Salt Chuck Mine – Preliminary Findings for Pre-Remedial Investigation 2011 Field Sampling Activities

DATE: May 7, 2012

Statement to add to first page of the 2011 data report:

> *This memorandum is intended to provide a broad overview of the results of the 2011 field investigation. The screening levels and certain analytical data reported 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 2011 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 Pre-Remedial Investigation 2011 Field Sampling Activities

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DATE: May 7, 2012

1. Introduction

This technical memorandum has been prepared by CH2M HILL to provide preliminary findings from the pre-Remedial Investigation (pre-RI) field sampling activities conducted on August 28th through August 31st, 2011 at Salt Chuck Mine in the Tongass National Forest, Alaska under EPA Contract No. 68-S7-04-01. The intent of this document is not to provide detailed analysis and interpretation of data, which will be included in the remedial investigation report after additional data have been collected, but to present a summary of the field activities and to provide a brief overview of surface water, sediment/tailings, bivalve tissue, and bioassay results in relation established screening levels as well as to historic data.

2. Summary of Field Investigation Activities

Field investigation activities were conducted in accordance with the Quality Assurance Project Plan (QAPP), Salt Chuck Mine Intertidal Area, Marine Operable Unit, Tongass National Forest, Alaska (CH2M HILL, 2011) with a few deviations as discussed in this section. Activities included the collection of surface water, sediment/tailings, and bivalve tissue samples from the intertidal area.

Surface (0 to 0.5 ft) and subsurface (2 to 3 ft) sediment/tailings, surface water, and bivalve tissue samples were collected according to the QAPP with the exception of a few deviations. The following is a list of the major deviations from the QAPP. Actual sample locations for some samples may have deviated from the locations proposed in the QAPP, due to site accessibility and/or availability of bivalves. Actual sample locations are presented in Figures 1-1 and 1-2.

- Neither of the two proposed subsurface sediment/tailings samples from 4-5 foot depth were collected because of inability to reach the target depth with the available manual sampling tools .
- Two new surface sediment locations (SCSD-224 and SCSD-227) were added west of the north end of Unnamed Island for further evaluation of the nature and extent of potential contamination.

- Of the 18 bivalve tissue sample locations (where two species were to be targeted for collection), 12 only had one bivalve species available for collection, 2 had two bivalve species (as the plan intended), and four had three species available for collection. At the locations where three species were available, samples of all three species were collected to help compensate for the lack of species at other locations.
- Blue mussels were eliminated as a potential sampling species because they were generally not in contact with sediment and were of minimal size. Cockles were added to the potential target species list as an alternative, where available.
- In the event limited bivalve tissue sample volume was available, samples were tested for only selected analyses in the following order of priority from most to least important: 1) metals (except mercury), 2) mercury, 3) polychlorinated biphenyls (PCBs), 4) polycyclic aromatic hydrocarbons (PAHs), and 5) percent lipids. Metals were analyzed for in all 33 tissue samples, whereas PCBs, PAHs, and lipids were analyzed for in 27 of the 33 tissue samples.

3. Preliminary Findings of the Pre-RI

Attachments A, B, C, D, and E include summary data tables for sediment/tailings, bivalve tissue, surface water, leachate, and bioassay samples, respectively. For the purposes of this Technical Memorandum, concentrations in each of these media are compared to conservative effects-based screening levels to provide an initial perspective for identifying the nature and extent of contamination. The comparison results are not intended to infer the existence of definitive 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.

Sediment/tailings sample results were compared to the NOAA Effects Range Low (ERL) and Effects Range Medium (ERM) marine benchmarks (Long et al., 1995; Buchman, 2008). Bivalve tissue concentrations were compared to the lower of the two (carcinogenic vs. noncancer) USEPA Region 3 Fish Tissue Screening Levels (USEPA 2011). Surface water concentrations were compared to ambient water quality criteria (AWQC) (ADEC 2008, 2006; USEPA 2004; USEPA 1986; Buchman 2008). Detailed sources of AWQC are included in Table C-2.

In addition to comparison with the screening criteria, results for up to ten samples with the highest detected concentrations above the associated screening criteria for each constituent are also compared to the historical data at the corresponding sample locations. This was done to meet DQO 1.

The following is a list of the preliminary findings from the 2011 pre-RI sampling activities:

Sediment/Tailings

ERL and/or ERM marine benchmarks were exceeded for four metals (arsenic, copper, mercury, and silver) and two low-molecular weight polycyclic aromatic hydrocarbons (PAHs) (anthracene and phenanthrene), as indicated in Appendix A. These are each described in the following bullets:

- Arsenic levels slightly exceeded the ERL (but not the ERM) at only two of the 57 locations sampled. One location (SCSD-113) was near the mouth of Ellen Creek and the other (SCSD-131) on the east side of Unnamed Island beyond the tailings pile.
- Copper represents the metal with the most exceedances of screening levels, and by the highest magnitude. Of the 57 locations sampled for sediment/tailings, copper levels exceeded the ERL at 29 locations and exceeded the ERM at 18 locations. The ERL was exceeded by a factor of up to 64-fold, and the ERM was exceeded by a factor of up to 8-fold (maximum copper was 2,170 mg/kg at location SCSD-106). Exceedances were generally observed in areas near the tailings with a couple of exceedances extending to approximately mid-way on both the eastern and western end of Unnamed Island. There was also a slight exceedance at one sample location at the southern end of Salt Chuck Bay (SCSD-138).
- Mercury levels exceeded both the ERL and the ERM at only two of the 57 locations sampled. These two locations were where tailings were sampled (location SCSD-106 also had the maximum copper concentration). There were no exceedances observed for the sediment samples.
- Silver levels slightly exceeded the ERL (but not the ERM) at only two of the 57 locations sampled. These two locations were where tailings were sampled (location SCSD-106 also had the maximum copper concentration). There were no exceedances observed for the sediment samples.
- PAHs were generally below the marine screening benchmarks with the exception of one tailing sample (location SCSD-105), with detected anthracene and phenanthrene and calculated total low molecular weight PAH slightly exceeding the ERL (but below the ERM).
- PCBs were generally not detected in the sediment/tailing samples. The method reporting limits were below the ERM, but were not below the ERL.

Comparison to Historic Sediment/Tailings Data – Comparison of the highest ten concentrations where screening level exceedances occurred in 2011 with historical data indicated that the percent difference from the historical data ranged from -72 percent to +5,300 percent. The 2011 results were generally higher than the historical concentrations (with an average percent difference of +393%. For copper, some of the difference may be attributed to different analysis methods as the older data were analyzed using X-ray fluorescence methodology. Also, historic data sample locations were estimated, rather than based on actual X-Y coordinates. Therefore, this comparison is to be considered approximate.

Bivalve Tissue

Screening criteria for five metals (arsenic, cobalt, copper, iron, and thallium) and three high-molecular weight PAHs (benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were exceeded, as indicated in Appendix B. These are each described in the following bullets:

- Arsenic concentrations in bivalve tissue exceeded the screening level in all samples (including background), with exceedances ranging from 667- to 3,105-fold. However, the

screening level is very conservative due to the assumption that all arsenic is in the toxic inorganic form. Most likely, less than 10 percent of the total arsenic is inorganic.

- Cobalt, copper, and iron were detected in all bivalve tissue samples. Of the 31 tissue samples collected, concentrations of cobalt, copper, and iron exceeded the screening level in 4, 3, and 6 samples, respectively. The maximum exceedances were approximately 4-, 2-, and 9-fold, respectively. Exceedances were only observed for softshell clams that were collected closest to the mine site.
- Thallium was detected in 11 of the 31 bivalve tissue samples collected. The screening level exceedances ranged from 2- to 3.6-fold. Since the maximum concentrations were detected at both the southern end of Unnamed Island and at the reference area, these exceedances are not likely mine-related.
- PAHs were detected in 8 of the 25 bivalve tissue samples where they were analyzed. These detections were at locations closest to the mine site, and 2 samples collected in or near the vicinity of tailings slightly exceeded the screening criterion, with a maximum exceedance factor of less than 2-fold.
- PCBs were not detected in any bivalve tissue samples but the method reporting limits were above the screening criterion.

Comparison to Historic Tissue Data – Limited bivalve tissue samples were available for comparison to historical data due to limited tissue sample volumes available at the historical sample locations. Moreover, some of the historical sample locations did not exactly coincide with the 2011 locations if the recent ones were relocated. Comparison of the highest concentrations where screening level exceedances occurred in 2011 with historical data indicated that the percent difference from the historical data ranged from -36 percent to -80 percent.

Surface Water

Copper was the only metal with concentrations detected slightly above the marine ambient water quality criterion (WQC), as indicated in Appendix C. Total copper concentrations were exceeded in both surface water samples and dissolved concentration was only slightly exceeded in the surface water sample collected from Lake Ellen Creek.

Leachate

As indicated in Appendix D, copper and selenium concentrations consistently exceeded the associated WQC at all 7 locations tested. The zinc concentration also exceeded the WQC in one leachate sample (from location SCSD-106). Maximum exceedances were approximately 29-, 2-, and 2-fold for copper, selenium, and zinc, respectively.

Sediment Bioassay

The results of the sediment toxicity tests (bioassays) conducted on samples from locations SCSD-105 (tailings), SCSD-106 (tailings), and SCSD-153 (from reference area) are summarized in Appendix E. The results indicate that there was significant toxicity measured at location SCSD-106 (tailings) using both polychaetes and bivalves as test organisms. This is the location where the maximum copper concentration was detected in tailings during 2011. No toxicity was seen

for any sample using amphipods as test organisms, whereas some minor toxicity in bivalves was noted at locations SCSD-105 (tailings), and SCSD-153 (from reference area). These results confirm that polychaetes and bivalves are suitable bioassay test organisms for detecting toxicity in sediments at the site. Amphipods do not appear to be adequately sensitive enough for the types of contaminants found at the site.

4. Conclusions

Pre-RI activities included the collection of surface water, sediment/tailings, and bivalve tissue samples from the intertidal area to support the evaluation of the four Data Quality Objectives (DQOs), as outlined in the QAPP. These DQOs and a brief discussion of how they were accomplished during the pre-RI are discussed below:

DQO 1: Verification of Previous Investigation Results – Evaluate whether current concentrations in environmental media (sediment, water, and biota) at the site are consistent with historical data. Data representing current conditions are required to characterize potential risks to human health and the environment and to support a remedial decision.

> The 2011 pre-RI data did not compare well with the historic data collected at the site. The reasons for this could include 1) the lack of X-Y coordinates to allow exact location of historic samples, 2) temporal changes in concentrations, 3) analytical variances, and/or 4) differences in sampling or analytical methods. The 2011 and upcoming 2012 investigation results are anticipated to provide sufficient density and coverage of characterization data to provide reliable risk management decisions for the site.

DQO 2: Investigation of Methods for Characterization of Risk to Marine Aquatic and Benthic Resources – Some methods used to characterize risk to marine aquatic and benthic resources might not be suitable to adequately characterize potential risks to marine aquatic or benthic resources and/or to support a remedial decision, thus there is a need to evaluate methods to further evaluate potential characterization approach.

> Additional methods were evaluated to determine whether they can be used to better characterize risks to marine aquatic and benthic resources and/or to support a remedial decision. Of the 3 test organisms used for bioassay testing, two (polychaetes and bivalves) were found to be adequately sensitive to detect toxicity for the types of contaminants found at the site. The amphipod test will not be carried forward for testing in 2012.
>
> Use of the modified synthetic precipitate leaching procedure (SPLP) did not provide results that are expected to provide a strong line of evidence of elevated leaching of metals from mine tailings, and will therefore not be continued during the 2012 testing. Other methods (e.g., surface water analyses) should provide sufficient evidence of any leaching that may be occurring.

DQO 3: Evaluation of Background Concentrations – Insufficient data representing naturally occurring concentrations of metals exist to allow for reliable comparison between background and contamination from the Salt Chuck Mine site, thus there is a need to collect additional metals data.

> The background (reference area) data sets from 10 sediment locations and 7 bivalve tissue samples are provided in Appendices A and B. These data indicate relatively even concentrations across the background area, with levels significantly lower than mine site sediment/tailings. Based on these results, the selected background area is deemed to be good for characterizing natural conditions in lieu of significant mining activities. Additional background sampling is needed in 2012 to provide a more robust data set that will allow for statistical comparison with mine site samples.

DQO 4 – Evaluation of Nature and Extent of Contamination – The nature and extent of contamination is not adequately defined to characterize potential risks to human health or the environment and/or to support a remedial decision, thus there is a need to obtain additional data to characterize nature and extent

> The 2011 pre-RI data provided a general broad-scale delineation of the nature and extent of contamination, as well as a clearer understanding of which contaminants are likely of greatest concern. Given the findings and the screening level exceedances described herein, additional sampling will be needed to delineate the contamination on a smaller scale, as well as characterization of the vertical extent of contamination.

5. References

ADEC. 2006. 18 AAC 70, Water Quality Standards. As amended through December 28. Alaska Department of Environmental Conservation.

ADEC. 2008. *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*. As amended through December 12. Alaska Department of Environmental Conservation.

Buchman, M.F., 2008. *NOAA Screening Quick Reference Tables*. NOAA OR&R Report 08-1, National Oceanic and Atmospheric Administration, Office of Response and Restoration Division, Seattle, Washington, 34 pages.

CH2M HILL, 2011. *Quality Assurance Project Plan Salt Chuck Mine Intertidal Area, Marine Operable Unit Tongass National Forest, Alaska*, Prepared for U.S. Environmental Protection Agency Region 10. July.

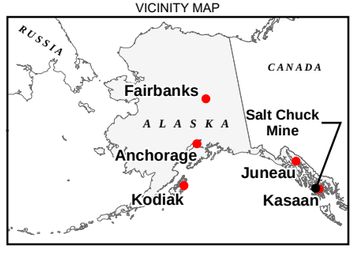
EPA. 1986. *Quality Criteria for Water*. EPA 440/5-85-001. U.S. Environmental Protection Agency, Office of Water Regulations and Standards, Washington, DC. May 1.

EPA. 2004. National *Recommended Water Quality Criteria*. U.S. Environmental Protection Agency, Office of Water.

EPA. 2011. *Regional Screening Level Fish Ingestion Summary Table.* June 2011. Available online: http://www.epa.gov/reg3hscd/risk/human/index.htm.

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management*. 19(1):81-97.

VICINITY MAP



LEGEND

- 2011 Sediment or Tailing Sample Location
- 2011 Surface Water Sample Location

SCSD-115 Label Style – Indicates a non-Tissue Sample Location

SCTISS-115 Label Style – Indicates a Tissue Sample Location

SCTISS-115 Label Style – Indicates a Surface Water Sample Location

N

0 375 750

Feet

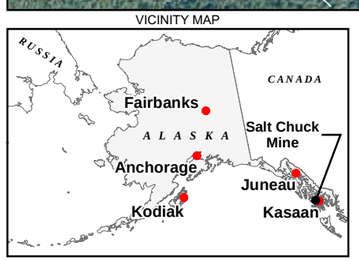
Notes:
(1) Aerial photography courtesy US Census Bureau; approximate date 2006. NAD83, UTM Zone 8N, Meters. Pixel size 1 meter.
(2) Contour Interval: 100 feet.
(3) This is a draft map based on preliminary analyses of field data collected in September 2011. Sample locations and classifications are inexact.

Figure 1-1
2011 Sample Locations
Salt Chuck Mine
Tongass National Forest, Alaska

CH2MHILL

ANC \\MINER\PROJ\EPA\421566SALTCHUCK\GIS\MAPFILES\FIG1-1_ACTUAL_2011_SAMPLE_LOCATION.MXD SRUDOLPH 4/2/2012 4:00:03 PM

VICINITY MAP



LEGEND

SCSD-115 Label Style – Indicates a non-Tissue Sample Location

2011 Sediment or Tailing Sample Location

SCTISS-115 Label Style – Indicates a Tissue Sample Location

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) Contour Interval: 100 feet.
(3) This is a draft map based on preliminary analyses of field data collected in September 2011. Sample locations and classifications are inexact.

Figure 1-2
2011 Reference Sample Locations
Salt Chuck Mine
Tongass National Forest, Alaska

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Appendix A Sediment Tables

Table A-1

Sediment/Tailings Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

						Chem Groups (EPA Sample ID)					
Location ID	**Media**	**Activity ID[1]**	**Depth (feet)**	**Sample Type**	**Sample Date**	**GENERAL**	**METALS**	**PAH**	**PCB**	**TPH**	**Grain Size**
SCSD-101	Tailings	SCSD-101-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354500	MJE8B4	JE8B4	JE8B4		
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354502	MJE8B5	JE8B5	JE8B5		
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354546	MJE8E8	JE8E8	JE8E8		
SCSD-103	Sediment	SCSD-158-0-0.5-08302011FD	0 - 0.5	FD	8/30/2011	11354574	MJE8H0	JE8H0	JE8H0		
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354503	MJE8B6	JE8B6	JE8B6		
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354509	MJE8B7	JE8B7	JE8B7		11354507
SCSD-105	Tailings	SCSD-105-2-3-08292011	2 - 3	N	8/29/2011	11354511	MJE8B8	JE8B8	JE8B8		
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354515	MJE8B9	JE8B9	JE8B9	11354506	11354513
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354547	MJE8E9	JE8E9	JE8E9		
SCSD-107	Sediment	SCSD-157-0-0.5-08302011FD	0 - 0.5	FD	8/30/2011	11354572	MJE8G9	JE8G9	JE8G9		
SCSD-107	Tailings	SCSD-107-2-3-08282011	2 - 3	N	8/28/2011	11354516	MJE8C0	JE8C0	JE8C0		
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354517	MJE8C1	JE8C1	JE8C1		
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354518	MJE8C2	JE8C2	JE8C2		
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354519	MJE8C3	JE8C3	JE8C3		
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354520	MJE8C4	JE8C4	JE8C4		
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354521	MJE8C5	JE8C5	JE8C5		
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354522	MJE8C6	JE8C6	JE8C6		
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354523	MJE8C7	JE8C7	JE8C7		
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354524	MJE8C8	JE8C8	JE8C8		
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354525	MJE8C9	JE8C9	JE8C9		
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354549	MJE8F0	JE8F0	JE8F0		
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354550	MJE8F1	JE8F1	JE8F1		
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354551	MJE8F2	JE8F2	JE8F2		
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354552	MJE8F3	JE8F3	JE8F3		
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354553	MJE8F4	JE8F4	JE8F4		
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354555	MJE8F5	JE8F5	JE8F5		
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354527	MJE8D0	JE8D0	JE8D0		
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354528	MJE8D1	JE8D1	JE8D1		
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354556	MJE8F6	JE8F6	JE8F6		
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	0 - 0.5	FD	8/30/2011	11354575	MJE8H1	JE8H1	JE8H1		
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354529	MJE8D2	JE8D2	JE8D2		
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354530	MJE8D3	JE8D3	JE8D3		
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354531	MJE8D4	JE8D4	JE8D4		
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354532	MJE8D5	JE8D5	JE8D5		
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354533	MJE8D6	JE8D6	JE8D6		
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354535	MJE8D7	JE8D7	JE8D7		
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	0 - 0.5	FD	8/29/2011	11354545	MJE8E7	JE8E7	JE8E7		
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354536	MJE8D8	JE8D8	JE8D8		
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	0 - 0.5	N	8/31/2011	11354605	MJE8H8	JE8H8	JE8H8		
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354537	MJE8D9	JE8D9	JE8D9		
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	0 - 0.5	N	8/31/2011	11354604	MJE8H7	JE8H7	JE8H7		
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354538	MJE8E0	JE8E0	JE8E0		
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354539	MJE8E1	JE8E1	JE8E1		
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354540	MJE8E2	JE8E2	JE8E2		
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	0 - 0.5	N	8/31/2011	11354603	MJE8H6	JE8H6	JE8H6		
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354541	MJE8E3	JE8E3	JE8E3		

Table A-1

Sediment/Tailings Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

						Chem Groups (EPA Sample ID)					
Location ID	**Media**	**Activity ID[1]**	**Depth (feet)**	**Sample Type**	**Sample Date**	**GENERAL**	**METALS**	**PAH**	**PCB**	**TPH**	**Grain Size**
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	0 - 0.5	N	8/29/2011	11354542	MJE8E4	JE8E4	JE8E4		
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354543	MJE8E5	JE8E5	JE8E5		
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354544	MJE8E6	JE8E6	JE8E6		
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354557	MJE8F7	JE8F7	JE8F7		
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354558	MJE8F8	JE8F8	JE8F8		
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354559	MJE8F9	JE8F9	JE8F9		
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354560	MJE8G0	JE8G0	JE8G0		
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354561	MJE8G1	JE8G1	JE8G1		
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354562	MJE8G2	JE8G2	JE8G2		
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354563	MJE8G3	JE8G3	JE8G3		
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354564	MJE8G4	JE8G4	JE8G4		
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	0 - 0.5	FD	8/30/2011	11354577	MJE8H3	JE8H3	JE8H3		
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354565	MJE8G5	JE8G5	JE8G5		
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	0 - 0.5	FD	8/30/2011	11354576	MJE8H2	JE8H2	JE8H2		
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354566	MJE8G6	JE8G6	JE8G6		11354568
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354570	MJE8G7	JE8G7	JE8G7		
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354571	MJE8G8	JE8G8	JE8G8		
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	0 - 0.5	N	8/31/2011	11354602	MJE8H5	JE8H5	JE8H5		
SCSD-227	Sediment	SCSD-227-0-0.5-08312011	0 - 0.5	N	8/31/2011	11354601	MJE8H4	JE8H4	JE8H4		

