2020 Annual Report
for
Niblack Project
Reclamation Plan Approval
J20182711RPA

Prepared For:
Alaska Department of Natural Resources

Prepared By:
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Vancouver, BC, V7X 1M9
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February, 2021

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1.0 INTRODUCTION

This annual report is being submitted to the Alaska Department of Natural Resources in fulfillment of reporting requirements stipulated in Reclamation Plan Approval J20182711RPA which states that the annual report shall summarize activities conducted during the previous calendar year and include fourth-quarter monitoring data. Site activities were quite limited in 2020 as described in this report.

1.1 Project Overview

The Niblack Project has been on Care & Maintenance status since at least 2012. Niblack Project LLC (Niblack), the owner of the site, is owned by Heatherdale Resources LTD (Heatherdale). Heatherdale came under new management in 2020 and late in 2020 executed a limited surface drilling program focused on the historic Niblack Mine area, performed some rehabilitation of the existing underground drift and performed annual water quality sampling. These activities are described in this report.

1.2 Location, Access, and Property Description

The Niblack site is located on tidewater on Prince of Wales Island approximately 28 miles west-southwest from Ketchikan Alaska as illustrated in Figure 1. The site consists of a limited network of roads connecting tidewater to site facilities including the historic Niblack Mine, core storage area, active settling ponds, fuel storage tanks, and the active portal as illustrated in Figure 2.

Niblack controls the mineral rights on the property through patented and unpatented mining claims including 7 patented claims, 298 Federal Lode claims (Tongass National Forest) and 7 State of Alaska Tideland claims as illustrated in Figure 3.

Access to the site is possible by float plan and boat. Fuel and heavy freight are transported by barge; people and light supplies are generally transported by float plane from Ketchikan.

Project personnel are based on a stationary tidewater barge authorized under ADNR tidewater lease ADL 109131 (pending).

On shore there is a road connecting the barge landing to site facilities that include the portal, settling ponds, waste rock storage/disposal areas, core logging area, mine water discharge field and support buildings. There are also some derelict cabins on site from historic exploration efforts. The site is powered by generators stationed strategically around the site and on the barge. Bulk fuel is stored on the barge and in a 20,000 tank upslope from the barge landing.

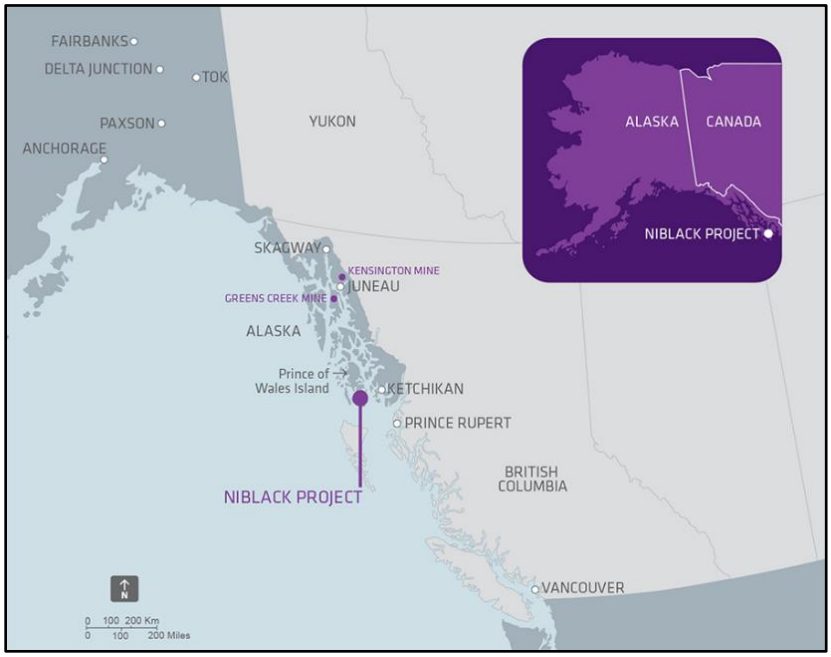

Figure 1 Niblack Project Location Map

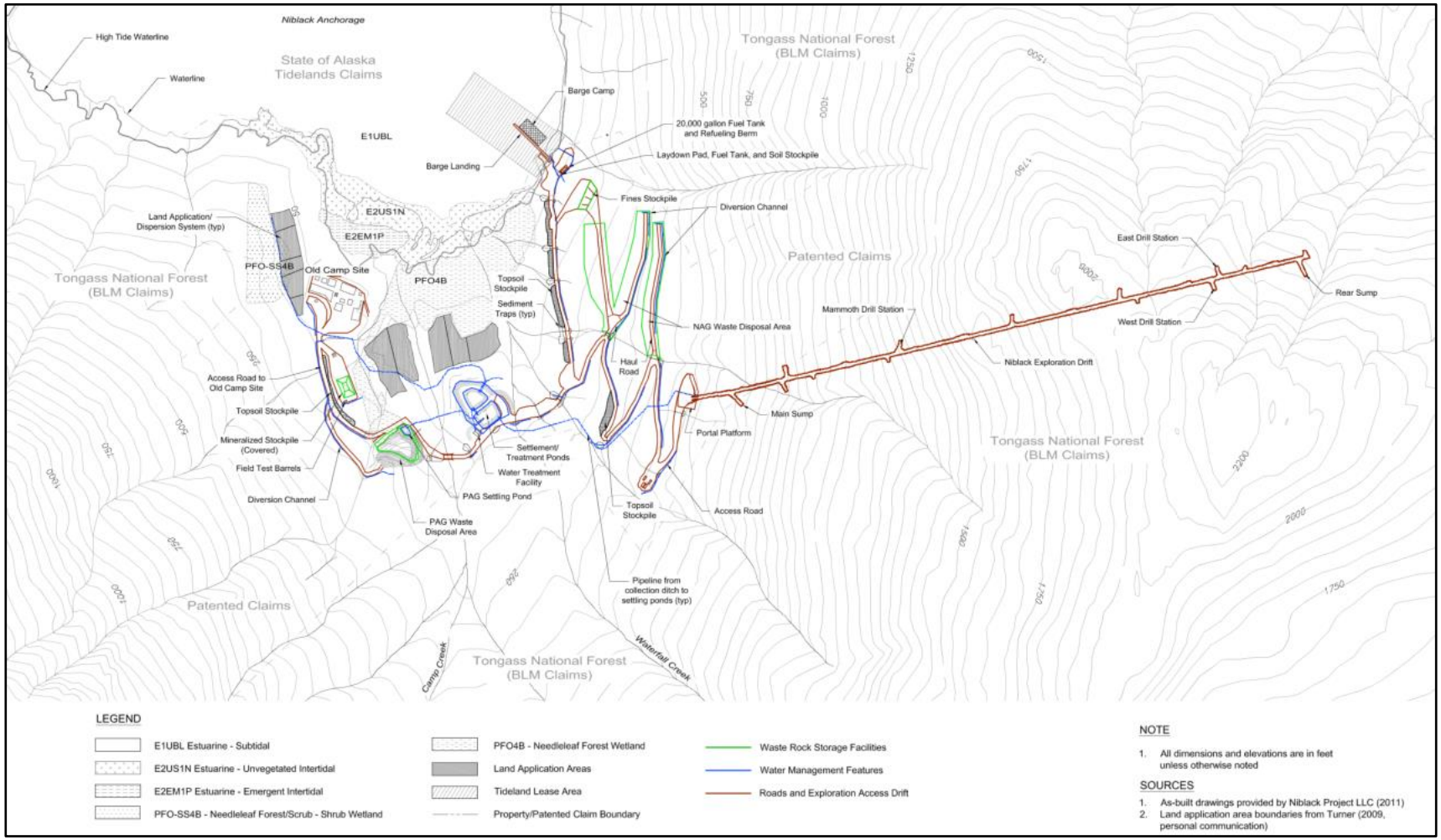

Figure 2 Niblack General Site Map

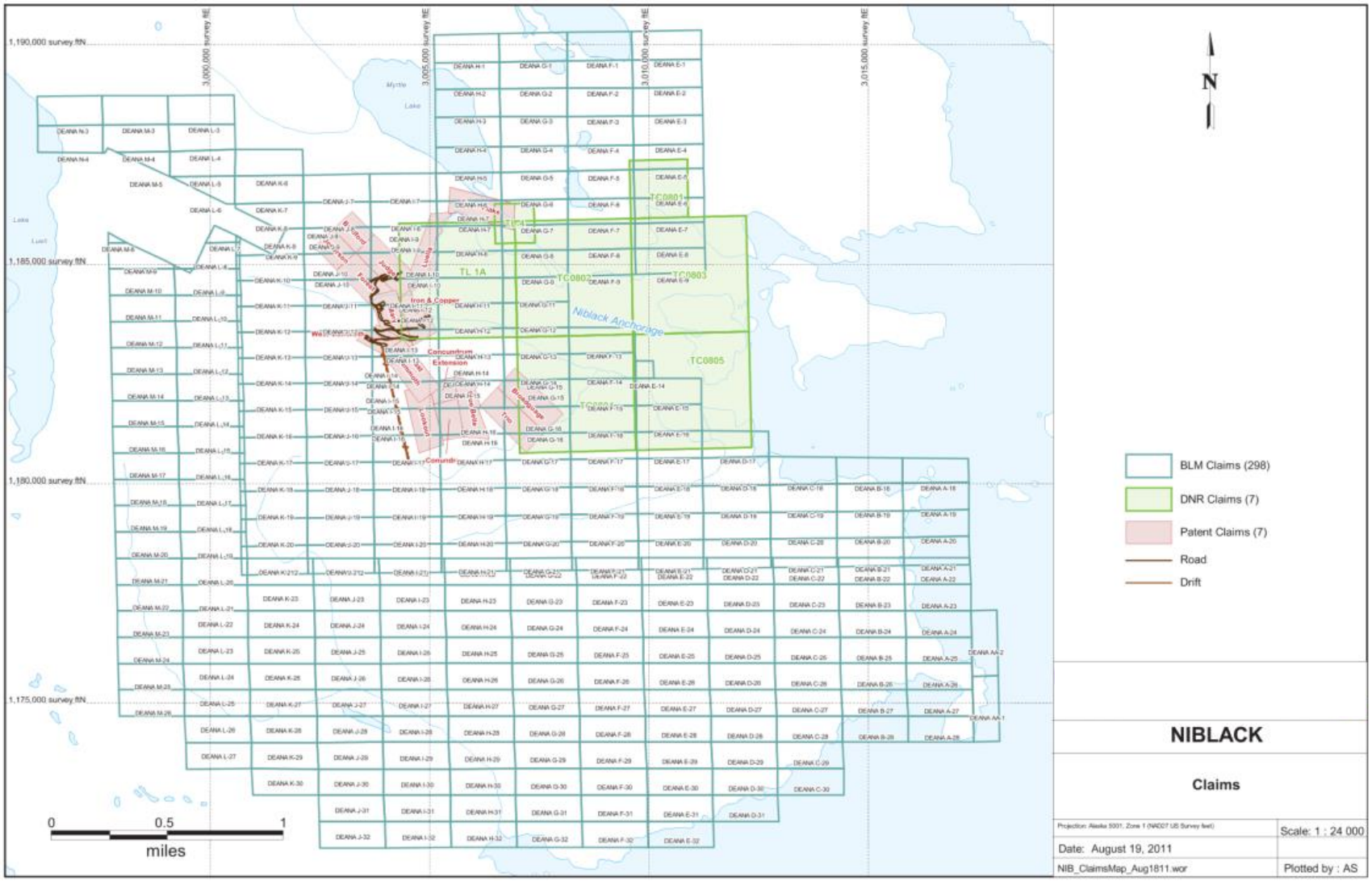

Figure 3 Niblack Mining Claim Map

2.0 DESCRIPTION OF 2020 OPERATIONS

The site was on care & maintenance status for most of 2020. During this time, the site was generally not staffed. A company representative did make routine trips to site for inspections (fuel storage, storm water controls, settling pond operations, etc.) In October 2020, the site was reactivated and remained active until December 18th when staff and contractors departed.

During the October- December active 2020 period, up to 30 staff and contractors were on site to perform drilling, maintenance, underground rehabilitation and water quality sampling as described in the following sections.

2.1 Surface Operations

2.1.1 EXPLORATION DRILLING

Niblack engaged More Core Drilling to perform approximately 5,815 feet of core drilling in 10 holes, focused on exploring the continuity and extensions of the Niblack Zone, at the old Niblack Mine Site which was first mined using underground mining methods in the early 1900's. Drilling started on November 18th and was completed on December 9th.

The drill was track-mounted which made it unnecessary to construct conventional drill pads. Sumps were constructed adjacent to the drill pads and drill return water and cuttings were discharged into the sumps. Core is logged, cut, sampled, and stored on-site. Samples requiring assay are shipped off-site. Figure 4 illustrates the location of the drill pads constructed for this program. Reclamation of the drill pads is described later in this report.

