

NIBLACK EXPLORATION PROJECT

2017 Annual Report

Prepared for

State of Alaska
Department of Environmental Conservation
Division of Water
410 Willoughby Ave., Suite 303
Juneau, AK 99801

Prepared by

**NIBLACK
PROJECT LLC**

P.O. Box 8295
Ketchikan, AK 99901

**55 NORTH
ENVIRONMENTAL**

P.O. Box 5436
Ketchikan, AK 99901



285 Century Place, Suite 190
Louisville, CO 80027

March 30, 2018

CONTENTS

LIST OF FIGURES	v
LIST OF TABLES	vi
ACRONYMS AND ABBREVIATIONS.....	vii
1 INTRODUCTION	1-1
2 SUMMARY OF ACTIVITIES	2-3
2.1 SURFACE DISTURBANCE.....	2-3
2.2 UNDERGROUND DEVELOPMENT	2-4
2.2.1 Water Discharge	2-4
2.2.2 Site Temperature and Precipitation	2-4
2.3 EXPLORATION DRILLING	2-5
2.3.1 Underground Exploration Drilling.....	2-5
2.3.2 Surface Drilling.....	2-5
2.4 RECLAMATION	2-5
2.4.1 Construction Reclamation.....	2-6
2.4.2 Interim Reclamation.....	2-6
2.4.3 Surface Drilling Reclamation.....	2-6
2.5 SUSPENSION OF OPERATIONS	2-6
2.6 WORK PLANNED FOR 2018	2-7
3 WATER QUALITY REPORTING	3-1
3.1 SURFACE WATER AND GROUNDWATER MONITORING LOCATIONS	3-1
3.1.1 Surface Water Monitoring Stations.....	3-1
3.1.2 Groundwater Monitoring Stations.....	3-2
3.1.3 Groundwater and Surface Water Sampling and Analysis	3-2
3.2 DATA QUALITY EVALUATION.....	3-3
3.2.1 Data Validation and Detectability.....	3-4
3.2.2 Representativeness.....	3-6
3.2.3 Completeness	3-6
3.2.4 Comparability	3-6
4 SAMPLING RESULTS	4-7
5 TIME SERIES ANALYSIS AND TREND DETECTION – SURFACE WATER AND GROUNDWATER.....	5-1
5.1 CONVENTIONAL PARAMETERS AND ANIONS	5-1

5.1.1	Comparison to Water Quality Criteria	5-1
5.1.2	Time Series Review	5-1
5.1.3	Comparison to Offsite Stations.....	5-2
5.2	TRACE ELEMENTS.....	5-2
5.2.1	Comparison to Water Quality Criteria.....	5-2
5.2.2	Time Series Review	5-2
5.2.3	Comparison to Offsite Stations.....	5-5
5.3	SUMMARY.....	5-5
6	WASTE ROCK AND MINE WATER MONITORING PROGRAM	6-1
6.1	BACKGROUND AND MONITORING LOCATION DESCRIPTIONS	6-1
6.1.1	PAG Pond	6-2
6.1.2	Portal Water (PORTAL).....	6-2
6.1.3	Effluent (EFF1)	6-2
6.1.4	Field Barrels.....	6-2
6.2	RESULTS.....	6-2
6.2.1	Conventional Parameters and Anions.....	6-3
6.2.2	Trace Elements.....	6-5
6.2.3	Summary.....	6-7
7	STORMWATER POLLUTION PREVENTION PLAN REPORTING.....	7-1
7.1	VISUAL INSPECTIONS	7-1
7.2	SIGNIFICANT SPILL REPORTS SUMMARY	7-1
7.3	CHANGES MADE TO THE STORMWATER POLLUTION PREVENTION PLAN BEST MANAGEMENT PRACTICES	7-1
8	DISCHARGE EVENTS	8-1
9	ADEQUACY OF FINANCIAL RESPONSIBILITY.....	9-1
10	REFERENCES.....	10-1

Appendix A. Photographs of Site Facilities and Water Quality Monitoring Locations

Appendix B. Visual Site Inspection Forms

LIST OF FIGURES

- Figure 1-1. Niblack Project Location Map
- Figure 2-1. General Site Plan
- Figure 2-2. Site Plan Detail
- Figure 2-3. Niblack Project Exploration Drift Plan and Section Views
- Figure 2-4. LAD System Flows
- Figure 2-5. Ketchikan Long-Term Average Temperature and Precipitation Data
- Figure 2-6. Niblack Project Site Temperature and Precipitation Data
- Figure 2-7. Niblack Project Underground Drilling, 2007–2011
- Figure 2-8. Niblack Project Surface Drilling, 2011
- Figure 3-1. Water Quality Monitoring Stations
- Figure 3-2. Water Quality Monitoring Stations – Outlying Stations
- Figure 6-1. Niblack Project PAG Site Area
- Figure 6-2. Time Series Plots: pH, Effluent and PAG Pond
- Figure 6-3. Time Series Plots: Hardness, Effluent and PAG Pond
- Figure 6-4. Time Series Plots: Conductivity, Effluent and PAG Pond
- Figure 6-5. Time Series Plots: Total Dissolved Solids, Effluent and PAG Pond
- Figure 6-5. Time Series Plots: Turbidity, Effluent and PAG Pond
- Figure 6-7. Time Series Plots: Dissolved Oxygen, Effluent and PAG Pond
- Figure 6-8. Time Series Plots: Sulfate, Effluent and PAG Pond
- Figure 6-9. Time Series Plots: Total and Dissolved Aluminum, Effluent and PAG Pond
- Figure 6-10. Time Series Plots: Total and Dissolved Arsenic, Effluent and PAG Pond
- Figure 6-11. Time Series Plots: Total and Dissolved Cadmium, Effluent and PAG Pond
- Figure 6-12. Time Series Plots: Total and Dissolved Chromium, Effluent and PAG Pond
- Figure 6-13. Time Series Plots: Total and Dissolved Copper, Effluent and PAG Pond
- Figure 6-14. Time Series Plots: Total and Dissolved Lead, Effluent and PAG Pond
- Figure 6-15. Time Series Plots: Total and Dissolved Mercury, Effluent and PAG Pond
- Figure 6-16. Time Series Plots: Total and Dissolved Selenium, Effluent and PAG Pond
- Figure 6-17. Time Series Plots: Total and Dissolved Zinc, Effluent and PAG Pond

LIST OF TABLES

Table 2-1.	Water Balance Monthly Summary, 2017
Table 3-1.	Water Quality Monitoring Stations
Table 3-2.	Sampling Event Summary, 2017
Table 3-3.	Water Quality Parameters Monitored in Surface Water, Groundwater, and Effluent
Table 3-4.	Alaska Water Quality Criteria, Analytical Methods, and Detection Limits
Table 3-5.	Summary of Water Quality Monitoring Conducted through Q4 2017
Table 3-6a.	QA/QC Replicate Results and Relative Percent Differences, Physical Parameters, Anions and Nutrients, 2017
Table 3-6b.	QA/QC Replicate Results and Relative Percent Differences, Trace Elements, 2017
Table 3-7.	Percent Completeness for Surface Water and Groundwater, 2017
Table 4-1a.	Water Quality Monitoring Data, Field Parameters, 2017
Table 4-1b.	Water Quality Monitoring Data, Conventional Parameters and Anions, 2017
Table 4-1c.	Water Quality Monitoring Data, Trace Elements, 2017
Table 4-2a.	Method Detection Limits, Conventional Parameters and Anions, 2017
Table 4-2b.	Method Detection Limits, Trace Elements, 2017
Table 4-3.	ADEC Water Quality Criteria Screening Summary (2006–2017) – Permit Stations – Surface Water and Groundwater
Table 4-4a.	Water Quality Criteria Screening Results – Permit Stations – Surface Water
Table 4-4b.	Water Quality Criteria Screening Results – Permit Stations – Groundwater

ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ANDR	Alaska Department of Natural Resources
APDES	Alaska Pollutant Discharge Elimination System Permit
BMP	best management practice
CBR	Committee Bay Resources Ltd.
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
LAD	land application/dispersion
MDL	method detection limit
MRL	method reporting limit
MS/MSD	matrix spike/matrix spike duplicate
NAG	non-acid-generating
NOAA	National Oceanic and Atmospheric Administration
NPLLC	Niblack Project LLC
NTU	nephelometric turbidity units
PAG	potentially acid-generating
PARCC	precision, accuracy, representativeness, completeness, and comparability
Permit	State of Alaska's Waste Management Permit 2013-DB0001
PQL	practical quantification limit
QA/QC	quality assurance and quality control
QAPP	quality assurance project plan
RPD	relative percent difference
SWPPP	stormwater pollution prevention plan
TDS	total dissolved solids
TSS	total suspended solids

1 INTRODUCTION

This report is submitted in accordance with annual reporting requirements for the Niblack Exploration Project Waste Management Permit DB2013-0001. The Niblack Exploration Project is a copper-gold-zinc-silver prospect located off Moira Sound on southeastern Prince of Wales Island, approximately 30 miles southwest of the town of Ketchikan (Figure 1-1). The property is located at Section 34, T. 78 and 79 S., R. 88 E., Copper River Meridian; Latitude 55° 03' 53", Longitude -132° 08' 48". The property is composed of 17 patented claims, 298 staked federal lode claims, and 7 Alaska State tideland claims. All claims are owned by Niblack Project LLC (NPLLC).

The Niblack area has been explored for minerals since the initial copper discovery at Niblack Anchorage in 1899. A detailed history of site ownership and project activities, including tons of ore produced and dates of operation, is presented in the *Niblack Underground Exploration Plan of Operations 2012 Post-Construction Update* (Integral 2013a). NPLLC acquired 100 percent ownership interest in the Niblack Exploration Project in early 2012. Modern day underground development on the Niblack Exploration Project was initiated by previous owners, Niblack Mining Corporation, on September 21, 2007, and was completed on July 12, 2008. The initial phase of underground drilling was completed on October 7, 2008, and the second phase of underground drilling was initiated on September 26, 2009.

The permits, plans, and approvals reported and referred to herein include the following:

- Alaska Department of Natural Resources Reclamation Plan Approval # J1122711 (ADNR 2012)
- Alaska Department of Environmental Conservation (ADEC) Waste Management Permit 2013-DB0001 (hereinafter Permit; ADEC 2013)
- Niblack Exploration Project Plans
 - *Niblack Project Underground Exploration Plan of Operations Post-Construction Update* (Integral 2013a)
 - *Niblack Reclamation and Closure Plan, Post-Construction Update* (Integral 2013b)
 - *Niblack Water Quality Monitoring Plan, Post-Construction Update* (Plan; Integral 2013c)
 - *Niblack Mining Corporation, Quality Assurance Project Plan* (QAPP; Integral 2013d)
 - Stormwater Pollution Prevention Plan (SWPPP; RTR 2006)
 - Water Quality Baseline and Site Monitoring Plan (Knight Piésold 2007b)
 - Operational Characterization Plan (Knight Piésold 2007a)

Permit 2013-DB0001, issued on March 13, 2013, is a renewal permit that replaced Permit 2006-DB0037 (ADEC 2007). A renewal for Permit 2013-DB0001 was submitted to ADEC February 12, 2018 and an administrative extension was granted to allow for ADEC review (ADEC 2018); the site continues to operate under 2013-DB0001. A renewal for the Reclamation Plan was submitted September 22, 2017, and an administrative extension was granted to allow for ADNR review (ADNR 2017); the site continues to operate under approval J122711 (ADNR 2012).

On September 1, 2015, ADEC issued APDES AK0053708 to NPLLC. This permit allows for the construction and operation of an outfall in the Niblack Anchorage within Moira Sound. The outfall will be used to discharge water from the settling ponds to the marine environment in lieu of discharge to the currently approved land application system (LAD). Easement for the outfall pipe was granted May 6, 2016. Construction of the outfall and associated works has not begun at the time of this report and the site continues to operate under Permit 2013-DB0001.

Considering the administrative extensions currently in effect and the fact the Niblack Exploration Project is currently in a period of Suspension of Operations under a modified Plan, this annual report will differ from previous reports submitted to ADEC. In the interests of efficiency and reporting on current project site conditions, only data collected in 2017 is generally included in this report, with a focus on monitoring trace element concentrations in the PAG pond and settling ponds.

Annual reports submitted to ADEC, from prior years, including the most recent *Niblack Exploration Project 2016 Annual Report* (Niblack 2017), contain historic data and are referenced in support of this 2017 report. Following ADEC and ADNR review of the current Permit renewal and Reclamation Plan, respectively, or if the project returns to regular operations, annual and quarterly reporting will continue to include historic data as necessary.

For consistency, section headers and report formatting used in previous Annual Reports submitted to ADEC will be used for this 2017 Annual Report.

2 SUMMARY OF ACTIVITIES

Activities related to site development and maintenance, including climate information and reclamation, are presented in this section. In 2017, staff were on site for approximately 90 days, performing field parameters and permit monitoring, activating pumps in the underground development to discharge mine water through the sediment ponds, routine maintenance, remedial reclamation, safety checks, agency compliance and site security.