Notes:

[1]Activity ID is a combination of the location, depth, date sampled and sample type if field duplicate.
GENERAL = Includes Methods PSEP-TOC
METALS = includes Methods SW6010B, CV, ICP-MS, ICP-AES
PCB = polychlorinated biphenyls; includes Method E608
PAH = Polycyclic aromatic hydrocarbons; includes Method E625
TPH = total petroleum hydrocarbon; includes Methods AK102/103
PARTICLE SIZE DISTRIBUTION = incudes method ASTM D422

N = normal environmental sample
FD = field duplicate sample

Table A-2

Sediment/Tailings Sample Results, Metals and TOC (mg/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Total Organic Carbon	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Marine benchmarks:														
Effects range low (ERL)						*NE*	*NE*	*NE*	*8.2*	*NE*	*NE*	*1.2*	*NE*	*81*
Effects range medium (ERM)						*NE*	*NE*	*NE*	*70*	*NE*	*NE*	*9.6*	*NE*	*370*
SCSD-101	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	7,060	4,510	1.1 U	1.2 J	5.6 U	0.56 U	0.56 U	1,990	2.9 J
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	2,970	4,900	1.2 U	1.2 J	10.1	0.58 U	0.58 U	1,900	2.9 J
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	34,300	8,460	1.5 U	4.8 J	8.1 J	0.76 U	0.76 U	3,820 J	7.4 J
SCSD-103	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	39,400	7,760	1.9 U	6.9 J	9.3 UJ	0.93 U	0.93 U	5,520 J	9.9 J
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	825	6,250	1.1 U	1.2 J	8.6	0.54 U	0.54 U	2,480	3.5 J
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	534	6,760	1.2 U	1.4 J	11.7	0.58 U	0.58 U	13,300	3 J
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	379	10,400	1.1 U	1.4	16	0.57 U	0.57 U	23,400	5.5
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	3,130	5,490	1.2 U	2.1 J	12	0.61 U	0.61 U	2,720	5 J
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	244	4,950	1.2 U	0.6 J	9.4 J	0.58 U	0.58 U	2,410 J	2.8 J
SCSD-107	Tailings	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	310	5,470	0.99 U	0.5 UJ	5.8 J	0.5 U	0.5 U	2,420 J	2.1 J
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	290 U	4,140	1.1 U	0.59 J	18.8	0.54 U	0.54 U	1,990	2.4 J
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	1,360	5,330	1.2 U	1.3 J	14	0.58 U	0.58 U	3,380	3 J
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	5,020	7,010	1.3 U	2.2 J	12	0.66 U	0.66 U	3,660	4 J
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	8,160	4,140	1.3 U	2.2 J	9.1	0.64 U	0.64 U	1,870	3.5 J
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	4,590	4,740	1.2 U	1.9 J	7.2	0.6 U	0.6 U	3,660	3.8 J
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	2,360	7,440	1.1 U	2.3 J	11.9	0.56 U	0.56 U	6,700	3.6 J
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	21,000	8,060	1.3 U	**9.1 J**	8.9	0.66 U	0.66 U	4,350	16.8 J
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	7,690	7,610	1.1 U	3.4 J	5.7 U	0.57 U	0.57 U	2,430	10.2 J
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	17,600	6,850	1.3 U	5.3 J	7.7	0.66 U	0.66 U	2,820	9.3 J
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	14,400	9,720	1.1 U	4.3 J	8.2	0.56 U	0.56 U	3,030	15.8 J
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	2,460	4,550	0.87 U	1.6 J	5.2 J	0.43 U	0.43 U	2,550 J	2.6 J
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	9,480	7,030	1.2 U	2.4 J	11.2 J	0.6 U	0.6 U	4,180 J	4.3 J
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	5,580	5,740	1.2 U	2.2 J	8.7 J	0.61 U	0.61 U	2,620 J	4 J
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	11,800	7,620	1.2 U	2.2 J	7.2 J	0.6 U	0.6 U	3,530 J	9.6 J
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	6,270	6,200	1.2 U	1.9 J	11.1 J	0.59 U	0.59 U	11,300 J	3.5 J
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	3,320	4,510	1.1 U	1.4 J	6.9 J	0.53 U	0.53 U	74,200 J	3.3 J
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	10,000	7,850	1.2 U	2.5 J	5.8 U	0.58 U	0.58 U	2,990	12.2 J
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	7,980	5,760	1.2 U	4.2 J	9.8	0.62 U	0.62 U	24,600	10.1 J
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	5,370	7,190	1.1 U	2.6 J	6.1 J	0.56 U	0.56 U	22,800 J	7.4 J
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	4,760	6,090	1.1 U	2.5 J	5.4 UJ	0.54 U	0.54 U	12,700 J	6.6 J
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	16,400	5,690	1.1 U	4.2 J	5.3 U	0.53 U	0.53 U	2,400	10.1 J
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	13,300	5,260	1.2 U	2.7 J	7.8	0.59 U	0.59 U	22,500	6.9 J
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	19,800	8,770	1.3 U	3.2 J	6.4 U	0.64 U	0.64 U	10,800 J	7.9
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	40,600	9,830	1.5 U	5.8 J	7.6 U	0.76 U	0.76 U	4,120 J	14.1
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	3,400	4,740	1.3 U	1.6 J	9.3	0.63 U	0.63 U	3,740 J	3.5
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	19,400	7,320	1.1 U	**13.2 J**	8.3	0.55 U	0.55 U	3,380 J	11.4
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	15,000	7,490	1.2 U	**9.3 J**	6.1	0.59 U	0.59 U	3,450 J	9.5
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	16,000	5,060	1.2 U	3.3 J	9	0.61 U	0.61 U	45,900 J	6.6
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	7,940	5,640	1.2 U	2.7 J	7.2 J	0.59 U	0.59 U	39,100 J	6.3 J
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	5,480	5,810	1.2 U	2.4 J	11	0.61 U	0.61 U	38,200 J	9.7
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	7,030	2,200	1.2 U	1.4 J	21.9 J	0.62 U	0.62 U	163,000 J	3.7 J
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	8,670	5,450	1.3 U	5.2 J	9.3	0.66 U	0.66 U	70,500 J	6.7
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	2,890	7,380	1.1 U	2.2 J	5.3 U	0.53 U	0.53 U	10,200 J	8.2
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	9,750	7,900	1.3 U	2.7 J	8.5	0.64 U	0.64 U	48,600 J	10.1
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	9,210	3,480	1.2 U	1.6 J	15 J	0.58 U	0.58 U	75,900 J	10.6 J
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	4,790	10,300	1 U	4.8 J	17.4	0.52 U	0.52 U	3,790 J	20.9
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	16,400	7,580	1.1 U	3 J	5.3 U	0.53 U	0.53 U	3,040 J	9.3
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	13,500	6,630	1 U	2.5 J	5.2 U	0.52 U	0.52 U	2,260 J	8.4
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	15,500	5,930	1.3 U	2.6 J	6.4 U	0.64 U	0.64 U	20,500 J	8.1
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	25,400	6,710	1.1 U	2 J	5.6 UJ	0.56 U	0.56 U	4,000 J	8.2 J
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	61,200	3,710	0.98 U	2.1 J	4.9 UJ	0.49 U	0.49 U	2,530 J	7.6 J
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	12,700	5,470	1.1 U	2.1 J	9 J	0.56 U	0.56 U	43,900 J	6.7 J
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	9,310	7,120	0.85 U	2.2 J	4.3 UJ	0.43 U	0.43 U	2,180 J	6.3 J
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	9,990	3,830	1.1 U	1.8 J	9 J	0.55 U	0.55 U	14,600 J	6.5 J

Table A-2

Sediment/Tailings Sample Results, Metals and TOC (mg/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Total Organic Carbon	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Marine benchmarks:														
Effects range low (ERL)						*NE*	*NE*	*NE*	*8.2*	*NE*	*NE*	*1.2*	*NE*	*81*
Effects range medium (ERM)						*NE*	*NE*	*NE*	*70*	*NE*	*NE*	*9.6*	*NE*	*370*
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	7,830	5,450	1.1 U	3.4 J	6.4 J	0.57 U	0.57 U	18,800 J	7.3 J
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	23,900	7,340	1.1 U	5.1 J	5.6 UJ	0.56 U	0.56 U	2,260 J	7.7 J
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	24,500	7,320	1.1 U	3.6 J	5.6 UJ	0.56 U	0.56 U	2,930 J	6.7 J
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	37,700	6,420	1.5 U	3.1 J	7.6 UJ	0.76 U	0.76 U	4,860 J	8 J
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	7,530	7,740	0.98 U	3.1 J	7.5 J	0.49 U	0.49 U	15,700 J	8.8 J
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	9,050	6,060	1.1 U	2.4 J	5.3 UJ	0.53 U	0.53 U	14,200 J	7.2 J
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	31,400	6,670	1.2 U	5.9 J	6.1 UJ	0.61 U	0.61 U	3,170 J	8.4 J
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	7,290	5,970	1.4 U	2 J	8.3 J	0.69 U	0.69 U	105,000 J	5.8 J
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	9,920	3,190	1.3 U	2.2 J	11.4 J	0.65 U	0.65 U	149,000 J	5.4 J
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	12,300	4,500	1.4 U	3.3 J	7.4 J	0.68 U	0.68 U	45,200 J	7.5 J
SCSD-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	7,220	3,280	1.1 U	2.5 J	9.1 J	0.54 U	0.54 U	68,600 J	4.6 J

Notes:

TOC = Total Organic Carbon
mg/kg = milligrams per kilogram
N = normal sample
FD = field duplicate sample
NE = Not Established

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.

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

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

Table A-2

Sediment/Tailings Sample Results, Metals and TOC (mg/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium
Marine benchmarks:																	
Effects range low (ERL)						*NE*	*34*		*46.7*	*NE*	*NE*	*0.15*	*20.9*	*NE*	*NE*	*1*	*NE*
Effects range medium (ERM)						*NE*	*270*		*218*	*NE*	*NE*	*0.7*	*51.6*	*NE*	*NE*	*3.7*	*NE*
SCSD-101	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	21.3 J	**641**	38,400	4	5,480	315 J	**2.7**	11.7 J	453 U	2.8 UJ	0.56 U	401 J
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	22.9 J	**895**	43,900	1.8	6,050	296 J	0.04 J	12.7 J	599 U	2.9 UJ	0.58 U	1,540
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	14.2 J	**260 J**	33,100	3.1	8,480	300 J	0.06 J	10.4 J	854	3.8 U	0.76 U	5,910
SCSD-103	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	14.5 J	**428**	33,400	3.9	8,250	295	0.08 J	11.4 J	893 U	4.6 U	0.93 U	6,580 J
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	24.4 J	**882**	44,400	2.2	7,230	321 J	0.09 J	13.4 J	513 U	2.7 UJ	0.54 U	347 J
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	22.2 J	**1,910**	33,700	0.94	8,130	429 J	0.09 J	13.2 J	595 U	2.9 UJ	0.68	771
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	41.9 J	**980**	56,000	1	13,100	705 J	0.08 J	20.9	676	144 UJ	**1.1**	1,570
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	24.6 J	**2,170**	51,600	32.6	6,800	333 J	**0.96**	14.8 J	608 U	3 UJ	**1.1**	1,890
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	16.3 J	**1,090 J**	32,500	2.1	6,090	229 J	0.02 J	8.5 J	519 U	2.9 U	0.58 U	1,040
SCSD-107	Tailings	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	10.4 J	**1,100**	28,200	1.5	6,920	177	0.02 J	5.3 J	546 U	2.5 U	0.5 U	1,080 J
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	21.8 J	**1,190**	26,200	1.8	5,640	313 J	0.04 J	10.6 J	542 U	2.7 UJ	0.54 U	1,610
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	25.5 J	**858**	34,300	0.98	6,910	378 J	0.11 J	13.9 J	526	2.9 UJ	0.58 U	1,730
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	23.3 J	**815**	42,500	1.8	8,320	331 J	0.05 J	13 J	582	3.3 UJ	0.66 U	2,630
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	21 J	**609**	32,400	2.7	5,280	265 J	0.07 J	11.9 J	515 U	3.2 UJ	0.64 U	1,790
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	21.8 J	**480**	38,900	2.4	5,860	274 J	0.03 J	13.1 J	501 U	3 UJ	0.6 U	2,210
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	22.3 J	**995**	39,700	1.6	8,800	314 J	0.05 J	12.5 J	561	2.8 UJ	0.6	1,950
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	12.8 J	**136**	24,000	5.7	7,190	1,340 J	0.02 J	14.2 J	528 U	3.3 UJ	0.66 U	3,120
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	8.8 J	**39.3**	18,200	1.7	7,070	336 J	0.12 U	8.5 J	584 U	2.9 UJ	0.57 U	2,180
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	12.2 J	**233**	21,000	2.2	7,380	360 J	0.06 J	10.4 J	551 U	3.3 UJ	0.66 U	2,340
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	9.1 J	32.6	23,100	2.3	8,130	345 J	0.12 U	10.8 J	568 U	2.8 UJ	0.56 U	951
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	15.9 J	**535 J**	43,900	1.1	5,500	198 J	0.05 J	9.1 J	567 U	2.2 U	0.43 U	2,230
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	18.6 J	**645 J**	39,400	1.6	8,360	283 J	0.04 J	11.1 J	749	3 U	0.6 U	4,000
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	17.9 J	**688 J**	46,000	1.6	6,830	231 J	0.02 J	10.5 J	470	3.1 U	0.61 U	2,600
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	6.8 J	**55.2 J**	16,900	1.3	7,040	236 J	0.13 U	8.4 J	565 U	3 U	0.6 U	2,320
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	18.1 J	**599 J**	37,300	1.2	7,500	272 J	0.13 U	10.1 J	656	3 U	0.59 U	3,420
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	10.9 J	**745 J**	18,600	1.2	5,310	205 J	0.11 U	7.1 J	516 U	2.6 U	0.53 U	2,510
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	8.1 J	**46.8**	15,900	1.9	7,290	308 J	0.01 J	9.1 J	584 U	2.9 UJ	0.58 U	1,800
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	7.7 J	**144**	13,900	1.9	5,250	336 J	0.03 J	8.2 J	642 U	3.1 UJ	0.62 U	2,560
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	7.8 J	**100 J**	19,000	1.1	6,820	255 J	0.12 U	7.6 J	476 U	2.8 U	0.56 U	2,180
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	5.8 J	**87.5**	16,100	1.1	5,930	209	0.11 U	6.3 J	531 U	2.7 U	0.54 U	1,940 J
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	6.5 J	15.6	13,000	1.2	5,620	282 J	0.11 U	8.5 J	578 U	2.6 UJ	0.53 U	2,590
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	8.9 J	**118**	14,700	1.5	5,500	234 J	0.02 J	7.9 J	546 U	3 UJ	0.59 U	2,480
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	5.9	28 J	19,700	1.8	8,060	248 J	0.13 UJ	6.8	640 U	0.24 J	0.64 U	2,050
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	5.9	31.1 J	19,500	8	8,010	226 J	0.02 J	9.4	570	0.63 J	0.76 U	3,280
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	14.7	**587 J**	28,600	1	5,910	225 J	0.06 J	8	496 U	0.36 J	0.63 U	1,840
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	7.3	17.7 J	17,100	1.9	6,840	628 J	0.12 UJ	10.1	558 U	0.51 J	0.55 U	2,530
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	4.4	16.5 J	16,000	4	6,850	429 J	0.11 UJ	6.9	620 U	0.68 J	0.59 U	2,150
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	3.1	23.4 J	11,600	2.5	4,960	175 J	0.03 J	5.3	592 U	0.24 J	0.61 U	2,580
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	3 J	16.6	12,800	1.6	5,370	139	0.12 U	5.2 J	588 U	2.9 U	0.59 U	2,370 J
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	4.6	27.5 J	13,500	1.7	5,650	226 J	0.13 UJ	7.6	540 U	0.094 J	0.61 U	2,590
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	0.62 UJ	9.7	4,940	1	3,040	150	0.13 U	4.7 J	598 U	3.1 U	0.62 U	4,320 J
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	3.7	19.9 J	12,000	1.1	5,170	266 J	0.13 UJ	6.1	562 U	0.21 J	0.66 U	3,400
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	4.2	11 J	14,700	1.2	7,100	201 J	0.11 UJ	5.9	462 U	0.092 J	0.53 U	2,140
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4	**36.4 J**	14,800	1.7	6,850	205 J	0.12 UJ	8.1	650	0.29 J	0.64 U	3,600
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	2 J	10.1	7,360	1	3,580	154	0.11 U	6 J	501 U	2.9 U	0.58 U	2,580 J
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	7.7	24.8 J	19,900	2.9	8,570	325 J	0.11 UJ	15	1,000	0.035 J	0.52 U	1,320
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	4.7	14.2 J	15,200	1.2	6,900	216 J	0.11 UJ	7.3	467 U	0.12 J	0.53 U	1,480
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	5	16 J	13,100	0.99	6,290	222 J	0.1 UJ	6.8	494 U	0.079 J	0.52 U	1,630
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	4.8	25.8 J	12,300	1.5	5,440	224 J	0.12 UJ	6.3	648 U	0.16 J	0.64 U	2,390
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	4.6 J	9.7 J	13,200	2.3	5,750	175 J	0.11 U	7.9 J	469 U	2.8 U	0.56 U	1,320
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	4 J	12.6 J	4,770	1.8	3,320	183 J	0.11 U	6.7 J	442 U	2.4 U	0.49 U	4,550
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	4 J	9.6 J	10,300	1.8	4,980	279 J	0.12 U	7.2 J	573 U	2.8 U	0.56 U	2,360
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	4.6 J	8.5 J	13,100	0.88	6,550	209 J	0.11 U	5.2 J	426 U	2.1 U	0.43 U	1,230
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	2.4 J	7.7 J	7,520	1	3,480	155 J	0.1 U	4.8 J	461 U	2.7 U	0.55 U	1,150

Table A-2

Sediment/Tailings Sample Results, Metals and TOC (mg/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium
Marine benchmarks:																	
Effects range low (ERL)						*NE*	*34*		*46.7*	*NE*	*NE*	*0.15*	*20.9*	*NE*	*NE*	*1*	*NE*
Effects range medium (ERM)						*NE*	*270*		*218*	*NE*	*NE*	*0.7*	*51.6*	*NE*	*NE*	*3.7*	*NE*
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	3.8 J	8.6 J	10,200	1.2	4,650	189 J	0.07 J	5.8 J	590 U	2.8 U	0.57 U	2,600
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	5 J	12.9 J	14,700	1	7,120	209 J	0.03 J	7.6 J	469 U	2.8 U	0.56 U	1,760
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	4.6 J	11.1 J	13,800	1.5	6,750	274 J	0.02 J	6.3 J	658 U	2.8 U	0.56 U	3,280
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	4.2 J	12	12,400	1.6	6,160	232	0.13 U	7 J	676 U	3.8 U	0.76 U	3,940 J
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	4.9 J	19.4 J	14,200	1.7	6,240	226 J	0.11 U	7.2 J	563 U	2.4 U	0.49 U	2,880
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	3.5 J	14.4	11,800	1.3	5,160	168	0.11 U	5.2 J	522 U	2.6 U	0.53 U	2,190 J
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	5 J	11.6 J	13,300	1.3	6,200	295 J	0.14 U	6.8 J	612 U	3.1 U	0.61 U	3,050
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	2 J	9.2 J	10,400	1.2	5,380	150 J	0.14 U	5.5 J	692 U	3.5 U	0.69 U	3,980
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	0.65 UJ	7.8	6,430	1.1	3,080	182	0.14 U	5.3 J	646 U	3.2 U	0.65 U	3,850 J
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	4.5 J	**76.9**	12,100	2.5	4,250	221	0.13 U	6.5 J	653 U	3.4 U	0.68 U	3,590 J
SCSD-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	4 J	**143**	11,600	1.4	3,630	128	0.02 J	5.2 J	542 U	2.7 U	0.54 U	3,880 J

Notes:

TOC = Total Organic Carbon
mg/kg = milligrams per kilogram
N = normal sample
FD = field duplicate sample
NE = Not Established

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.