Table 1 Drill Hole Collar Coordinates, Orientations and Depths

Hole_ID	Easting	Northing	Elev (m)	Coordinate System	Depth (m)	Azimuth	Dip	Pad ID
LO20-213	3004238	1184636	12.5	NAD27AKStatePlane1	134.11	45	-70	Site 1
LO20-214	3004238	1184636	12.5	NAD27AKStatePlane1	168	45	-77	Site 1
LO20-215	3004238	1184636	12.5	NAD27AKStatePlane1	460	45	-85	Site 1
LO20-216	3004238	1184636	12.5	NAD27AKStatePlane1	118.87	225	-85	Site 1
LO20-217	3004220	1184776	18	NAD27AKStatePlane1	50.25	25	-80	Site 2
LO20-218	3004220	1184776	18	NAD27AKStatePlane1	51.82	45	-80	Site 2
LO20-219	3004297	1184823	15	NAD27AKStatePlane1	219.46	212	-67	Site 3
LO20-220	3004297	1184823	15	NAD27AKStatePlane1	213.36	215	-58	Site 3
LO20-221	3004297	1184823	15	NAD27AKStatePlane1	158.5	208	-78	Site 3
LO20-222	3004297	1184823	15	NAD27AKStatePlane1	182.88	225	-78	Site 3
LO20-223	3004297	1184823	15	NAD27AKStatePlane1	152.4	225	-78	Site 3
LO20-224	3004297	1184823	15	NAD27AKStatePlane1	167.64	45	-80	Site 3

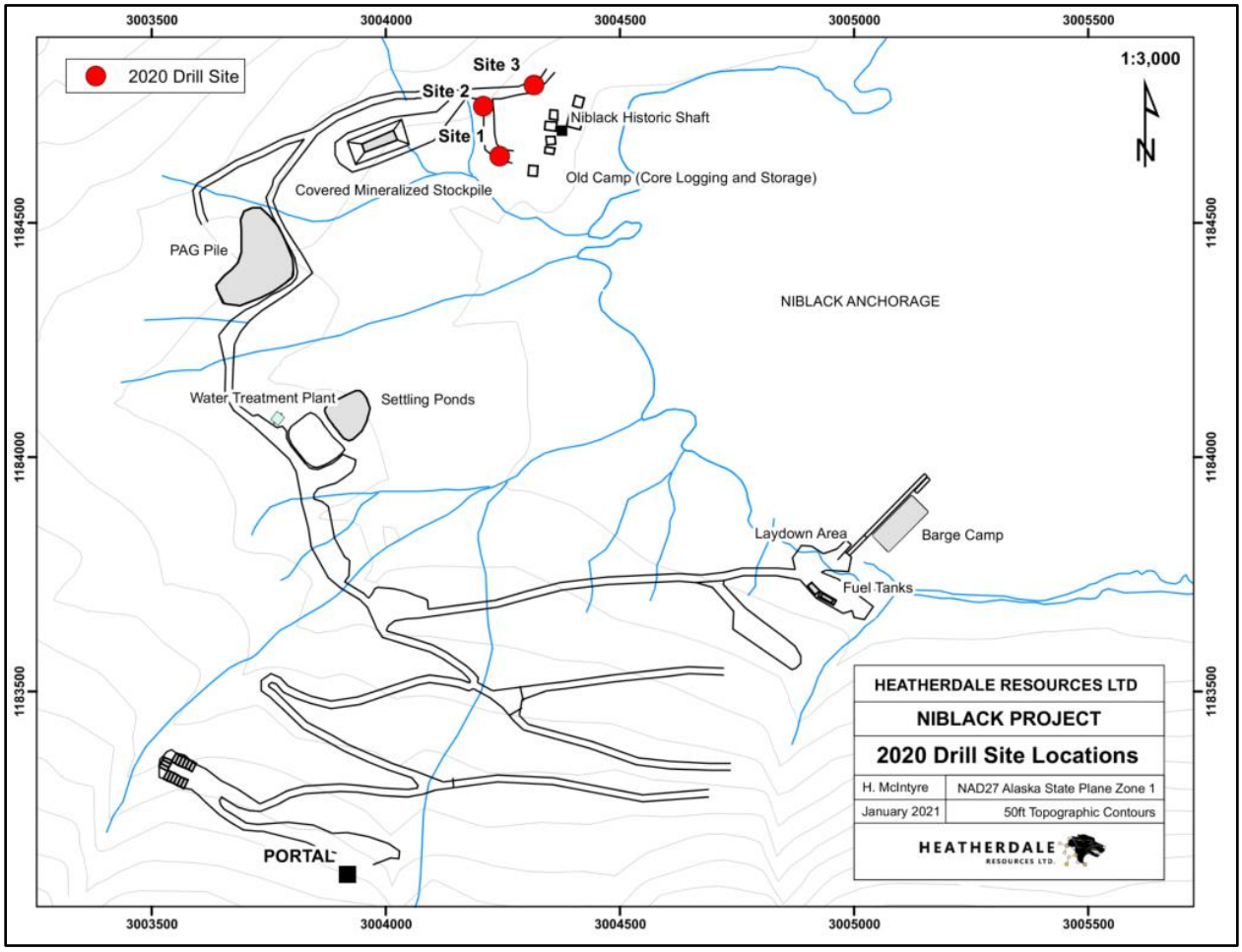

Figure 4 2020 Drill Site Location Map

2.1.2 WATER QUALITY MONITORING

Under Waste Management Permit 2013DB0001 and subject to a letter from ADEC dated June 29, 2016 Niblack is required to perform annual water quality sampling of select sites as shown on Figure 5. These include surface water quality sites and shallow groundwater sites. Likely sampling frequency will revert to a quarterly schedule in 2021. The sampling is intended to detect any significant changes in water quality that might be the result of activities on site. The 2020 annual sampling event took place in October. The analyses were performed by ALS Global in Washington State. The analytical results are included in Appendix A. These results are also reported directly to ADEC annually and discussed in that annual report submitted to ADEC.

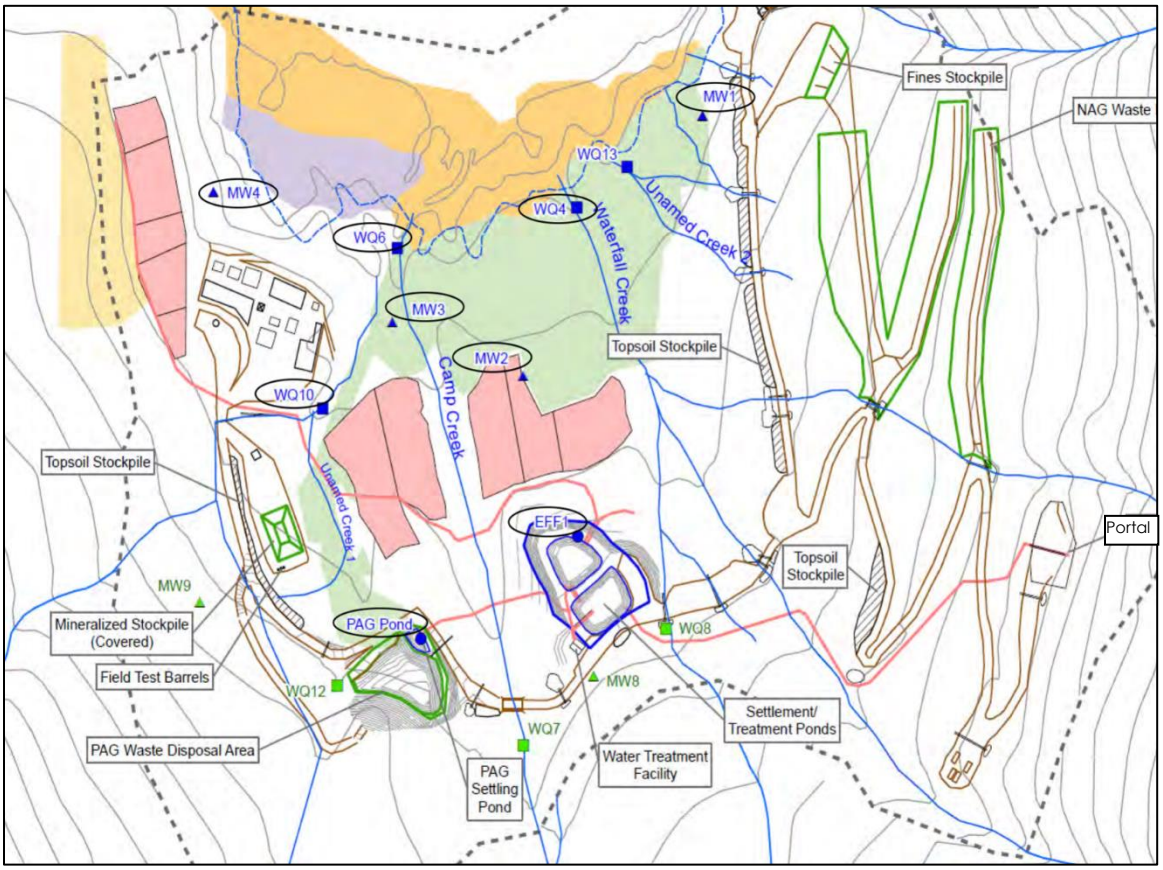

Figure 5 Active Water Quality Sample Sites (circled)

2.2 Underground Operations

In 2020, Niblack mining contractors performed rehabilitation of the underground drift. This included "scaling" loose rocks from the drift walls and ceiling, reestablishing ventilation, thorough inspection of underground utilities including water, compressed air and electrical. About 100' of underground utilities including 4" discharge pipe and 4" compressed air pipe was hung. The 480-volt line at the portal was hung from the portal to the vent fan. 500' of new 54" vent bag was installed. The 150 hp fresh air fan was energized. The portal pad area was bermed to contain high wall sluff. New equipment including a compressor, mucker, Kubota tractor and flatbed truck were also mobilized to site by barge for use underground.

Further repairs and enhanced ground support are planned for early 2021 in preparation for planned underground exploration drill also planned for 2021. There was no blasting (surface or underground) in 2020. Potentially some further advance of the drift could occur in 2021 depending on the results of the exploration drilling. The permits for the site contemplate up to 6,000 feet of u/g development but presently the total development is approximately 3,600 linear

feet. As a result, no permit modifications are required before initiating additional u/g development.

2.3 Water Management Operations

2.3.1 Storm Water Management

Niblack manages storm water in compliance with Multi-Sector Storm Water General Permit AKR060000. Among other requirements the permit requires routine inspections of storm water best management practices on site to assure proper management of stormwater. Niblack performed routine inspections whenever the site was staffed and less frequent inspections when the site was not staffed in 2020. Niblack also performed a comprehensive annual inspection in December 2020.

2.3.2 Mine Water Management

The existing drift produces approximately 40 gallons per minute of seepage water. That accumulates in sumps before being conveyed to the settling ponds. In the past it was periodically pumped from the drift to the settling ponds on the surface where it then was piped to a system of drip emitters on land and discharged to the ground. Mine water is still managed the same way except that in October 2020 a siphon system was constructed so the mine water in the drift now drains to the settling ponds without normally requiring a pump to do so. The entire mine water management system, including the discharge to the land are approved under Waste Management Permit (2013DB0001 – currently extended administratively). The project is also authorized to discharge this water to a marine outfall under their APDES permit but the marine outfall infrastructure has not been constructed.

2.3.3 Authorized Water Use

Water is used at site for drilling and for domestic needs on the barge. This water withdrawal and use is authorized under TWUA F2020-088 which expires on December 31, 2021. Niblack will be applying for an additional water withdrawal location for use in underground drilling being planned for 2021.

2.4 Waste Rock Management Operations

No additional waste rock was generated in 2020. Waste rock, including potentially acid generating waste rock, continues to be managed in accordance with Waste Management Permit 2013DB0001. The existing underground drift might be lengthened in 2021 or 2022 but there are no definitive plans at this time.

3.0 RECLAMATION

3.1 Drill Sites

No formal drill pads were constructed on any drill site in 2020 because Niblack used a track mounted drill. Drill sites were cleaned of refuse and small hand dug sumps were backfilled and capped with organic material. The sump at site 3 was not backfilled at the end of the drill season because the drill water had not completely soaked into the ground. Drill site 3 sump will be backfilled when staff are back at site in early 2021 and as soon as the sump is empty of drill water.

Total disturbance at site in 2020 was limited to the 3 drill sumps comprising approximately 0.002 acres, and 0.0007 acres (sump at site 3) remains un-reclaimed.

3.2 Reclamation Financial Assurance

Niblack previously calculated an estimated reclamation cost for the site and posted a surety bond no. 1084283 in the amount of $1,409,959. There were no changes at site in 2020 that would affect the estimated reclamation cost for the site.