2.1 SURFACE DISTURBANCE

There was no additional surface disturbance at the project site in 2017 and the total surface area cleared or disturbed remains at 13.5 acres. This total includes access roads and a historical land camp site constructed prior to 2007, which are not covered under the Niblack Underground Exploration Program permits. Photographs of site facilities and construction are provided in Appendix A.

Surface disturbance is shown on the site-wide as-built maps (Figures 2-1 and 2-2) and includes the following:

- Access roads
- Ditches, culverts, and settling basins/sediment traps for stormwater management
- Construction of laydown areas for equipment/supply storage, including a fuel storage facility, magazine sites (currently decommissioned), portal area, shop area (old camp)
- Settling ponds and LAD water discharge system
- Barge landing and dock facilities
- Surface drilling landing
- Temporary PAG waste rock storage facility (Figure 2-2)
- Temporary mineralized ore stockpile
- NAG waste disposal area (Figure 2-1)
- Topsoil and growth media stockpiles.

The water treatment plant is tested at least annually for operation; to date, chemical water treatment has not been required.

The daily process of system checks initiated in 2010 to monitor LAD system function are still in place when staff is on site and it is safe to perform the tasks, per the Modified Plan while under Suspension of Operations.

Upline of the LAD system, screen filters were installed in 2011 to reduce clogging in the LAD emitters, these filters are cleaned regularly. Coil water heaters were also installed in 2011 to prevent discharge water from freezing in the LAD lines and are used when conditions warrant.

2.2 UNDERGROUND DEVELOPMENT

There was no underground activity in 2017.

2.2.1 Water Discharge

Water balance data for the project in 2017 is included in Table 2-1. An estimated total of 77.6 million gallons of water was discharged to the LAD system in 2017; this is comparable to the total volume discharged each year since 2014. Monthly discharge rates averaged 148 gallons per minute (gpm) and never exceeded the 300 gpm wastewater discharge limit. Figure 2-4 shows the monthly total flow volumes entering the LAD system, as measured at the outlet from the settling ponds. Since site activity began, land application of wastewater has occurred upgradient of surface water monitoring stations WQ4, WQ6, and WQ10, and groundwater monitoring wells MW2, MW3, and MW4. No land application of wastewater has occurred upgradient of Unnamed Creek #2 and the WQ13 monitoring station, nor has it occurred upgradient of the MW1 area.

The *Niblack Exploration Project 2016 Annual Report* (Niblack 2017) references previous approvals, modifications, non-compliance events and corrective actions concerning LAD operation and discharge. There were no such events in 2017.

2.2.2 Site Temperature and Precipitation

Figure 2-5 presents available long-term (1910–2016) average temperature and precipitation data for Ketchikan, Alaska, from the Western Regional Climate Center (<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak4590>). Typical temperatures for the region average 45°F and range from -2°F to 89°F. Total precipitation averages 154 in. annually, and is generally greatest from September through February. Because of the mild temperatures, most precipitation falls as rain, with less than 40 in. of annual snowfall on average. Air temperature and precipitation measured from February 2008 through December 2016 at the Old Camp Weather Station located at the Niblack Exploration Project site¹ is presented on Figure 2-6 (upper plot).

¹ Onsite weather station was not available for several periods during 2009, 2010, 2012, 2014, 2015, 2017, and 2018 to the date of this report due to instrument malfunction; daily records for the Ketchikan Airport NOAA weather station are shown for these time periods.

Note the onsite weather station malfunctioned throughout 2017 and was replaced in early 2018. Precipitation in 2016 totaled approximately 148 in. at the site, and daily temperatures in 2016 ranged from 14 to 82°F (average 48°F); visual observations when staff was on site in 2017 found 2016 and 2017 to be generally comparable, save for brief uncharacteristic cold events in late February and early March, which also experienced a heavy snowfall.

Wintertime minimum temperatures provide information about the potential for freeze-up of the LAD system. Figure 2-6 (lower plot) compares observed daily onsite minimum temperatures to the 20-year (1995–2017) average daily minimum for Ketchikan measured at the National Oceanic and Atmospheric Administration (NOAA) Ketchikan Airport station (<http://forecast.weather.gov/MapClick.php?zoneid=AKZ028>). The colder temperatures in February and March 2017 were short in duration and, combined with snowfall, did not cause the LAD system to experience freezing. When staff were on-site the settling ponds were checked, at minimum, twice daily for adequate flow.

2.3 EXPLORATION DRILLING

No exploration drilling occurred in 2017.

Overall, a total of 246 surface core boreholes and 164 underground core boreholes have been drilled on the Niblack Exploration Project property between 1975 and late 2012. NPLLC drilled approximately 199,362 ft in 157 holes (136 underground and 21 surface) between 2009 and 2012.

2.3.1 Underground Exploration Drilling

No underground drilling has occurred from 2012 through 2017. Figure 2-7 shows areas of underground drilling from 2007 through 2011.

2.3.2 Surface Drilling

No surface drilling occurred from 2013 through 2017. Section 2.4.3 describes previous surface drilling reclamation.

2.4 RECLAMATION

The various reclamation activities, as described in the *Niblack Reclamation and Closure Plan Post-Construction Update* (Integral 2013b), are summarized below. Reclamation activities in 2017 included interim reclamation.

2.4.1 Construction Reclamation

Construction reclamation activities are those activities that occur during and directly after the exploration tunnel and associated facilities are constructed. There was no construction reclamation in 2017.

2.4.2 Interim Reclamation

Interim reclamation is defined as temporary measures for reducing the potential for erosion and sedimentation, and other activities required to protect surface water and groundwater resources. Interim reclamation has been undertaken to stabilize and maintain road cuts, stockpiles, and other disturbances resulting from construction activities. Interim reclamation measures conducted in 2017 included excavator work to stabilize road cuts and clear ditches and catch basins, installing and maintaining sedimentation control systems, and employing other best management practices (BMPs) commonly used for construction and exploration projects.

Since project inception, erosion/sedimentation control features have been maintained under BMPs and in accordance with the Permit. 2017 Visual Site Inspection Forms (Appendix B) document these practices.

2.4.3 Surface Drilling Reclamation

Immediately following drilling activities in 2011 and 2012, all surface drill sites were reclaimed according to the standards for state or federal land. No surface drilling or subsequent reclamation occurred in 2017.

2.5 SUSPENSION OF OPERATIONS

Suspension of Operations describes the cessation of project activities for a period of between 90 days and 3 years. The Niblack Exploration Project is currently in a period of Suspension of Operations approved by ADEC June 29, 2016 by ADEC (Collingwood 2016, pers. comm.) through October 2018.

There have been two modifications in environmental monitoring requirements under which the project site currently operates. Per the modifications of the Suspension of Operations Plan (Niblack 2013) granted by ADEC in January 2014 by ADEC (Evans 2014, pers. comm.), the monitoring frequency is as follows:

- Daily LAD flow meter readings while personnel are on the project site and it is safe to do so

- Regular visual inspection of the LAD once per month during non-freezing conditions
- Monthly water quality field parameters of monitoring sites EFF1 and PAG facility
- Monthly visual site inspections
- Monthly SWPPP inspections.

Per the modifications of the Suspension of Operations Plan (Niblack 2013) granted by ADEC in June 2016 by ADEC (Collingwood 2016, pers. comm.), the monitoring and reporting frequency occurs annually – during late summer or early fall, when concentrations of metals exhibit seasonal highs – at the following locations:

- Surface water quality sites WQ4, WQ6, WQ10, and WQ13.
- Groundwater quality sites MW1, MW2, MW3, and MW4.
- PAG/ML site underdrain and the PAG/ML pond.
- Effluent going to the LAD from the mine dewatering treatment pond, site EFF1

During periods of Suspension of Operations, the site has been maintained in accordance with all operating permits, and environmental monitoring and facility maintenance continued on a regular basis. Water has continued to be routinely pumped from the underground sumps. As water flow is significantly reduced and will not accumulate in the drift, a major dewatering program is not anticipated upon reopening of the drift.

2.6 WORK PLANNED FOR 2018

Currently, there are no plans for continuation of surface or underground drilling in 2018. NPLLC received APDES permit AK0053708 for a marine outfall on September 1, 2015 to replace the LAD system, and approval for easement of the outfall was granted by ADNRR on May 6, 2016. Construction of the new system has not been initiated and is not planned for 2018.

3 WATER QUALITY REPORTING

This section summarizes the water quality monitoring conducted in 2017 at the Niblack Exploration Project in accordance with the requirements of the modified Permit, providing a summary of 2017 sampling and analysis activities, the resultant data and data quality (QAPP, Integral 2013d), and visual observations of conditions considered relevant to interpretation of water quality monitoring data.

3.1 SURFACE WATER AND GROUNDWATER MONITORING LOCATIONS

Onsite surface water and groundwater quality monitoring locations are shown on Figure 3-1, with currently active monitoring stations shown in blue. Stations shown in green are either no longer monitored or are monitored on a voluntary basis at the discretion of NPLLC; monitoring at these stations is not required under the Permit. Figure 3-2 shows voluntary offsite reference surface stream monitoring locations. Table 3-1 presents station coordinates, descriptions, activity status, and purpose. The Permit compliance points are downstream surface water stations (WQ4, WQ6, WQ10, and WQ13) and downgradient groundwater wells (MW1, MW2, MW3, and MW4).

3.1.1 Surface Water Monitoring Stations

Within Waterfall Creek, water quality sites WQ4 and WQ8 were established; WQ4 was sampled and analyzed in 2017. WQ4 is located near the creek outlet, just upstream from the high tide water line; pre-activity baseline was collected and it also serves as a compliance monitoring station. WQ8 is considered to be the upstream control site for the Waterfall Creek stream system and is no longer monitored per the Permit.

Within the Camp Creek stream system, three sites (WQ6, WQ5, and WQ7) were established; WQ6 was sampled and analyzed in 2017. WQ6 is located near the creek outlet; pre-activity baseline was collected and it also serves as a compliance monitoring station. WQ5 (historical baseline sampling from 1996 to 2006) and WQ7 (upstream control site for the Camp Creek) are no longer monitored per the Permit.

Within the Unnamed Creek 1 drainage system, three sites (WQ10, WQ12, and the “Seep”) were established; WQ10 was sampled and analyzed in 2017. WQ10 is situated just upstream of the old camp site (outside the influence of any historic mining) and downstream of the access road and PAG temporary waste disposal area; pre-activity baseline was collected and it also serves as a compliance monitoring station. WQ12 and the “Seep” are considered to be upstream control sites within Unnamed Creek 1 and are no longer monitored per the Permit.

WQ13 is located on the Unnamed Creek 2 drainage. Pre-activity baseline was collected at WQ13 and the station now serves as a compliance monitoring station and was sampled and analyzed in 2017.

Four outlying water quality sites were established further from the central core of the study area in creeks referred to as Dear Pasture Creek (WQ1), Lookout Creek (WQ2), Myrtle Creek (WQ3), and Boulder Bay (WQ14); monitoring at these four stations is not required by the Permit (Figure 3-2) and were not sampled in 2017.

3.1.2 Groundwater Monitoring Stations

Four permanent monitoring wells (MW1, MW2, MW3, and MW4) were established in February 2007 to monitor the shallow groundwater in wetlands downgradient of the site facilities and the water discharge LAD system. These stations were sampled and analyzed in 2017. The wells are located in wetlands at depths of 24 to 36 in. The wells consist of a stainless steel mesh, silica sand, pre-packed, 2.5-ft PVC screen with 2.5-ft riser. The well inner diameter is 1.5 in. and the outer diameter is 2.4 in. Locking caps and bentonite mounded at the base of the riser prevent downward infiltration of rain and surface waters.

Monitoring well MW1 is located downgradient of the NAG waste disposal area. Wells MW2, MW3, and MW4 are located immediately downgradient of LAD water discharge system zones. These wells were sited within 50 ft or less of the interface between upland LAD zones and wetland. Wells MW2 and MW3 are also downgradient of the PAG temporary storage facility and the settling/treatment ponds. These four monitoring wells serve as groundwater compliance stations for the Permit.

Well MW7 is located outside the area impacted by human activities to provide reference data. Two bedrock monitoring wells (MW8 and MW9, Figure 3-1) were installed for baseline groundwater monitoring in June 2007. MW8 is up-gradient of the settling ponds and access road; MW9 is north of the PAG storage facility. These stations are not required by the Permit and not sampled in 2017.

3.1.3 Groundwater and Surface Water Sampling and Analysis

One regulated analytical chemistry sampling event was conducted during 2017 at the water quality monitoring sites indicated on Figures 3-1 and 3-2. Sample station location information and purpose is tabulated in Table 3-1. Per the modification for annual monitoring to occur during late summer or early fall, the annual sample event for 2017 occurred on September 30. A supplemental sample of the PAG pond was taken in Q2, on April 26, 2017, to monitor changes in trace elements, particularly in cadmium, copper and zinc, following increased concentrations detected in the annual sample from 2016. Samples were collected by field personnel from 55 North Environmental.

Field parameters were monitored monthly at the PAG pond and EFF1. The field kinetic test barrel study was put on temporary hold on July 20, 2015 and not monitored in 2017. The temporary barrel closure may be reversed and sampling continued at the discretion of NPLCC. Table 3-2 summarizes the analytical chemistry and field parameter sampling events.