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

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

Table A-2

Sediment/Tailings Sample Results, Metals and TOC (mg/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Thallium	Vanadium	Zinc
Marine benchmarks:								
Effects range low (ERL)						*NE*	*NE*	*150*
Effects range medium (ERM)						*NE*	*NE*	*410*
SCSD-101	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	0.56 U	345	33 J
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	0.58 U	358	34.3 J
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	0.76 U	200	41.6
SCSD-103	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	0.93 U	169	41.8
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	0.54 U	370	37.9 J
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	0.58 U	248	38.1 J
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	0.57 U	384	74 J
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	0.61 U	410	87 J
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	0.58 U	197 J	30.5
SCSD-107	Tailings	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	0.5 U	285	20.6
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	0.54 U	226	36.3 J
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	0.58 U	341	41.2 J
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	0.66 U	304	39.7 J
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	0.64 U	288	34.8 J
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	0.6 U	352	34.4 J
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	0.56 U	268	38.5 J
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	0.66 U	141	40.4 J
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	0.57 U	109	39.8 J
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	0.66 U	131	42.7 J
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	0.56 U	109	36 J
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	0.43 U	219 J	26.1
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	0.6 U	201 J	36.7
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	0.61 U	234 J	32.8
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	0.6 U	58.5 J	34.6
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	0.59 U	190 J	34.7
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	0.53 U	189	28.3
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	0.58 U	79.3	37.4 J
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	0.62 U	66.1	37.8 J
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	0.56 U	71.6 J	31.1
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	0.54 U	44.1	26.8
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	0.53 U	60.5	32.3 J
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	0.59 U	132	31.5 J
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	0.64 U	54.2 J	29.9
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	0.76 U	80.7 J	37.1
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	0.63 U	125 J	31.9
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	0.55 U	81.4 J	36.2
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	0.59 U	59.9 J	24.2
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	0.61 U	42.2 J	23.2
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	0.59 U	72.5	23.4
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	0.61 U	56.8 J	33.4
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	0.62 U	15.2	21.1
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	0.66 U	34.9 J	26.2
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	0.53 U	30.4 J	26.9
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	0.64 U	45.4 J	33
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	0.58 U	20.9	21
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	0.52 U	66.6 J	43.1
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	0.53 U	50.3 J	26.4
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	0.52 U	56.1 J	27.6
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	0.64 U	35.7 J	28.6
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	0.56 U	35.9 J	25.9
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	0.49 U	31.3 J	24.4
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	0.56 U	32.5 J	28.4
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	0.43 U	33.6 J	23.2
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	0.55 U	25.8 J	21.4

Table A-2

Sediment/Tailings Sample Results, Metals and TOC (mg/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Thallium	Vanadium	Zinc
Marine benchmarks:								
Effects range low (ERL)						*NE*	*NE*	*150*
Effects range medium (ERM)						*NE*	*NE*	*410*
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	0.57 U	35.6 J	29.1
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	0.56 U	37.5 J	27.4
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	0.56 U	33.5 J	25.9
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	0.76 U	32.9	29.1
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	0.49 U	40.3 J	33.2
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	0.53 U	26.3	25.3
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	0.61 U	40.8 J	28.1
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	0.69 U	27.8 J	25.1
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	0.65 U	19.6	21
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	0.68 U	38.7	29.2
SCSD-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	0.54 U	44	22.4

Notes:

TOC = Total Organic Carbon
mg/kg = milligrams per kilogram
N = normal sample
FD = field duplicate sample
NE = Not Established

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.

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

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

Table A-3

Sediment Sample Results, PAH and TPH (ug/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

							High-Molecular Weight PAHs (HPAH)							
Location ID	**Media**	**Activity ID**	**Sample Type**	**Depth (feet)**	**Sample Date**	**2-Methyl-naphthalene**	**Benzo(a)-anthracene**	**Benzo(a)-pyrene**	**Benzo(b)-fluoranthene**	**Benzo(g,h,i)-perylene**	**Benzo(k)-fluoranthene**	**Chrysene**	**Dibenzo(a,h)-anthracene**	**Indeno(1,2,3-cd)pyrene**
Marine benchmarks:														
Effects range low (ERL)						*NE*	*261*	*430*	*NE*	*NE*	*NE*	*384*	*63.4*	*NE*
Effects range medium (ERM)						*NE*	*1,600*	*1,600*	*NE*	*NE*	*NE*	*2,800*	*260*	*NE*
SCSD-10SCSD-	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	2.5 J	41	56 U	37	63	63	48	14	51
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	0.21 J	7.9	19 U	14	27	25	9.5	6.2	21
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	6.7 U	16	39 U	28	27	30	19	5.2 J	22
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	5.3 U	18	30	19	18	26	20	5.8	17
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	4.3 U	10	19	13	14	12	9	3.4 J	12
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	0.68 J	75	93	65	67	79	79	17	63
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	3.7 J	59	210	160	280	170	96	61	230
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	10 U	7.6 J	52 U	28	62	41	9.6 J	9.3 J	51
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	12 U	16	53 U	39	93	57	27	18	82
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	13 U	34	64 U	42	84	49	49	13	61
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	15 U	43	110	64	90	88	49	25	80
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	6.5 U	9.8	27 U	16	49	31	12	8.8	33
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	6 U	13	36	22	48	34	17	9.5	33
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	0.64 J	38	90	58	83	75	49	20	66
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	4.6 U	3.3 J	11 U	6.7	17	7.9	4.9	2.8 J	11
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	3.9 U	2 J	6.9 U	3.2 J	7.3	4	2.7 J	1.4 J	5.3
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	0.37 J	10	60	47	79	57	18	20	67
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	0.58 J	5.9	11 U	8.8	4 J	7.6	5	1.3 J	3.1 J
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	4 U	6.6	15	7.7	8.5	12	8	1.9 J	6.8
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	5 U	15	43 U	29	28	34	17	6.3	24
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	4.6 U	15	34 U	22	21	26	16	4.7	18
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	4.4 U	3.6 J	10 U	4.7	4.1 J	5.5	4.1 J	0.86 J	3.5 J
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	4.7 U	11	30 U	20	14	27	12	3.4 J	12
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	0.22 J	4.7	14 U	6.3	9.4	11	5.5	2.2 J	7.4
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	3.9 U	2.1 J	5.7 U	2.7 J	3.8 J	2.7 J	2.3 J	0.97 J	3.1 J
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4 U	9.3	26	20	43	21	13	9	32
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	4.5 U	2.9 J	13 U	6.6	7	8	3.7 J	1.5 J	6.2
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	4.2 U	2.2 J	10 U	5.6	3.8 J	6	2.6 J	0.94 J	3.8 J
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	4.2 U	0.29 J	4.2 U	0.73 J	0.91 J	0.73 J	0.34 J	4.2 U	0.74 J
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	9.1 U	21	30 U	17	22	24	25	6.2 J	20
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	4.8 U	1.2 J	7.2 U	2.1 J	2.3 J	2.3 J	1.2 J	0.46 J	1.9 J
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	4.8 U	1.1 J	5.5 U	1.9 J	1.9 J	1.7 J	1.9 J	4.8 U	1.7 J
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	4.5 U	12	28 U	16	15	23	13	3.7 J	13
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4 U	0.24 J	4.4 U	0.49 J	0.42 J	0.41 J	0.34 J	4.4 U	0.36 J
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	4.3 U	0.32 J	4.8 U	0.61 J	0.55 J	0.49 J	0.57 J	4.3 U	0.44 J
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	5.1 U	3.7 J	11 U	4.9 J	4.5 J	4.7 J	4.4 J	0.89 J	3.4 J
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	3.9 U	0.7 J	4.4 U	1.3 J	1.2 J	1.7 J	1 J	3.9 U	1.1 J
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4 U	0.49 J	6.1 U	1.2 J	1.1 J	1.1 J	0.67 J	0.2 J	0.92 J
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	4.2 U	0.62 J	4.3 U	1 J	0.63 J	1 J	0.89 J	4.2 U	0.53 J
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	5 U	1.3 J	8 U	2.9 J	2.7 J	2.9 J	1.8 J	0.53 J	2.3 J
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	4.5 U	0.11 J	4.5 U	0.19 J	0.18 J	0.19 J	0.13 J	4.5 U	0.15 J
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	5.5 U	2.3 J	11 U	4.7 J	4.1 J	4.9 J	2.6 J	0.81 J	3.5 J
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	3.7 U	0.23 J	3.7 U	0.45 J	0.41 J	0.56 J	0.35 J	3.7 U	0.33 J
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	3.7 U	0.15 J	4.1 U	0.54 J	0.25 J	0.3 J	0.33 J	3.7 U	0.2 J
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	3.9 U	0.28 J	4.3 U	0.57 J	0.35 J	0.48 J	0.31 J	3.9 U	0.31 J
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	4.4 U	0.56 J	6.4 U	1.5 J	1.5 J	1.4 J	0.8 J	4.4 U	1.1 J
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	5.3 U	1.3 J	7.6 U	2.5 J	2.8 J	2.2 J	1.7 J	5.3 U	2.1 J
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	3.9 U	1.2 J	6 U	2.5 J	0.93 J	1.9 J	2 J	0.27 J	0.94 J
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	4.3 U	7.7	13 U	13	2.8 J	10	14	0.87 J	2.9 J
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	4 U	0.29 J	5 U	0.53 J	0.3 J	0.43 J	0.41 J	4 U	0.3 J
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	3.7 U	3.7 U	4.4 U	0.29 J	3.7 U	0.2 J	0.22 J	3.7 U	3.7 U
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	3.7 U	0.79 J	5 U	0.7 J	0.36 J	0.8 J	1.1 J	3.7 U	0.34 J

Table A-3

Sediment Sample Results, PAH and TPH (ug/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

							High-Molecular Weight PAHs (HPAH)							
Location ID	**Media**	**Activity ID**	**Sample Type**	**Depth (feet)**	**Sample Date**	**2-Methyl-naphthalene**	**Benzo(a)-anthracene**	**Benzo(a)-pyrene**	**Benzo(b)-fluoranthene**	**Benzo(g,h,i)-perylene**	**Benzo(k)-fluoranthene**	**Chrysene**	**Dibenzo(a,h)-anthracene**	**Indeno(1,2,3-cd)pyrene**
Marine benchmarks:														
Effects range low (ERL)						*NE*	*261*	*430*	*NE*	*NE*	*NE*	*384*	*63.4*	*NE*
Effects range medium (ERM)						*NE*	*1,600*	*1,600*	*NE*	*NE*	*NE*	*2,800*	*260*	*NE*
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	3.8 U	0.11 J	4.2 U	0.33 J	3.8 U	0.29 J	0.17 J	3.8 U	3.8 U
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	4.3 U	4.3 U	4.4 U	0.21 J	4.3 U	4.3 U	0.13 J	4.3 U	4.3 U
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	5 U	1.2 J	7.3 U	2.3 J	1.9 J	1.7 J	1.6 J	0.46 J	1.6 J
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	4.6 U	1.5 J	5.3 U	3.1 J	4.6 U	2.7 J	5	4.6 U	4.6 U
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	3.8 U	0.13 J	4.1 U	0.39 J	0.33 J	0.27 J	0.24 J	3.8 U	0.27 J
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	3.9 U	0.19 J	3.9 U	0.35 J	3.9 U	0.29 J	0.46 J	3.9 U	3.9 U
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	4.3 U	0.21 J	4.8 U	0.52 J	0.35 J	0.39 J	0.3 J	4.3 U	0.32 J
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	4.4 U	0.38 J	4.9 U	0.67 J	0.55 J	0.53 J	0.47 J	4.4 U	0.47 J
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	4.4 U	0.27 J	4.6 U	0.39 J	0.26 J	0.32 J	0.32 J	4.4 U	0.23 J
SCSD-157	Sediment	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	0.22 J	8.3	61 U	36	53	50	9.9	10	47
SCSD-158	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	7.6 U	19	41 U	30	17	34	22	4.5 J	15
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	4.4 U	3.3 J	11 U	6.8	8.7 J	9.2	5.1	4.4 U	6.9
SDSC-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	4.2 U	2.8 J	9.1 U	4.1 J	4.4 J	6.3	3.6 J	0.83 J	3.6 J

Notes:

PAH = Polycyclic aromatic hydrocarbons; includes Method E625
TPH = total petroleum hydrocarbon; includes Methods AK102/103
ug/kg = micrograms per kilogram
N = normal sample
FD = field duplicate sample
NE = Not Established
-- = 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.

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

BOLD = detected result exceeds ERL screening criteria.

Table A-3

Sediment Sample Results, PAH and TPH (ug/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

							Low-Molecular Weight PAHs (LPAH)								
Location ID	**Media**	**Activity ID**	**Sample Type**	**Depth (feet)**	**Sample Date**	**Pyrene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Fluoranthene**	**Naphthalene**	**Phenanthrene**	**Total HPAH**	**Total LPAH**	**Total PAH**
Marine benchmarks:															
Effects range low (ERL)						*665*	*16*	*44*	*85.3*	*600*	*160*	*240*	*1,700*	*552*	*4,022*
Effects range medium (ERM)						*2,600*	*500*	*640*	*1,100*	*5,100*	*2,100*	*1,500*	*9,600*	*1,442*	*44,792*
SCSD-10SCSD-	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	78	0.67 J	2.9 J	7.3 J	50	12 U	16	395	76.87	471.87
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	13	4.4 U	0.58 J	0.39 J	8.1	4.4 U	1.6 J	123.6	10.67	134.27
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	43 U	0.29 J	1.5 J	0.9 J	18	6.7 U	6.3 J	147.2	26.99	174.19
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	36	5.3 U	1 J	0.79 J	21	5.3 U	14	189.8	36.79	226.59
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	18	4.3 U	0.37 J	0.64 J	15	4.3 U	7	110.4	23.01	133.41
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	280	0.65 J	1.8 J	**86**	330	14 U	**320**	818	**738.45**	1556.45
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	150	27 U	8 J	9.4 J	110	27 U	28	1416	0,155	1,571
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	18 U	10 U	2.2 J	0.42 J	4.4 J	10 U	0.68 J	208.5	7.7	216.2
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	19	12 U	1.9 J	2.3 J	15	12 U	3.6 J	351	22.8	373.8
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	47	13 U	2.8 J	1.8 J	40	13 U	4.4 J	379	49	428
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	89	15 U	2.8 J	3.1 J	42	15 U	12 J	638	59.9	697.9
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	20	6.5 U	0.84 J	0.66 J	12	6.5 U	3.2 J	179.6	16.7	196.3
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	35 J	6 U	1.3 J	0.52 J	12	6 U	3.3 J	247.5	17.12	264.62
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	91 J	10 U	2.9 J	2.4 J	33	10 U	7.4 J	570	45.7	615.7
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	5.9 U	4.6 U	0.64 J	0.26 J	3.1 J	4.6 U	0.95 J	53.6	4.95	58.55
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4 U	3.9 U	0.35 J	0.16 J	2.1 J	3.9 U	0.75 J	25.9	3.36	29.26
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	38 J	8.5 U	1.8 J	0.93 J	10	8.5 U	3.9 J	396	16.63	412.63
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	6.6 U	0.13 J	0.3 J	0.43 J	5.4	4.4 U	4.2 J	35.7	10.46	46.16
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	14 U	4 U	0.37 J	1.6 J	6.7	4 U	1.8 J	66.5	10.47	76.97
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	47	5 U	1.2 J	0.88 J	13	5 U	3.7 J	200.3	18.78	219.08
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	40	0.24 J	0.99 J	1.2 J	14	4.6 U	7.4	162.7	23.83	186.53
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	11	4.4 U	0.43 J	0.41 J	4.6	4.4 U	2 J	37.36	7.44	44.8
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	26	4.7 U	0.77 J	0.69 J	8	4.7 U	2.5 J	125.4	11.96	137.36
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	8.8	4.2 U	0.45 J	0.28 J	3.2 J	4.2 U	1.1 J	55.3	5.03	60.33
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	5.5 J	3.9 U	0.29 J	0.25 J	3.6 J	3.9 U	1.6 J	23.17	5.74	28.91
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	14 J	4.4 U	1.9 J	0.34 J	7.6	4.4 U	1.5 J	187.3	11.34	198.64
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	7.2 U	4.5 U	0.44 J	0.18 J	2.9 J	4.5 U	1.5 J	35.9	5.02	40.92
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	4.8 U	4.2 U	0.42 J	0.13 J	1.7 J	4.2 U	0.54 J	24.94	2.79	27.73
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	3.74	4.2 U	3.74
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	63	0.48 J	2.2 J	2.4 J	32	9.1 U	32	198.2	69.08	267.28
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	4.8 U	4.8 U	0.26 J	4.8 U	1.1 J	4.8 U	0.45 J	11.46	1.81	13.27
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	4.8 U	4.8 U	4.8 U	4.8 U	1.9 J	4.8 U	4.8 U	10.2	1.9	12.1
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	34	4.5 U	0.91 J	0.59 J	9.1	4.5 U	2.7 J	129.7	13.3	143
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4 U	4.4 U	4.4 U	4.4 U	0.32 J	4.4 U	0.22 J	2.26	0.54	2.8
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	4.3 U	4.3 U	4.3 U	4.3 U	0.34 J	4.3 U	0.23 J	2.98	0.57	3.55
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	11 U	5.1 U	0.41 J	0.38 J	5.8	5.1 U	2.3 J	26.49	8.89	35.38
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	3.9 U	3.9 U	3.9 U	3.9 U	0.95 J	3.9 U	0.36 J	7	1.31	8.31
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	4.4 U	4.4 U	0.17 J	4.4 U	0.54 J	4.4 U	0.33 J	5.68	1.04	6.72
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	4.2 U	4.2 U	4.2 U	4.2 U	0.87 J	4.2 U	0.78 J	4.67	1.65	6.32
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	5 U	5 U	0.31 J	5 U	1.5 J	5 U	0.58 J	14.43	2.39	16.82
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	4.5 U	4.5 U	4.5 U	4.5 U	0.13 J	4.5 U	4.5 U	0.95	0.13	1.08
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	5.7 U	5.5 U	0.34 J	0.14 J	2.1 J	5.5 U	0.54 J	22.91	3.12	26.03
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	3.7 U	3.7 U	3.7 U	3.7 U	0.4 J	3.7 U	3.7 U	2.33	0.4	2.73
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	3.7 U	3.7 U	3.7 U	3.7 U	0.23 J	3.7 U	0.34 J	1.77	0.57	2.34
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	3.9 U	3.9 U	3.9 U	3.9 U	0.61 J	3.9 U	0.18 J	2.3	0.79	3.09
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	4.4 U	4.4 U	4.4 U	4.4 U	0.78 J	4.4 U	0.54 J	6.86	1.32	8.18
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	5.3 U	5.3 U	0.25 J	5.3 U	1.5 J	5.3 U	0.56 J	12.6	2.31	14.91
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	4.6 U	3.9 U	0.18 J	0.11 J	2.8 J	3.9 U	0.87 J	9.74	3.96	13.7
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	19	0.18 J	0.57 J	0.72 J	14	4.3 U	4.5	70.27	19.97	90.24
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	4 U	4 U	4 U	4 U	0.43 J	4 U	0.36 J	2.26	0.79	3.05
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	3.7 U	3.7 U	3.7 U	3.7 U	0.43 J	3.7 U	0.18 J	0.71	0.61	1.32
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	3.7 U	3.7 U	0.17 J	0.11 J	1.1 J	3.7 U	1.3 J	4.09	2.68	6.77

Table A-3

Sediment Sample Results, PAH and TPH (ug/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

							Low-Molecular Weight PAHs (LPAH)								
Location ID	**Media**	**Activity ID**	**Sample Type**	**Depth (feet)**	**Sample Date**	**Pyrene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Fluoranthene**	**Naphthalene**	**Phenanthrene**	**Total HPAH**	**Total LPAH**	**Total PAH**
Marine benchmarks:															
Effects range low (ERL)						*665*	*16*	*44*	*85.3*	*600*	*160*	*240*	*1,700*	*552*	*4,022*
Effects range medium (ERM)						*2,600*	*500*	*640*	*1,100*	*5,100*	*2,100*	*1,500*	*9,600*	*1,442*	*44,792*
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	3.8 U	3.8 U	3.8 U	3.8 U	0.19 J	3.8 U	0.13 J	0.9	0.32	1.22
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	4.3 U	4.3 U	4.3 U	4.3 U	0.18 J	4.3 U	0.13 J	0.34	0.31	0.65
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	5 U	5 U	0.26 J	0.14 J	1.7 J	5 U	0.99 J	10.76	3.09	13.85
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	4.6 U	4.6 U	0.21 J	0.15 J	2.4 J	4.6 U	0.64 J	12.3	3.4	15.7
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	3.8 U	3.8 U	3.8 U	3.8 U	0.2 J	3.8 U	0.14 J	1.63	0.34	1.97
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	3.9 U	3.9 U	3.9 U	3.9 U	0.28 J	3.9 U	0.17 J	1.29	0.45	1.74
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	4.3 U	4.3 U	4.3 U	4.3 U	0.39 J	4.3 U	0.27 J	2.09	0.66	2.75
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	4.4 U	4.4 U	4.4 U	4.4 U	0.51 J	4.4 U	0.28 J	3.07	0.79	3.86
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	4.4 U	4.4 U	4.4 U	4.4 U	0.43 J	4.4 U	0.36 J	1.79	0.79	2.58
SCSD-157	Sediment	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	17 U	8.2 U	2.6 J	0.42 J	4.6 J	8.2 U	0.68 J	214.2	8.3	222.5
SCSD-158	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	40	0.36 J	2 J	1.9 J	28	7.6 U	10	181.5	42.26	223.76
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	6.2 U	4.4 U	0.64 J	4.4 U	3.6 J	4.4 U	0.99 J	40	5.23	45.23
SDSC-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	6.4 U	4.2 U	0.35 J	4.2 U	4.9	4.2 U	2.4 J	25.63	7.65	33.28

Notes:

PAH = Polycyclic aromatic hydrocarbons; includes Method E625
TPH = total petroleum hydrocarbon; includes Methods AK102/103
ug/kg = micrograms per kilogram
N = normal sample
FD = field duplicate sample
NE = Not Established
-- = 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.