APPENDIX A WATER QUALITY MONITORING DATA

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

November 04, 2020

Analytical Report for Service Request No: K2008856

Graham Neale
Niblack Project LLC
PO Box 8295
Ketchikan, AK 99901

RE: Niblack / C-384-0301

Dear Graham,

Enclosed are the results of the sample(s) submitted to our laboratory October 05, 2020
For your reference, these analyses have been assigned our service request number **K2008856.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: Tongass Engineering LLC
Project: Niblack
Sample Matrix: Water

Service Request: K2008856
Date Received: 10/05/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Thirteen water samples were received for analysis at ALS Environmental on 10/05/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

Method 300.0, 11/02/2020: The analysis of sample EFF1 for Sulfate was initially performed within the recommended holding time. Reanalysis at a dilution was required. The reanalysis was performed 3 days past the recommended holding time. The results from the second analysis were reported. A combination of heavy workload and instrumentation issues prevented the dilution from being analyzed within the recommended holding time.

Approved by _____ Date 11/04/2020

Chain of Custody

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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K2008856

Chain of Custody

ADDRESS 1317 South 13th Ave., Kelso, WA 98626
PHONE 1 360 577 7222 FAX 1 360 636 1068

Part of the ALS Group A Campbell Brothers Limited Company

Work Order No.: 110773

Project Manager:	Graham Neale		**Bill to:**	Susan Neale, CFO	Notes: 1. Analyze per Niblack QAPP
Client Name:	Niblack Project LLC		**Company:**	Niblack Project LLC	2. Report Requirements: CLP Like Summary (no raw data) and EDD
Address:	PO Box 8295		**Address:**	PO Box 8295	
City, State ZIP:	Ketchikan, AK 99901		**City, State ZIP:**	Ketchikan, AK 99901	
Email:	grahamneale.nib@gmail.com	**Phone:** 604-551-0875	**Email:**	niblackaccountspayable@heatherdaleresources.com	**PO #**
Project Name:	Niblack				
Project Number:	C-384-0301				
Sampler's Name:	Brett Serlin, Tongass Engineering, Ketchikan, Alaska brett@tongassengineering.com, 907-617-8982				

SAMPLE RECEIPT

Temperature (°C):		Temp Blank Present	
Received Intact:	Yes No N/A	Wet Ice / Blue Ice	
Cooler Custody Seals:	Yes No N/A	Total Containers:	
Sample Custody Seals:	Yes No N/A		

TAT

- ✓ Routine 21day
- Same Day *** 100%
- Next Day ***
- 3 Day
- 5 Day 50%

Surcharges. Please call for availability

Due Date:

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	Metals, Dissolved or Total (see list below)	SO4, TDS	NO2 + NO3	Hardness	Comments
1. MW-01	WT	10/1/20	1330		4	✓	✓	✓	✓	Cooler #1 of 1
2. MW-02	|	|	1440		|	|	|	|	|	|
3. MW-03	|	|	1540		|	|	|	|	|	|
4. MW-04	|	10/2/20	0930		|	|	|	|	|	|
5. MW-20	|	10/1/20	1330		|	|	|	|	|	|
6. WQ-04	|	10/1/20	1720		|	|	|	|	|	|
7. WQ-06	|	10/1/20	1630		|	|	|	|	|	|
8. WQ-10	|	10/2/20	1045		|	|	|	|	|	|
9. WQ-13	|	10/1/20	1740		|	|	|	|	|	|
10. WQ-20	|	10/1/20	1740		|	|	|	|	|	|
11. WQ-21	|	|	2005		|	|	|	|	|	|
12. PAG Pond	|	10/2/20	1130		|	|	|	|	|	|
13. EFF1	|	|	1345		|	|	|	|	|	|
14.												

Dissolved	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg
Total	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Brett Serlin, Tongass Engineering	Brett Serlin	10/3/20 @ 1130	D Morrow	K Morrow ALS	10/5/20

PM MH

Cooler Receipt and Preservation Form

Client Tongass Service Request K20 08856

Received: 10/5/20 Opened: 10/5/20 By: KA Unloaded: 10/5/20 By: KL

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
4.2	—	IR01	110773	—	—	027242100600	

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 - 10/02/20
Sample Matrix:	Water	**Date Received:**	10/5/20
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
MW-01	K2008856-001	**3.64**	0.40	0.04	2	10/29/20 16:22	
MW-02	K2008856-002	**1.41**	0.40	0.04	2	10/29/20 17:00	
MW-03	K2008856-003	**0.20 J**	0.40	0.04	2	10/29/20 17:50	
MW-04	K2008856-004	**2.19**	0.40	0.04	2	10/29/20 18:00	
MW-20	K2008856-005	ND U	0.40	0.04	2	10/29/20 18:31	
WQ-04	K2008856-006	ND U	0.40	0.04	2	10/29/20 18:40	
WQ-06	K2008856-007	ND U	0.40	0.04	2	10/29/20 18:50	
WQ-10	K2008856-008	ND U	0.40	0.04	2	10/29/20 19:00	
WQ-13	K2008856-009	ND U	0.40	0.04	2	10/29/20 19:09	
WQ-20	K2008856-010	**3.51**	0.40	0.04	2	10/29/20 19:19	
WQ-21	K2008856-011	ND U	0.40	0.04	2	10/29/20 20:47	
PAG Pond	K2008856-012	**910**	100	10	500	10/29/20 20:57	
EFF1	K2008856-013	**38.0**	2.0	0.2	10	11/02/20 15:13	*
Method Blank	K2008856-MB1	ND U	0.20	0.02	1	10/29/20 09:36	
Method Blank	K2008856-MB2	ND U	0.20	0.02	1	10/29/20 17:40	
Method Blank	K2008856-MB3	ND U	0.20	0.02	1	11/02/20 08:47	
Method Blank	K2008856-MB4	ND U	0.20	0.02	1	11/02/20 18:27	

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/29/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MW-01	**Units:**	mg/L
Lab Code:	K2008856-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2008856-001DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.40	0.04	3.64	3.77	3.71	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/29/20
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	MW-01	**Units:**	mg/L
Lab Code:	K2008856-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K2008856-001MS			K2008856-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	3.64	13.2	10.0	96	13.3	10.0	96	90-110	<1	20

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Analyzed:**	10/29/20
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	701484

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008856-LCS1	4.95	5.00	99	90-110
Lab Control Sample	K2008856-LCS2	4.96	5.00	99	90-110

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Analyzed:**	11/02/20
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	701765

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008856-LCS3	5.12	5.00	102	90-110
Lab Control Sample	K2008856-LCS4	5.16	5.00	103	90-110

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Continuing Calibration Verification (CCV) Summary

Sulfate

Analysis Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	701484	KQ2017068-05	10/29/20 09:08	5.00	4.89	98	90-110
CCV2	701484	KQ2017068-06	10/29/20 11:03	5.00	4.91	98	90-110
CCV3	701484	KQ2017068-07	10/29/20 12:58	5.00	4.94	99	90-110
CCV4	701484	KQ2017068-08	10/29/20 15:04	5.00	4.73	95	90-110
CCV5	701484	KQ2017068-09	10/29/20 17:10	5.00	4.97	99	90-110
CCV6	701484	KQ2017068-10	10/29/20 19:29	5.00	4.96	99	90-110
CCV7	701484	KQ2017068-11	10/29/20 21:26	5.00	4.93	99	90-110
CCV8	701484	KQ2017068-12	10/29/20 23:26	5.00	5.02	100	90-110
CCV9	701765	KQ2017175-05	11/02/20 08:19	5.00	5.02	100	90-110
CCV10	701765	KQ2017175-06	11/02/20 10:14	5.00	5.01	100	90-110
CCV11	701765	KQ2017175-07	11/02/20 12:09	5.00	5.00	100	90-110
CCV12	701765	KQ2017175-08	11/02/20 14:05	5.00	5.02	100	90-110
CCV13	701765	KQ2017175-09	11/02/20 16:01	5.00	5.04	101	90-110
CCV14	701765	KQ2017175-10	11/02/20 17:57	5.00	5.04	101	90-110
CCV15	701765	KQ2017175-11	11/02/20 20:16	5.00	5.07	101	90-110
CCV16	701765	KQ2017175-12	11/02/20 22:05	5.00	5.08	102	90-110

Client: Tongass Engineering LLC **Service Request:**K2008856
Project: Niblack/C-384-0301

Continuing Calibration Blank (CCB) Summary
Sulfate

Analysis Method: 300.0 **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	701484	KQ2017068-13	10/29/20 09:17	0.20	0.02	ND	U
CCB2	701484	KQ2017068-14	10/29/20 11:13	0.20	0.02	ND	U
CCB3	701484	KQ2017068-15	10/29/20 13:08	0.20	0.02	ND	U
CCB4	701484	KQ2017068-16	10/29/20 15:14	0.20	0.02	ND	U
CCB5	701484	KQ2017068-17	10/29/20 17:20	0.20	0.02	ND	U
CCB6	701484	KQ2017068-18	10/29/20 19:39	0.20	0.02	ND	U
CCB7	701484	KQ2017068-19	10/29/20 21:37	0.20	0.02	ND	U
CCB8	701484	KQ2017068-20	10/29/20 23:37	0.20	0.02	ND	U
CCB9	701765	KQ2017175-13	11/02/20 08:28	0.20	0.02	ND	U
CCB10	701765	KQ2017175-14	11/02/20 10:23	0.20	0.02	ND	U
CCB11	701765	KQ2017175-15	11/02/20 12:19	0.20	0.02	ND	U
CCB12	701765	KQ2017175-16	11/02/20 14:15	0.20	0.02	ND	U
CCB13	701765	KQ2017175-17	11/02/20 16:11	0.20	0.02	ND	U
CCB14	701765	KQ2017175-18	11/02/20 18:07	0.20	0.02	ND	U
CCB15	701765	KQ2017175-19	11/02/20 20:06	0.20	0.02	ND	U
CCB16	701765	KQ2017175-20	11/02/20 22:15	0.20	0.02	ND	U

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 - 10/02/20
Sample Matrix:	Water	**Date Received:**	10/5/20
Analysis Method:	353.2	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Nitrate+Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
MW-01	K2008856-001	**0.055**	0.050	0.006	1	10/16/20 13:05	10/16/20	
MW-02	K2008856-002	ND U	0.050	0.006	1	10/16/20 13:05	10/16/20	
MW-03	K2008856-003	ND U	0.050	0.006	1	10/16/20 13:05	10/16/20	
MW-04	K2008856-004	ND U	0.050	0.006	1	10/16/20 13:05	10/16/20	
MW-20	K2008856-005	**0.057**	0.050	0.006	1	10/16/20 13:05	10/16/20	
WQ-04	K2008856-006	**0.065**	0.050	0.006	1	10/16/20 13:05	10/16/20	
WQ-06	K2008856-007	**0.059**	0.050	0.006	1	10/16/20 13:05	10/16/20	
WQ-10	K2008856-008	**0.046 J**	0.050	0.006	1	10/16/20 13:05	10/16/20	
WQ-13	K2008856-009	**0.119**	0.050	0.006	1	10/16/20 13:05	10/16/20	
WQ-20	K2008856-010	**0.119**	0.050	0.006	1	10/16/20 13:05	10/16/20	
WQ-21	K2008856-011	ND U	0.050	0.006	1	10/16/20 13:05	10/16/20	
PAG Pond	K2008856-012	ND U	0.050	0.006	1	10/16/20 13:05	10/16/20	
EFF1	K2008856-013	**0.027 J**	0.050	0.006	1	10/16/20 13:05	10/16/20	
Method Blank	K2008856-MB1	ND U	0.050	0.006	1	10/16/20 13:05	10/16/20	

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project	Niblack/C-384-0301	**Date Collected:**	10/01/20 - 10/02/20
Sample Matrix:	Water	**Date Received:**	10/05/20
Analysis Method:	353.2	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Replicate Sample Summary

Nitrate+Nitrite as Nitrogen

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
MW-01	K2008856-001DUP	0.050	0.006	0.055	0.054	0.0545	2	20	10/16/20
EFF1	K2008856-013DUP	0.050	0.006	0.027 J	0.026 J	0.0265	4	20	10/16/20

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Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/16/20
		Date Extracted:	10/16/20

Duplicate Matrix Spike Summary
Nitrate+Nitrite as Nitrogen

Sample Name:	MW-01	**Units:**	mg/L
Lab Code:	K2008856-001	**Basis:**	NA
Analysis Method:	353.2		
Prep Method:	Method		

		Matrix Spike K2008856-001MS			Duplicate Matrix Spike K2008856-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate+Nitrite as Nitrogen	0.055	1.03	1.00	98	1.03	1.00	98	90-110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/16/20
		Date Extracted:	10/16/20

Duplicate Matrix Spike Summary
Nitrate+Nitrite as Nitrogen

Sample Name:	EFF1	**Units:**	mg/L
Lab Code:	K2008856-013	**Basis:**	NA
Analysis Method:	353.2		
Prep Method:	Method		

		Matrix Spike K2008856-013MS			Duplicate Matrix Spike K2008856-013DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate+Nitrite as Nitrogen	0.027 J	1.04	1.00	102	1.02	1.00	100	90-110	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Analyzed:**	10/16/20
Sample Matrix:	Water	**Date Extracted:**	10/16/20

Lab Control Sample Summary
Nitrate+Nitrite as Nitrogen

Analysis Method:	353.2	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	699834

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008856-LCS1	16.0	16.1	100	90-110