Table 3-3 presents the current analyte monitoring list and sample collection methods. Table 3-4 lists all parameters monitored since 2007 and includes analytical methods and relevant water quality criteria. Table 3-5 details the monitoring schedule and analyte list for surface water and groundwater stations sampled from 2007 through 2017. Results of surface and groundwater quality monitoring for 2017 are discussed in Section 4.

Field quality assurance and quality control (QA/QC) samples were collected during the sampling events in 2017, as summarized in Tables 3-6a-b. The QA/QC samples included a field replicate for the surface water stations and a field replicate for the groundwater stations, and field blanks for all analytes including total and dissolved trace elements. The water quality and field QA/QC samples for the 2017 sampling events were analyzed for the parameters identified in the Permit, the project QAPP (Integral 2013d), and as identified in Tables 3-4 and 3-5. An evaluation of field replicate samples collected in 2017 is presented in Section 3.2.1.2.

3.2 DATA QUALITY EVALUATION

The QAPP (Integral 2013d) identifies the following two data quality objectives (DQOs) to ensure that data of adequate quantity and quality are generated to support the requirements of the Permit:

DQO 1—Surface Water Quality. The DQO for surface water quality is to ensure that data of sufficient quantity and quality are collected to determine whether concentrations of water quality parameters in designated surface water monitoring locations meet water quality standards (18 AAC 70), and/or are within site-specific natural conditions. The site-specific natural conditions for surface water will be established by the combined data set from surface water monitoring conducted at pre-project reference locations before exploratory activity and from ongoing monitoring of upstream reference locations.

DQO 2—Groundwater Quality. The DQO for groundwater quality is to ensure that data of sufficient quality and quantity are collected to determine whether concentrations of water quality parameters in designated forest floor wells conform to site-specific facility threshold values. The threshold values will be determined based on comparison of background (pre-activity) groundwater well concentrations to wastewater discharge concentrations, and non-acid generating material content.

Measurement quality objectives evaluate and control the data collection process to ensure that measurement uncertainty is within an acceptable range to meet DQOs. Measurement quality objectives define the acceptable quality of field and laboratory data for the project, in terms of data quality indicators, such as the precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters (USEPA 2002). PARCC parameters are commonly used to assess the quality of environmental data. These parameters, as well as analytical sensitivity (i.e., detectability), were used to assess conformance of surface water, groundwater, and effluent data with quality control criteria, as detailed in the following sections.

As specified in the QAPP (Integral 2013d), a readiness review was conducted on the entire set of water quality data collected in 2017. This review assures that all data underwent complete quality assurance review and validation and that all qualifiers assigned during validation were entered into the database and verified.

3.2.1 Data Validation and Detectability

As specified in the QAPP (Integral 2013d), a quality assurance review of the laboratory data from chemical analyses of surface water and groundwater samples was conducted for all water quality sampling events conducted in 2017. Laboratory analytical data were validated according to the data validation procedures in the U.S. Environmental Protection Agency (EPA) guidance for inorganic data review (USEPA 2010). Data that did not meet the applicable laboratory or data validation quality control limits were qualified as undetected (assigned a *U* qualifier), estimated (assigned a *J* qualifier), or rejected (assigned an *R* qualifier) during the quality assurance review. The analytical summary data presented in Section 4 also present the data validation qualifiers assigned to the project data.

Detectability refers to the ability of the analytical method to reliably measure a concentration above background. Two components are used to define detectability: the method detection limit (MDL) and the practical quantitation limit (PQL) or method reporting limit (MRL).

- The MDL is the minimum value that the instrument can discern above background, but with no certainty to the accuracy of the measured value. For field measurements, the manufacturer's listed instrument detection limit can be used.
- The PQL or MRL is the minimum value that can be reported with confidence.

Sample data measured below the MDL were reported as nondetect. Sample data measured $\geq$ MDL but $\leq$ PQL or MRL were reported as estimated data (assigned a *J* qualifier). Sample data measured above the PQL or MRL were reported as reliable data unless otherwise qualified per the specific sample analysis.

Field data were verified during preparation of samples and again during data entry. After field data were entered into the project database, field staff conducted 100 percent verification of the entries to ensure the accuracy and completeness of the database.

3.2.1.1 Zinc Data Qualification

The quality assurance review included assessment of the field blank results, as well as evaluation of natural samples, for the 2017 sampling event. Field blanks were collected for all parameters, including total and dissolved trace elements. As described in the 2016 annual report (Niblack 2017), a site-specific validation and qualification approach was applied to zinc results due to historical observations of high-biased results associated with samples collected prior to Q2 2008. Further detail is included in the 2007 and 2008 annual reports (Integral 2008a, 2009a) and the Q1 2008 quarterly report (Integral 2008b). No systematic bias for zinc was observed in the field blanks since Q1 2008, following adjustments to sampling protocols beginning in Q2 2008.

3.2.1.2 Precision

Precision reflects the reproducibility between individual measurements of the same property. Surface water and groundwater field replicates were collected to assess the precision of the project results. Field replicate samples were generated using a peristaltic pump to collect water from one location into two separate sets of bottles at approximately the same time; the two sets of bottles were labeled as representing two separate sample locations in order to “blind” the replicate relationship at the analyzing laboratory.

The comparability of the field replicate results was assessed by calculating the relative percent difference (RPD) and sample difference (replicate sample – normal sample) of the results, as presented in Tables 3-6a-b. Results for normal/replicate sample pairs were evaluated against a control limit of ± 50 RPD, as specified in the QAPP (Integral 20013d). Greater variability is expected for results near or below the reporting limit because the background signal variations (i.e., “noise”) are greater relative to the analyte levels.

As shown in Tables 3-6a-b, the surface water and groundwater normal/replicate pairs collected in 2017 had RPDs below the control limit ($\text{RPD} = \pm 50$).

There were no control limit exceedances in 2017 for surface water or groundwater. There have been four past sample events for surface water and fourteen past sample events for groundwater where control limits were exceeded, as discussed in the most recent annual report from 2016 (Niblack 2017).

3.2.1.3 Accuracy

Accuracy (bias) represents the degree to which a measured concentration conforms to a reference value. Matrix spike/matrix spike duplicate (MS/MSD) samples and field blanks were analyzed to assess the data accuracy. The accuracy of the results was assessed by calculating the percent recovery for the MS/MSD samples. MS/MSD results for all analyses conducted by ALS Environmental (Kelso, Washington; formerly Columbia Analytical Services) since July 24, 2007 have been monitored and reviewed. MS/MSD data are discussed in detail, including tabulated summaries of results, in the 2016 annual report (Niblack 2017) and previous reports.

3.2.2 Representativeness

Representativeness is the degree to which data represent a characteristic of an environmental condition. All samples collected in 2017 were collected according to QAPP protocols (Integral 2013d); no discrepancies were noted. All samples were properly handled (i.e., proper preservation and shipping temperature) during collection and receipt by the laboratory, unless stated otherwise below.

3.2.3 Completeness

Data completeness refers to the amount of usable data collected. Percent completeness by parameter group was calculated for surface water and groundwater samples collected since 2006. Table 3-7 summarizes data counts and completeness for surface water and groundwater. No data for 2017 were rejected during data validation and review; completeness for both surface water and groundwater data was 100 percent.

3.2.4 Comparability

Comparability is the qualitative similarity of one data set to another (i.e., the extent to which different data sets can be combined for use). EPA analytical methods were used by the laboratory to analyze all 2017 samples. No discrepancies were noted between methods used by the laboratory and those listed in the QAPP (Integral 2013d). Sample results from 2017 are comparable to results from previous sampling events, with an increase in some trace elements at station MW, discussed in Section 5 and increasing trends noticed in some PAG pond and EFF1 trace elements and discussed in Section 6.

4 SAMPLING RESULTS

This report presents the results of water quality monitoring conducted at the Niblack Exploration Project, with the objective of providing ADEC with the following:

- Tabulated results of laboratory analyses and field parameter measurements from the surface water and groundwater quality monitoring sites included in the Permit (ADEC 2013)
- A discussion of any concentrations measured above applicable water quality criteria
- Graphical, time-series presentation of water quality monitoring results for general water quality parameters and constituents required under the Permit, from Permit stations PAG pond and EFF1, to facilitate trend detection.

Tabulated surface water and groundwater quality monitoring results for the Niblack Exploration Project for 2017 are provided in Tables 4-1a-c. Tables 4-1a-c include results for all surface water and groundwater stations identified in the Permit for all field and laboratory parameters included on the analyte list (Table 2-3). The PAG underdrain was not sampled in 2017 as it was dry. No voluntary offsite surface water samples were collected in 2017; voluntary PAG pond samples were taken in Q2 for cadmium, copper and zinc. Data are presented in individual tables for field parameters (Table 4-1a); conventional parameters and anions (Table 4-1b); and trace elements (Table 4-1c). MDLs for surface water, groundwater, settling ponds (EFF1), and the PAG pond are provided in Tables 4-2a-b. Surface water and groundwater replicate results and quality control measures are discussed in Section 3.2 and presented in Tables 3-6a-b.

For all stations, data tables in this report include only data from 2017. All sample results for the entire period of record is available in previous annual reports, as found in the *Niblack Exploration Project 2016 Annual Report* (Niblack 2017) as Appendix C.

Surface water and groundwater quality parameters at the Niblack Exploration Project were monitored September 30, 2017 at the locations listed in Tables A of the Permit (ADEC 2013). Table 4-3 presents a summary of the screening results for all surface water and groundwater parameters currently required at Permit stations, evaluated for samples collected from 2006 to 2017. Tables 4-4a-b present detailed station-specific screening results for individual surface water and groundwater samples. Surface water quality is evaluated based on Alaska water quality standards (18 AAC 70). As required in the Permit, surface water results are screened against ADEC water quality criteria specified in regulation 18 AAC 70 and detailed in the *Alaska Water Quality Manual for Toxic and Deleterious Organic and Inorganic Substances* (ADEC 2008). Groundwater measurements were screened against the site-specific groundwater well threshold values. As stated in the Permit Section 1.5, groundwater quality in the forest floor below the active project area (measured at sites MW1, MW2, MW3, and MW4) must be maintained within

facility-specific threshold limits, which are based on pre-activity groundwater quality. Specific procedures for establishing site-specific water quality thresholds are described in the Permit and in the Niblack Water Quality Monitoring Plan, Post-Construction Update (Integral 2013c).

A threshold exceedance for dissolved copper was detected at station MW1 in 2017 and reported to ADEC (Niblack 2018). There was also a slight exceedance of the ADEC chronic water quality criterion for dissolved cadmium at station WQ10. There were no other exceedances in 2017.

5 TIME SERIES ANALYSIS AND TREND DETECTION— SURFACE WATER AND GROUNDWATER

As mentioned in the Introduction section, to keep this 2017 Annual Report concise, historic data will generally not be presented. Visual analysis for patterns and trends are presented as time series plots in previous annual reports (Figures 5-1a-c through 5-25a-c in the *Niblack Exploration Project 2016 Annual Report*; Niblack 2017). These plots present surface water and groundwater samples collected from February 2006 through October 2016 under the Permit.

Data from 2017 is presented in tabulated format in Table 4-1a-c and any anomalous or threshold exceedances are discussed specifically in the report.

5.1 CONVENTIONAL PARAMETERS AND ANIONS

5.1.1 Comparison to Water Quality Criteria

Surface water temperature, pH, and TDS were compared to fresh water aquatic life criteria specified in 18 AAC 70. No applicable screening criteria exist for hardness, conductivity, nitrate and nitrite, or sulfate. All conventional parameters and anions measured at surface water stations were within water quality criteria ranges in 2017.

5.1.2 Time Series Review

Surface water and groundwater temperature results show clear and consistent seasonal fluctuations at all monitoring stations. Surface and groundwater pH values are generally circumneutral at all stations both before and after the initiation of mining activity. For pH, the individual surface water measurements recorded above aquatic life screening limits in 2017 fell within or near the range of previously measured values and are not indicative of changing water quality associated with site activities.

In 2017, surface water and groundwater hardness levels generally fell within historical ranges.

Conductivity at surface water stations WQ4, WQ6, WQ10, and WQ13 has generally decreased since the peak measurements in 2011, but WQ10 has shown some increase since 2015 which continued into 2017 and will continue to be monitored. All surface water and groundwater station conductivity measurements in 2017 were within the historical range. In groundwater, conductivity levels are variable. No patterns are evident in the TDS data, with surface water and groundwater results covering a similar range of magnitude and variability before and after initiation of mining activities.

Nitrate and nitrite concentrations remained low across all surface water and groundwater sampling sites through 2017.

Sulfate concentrations at surface water and groundwater locations showed low and on trend values. Surface water and groundwater sulfate levels continue to be well below drinking water standards (secondary maximum contaminant level of 250 mg/L).

5.1.3 Comparison to Offsite Stations

There was no sampling at offsite stations in 2017.