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

BOLD = detected result exceeds ERL screening criteria.

Table A-3

Sediment Sample Results, PAH and TPH (ug/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	TPH-Diesel	TPH-Oil
Marine benchmarks:							
Effects range low (ERL)						*NE*	*NE*
Effects range medium (ERM)						*NE*	*NE*
SCSD-10SCSD-	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	--	--
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	394,000	405,000 J
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	--	--
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	--	--
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	--	--
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	--	--
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	--	--
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	--	--
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	--	--
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	--	--
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--

Table A-3

Sediment Sample Results, PAH and TPH (ug/Kg)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	TPH-Diesel	TPH-Oil
Marine benchmarks:							
Effects range low (ERL)						*NE*	*NE*
Effects range medium (ERM)						*NE*	*NE*
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	--	--
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	--	--
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	--	--
SCSD-157	Sediment	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	--	--
SCSD-158	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	--	--
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	--	--
SDSC-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	--	--

Notes:

PAH = Polycyclic aromatic hydrocarbons; includes Method E625
TPH = total petroleum hydrocarbon; includes Methods AK102/103
ug/kg = micrograms per kilogram
N = normal sample
FD = field duplicate sample
NE = Not Established
-- = 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.

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

BOLD = detected result exceeds ERL screening criteria.

Table A-4
Sediment Sample Results, PCBs (ug/Kg)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268	Total PCBs
Marine benchmarks:															
Effects range low (ERL)						NE	NE	NE	NE	NE	NE	NE	NE	NE	*22.7*
Effects range medium (ERM)						NE	NE	NE	NE	NE	NE	NE	NE	NE	*180*
SCSD-10SCSD	Tailings	SCSD-101-0-0.5-08282011	N	0 - 0.5	08/28/11	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
SCSD-102	Tailings	SCSD-102-0-0.5-08282011	N	0 - 0.5	08/28/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-103	Sediment	SCSD-103-0-0.5-08302011	N	0 - 0.5	08/30/11	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U
SCSD-104	Tailings	SCSD-104-0-0.5-08282011	N	0 - 0.5	08/28/11	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	N	0 - 0.5	08/28/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-105	Tailings	SCSD-105-2-3-08292011	N	2 - 3	08/29/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	N	0 - 0.5	08/28/11	41 U	41 U	41 U	41 U	41 U	41 U	6.3 J	41 U	41 U	6.3 J
SCSD-107	Tailings	SCSD-107-0-0.5-08302011	N	0 - 0.5	08/30/11	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U
SCSD-107	Tailings	SCSD-107-2-3-08282011	N	2 - 3	08/29/11	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U
SCSD-108	Tailings	SCSD-108-0-0.5-08282011	N	0 - 0.5	08/28/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-109	Tailings	SCSD-109-0-0.5-08282011	N	0 - 0.5	08/28/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-110	Sediment	SCSD-110-0-0.5-08282011	N	0 - 0.5	08/28/11	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U
SCSD-111	Tailings	SCSD-111-0-0.5-08282011	N	0 - 0.5	08/28/11	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U
SCSD-112	Tailings	SCSD-112-0-0.5-08292011	N	0 - 0.5	08/29/11	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U
SCSD-113	Sediment	SCSD-113-0-0.5-08292011	N	0 - 0.5	08/29/11	47 U	47 U	47 U	47 U	47 U	47 U	47 U	47 U	47 U	47 U
SCSD-114	Sediment	SCSD-114-0-0.5-08292011	N	0 - 0.5	08/29/11	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U
SCSD-115	Sediment	SCSD-115-0-0.5-08292011	N	0 - 0.5	08/29/11	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U
SCSD-116	Tailings	SCSD-116-0-0.5-08292011	N	0 - 0.5	08/29/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-117	Sediment	SCSD-117-0-0.5-08302011	N	0 - 0.5	08/30/11	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U
SCSD-118	Tailings	SCSD-118-0-0.5-08302011	N	0 - 0.5	08/30/11	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
SCSD-119	Tailings	SCSD-119-0-0.5-08302011	N	0 - 0.5	08/30/11	47 U	47 U	47 U	47 U	47 U	47 U	47 U	47 U	47 U	47 U
SCSD-120	Sediment	SCSD-120-0-0.5-08302011	N	0 - 0.5	08/30/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-121	Tailings	SCSD-121-0-0.5-08302011	N	0 - 0.5	08/30/11	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U
SCSD-122	Sediment	SCSD-122-0-0.5-08302011	N	0 - 0.5	08/30/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-123	Sediment	SCSD-123-0-0.5-08292011	N	0 - 0.5	08/29/11	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
SCSD-124	Sediment	SCSD-124-0-0.5-08292011	N	0 - 0.5	08/29/11	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U
SCSD-125	Sediment	SCSD-125-0-0.5-08302011	N	0 - 0.5	08/30/11	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U
SCSD-125	Sediment	SCSD-159-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U
SCSD-126	Sediment	SCSD-126-0-0.5-08292011	N	0 - 0.5	08/29/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-127	Sediment	SCSD-127-0-0.5-08282011	N	0 - 0.5	08/28/11	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U	46 U
SCSD-128	Sediment	SCSD-128-0-0.5-08292011	N	0 - 0.5	08/29/11	48 U	48 U	48 U	48 U	48 U	48 U	48 U	48 U	48 U	48 U
SCSD-129	Sediment	SCSD-129-0-0.5-08292011	N	0 - 0.5	08/29/11	49 U	49 U	49 U	49 U	49 U	49 U	49 U	49 U	49 U	49 U
SCSD-130	Sediment	SCSD-130-0-0.5-08292011	N	0 - 0.5	08/29/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-131	Sediment	SCSD-131-0-0.5-08292011	N	0 - 0.5	08/29/11	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U
SCSD-131	Sediment	SCSD-156-0-0.5-08292011FD	FD	0 - 0.5	08/29/11	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U
SCSD-132	Sediment	SCSD-132-0-0.5-08292011	N	0 - 0.5	08/29/11	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
SCSD-133	Sediment	SCSD-133-0-0.5-08312011	N	0 - 0.5	08/31/11	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U
SCSD-134	Sediment	SCSD-134-0-0.5-08292011	N	0 - 0.5	08/29/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-135	Sediment	SCSD-135-0-0.5-08312011	N	0 - 0.5	08/31/11	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U
SCSD-136	Sediment	SCSD-136-0-0.5-08282011	N	0 - 0.5	08/28/11	51 U	51 U	51 U	51 U	51 U	51 U	51 U	51 U	51 U	51 U
SCSD-137	Sediment	SCSD-137-0-0.5-08282011	N	0 - 0.5	08/28/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-138	Sediment	SCSD-138-0-0.5-08292011	N	0 - 0.5	08/29/11	54 U	54 U	54 U	54 U	54 U	54 U	54 U	54 U	54 U	54 U
SCSD-139	Sediment	SCSD-139-0-0.5-08312011	N	0 - 0.5	08/31/11	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U
SCSD-140	Sediment	SCSD-140-0-0.5-08292011	N	0 - 0.5	08/29/11	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
SCSD-141	Sediment	SCSD-141-0-0.5-08292011	N	0 - 0.5	08/29/11	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U
SCSD-142	Sediment	SCSD-142-0-0.5-08282011	N	0 - 0.5	08/28/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-143	Sediment	SCSD-143-0-0.5-08282011	N	0 - 0.5	08/28/11	52 U	52 U	52 U	52 U	52 U	52 U	52 U	52 U	52 U	52 U
SCSD-144	Sediment	SCSD-144-0-0.5-08302011	N	0 - 0.5	08/30/11	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U
SCSD-145	Sediment	SCSD-145-0-0.5-08302011	N	0 - 0.5	08/30/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-146	Sediment	SCSD-146-0-0.5-08302011	N	0 - 0.5	08/30/11	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U
SCSD-147	Sediment	SCSD-147-0-0.5-08302011	N	0 - 0.5	08/30/11	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U
SCSD-148	Sediment	SCSD-148-0-0.5-08302011	N	0 - 0.5	08/30/11	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U	37 U
SCSD-149	Sediment	SCSD-149-0-0.5-08302011	N	0 - 0.5	08/30/11	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U
SCSD-150	Sediment	SCSD-150-0-0.5-08302011	N	0 - 0.5	08/30/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-151	Sediment	SCSD-151-0-0.5-08302011	N	0 - 0.5	08/30/11	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
SCSD-151	Sediment	SCSD-161-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U
SCSD-152	Sediment	SCSD-152-0-0.5-08302011	N	0 - 0.5	08/30/11	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U

Table A-4
Sediment Sample Results, PCBs (ug/Kg)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Media	Activity ID	Sample Type	Depth (feet)	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268	Total PCBs
Marine benchmarks:															
Effects range low (ERL)						NE	NE	NE	NE	NE	NE	NE	NE	NE	*22.7*
Effects range medium (ERM)						NE	NE	NE	NE	NE	NE	NE	NE	NE	*180*
SCSD-152	Sediment	SCSD-160-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	N	0 - 0.5	08/30/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-154	Sediment	SCSD-154-0-0.5-08302011	N	0 - 0.5	08/30/11	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U	44 U
SCSD-155	Sediment	SCSD-155-0-0.5-08302011	N	0 - 0.5	08/30/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
SCSD-157	Sediment	SCSD-157-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U
SCSD-158	Sediment	SCSD-158-0-0.5-08302011FD	FD	0 - 0.5	08/30/11	75 U	75 U	75 U	75 U	75 U	75 U	75 U	75 U	75 U	75 U
SCSD-224	Sediment	SCSD-224-0-0.5-08312011	N	0 - 0.5	08/31/11	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U
SCSD-227	Sediment	SCSD-227-0-0.5-08312011	N	0 - 0.5	08/31/11	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U

Notes:

PCB = polychlorinated biphenyls; includes Method E60
ug/kg = micrograms per kilograr
N = normal sample
FD = field duplicate sample
NE = Not Established

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

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

BOLD = detected result exceeds ERL screening criteria

Table A-5

Sediment Sample Results, Particle Size Distribution - Weight Retained (g5

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	SCSD-105	SCSD-106	SCSD-153
Media	Sediment	Sediment	Tailings
Activity ID	SCSD-105-Bulk-08282011	SCSD-106-Bulk-08282011	SCSD-106-Bulk-08282011
Sample Type	N	N	N
Sample Date	8/28/2011	8/28/2011	8/28/2011
Weight	754.3	725.9	621.1
Particle size, 3 inch, (75.0mm)	0.0	0.0	0.0
Particle size, 2 inch, (50mm)	0.0	0.0	0.0
Particle size, 1.5 inch (37.5mm)	0.0	0.0	0.0
Particle size, 1 inch (25.0mm)	0.0	0.0	0.0
Particle size, 3/4 inch (19.0mm)	0.0	0.0	0.0
Particle size, 3/8 inch (9.5mm)	0.0	0.0	15.1
Particle size, Sieve No. 04, 4 mesh, (4.75mm)	2.3	3.4	62.0
Particle size, Sieve No. 10, 9 mesh, (2.00mm)	1.1	5.2	174.2
Particle size, Sieve No. 20, 20 mesh, (0.850mm)	0.0	0.1	128.3
Particle size, Sieve No. 40, 35 mesh, (0.425mm)	2.0	1.3	76.3
Particle size, Sieve No. 60, 60 mesh, (0.250mm)	40.5	6.1	41.7
Particle size, Sieve No. 140, 150 mesh, (0.106mm)	301.3	29.7	55.8
Particle size, Sieve No. 200, 200 mesh, (0.075mm)	177.8	99.2	10.8

Notes:

g = gram
N = normal sample

Table A-6

Summary Statistics for Sediment and Tailings Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Chem Group/Chemical Name	Unit	# of Detects	# of Samples	Frequency of Detection	Total stations	Stations with detects	Nondetects Minimum	Nondetects Maximum	Detects Minimum	Detects Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t
Sediment/Tailing Samples from 0 - 0.5 ft																
General Chemistry:																
Total Organic Carbon	mg/Kg	63	63	100%	57	57			244	61,200	12,385	7,976	9,050	11,466	0.93	14,798
Metals:																
Aluminum	mg/kg	63	63	100%	57	57			2,200	10,300	6,210	5,974	6,090	1,654	0.27	6,558
Antimony	mg/kg		63	0%	57		0.85	1.9			1.2	1.2	1.2	0.16	0.13	1.2
Arsenic	mg/kg	62	63	98%	57	57	0.50	0.50	0.60	13	3.1	2.6	2.5	2.2	0.70	3.6
Barium	mg/kg	43	63	68%	57	41	4.3	9.3	5.2	22	8.4	7.9	7.8	3.2	0.38	9.0
Beryllium	mg/kg		63	0%	57		0.43	0.93			0.59	0.59	0.58	0.079	0.13	0.61
Cadmium	mg/kg		63	0%	57		0.43	0.93			0.59	0.59	0.58	0.079	0.13	0.61
Calcium	mg/kg	63	63	100%	57	57			1,870	163,000	20,607	8,108	4,120	33,502	1.6	27,656
Chromium	mg/kg	63	63	100%	57	57			2.1	21	7.3	6.4	7.2	3.7	0.50	8.0
Cobalt	mg/kg	61	63	97%	57	55	0.62	0.65	2.0	26	9.7	7.1	6.5	7.2	0.75	11
Copper	mg/kg	63	63	100%	57	57			7.7	2,170	296	72	36	459	1.6	393
Iron	mg/kg	63	63	100%	57	57			4,770	51,600	21,284	18,191	16,000	12,137	0.57	23,838
Lead	mg/kg	63	63	100%	57	57			0.88	33	2.4	1.7	1.6	4.0	1.7	3.2
Magnesium	mg/kg	63	63	100%	57	57			3,040	8,800	6,232	6,050	6,240	1,427	0.23	6,532
Manganese	mg/kg	63	63	100%	57	57			128	1,340	273	251	234	160	0.59	307
Mercury	mg/kg	29	63	46%	57	27	0.10	0.14	0.010	2.7	0.14	0.079	0.11	0.35	2.5	0.21
Nickel	mg/kg	63	63	100%	57	57			4.7	15	8.6	8.1	7.9	2.9	0.33	9.2
Potassium	mg/kg	10	63	16%	57	10	426	893	470	1,000	577	569	565	103	0.18	599
Selenium	mg/kg	14	63	22%	57	13	2.1	4.6	0.035	0.68	2.4	1.6	2.8	1.2	0.50	2.6
Silver	mg/kg	3	63	5%	57	3	0.43	0.93	0.60	1.1	0.60	0.60	0.59	0.10	0.17	0.62
Sodium	mg/kg	63	63	100%	57	57			347	6,580	2,491	2,209	2,360	1,166	0.47	2,737
Thallium	mg/kg		63	0%	57		0.43	0.93			0.59	0.59	0.58	0.079	0.13	0.61
Vanadium	mg/kg	63	63	100%	57	57			15	410	121	81	66	111	0.92	145
Zinc	mg/kg	63	63	100%	57	57			21	87	32	31	31	9.4	0.29	34
Polycyclic aromatic hydrocarbons (PAHs)																
2-Methylnaphthalene	ug/Kg	8	63	13%	57	8	3.7	15	0.21	3.7	4.6	3.7	4.4	2.4	0.54	5.1
High Molecular Weight PAHs:																
Benzo(a)anthracene	ug/Kg	61	63	97%	57	55	3.7	4.3	0.11	59	7.8	2.4	2.9	12	1.5	10
Benzo(a)pyrene	ug/Kg	9	63	14%	57	9	3.7	64	15	210	22	12	10	33	1.5	29
Benzo(g,h,i)perylene	ug/Kg	58	63	92%	57	54	3.7	4.6	0.18	280	20	4.8	4.1	41	2.0	29
Benzo[b]Fluoranthene	ug/Kg	63	63	100%	57	57			0.19	160	14	4.0	4.7	24	1.8	19
Benzo[k]fluoranthene	ug/Kg	62	63	98%	57	56	4.3	4.3	0.19	170	17	4.5	4.9	28	1.6	23
Chrysene	ug/Kg	63	63	100%	57	57			0.13	96	9.9	2.9	3.6	17	1.7	13
Dibenzo(a,h)anthracene	ug/Kg	39	63	62%	57	36	3.7	5.3	0.20	61	5.9	3.4	4.2	8.5	1.5	7.6
Indeno(1,2,3-cd)pyrene	ug/Kg	58	63	92%	57	54	3.7	4.6	0.15	230	16	4.1	3.8	33	2.0	23
Pyrene	ug/Kg	22	63	35%	57	22	3.7	43	5.5	150	19	9.9	5.7	27	1.4	25
Total HPAH	ug/Kg	63	63	100%	57	57			0.3	1,416	112	23.4	25.6	216	1.9	158
Low Molecular Weight PAHs:																

Table A-6

Summary Statistics for Sediment and Tailings Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Chem Group/Chemical Name	Unit	# of Detects	# of Samples	Frequency of Detection	Total stations	Stations with detects	Nondetects Minimum	Nondetects Maximum	Detects Minimum	Detects Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t
Acenaphthene	ug/Kg	7	63	11%	57	6	3.7	27	0.13	0.67	4.9	3.6	4.4	3.8	0.77	5.7
Acenaphthylene	ug/Kg	43	63	68%	57	39	3.7	4.8	0.17	8.0	2.1	1.2	1.5	1.8	0.86	2.5
Anthracene	ug/Kg	37	63	59%	57	33	3.7	5.3	0.11	9.4	2.4	1.3	1.9	2.1	0.87	2.9
Fluoranthene	ug/Kg	62	63	98%	57	56	4.2	4.2	0.13	110	9.2	2.8	3.1	17	1.8	13
Naphthalene	ug/Kg		63	0%	57		3.7	27			5.7	5.1	4.4	3.6	0.63	6.4
Phenanthrene	ug/Kg	59	63	94%	57	53	3.7	4.8	0.13	32	3.5	1.4	1.3	5.9	1.7	4.8
Total LPAH	ug/Kg	62	63	98%	57	56	4.2	4.2	0.13	155	14.0	4.4	5.0	24.9	1.8	19.2
Total PAH	ug/Kg	63	63	100%	57	57			0.65	1,571	126.4	28.4	29.3	239.2	1.9	176.7
PCBs:																
Aroclor-1016	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1221	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1232	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1242	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1248	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1254	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1260	ug/Kg	1	63	2%	57	1	37	75	6.3	6.3	44	43	43	8.1	0.18	46
Aroclor-1262	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Aroclor-1268	ug/Kg		63	0%	57		37	75			44	44	43	6.5	0.15	46
Total PCBs	ug/Kg	1	63	2%	4	1	37	75	6	6	44	43	43	8.1	0.18	46
Total Petroleum Hydrocarbons:																
TPH-Diesel	MG/KG	1	1	100%	1	1			39	39	39	39	39			
TPH-Oil	MG/KG	1	1	100%	1	1			41	41	41	41	41			
Sediment/Tailing Samples from 2 - 3 ft																
General Chemistry:																
Total Organic Carbon	mg/Kg	1	2	50%	2	1	290	290	379	379	335	332	335	63	0.19	615
Metals:																
Aluminum	mg/kg	2	2	100%	2	2			4,140	10,400	7,270	6,562	7,270	4,426	0.61	27,033
Antimony	mg/kg		2	0%	2		1.1	1.1			1.1	1.1	1.1			1.1
Arsenic	mg/kg	2	2	100%	2	2			0.59	1.4	1.00	0.91	1.00	0.57	0.58	3.6
Barium	mg/kg	2	2	100%	2	2			16	19	17	17	17	2.0	0.11	26
Beryllium	mg/kg		2	0%	2		0.54	0.57			0.56	0.55	0.56	0.021	0.038	0.65
Cadmium	mg/kg		2	0%	2		0.54	0.57			0.56	0.55	0.56	0.021	0.038	0.65
Calcium	mg/kg	2	2	100%	2	2			1,990	23,400	12,695	6,824	12,695	15,139	1.2	80,286
Chromium	mg/kg	2	2	100%	2	2			2.4	5.5	4.0	3.6	4.0	2.2	0.55	14
Cobalt	mg/kg	2	2	100%	2	2			22	42	32	30	32	14	0.45	95
Copper	mg/kg	2	2	100%	2	2			980	1,190	1,085	1,080	1,085	148	0.14	1,748
Iron	mg/kg	2	2	100%	2	2			26,200	56,000	41,100	38,304	41,100	21,072	0.51	135,179
Lead	mg/kg	2	2	100%	2	2			1.0	1.8	1.4	1.3	1.4	0.57	0.40	3.9
Magnesium	mg/kg	2	2	100%	2	2			5,640	13,100	9,370	8,596	9,370	5,275	0.56	32,921
Manganese	mg/kg	2	2	100%	2	2			313	705	509	470	509	277	0.54	1,747
Mercury	mg/kg	2	2	100%	2	2			0.040	0.080	0.060	0.057	0.060	0.028	0.47	0.19