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Continuing Calibration Verification (CCV) Summary

Nitrate+Nitrite as Nitrogen

Analysis Method: 353.2 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	699834	KQ2015900-17	10/16/20 13:05	1.00	1.01	101	90-110
CCV2	699834	KQ2015900-18	10/16/20 13:05	1.00	0.999	100	90-110
CCV3	699834	KQ2015900-19	10/16/20 13:05	1.00	0.987	99	90-110
CCV4	699834	KQ2015900-20	10/16/20 13:05	1.00	0.998	100	90-110
CCV5	699834	KQ2015900-21	10/16/20 13:05	1.00	0.984	98	90-110
CCV6	699834	KQ2015900-22	10/16/20 13:05	1.00	0.984	98	90-110
CCV7	699834	KQ2015900-23	10/16/20 13:05	1.00	0.995	100	90-110
CCV8	699834	KQ2015900-24	10/16/20 13:05	1.00	0.878	88	90-110
CCV9	699834	KQ2015900-25	10/16/20 13:05	1.00	0.965	97	90-110
CCV10	699834	KQ2015900-26	10/16/20 13:05	1.00	0.984	98	90-110
CCV11	699834	KQ2015900-27	10/16/20 13:05	1.00	0.980	98	90-110
CCV12	699834	KQ2015900-28	10/16/20 13:05	1.00	1.00	100	90-110
CCV13	699834	KQ2015900-29	10/16/20 13:05	1.00	0.995	100	90-110
CCV14	699834	KQ2015900-30	10/16/20 13:05	1.00	0.992	99	90-110
CCV15	699834	KQ2015900-31	10/16/20 13:05	1.00	0.995	100	90-110
CCV16	699834	KQ2015900-32	10/16/20 13:05	1.00	1.00	100	90-110

Client: Tongass Engineering LLC **Service Request:**K2008856
Project: Niblack/C-384-0301

Continuing Calibration Blank (CCB) Summary

Nitrate+Nitrite as Nitrogen

Analysis Method: 353.2 **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	699834	KQ2015900-01	10/16/20 13:05	0.050	0.006	ND	U
CCB2	699834	KQ2015900-02	10/16/20 13:05	0.050	0.006	ND	U
CCB3	699834	KQ2015900-03	10/16/20 13:05	0.050	0.006	ND	U
CCB4	699834	KQ2015900-04	10/16/20 13:05	0.050	0.006	ND	U
CCB5	699834	KQ2015900-05	10/16/20 13:05	0.050	0.006	ND	U
CCB6	699834	KQ2015900-06	10/16/20 13:05	0.050	0.006	ND	U
CCB7	699834	KQ2015900-07	10/16/20 13:05	0.050	0.006	ND	U
CCB8	699834	KQ2015900-08	10/16/20 13:05	0.050	0.006	ND	U
CCB9	699834	KQ2015900-09	10/16/20 13:05	0.050	0.006	ND	U
CCB10	699834	KQ2015900-10	10/16/20 13:05	0.050	0.006	ND	U
CCB11	699834	KQ2015900-11	10/16/20 13:05	0.050	0.006	ND	U
CCB12	699834	KQ2015900-12	10/16/20 13:05	0.050	0.006	ND	U
CCB13	699834	KQ2015900-13	10/16/20 13:05	0.050	0.006	ND	U
CCB14	699834	KQ2015900-14	10/16/20 13:05	0.050	0.006	ND	U
CCB15	699834	KQ2015900-15	10/16/20 13:05	0.050	0.006	ND	U
CCB16	699834	KQ2015900-16	10/16/20 13:05	0.050	0.006	ND	U

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 - 10/02/20
Sample Matrix:	Water	**Date Received:**	10/5/20
Analysis Method:	SM 2340 C	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Hardness, Total as CaCO3

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
MW-01	K2008856-001	**17.6**	2.0	0.8	1	10/16/20 14:00	10/16/20	
MW-02	K2008856-002	**20.0**	2.0	0.8	1	10/16/20 14:00	10/16/20	
MW-03	K2008856-003	**20.0**	2.0	0.8	1	10/16/20 14:00	10/16/20	
MW-04	K2008856-004	**46.7**	2.0	0.8	1	10/16/20 14:00	10/16/20	
MW-20	K2008856-005	**15.2**	2.0	0.8	1	10/16/20 14:00	10/16/20	
WQ-04	K2008856-006	**20.8**	2.0	0.8	1	10/16/20 14:00	10/16/20	
WQ-06	K2008856-007	**12.8**	2.0	0.8	1	10/16/20 14:00	10/16/20	
WQ-10	K2008856-008	**19.2**	2.0	0.8	1	10/16/20 14:00	10/16/20	
WQ-13	K2008856-009	**12.0**	2.0	0.8	1	10/16/20 14:00	10/16/20	
WQ-20	K2008856-010	**14.0**	2.0	0.8	1	10/16/20 14:00	10/16/20	
WQ-21	K2008856-011	ND	U	2.0	0.8	1	10/16/20 14:00	10/16/20	
PAG Pond	K2008856-012	**110**	2.0	0.8	1	10/16/20 14:00	10/16/20	
EFF1	K2008856-013	**109**	2.0	0.8	1	10/16/20 14:00	10/16/20	
Method Blank	K2008856-MB1	ND	U	2.0	0.8	1	10/16/20 14:00	10/16/20	

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/16/20

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	WQ-20	**Units:**	mg/L
Lab Code:	K2008856-010	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2008856-010DUP Result	Average	RPD	RPD Limit
Hardness, Total as CaCO3	SM 2340 C	2.0	0.8	14.0	14.0	14.0	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Analyzed:**	10/16/20
Sample Matrix:	Water	**Date Extracted:**	10/16/20

Lab Control Sample Summary
Hardness, Total as CaCO3

Analysis Method:	SM 2340 C	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	699664

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008856-LCS1	22.0	21.2	104	90-110

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 - 10/02/20
Sample Matrix:	Water	**Date Received:**	10/5/20
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
MW-01	K2008856-001	**71.0**	5.0	-	1	10/06/20 12:15	
MW-02	K2008856-002	**58.0**	5.0	-	1	10/06/20 12:15	
MW-03	K2008856-003	**75.8**	5.0	-	1	10/06/20 12:15	
MW-04	K2008856-004	**68.0**	5.0	-	1	10/06/20 12:15	
MW-20	K2008856-005	**47.3**	5.0	-	1	10/06/20 12:15	
WQ-04	K2008856-006	**39.8**	5.0	-	1	10/06/20 12:15	
WQ-06	K2008856-007	**32.5**	5.0	-	1	10/06/20 12:15	
WQ-10	K2008856-008	**41.3**	5.0	-	1	10/06/20 12:15	
WQ-13	K2008856-009	**35.5**	5.0	-	1	10/06/20 12:15	
WQ-20	K2008856-010	**35.0**	5.0	-	1	10/06/20 12:15	
WQ-21	K2008856-011	ND U	5.0	-	1	10/06/20 12:15	
PAG Pond	K2008856-012	**1510**	5.0	-	1	10/06/20 12:15	
EFF1	K2008856-013	**153**	5.0	-	1	10/06/20 12:15	
Method Blank	K2008856-MB1	ND U	5.0	-	1	10/06/20 12:15	
Method Blank	K2008856-MB2	ND U	5.0	-	1	10/06/20 12:15	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Analyzed:**	10/06/20
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	698115

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008856-LCS1	925	922	100	85-115

Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 13:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-01	**Basis:**	NA
Lab Code:	K2008856-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**109**	ug/L	4.0	0.5	1	10/19/20 16:44	10/16/20	
Arsenic	6020A	**0.11 J**	ug/L	0.50	0.09	1	10/19/20 16:44	10/16/20	
Cadmium	6020A	**0.013 J**	ug/L	0.020	0.008	1	10/19/20 16:44	10/16/20	
Chromium	6020A	**0.38**	ug/L	0.20	0.03	1	10/19/20 16:44	10/16/20	
Copper	6020A	**2.88**	ug/L	0.10	0.05	1	10/19/20 16:44	10/16/20	
Lead	6020A	**0.208**	ug/L	0.020	0.006	1	10/19/20 16:44	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:00	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 16:44	10/16/20	
Zinc	6020A	**2.4**	ug/L	2.0	0.5	1	10/19/20 16:44	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 13:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-01	**Basis:**	NA
Lab Code:	K2008856-001		

Dissolved Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**0.009**	**J**	ug/L	0.020	0.008	1	10/19/20 17:18	10/16/20	
Copper	6020A	**2.46**		ug/L	0.10	0.05	1	10/19/20 17:18	10/16/20	
Zinc	6020A	**1.8**	**J**	ug/L	2.0	0.5	1	10/19/20 17:18	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 14:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-02	**Basis:**	NA
Lab Code:	K2008856-002		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**331**		ug/L	4.0	0.5	1	10/19/20 16:54	10/16/20	
Arsenic	6020A	**0.16**	**J**	ug/L	0.50	0.09	1	10/19/20 16:54	10/16/20	
Cadmium	6020A	**0.019**	**J**	ug/L	0.020	0.008	1	10/19/20 16:54	10/16/20	
Chromium	6020A	**0.56**		ug/L	0.20	0.03	1	10/19/20 16:54	10/16/20	
Copper	6020A	**1.38**		ug/L	0.10	0.05	1	10/19/20 16:54	10/16/20	
Lead	6020A	**0.218**		ug/L	0.020	0.006	1	10/19/20 16:54	10/16/20	
Mercury	7470A	**0.02**	**J**	ug/L	0.20	0.02	1	10/13/20 10:02	10/12/20	
Selenium	6020A	ND	U	ug/L	1.0	0.2	1	10/19/20 16:54	10/16/20	
Zinc	6020A	**3.3**		ug/L	2.0	0.5	1	10/19/20 16:54	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 14:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-02	**Basis:**	NA
Lab Code:	K2008856-002		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:20	10/16/20	
Copper	6020A	**0.40**	ug/L	0.10	0.05	1	10/19/20 17:20	10/16/20	
Zinc	6020A	**1.4 J**	ug/L	2.0	0.5	1	10/19/20 17:20	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 15:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-03	**Basis:**	NA
Lab Code:	K2008856-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**613**	ug/L	4.0	0.5	1	10/19/20 16:56	10/16/20	
Arsenic	6020A	**0.23 J**	ug/L	0.50	0.09	1	10/19/20 16:56	10/16/20	
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 16:56	10/16/20	
Chromium	6020A	**0.95**	ug/L	0.20	0.03	1	10/19/20 16:56	10/16/20	
Copper	6020A	**0.73**	ug/L	0.10	0.05	1	10/19/20 16:56	10/16/20	
Lead	6020A	**0.064**	ug/L	0.020	0.006	1	10/19/20 16:56	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:04	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 16:56	10/16/20	
Zinc	6020A	**2.7**	ug/L	2.0	0.5	1	10/19/20 16:56	10/16/20	

