	SCSS-515-07302012	0 - .5	N	07/30/12	x	x	x	x
SCSS-901	Background	Soil	SCSS-901-08012012	0 - .5	N	08/01/12	x	x	x	x
SCSS-901	Background	Soil	SCSS-702-08012012FD	0 - .5	FD	08/01/12	x	x	x	x
SCSS-903	Background	Soil	SCSS-903-08022012	0 - .5	N	08/02/12	x			
SCSS-903	Background	Soil	SCSS-703-08022012FD	0 - .5	FD	08/02/12	x			

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
Metals = includes Methods ICP-MS, ICP-AES, Hg

PAH = polycyclic aromatic hydrocarbons, methods CLP SOM01.2 SVOC/CLP SOM01.2 SVOC-SIM
PCB = polychlorinated biphenyls; includes Method
TPH = total petroleum hydrocarbon; methods AK101 and AK102/103

N = normal environmental sample
FD = field duplicate sample

AES = atomic emission spectroscopy
ASTM = American Society for testing and materials

CLP = contract laboratory program
Hg = mercury
ICP = inductively coupled plasma
MS = mass spectrometry
SIM = selected iron monitoring

SVOC = semi-volatile organic compounds

Table A-5

2012 Upland Tailing Sample Information

Salt Chuck Mine

							Analyses								
Location ID	**Area**	**Media**	**Activity ID[1]**	**Depth (feet)[2]**	**Sample Type**	**Sample Date**	**TOC**	**Metals**	**TCLP**	**PAH**	**PCB**	**TPH**	**Net Acid Generating**	**Sulfur Forms**	**Grain Size**
SCTL-501	Upland	Tailing	SCTL-501-07292012	0 - 0.5	N	07/29/12	x	x	x	x	x	x	x	x	x
SCTL-501-1-1.5	Upland	Tailing	SCTL-501-1-1.5-07292012	1 - 1.5	N	07/29/12		x		x	x	x			
SCTL-503	Upland	Tailing	SCTL-503-07292012	0 - 0.5	N	07/29/12		x		x	x	x			
SCTL-504	Upland	Tailing	SCTL-504-07292012	0 - 0.5	N	07/29/12	x	x	x	x	x	x	x	x	x
SCTL-504-1-1.5	Upland	Tailing	SCTL-504-1-1.5-07292012	1 - 1.5	N	07/29/12		x		x	x	x			
SCTL-505	Upland	Tailing	SCTL-505-07292012	0 - 0.5	N	07/29/12		x		x	x	x			
SCTL-506	Upland	Tailing	SCTL-506-07292012	0 - 0.5	N	07/29/12		x		x	x	x			

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.

TOC = Total organic carbon, includes Method PSEP-TOC

Metals = includes Methods ICP-MS, ICP-AES, Hg

TCLP = toxicity characteristic leaching procedure; includes Methods 245.1 and 6010B

PAH = polycyclic aromatic hydrocarbons, methods CLP SOM01.2 SVOC/CLP SOM01.2 SVOC-SIM

PCB = polychlorinated biphenyls; includes Method PCB

TPH = total petroleum hydrocarbon; includes Methods AK101 and AK102/103

Net Acid Generating = methods E1915, 1.3.1, 3.2.1 through 3.2.4

Sulfur Forms = method 3.2.6

Grain size = incudes method ASTM D422

N = normal environmental sample

AES = atomic emission spectroscopy
ASTM = American Society for testing and materials
CLP = contract laboratory program
Hg = mercury
ICP = inductively coupled plasma
MS = mass spectrometry
PSEP = Puget Sound Estuary Program
SIM = selected iron monitoring
SVOC = semi-volatile organic compounds