Table A-6
Summary Statistics for Sediment and Tailings Samples
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Chem Group/Chemical Name	Unit	# of Detects	# of Samples	Frequency of Detection	Total stations	Stations with detects	Nondetects Minimum	Nondetects Maximum	Detects Minimum	Detects Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t
Nickel	mg/kg	2	2	100%	2	2			11	21	16	15	16	7.3	0.46	48
Potassium	mg/kg	1	2	50%	2	1	542	542	676	676	609	605	609	95	0.16	1,032
Selenium	mg/kg		2	0%	2		2.7	144			73	20	73	100	1.4	519
Silver	mg/kg	1	2	50%	2	1	0.54	0.54	1.1	1.1	0.82	0.77	0.82	0.40	0.48	2.6
Sodium	mg/kg	2	2	100%	2	2			1,570	1,610	1,590	1,590	1,590	28	0.018	1,716
Thallium	mg/kg		2	0%	2		0.54	0.57			0.56	0.55	0.56	0.021	0.038	0.65
Vanadium	mg/kg	2	2	100%	2	2			226	384	305	295	305	112	0.37	804
Zinc	mg/kg	2	2	100%	2	2			36	74	55	52	55	27	0.48	174
PAHs:																
2-Methylnaphthalene	ug/Kg	1	2	50%	2	1	12	12	0.68	0.68	6.3	2.9	6.3	8.0	1.3	42
High Molecular Weight PAHs:																
Benzo(a)anthracene	ug/Kg	2	2	100%	2	2			16	75	46	35	46	42	0.92	232
Benzo(a)pyrene	ug/Kg	1	2	50%	2	1	53	53	93	93	73	70	73	28	0.39	199
Benzo(g,h,i)perylene	ug/Kg	2	2	100%	2	2			67	93	80	79	80	18	0.23	162
Benzo[b]Fluoranthene	ug/Kg	2	2	100%	2	2			39	65	52	50	52	18	0.35	134
Benzo[k]fluoranthene	ug/Kg	2	2	100%	2	2			57	79	68	67	68	16	0.23	137
Chrysene	ug/Kg	2	2	100%	2	2			27	79	53	46	53	37	0.69	217
Dibenzo(a,h)anthracene	ug/Kg	2	2	100%	2	2			17	18	18	17	18	0.71	0.040	21
Indeno(1,2,3-cd)pyrene	ug/Kg	2	2	100%	2	2			63	82	73	72	73	13	0.19	132
Pyrene	ug/Kg	2	2	100%	2	2			19	280	150	73	150	185	1.2	973
Total HPAH	ug/Kg	2	2	100%	2	2			351.0	818	585	535.8	584.5	330	0.6	2,059
Low Molecular Weight PAHs:																
Acenaphthene	ug/Kg	1	2	50%	2	1	12	12	0.65	0.65	6.3	2.8	6.3	8.0	1.3	42
Acenaphthylene	ug/Kg	2	2	100%	2	2			1.8	1.9	1.9	1.8	1.9	0.071	0.038	2.2
Anthracene	ug/Kg	2	2	100%	2	2			2.3	86	44	14	44	59	1.3	308
Fluoranthene	ug/Kg	2	2	100%	2	2			15	330	173	70	173	223	1.3	1,167
Naphthalene	ug/Kg		2	0%	2		12	14			13	13	13	1.4	0.11	19
Phenanthrene	ug/Kg	2	2	100%	2	2			3.6	320	162	34	162	224	1.4	1,161
Total LPAH	ug/Kg	2	2	100%	2	2			22.80	738	380.6	129.8	380.6	506.0	1.3	2,640
Total PAH	ug/Kg	2	2	100%	2	2			373.80	1,556	965.1	762.8	965.1	836.3	0.9	4,699
Polychlorinated Biphenyls:																
Aroclor-1016	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1221	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1232	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1242	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1248	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1254	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1260	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1262	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Aroclor-1268	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.050	52
Total PCBs	ug/Kg		2	0%	2		41	44			43	42	43	2.1	0.05	52

Table A-6

Summary Statistics for Sediment and Tailings Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Chem Group/Chemical Name	Unit	# of Detects	# of Samples	Frequency of Detection	Total stations	Stations with detects	Nondetects		Detects		Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t
							Minimum	Maximum	Minimum	Maximum						

Note:

Field Duplicate result values not included in table.

mg/Kg = milligrams per kilogram

ug/L = micrograms per liter

ug/Kg = micrograms per kilogram

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

Table A-6
Summary Statistics for Sediment and Tailings S
Pre-Remedial Investigation, Salt Chuck Mine ·

Chem Group/Chemical Name	Unit	ERL Screening Criteria	ERL # Detects Exceeding Screening	ERL # Nondetects Exceeding Screening	ERL # Stations with Detections Exceeding Criteria	ERL # Stations with Nondetections Exceeding Criteria	ERM Screening Criteria	ERM # Detects Exceeding Screening	ERM # Nondetects Exceeding Screening	ERM # Stations with Detections Exceeding Criteria	ERM # Stations with Nondetections Exceeding Criteria
Sediment/Tailing Samples from 0 - 0.5 ft											
General Chemistry:											
Total Organic Carbon	mg/Kg	NE					NE				
Metals:											
Aluminum	mg/kg	NE					NE				
Antimony	mg/kg	NE					NE				
Arsenic	mg/kg	8.2	3		2		70				
Barium	mg/kg	NE					NE				
Beryllium	mg/kg	NE					NE				
Cadmium	mg/kg	1.2					9.6				
Calcium	mg/kg	NE					NE				
Chromium	mg/kg	81					370				
Cobalt	mg/kg	NE					NE				
Copper	mg/kg	34	32		29		270	19		18	
Iron	mg/kg	NE					NE				
Lead	mg/kg	46.7					218				
Magnesium	mg/kg	NE					NE				
Manganese	mg/kg	NE					NE				
Mercury	mg/kg	0.15	2		2		0.71	2		2	
Nickel	mg/kg	20.9					51.6				
Potassium	mg/kg	NE					NE				
Selenium	mg/kg	NE					NE				
Silver	mg/kg	1	1		1		3.7				
Sodium	mg/kg	NE					NE				
Thallium	mg/kg	NE					NE				
Vanadium	mg/kg	NE					NE				
Zinc	mg/kg	150					410				
Polycyclic aromatic hydrocarbons (PAHs)											
2-Methylnaphthalene	ug/Kg	NE					NE				
High Molecular Weight PAHs:											
Benzo(a)anthracene	ug/Kg	261					1,600				
Benzo(a)pyrene	ug/Kg	430					1,600				
Benzo(g,h,i)perylene	ug/Kg	NE					NE				
Benzo[b]Fluoranthene	ug/Kg	NE					NE				
Benzo[k]fluoranthene	ug/Kg	NE					NE				
Chrysene	ug/Kg	384					2,800				
Dibenzo(a,h)anthracene	ug/Kg	63.4					260				
Indeno(1,2,3-cd)pyrene	ug/Kg	NE					NE				
Pyrene	ug/Kg	665					2,500				
Total HPAH	ug/Kg	1,700					9,600				
Low Molecular Weight PAHs:											

Table A-6
Summary Statistics for Sediment and Tailings S
Pre-Remedial Investigation, Salt Chuck Mine ·

		ERL					ERM				
Chem Group/Chemical Name	Unit	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria
Acenaphthene	ug/Kg	16		1		1	500				
Acenaphthylene	ug/Kg	44					640				
Anthracene	ug/Kg	85.3					1,100				
Fluoranthene	ug/Kg	600					5,100				
Naphthalene	ug/Kg	160					2,100				
Phenanthrene	ug/Kg	240					1,500				
Total LPAH	ug/Kg	552					3,160				
Total PAH	ug/Kg	4,022					44,792				
PCBs:											
Aroclor-1016	ug/Kg	NE					NE				
Aroclor-1221	ug/Kg	NE					NE				
Aroclor-1232	ug/Kg	NE					NE				
Aroclor-1242	ug/Kg	NE					NE				
Aroclor-1248	ug/Kg	NE					NE				
Aroclor-1254	ug/Kg	NE					NE				
Aroclor-1260	ug/Kg	NE					NE				
Aroclor-1262	ug/Kg	NE					NE				
Aroclor-1268	ug/Kg	NE					NE				
Total PCBs	ug/Kg	22.7		62		56	180				
Total Petroleum Hydrocarbons:											
TPH-Diesel	MG/KG	NE					NE				
TPH-Oil	MG/KG	NE					NE				
Sediment/Tailing Samples from 2 - 3 ft											
General Chemistry:											
Total Organic Carbon	mg/Kg	NE					NE				
Metals:											
Aluminum	mg/kg	NE					NE				
Antimony	mg/kg	NE					NE				
Arsenic	mg/kg	8.2					70				
Barium	mg/kg	NE					NE				
Beryllium	mg/kg	NE					NE				
Cadmium	mg/kg	1.2					9.6				
Calcium	mg/kg	NE					NE				
Chromium	mg/kg	81					370				
Cobalt	mg/kg	NE					NE				
Copper	mg/kg	34	2		2		270	2		2	
Iron	mg/kg	NE					NE				
Lead	mg/kg	46.7					218				
Magnesium	mg/kg	NE					NE				
Manganese	mg/kg	NE					NE				
Mercury	mg/kg	0.15					0.71				

Table A-6
Summary Statistics for Sediment and Tailings S
Pre-Remedial Investigation, Salt Chuck Mine ·

		ERL					ERM				
Chem Group/Chemical Name	Unit	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria
Nickel	mg/kg	20.9					51.6				
Potassium	mg/kg	NE					NE				
Selenium	mg/kg	NE					NE				
Silver	mg/kg	1	1		1		3.7				
Sodium	mg/kg	NE					NE				
Thallium	mg/kg	NE					NE				
Vanadium	mg/kg	NE					NE				
Zinc	mg/kg	150					410				
PAHs:											
2-Methylnaphthalene	ug/Kg	NE					NE				
High Molecular Weight PAHs:											
Benzo(a)anthracene	ug/Kg	261					1,600				
Benzo(a)pyrene	ug/Kg	430					1,600				
Benzo(g,h,i)perylene	ug/Kg	NE					NE				
Benzo[b]Fluoranthene	ug/Kg	NE					NE				
Benzo[k]fluoranthene	ug/Kg	NE					NE				
Chrysene	ug/Kg	384					2,800				
Dibenzo(a,h)anthracene	ug/Kg	63					260				
Indeno(1,2,3-cd)pyrene	ug/Kg	NE					NE				
Pyrene	ug/Kg	665					2,500				
Total HPAH	ug/Kg	1,700					9,600				
Low Molecular Weight PAHs:											
Acenaphthene	ug/Kg	16					500				
Acenaphthylene	ug/Kg	44					0,640				
Anthracene	ug/Kg	85	1		1		1,100				
Fluoranthene	ug/Kg	600					5,100				
Naphthalene	ug/Kg	160					2,100				
Phenanthrene	ug/Kg	240	1		1		1,500				
Total LPAH	ug/Kg	552	1		1		3,160				
Total PAH	ug/Kg	4,022					44,792				
Polychlorinated Biphenyls:											
Aroclor-1016	ug/Kg	NE					NE				
Aroclor-1221	ug/Kg	NE					NE				
Aroclor-1232	ug/Kg	NE					NE				
Aroclor-1242	ug/Kg	NE					NE				
Aroclor-1248	ug/Kg	NE					NE				
Aroclor-1254	ug/Kg	NE					NE				
Aroclor-1260	ug/Kg	NE					NE				
Aroclor-1262	ug/Kg	NE					NE				
Aroclor-1268	ug/Kg	NE					NE				
Total PCBs	ug/Kg	22.7		2		2	180				

Table A-6

Summary Statistics for Sediment and Tailings S

Pre-Remedial Investigation, Salt Chuck Mine ·

Chem Group/Chemical Name	Unit	ERL					ERM				
		Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria

Note:

Field Duplicate result values not included in table.

mg/Kg = milligrams per kilogram

ug/L = micrograms per liter

ug/Kg = micrograms per kilogram

ERL/ERM NOAA marine benchmarks (Long et al., 1995: Buchman, 2008)

Appendix B Tissue Tables

Table B-1

Tissue Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

				Chem Groups (EPA Sample ID)			
Location ID	**Activity ID[1]**	**Sample Type**	**Sample Date**	**LIPIDS**	**METALS**	**PAH**	**PCB**
SCSD-109-SS	SCTISS-109-SS-08282011	N	8/28/2011	11354578	11354578	11354578	11354578
SCSD-110-SS	SCTISS-110-SS-08302011	N	8/30/2011	11354579	11354579	11354579	11354579
SCSD-115-SS	SCTISS-115-SS-08292011	N	8/29/2011	11354580	11354580	11354580	11354580
SCSD-119-SS	SCTISS-119-SS-08302011	N	8/30/2011	11354581	11354581	11354581	11354581
SCSD-123-SS	SCTISS-123-SS-08292011	N	8/29/2011	11354582	11354582	11354582	11354582
SCSD-127-BC	SCTISS-127-BC-08282011	N	8/28/2011	11354606	11354606	11354606	11354606
SCSD-127-LN	SCTISS-127-LN-08282011	N	8/28/2011		11354608		
SCSD-127-SS	SCTISS-127-SS-08292011	N	8/29/2011	11354609	11354609	11354609	11354609
SCSD-128-SS	SCTISS-128-SS-08292011	N	8/29/2011	11354583	11354583	11354583	11354583
SCSD-130-CO	SCTISS-130-CO-08292011	N	8/29/2011	11354584	11354584	11354584	11354584
SCSD-133-BC	SCTISS-133-BC-08312011	N	8/31/2011	11354611	11354611	11354611	11354611
SCSD-133-BC	SCTISS-164-BC-08312011FD	FD	8/31/2011	11354616	11354616	11354616	11354616
SCSD-133-LN	SCTISS-133-LN-08312011	N	8/31/2011		11354612		
SCSD-134-BC	SCTISS-134-BC-08292011	N	8/29/2011	11354585	11354585	11354585	11354585
SCSD-134-CO	SCTISS-134-CO-08292011	N	8/29/2011		11354586		
SCSD-134-LN	SCTISS-134-LN-08292011	N	8/29/2011		11354587		
SCSD-136-BC	SCTISS-136-BC-08312011	N	8/31/2011	11354613	11354613	11354613	11354613
SCSD-136-SS	SCTISS-136-SS-08282011	N	8/28/2011	11354607	11354607	11354607	11354607
SCSD-137-BC	SCTISS-137-BC-08282011	N	8/28/2011	11354614	11354614	11354614	11354614
SCSD-137-SS	SCTISS-137-SS-08312011	N	8/31/2011	11354615	11354615	11354615	11354615
SCSD-147-SS	SCTISS-147-SS-08302011	N	8/30/2011	11354588	11354588	11354588	11354588
SCSD-148-BC	SCTISS-148-BC-08302011	N	8/30/2011	11354589	11354589	11354589	11354589
SCSD-148-LN	SCTISS-148-LN-08302011	N	8/30/2011		11354590		
SCSD-149-BC	SCTISS-149-BC-08302011	N	8/30/2011	11354591	11354591	11354591	11354591
SCSD-149-CO	SCTISS-149-CO-08302011	N	8/30/2011	11354592	11354592	11354592	11354592
SCSD-149-LN	SCTISS-149-LN-08302011	N	8/30/2011	11354593	11354593	11354593	11354593
SCSD-150-SS	SCTISS-150-SS-08302011	N	8/30/2011	11354594	11354594	11354594	11354594
SCSD-151-SS	SCTISS-151-SS-08302011	N	8/30/2011	11354595	11354595	11354595	11354595
SCSD-151-SS	SCTISS-162-SS-08302011FD	FD	8/30/2011	11354600	11354600	11354600	11354600
SCSD-152-BC	SCTISS-152-BC-08302011	N	8/30/2011	11354596	11354596	11354596	11354596
SCSD-152-LN	SCTISS-152-LN-08302011	N	8/30/2011		11354597		
SCSD-152-SS	SCTISS-152-SS-08302011	N	8/30/2011	11354598	11354598	11354598	11354598
SCSD-153-SS	SCTISS-153-SS-08302011	N	8/30/2011	11354599	11354599	11354599	11354599

Notes:

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

LIPIDS = includes Method 354.1.
METALS = includes Methods 6010B, 6020, and 245.6 (mercury).
PAH = Polycyclic aromatic hydrocarbons; includes Method 8270D.
PCB = polychlorinated biphenyls; includes Method 8082.