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 15:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-03	**Basis:**	NA
Lab Code:	K2008856-003		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:22	10/16/20	
Copper	6020A	**0.68**	ug/L	0.10	0.05	1	10/19/20 17:22	10/16/20	
Zinc	6020A	**3.0**	ug/L	2.0	0.5	1	10/19/20 17:22	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 09:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-04	**Basis:**	NA
Lab Code:	K2008856-004		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**241**		ug/L	4.0	0.5	1	10/19/20 16:58	10/16/20	
Arsenic	6020A	**0.38**	**J**	ug/L	0.50	0.09	1	10/19/20 16:58	10/16/20	
Cadmium	6020A	**0.012**	**J**	ug/L	0.020	0.008	1	10/19/20 16:58	10/16/20	
Chromium	6020A	**1.59**		ug/L	0.20	0.03	1	10/19/20 16:58	10/16/20	
Copper	6020A	**1.30**		ug/L	0.10	0.05	1	10/19/20 16:58	10/16/20	
Lead	6020A	**0.058**		ug/L	0.020	0.006	1	10/19/20 16:58	10/16/20	
Mercury	7470A	ND	U	ug/L	0.20	0.02	1	10/13/20 10:10	10/12/20	
Selenium	6020A	ND	U	ug/L	1.0	0.2	1	10/19/20 16:58	10/16/20	
Zinc	6020A	**3.9**		ug/L	2.0	0.5	1	10/19/20 16:58	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 09:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-04	**Basis:**	NA
Lab Code:	K2008856-004		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**0.009 J**	ug/L	0.020	0.008	1	10/19/20 17:24	10/16/20	
Copper	6020A	**1.61**	ug/L	0.10	0.05	1	10/19/20 17:24	10/16/20	
Zinc	6020A	**4.6**	ug/L	2.0	0.5	1	10/19/20 17:24	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 13:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-20	**Basis:**	NA
Lab Code:	K2008856-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**110**	ug/L	4.0	0.5	1	10/19/20 17:05	10/16/20	
Arsenic	6020A	**0.12 J**	ug/L	0.50	0.09	1	10/19/20 17:05	10/16/20	
Cadmium	6020A	**0.010 J**	ug/L	0.020	0.008	1	10/19/20 17:05	10/16/20	
Chromium	6020A	**0.38**	ug/L	0.20	0.03	1	10/19/20 17:05	10/16/20	
Copper	6020A	**2.96**	ug/L	0.10	0.05	1	10/19/20 17:05	10/16/20	
Lead	6020A	**0.214**	ug/L	0.020	0.006	1	10/19/20 17:05	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:12	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:05	10/16/20	
Zinc	6020A	**2.5**	ug/L	2.0	0.5	1	10/19/20 17:05	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 13:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	MW-20	**Basis:**	NA
Lab Code:	K2008856-005		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**0.008 J**	ug/L	0.020	0.008	1	10/19/20 17:30	10/16/20	
Copper	6020A	**2.54**	ug/L	0.10	0.05	1	10/19/20 17:30	10/16/20	
Zinc	6020A	**2.1**	ug/L	2.0	0.5	1	10/19/20 17:30	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 17:20
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-04	**Basis:**	NA
Lab Code:	K2008856-006		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**52.4**	ug/L	4.0	0.5	1	10/19/20 17:07	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:07	10/16/20	
Cadmium	6020A	**0.012 J**	ug/L	0.020	0.008	1	10/19/20 17:07	10/16/20	
Chromium	6020A	**0.26**	ug/L	0.20	0.03	1	10/19/20 17:07	10/16/20	
Copper	6020A	**1.15**	ug/L	0.10	0.05	1	10/19/20 17:07	10/16/20	
Lead	6020A	ND U	ug/L	0.020	0.006	1	10/19/20 17:07	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:17	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:07	10/16/20	
Zinc	6020A	**2.8**	ug/L	2.0	0.5	1	10/19/20 17:07	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 17:20
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-04	**Basis:**	NA
Lab Code:	K2008856-006		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**0.011 J**	ug/L	0.020	0.008	1	10/19/20 17:32	10/16/20	
Copper	6020A	**1.16**	ug/L	0.10	0.05	1	10/19/20 17:32	10/16/20	
Zinc	6020A	**2.5**	ug/L	2.0	0.5	1	10/19/20 17:32	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 16:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-06	**Basis:**	NA
Lab Code:	K2008856-007		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**55.3**	ug/L	4.0	0.5	1	10/19/20 17:09	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:09	10/16/20	
Cadmium	6020A	**0.046**	ug/L	0.020	0.008	1	10/19/20 17:09	10/16/20	
Chromium	6020A	**0.24**	ug/L	0.20	0.03	1	10/19/20 17:09	10/16/20	
Copper	6020A	**1.72**	ug/L	0.10	0.05	1	10/19/20 17:09	10/16/20	
Lead	6020A	**0.011 J**	ug/L	0.020	0.006	1	10/19/20 17:09	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:18	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:09	10/16/20	
Zinc	6020A	**12.5**	ug/L	2.0	0.5	1	10/19/20 17:09	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 16:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-06	**Basis:**	NA
Lab Code:	K2008856-007		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**0.043**	ug/L	0.020	0.008	1	10/19/20 17:34	10/16/20	
Copper	6020A	**1.51**	ug/L	0.10	0.05	1	10/19/20 17:34	10/16/20	
Zinc	6020A	**12.4**	ug/L	2.0	0.5	1	10/19/20 17:34	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 10:45
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-10	**Basis:**	NA
Lab Code:	K2008856-008		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**57.1**	ug/L	4.0	0.5	1	10/19/20 17:11	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:11	10/16/20	
Cadmium	6020A	**0.214**	ug/L	0.020	0.008	1	10/19/20 17:11	10/16/20	
Chromium	6020A	**0.31**	ug/L	0.20	0.03	1	10/19/20 17:11	10/16/20	
Copper	6020A	**4.39**	ug/L	0.10	0.05	1	10/19/20 17:11	10/16/20	
Lead	6020A	**0.037**	ug/L	0.020	0.006	1	10/19/20 17:11	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:20	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:11	10/16/20	
Zinc	6020A	**62.1**	ug/L	2.0	0.5	1	10/19/20 17:11	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 10:45
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-10	**Basis:**	NA
Lab Code:	K2008856-008		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**0.210**	ug/L	0.020	0.008	1	10/19/20 17:37	10/16/20	
Copper	6020A	**3.70**	ug/L	0.10	0.05	1	10/19/20 17:37	10/16/20	
Zinc	6020A	**59.9**	ug/L	2.0	0.5	1	10/19/20 17:37	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 17:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-13	**Basis:**	NA
Lab Code:	K2008856-009		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**63.6**	ug/L	4.0	0.5	1	10/19/20 17:13	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:13	10/16/20	
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:13	10/16/20	
Chromium	6020A	**0.31**	ug/L	0.20	0.03	1	10/19/20 17:13	10/16/20	
Copper	6020A	**1.51**	ug/L	0.10	0.05	1	10/19/20 17:13	10/16/20	
Lead	6020A	**0.008 J**	ug/L	0.020	0.006	1	10/19/20 17:13	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:21	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:13	10/16/20	
Zinc	6020A	**1.8 J**	ug/L	2.0	0.5	1	10/19/20 17:13	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 17:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-13	**Basis:**	NA
Lab Code:	K2008856-009		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:39	10/16/20	
Copper	6020A	**1.39**	ug/L	0.10	0.05	1	10/19/20 17:39	10/16/20	
Zinc	6020A	**1.4 J**	ug/L	2.0	0.5	1	10/19/20 17:39	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 17:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-20	**Basis:**	NA
Lab Code:	K2008856-010		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**64.6**	ug/L	4.0	0.5	1	10/19/20 17:15	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:15	10/16/20	
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:15	10/16/20	
Chromium	6020A	**0.26**	ug/L	0.20	0.03	1	10/19/20 17:15	10/16/20	
Copper	6020A	**1.48**	ug/L	0.10	0.05	1	10/19/20 17:15	10/16/20	
Lead	6020A	**0.008 J**	ug/L	0.020	0.006	1	10/19/20 17:15	10/16/20	
Mercury	7470A	**0.02 J**	ug/L	0.20	0.02	1	10/13/20 10:23	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:15	10/16/20	
Zinc	6020A	**1.3 J**	ug/L	2.0	0.5	1	10/19/20 17:15	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 17:40
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-20	**Basis:**	NA
Lab Code:	K2008856-010		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:41	10/16/20	
Copper	6020A	**1.41**	ug/L	0.10	0.05	1	10/19/20 17:41	10/16/20	
Zinc	6020A	**1.3 J**	ug/L	2.0	0.5	1	10/19/20 17:41	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 20:05
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-21	**Basis:**	NA
Lab Code:	K2008856-011		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**1.1 J**	ug/L	4.0	0.5	1	10/19/20 17:53	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:53	10/16/20	
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:53	10/16/20	
Chromium	6020A	**0.13 J**	ug/L	0.20	0.03	1	10/19/20 17:53	10/16/20	
Copper	6020A	ND U	ug/L	0.10	0.05	1	10/19/20 17:53	10/16/20	
Lead	6020A	**0.008 J**	ug/L	0.020	0.006	1	10/19/20 17:53	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:25	10/12/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:53	10/16/20	
Zinc	6020A	ND U	ug/L	2.0	0.5	1	10/19/20 17:53	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20 20:05
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	WQ-21	**Basis:**	NA
Lab Code:	K2008856-011		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 18:19	10/16/20	
Copper	6020A	**0.17**	ug/L	0.10	0.05	1	10/19/20 18:19	10/16/20	
Zinc	6020A	**0.7 J**	ug/L	2.0	0.5	1	10/19/20 18:19	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 11:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	PAG Pond	**Basis:**	NA
Lab Code:	K2008856-012		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**15700**	ug/L	4.0	0.5	1	10/19/20 18:04	10/16/20	
Arsenic	6020A	**1.05**	ug/L	0.50	0.09	1	10/19/20 18:04	10/16/20	
Cadmium	6020A	**137**	ug/L	0.020	0.008	1	10/19/20 18:04	10/16/20	
Chromium	6020A	**7.15**	ug/L	0.20	0.03	1	10/19/20 18:04	10/16/20	
Copper	6020A	**5520**	ug/L	2.0	1.0	20	10/19/20 18:26	10/16/20	
Lead	6020A	**108**	ug/L	0.020	0.006	1	10/19/20 18:04	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:39	10/12/20	
Selenium	6020A	**0.7 J**	ug/L	1.0	0.2	1	10/19/20 18:04	10/16/20	
Zinc	6020A	**37100**	ug/L	40	10	20	10/19/20 18:26	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 11:30
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	PAG Pond	**Basis:**	NA
Lab Code:	K2008856-012		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**136**	ug/L	0.020	0.008	1	10/19/20 18:22	10/16/20	
Copper	6020A	**5260**	ug/L	2.0	1.0	20	10/19/20 18:29	10/16/20	
Zinc	6020A	**37300**	ug/L	40	10	20	10/19/20 18:29	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 13:45
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	EFF1	**Basis:**	NA
Lab Code:	K2008856-013		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**228**	ug/L	4.0	0.5	1	10/19/20 18:06	10/16/20	
Arsenic	6020A	**0.40 J**	ug/L	0.50	0.09	1	10/19/20 18:06	10/16/20	
Cadmium	6020A	**4.13**	ug/L	0.020	0.008	1	10/19/20 18:06	10/16/20	
Chromium	6020A	**0.53**	ug/L	0.20	0.03	1	10/19/20 18:06	10/16/20	
Copper	6020A	**124**	ug/L	0.10	0.05	1	10/19/20 18:06	10/16/20	
Lead	6020A	**1.72**	ug/L	0.020	0.006	1	10/19/20 18:06	10/16/20	
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 10:40	10/12/20	
Selenium	6020A	**0.4 J**	ug/L	1.0	0.2	1	10/19/20 18:06	10/16/20	
Zinc	6020A	**974**	ug/L	2.0	0.5	1	10/19/20 18:06	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/02/20 13:45
Sample Matrix:	Water	**Date Received:**	10/05/20 12:30
Sample Name:	EFF1	**Basis:**	NA
Lab Code:	K2008856-013		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020A	**4.04**	ug/L	0.020	0.008	1	10/19/20 18:24	10/16/20	
Copper	6020A	**79.6**	ug/L	0.10	0.05	1	10/19/20 18:24	10/16/20	
Zinc	6020A	**933**	ug/L	2.0	0.5	1	10/19/20 18:24	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ2015570-01		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**1.1 J**	ug/L	4.0	0.5	1	10/19/20 16:39	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 16:39	10/16/20	
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 16:39	10/16/20	
Chromium	6020A	ND U	ug/L	0.20	0.03	1	10/19/20 16:39	10/16/20	
Copper	6020A	ND U	ug/L	0.10	0.05	1	10/19/20 16:39	10/16/20	
Lead	6020A	ND U	ug/L	0.020	0.006	1	10/19/20 16:39	10/16/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 16:39	10/16/20	
Zinc	6020A	ND U	ug/L	2.0	0.5	1	10/19/20 16:39	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ2015571-01		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	6020A	**1.1 J**	ug/L	4.0	0.5	1	10/19/20 17:49	10/16/20	
Arsenic	6020A	ND U	ug/L	0.50	0.09	1	10/19/20 17:49	10/16/20	
Cadmium	6020A	ND U	ug/L	0.020	0.008	1	10/19/20 17:49	10/16/20	
Chromium	6020A	ND U	ug/L	0.20	0.03	1	10/19/20 17:49	10/16/20	
Copper	6020A	ND U	ug/L	0.10	0.05	1	10/19/20 17:49	10/16/20	
Lead	6020A	ND U	ug/L	0.020	0.006	1	10/19/20 17:49	10/16/20	
Selenium	6020A	ND U	ug/L	1.0	0.2	1	10/19/20 17:49	10/16/20	
Zinc	6020A	ND U	ug/L	2.0	0.5	1	10/19/20 17:49	10/16/20	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ2015113-01		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7470A	ND U	ug/L	0.20	0.02	1	10/13/20 09:57	10/12/20	

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/19/20

Replicate Sample Summary
Total Metals

Sample Name:	MW-01	**Units:**	ug/L
Lab Code:	K2008856-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2015570-03 Result	Average	RPD	RPD Limit
Aluminum	6020A	4.0	0.5	109	108	109	<1	20
Arsenic	6020A	0.50	0.09	0.11 J	0.11 J	0.11	<1	20
Cadmium	6020A	0.020	0.008	0.013 J	0.011 J	0.012	17	20
Chromium	6020A	0.20	0.03	0.38	0.36	0.37	5	20
Copper	6020A	0.10	0.05	2.88	2.91	2.90	1	20
Lead	6020A	0.020	0.006	0.208	0.202	0.205	3	20
Selenium	6020A	1.0	0.2	ND U	ND U	ND	-	20
Zinc	6020A	2.0	0.5	2.4	2.5	2.5	4	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/19/20