5.2 TRACE ELEMENTS

Time series plots through October 2016 are presented in the 2016 annual report (Niblack 2017) as Figures 5-8a-c through 5-25a-c. The plots present dissolved and total concentrations at surface water and groundwater stations of nine trace elements listed in Permit Tables A and B—aluminum, arsenic, cadmium, chromium, copper, lead, mercury, selenium, and zinc. Under the Permit the collection of dissolved metals, with the exception of cadmium, copper, and zinc, is no longer required.

5.2.1 Comparison to Water Quality Criteria

During 2017, surface water concentrations of all Permit-regulated trace elements at surface water monitoring locations WQ4, WQ6, WQ10, and WQ13 were below ADEC screening levels, with the exception of a slight exceedance at WQ10 for cadmium, discussed in Section 5.2.2.3. There was a Permit threshold exceedance of dissolved copper at groundwater station MW1, which is discussed in Section 5.2.2.5. All Permit-regulated trace elements in groundwater samples collected in 2017 at groundwater stations MW2 and MW3 were below site-specific groundwater well permit threshold values for all constituents. No site-specific groundwater threshold values exist for MW4.²

5.2.2 Time Series Review

With isolated exception of MW1 discussed below, the concentrations of trace elements in surface water and groundwater samples fall within the range of pre-activity concentrations. No

² For groundwater wells located downgradient of the LAD discharge area (MW2, MW3, and MW4), the groundwater threshold values were assigned to parameters with concentrations more than 3 times greater in the LAD discharge water (as measured at station EFF1) than in background (pre-activity) groundwater. Evaluation of water quality at MW4 showed that no threshold values are applicable to this station.

consistent patterns or trends of changes in water quality are evident for any trace elements in surface water or groundwater.

5.2.2.1 Aluminum

Dissolved and total aluminum concentrations at surface water compliance stations (WQ4, WQ6, WQ10, and WQ13) in 2017 were close to or within the range of concentrations measured prior to initiation of mining activity.

Total aluminum concentrations measured at compliance wells (MW1, MW2, MW3, and MW4) continued to show low concentrations in 2017. Dissolved aluminum monitoring is no longer required by the Permit, and has not been monitored in surface water or groundwater since Q2 2013.

5.2.2.2 Arsenic

Arsenic concentrations at surface water or groundwater compliance monitoring stations have remained low during the life of this project, with that trend continuing into 2017 and surface water concentrations significantly below aquatic life standards. Dissolved arsenic monitoring is no longer required by the Permit.

5.2.2.3 Cadmium

Similar to arsenic, no consistent concentration trends have been observed for cadmium at the surface water or groundwater compliance monitoring stations since monitoring began. Most surface water total and dissolved cadmium concentrations measured both before and after initiation of mining activities at the site fall below instrument detection limits. There has been a trending increase in total and dissolved cadmium at WQ10 since 2014 and dissolved cadmium at this station were slightly above chronic aquatic life standards in 2017 at 0.191 µg/L. An immediate corrective action to this will be the temporary discontinuation of LAD zones 4 and 5, which WQ10 monitors. This will allow the observation if this trend is due to LAD discharge or natural conditions, no other trace elements have exhibited this trend at this location. All other measured dissolved concentrations at surface and groundwater stations were below the chronic and acute aquatic life standards. All detected groundwater dissolved cadmium concentrations measured since monitoring began at MW2 and MW3 were below the site-specific groundwater well threshold values.

5.2.2.4 Chromium

Prior to 2013, chromium monitoring was required at station EFF1 only; total chromium was generally not analyzed until Q2 2013 at surface water and groundwater stations.

Total (unfiltered) chromium at surface water Permit stations showed the highest concentration in 2017 at a duplicate sample of WQXX of 0.40 µg/L. This value is within historical ranges in the permit stations.

In groundwater, total (unfiltered) chromium concentrations during 2017 varied between 0.40 µg/L at MW1 and 1.70 µg/L at MW4.

All surface water and groundwater total chromium concentrations were compared to the unfiltered chromium (VI) water quality standard of 50 µg/L, in order to determine if dissolved chromium (VI) sampling may be requested by ADEC. No surface water or groundwater concentrations have exceeded the chromium VI standard since monitoring began, with the exception of an anomalous measurement at MW4 in February 2007. Neither dissolved nor species-specific chromium sampling is required at this time.

5.2.2.5 Copper

Concentrations of total copper at surface and groundwater compliance stations have remained low in 2017. Dissolved copper concentrations at surface water compliance stations WQ4, WQ6, and WQ10 closely track their respective upstream reference station measurements and generally fall well within pre-activity concentration ranges for the entire monitoring period. The concentrations of dissolved copper at surface water stations WQ4, WQ6, WQ10 and WQ13 were less than the hardness-based chronic aquatic life standard in 2016.

At groundwater stations, a seasonal pattern may be evident, with annual dissolved copper concentration peaks generally observed in summer or early autumn, scheduled with 2017 sample event to capture peak concentrations, at all four groundwater compliance stations. The slight upward trend in total copper at MW2 in October 2016 (3.08 µg/L) decreased in 2017 (1.52 µg/L) and on trend with historical averages.

Until 2017, all groundwater dissolved copper concentrations measured since monitoring began at MW1 have been well below the site-specific groundwater well threshold value of 2.61 µg/L. There was an increase at this location in 2017 to 4.06 µg/L as reported to ADEC March 10, 2018 (Niblack 2018). A duplicate sample of station MW1 was taken during the 2017 sample event and dissolved copper for the duplicate returned a value of 4.08 µg/L, which eliminates potential sampling error. Station MW1 is located to monitor the NAG storage/disposal area and the 2017 value initially appears to be an aberration as there have been no threshold exceedances for station MW1 and recent data showed a downward trend; since December 2015, the past four sample results at Station MW1 for dissolved copper have been 1.15, 0.77, 0.87 and 0.72 µg/L. There have been no significant changes to the NAG storage/disposal area since excavation of the drift concluded in 2008. The most likely immediate explanation may be remedial reclamation activities, which occurred in the months prior to the 2017 sample event and included ditch and catch basin cleaning below the NAG site, may have disturbed sediments that were sampled

before natural attenuation could occur. A supplemental sample for MW1 was collected March 18, 2018 and data had not been returned as of the writing of this report.

5.2.2.6 Lead

Concentrations of total lead at surface and groundwater compliance stations have remained very low through 2017. Dissolved lead has rarely been detected in surface water compliance stations; all detected surface water concentrations have been below the chronic and acute aquatic life lead criteria throughout the monitoring record. In groundwater, dissolved lead is no longer required.

5.2.2.7 Mercury

Total and dissolved mercury concentrations in both surface water and groundwater have been generally below laboratory detection limits since monitoring began at the site. Mercury is not present at elevated concentrations either pre- or post-initiation of the project.

5.2.2.8 Selenium

No consistent concentration trends have been observed for dissolved selenium at the surface water or groundwater compliance monitoring stations during the life of this project. The slight upward trend in selenium at MW2 in October 2016 (0.6 µg/L) decreased in 2017 (0.1 µg/L).

5.2.2.9 Zinc

While zinc concentrations at surface water stations WQ4 and WQ13 remained on trend at low levels, WQ6 and WQ10 did show increased levels in 2017. The levels remain below the chronic and acute aquatic life criteria and will continue to be monitored.

There were no threshold exceedances in 2017 at groundwater stations for dissolved zinc. Similar to the aberrational increase in copper in MW1, total and dissolved zinc showed a similar increase at this station in 2017.

5.2.3 Comparison to Offsite Stations

Sampling at offsite stations was not conducted in 2017.

5.3 SUMMARY

In summary, with the exception of dissolved cadmium at surface water station WQ10 and dissolved copper at groundwater station MW1, concentrations of all Permit-regulated trace

elements at surface water and groundwater monitoring stations were below aquatic life screening levels or Permit groundwater thresholds during 2017.

For conventional parameters and cations/anions, surface water and groundwater monitoring results generally show expected seasonal fluctuations and consistent ranges since monitoring began. Sulfate measured at some surface water and groundwater stations has increased somewhat since initiation of mining activity but remains far below standards; monitoring of these stations and review of the data will continue as required by the Permit.

Trend evaluation shows that, for trace elements, the concentrations in surface water and groundwater samples collected after initiation of exploration activity generally fall within the range of pre-activity concentrations and, therefore, do not appear to depart from natural conditions, other than those previously identified. LAD zones 4 and 5 will be temporarily closed until the 2018 sampling event to establish if the increase in cadmium concentrations is a natural condition or correlated to LAD discharge. At station MW1, the exceedance of the permit threshold for copper is abnormal and results from the sample taken March 18, 2018 will be closely monitored. Corrective actions, as needed, will be decided in collaboration with ADEC. At this time there is no explanation for the increase at this station, given it is located to monitor the NAG and, other than remedial reclamation in summer of 2017, there have been no significant changes to the NAG storage/disposal site.

6 WASTE ROCK AND MINE WATER MONITORING PROGRAM

Figure 3-1 show the sample locations of mine discharge water at the outlet to the LAD system (station EFF1, at the outflow of the settling pond) and waste rock leachate and runoff (station PAG, at the PAG pond) as required by the Permit. The PAG area monitoring program is designed to inform site water and waste rock management decisions; these waters are not subject to aquatic life or site-specific standards. The 2017 monitoring record and analyte list are summarized in Tables 3-2 and 3-3, respectively. Their historical sampling schedules are described in Table 3-5.

6.1 BACKGROUND AND MONITORING LOCATION DESCRIPTIONS

The excavation of a 2,800-ft exploration drift, completed June 2008, along with construction of a variety of supporting infrastructure (Figure 2-2), has provided materials for geochemical characterization to determine the potential for acid rock drainage on the Niblack Exploration Project site. Each drift excavation blast round was subjected to analysis to determine if the rock was PAG, following the specifications outlined in the Plan of Operations (Niblack 2007). A storage facility was constructed onsite (Figure 6-1) for the temporary storage of PAG blast rock. Current mine plans involve the return of the PAG material to the underground drift for final reclamation and site closure.

Of the approximately 286 blast rounds completed, 43 were determined to comprise mainly PAG rock. Of the 43 “PAG rounds,” 4 rounds were considered to be “well mineralized” and were placed in a small stockpile located just east of the PAG storage facility, on a layer of geo-membrane, and subsequently covered by geo-membrane to prevent weathering (Figure 2-2). The remaining 39 rounds (approximately 9,000 tons), primarily sulfide-bearing Lookout rhyolite, were placed in the temporary PAG storage facility, which is also referred to as the PAG pile (Figure 6-1).

Based on QA/QC verification test work conducted as a part of the operational characterization plan, the material in the PAG pile is anticipated to average ~1 percent total sulfur, predominantly as sulfide-sulfur, with low neutralization potentials, <~20 kg CaCO₃/t equivalent, and corresponding neutralization potential ratios of <0.5 (MESH Environmental 2009).

The leachate and runoff water captured in the PAG pond is monitored on a monthly basis for field parameters including pH, sulfate, conductivity, dissolved oxygen, turbidity and temperature. Approval was received from ADEC on January 16, 2014 to change monitoring field parameters from weekly to monthly (Evans 2014) due to the continued Suspension of Operations status of the project site. Field parameter monitoring serves as an early indicator for

any potential changes in PAG pond water quality. If a significant reduction in pH, or increase in sulfate or other field parameter, is observed, the chemistry monitoring frequency may be increased, as determined by NPLLC and ADEC. A cover will be placed on the PAG pile if required due to a change in the chemistry of the PAG pond or at the request of ADEC or ADNR.

Water from the PAG rock pile accumulates in the PAG pond before flowing to two settling ponds (Figure 6-1) where it comes together with water from the exploration drift portal and direct rainfall to the ponds before discharging to the LAD system.

6.1.1 PAG Pond

Station PAG is located in the PAG pond (Figure 3-1). Runoff and leachate from the PAG waste rock pile is collected for sample water and monitored on a monthly basis for field parameters and annually for analytical chemistry parameters.

6.1.2 Portal Water (PORTAL)

The mine effluent has been monitored in two general areas: at the point of inflow to the settling ponds and near the portal entrance. Portal water quality monitoring at the inflow to the settling ponds is not required under the Permit and was not conducted during 2017.

6.1.3 Effluent (EFF1)

Station EFF1 is located in the site settling ponds (Figure 3-1). Sample water is collected from within the ponds near the outlet pipe which flows to the LAD system and is representative of the water that is discharged from the LAD system emitters. EFF1 is monitored at the PAG pond (Figure 3-1) on a monthly basis for field parameters and annually for analytical chemistry parameters.

6.1.4 Field Barrels

Three field barrels (HW1, LO1, and LO2) were established to further characterize the natural weathering of Niblack Exploration Project waste rock. Field barrels were closed in July 2015, and no monitoring was conducted in 2017.

6.2 RESULTS

Monitoring results for all stations in 2017 are provided in Tables 4-1a-c, including results for EFF1 and PAG pond for all field and laboratory parameters included on the analyte list (Table 3-3).

Figures 6-2 through 6-17 present time series concentration plots for select conventional parameters and anions (Figures 6-2 through 6-8) and trace elements (Figures 6-9 through 6-17). These plots present water quality results for EFF1 (upper plots) and the PAG pond (lower plots) collected from June 2007 to December 2017. On each plot, values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at the qualified value.