N = normal environmental sample
FD = field duplicate sample

Table B-2
Tissue Sample Results, Metals (mg/Kg) and Lipids (%)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Activity ID	Sample Type	Sample Date	Lipids	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron
Screening Criteria:[1]															
Lowest of the Carcinogenic and Noncarcinogenic value:				*NE*	*1,400*	*0.54*	*0.0021*	*270*	*2.7*	*1.4*	*NE*	*NE*	*0.41*	*54*	*950*
SCSD-127-BC	SCTISS-127-BC-08282011	N	08/28/11	0.87	42 J	0.098 U	**6.52**	0.39 U	0.012 UJ	0.16	337	0.68	0.18 J	4.21	190 J
SCSD-133-BC	SCTISS-133-BC-08312011	N	08/31/11	0.87	16 J	0.095 U	**5.05**	0.38 U	0.012 UJ	0.17	255	0.48	0.12 J	2.64	53 J
SCSD-133-BC	SCTISS-164-BC-08312011FD	FD	08/31/11	1.05	12 J	0.089 U	**3.81**	0.36 U	0.011 UJ	0.14	308	0.35	0.1 J	2.33	42 J
SCSD-134-BC	SCTISS-134-BC-08292011	N	08/29/11	0.75	22 J	0.094 UJ	**4.62**	0.38 U	0.012 UJ	0.17	550 J	0.63 J	0.15	2.5 J	74.4
SCSD-136-BC	SCTISS-136-BC-08312011	N	08/31/11	0.82	49 J	0.097 U	**5.38**	0.39 U	0.012 UJ	0.19	391	0.7	0.14 J	1.7	120 J
SCSD-137-BC	SCTISS-137-BC-08282011	N	08/28/11	0.78	20 J	0.1 U	**6.11**	0.4 U	0.013 UJ	0.21	990	0.84	0.14 J	2.1	66 J
SCSD-148-BC	SCTISS-148-BC-08302011	N	08/30/11	1.21	17 J	0.099 UJ	**2.8**	0.59	0.012 UJ	0.14	1,100 J	0.4 J	0.078	2.1 J	40
SCSD-149-BC	SCTISS-149-BC-08302011	N	08/30/11	0.81	18 J	0.092 UJ	**4.22**	0.37 U	0.012 UJ	0.13	330 J	0.48 J	0.13	1.7 J	44
SCSD-152-BC	SCTISS-152-BC-08302011	N	08/30/11	0.88	23 J	0.099 UJ	**4.78**	0.4 U	0.012 UJ	0.16	370 J	0.75 J	0.16	3.4 J	64.5
SCSD-130-CO	SCTISS-130-CO-08292011	N	08/29/11	0.69	300 J	0.098 UJ	**1.8**	1.6	0.012 UJ	0.34	2,000 J	1	0.31	5.3 J	833
SCSD-134-CO	SCTISS-134-CO-08292011	N	08/29/11	--	53 J	0.081 UJ	**1.4**	0.53	0.01 UJ	0.095	580 J	0.38 J	0.06	2.9 J	176
SCSD-149-CO	SCTISS-149-CO-08302011	N	08/30/11	0.97	27 J	0.098 UJ	**1.4**	0.39 U	0.012 UJ	0.095	330 J	0.21 J	0.024	0.93 J	106
SCSD-127-LN	SCTISS-127-LN-08282011	N	08/28/11	--	17 J	0.095 U	**5.77**	0.99	0.012 UJ	0.42	402	0.37	0.15 J	2.92	98 J
SCSD-133-LN	SCTISS-133-LN-08312011	N	08/31/11	--	12 J	0.097 U	**3.37**	0.69	0.012 UJ	0.54	962	0.32	0.056 J	3.11	47 J
SCSD-134-LN	SCTISS-134-LN-08292011	N	08/29/11	--	12 UJ	0.1 UJ	**2.79**	0.73	0.013 UJ	0.37	5,100 J	0.3 J	0.067	3.5 J	35
SCSD-148-LN	SCTISS-148-LN-08302011	N	08/30/11	--	12 UJ	0.097 UJ	**1.9**	0.54	0.012 UJ	0.41	1,600 J	0.63 J	0.052	1.4 J	24
SCSD-149-LN	SCTISS-149-LN-08302011	N	08/30/11	0.91	11 UJ	0.093 UJ	**3.77**	0.74	0.012 UJ	0.47	480 J	0.38 J	0.09	1.7 J	34
SCSD-152-LN	SCTISS-152-LN-08302011	N	08/30/11	--	13 UJ	0.11 UJ	**4.86**	0.51	0.013 UJ	0.44	400 J	0.23 J	0.12	1.6 J	43
SCSD-109-SS	SCTISS-109-SS-08282011	N	08/28/11	0.43	1,100 J	0.097 UJ	**2.1**	2.2	0.012 UJ	0.2	1,500 J	7.7	**1.4**	**93 J**	**4,470**
SCSD-110-SS	SCTISS-110-SS-08302011	N	08/30/11	0.53	990 J	0.095 UJ	**4.21**	2.4	0.012 UJ	0.17	2,500 J	11	**1.6**	**69 J**	**8,210**
SCSD-115-SS	SCTISS-115-SS-08292011	N	08/29/11	0.45	500 J	0.097 UJ	**2.7**	1.5	0.012 UJ	0.18	1,000 J	2	**0.6**	13 J	**2,650**
SCSD-119-SS	SCTISS-119-SS-08302011	N	08/30/11	0.52	730 J	0.1 UJ	**3.43**	1.6	0.012 UJ	0.24	1,600 J	4.5	**1.2**	**59 J**	**4,530**
SCSD-123-SS	SCTISS-123-SS-08292011	N	08/29/11	0.58	440 J	0.099 UJ	**2.72**	1.5	0.012 UJ	0.28	1,300 J	1.8	0.4	8.1 J	**1,800**
SCSD-127-SS	SCTISS-127-SS-08292011	N	08/29/11	0.68	230 J	0.097 U	**2.1**	0.81	0.012 UJ	0.31	1,030	0.8	0.31 J	8.24	**1,100 J**
SCSD-128-SS	SCTISS-128-SS-08292011	N	08/29/11	0.53	180 J	0.097 UJ	**1.6**	1.1	0.012 UJ	0.3	780 J	0.6	0.23	5.1 J	550
SCSD-136-SS	SCTISS-136-SS-08282011	N	08/28/11	0.92	140 J	0.1 U	**1.8**	0.87	0.013 UJ	0.36	1,480	0.91	0.12 J	5.23	190 J
SCSD-137-SS	SCTISS-137-SS-08312011	N	08/31/11	0.67	160 J	0.099 U	**2.3**	1.3	0.012 UJ	0.3	1,140	0.61	0.16 J	4.6	570 J
SCSD-147-SS	SCTISS-147-SS-08302011	N	08/30/11	0.63	360 J	0.097 UJ	**1.8**	0.78	0.012 UJ	0.59	1,000 J	2 J	0.32	2.7 J	574
SCSD-150-SS	SCTISS-150-SS-08302011	N	08/30/11	0.67	210 J	0.099 UJ	**2**	1.4	0.012 UJ	0.52	1,300 J	0.85 J	0.21	2.6 J	505
SCSD-151-SS	SCTISS-151-SS-08302011	N	08/30/11	0.72	200 J	0.099 UJ	**1.6**	1	0.012 UJ	0.42	810 J	1.8 J	0.19	2.2 J	247
SCSD-151-SS	SCTISS-162-SS-08302011FD	FD	08/30/11	0.67	270 J	0.098 U	**1.9**	1.4	0.012 U	0.47	1,080	1.7	0.2 J	4.8	390 J
SCSD-152-SS	SCTISS-152-SS-08302011	N	08/30/11	0.98	190 J	0.098 U	**2.2**	0.78	0.012 U	0.37	675	1	0.12 J	5.65	270 J
SCSD-153-SS	SCTISS-153-SS-08302011	N	08/30/11	0.76	65 J	0.098 U	**1.6**	1.2	0.012 UJ	0.37	865	0.64	0.097 J	2.4	140 J

Notes:

mg/kg = milligrams per kilograr
NE = Not Established
N = normal sample
FD = field duplicate sample
-- = not analyzed
BC = Butter Clams
LN = Littleneck Clams
CO = Cockles
SS = Softshell Clam

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

BOLD = detected result exceeds screening criteri

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

Table B-2
Tissue Sample Results, Metals (mg/Kg) and Lipids (%)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Fo

Location ID	Activity ID	Sample Type	Sample Date	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Criteria:[1]																
Lowest of the Carcinogenic and Noncarcinogenic value:				*NE*	*NE*	*190*	*NE*	*6.8*	*27*	*NE*	*6.8*	*6.8*	*NE*	*0.014*	*NE*	*410*
SCSD-127-BC	SCTISS-127-BC-08282011	N	08/28/11	0.25 U	597	1.7 J	0.0252	0.11	0.61	2,600 J	0.38	0.044 J	2,300 J	0.025 U	0.55	14.1
SCSD-133-BC	SCTISS-133-BC-08312011	N	08/31/11	0.24 U	598	1.1 J	0.0179	0.069	0.47	2,700 J	0.3	0.082 J	2,500 J	**0.035**	0.27	12.7
SCSD-133-BC	SCTISS-164-BC-08312011FD	FD	08/31/11	0.22 U	630	1.1 J	0.0151	0.065	0.43	2,900 J	0.32	0.037 J	2,400 J	**0.033**	0.2	16
SCSD-134-BC	SCTISS-134-BC-08292011	N	08/29/11	0.24 U	586	1.3	0.018	0.075	0.64	2,740	0.32	0.028 J	2,500	0.025 U	0.29	13.3
SCSD-136-BC	SCTISS-136-BC-08312011	N	08/31/11	0.24 U	708	2.1 J	0.0176	0.071	0.59	2,900 J	0.38	0.25 J	2,900 J	**0.047**	0.45	14.9
SCSD-137-BC	SCTISS-137-BC-08282011	N	08/28/11	0.25 U	665	1.2 J	0.0167	0.12	0.69	2,600 J	0.46	1 J	3,100 J	**0.04**	0.22	13.8
SCSD-148-BC	SCTISS-148-BC-08302011	N	08/30/11	0.25 U	545	1.1	0.012 U	0.053	0.37	2,970	0.26	0.1 J	2,160	0.025 U	0.14	13.8
SCSD-149-BC	SCTISS-149-BC-08302011	N	08/30/11	0.23 U	526	0.89	0.0132	0.064	0.45	2,630	0.31	0.44 J	2,320	0.025 U	0.18	13
SCSD-152-BC	SCTISS-152-BC-08302011	N	08/30/11	0.25 U	588	0.91	0.0136	0.08	0.58	2,540	0.36	0.67 J	2,510	0.025 U	0.19	17
SCSD-130-CO	SCTISS-130-CO-08292011	N	08/29/11	0.25 U	665	13.3	0.0301	0.29	0.55	1,720	0.55	0.027 J	3,160	0.025 U	2.49	16.2
SCSD-134-CO	SCTISS-134-CO-08292011	N	08/29/11	0.2 U	532	1.9	0.0231	0.062	0.42	3,000	0.46	0.01 UJ	2,700	0.025 U	0.46	13.8
SCSD-149-CO	SCTISS-149-CO-08302011	N	08/30/11	0.25 U	493	1.1	0.0183	0.053	0.24	3,030	0.37	0.012 UJ	2,500	0.025 U	0.21	12
SCSD-127-LN	SCTISS-127-LN-08282011	N	08/28/11	0.24 U	478	1.3 J	0.0211	0.1	0.59	2,000 J	0.55	0.012 UJ	2,300 J	**0.048**	0.31	14.7
SCSD-133-LN	SCTISS-133-LN-08312011	N	08/31/11	0.24 U	510	1.5 J	0.0186	0.1	0.28	2,700 J	0.76	0.018 J	2,400 J	**0.047**	0.2	13.2
SCSD-134-LN	SCTISS-134-LN-08292011	N	08/29/11	0.25 U	538	1.1	0.0176	0.081	0.33	2,400	0.55	0.013 UJ	2,280	0.025 U	0.12	14.9
SCSD-148-LN	SCTISS-148-LN-08302011	N	08/30/11	0.24 U	468	1.1	0.0134	0.079	0.36	2,560	0.5	0.066 J	2,370	0.025 U	0.078	12
SCSD-149-LN	SCTISS-149-LN-08302011	N	08/30/11	0.23 U	468	0.77	0.02	0.1	0.27	2,430	0.65	0.24 J	2,410	0.025 U	0.11	11.7
SCSD-152-LN	SCTISS-152-LN-08302011	N	08/30/11	0.26 U	516	0.69	0.0139	0.092	0.43	2,340	0.45	0.069 J	2,550	0.025 U	0.11	14.2
SCSD-109-SS	SCTISS-109-SS-08282011	N	08/28/11	0.35	1,090	27.1	0.0275	0.35	4.24	1,760	0.49	0.057 J	3,110	**0.029**	20	13.2
SCSD-110-SS	SCTISS-110-SS-08302011	N	08/30/11	0.66	1,110	24.3	0.0339	0.44	5.78	1,750	0.46	0.028 J	2,910	0.025 U	27.9	12.5
SCSD-115-SS	SCTISS-115-SS-08292011	N	08/29/11	0.24 U	807	10.3	0.027	0.28	1.2	1,700	0.43	0.013 J	3,430	0.025 U	8.05	11.4
SCSD-119-SS	SCTISS-119-SS-08302011	N	08/30/11	0.25 U	1,010	17.3	0.0246	0.31	2.51	1,950	0.58	2.4 J	3,260	0.025 U	18.3	10.8
SCSD-123-SS	SCTISS-123-SS-08292011	N	08/29/11	0.25 U	819	13.8	0.0323	0.32	1	1,840	0.53	0.015 J	3,700	0.025 U	4.02	13.9
SCSD-127-SS	SCTISS-127-SS-08292011	N	08/29/11	0.24 U	694	7 J	0.0264	0.24	0.57	2,100 J	0.57	0.025 J	3,400 J	**0.042**	3.7	12.1
SCSD-128-SS	SCTISS-128-SS-08292011	N	08/29/11	0.24 U	605	7.06	0.0275	0.26	0.42	1,730	0.5	0.023 J	3,210	0.025 U	1.5	12.2
SCSD-136-SS	SCTISS-136-SS-08282011	N	08/28/11	0.25 U	562	5.2 J	0.0189	0.2	0.57	2,300 J	0.52	0.063 J	3,000 J	**0.051**	0.77	11.9
SCSD-137-SS	SCTISS-137-SS-08312011	N	08/31/11	0.25 U	634	7.1 J	0.0225	0.25	0.48	2,200 J	0.52	0.063 J	3,300 J	**0.048**	1.1	13.7
SCSD-147-SS	SCTISS-147-SS-08302011	N	08/30/11	0.24 U	829	9.94	0.0233	0.29	1.2	2,130	0.53	0.077 J	4,000	0.025 U	1.8	12.8
SCSD-150-SS	SCTISS-150-SS-08302011	N	08/30/11	0.25 U	674	4.09	0.0225	0.3	0.63	2,050	0.51	0.071 J	3,470	0.025 U	1.4	14.2
SCSD-151-SS	SCTISS-151-SS-08302011	N	08/30/11	0.25 U	646	5.89	0.0171	0.24	1	2,040	0.46	0.085 J	3,500	0.025 U	1.2	12.8
SCSD-151-SS	SCTISS-162-SS-08302011FD	FD	08/30/11	0.25 U	735	8.6 J	0.0195	0.27	0.96	2,100 J	0.5	0.098 J	3,700 J	**0.051**	1.4	15.2
SCSD-152-SS	SCTISS-152-SS-08302011	N	08/30/11	0.25 U	576	3.5 J	0.0169	0.16	0.59	2,300 J	0.52	0.17 J	2,900 J	**0.03**	0.94	11.9
SCSD-153-SS	SCTISS-153-SS-08302011	N	08/30/11	0.25 U	582	5.4 J	0.019	0.2	0.44	2,300 J	0.43	0.07 J	3,100 J	0.025 U	0.5	13.5

Notes:

mg/kg = milligrams per kilograr
NE = Not Established
N = normal sample
FD = field duplicate sample
-- = not analyzed
BC = Butter Clams
LN = Littleneck Clams
CO = Cockles
SS = Softshell Clam

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 s

[1]Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEI

BOLD = detected result exceeds screening criteri

= analyte not detected but method reporting limit exceeds the

Table B-3
Tissue Sample Results, PAH (ug/Kg)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

							High-Molecular Weight PAHs (HPAH)								
Location ID	**Activity ID**	**Sample Type**	**Sample Date**	**1-methyl-Naphthalene**	**2-methy-Naphthalene**	**Dibenzofuran**	**Benzo(a)-anthracene**	**Benzo(a)pyrene**	**Benzo(b)-Fluoranthene**	**Benzo(ghi)-perylene**	**Benzo(k)-fluoranthene**	**Chrysene**	**Dibenzo(ah)-anthracene**	**Indeno(123cd)-pyrene**	**Pyrene**
Screening Criteria:[1]															
Lowest of the Carcinogenic and Noncarcinogenic value:				*110*	*5,400*	*1,400*	*4.3*	*0.43*	*4.3*	*NE*	*43*	*430*	*0.43*	*4.3*	*41,000*
SCSD-127-BC	SCTISS-127-BC-08282011	N	08/28/11	1.5 U	4.3 U	0.96 U	1	1.9 U	1.2	2.9 U	0.96 U	0.96 U	0.96 U	0.96 U	1.1
SCSD-133-BC	SCTISS-133-BC-08312011	N	08/31/11	1.5 U	2.3 U	0.96 U	0.96 U	1.9 U	0.96 U	2.4 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
SCSD-133-BC	SCTISS-164-BC-08312011FD	FD	08/31/11	0.95 U	2 U	0.95 U	0.95 U	1.7 U	0.95 U	2.3 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-134-BC	SCTISS-134-BC-08292011	N	08/29/11	0.94 U	3.1 U	0.94 U	0.94 U	1.8 U	0.94 U	2.4 U	0.94 U	0.94 U	0.94 U	1.2 U	0.94 U
SCSD-136-BC	SCTISS-136-BC-08312011	N	08/31/11	0.95 U	2.4 U	0.95 U	0.95 U	1.9 U	0.95 U	2.5 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-137-BC	SCTISS-137-BC-08282011	N	08/28/11	0.95 U	2.5 U	0.95 U	0.95 U	1.9 U	0.95 U	2.6 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-148-BC	SCTISS-148-BC-08302011	N	08/30/11	0.92 U	1.6 U	0.92 U	0.92 U	1.8 U	0.92 U	2.4 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
SCSD-149-BC	SCTISS-149-BC-08302011	N	08/30/11	0.97 U	1.2 U	0.97 U	0.97 U	1.9 U	0.97 U	2.8 U	0.97 U	0.97 U	0.97 U	2.4 U	0.97 U
SCSD-152-BC	SCTISS-152-BC-08302011	N	08/30/11	0.94 U	2.2 U	0.94 U	0.94 U	1.8 U	0.94 U	2.2 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
SCSD-130-CO	SCTISS-130-CO-08292011	N	08/29/11	0.96 U	3.4 U	0.96 U	1.6	2.5 U	2.6	3 U	0.96 U	1	0.96 U	2.6	1.8
SCSD-149-CO	SCTISS-149-CO-08302011	N	08/30/11	0.95 U	3.2 U	0.95 U	0.95 U	0.97 U	0.95 U	2.2 U	0.95 U	0.95 U	0.95 U	2 U	0.95 U
SCSD-149-LN	SCTISS-149-LN-08302011	N	08/30/11	0.96 U	1.4 U	0.96 U	0.96 U	1.9 U	0.96 U	2.4 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
SCSD-109-SS	SCTISS-109-SS-08282011	N	08/28/11	0.97 U	7.9 U	0.93 U	**4.7**	12 U	**8.1**	9.1 U	2.4	4.3	1.3 U	**4.9**	9.5
SCSD-110-SS	SCTISS-110-SS-08302011	N	08/30/11	1 U	6.9 U	0.95 U	2.8	9.1 U	**6.4**	11 U	1.9	2.7	1.1 U	**5.5**	5.8
SCSD-115-SS	SCTISS-115-SS-08292011	N	08/29/11	0.93 U	8.7 U	0.93 U	0.93 U	6 U	3.1	7.2 U	1	0.93 U	0.93 U	2.5 U	2.1
SCSD-119-SS	SCTISS-119-SS-08302011	N	08/30/11	0.91 U	3.5 U	0.91 U	2.1	7.5 U	4.1	6.9 U	1.2	2.1	0.91 U	3.9	5.1
SCSD-123-SS	SCTISS-123-SS-08292011	N	08/29/11	1.1 U	11 U	0.94 U	0.94 U	1.9 U	1	4 U	0.94 U	0.94 U	0.94 U	0.94 U	1.3
SCSD-127-SS	SCTISS-127-SS-08292011	N	08/29/11	2.3 U	16 U	0.95 U	1.2	1.9 U	1.7	5.7 U	0.98	0.97	0.95 U	1.7	1.9
SCSD-128-SS	SCTISS-128-SS-08292011	N	08/29/11	1.2 U	17 U	0.95 U	0.95 U	1.9 U	0.95 U	2.6 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-136-SS	SCTISS-136-SS-08282011	N	08/28/11	1.9 U	21 U	0.94 U	0.94 U	1.9 U	0.94 U	2.5 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U
SCSD-137-SS	SCTISS-137-SS-08312011	N	08/31/11	1.5 U	12 U	0.95 U	0.95 U	1.9 U	0.95 U	2.5 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-147-SS	SCTISS-147-SS-08302011	N	08/30/11	1.1 U	9.1 U	0.95 U	0.95 U	1.9 U	0.95 U	2 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-150-SS	SCTISS-150-SS-08302011	N	08/30/11	1.2 U	14 U	0.97 U	0.97 U	1.9 U	0.97 U	2.7 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U
SCSD-151-SS	SCTISS-151-SS-08302011	N	08/30/11	0.98 U	15 U	0.92 U	0.92 U	1.8 U	0.92 U	1.9 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U
SCSD-151-SS	SCTISS-162-SS-08302011FD	FD	08/30/11	2.4 U	18 U	0.96 U	0.96 U	1.9 U	0.96 U	3.3 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
SCSD-152-SS	SCTISS-152-SS-08302011	N	08/30/11	0.95 U	7.1 U	0.95 U	0.95 U	1.9 U	0.95 U	3.5 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-153-SS	SCTISS-153-SS-08302011	N	08/30/11	1.2 U	16 U	0.97 U	0.97 U	1.9 U	0.97 U	3.2 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U

Notes:

ug/kg = micrograms per kilogram
PAH = Polycyclic aromatic hydrocarbons; includes Method 8270D.
NE = Not Established
N = normal sample
FD = field duplicate 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.