Table A-6
2012 Upland Waste Rock Sample Information
Salt Chuck Mine

					Analyses						
Location ID	Media	Activity ID[1]	Sample Type	Sample Date	Metals	Metals, TCLP	PAH	PCB	Net Acid Generating	Sulfur Forms	TPH
SCWR-501	Waste Rock	SCWR-501-07272012	N	07/27/12	x				x	x	
SCWR-502	Waste Rock	SCWR-502-07272012	N	07/27/12	x				x	x	
SCWR-503	Waste Rock	SCWR-503-07272012	N	07/27/12	x				x		
SCWR-504	Waste Rock	SCWR-504-07292012	N	07/29/12	x		x	x			x
SCWR-505	Waste Rock	SCWR-505-07292012	N	07/29/12	x		x	x	x		x
SCWR-506	Waste Rock	SCWR-506-07292012	N	07/29/12	x		x	x	x		x
SCWR-507	Waste Rock	SCWR-507-07292012	N	07/29/12	x		x	x	x		x
SCWR-508	Waste Rock	SCWR-508-07292012	N	07/29/12	x		x	x	x		x
SCWR-509	Waste Rock	SCWR-509-07292012	N	07/29/12	x		x	x			x
SCWR-510	Waste Rock	SCWR-510-07292012	N	07/29/12	x	x	x	x	x		x
SCWR-511	Waste Rock	SCWR-511-07292012	N	07/29/12	x		x	x			x
SCWR-512	Waste Rock	SCWR-512-07292012	N	07/29/12	x		x	x	x		x
SCWR-513	Waste Rock	SCWR-513-07292012	N	07/29/12					x	x	
SCWR-514	Waste Rock	SCWR-514-07292012	N	07/29/12	x		x	x	x	x	x
SCWR-515	Waste Rock	SCWR-515-07292012	N	07/29/12	x		x	x	x	x	x
SCWR-901	Waste Rock	SCWR-901-07292012	N	07/29/12	x		x	x			x
SCWR-901	Waste Rock	SCWR-701-07292012FD	FD	07/29/12	x		x	x			x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
METALS = includes Methods ICP-MS, ICP-AES, Hg
TCLP = toxicity characteristic leaching procedure; includes Methods 245.1 and 6010B
PAH = polycyclic aromatic hydrocarbons, methods CLP SOM01.2 SVOC/CLP SOM01.2 SVOC-SIM
PCB = polychlorinated biphenyls; includes Method
TPH = total petroleum hydrocarbon; includes Methods AK102/103
Net Acid Generating = methods E1915, 1.3.1, 3.2.1 through 3.2.4
Sulfur Forms = method 3.2.6

FD = field duplicate sample
N = normal environmental sample

AES = atomic emission spectroscopy
CLP = contract laboratory program
ICP = inductively coupled plasma
MS = mass spectrometry
PSEP = Puget Sound Estuary Protocols
SIM = selected iron monitoring
SVOC = semi-volatile organic compounds

Table A-7

2012 Upland and Background Freshwater Sediment Sample Information

Salt Chuck Mine

							Analyses						
Location ID	Area	Media	Activity ID[1]	Depth (feet)	Sample Type	Sample Date	TOC	Metals	PAH	PCB	TPH	Simultaneously Extracted Metals (SEM)	Grain Size
SCSD-510	Background	Sediment	SCSD-510-07282012	0 - 0.5	N	07/28/12	x	x				x	x
SCSD-511	Background	Sediment	SCSD-511-07282012	0 - 0.5	N	07/28/12	x	x				x	x
SCSD-512	Background	Sediment	SCSD-512-07282012	0 - 0.5	N	07/28/12	x	x				x	x
SCSD-513	Background	Sediment	SCSD-513-07312012	0 - 0.5	N	07/31/12	x	x				x	x
SCSD-513	Background	Sediment	SCSD-702-07312012FD	0 - 0.5	FD	07/31/12	x	x				x	x
SCSD-514	Background	Sediment	SCSD-514-07312012	0 - 0.5	N	07/31/12	x	x				x	x
SCSD-501	Upland	Sediment	SCSD-501-07282012	0 - 0.5	N	07/28/12	x	x	x	x	x	x	x
SCSD-502	Upland	Sediment	SCSD-502-07272012	0 - 0.5	N	07/27/12	x	x				x	x
SCSD-503	Upland	Sediment	SCSD-503-07272012	0 - 0.5	N	07/27/12	x	x				x	x
SCSD-504	Upland	Sediment	SCSD-504-07272012	0 - 0.5	N	07/27/12	x	x				x	x
SCSD-505	Upland	Sediment	SCSD-505-07282012	0 - 0.5	N	07/28/12	x	x				x	x
SCSD-506	Upland	Sediment	SCSD-506-07282012	0 - 0.5	N	07/28/12	x	x				x	x
SCSD-507	Upland	Sediment	SCSD-507-07282012	0 - 0.5	N	07/28/12	x	x				x	x
SCSD-509	Upland	Sediment	SCSD-509-07282012	0 - 0.5	N	07/28/12	x	x				x	x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
TOC = Total organic carbon, includes Method PSEP-TOC
Metals = includes Methods ICP-MS, ICP-AES