Replicate Sample Summary

Total Metals

Sample Name:	WQ-21	**Units:**	ug/L
Lab Code:	K2008856-011	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2015571-03 Result	Average	RPD	RPD Limit
Aluminum	6020A	4.0	0.5	1.1 J	1.2 J	1.2	9	20
Arsenic	6020A	0.50	0.09	ND U	ND U	ND	-	20
Cadmium	6020A	0.020	0.008	ND U	ND U	ND	-	20
Chromium	6020A	0.20	0.03	0.13 J	0.11 J	0.12	17	20
Copper	6020A	0.10	0.05	ND U	ND U	ND	-	20
Lead	6020A	0.020	0.006	0.008 J	ND U	NC	NC	20
Selenium	6020A	1.0	0.2	ND U	ND U	ND	-	20
Zinc	6020A	2.0	0.5	ND U	ND U	ND	-	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed 10/22/2020 5:02:33 PM Superset Reference:

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/13/20

Replicate Sample Summary
Total Metals

Sample Name:	MW-03	**Units:**	ug/L
Lab Code:	K2008856-003	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2015113-03 Result	Average	RPD	RPD Limit
Mercury	7470A	0.20	0.02	ND U	ND U	ND	-	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/19/20

Matrix Spike Summary
Total Metals

Sample Name:	MW-01	**Units:**	ug/L
Lab Code:	K2008856-001	**Basis:**	NA

Matrix Spike
KQ2015570-04

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	6020A	109	212	100	104	75-125
Arsenic	6020A	0.11 J	47.8	50.0	95	75-125
Cadmium	6020A	0.013 J	25.0	25.0	100	75-125
Chromium	6020A	0.38	10.2	10.0	98	75-125
Copper	6020A	2.88	15.2	12.5	98	75-125
Lead	6020A	0.208	47.9	50.0	95	75-125
Selenium	6020A	ND U	50.2	50.0	100	75-125
Zinc	6020A	2.4	27.6	25.0	101	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/19/20

Matrix Spike Summary
Total Metals

Sample Name:	WQ-21	**Units:**	ug/L
Lab Code:	K2008856-011	**Basis:**	NA

Matrix Spike
KQ2015571-04

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	6020A	1.1 J	104	100	103	75-125
Arsenic	6020A	ND U	50.0	50.0	100	75-125
Cadmium	6020A	ND U	25.4	25.0	102	75-125
Chromium	6020A	0.13 J	9.91	10.0	98	75-125
Copper	6020A	ND U	12.5	12.5	100	75-125
Lead	6020A	0.008 J	49.0	50.0	98	75-125
Selenium	6020A	ND U	51.4	50.0	103	75-125
Zinc	6020A	ND U	25.6	25.0	103	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2008856
Project:	Niblack/C-384-0301	**Date Collected:**	10/01/20
Sample Matrix:	Water	**Date Received:**	10/05/20
		Date Analyzed:	10/13/20
		Date Extracted:	10/12/20

Matrix Spike Summary
Total Metals

Sample Name:	MW-03	**Units:**	ug/L
Lab Code:	K2008856-003	**Basis:**	NA
Analysis Method:	7470A		
Prep Method:	Method		

Matrix Spike
KQ2015113-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	ND U	5.10	5.00	102	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Tongass Engineering LLC
Project: Niblack/C-384-0301
Sample Matrix: Water

Service Request: K2008856
Date Analyzed: 10/19/20

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2015570-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	6020A	104	100	104	80-120
Arsenic	6020A	50.6	50.0	101	80-120
Chromium	6020A	10.0	10.0	100	80-120
Lead	6020A	48.8	50.0	98	80-120
Selenium	6020A	52.0	50.0	104	80-120

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QA/QC Report

Client: Tongass Engineering LLC
Project: Niblack/C-384-0301
Sample Matrix: Water

Service Request: K2008856
Date Analyzed: 10/19/20

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2015570-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	6020A	25.3	25.0	101	80-120
Copper	6020A	12.5	12.5	100	80-120
Zinc	6020A	26.8	25.0	107	80-120

ALS Group USA, Corp.
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QA/QC Report

Client: Tongass Engineering LLC
Project: Niblack/C-384-0301
Sample Matrix: Water

Service Request: K2008856
Date Analyzed: 10/19/20

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2015571-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	6020A	105	100	105	80-120
Arsenic	6020A	49.4	50.0	99	80-120
Chromium	6020A	10.2	10.0	102	80-120
Lead	6020A	49.2	50.0	98	80-120
Selenium	6020A	51.9	50.0	104	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Tongass Engineering LLC
Project: Niblack/C-384-0301
Sample Matrix: Water

Service Request: K2008856
Date Analyzed: 10/19/20

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2015571-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	6020A	25.6	25.0	103	80-120
Copper	6020A	12.5	12.5	100	80-120
Zinc	6020A	25.5	25.0	102	80-120

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QA/QC Report

Client: Tongass Engineering LLC
Project: Niblack/C-384-0301
Sample Matrix: Water

Service Request: K2008856
Date Analyzed: 10/13/20

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2015113-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7470A	5.23	5.00	105	80-120

Prep Summary Report

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301
Sample Matrix: Water

Metals

Prep Method: EPA CLP ILM04.0 **Extraction Lot:** 367726
Analytical Method: 6020A **Extraction Date:** 10/16/20 12:24

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
MW-01	K2008856-001	10/1/20	10/5/20	10 mL	10 mL	
MW-02	K2008856-002	10/1/20	10/5/20	10 mL	10 mL	
MW-03	K2008856-003	10/1/20	10/5/20	10 mL	10 mL	
MW-04	K2008856-004	10/2/20	10/5/20	10 mL	10 mL	
MW-20	K2008856-005	10/1/20	10/5/20	10 mL	10 mL	
WQ-04	K2008856-006	10/1/20	10/5/20	10 mL	10 mL	
WQ-06	K2008856-007	10/1/20	10/5/20	10 mL	10 mL	
WQ-10	K2008856-008	10/2/20	10/5/20	10 mL	10 mL	
WQ-13	K2008856-009	10/1/20	10/5/20	10 mL	10 mL	
WQ-20	K2008856-010	10/1/20	10/5/20	10 mL	10 mL	
MW-01	K2008856-001	10/1/20	10/5/20	10 mL	10 mL	
MW-02	K2008856-002	10/1/20	10/5/20	10 mL	10 mL	
MW-03	K2008856-003	10/1/20	10/5/20	10 mL	10 mL	
MW-04	K2008856-004	10/2/20	10/5/20	10 mL	10 mL	
MW-20	K2008856-005	10/1/20	10/5/20	10 mL	10 mL	
WQ-04	K2008856-006	10/1/20	10/5/20	10 mL	10 mL	
WQ-06	K2008856-007	10/1/20	10/5/20	10 mL	10 mL	
WQ-10	K2008856-008	10/2/20	10/5/20	10 mL	10 mL	
WQ-13	K2008856-009	10/1/20	10/5/20	10 mL	10 mL	
WQ-20	K2008856-010	10/1/20	10/5/20	10 mL	10 mL	
Method Blank	KQ2015570-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2015570-02LCS	NA	NA	10 mL	10.3 mL	
Duplicate	KQ2015570-03DUP	10/1/20	10/5/20	10 mL	10 mL	
Matrix Spike	KQ2015570-04MS	10/1/20	10/5/20	10 mL	10.3 mL	

Prep Summary Report

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301
Sample Matrix: Water

Metals

Prep Method: EPA CLP ILM04.0 **Extraction Lot:** 367727
Analytical Method: 6020A **Extraction Date:** 10/16/20 12:24

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
WQ-21	K2008856-011	10/1/20	10/5/20	10 mL	10 mL	
PAG Pond	K2008856-012	10/2/20	10/5/20	10 mL	10 mL	
EFF1	K2008856-013	10/2/20	10/5/20	10 mL	10 mL	
WQ-21	K2008856-011	10/1/20	10/5/20	10 mL	10 mL	
PAG Pond	K2008856-012	10/2/20	10/5/20	10 mL	10 mL	
EFF1	K2008856-013	10/2/20	10/5/20	10 mL	10 mL	
Method Blank	KQ2015571-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2015571-02LCS	NA	NA	10 mL	10.3 mL	
Duplicate	KQ2015571-03DUP	10/1/20	10/5/20	10 mL	10 mL	
Matrix Spike	KQ2015571-04MS	10/1/20	10/5/20	10 mL	10.3 mL	

Prep Summary Report

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301
Sample Matrix: Water

Metals

Prep Method: Method **Extraction Lot:** 367346
Analytical Method: 7470A **Extraction Date:** 10/12/20 11:11

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
MW-01	K2008856-001	10/1/20	10/5/20	10 mL	10 mL	
MW-02	K2008856-002	10/1/20	10/5/20	10 mL	10 mL	
MW-03	K2008856-003	10/1/20	10/5/20	10 mL	10 mL	
MW-04	K2008856-004	10/2/20	10/5/20	10 mL	10 mL	
MW-20	K2008856-005	10/1/20	10/5/20	10 mL	10 mL	
WQ-04	K2008856-006	10/1/20	10/5/20	10 mL	10 mL	
WQ-06	K2008856-007	10/1/20	10/5/20	10 mL	10 mL	
WQ-10	K2008856-008	10/2/20	10/5/20	10 mL	10 mL	
WQ-13	K2008856-009	10/1/20	10/5/20	10 mL	10 mL	
WQ-20	K2008856-010	10/1/20	10/5/20	10 mL	10 mL	
WQ-21	K2008856-011	10/1/20	10/5/20	10 mL	10 mL	
PAG Pond	K2008856-012	10/2/20	10/5/20	10 mL	10 mL	
EFF1	K2008856-013	10/2/20	10/5/20	10 mL	10 mL	
Method Blank	KQ2015113-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2015113-02LCS	NA	NA	10 mL	10 mL	
Duplicate	KQ2015113-03DUP	10/1/20	10/5/20	10 mL	10 mL	
Matrix Spike	KQ2015113-04MS	10/1/20	10/5/20	10 mL	10 mL	

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 10/13/20 09:49						
Mercury	7470A	699052	5.05	5.00	101	90-110
CCV 10/13/20 09:54						
Mercury	7470A	699052	5.04	5.00	101	90-110
CCV 10/13/20 10:13						
Mercury	7470A	699052	5.05	5.00	101	90-110
CCV 10/13/20 10:45						
Mercury	7470A	699052	5.12	5.00	102	90-110
ICV 10/19/20 16:17						
Aluminum	6020A	699908	102	100	102	90-110
Arsenic	6020A	699908	24.3	25.0	97	90-110
Cadmium	6020A	699908	12.5	12.5	100	90-110
Chromium	6020A	699908	9.89	10.0	99	90-110
Copper	6020A	699908	12.3	12.5	98	90-110
Lead	6020A	699908	24.0	25.0	96	90-110
Selenium	6020A	699908	25.4	25.0	102	90-110
Zinc	6020A	699908	25.2	25.0	101	90-110
CCV 10/19/20 16:19						
Aluminum	6020A	699908	24.9	25.0	100	90-110
Arsenic	6020A	699908	25.5	25.0	102	90-110
Cadmium	6020A	699908	25.0	25.0	100	90-110
Chromium	6020A	699908	25.5	25.0	102	90-110
Copper	6020A	699908	25.5	25.0	102	90-110
Lead	6020A	699908	24.3	25.0	97	90-110
Selenium	6020A	699908	25.0	25.0	100	90-110
Zinc	6020A	699908	26.0	25.0	104	90-110
CCV 10/19/20 17:00						
Aluminum	6020A	699908	25.0	25.0	100	90-110
Arsenic	6020A	699908	25.4	25.0	102	90-110
Cadmium	6020A	699908	25.3	25.0	101	90-110
Chromium	6020A	699908	24.4	25.0	98	90-110
Copper	6020A	699908	24.8	25.0	99	90-110
Lead	6020A	699908	24.1	25.0	96	90-110
Selenium	6020A	699908	25.0	25.0	100	90-110
Zinc	6020A	699908	25.7	25.0	103	90-110
CCV 10/19/20 17:26						
Aluminum	6020A	699908	24.9	25.0	100	90-110