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

BOLD = detected result exceeds screening criteria

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

Table B-3
Tissue Sample Results, PAH (ug/Kg)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass Nationa

				Low-Molecular Weight PAHs (LPAH)									
Location ID	**Activity ID**	**Sample Type**	**Sample Date**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Fluoranthene**	**Fluorene**	**Naphthalene**	**Phenanthrene**	**Total HPAHs**	**Total LPAHs**	**Total PAHs**
Screening Criteria:[1]													
Lowest of the Carcinogenic and Noncarcinogenic value:				*81,000*	*NE*	*410,000*	*54,000*	*54,000*	*27,000*	*NE*	*NE*	*NE*	*NE*
SCSD-127-BC	SCTISS-127-BC-08282011	N	08/28/11	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	3.3	0.96 U	3.3
SCSD-133-BC	SCTISS-133-BC-08312011	N	08/31/11	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	2.4 U	0.96 U	2.4 U
SCSD-133-BC	SCTISS-164-BC-08312011FD	FD	08/31/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	2.3 U	0.95 U	2.3 U
SCSD-134-BC	SCTISS-134-BC-08292011	N	08/29/11	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	2.4 U	0.94 U	2.4 U
SCSD-136-BC	SCTISS-136-BC-08312011	N	08/31/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	2.5 U	0.95 U	2.5 U
SCSD-137-BC	SCTISS-137-BC-08282011	N	08/28/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	2.6 U	0.95 U	2.6 U
SCSD-148-BC	SCTISS-148-BC-08302011	N	08/30/11	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	2.4 U	0.92 U	2.4 U
SCSD-149-BC	SCTISS-149-BC-08302011	N	08/30/11	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	2.8 U	0.97 U	2.8 U
SCSD-152-BC	SCTISS-152-BC-08302011	N	08/30/11	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	2.2 U	0.94 U	2.2 U
SCSD-130-CO	SCTISS-130-CO-08292011	N	08/29/11	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	3.3	9.6	3.3	12.9
SCSD-149-CO	SCTISS-149-CO-08302011	N	08/30/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	2.2 U	0.95 U	2.2 U
SCSD-149-LN	SCTISS-149-LN-08302011	N	08/30/11	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	2.4 U	0.96 U	2.4 U
SCSD-109-SS	SCTISS-109-SS-08282011	N	08/28/11	0.93 U	2.1	2.1	5.4	0.93 U	0.93 U	1.8	33.9	11.4	45.3
SCSD-110-SS	SCTISS-110-SS-08302011	N	08/30/11	0.95 U	1.2	1.4	4.7	0.95 U	0.97 U	0.95 U	25.1	7.3	32.4
SCSD-115-SS	SCTISS-115-SS-08292011	N	08/29/11	0.93 U	0.93 U	0.93 U	1	0.93 U	0.93 U	0.93 U	6.2	1	7.2
SCSD-119-SS	SCTISS-119-SS-08302011	N	08/30/11	0.91 U	0.91 U	1	2.2	0.91 U	0.91 U	0.91 U	18.5	3.2	21.7
SCSD-123-SS	SCTISS-123-SS-08292011	N	08/29/11	0.94 U	0.94 U	0.94 U	1	0.94 U	0.94 U	1	2.3	2	4.3
SCSD-127-SS	SCTISS-127-SS-08292011	N	08/29/11	0.95 U	0.95 U	0.95 U	1.6	0.95 U	0.95 U	1.3	8.45	2.9	11.35
SCSD-128-SS	SCTISS-128-SS-08292011	N	08/29/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
SCSD-136-SS	SCTISS-136-SS-08282011	N	08/28/11	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	2.5 U	0.94 U	2.5 U
SCSD-137-SS	SCTISS-137-SS-08312011	N	08/31/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	1.2 U	0.95 U	2.5 U	0.95 U	2.5 U
SCSD-147-SS	SCTISS-147-SS-08302011	N	08/30/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	2 U	0.95 U	2 U
SCSD-150-SS	SCTISS-150-SS-08302011	N	08/30/11	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	2.7 U	0.97 U	2.7 U
SCSD-151-SS	SCTISS-151-SS-08302011	N	08/30/11	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	1.9 U	0.92 U	1.9 U
SCSD-151-SS	SCTISS-162-SS-08302011FD	FD	08/30/11	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	3.3 U	0.96 U	3.3 U
SCSD-152-SS	SCTISS-152-SS-08302011	N	08/30/11	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	1.1 U	0.95 U	3.5 U	0.95 U	3.5 U
SCSD-153-SS	SCTISS-153-SS-08302011	N	08/30/11	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	3.2 U	0.97 U	3.2 U

Notes:

ug/kg = micrograms per kilogram
PAH = Polycyclic aromatic hydrocarbons; includes Method 8270D.
NE = Not Established
N = normal sample
FD = field duplicate 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 lin

[1]Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (U

BOLD = detected result exceeds screening criteria

= analyte not detected but method reporting limit exceeds

Table B-4
Tissue Sample Results, PCBs (ug/Kg)
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Activity ID	Sample Type	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Total PCBs
Screening Criteria:[1]											
Lowest of the Carcinogenic and Noncarcinogenic value:				*45*	*1.6*	*1.6*	*1.6*	*1.6*	*1.6*	*1.6*	*1.6*
SCSD-127-BC	SCTISS-127-BC-08282011	N	08/28/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-133-BC	SCTISS-133-BC-08312011	N	08/31/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-133-BC	SCTISS-164-BC-08312011FD	FD	08/31/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-134-BC	SCTISS-134-BC-08292011	N	08/29/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-136-BC	SCTISS-136-BC-08312011	N	08/31/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-137-BC	SCTISS-137-BC-08282011	N	08/28/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-148-BC	SCTISS-148-BC-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-149-BC	SCTISS-149-BC-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-152-BC	SCTISS-152-BC-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-130-CO	SCTISS-130-CO-08292011	N	08/29/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-149-CO	SCTISS-149-CO-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-149-LN	SCTISS-149-LN-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-109-SS	SCTISS-109-SS-08282011	N	08/28/11	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
SCSD-110-SS	SCTISS-110-SS-08302011	N	08/30/11	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
SCSD-115-SS	SCTISS-115-SS-08292011	N	08/29/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-119-SS	SCTISS-119-SS-08302011	N	08/30/11	17 U	17 U	17 U	17 U	17 U	17 U	17 U	17 U
SCSD-123-SS	SCTISS-123-SS-08292011	N	08/29/11	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
SCSD-127-SS	SCTISS-127-SS-08292011	N	08/29/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-128-SS	SCTISS-128-SS-08292011	N	08/29/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-136-SS	SCTISS-136-SS-08282011	N	08/28/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-137-SS	SCTISS-137-SS-08312011	N	08/31/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-147-SS	SCTISS-147-SS-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-150-SS	SCTISS-150-SS-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-151-SS	SCTISS-151-SS-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-151-SS	SCTISS-162-SS-08302011FD	FD	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-152-SS	SCTISS-152-SS-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
SCSD-153-SS	SCTISS-153-SS-08302011	N	08/30/11	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U

Notes:

PCB = polychlorinated biphenyls; includes Method 8082.
ug/kg = micrograms per kilogram
NE = Not Established
N = normal sample
FD = field duplicate 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.

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

BOLD = detected result exceeds screening criteria

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

Table B-5 Summary Statistics for Tissue Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Chem Group/ Method	Chemical Name	Unit	# of Detects	# of Samples	# of Rejected Samples	Frequency of Detection	Total stations	Stations with detects	Nondetects Minimum	Nondetects Maximum	Detects Minimum	Detects Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t
General Chemistry:																		
3541	Lipids%	%	27	27	0	100%	25	25			0.43	1.2	0.75	0.73	0.75	0.19	0.25	0.82
Metals:																		
245.6	Mercury	mg/Kg	32	33	0	97%	31	30	0.012	0.012	0.013	0.034	0.021	0.020	0.019	0.0057	0.27	0.022
6010B	Aluminum	mg/Kg	29	33	0	88%	31	27	11	13	12	1,100	195	72	53	278	1.4	277
6010B	Barium	mg/Kg	24	33	0	73%	31	23	0.36	0.40	0.51	2.4	0.92	0.78	0.78	0.54	0.59	1.1
6010B	Calcium	mg/Kg	33	33	0	100%	31	31			255	5,100	1,047	816	962	903	0.86	1,313
6010B	Iron	mg/Kg	33	33	0	100%	31	31			24	8,210	857	217	176	1,746	2.0	1,372
6010B	Magnesium	mg/Kg	33	33	0	100%	31	31			468	1,110	651	634	598	166	0.25	700
6010B	Potassium	mg/Kg	33	33	0	100%	31	31			1,700	3,030	2,334	2,298	2,300	411	0.18	2,455
6010B	Sodium	mg/Kg	33	33	0	100%	31	31			2,160	4,000	2,889	2,848	2,900	503	0.17	3,038
6010B	Zinc	mg/Kg	33	33	0	100%	31	31			11	17	13	13	13	1.4	0.11	14
6020	Antimony	mg/Kg		33	0	0%	31		0.081	0.11			0.097	0.097	0.098	0.0044	0.045	0.098
6020	Arsenic	mg/Kg	33	33	0	100%	31	31			1.4	6.5	3.2	2.8	2.7	1.5	0.48	3.6
6020	Beryllium	mg/Kg		33	0	0%	31		0.010	0.013			0.012	0.012	0.012	5.29E-04	0.044	0.012
6020	Cadmium	mg/Kg	33	33	0	100%	31	31			0.095	0.59	0.29	0.26	0.30	0.14	0.48	0.34
6020	Chromium	mg/Kg	33	33	0	100%	31	31			0.21	11	1.4	0.81	0.68	2.2	1.6	2.1
6020	Cobalt	mg/Kg	33	33	0	100%	31	31			0.024	1.6	0.28	0.17	0.15	0.38	1.4	0.39
6020	Copper	mg/Kg	33	33	0	100%	31	31			0.93	93	10	4.1	2.9	21	2.1	16
6020	Lead	mg/Kg	2	33	0	6%	31	2	0.20	0.26	0.35	0.66	0.26	0.25	0.25	0.075	0.29	0.28
6020	Manganese	mg/Kg	33	33	0	100%	31	31			0.69	27	5.8	3.1	2.1	6.8	1.2	7.8
6020	Molybdenum	mg/Kg	33	33	0	100%	31	31			0.053	0.44	0.17	0.14	0.12	0.11	0.62	0.21
6020	Nickel	mg/Kg	33	33	0	100%	31	31			0.24	5.8	0.91	0.64	0.57	1.2	1.3	1.2
6020	Selenium	mg/Kg	33	33	0	100%	31	31			0.26	0.76	0.47	0.46	0.49	0.11	0.23	0.50
6020	Silver	mg/Kg	29	33	0	88%	31	27	0.010	0.013	0.013	2.4	0.19	0.063	0.063	0.45	2.3	0.33
6020	Thallium	mg/Kg	12	33	0	36%	31	11	0.025	0.025	0.029	0.051	0.031	0.030	0.025	0.0095	0.30	0.034
6020	Vanadium	mg/Kg	33	33	0	100%	31	31			0.078	28	3.0	0.72	0.50	6.4	2.1	4.9
Polynuclear Aromatic Hydrocarbons (PAHs):																		
8270D	1-Methylnaphthalene	ug/kg		27	0	0%	25		0.91	2.4			1.2	1.1	0.97	0.41	0.35	1.3
8270D	2-Methylnaphthalene	ug/kg		27	0	0%	25		1.2	21			7.9	5.5	6.9	6.2	0.78	9.9
8270D	Dibenzofuran	ug/kg		27	0	0%	25		0.91	0.97			0.95	0.95	0.95	0.015	0.016	0.95
High Molecular Weight PAHs:																		
8270D	Benzo(a)anthracene	ug/kg	6	27	0	22%	25	6	0.92	0.97	1.0	4.7	1.2	1.1	0.95	0.81	0.66	1.5
8270D	Benzo(a)pyrene	ug/kg		27	0	0%	25		0.97	12			2.9	2.3	1.9	2.6	0.91	3.7
8270D	Benzo(b)fluoranthene	ug/kg	8	27	0	30%	25	8	0.92	0.97	1.0	8.1	1.7	1.3	0.96	1.8	1.0	2.3
8270D	Benzo(g,h,i)perylene	ug/kg		27	0	0%	25		1.9	11			3.6	3.2	2.6	2.3	0.63	4.4
8270D	Benzo(k)fluoranthene	ug/kg	5	27	0	19%	25	5	0.92	0.97	0.98	2.4	1.1	1.0	0.95	0.33	0.31	1.2
8270D	Chrysene	ug/kg	5	27	0	19%	25	5	0.92	0.97	0.97	4.3	1.2	1.1	0.95	0.74	0.62	1.4
8270D	Dibenzo(a,h)anthracene	ug/kg		27	0	0%	25		0.91	1.3			0.97	0.96	0.95	0.074	0.077	0.99
8270D	Indeno(1,2,3-cd)pyrene	ug/kg	5	27	0	19%	25	5	0.92	2.5	1.7	5.5	1.6	1.3	0.96	1.3	0.78	2.0
8270D	Pyrene	ug/kg	8	27	0	30%	25	8	0.92	0.97	1.1	9.5	1.7	1.3	0.96	2.0	1.1	2.4
Calculated	Total HPAH	ug/kg	8	27	0	30%	25	8	0.95	3.50	2.3	33.9	5.7	3.6	2.50	7.8	1.4	8.3

Table B-5 Summary Statistics for Tissue Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Chem Group/ Method	Chemical Name	Unit	# of Detects	# of Samples	# of Rejected Samples	Frequency of Detection	Total stations	Stations with detects	Nondetects Minimum	Nondetects Maximum	Detects Minimum	Detects Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t
Low Molecular Weight PAHs:																		
8270D	Acenaphthene	ug/kg		27	0	0%	25		0.91	0.97			0.95	0.95	0.95	0.015	0.016	0.95
8270D	Acenaphthylene	ug/kg	2	27	0	7%	25	2	0.91	0.97	1.2	2.1	1.0	0.98	0.95	0.23	0.23	1.1
8270D	Anthracene	ug/kg	3	27	0	11%	25	3	0.92	0.97	1.0	2.1	1.0	0.99	0.95	0.23	0.23	1.1
8270D	Fluoranthene	ug/kg	6	27	0	22%	25	6	0.92	0.97	1.0	5.4	1.3	1.1	0.96	1.1	0.83	1.7
8270D	Fluorene	ug/kg		27	0	0%	25		0.91	0.97			0.9	0.9	0.95	0.0	0.02	1.0
8270D	Naphthalene	ug/kg		27	0	0%	25		0.91	1.2			0.96	0.96	0.95	0.058	0.060	0.98
8270D	Phenanthrene	ug/kg	4	27	0	15%	25	4	0.91	0.97	1.0	3.3	1.1	1.0	0.95	0.48	0.44	1.2
Calculated	Total LPAH	ug/kg	7	27	0	26%	25	7	0.92	0.97	1.0	11.4	1.9	1.3	0.96	2.34	1.26	2.6
Calculated	Total PAH	ug/kg	8	27	0	30%	25	8	0.95	3.50	3.3	45.3	6.9	3.9	2.60	10.38	1.51	10.3
Polychlorinated Biphenyls (PCBs):																		
8082	Aroclor-1016	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
8082	Aroclor-1221	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
8082	Aroclor-1232	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
8082	Aroclor-1242	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
8082	Aroclor-1248	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
8082	Aroclor-1254	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
8082	Aroclor-1260	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18
Calculated	Total PCBs	ug/kg		27	0	0%	25		17	19			18	18	18	0.38	0.021	18

Notes:

mg/Kg = milligrams per kilogram

ug/Kg = micrograms per kilogram

NE = Not established

Table B-5 Summary Statistics for Tissue

Pre-Remedial Investigation, Salt Chuck Mine - T

Chem Group/ Method	Chemical Name	Unit	Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEPA 2011) Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria
General Chemistry:							
3541	Lipids%	%	NE				
Metals:							
245.6	Mercury	mg/Kg	NE				
6010B	Aluminum	mg/Kg	1,400				
6010B	Barium	mg/Kg	270				
6010B	Calcium	mg/Kg	NE				
6010B	Iron	mg/Kg	950	6		6	
6010B	Magnesium	mg/Kg	NE				
6010B	Potassium	mg/Kg	NE				
6010B	Sodium	mg/Kg	NE				
6010B	Zinc	mg/Kg	410				
6020	Antimony	mg/Kg	0.54				
6020	Arsenic	mg/Kg	0.0021	33		31	
6020	Beryllium	mg/Kg	2.7				
6020	Cadmium	mg/Kg	1.4				
6020	Chromium	mg/Kg	NE				
6020	Cobalt	mg/Kg	0.41	4		4	
6020	Copper	mg/Kg	54	3		3	
6020	Lead	mg/Kg	NE				
6020	Manganese	mg/Kg	190				
6020	Molybdenum	mg/Kg	6.8				
6020	Nickel	mg/Kg	27				
6020	Selenium	mg/Kg	6.8				
6020	Silver	mg/Kg	6.8				
6020	Thallium	mg/Kg	0.014	12	21	11	21
6020	Vanadium	mg/Kg	NE				
Polynuclear Aromatic Hydrocarbons (PAHs):							
8270D	1-Methylnaphthalene	ug/kg	110				
8270D	2-Methylnaphthalene	ug/kg	5,400				
8270D	Dibenzofuran	ug/kg	1,400				
High Molecular Weight PAHs:							
8270D	Benzo(a)anthracene	ug/kg	4.3	1		1	
8270D	Benzo(a)pyrene	ug/kg	0.43		27		25
8270D	Benzo(b)fluoranthene	ug/kg	4.3	2		2	
8270D	Benzo(g,h,i)perylene	ug/kg	NE				
8270D	Benzo(k)fluoranthene	ug/kg	43				
8270D	Chrysene	ug/kg	430				
8270D	Dibenzo(a,h)anthracene	ug/kg	0.43		27		25
8270D	Indeno(1,2,3-cd)pyrene	ug/kg	4.3	2		2	
8270D	Pyrene	ug/kg	41,000				
Calculated	Total HPAH	ug/kg	NE	8	19	8	17

Table B-5 Summary Statistics for Tissue

Pre-Remedial Investigation, Salt Chuck Mine - T

Chem Group/ Method	Chemical Name	Unit	Lower of the two (carcinogenic vs. noncancer) fish tissue screening levels (USEPA 2011) Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria
Low Molecular Weight PAHs:							
8270D	Acenaphthene	ug/kg	81,000				
8270D	Acenaphthylene	ug/kg	NE				
8270D	Anthracene	ug/kg	410,000				
8270D	Fluoranthene	ug/kg	54,000				
8270D	Fluorene	ug/kg	54,000				
8270D	Naphthalene	ug/kg	27,000				
8270D	Phenanthrene	ug/kg	NE				
Calculated	Total LPAH	ug/kg	NE	7	20	7	18
Calculated	Total PAH	ug/kg	NE	8	19	8	17
Polychlorinated Biphenyls (PCBs):							
8082	Aroclor-1016	ug/kg	45				
8082	Aroclor-1221	ug/kg	1.6		27		25
8082	Aroclor-1232	ug/kg	1.6		27		25
8082	Aroclor-1242	ug/kg	1.6		27		25
8082	Aroclor-1248	ug/kg	1.6		27		25
8082	Aroclor-1254	ug/kg	1.6		27		25
8082	Aroclor-1260	ug/kg	1.6		27		25
Calculated	Total PCBs	ug/kg	1.6		27		25

Notes:

mg/Kg = milligrams per kilogram

ug/Kg = micrograms per kilogram

NE = Not established

Appendix C Surface Water Tables

Table C-1
Surface Water
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

				METALS (EPA Sample ID)	
Location ID	**Activity ID[1]**	**Sample Type**	**Sample Date**	**Total**	**Dissolved**
SCSW-101	SCSW-101-08312011	N	8/31/2011	MJE8H9	MJE8Z4
SCSW-102	SCSW-102-08312011	N	8/31/2011	MJE8I0	MJE8Z5

Notes:

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

METALS = includes Methods ICP_MS, ICP_AES, and CV (mercury).
N = normal environmental sample

Table C-2

Surface Water Sample Results, Metals (ug/L)

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location:			**SCSW-101**		**SCSW-102**	
Activity ID:			**SCSW-101-08312011**		**SCSW-102-08312011**	
Date Sampled:			**8/31/2011**		**8/31/2011**	
Fraction:			**Total**	**Dissolved**	**Total**	**Dissolved**
Chem Name	**Unit**	**Other Marine WQC[a]**				
Aluminum	ug/L	NE	323	298	225	204
Antimony	ug/L	500 [b]	2 U	2 J/U	2 U	2 U
Arsenic	ug/L	36	1.1	1.2	1 U	1 U
Barium	ug/L	NE	10 J/U	10 J/U	10 J/U	10 J/U
Beryllium	ug/L	8.8	1 U	1 U	1 U	1 U
Cadmium	ug/L	9.3	1 J/U	1 J/U	1 U	1 U
Calcium	ug/L	NE	12,400	12,000	5,000 J/U	5,000 J/U
Chromium	ug/L	27.4 [b]	2 J/U	2 J/U	2 J/U	2 J/U
Cobalt	ug/L	NE	1 J/U	1 J/U	1 J/U	1 J/U
Copper	ug/L	3.1	**3.7**	**3.3**	**3.5**	3
Iron	ug/L	NE	653 J	527	391 J	340
Lead	ug/L	8.1	1 J/U	1 J/U	1 J/U	1 J/U
Magnesium	ug/L	NE	29,700	29,500	5,000 J/U	5,000 J/U
Manganese	ug/L	NE	21.9	20	11.7	9
Mercury	ug/L	0.94	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	ug/L	8.2	0.58 J	1 U	0.43 J	1 U
Potassium	ug/L	NE	9,460 J	9,560	5,000 UJ	5,000 U
Selenium	ug/L	71	6.2	6.2	5 U	5 U
Silver	ug/L	1.9 [c]	1 U	1 U	1 J/U	1 J/U
Sodium	ug/L	NE	254,000	254,000	5,000 J/U	5,000 J/U
Thallium	ug/L	17 [b]	1 U	1 U	1 U	1 U
Vanadium	ug/L	50 [b]	5 J/U	5 J/U	5 J/U	5 J/U
Zinc	ug/L	81	3.4	6	2.5	6.7