6.2.1 Conventional Parameters and Anions

The settling/treatment ponds (EFF1) and PAG pond are monitored annually for the parameters specified in Table A of the Permit, concurrent with annual surface water and groundwater monitoring. Additionally, these stations are monitored while personnel were onsite monthly for field parameters, including pH, temperature, conductivity, dissolved oxygen, and turbidity. Figures 6-2 through 6-8 present time series concentration plots for conventional parameters—pH, hardness, conductivity, TDS, turbidity, dissolved oxygen and sulfates.

6.2.1.1 Conventional Parameters

Temperature shows strong seasonal fluctuation in the PAG pond and the settling ponds (EFF1), which continued through 2017.

The 2017 field pH values (Figure 6-2) from the PAG pond monthly sampling events continued to be circumneutral, ranging from 4.53 to 7.12. Overall, PAG pond pH values continued to follow the seasonal trend of lower pH values through the winter months (values ~6) in comparison to summer months (values ~7). EFF1 monthly pH ranged from 6.24 to 7.77 during 2017.

Hardness (Figure 6-3) in the PAG pond fluctuates seasonally, with maximum yearly values consistently occurring in summer months. PAG pond hardness was measured at its highest concentration (808 mg/L CaCO₃) in September 2017, up from its historical range. EFF1 hardness remained near normal levels. The level of hardness in EFF1 is somewhat lower than PAG pond hardness.

Conductivity in the PAG pond is more variable than at EFF1 (Figure 6-4). Conductivity typically increases in the summer for the PAG pond; in contrast, clear seasonal patterns are not evident for EFF1. During 2017, conductivity in the PAG pond ranged from 586 to 1460 µS/cm, while EFF1 ranged from 157 to 258 µS/cm.

TDS (Figure 6-5) in the PAG pond generally shows overall higher values in the summer months than during winter, corresponding with seasonal changes in both temperature and conductivity. TDS in the PAG pond in 2017 was the highest value recorded to date, at 1230 mg/l, while TDS at EFF1 was 155 mg/l. Summertime TDS concentrations at EFF1 are generally lower than the concentrations observed in the PAG pond.

Turbidity (Figure 6-6) is generally low (<10 nephelometric turbidity units [NTU]) in the PAG pond and EFF1.

No clear seasonal or temporal pattern exists for dissolved oxygen (Figure 6-7) at the PAG pond or EFF1. In 2017, dissolved oxygen measurements ranged from 6.58 mg/L to 12.6 mg/L at the PAG pond and from 7.97 mg/L to 13.1 mg/L at EFF1.

Conventional and monthly field parameters continue to fluctuate within yearly seasonal norms, indicating slight changes in the system dynamics in the PAG pond but little changes in EFF1. None of the conventional parameters measured in mine water stations shows evidence of a substantial or ongoing change in magnitude, trend, or pattern over the monitoring record, with the exception of conductivity and sulfates. Results for sulfates were generally over 200 mg/L in 2017, though results at EFF1 generally remained at 50 mg/L or less. Conductivity indicates seasonal fluctuations, with higher levels during summer and fall, and a rising trend since 2016. pH also showed a seasonal trend in 2017 comparable to 2016 where results were lower in September to November. However, conventional parameter results measured throughout 2017 at EFF1 are generally consistent in magnitude with previous monitoring data.

6.2.1.2 Anions

With the exception of isolated cases described below, concentrations for alkalinity, nitrate and nitrite as nitrogen, and sulfate have not changed in magnitude, trend, or pattern during the mine water monitoring period.

Alkalinity monitoring is not required under the Permit and it was not measured during 2017. It has been discussed in past reports which discussed PAG pond and EFF1 alkalinity have remained relatively stable over the monitoring record.

In the PAG pond, nitrate and nitrite concentrations have decreased to near detection limits from early highs (up to 192 mg/L as N) measured in 2008. Nitrate and nitrite observed in the PAG pond may be related to blasting residue intermixed in the rock material during drift construction. The sharp decrease in nitrate and nitrite concentrations (2017 results were 0.083 mg/L as N) indicates that the nitrogen from blasting has been flushed from the PAG waste rock. EFF1 has shown consistently low (<18 mg/L as N; 0.043 mg/L as N in 2017) concentrations since monitoring began in 2006.

Sulfate (Figure 6-8) in the PAG pond shows overall higher values in the summer months than during winter, corresponding with seasonal changes in both temperature and conductivity. Monthly field tests at the project site are not capable of reliable measurements above 200 mg/L or below 50 mg/L. The 2017 PAG pond result from September 30 was 772 mg/L, lower than the high value from Q4 2016 at 846 mg/L but still on trend with rising levels since 2014. Monthly field parameter monitoring indicate sulfate concentrations in the PAG pond exhibit seasonal variations; 175 mg/L in the winter months and >200 mg/L in the summer/fall (Table 4-1a). The

increase in sulfate concentrations in the PAG pond have not translated to increases in concentrations in EFF1 or discharge to the LAD. Sulfate concentrations measured at EFF1 are consistently lower and less variable than in the PAG pond water. In 2017, all field sulfate measurements at EFF1 were < 50 mg/L, consistent with historic trends (Figure 6-8) and the lab result which returned 43.7 mg/L.

6.2.2 Trace Elements

Figures 6-9 through 6-17 present time series total and dissolved concentration plots for 9 trace elements identified for monitoring in surface water and groundwater in Table B of the Permit—aluminum, arsenic, cadmium, chromium, copper, lead, mercury, selenium, and zinc. Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value, and a vertical gray line on each plot indicates the initiation of project activities on September 21, 2007.

6.2.2.1 Aluminum

Total aluminum concentrations (Figure 6-9) have generally been lower at EFF1 than in PAG pond. Total aluminum in PAG pond increased from generally < 40 µg/L to 91.9 µg/L in Q4 2015. The levels did drop in 2016, then increased in 2017 to a high of 1360 µg/L, with a paired increase at EFF1 to 86.3 µg/L. Dissolved aluminum was not collected and analyzed during 2017 because it is not required under the Permit.

6.2.2.2 Arsenic

In 2017, total arsenic concentrations (Figure 6-10) were 0.3 µg/L in the PAG pond, comparable with historical trends. Total arsenic at EFF1 measured 0.28 µg/L during 2017; over the period of record, total arsenic concentrations have fluctuated between 0.1 µg/L and a June 2008 high of 3.4 µg/L. Dissolved arsenic was not collected and analyzed during 2017 as it is not required under the Permit.

6.2.2.3 Cadmium

PAG pond cadmium concentrations (Figure 6-11) have historically been low. In 2016, however, PAG pond cadmium concentrations increased significantly in Q4, with total and dissolved cadmium concentrations of 105 and 100 µg/L, respectively. A sample taken in April 2017 showed cadmium returning to normal levels, with total and dissolved cadmium concentrations of 44.6 and 48.3 µg/L, respectively. However, levels increased in the September 2017 annual sample with total and dissolved cadmium concentrations of 143 µg/L.

Cadmium concentrations at EFF1 (Figure 6-11) show a slight gradual increase since 2013, but have remained low throughout the period of record with the exception of an uncharacteristic

increase at the end of 2015. Q1 and Q2 2016 concentrations appeared to be trending down towards historic levels, but increased again comparable to results at the end of 2015. EFF1 total cadmium was 0.873 µg/L and dissolved cadmium was 0.89 µg/L in Q4, 2016. Levels increased in 2017 with total cadmium at 6.7 µg/L and dissolved cadmium at 7.08 µg/L. As seen on Figure 6-11, cadmium exists nearly entirely in the dissolved form in site mine water.

6.2.2.4 Chromium

Total chromium is a newly required monitoring constituent in the Permit for the PAG pond, and therefore has a limited number of samples for time series visual comparisons at that station. Total chromium concentrations (Figure 6-12) in 2017 were 0.42 µg/L at the PAG pond, and 0.54 µg/L at EFF1. At station EFF1, chromium concentrations have remained consistently low after the drift excavation (Figure 6-12). Dissolved chromium monitoring is generally not required³ and was not performed in 2017.

6.2.2.5 Copper

PAG pond copper concentrations (Figure 6-13) were consistently low (less than 4.1 µg/L) until 2015. As with cadmium concentrations, copper concentrations in PAG pond samples seemed to be decreasing towards historic levels in Q1 and Q2 2016 before a significant increase in Q4. Concentrations from the April 2017 sample decreased compared to 2016, at 146 µg/L for total copper and 135 µg/L for dissolved copper, but increased again in September 2017 to 2330 µg/L for total copper and 2340 µg/L for dissolved copper.

Copper concentrations at EFF1 also increased in 2017. Both total and dissolved copper reached the highest levels measured to date in EFF1, at 96.6 µg/L and 88.7 µg/L, respectively.

6.2.2.6 Lead

Total and dissolved lead (Figure 6-14) have generally remained low in the PAG pond and EFF1. The total lead concentration increased in 2017 to the highest levels reported at the PAG pond, with a total lead concentration of 15.1 µg/L. Results at EFF1 were 0.642 µg/L for total lead, which is comparable with historic levels. Dissolved lead monitoring is not required by the Permit and no samples were taken in 2017.

³ Table B of the Permit states that if the unfiltered total chromium value exceeds the chromium (VI) water quality standard of 50 µg/L, samples of dissolved chromium (VI) may be requested by ADEC.

6.2.2.7 Mercury

Mercury was not detected during 2017 in waters sampled from the PAG Pond and EFF1 (Figure 6-15), which is consistent through the project history. Samples were not analyzed for dissolved mercury in 2017 as it is not required by the Permit.

6.2.2.8 Selenium

Total and dissolved selenium (Figure 6-16) concentrations at the PAG pond and EFF1 have remained fairly consistent (generally below 2 µg/L at the PAG pond and below 1 µg/L at EFF1) over the monitoring record and through 2017. Samples were not analyzed for dissolved selenium in 2016 because it is not required by the Permit.

6.2.2.9 Zinc

Historically, total and dissolved zinc concentrations (Figure 6-17) were generally stable and low in the PAG pond and EFF1. As with cadmium and copper, the concentration of zinc increased in the PAG pond in Q4 2016 and returned to somewhat lower levels in April 2017. In September 2017, zinc concentrations increased again, to 27,600 µg/L for total zinc and 27,100 µg/L for dissolved zinc. At station EFF1, dissolved and total zinc also increased in 2017 compared to 2016 results. Concentrations at EFF1 were 1250 µg/L for total zinc and 1330 µg/L for dissolved zinc in September 2017. As with cadmium, zinc exists nearly entirely in the dissolved form in site mine water, as seen on Figure 6-17.

6.2.2.10 Iron

Iron monitoring is not required under the Permit; iron is discussed here to provide additional information about settling pond and waste rock leachate chemistry. Iron was not measured during 2017; trends through Q2 2013 are discussed in previous annual reports.

6.2.3 Summary

PAG pond and EFF1 water pH levels have remained circumneutral since monitoring began in 2006, and conventional parameters, anions, and trace elements have remained stable within annual seasonal fluctuations. Generally, previous sampling results indicate that concentrations of sulfate and some dissolved trace elements (i.e., copper and zinc) have shown slight increases in the summer months (July/August) relative to winter months, suggesting potential seasonal trends in sulfide oxidation.

The increases in PAG pond total and dissolved cadmium, copper and zinc concentrations in at the end of 2016 were originally considered anomalous, but have continued with further sampling in 2017. These ongoing concentration increases could be a result of PAG weathering. The sample taken in April 2017 showed lower levels (nearly 50%) when compared to October

2016, but concentrations increased again to above the 2016 levels when measured in September 2017. Concentrations of total lead in the PAG pond and EFF1 also increased in 2017 relative to previous measurements; however, levels are considerably lower than observed for cadmium, copper, and zinc. No other trace elements exhibited similar increases. EFF1 concentrations showed increases in 2017 that were above historical levels for cadmium, copper and zinc. However, as discussed in Section 5, these have not translated to increases observed in monitoring of downgradient groundwater or surface water stations. NPLLC will continue to monitor water quality at these stations to determine if further treatment may be required in the future.

7 STORMWATER POLLUTION PREVENTION PLAN REPORTING

This section presents a summary of activities performed under the SWPPP (RTR 2006), including visual inspections and spill reports.

7.1 VISUAL INSPECTIONS

Visual inspections of the site for stress to vegetation, channelization in wastewater application areas, and function of stormwater controls were conducted monthly, as allowed under the modified suspension of operations plan (Evans 2014, pers. comm.). No stress to vegetation and no channelization were observed in the land application area during 2017. Ditches and settling ponds continued to be cleared during ongoing maintenance to facilitate proper function. Clearing using a small excavator was undertaken during the summer of 2017. Visual site inspection forms, completed during monthly inspections are provided in Appendix B.

Past interim remediation efforts, such as the maintenance of both upstream and downstream culvert settling ponds, increases in road lifts and ditch depths to properly control water flow, and the addition and maintenance of flow control measures (e.g., geotextile/silt fences and rock barriers) have led to a visible reduction in the turbidity of stormwater discharge.