PAH = polycyclic aromatic hydrocarbons, methods CLP SOM01.2 SVOC/CLP SOM01.2 SVOC-SIM
PCBs = polychlorinated biphenyls
TPH = total petroleum hydrocarbon; includes Methods AK102/103
SEM = simultaneously extracted metals, method SW6010B
Particle size distribution = incudes method ASTM D422

N = normal environmental sample
FD = field duplicate sample
*Surface water sample analyzed as a sediment sample. Have not received corrected results from lab.

AES = atomic emission spectroscopy
ASTM = American Society for testing and materials
CLP = contract laboratory program
ICP = inductively coupled plasma
MS = mass spectrometry
PSEP = Puget Sound Estuary Protocols
SIM = selected iron monitoring
SVOC = semi-volatile organic compounds

Table A-8

2012 Background and Upland Surface Water Sample Information

Salt Chuck Mine

					Analyses			
						METALS		
Location ID	Area	Activity ID[1]	Sample Type	Sample Date	Hardness	Dissolved	Total	TPH
SCSW-510	Background	SCSW-510-07282012	N	7/28/2012	x	x	x	
SCSW-511	Background	SCSW-511-07282012	N	7/28/2012	x	x	x	
SCSW-512	Background	SCSW-512-07282012*	N	7/28/2012	x		x	
SCSW-513	Background	SCSW-513-07312012	N	7/31/2012	x	x	x	
SCSW-513	Background	SCSW-702-07312012FD	FD	7/31/2012	x	x	x	
SCSW-514	Background	SCSW-514-07312012	N	7/31/2012	x	x	x	
SCSW-515	Background	SCSW-515-07302012	N	7/30/2012	x	x	x	
SCSW-501	Upland	SCSW-501-07302012	N	7/30/2012	x	x	x	x
SCSW-501	Upland	SCSW-701-07302012FD	FD	7/30/2012	x	x	x	x
SCSW-502	Upland	SCSW-502-07272012	N	7/27/2012	x	x	x	
SCSW-503	Upland	SCSW-503-07272012	N	7/27/2012	x	x	x	
SCSW-504	Upland	SCSW-504-07272012	N	7/27/2012	x	x	x	
SCSW-505	Upland	SCSW-505-07282012	N	7/28/2012	x	x	x	
SCSW-506	Upland	SCSW-506-07282012	N	7/28/2012	x	x	x	
SCSW-507	Upland	SCSW-507-07282012	N	7/28/2012	x	x	x	
SCSW-508	Upland	SCSW-508-07282012	N	7/28/2012	x	x	x	
SCSW-509	Upland	SCSW-509-07282012	N	7/28/2012	x	x	x	

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.

Hardness = includes Method 2340B

Metals = includes Methods ICP-MS, ICP-AES, and Hg

TPH = total petroleum hydrocarbons, methods AK101 and AK102/103

N = normal environmental sample

FD = field duplicate

AES = atomic emission spectroscopy
Hg = mercury
ICP = inductively coupled plasma
MS = mass spectrometry

Table A-9
2012 Groundwater Sample Information
Salt Chuck Mine

Location ID	Activity ID[1]	Sample Type	Sample Date	Genchem	METALS Total	METALS Dissolved	PAH	TPH
GW-01	GW-01-07312012	N	7/31/2012	x	x	x	x	x
GW-02	GW-02-07312012	N	7/31/2012				x	x
GW-02	GW-02-08012012	N	8/1/2012					x
GW-03	GW-03-08012012	N	8/1/2012	x	x	x	x	x
GW-04	GW-04-08012012	N	8/1/2012	x	x	x	x	x
GW-05	GW-05-08012012	N	8/1/2012	x	x	x	x	x
GW-06	GW-06-08012012	N	8/1/2012	x	x	x	x	x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.