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 10/19/20 17:26						
Arsenic	6020A	699908	25.2	25.0	101	90-110
Cadmium	6020A	699908	25.2	25.0	101	90-110
Chromium	6020A	699908	24.6	25.0	98	90-110
Copper	6020A	699908	25.1	25.0	100	90-110
Lead	6020A	699908	24.2	25.0	97	90-110
Selenium	6020A	699908	24.9	25.0	100	90-110
Zinc	6020A	699908	25.6	25.0	102	90-110
CCV 10/19/20 17:43						
Aluminum	6020A	699908	25.0	25.0	100	90-110
Arsenic	6020A	699908	25.6	25.0	102	90-110
Cadmium	6020A	699908	25.3	25.0	101	90-110
Chromium	6020A	699908	25.2	25.0	101	90-110
Copper	6020A	699908	25.3	25.0	101	90-110
Lead	6020A	699908	24.4	25.0	98	90-110
Selenium	6020A	699908	25.3	25.0	101	90-110
Zinc	6020A	699908	25.6	25.0	102	90-110
CCV 10/19/20 18:15						
Aluminum	6020A	699908	25.0	25.0	100	90-110
Arsenic	6020A	699908	25.6	25.0	102	90-110
Cadmium	6020A	699908	25.7	25.0	103	90-110
Chromium	6020A	699908	25.1	25.0	100	90-110
Copper	6020A	699908	26.0	25.0	104	90-110
Lead	6020A	699908	24.8	25.0	99	90-110
Selenium	6020A	699908	25.9	25.0	104	90-110
Zinc	6020A	699908	27.2	25.0	109	90-110
CCV 10/19/20 18:31						
Aluminum	6020A	699908	25.1	25.0	100	90-110
Arsenic	6020A	699908	26.1	25.0	104	90-110
Cadmium	6020A	699908	25.8	25.0	103	90-110
Chromium	6020A	699908	25.2	25.0	101	90-110
Copper	6020A	699908	26.1	25.0	105	90-110
Lead	6020A	699908	25.0	25.0	100	90-110
Selenium	6020A	699908	25.7	25.0	103	90-110
Zinc	6020A	699908	26.8	25.0	107	90-110

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 10/13/20 09:51				
Mercury	7470A	699052	-0.0310	J
CCB 10/13/20 09:55				
Mercury	7470A	699052	-0.0350	J
CCB 10/13/20 10:15				
Mercury	7470A	699052	0.02	U
CCB 10/13/20 10:47				
Mercury	7470A	699052	-0.0410	J
ICB 10/19/20 16:21				
Aluminum	6020A	699908	0.5	U
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U
CCB 10/19/20 16:23				
Aluminum	6020A	699908	0.5	U
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U
CCB 10/19/20 17:03				
Aluminum	6020A	699908	0.5	U
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U
CCB 10/19/20 17:28				
Aluminum	6020A	699908	0.5	U

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 10/19/20 17:28				
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U
CCB 10/19/20 17:45				
Aluminum	6020A	699908	0.5	U
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U
CCB 10/19/20 18:17				
Aluminum	6020A	699908	0.5	U
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U
CCB 10/19/20 18:33				
Aluminum	6020A	699908	0.5	U
Arsenic	6020A	699908	0.09	U
Cadmium	6020A	699908	0.008	U
Chromium	6020A	699908	0.03	U
Copper	6020A	699908	0.05	U
Lead	6020A	699908	0.006	U
Selenium	6020A	699908	0.2	U
Zinc	6020A	699908	0.5	U

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV								
	Mercury	7470A	699052	0.20	0.2	101	50-150	10/13/20 09:52
LLICV								
	Aluminum	6020A	699908	3.8	4.0	95	70-130	10/19/20 16:25
	Arsenic	6020A	699908	0.51	0.5	102	70-130	10/19/20 16:25
	Cadmium	6020A	699908	0.020	0.02	102	70-130	10/19/20 16:25
	Chromium	6020A	699908	0.18	0.2	91	70-130	10/19/20 16:25
	Copper	6020A	699908	0.091	0.1	91	70-130	10/19/20 16:25
	Lead	6020A	699908	0.018	0.02	88	70-130	10/19/20 16:25
	Selenium	6020A	699908	0.92	1.0	92	70-130	10/19/20 16:25
	Zinc	6020A	699908	1.9	2.0	96	70-130	10/19/20 16:25
LLCCV								
	Aluminum	6020A	699908	3.8	4.0	96	70-130	10/19/20 17:47
	Arsenic	6020A	699908	0.51	0.5	101	70-130	10/19/20 17:47
	Cadmium	6020A	699908	0.024	0.02	121	70-130	10/19/20 17:47
	Chromium	6020A	699908	0.18	0.2	91	70-130	10/19/20 17:47
	Copper	6020A	699908	0.10	0.1	103	70-130	10/19/20 17:47
	Lead	6020A	699908	0.022	0.02	110	70-130	10/19/20 17:47
	Selenium	6020A	699908	0.90	1.0	90	70-130	10/19/20 17:47
	Zinc	6020A	699908	1.9	2.0	96	70-130	10/19/20 17:47
LLCCV								
	Aluminum	6020A	699908	3.8	4.0	94	70-130	10/19/20 18:36
	Arsenic	6020A	699908	0.49	0.5	98	70-130	10/19/20 18:36
	Cadmium	6020A	699908	0.018	0.02	92	70-130	10/19/20 18:36
	Chromium	6020A	699908	0.19	0.2	96	70-130	10/19/20 18:36
	Copper	6020A	699908	0.11	0.1	111	70-130	10/19/20 18:36
	Lead	6020A	699908	0.019	0.02	94	70-130	10/19/20 18:36
	Selenium	6020A	699908	1.0	1.0	103	70-130	10/19/20 18:36
	Zinc	6020A	699908	2.2	2.0	112	70-130	10/19/20 18:36

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Aluminum	6020A	699908	20300	-	-	-	10/19/20 16:27
Arsenic	6020A	699908	0.17	-	-	-	10/19/20 16:27
Cadmium	6020A	699908	0.015	-	-	-	10/19/20 16:27
Chromium	6020A	699908	1.55	-	-	-	10/19/20 16:27
Copper	6020A	699908	1.02	-	-	-	10/19/20 16:27
Lead	6020A	699908	0.077	-	-	-	10/19/20 16:27
Selenium	6020A	699908	0.2	-	-	-	10/19/20 16:27
Zinc	6020A	699908	0.8	-	-	-	10/19/20 16:27

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Aluminum	6020A	699908	20400	-	-	-	10/19/20 16:29
Arsenic	6020A	699908	24.5	25.0	98	80-120	10/19/20 16:29
Cadmium	6020A	699908	23.7	25.0	95	80-120	10/19/20 16:29
Chromium	6020A	699908	50.0	50.0	100	80-120	10/19/20 16:29
Copper	6020A	699908	46.7	50.0	93	80-120	10/19/20 16:29
Lead	6020A	699908	0.079	-	-	-	10/19/20 16:29
Selenium	6020A	699908	22.9	25.0	92	80-120	10/19/20 16:29
Zinc	6020A	699908	23.1	25.0	93	80-120	10/19/20 16:29

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

POST SPIKE SAMPLE RECOVERY

Concentration Units: ppb

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2008856-003A								
Mercury	7470A	699052	0.02 U	5.19	5.00	104	80-120	10/13/20 10:08
K2008856-001A								
Aluminum	6020A	699908	109	125	20.0	84 #	80-120	10/19/20 16:50
Arsenic	6020A	699908	0.11 J	20.1	20.0	100	80-120	10/19/20 16:50
Cadmium	6020A	699908	0.013 J	19.6	20.0	98	80-120	10/19/20 16:50
Chromium	6020A	699908	0.38	19.8	20.0	97	80-120	10/19/20 16:50
Copper	6020A	699908	2.88	22.1	20.0	96	80-120	10/19/20 16:50
Lead	6020A	699908	0.208	19.1	20.0	95	80-120	10/19/20 16:50
Selenium	6020A	699908	0.2 U	19.7	20.0	99	80-120	10/19/20 16:50
Zinc	6020A	699908	2.4	22.3	20.0	100	80-120	10/19/20 16:50
K2008856-011A								
Aluminum	6020A	699908	1.1 J	21.2	20.0	100	80-120	10/19/20 18:00
Arsenic	6020A	699908	0.09 U	20.0	20.0	100	80-120	10/19/20 18:00
Cadmium	6020A	699908	0.008 U	19.9	20.0	100	80-120	10/19/20 18:00
Chromium	6020A	699908	0.13 J	19.6	20.0	97	80-120	10/19/20 18:00
Copper	6020A	699908	0.05 U	19.5	20.0	98	80-120	10/19/20 18:00
Lead	6020A	699908	0.008 J	19.1	20.0	95	80-120	10/19/20 18:00
Selenium	6020A	699908	0.2 U	19.9	20.0	99	80-120	10/19/20 18:00
Zinc	6020A	699908	0.5 U	19.8	20.0	99	80-120	10/19/20 18:00

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP SERIAL DILUTIONS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Serial Dillution Result	% Diff	% Diff. Limit	Analysis Date
K2008856-001SDL							
Aluminum	6020A	699908	109	102	6	10	10/19/20 16:48
Arsenic	6020A	699908	0.1 J	0.1 U	2	10	10/19/20 16:48
Cadmium	6020A	699908	0.01 J	0.003 U	76	10	10/19/20 16:48
Chromium	6020A	699908	0.4	0.2 J	40	10	10/19/20 16:48
Copper	6020A	699908	2.88	2.82	2	10	10/19/20 16:48
Lead	6020A	699908	0.21	0.20	2	10	10/19/20 16:48
Selenium	6020A	699908	0.2 U	0.2 U	42	10	10/19/20 16:48
Zinc	6020A	699908	2	3 J	17	10	10/19/20 16:48
K2008856-011SDL							
Aluminum	6020A	699908	1 J	3 J	163	10	10/19/20 17:58
Arsenic	6020A	699908	0.09 U	0.01 U	49	10	10/19/20 17:58
Cadmium	6020A	699908	0.008 U	0.001 U	38	10	10/19/20 17:58
Chromium	6020A	699908	0.1 J	0.1 U	1	10	10/19/20 17:58
Copper	6020A	699908	0.05 U	0.03 U	23	10	10/19/20 17:58
Lead	6020A	699908	0.008 J	0.005 U	34	10	10/19/20 17:58
Selenium	6020A	699908	0.2 U	0.006 U	24	10	10/19/20 17:58
Zinc	6020A	699908	0.5 U	0.4 U	66	10	10/19/20 17:58

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Detection Limits

Instrument: K-CVAA-02 **Matrix:** Water

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7470A

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Detection Limits

Instrument: K-ICP-MS-06 **Matrix:** Water

Analyte	Mass	Units	MRL	MDL	Method
Aluminum	27	ug/L	4.0	0.5	6020A
Arsenic	75	ug/L	0.5	0.09	6020A
Cadmium	111	ug/L	0.02	0.008	6020A
Chromium	52	ug/L	0.2	0.03	6020A
Copper	65	ug/L	0.1	0.05	6020A
Lead	208	ug/L	0.02	0.006	6020A
Selenium	78	ug/L	1.0	0.2	6020A
Zinc	66	ug/L	2.0	0.5	6020A

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP Linear Range (Quarterly)

Instrument: K-CVAA-02

Analyte	Concentration (ug/L)	Method
Mercury	10	7470A

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-06

Analyte	Concentration (ug/L)	Method
Aluminum 27	45000	6020A
Arsenic 75	4500	6020A
Cadmium 111	9000	6020A
Chromium 52	9000	6020A
Copper 65	4500	6020A
Lead 208	4500	6020A
Selenium 78	9000	6020A
Zinc 66	9000	6020A

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Analysis Run Log

Instrument ID: **K-CVAA-02** **Analytical BatchID:** **699052**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	10/13/20 09:39	
ZZZZZZ	1	10/13/20 09:41	
ZZZZZZ	1	10/13/20 09:42	
ZZZZZZ	1	10/13/20 09:44	
ZZZZZZ	1	10/13/20 09:46	
ZZZZZZ	1	10/13/20 09:47	
ICV1	1	10/13/20 09:49	X
ICB1	1	10/13/20 09:51	X
LLICV1	1	10/13/20 09:52	X
CCV1	1	10/13/20 09:54	X
CCB1	1	10/13/20 09:55	X
KQ2015113-01MB	1	10/13/20 09:57	X
KQ2015113-02LCS	1	10/13/20 09:59	X
K2008856-001	1	10/13/20 10:00	X
K2008856-002	1	10/13/20 10:02	X
K2008856-003	1	10/13/20 10:04	X
K2008856-003DUP	1	10/13/20 10:05	X
K2008856-003MS	1	10/13/20 10:07	X
K2008856-003PS	1	10/13/20 10:08	X
K2008856-004	1	10/13/20 10:10	X
K2008856-005	1	10/13/20 10:12	X
CCV2	1	10/13/20 10:13	X
CCB2	1	10/13/20 10:15	X
K2008856-006	1	10/13/20 10:17	X
K2008856-007	1	10/13/20 10:18	X
K2008856-008	1	10/13/20 10:20	X
K2008856-009	1	10/13/20 10:21	X
K2008856-010	1	10/13/20 10:23	X
K2008856-011	1	10/13/20 10:25	X
K2008856-012	1	10/13/20 10:39	X
K2008856-013	1	10/13/20 10:40	X
ZZZZZZ	1	10/13/20 10:42	
ZZZZZZ	5	10/13/20 10:43	
CCV3	1	10/13/20 10:45	X
CCB3	1	10/13/20 10:47	X
ZZZZZZ	5	10/13/20 10:48	
ZZZZZZ	1	10/13/20 10:50	