Minor issues were recorded during inspections conducted in 2017 and descriptions of corrective actions were included in subsequent inspection reports (presented in Appendix B).

Non-stormwater source contributions to surface water are minimal at the Niblack Exploration Project site. All inspections take into account any potential contributions from site activities. For example, fueling facilities and vehicle maintenance areas are examined during each of the regular recorded inspections.

7.2 SIGNIFICANT SPILL REPORTS SUMMARY

There were no spills at the project site in 2017.

7.3 CHANGES MADE TO THE STORMWATER POLLUTION PREVENTION PLAN BEST MANAGEMENT PRACTICES

There were no changes to the SWPPP or to the BMPs described in the SWPPP in 2017. All of the BMPs currently described in the SWPPP are good options for stormwater and associated sediment control at the site. As a result of the BMPs implemented onsite, and the stabilization of the site post-construction, the turbidity observed in stormwater has been significantly reduced.

8 DISCHARGE EVENTS

No discharge events occurred in 2017 that are out of compliance with the Permit.

9 ADEQUACY OF FINANCIAL RESPONSIBILITY

Renewal Waste Management Permit 2013-DB0001, which replaced Permit 2006-DB0037, was issued on March 13, 2013, and includes an updated financial responsibility cost estimate of \$1,409,959. Reclamation cost estimates were based on as-built acreage disturbance estimates and current reclamation costs. Monitoring results to date provide no indication of a need for revisions to the financial responsibility cost estimate.

A renewal for the ADNR Reclamation Plan Approval #J1122711 (ADNR 2012) was submitted September 22, 2017, and an administrative extension was granted to allow for ADNR review (ADNR 2017). The extension was still in effect as of the time of this report and the financial responsibility cost estimate included in the renewal was \$1,264,412.

10 REFERENCES

ADEC. 2007. Waste Management Permit 2006-DB0037, Niblack Exploration Project. State of Alaska Department of Environmental Conservation, Juneau, AK.

ADEC. 2008. Alaska Water Quality Manual for Toxic and Deleterious Organic and Inorganic Substances. As amended through December 12, 2008. State of Alaska Department of Environmental Conservation, Juneau, AK.

ADEC. 2018. Niblack Exploration Project, LLC/Waste Management Permit No. 2013DB0001; Issue an administrative extension to the Niblack Waste Management Permit. Alaska Department of Environmental Conservation, Juneau, AK. February 23, 2018.

ADEC. 2013. Waste Management Permit 2013-DB0001, Niblack Exploration Project. State of Alaska Department of Environmental Conservation, Juneau, AK.

ADNR. 2012. Niblack Underground Exploration Project, Reclamation Plan Approval, J122711. Alaska Department of Natural Resources, Division of Mining, Land, and Water, Juneau, AK. June 29, 2007.

ADNR. 2017. Niblack Project Reclamation Plan Approval Extension, J122711. Alaska Department of Natural Resources, Division of Mining, Land, and Water, Juneau, AK. October 31, 2017.

Collingwood, W. 2016. Personal communication (e-mail to S. Cousens, NPLLC approving Modification of Suspension of Operation Plan). Alaska Department of Environmental Conservation, Division of Water, Juneau, AK. June 29, 2016.

Evans, R. 2014. Personal communication (e-mail to P. Smith, NPLLC approving Modification of Suspension of Operation Plan). Alaska Department of Environmental Conservation, Division of Water, Juneau, AK. January, 16, 2014.

Integral. 2008a. Niblack Mining Corporation, Niblack Underground Exploration Project, annual report. Prepared for Niblack Mining Corporation, Vancouver, BC. Integral Consulting Inc., Broomfield, CO.

Integral. 2008b. First quarter 2008 water quality monitoring report, Niblack Underground Exploration Project. Prepared for State of Alaska, Department of Environmental Conservation. Integral Consulting Inc., Broomfield, CO.

Integral. 2013a. Niblack Project Underground Exploration Plan of Operations Post-Construction Update. Prepared for Niblack LLC, Vancouver, BC, Canada. Integral Consulting Inc. Louisville, CO.

Integral. 2013b. Niblack Reclamation and Closure Plan, Post-Construction Update. Prepared for Niblack LLC, Vancouver, BC, Canada. Integral Consulting Inc. Louisville, CO.

Integral. 2013c. Niblack Water Quality Monitoring Plan, Post-Construction Update. Integral Consulting Inc. Louisville, CO.

Integral. 2013d. Niblack Mining Corporation, Quality Assurance Project Plan. Integral Consulting Inc. Louisville, CO.

Knight Piésold. 2007a. Niblack Mining Corporation, Niblack Project: Operational characterization plan. Ref. No. VA102-00205/02-4. Knight Piésold Ltd., Vancouver, BC, Canada.

Knight Piésold. 2007b. Niblack Mining Corporation, Niblack Project: Water quality baseline and site monitoring plan. Ref. No. VA102-00205/02-11. Knight Piésold Ltd., Vancouver, BC, Canada.

MESH Environmental. 2009. Technical Memorandum: QA/QC Data for the 2008 Annual Report, Niblack Project. Prepared for CBR Gold Corp./Abacus Alaska Inc. MESH Environmental Inc., Vancouver, BC, Canada. February 6, 2009.

Niblack. 2007. Niblack Project. Underground exploration plan of operations. Revision 1. Niblack Mining Corporation, Vancouver, BC, Canada. April 13, 2007.

Niblack. 2013. Modification of Suspensions of Operations Plan. Niblack Project LLC, Vancouver, BC, Canada. November 12, 2013.

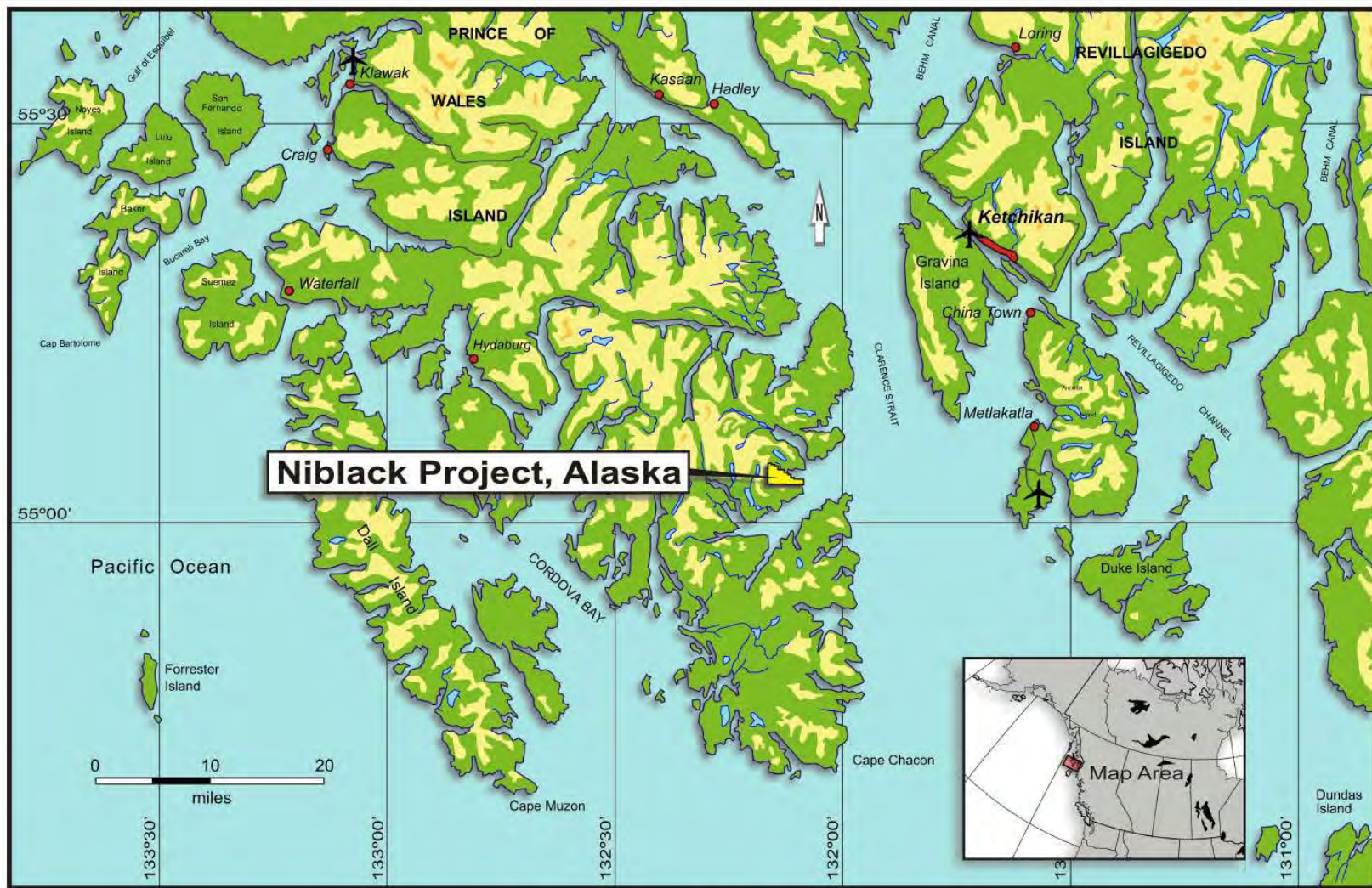
Niblack. 2017. Niblack Exploration Project, 2016 Annual Report. Prepared for State of Alaska, Department of Environmental Conservation, Division of Water. Vancouver, BC, Canada. April 15, 2017.

Niblack. 2018. Personal communication (e-mail from G. Neale, NPLLC notifying ADEC of threshold exceedance of dissolved copper at MW1). Niblack Project LLC, Vancouver, BC, Canada. March 10, 2018.

RTR. 2006. Niblack lookout unit initial construction/exploration project stormwater pollution prevention plan (SWPPP). RTR Resource Management, Inc., Boise, ID.

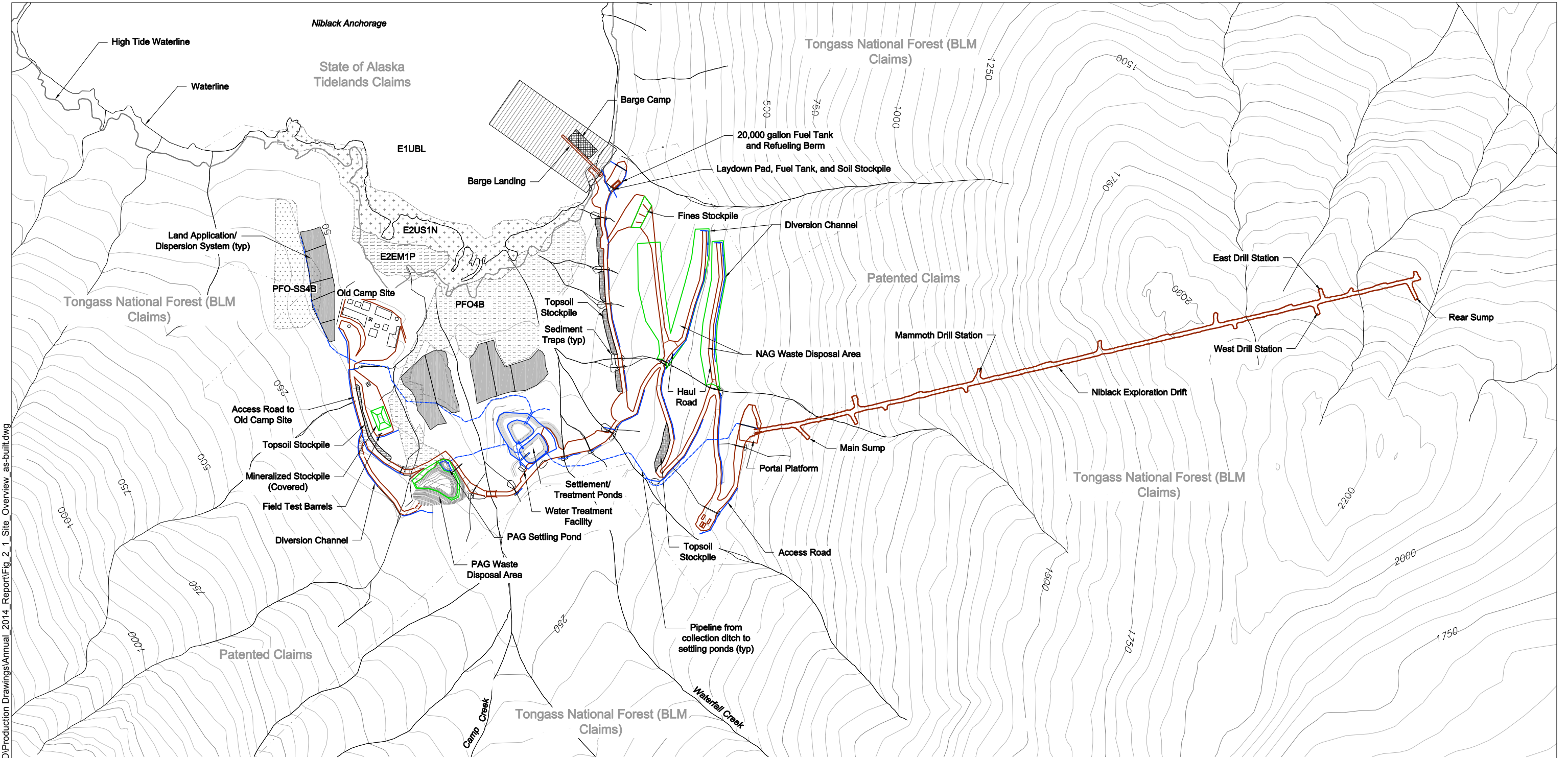
USEPA. 2002. Guidance for quality assurance project plans. EPA QA/G-5. EPA/240/R-02/009. U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC.