Genchem = general chemistry, includes methods 2320B, 2340B, and 300

Metals = includes methods ICP-MS, ICP-AES, and Hg

PAH = polycyclic aromatic hydrocarbons, methods CLP SOM01.2 SVOC/CLP SOM01.2 SVOC-SIM

TPH = total petroleum hydrocarbons, methods AK101 and AK102/103

N = normal sample

AES = atomic emission spectroscopy
CLP = contract laboratory program

Hg = mercury

ICP = inductively coupled plasma

MS = mass spectrometry
SIM = selected iron monitoring

Table A-10
2012 Intertidal Vegetation Sample Information
2012 Salt Chuck Mine

Area		Location ID	Activity ID[1]	Sample Type	Sample Date	% Moisture	Metals*
Intertidal	Salt Chuck Bay	SCIV-302-SA	SCIV-302-SA-20120801	N	8/1/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-304-SA	SCIV-304-SA-20120729	N	7/29/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-305-SA	SCIV-305-SA-20120729	N	7/29/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-306-SA	SCIV-306-SA-20120729	N	7/29/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-309-SA	SCIV-309-SA-20120729	N	7/29/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-312-SA	SCIV-312-SA-20120729	N	7/29/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-316-SA	SCIV-316-SA-20120801	N	8/1/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-318-SA	SCIV-318-SA-20120801	N	8/1/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-319-SA	SCIV-319-SA-20120801	N	8/1/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-320-SA	SCIV-320-SA-20120731	N	7/31/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-325-SA	SCIV-325-SA-20120731	N	7/31/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-327-SA	SCIV-327-SA-20120731	N	7/31/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-329-SA	SCIV-329-SA-20120731	N	7/31/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-330-SA	SCIV-330-SA-20120801	N	8/1/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-601-SA	SCIV-601-SA-20120729	N	7/29/2012	x	x
Intertidal	Salt Chuck Bay	SCIV-602-SA	SCIV-602-SA-20120801	N	8/1/2012	x	x
Reference	Browns Bay	SCIV-333-SA	SCIV-333-SA-20120802	N	8/2/2012	x	x
Reference	Browns Bay	SCIV-334-SA	SCIV-334-SA-20120802	N	8/2/2012	x	x
Reference	Browns Bay	SCIV-335-SA	SCIV-335-SA-20120802	N	8/2/2012	x	x
Reference	Browns Bay	SCIV-336-SA	SCIV-336-SA-20120802	N	8/2/2012	x	x
Reference	Browns Bay	SCIV-337-SA	SCIV-337-SA-20120802	N	8/2/2012	x	x
Reference	Browns Bay	SCIV-603-SA	SCIV-603-SA-20120802	N	8/2/2012	x	x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
Metals = includes Methods 6020 ICP/MS and 6010B ICP/SAS
N = normal environmental sample
*Metals results are reported as wet weight.

SAS = Atomic Emission Spectrometry
ICP = inductively coupled plasma
MS = mass spectrometry