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

[a] ADEC (2008, 2006)/USEPA (2004) AWQC: Saltwater Aquatic Life chronic, unless otherwise noted

[b] Proposed AWQC [USEPA (1986) and/or Buchman (2008) NOAA SQuiRT values]

[c] NE, acute value listed

NE = Not Established

ADEC = Alaska Department of Environmental Conservation

AWQC = Ambient Water Quality Criteria

NOAA = National Oceanic and Atmospheric Administration

SQuiRT = Screening Quick Reference Tables

USEPA = U.S. Environmental Protection Agency

WQC = Water Quality Criteria

BOLD = detected result exceeds screening criteria

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

Table C-3

Summary Statistics for Surface Water Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

									Nondetects		Detects								Other Marine WQC[a]				
Fraction/Method	Chemical Name	Unit	# of Detects	# of Samples	# of Rejected Samples	Frequency of Detection	Total stations	Stations with detects	Minimum	Maximum	Minimum	Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria
Dissolved Metals:																							
CV	Mercury	ug/L		2	0	0%	2		0.20	0.20			0.20	0.20	0.20			0.20	0.94				
MS	Aluminum	ug/L	2	2	0	100%	2	2			204	298	251	247	251	66	0.26	548					
MS	Antimony	ug/L		2	0	0%	2		2.0	2.0			2.0	2.0	2.0			2.0	500 [D]				
MS	Arsenic	ug/L	1	2	0	50%	2	1	1.0	1.0	1.2	1.2	1.1	1.1	1.1	0.14	0.13	1.7	36				
MS	Barium	ug/L		2	0	0%	2		10	10			10	10	10			10					
MS	Beryllium	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	8.8				
MS	Cadmium	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	9.3				
MS	Chromium	ug/L		2	0	0%	2		2.0	2.0			2.0	2.0	2.0			2.0	27.4 [D]				
MS	Cobalt	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0					
MS	Copper	ug/L	2	2	0	100%	2	2			3.0	3.3	3.2	3.1	3.2	0.21	0.067	4.1	3.1	1		1	
MS	Lead	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	8.1				
MS	Manganese	ug/L	2	2	0	100%	2	2			9.0	20	15	13	15	7.8	0.54	49					
MS	Nickel	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	8.2				
MS	Selenium	ug/L	1	2	0	50%	2	1	5.0	5.0	6.2	6.2	5.6	5.6	5.6	0.85	0.15	9.4	71				
MS	Silver	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	1.9 [C]				
MS	Thallium	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	17 [D]				
MS	Vanadium	ug/L		2	0	0%	2		5.0	5.0			5.0	5.0	5.0			5.0	50 [D]				
MS	Zinc	ug/L	2	2	0	100%	2	2			6.0	6.7	6.4	6.3	6.4	0.49	0.078	8.6	81				
P	Calcium	ug/L	1	2	0	50%	2	1	5,000	5,000	12,000	12,000	8,500	7,746	8,500	4,950	0.58	30,599					
P	Iron	ug/L	2	2	0	100%	2	2			340	527	434	423	434	132	0.31	1,024					
P	Magnesium	ug/L	1	2	0	50%	2	1	5,000	5,000	29,500	29,500	17,250	12,145	17,250	17,324	1.0	94,597					
P	Potassium	ug/L	1	2	0	50%	2	1	5,000	5,000	9,560	9,560	7,280	6,914	7,280	3,224	0.44	21,676					
P	Sodium	ug/L	1	2	0	50%	2	1	5,000	5,000	254,000	254,000	129,500	35,637	129,500	176,070	1.4	915,593					
Metals:																							
CV	Mercury	ug/L		2	0	0%	2		0.20	0.20			0.20	0.20	0.20			0.20	0.94				
MS	Aluminum	ug/L	2	2	0	100%	2	2			225	323	274	270	274	69	0.25	583					
MS	Antimony	ug/L		2	0	0%	2		2.0	2.0			2.0	2.0	2.0			2.0	500 [D]				
MS	Arsenic	ug/L	1	2	0	50%	2	1	1.0	1.0	1.1	1.1	1.1	1.0	1.1	0.071	0.067	1.4	36				
MS	Barium	ug/L		2	0	0%	2		10	10			10	10	10			10					
MS	Beryllium	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	8.8				
MS	Cadmium	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	9.3				
MS	Chromium	ug/L		2	0	0%	2		2.0	2.0			2.0	2.0	2.0			2.0	27.4 [D]				
MS	Cobalt	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0					
MS	Copper	ug/L	2	2	0	100%	2	2			3.5	3.7	3.6	3.6	3.6	0.14	0.039	4.2	3.1	2		2	
MS	Lead	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	8.1				
MS	Manganese	ug/L	2	2	0	100%	2	2			12	22	17	16	17	7.2	0.43	49					
MS	Nickel	ug/L	2	2	0	100%	2	2			0.43	0.58	0.51	0.50	0.51	0.11	0.21	0.98	8.2				
MS	Selenium	ug/L	1	2	0	50%	2	1	5.0	5.0	6.2	6.2	5.6	5.6	5.6	0.85	0.15	9.4	71				
MS	Silver	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	1.9 [C]				
MS	Thallium	ug/L		2	0	0%	2		1.0	1.0			1.0	1.0	1.0			1.0	17 [D]				
MS	Vanadium	ug/L		2	0	0%	2		5.0	5.0			5.0	5.0	5.0			5.0	50 [D]				
MS	Zinc	ug/L	2	2	0	100%	2	2			2.5	3.4	3.0	2.9	3.0	0.64	0.22	5.8	81				
P	Calcium	ug/L	1	2	0	50%	2	1	5,000	5,000	12,400	12,400	8,700	7,874	8,700	5,233	0.60	32,062					
P	Iron	ug/L	2	2	0	100%	2	2			391	653	522	505	522	185	0.35	1,349					
P	Magnesium	ug/L	1	2	0	50%	2	1	5,000	5,000	29,700	29,700	17,350	12,186	17,350	17,466	1.0	95,328					
P	Potassium	ug/L	1	2	0	50%	2	1	5,000	5,000	9,460	9,460	7,230	6,877	7,230	3,154	0.44	21,310					
P	Sodium	ug/L	1	2	0	50%	2	1	5,000	5,000	254,000	254,000	129,500	35,637	129,500	176,070	1.4	915,593					

Table C-3

Summary Statistics for Surface Water Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

									Nondetects		Detects								Other Marine WQC[a]				
Fraction/Method	Chemical Name	Unit	# of Detects	# of Samples	# of Rejected Samples	Frequency of Detection	Total stations	Stations with detects	Minimum	Maximum	Minimum	Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria

Notes:

[a] ADEC (2008, 2006)/USEPA (2004) AWQC: Saltwater Aquatic Life chronic, unless otherwise noted

[b] Proposed AWQC [USEPA (1986) and/or Buchman (2008) NOAA SQuiRT values]

[c] NE, acute value listed

NE = Not Established

ADEC = Alaska Department of Environmental Conservation

AWQC = Ambient Water Quality Criteria

NOAA = National Oceanic and Atmospheric Administratio

SQuiRT = Screening Quick Reference Tables

USEPA = U.S. Environmental Protection Agency

WQC = Water Quality Criteria

Appendix D Leachate Tables

Table D-1
Leachate
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location ID	Activity ID[1]	Sample Type	Sample Date	Dissolved Metals (EPA Sample ID)
SCSD-102	Leachate-102-09152011	N	9/15/2011	MJE8I5
SCSD-105	Leachate-105-09152011	N	9/15/2011	MJE8I6
SCSD-106	Leachate-106-09152011	N	9/15/2011	MJE8I7
SCSD-107	Leachate-107-09152011	N	9/15/2011	MJE8J0
SCSD-107	Leachate-107-09152011FD	FD	9/15/2011	MJE8J2
SDSC-116	Leachate-116-09152011	N	9/15/2011	MJE8I8
SDSC-121	Leachate-121-09152011	N	9/15/2011	MJE8J1
SCSD-130	Leachate-130-09152011	N	9/15/2011	MJE8I9

Notes:

[1]Activity ID is a combination of the location, depth, date sampled and sample type if field duplicate.
METALS = includes Methods ICP_MS, ICP_P, and CV (mercury).
N = normal environmental sample
FD = Field duplicate

Table D-2

Leachate Sample Results, Dissolved Metals

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Location:			**SCSD-102**	**SCSD-105**	**SCSD-106**	**SCSD-107**		**SCSD-116**	**SCSD-121**	**SCSD-130**
Activity ID:			**Leachate-102-09152011**	**Leachate-105-09152011**	**Leachate-106-09152011**	**Leachate-107-09152011**	**Leachate-107-09152011**	**Leachate-116-09152011**	**Leachate-121-09152011**	**Leachate-130-09152011**
Sample Type:			**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**
Date Sampled:			**9/15/2011**	**9/15/2011**	**9/15/2011**	**9/15/2011**	**9/15/2011**	**9/15/2011**	**9/15/2011**	**9/15/2011**
Chem Name	**Unit**	**Other Marine WQC[a]**								
Aluminum	ug/L	NE	20 J/U	20 U	20 J/U	20 J/U	20 J/U	20 J/U	20 J/U	20 J/U
Antimony	ug/L	500 [b]	2 J/U	2 J/U	2.6	2 J/U	2 J/U	2 J/U	2 J/U	2 J/U
Arsenic	ug/L	36	24.1	27.1	25.5	27	28.2	25.7	29.6	25.4
Barium	ug/L	NE	70.2	79.7	65.2	67.4	65.6	75.1	74.2	115
Beryllium	ug/L	8.8	1 U	1 U	1 J/U	1 J/U	1 U	1 U	1 U	1 J/U
Cadmium	ug/L	9.3	1 J/U	1 U	1 J/U	1 U	1 U	1 U	1 J/U	1 J/U
Calcium	ug/L	NE	233,000	227,000	227,000	217,000	222,000	219,000	236,000	230,000
Chromium	ug/L	27.4 [b]	2 J/U	2 J/U	2 J/U	2 U	2.2	2 J/U	2 J/U	2 J/U
Cobalt	ug/L	NE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	ug/L	3.1	**55.6**	**66.3**	**17.1**	**84.7**	**90.1**	**14.5**	**13.8**	**15.8**
Iron	ug/L	NE	100 J/U	100 J/U	100 J/U	100 J/U	100 J/U	100 J/U	100 J/U	100 J/U
Lead	ug/L	8.1	1 J/U	1 J/U	1 J/U	1 J/U	1 J/U	1 J/U	1 J/U	1.6
Magnesium	ug/L	NE	651,000 D	644,000 D	646,000 D	631,000 D	639,000 D	583,000 D	625,000 D	642,000 D
Manganese	ug/L	NE	42.2	22.1	51.6	22.1	22.8	9.5	7.7	7.6
Mercury	ug/L	0.94	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	ug/L	8.2	5.4	2.5	6.5	2.1	2.7	2.5	3	3.1
Potassium	ug/L	NE	245,000	239,000	233,000	229,000	236,000	228,000	236,000	236,000
Selenium	ug/L	71	**130**	**147**	**140**	**143**	**157**	**142**	**152**	**139**
Silver	ug/L	1.9 [c]	1 U	1 J/U	1 U	1 U	1 U	1 U	1 U	1 U
Sodium	ug/L	NE	5,640,000 D	5,640,000 D	5,510,000 D	5,480,000 D	5,500,000 D	5,090,000 D	5,490,000 D	5,620,000 D
Thallium	ug/L	17 [b]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	ug/L	50 [b]	5 J/U	5 U	5 U	5 U	5 U	5 U	5 J/U	5 U
Zinc	ug/L	81	44.5	39.4	**149**	31.7	29.4	41.7	39.3	58

Notes:

ug/L = micrograms per liter

N = normal sample

FD = field duplicate sample

D = Data reported from a preparation or analytical dilution.

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] ADEC (2008, 2006)/USEPA (2004) AWQC: Saltwater Aquatic Life chronic, unless otherwise noted

[b] Proposed AWQC [USEPA (1986) and/or Buchman (2008) NOAA SQuiRT values]

[c] NE, acute value listed

BOLD = detected result exceeds screening criteria

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

NE = Not Established

ADEC = Alaska Department of Environmental Conservation

AWQC = Ambient Water Quality Criteria

NOAA = National Oceanic and Atmospheric Administration

SQuiRT = Screening Quick Reference Tables

USEPA = U.S. Environmental Protection Agency

WQC = Water Quality Criteria

Table D-3
Summary Statistics for Leachate Samples, Dissolved Metals
Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

								Nondetects		Detects								Other Marine WQC[a]				
Chemical Name	Unit	# of Detects	# of Samples	# of Rejected Samples	Frequency of Detection	Total stations	Stations with detects	Minimum	Maximum	Minimum	Maximum	Arithmetic Mean	Geometric Mean	Median	Standard Deviation	Coefficient of Variation	Upper 95% Confidence - t	Screening Criteria	# Detects Exceeding Screening	# Nondetects Exceeding Screening	# Stations with Detections Exceeding Criteria	# Stations with Nondetections Exceeding Criteria
Dissolved Metals:																						
Aluminum	ug/L		8	0	0%	7		20	20			20	20	20			20	NE				
Antimony	ug/L	1	8	0	13%	7	1	2.0	2.0	2.6	2.6	2.1	2.1	2.0	0.21	0.10	2.2	500 [b]				
Arsenic	ug/L	8	8	0	100%	7	7			24	30	27	27	26	1.8	0.066	28	36				
Barium	ug/L	8	8	0	100%	7	7			65	115	77	75	72	16	0.21	87	NE				
Beryllium	ug/L		8	0	0%	7		1.0	1.0			1.0	1.0	1.0			1.0	8.8				
Cadmium	ug/L		8	0	0%	7		1.0	1.0			1.0	1.0	1.0			1.0	9.3				
Calcium	ug/L	8	8	0	100%	7	7			217,000	236,000	226,375	226,289	227,000	6,675	0.029	230,846	NE				
Chromium	ug/L	1	8	0	13%	7	1	2.0	2.0	2.2	2.2	2.0	2.0	2.0	0.071	0.035	2.1	27.4 [b]				
Cobalt	ug/L		8	0	0%	7		1.0	1.0			1.0	1.0	1.0			1.0	NE				
Copper	ug/L	8	8	0	100%	7	7			14	90	45	33	36	33	0.74	67	3.1	8		7	
Iron	ug/L		8	0	0%	7		100	100			100	100	100			100	NE				
Lead	ug/L	1	8	0	13%	7	1	1.0	1.0	1.6	1.6	1.1	1.1	1.0	0.21	0.20	1.2	8.1				
Magnesium	ug/L	8	8	0	100%	7	7			583,000	651,000	632,625	632,287	640,500	21,705	0.034	647,164	NE				
Manganese	ug/L	8	8	0	100%	7	7			7.6	52	23	18	22	16	0.70	34	NE				
Mercury	ug/L		8	0	0%	7		0.20	0.20			0.20	0.20	0.20	0	0	0.20	0.9				
Nickel	ug/L	8	8	0	100%	7	7			2.1	6.5	3.5	3.2	2.9	1.6	0.46	4.5	8.2				
Potassium	ug/L	8	8	0	100%	7	7			228,000	245,000	235,250	235,195	236,000	5,445	0.023	238,897	NE				
Selenium	ug/L	8	8	0	100%	7	7			130	157	144	144	143	8.3	0.058	149	71	8		7	
Silver	ug/L		8	0	0%	7		1.0	1.0			1.0	1.0	1.0			1.0	1.9 [c]				
Sodium	ug/L	8	8	0	100%	7	7			5,090,000	5,640,000	5,496,250	5,493,637	5,505,000	178,160	0.032	5,615,586	NE				
Thallium	ug/L		8	0	0%	7		1.0	1.0			1.0	1.0	1.0			1.0	17 [b]				
Vanadium	ug/L		8	0	0%	7		5.0	5.0			5.0	5.0	5.0			5.0	50 [b]				
Zinc	ug/L	8	8	0	100%	7	7			29	149	54	47	41	39	0.73	80	81	1		1	

Notes:

[a] ADEC (2008, 2006)/USEPA (2004) AWQC: Saltwater Aquatic Life chronic, unless otherwise noted
[b] Proposed AWQC [USEPA (1986) and/or Buchman (2008) NOAA SQuiRT values]
[c] NE, acute value listed
NE = Not Established
ADEC = Alaska Department of Environmental Conservatio
AWQC = Ambient Water Quality Criteria
NOAA = National Oceanic and Atmospheric Administratio
SQuiRT = Screening Quick Reference Tables
USEPA = U.S. Environmental Protection Agency
WQC = Water Quality Criteria

Appendix E Bioassay Tables

Table E-1

Sediment/Tailings Bioassay Samples

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

						Chem Groups (EPA Sample ID)
Location ID	**Media**	**Activity ID[1]**	**Depth (feet)**	**Sample Type**	**Sample Date**	**BIOASSAY**
SCSD-105	Tailings	SCSD-105-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354504
SCSD-106	Tailings	SCSD-106-0-0.5-08282011	0 - 0.5	N	8/28/2011	11354505
SCSD-153	Sediment	SCSD-153-0-0.5-08302011	0 - 0.5	N	8/30/2011	11354567

Notes:

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

BIOASSAY = 10-day amphipod (Eohaustorius) solid phase survival test (EPA 600/R-94/025 and/or ASTM E-1367);

N = normal environmental sample

20-day polychaete (Neanthes arenaceodentata) solid phase survival and growth test (ASTM E-1611

Embryo-larval development water column test of sediment elutriate (Mytilus sp.[preferred], Crassostrea,

and/or PSEP [1995]),

Dendraster, or Strongylocentrotus), 5 concentrations plus a control (EPA-823-B-98-004).

Table E-2

Summary of Sediment/Tailings Sample Bioassay Results

Pre-Remedial Investigation, Salt Chuck Mine - Tongass National Forest, Alaska

Survival endpoint results for *Eohaustorius estuarius* exposed to undiluted and diluted marine sediments. Confidence limits, where available, are shown in parentheses.

Endpoint (%)	Sample Location		
	SCSD-153 (reference area)	SCSD-105 (tailings)	SCSD-106 (tailings)
NOEC	100	100	100
LOEC	>100	>100	>100
LC50	>100	>100	>100

Endpoint results for *Neanthes arenaceodentata* exposed to undiluted and diluted marine sediments. Confidence limits, where available, are shown in parentheses.

Endpoint (%)	Sample Location		
	SCSD-153 (reference area)	SCSD-105 (tailings)	SCSD-106 (tailings)
Survival			
NOEC	100	<6.25	100
LOEC	>100	6.25	>100
LC50	>100	<6.25	>100
Dry weight			
NOEC	25	---	25
LOEC	50	---	50
IC10	32.4 (20.2–56.6)	---	2.26 (0.17–23.0)
IC25	53.9 (32.9–85.8)	---	15.4 (N/A–39.7)
IC50	>100	---	80.5 (9.69–N/A)
Biomass			
NOEC	25	---	25
LOEC	50	---	50
IC10	32.4 (20.2–56.6)	---	2.26 (0.17–23.0)
IC25	53.4 (33.2–83.5)	---	15.0 (N/A–39.2)
IC50	>100	---	70.3
Growth rate			
NOEC	25	---	25
LOEC	50	---	50
IC10	32.2 (19.4–54.9)	---	2.17 (0.17–22.9)
IC25	52.5 (32.7–84.3)	---	15.0 (N/A–39.1)
IC50	>100	---	75

Endpoint results for *Crassostrea gigas* larvae exposed to concentrations of elutriates of marine sediments. Confidence limits, where available, are shown in parentheses.

Endpoint (% elutriate)	Sample Location		
	SCSD-153 (reference area)	SCSD-105 (tailings)	SCSD-106 (tailings)
Proportion survived			
NOEC	100	<6.25	100
LOEC	>100	6.25	>100
LC50	>100	22.1 (20.7–23.6)	>100
Combined proportion normal			
NOEC	50	<6.25	100
LOEC	100	6.25	>100
EC50	>100	<6.25	>100
IC10	32.7 (8.07–62.1)	---	21.9 (4.66–66.2)
IC25	>100	---	>100
IC50	>100	---	>100