USEPA. 2010. USEPA contract laboratory program national functional guidelines for inorganic superfund data review. USEPA-540-R-10-011. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington, DC.



Niblack Project Location Map

May, 2006



LEGEND

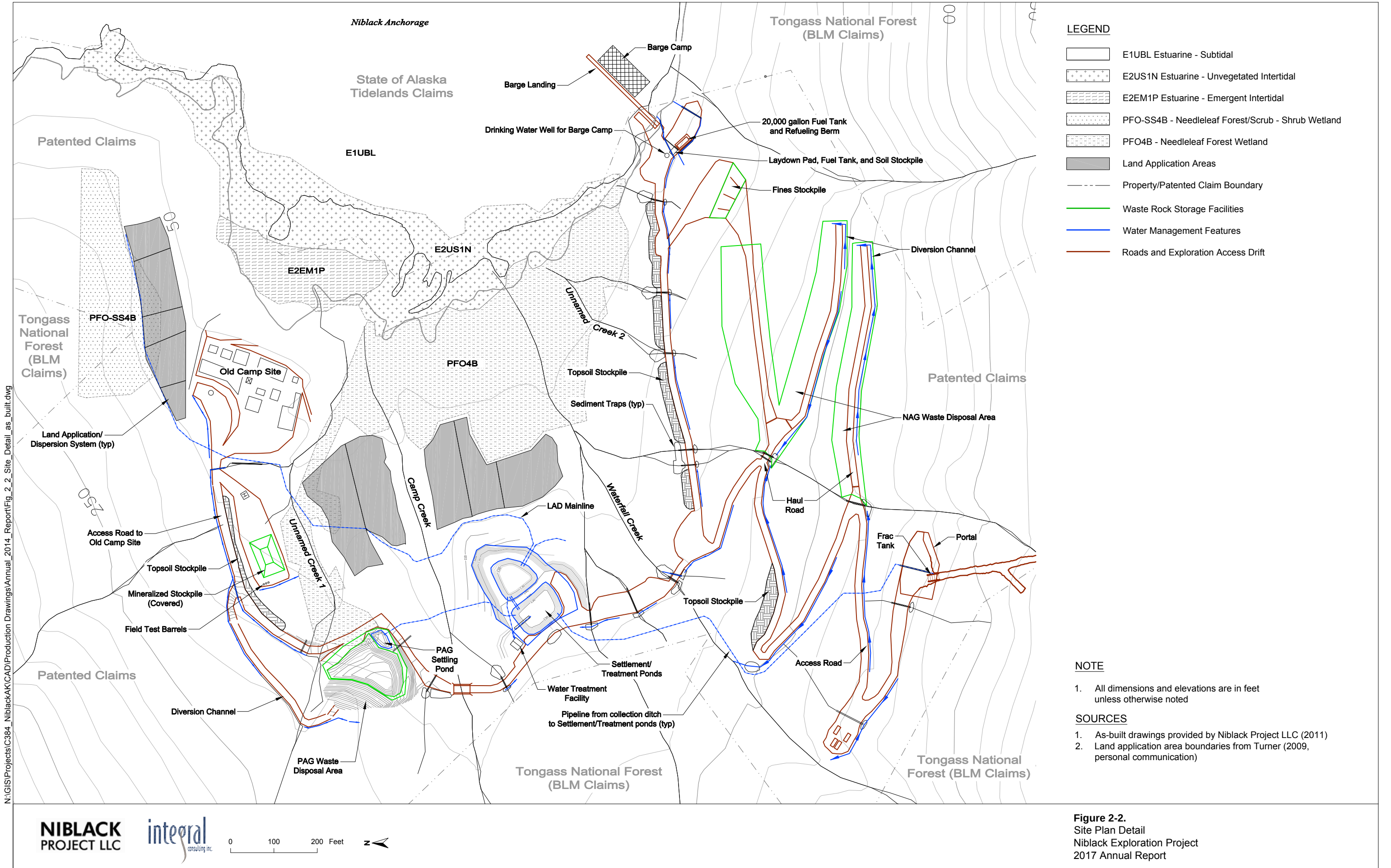
	E1UBL Estuarine - Subtidal		PFO4B - Needleleaf Forest Wetland		Waste Rock Storage Facilities
	E2US1N Estuarine - Unvegetated Intertidal		Land Application Areas		Water Management Features
	E2EM1P Estuarine - Emergent Intertidal		Tideland Lease Area		Roads and Exploration Access Drift
	PFO-SS4B - Needleleaf Forest/Scrub - Shrub Wetland		Property/Patented Claim Boundary		

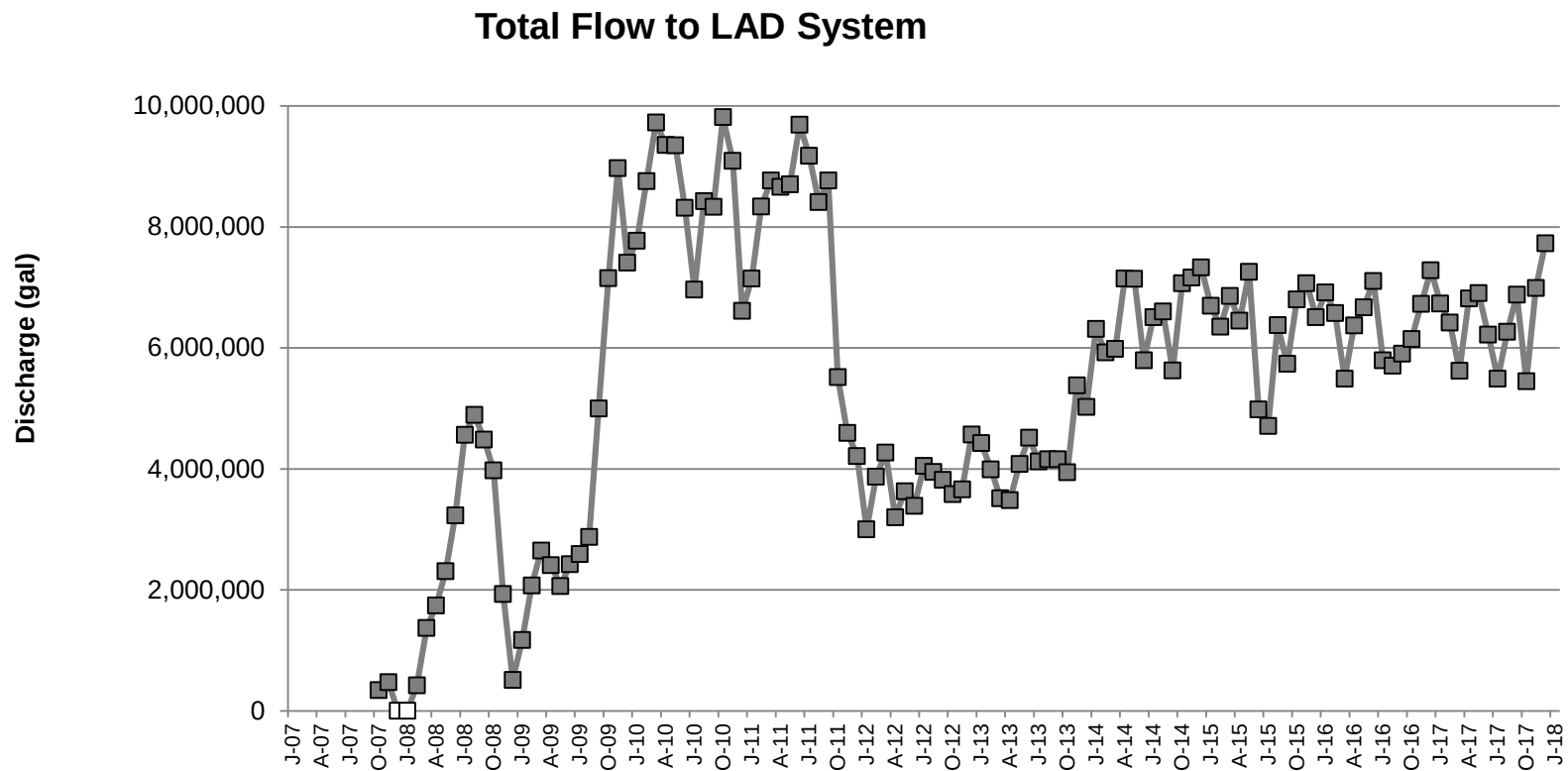
NOTE

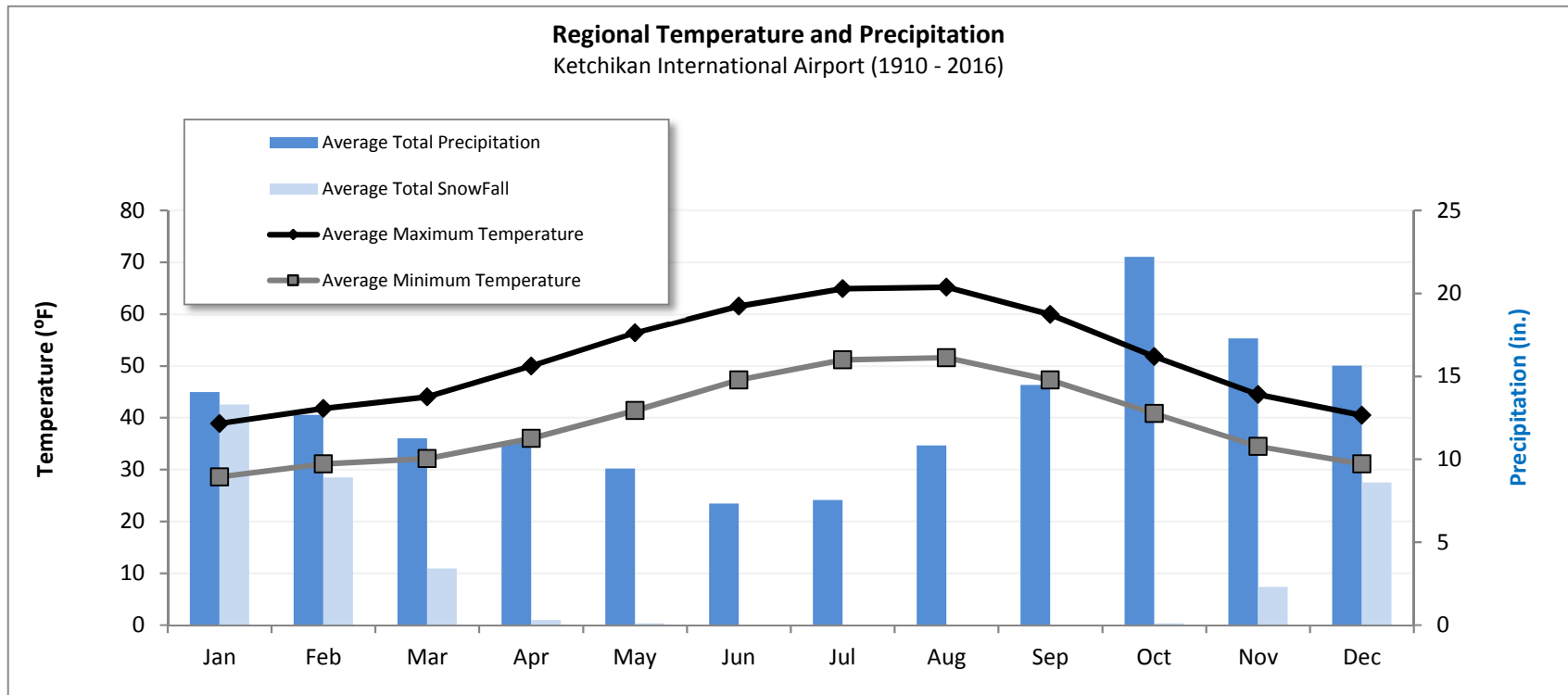
1. All dimensions and elevations are in feet unless otherwise noted