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Analysis Run Log

Instrument ID: **K-CVAA-02** **Analytical BatchID:** **699052**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	10/13/20 10:53	
ZZZZZZ	1	10/13/20 10:55	
ZZZZZZ	1	10/13/20 10:56	
ZZZZZZ	1	10/13/20 10:58	
ZZZZZZ	1	10/13/20 10:59	
ZZZZZZ	1	10/13/20 11:01	
ZZZZZZ	1	10/13/20 11:03	
ZZZZZZ	1	10/13/20 11:04	
ZZZZZZ	1	10/13/20 11:06	
ZZZZZZ	1	10/13/20 11:08	
ZZZZZZ	1	10/13/20 11:09	
ZZZZZZ	1	10/13/20 11:11	
ZZZZZZ	1	10/13/20 11:12	
ZZZZZZ	1	10/13/20 11:14	
ZZZZZZ	1	10/13/20 11:16	
ZZZZZZ	1	10/13/20 11:17	
ZZZZZZ	1	10/13/20 11:19	
ZZZZZZ	1	10/13/20 11:21	
ZZZZZZ	1	10/13/20 11:22	
ZZZZZZ	1	10/13/20 11:24	
ZZZZZZ	1	10/13/20 11:25	
ZZZZZZ	1	10/13/20 11:27	
ZZZZZZ	1	10/13/20 11:29	
ZZZZZZ	1	10/13/20 11:30	
ZZZZZZ	1	10/13/20 11:32	
ZZZZZZ	1	10/13/20 11:34	
ZZZZZZ	1	10/13/20 11:35	
ZZZZZZ	1	10/13/20 11:37	
ZZZZZZ	1	10/13/20 11:38	
ZZZZZZ	1	10/13/20 11:40	
ZZZZZZ	1	10/13/20 11:42	
ZZZZZZ	1	10/13/20 11:43	
ZZZZZZ	1	10/13/20 11:45	
ZZZZZZ	1	10/13/20 11:47	
ZZZZZZ	1	10/13/20 11:48	
ZZZZZZ	1	10/13/20 11:50	
ZZZZZZ	1	10/13/20 11:51	

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Analysis Run Log

Instrument ID: **K-CVAA-02** **Analytical BatchID:** **699052**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	10/13/20 11:53	
ZZZZZZ	1	10/13/20 11:55	
ZZZZZZ	1	10/13/20 11:56	
ZZZZZZ	1	10/13/20 11:58	
ZZZZZZ	1	10/13/20 12:00	
ZZZZZZ	1	10/13/20 12:01	
ZZZZZZ	1	10/13/20 12:03	
ZZZZZZ	1	10/13/20 12:05	
ZZZZZZ	1	10/13/20 12:06	
ZZZZZZ	1	10/13/20 12:08	
ZZZZZZ	1	10/13/20 12:09	
ZZZZZZ	1	10/13/20 12:11	
ZZZZZZ	1	10/13/20 12:13	
ZZZZZZ	1	10/13/20 12:14	
ZZZZZZ	1	10/13/20 12:16	
ZZZZZZ	1	10/13/20 12:18	
ZZZZZZ	1	10/13/20 12:19	
ZZZZZZ	1	10/13/20 12:21	
ZZZZZZ	1	10/13/20 12:22	
ZZZZZZ	1	10/13/20 12:24	
ZZZZZZ	1	10/13/20 12:26	
ZZZZZZ	1	10/13/20 12:27	
ZZZZZZ	1	10/13/20 12:29	
ZZZZZZ	1	10/13/20 12:31	
ZZZZZZ	1	10/13/20 12:32	
ZZZZZZ	1	10/13/20 12:34	
ZZZZZZ	1	10/13/20 12:35	
ZZZZZZ	1	10/13/20 12:37	
ZZZZZZ	1	10/13/20 12:39	
ZZZZZZ	1	10/13/20 12:40	
ZZZZZZ	1	10/13/20 12:42	
ZZZZZZ	1	10/13/20 12:44	
ZZZZZZ	1	10/13/20 12:45	
ZZZZZZ	1	10/13/20 12:47	
ZZZZZZ	1	10/13/20 12:49	
ZZZZZZ	1	10/13/20 12:51	

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **699908**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Se	Zn
ZZZZZZ	1	10/19/20 16:12								
ZZZZZZ	1	10/19/20 16:15								
ICV	1	10/19/20 16:17	X	X	X	X	X	X	X	X
CCV	1	10/19/20 16:19	X	X	X	X	X	X	X	X
ICB	1	10/19/20 16:21	X	X	X	X	X	X	X	X
CCB	1	10/19/20 16:23	X	X	X	X	X	X	X	X
LLICVW	1	10/19/20 16:25	X	X	X	X	X	X	X	X
ICSA	1	10/19/20 16:27	X	X	X	X	X	X	X	X
ICSAB	1	10/19/20 16:29	X	X	X	X	X	X	X	X
ZZZZZZ	1	10/19/20 16:32								
KQ2015570-01MB	1	10/19/20 16:39	X	X	X	X	X	X	X	X
KQ2015570-02LCS	1	10/19/20 16:42	X	X	X	X	X	X	X	X
K2008856-001	1	10/19/20 16:44	X	X	X	X	X	X	X	X
K2008856-001DUP	1	10/19/20 16:46	X	X	X	X	X	X	X	X
K2008856-001SDL	5	10/19/20 16:48	X	X	X	X	X	X	X	X
K2008856-001PS	1	10/19/20 16:50	X	X	X	X	X	X	X	X
K2008856-001MS	1	10/19/20 16:52	X	X	X	X	X	X	X	X
K2008856-002	1	10/19/20 16:54	X	X	X	X	X	X	X	X
K2008856-003	1	10/19/20 16:56	X	X	X	X	X	X	X	X
K2008856-004	1	10/19/20 16:58	X	X	X	X	X	X	X	X
CCV	1	10/19/20 17:00	X	X	X	X	X	X	X	X
CCB	1	10/19/20 17:03	X	X	X	X	X	X	X	X
K2008856-005	1	10/19/20 17:05	X	X	X	X	X	X	X	X
K2008856-006	1	10/19/20 17:07	X	X	X	X	X	X	X	X
K2008856-007	1	10/19/20 17:09	X	X	X	X	X	X	X	X
K2008856-008	1	10/19/20 17:11	X	X	X	X	X	X	X	X
K2008856-009	1	10/19/20 17:13	X	X	X	X	X	X	X	X
K2008856-010	1	10/19/20 17:15	X	X	X	X	X	X	X	X
K2008856-001	1	10/19/20 17:18			X		X			X
K2008856-002	1	10/19/20 17:20			X		X			X
K2008856-003	1	10/19/20 17:22			X		X			X
K2008856-004	1	10/19/20 17:24			X		X			X
CCV	1	10/19/20 17:26	X	X	X	X	X	X	X	X
CCB	1	10/19/20 17:28	X	X	X	X	X	X	X	X
K2008856-005	1	10/19/20 17:30			X		X			X
K2008856-006	1	10/19/20 17:32			X		X			X
K2008856-007	1	10/19/20 17:34			X		X			X

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **699908**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Se	Zn
K2008856-008	1	10/19/20 17:37			X		X			X
K2008856-009	1	10/19/20 17:39			X		X			X
K2008856-010	1	10/19/20 17:41			X		X			X
CCV	1	10/19/20 17:43	X	X	X	X	X	X	X	X
CCB	1	10/19/20 17:45	X	X	X	X	X	X	X	X
LLCCVW	1	10/19/20 17:47	X	X	X	X	X	X	X	X
KQ2015571-01MB	1	10/19/20 17:49	X	X	X	X	X	X	X	X
KQ2015571-02LCS	1	10/19/20 17:51	X	X	X	X	X	X	X	X
K2008856-011	1	10/19/20 17:53	X	X	X	X	X	X	X	X
K2008856-011DUP	1	10/19/20 17:56	X	X	X	X	X	X	X	X
K2008856-011SDL	5	10/19/20 17:58	X	X	X	X	X	X	X	X
K2008856-011PS	1	10/19/20 18:00	X	X	X	X	X	X	X	X
K2008856-011MS	1	10/19/20 18:02	X	X	X	X	X	X	X	X
K2008856-012	1	10/19/20 18:04	X	X	X	X		X	X	
K2008856-013	1	10/19/20 18:06	X	X	X	X	X	X	X	X
ZZZZZZ	1	10/19/20 18:08								
CCV	1	10/19/20 18:15	X	X	X	X	X	X	X	X
CCB	1	10/19/20 18:17	X	X	X	X	X	X	X	X
K2008856-011	1	10/19/20 18:19			X		X			X
K2008856-012	1	10/19/20 18:22			X					
K2008856-013	1	10/19/20 18:24			X		X			X
K2008856-012	20	10/19/20 18:26					X			X
K2008856-012	20	10/19/20 18:29					X			X
CCV	1	10/19/20 18:31	X	X	X	X	X	X	X	X
CCB	1	10/19/20 18:33	X	X	X	X	X	X	X	X
LLCCVW	1	10/19/20 18:36	X	X	X	X	X	X	X	X

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **699908**

Sample	Date/Time	Li6NG	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	10/19/20 16:12					
ZZZZZZ	10/19/20 16:15					
ICV	10/19/20 16:17	97	99	100	99	99
CCV	10/19/20 16:19	98	98	98	99	99
ICB	10/19/20 16:21	97	99	98	98	99
CCB	10/19/20 16:23	96	99	99	99	99
LLICVW	10/19/20 16:25	97	98	99	99	100
ICSA	10/19/20 16:27	91	92	93	90	97
ICSAB	10/19/20 16:29	91	91	92	91	99
ZZZZZZ	10/19/20 16:32					
KQ2015570-01MB	10/19/20 16:39	93	95	96	96	98
KQ2015570-02LCS	10/19/20 16:42	93	96	94	97	99
K2008856-001	10/19/20 16:44	91	93	96	96	99
K2008856-001DUP	10/19/20 16:46	91	96	97	97	100
K2008856-001SDL	10/19/20 16:48	92	96	97	97	99
K2008856-001PS	10/19/20 16:50	93	95	96	96	99
K2008856-001MS	10/19/20 16:52	91	95	97	97	99
K2008856-002	10/19/20 16:54	93	94	95	96	101
K2008856-003	10/19/20 16:56	91	94	94	96	99
K2008856-004	10/19/20 16:58	92	94	94	96	98
CCV	10/19/20 17:00	92	94	96	96	99
CCB	10/19/20 17:03	91	95	96	95	98
K2008856-005	10/19/20 17:05	91	94	95	96	100
K2008856-006	10/19/20 17:07	91	94	94	96	98
K2008856-007	10/19/20 17:09	91	95	97	96	99
K2008856-008	10/19/20 17:11	91	94	95	96	97
K2008856-009	10/19/20 17:13	92	97	94	95	98
K2008856-010	10/19/20 17:15	92	96	97	97	100
K2008856-001	10/19/20 17:18	92	96	98	96	99
K2008856-002	10/19/20 17:20	93	95	96	96	97
K2008856-003	10/19/20 17:22	93	94	96	96	97
K2008856-004	10/19/20 17:24	92	94	94	94	98
CCV	10/19/20 17:26	92	97	96	96	98
CCB	10/19/20 17:28	92	95	96	96	99
K2008856-005	10/19/20 17:30	92	96	96	96	97
K2008856-006	10/19/20 17:32	92	95	96	95	98
K2008856-007	10/19/20 17:34	92	96	96	97	99

Client: Tongass Engineering LLC **Service Request:** K2008856
Project: Niblack/C-384-0301

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **699908**

Sample	Date/Time	Li6NG	Ge72H2	Ge72He	In115He	Lu175He
K2008856-008	10/19/20 17:37	93	95	96	97	98
K2008856-009	10/19/20 17:39	93	95	97	96	98
K2008856-010	10/19/20 17:41	93	95	94	96	99
CCV	10/19/20 17:43	94	97	97	97	99
CCB	10/19/20 17:45	94	96	97	97	99
LLCCVW	10/19/20 17:47	94	96	97	97	99
KQ2015571-01MB	10/19/20 17:49	95	97	97	96	99
KQ2015571-02LCS	10/19/20 17:51	95	97	97	98	99
K2008856-011	10/19/20 17:53	95	97	99	97	99
K2008856-011DUP	10/19/20 17:56	95	96	97	97	97
K2008856-011SDL	10/19/20 17:58	96	98	97	97	100
K2008856-011PS	10/19/20 18:00	94	97	98	97	98
K2008856-011MS	10/19/20 18:02	96	97	96	97	98
K2008856-012	10/19/20 18:04	86	86	87	87	95
K2008856-013	10/19/20 18:06	88	90	91	92	98
ZZZZZZ	10/19/20 18:08					
CCV	10/19/20 18:15	92	94	93	94	98
CCB	10/19/20 18:17	91	94	94	95	99
K2008856-011	10/19/20 18:19	92	94	94	96	97
K2008856-012	10/19/20 18:22	85	85	86	87	95
K2008856-013	10/19/20 18:24	89	93	93	94	101
K2008856-012	10/19/20 18:26	90	95	96	96	99
K2008856-012	10/19/20 18:29	91	93	94	97	102
CCV	10/19/20 18:31	91	94	92	94	98
CCB	10/19/20 18:33	92	93	94	95	99
LLCCVW	10/19/20 18:36	92	94	95	95	101