Table A-11
2012 Upland Vegetation Sample Information
2012 Salt Chuck Mine

Area		Location ID	Activity ID[1]	Sample Type	Sample Date	% Moisture	Metals*
Upland	Upland	SCUV-337-ALD	SCUV-337-ALD-20120802	N	8/2/2012	x	x
Upland	Upland	SCUV-337-CRAB	SCUV-337-CRAB-20120802	N	8/2/2012	x	x
Upland	Upland	SCUV-337-HUCK	SCUV-337-HUCK-20120802	N	8/2/2012	x	x
Upland	Upland	SCUV-337-HUCKB	SCUV-337-HUCKB-20120802	N	8/2/2012	x	x
Upland	Upland	SCUV-337-SALB	SCUV-337-SALB-20120802	N	8/2/2012	x	x
Upland	Upland	SCUV-337-SKNK	SCUV-337-SKNK-20120802	N	8/2/2012	x	x
Upland	Upland	SCUV-501-ALD	SCUV-501-ALD-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-502-ALD	SCUV-502-ALD-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-502-HUCK	SCUV-502-HUCK-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-502-HUCKB	SCUV-502-HUCKB-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-503-CRAB	SCUV-503-CRAB-20120801	N	8/1/2012	x	x
Upland	Upland	SCUV-503-SKNK	SCUV-503-SKNK-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-504-ALD	SCUV-504-ALD-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-504-SALB	SCUV-504-SALB-20120729	N	7/29/2012	x	x
Upland	Upland	SCUV-701-ALD	SCUV-701-ALD-20120729	N	7/29/2012	x	x
Reference	Lake No. 3	SCUV-515-ALD	SCUV-515-ALD-20120730	N	7/30/2012	x	x
Reference	Lake No. 3	SCUV-515-BB	SCUV-515-BB-20120730	N	7/30/2012	x	x
Reference	Lake No. 3	SCUV-515-CRAB	SCUV-515-CRAB-20120730	N	7/30/2012	x	x
Reference	Lake No. 3	SCUV-515-HUCK	SCUV-515-HUCK-20120730	N	7/30/2012	x	x
Reference	Lake No. 3	SCUV-515-SALB	SCUV-515-SALB-20120730	N	7/30/2012	x	x
Reference	Lake No. 3	SCUV-515-SKNK	SCUV-515-SKNK-20120730	N	7/30/2012	x	x
Reference	Boardwalk Lodge	SCUV-901-HUCKB	SCUV-901-HUCKB-20120801	N	8/1/2012	x	x

Notes:

[1]Activity ID is a combination of the sample ID, date sampled and sample type if field duplicate.
Metals = includes Methods 6020 ICP/MS and 6010B ICP/SAS
N = normal environmental sample
*Metals results are reported as wet weight.

SAS = Atomic Emission Spectrometry
ICP = inductively coupled plasma
MS = mass spectrometry

Appendix B
2012 Field Parameter Readings

Table B-1
Water Quality Parameter Readings - 2012 Salt Chuck Investigation

	Turbidity	Temp	pH	Cond.	DO	ORP	Salinity
GW-01	116	-	5.75	0.127	0	67	-
GW-02	7.4	11.52	5.6	0.0135	2.15	206	-
GW-03	19.9	12.22	6.25	0.216	0	17	-
GW-04[a]	-	13.51	6.68	0.317	1.07	-78	-
GW-05	203	14.02	6.58	0.24	0	50	0.01
GW-06	-	12.86	6.45	0.087	4.7	135	-
SCSW-102	-	13.37	5.73	264	-	-	0.01
SCSW-501	-	14.6	6.27	50	11.56	-	0
SCSW-502	-	16.29	5.93	32	10.7	-	0
SCSW-503	-	-	6.3	50	9.97	-	0
SCSW-504	-	-	6.24	71	9.66	-	0
SCSW-505	-	15.8	7.42	41	9.98	-	0
SCSW-506	-	11.2	7.2	56	12.8	-	0
SCSW-507	-	16.3	7.03	43	11.2	-	0
SCSW-508	-	5.42	6.57	266	14.09	-	0
SCSW-509	-	18.2	7.22	41	11.5	-	0
SCSW-510	-	18.63	6.84	39	11.96	-	0
SCSW-511	-	19.6	6.91	37	10.9	-	0
SCSW-512	-	20.5	7.3	39	10.9	-	0
SCSW-513	-	14.29	5.73	1020	10.24	-	0.05
SCSW-514	-	13.16	6.31	703	9.98	-	0.03
SCSW-515	-	18.1	6.9	52	11.1	-	0

[a] Sampler noted Turbidity and DO errors in the field