SOURCES

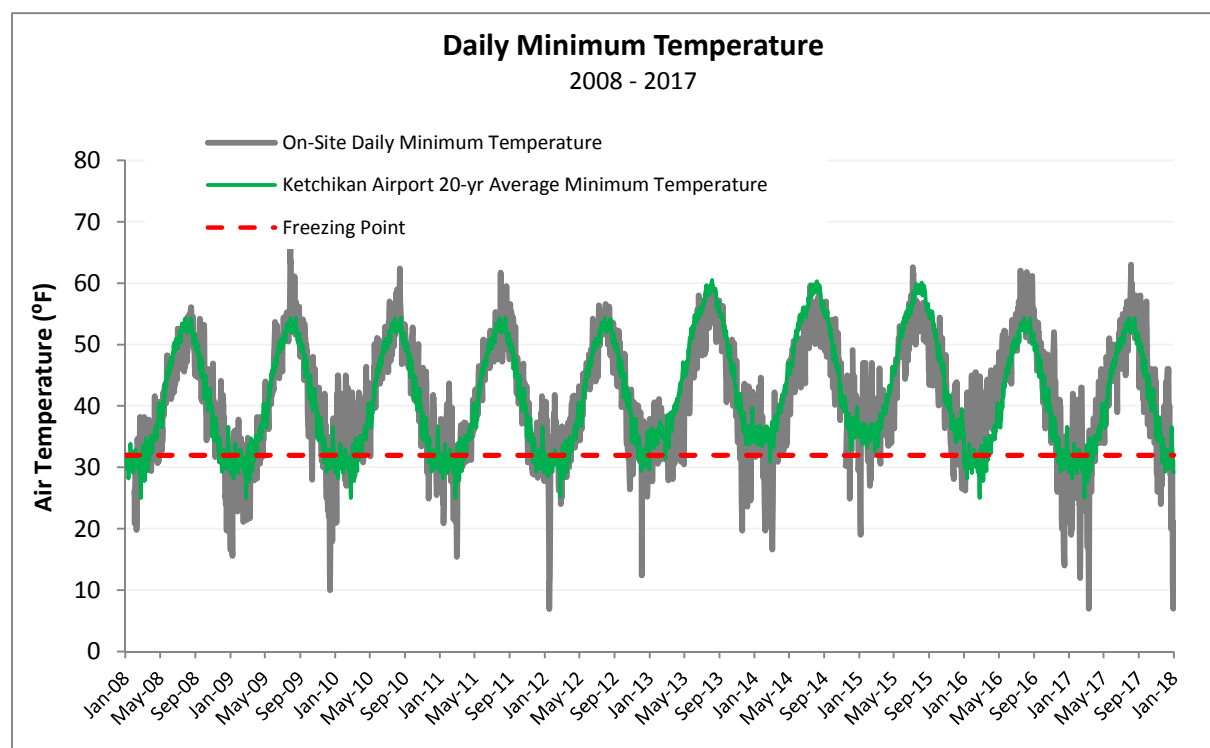
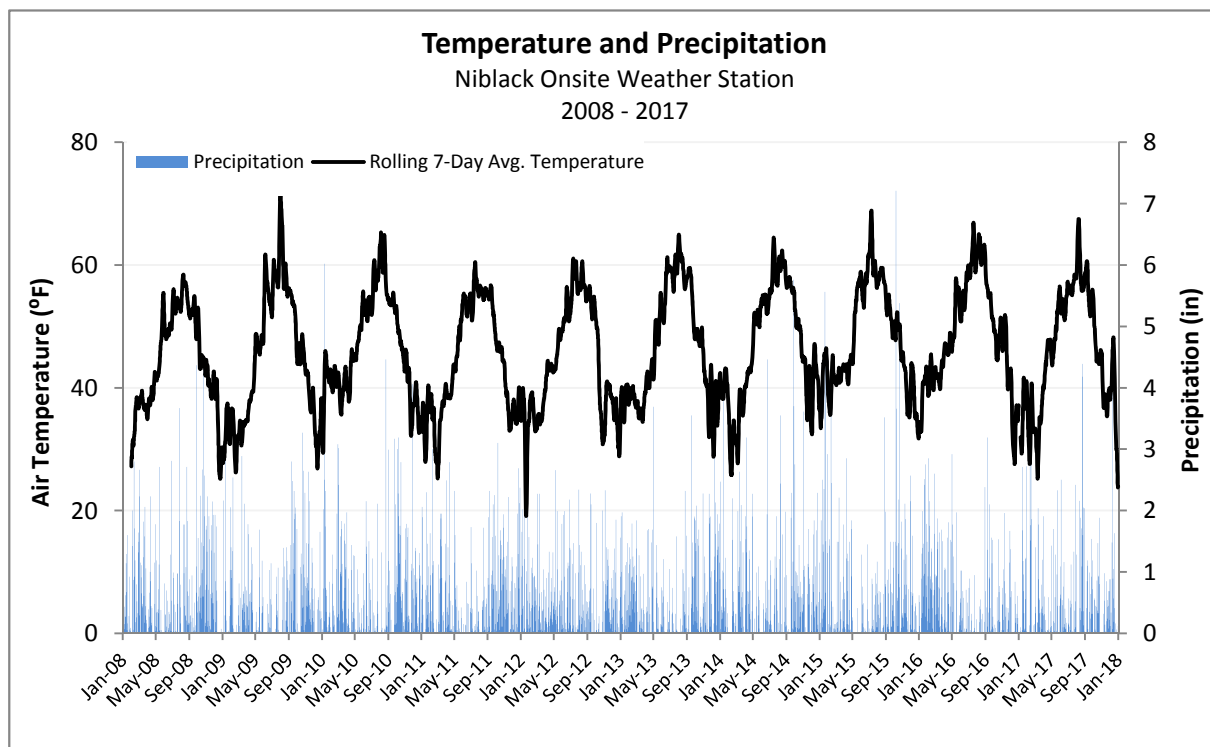
1. As-built drawings provided by Niblack Project LLC (2011)
2. Land application area boundaries from Turner (2009, personal communication)



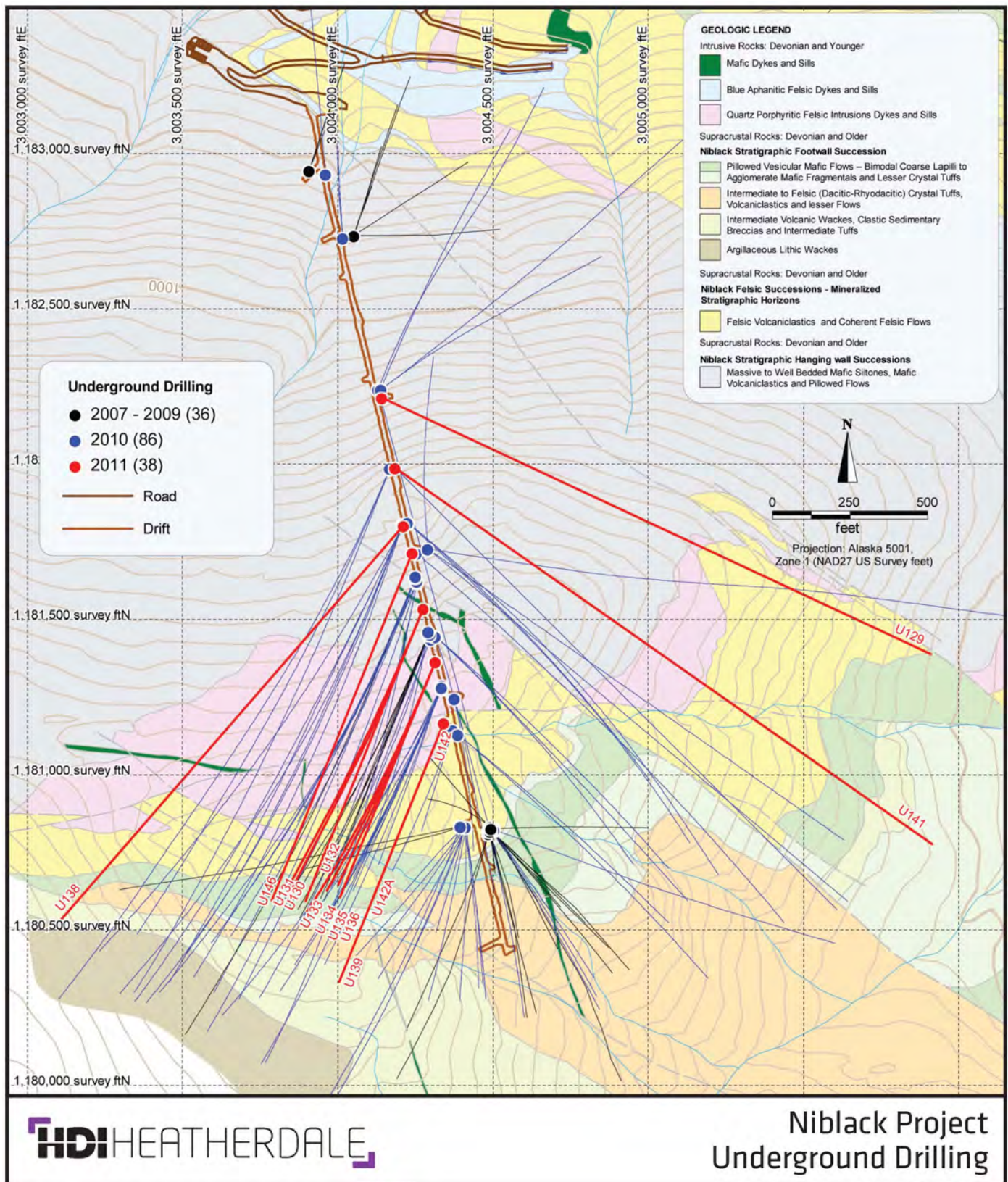




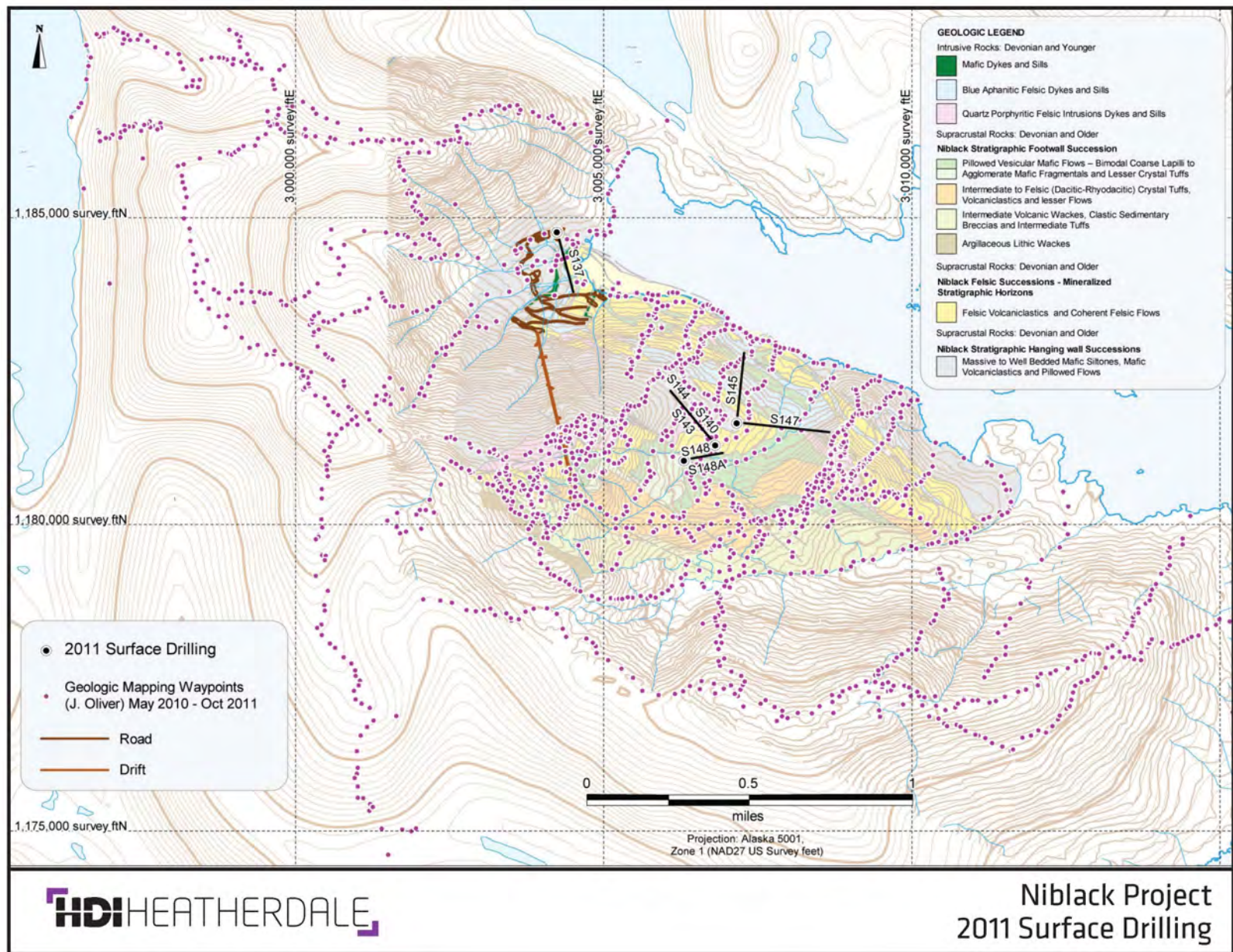
Note: Snow fall data are not available after 2010.



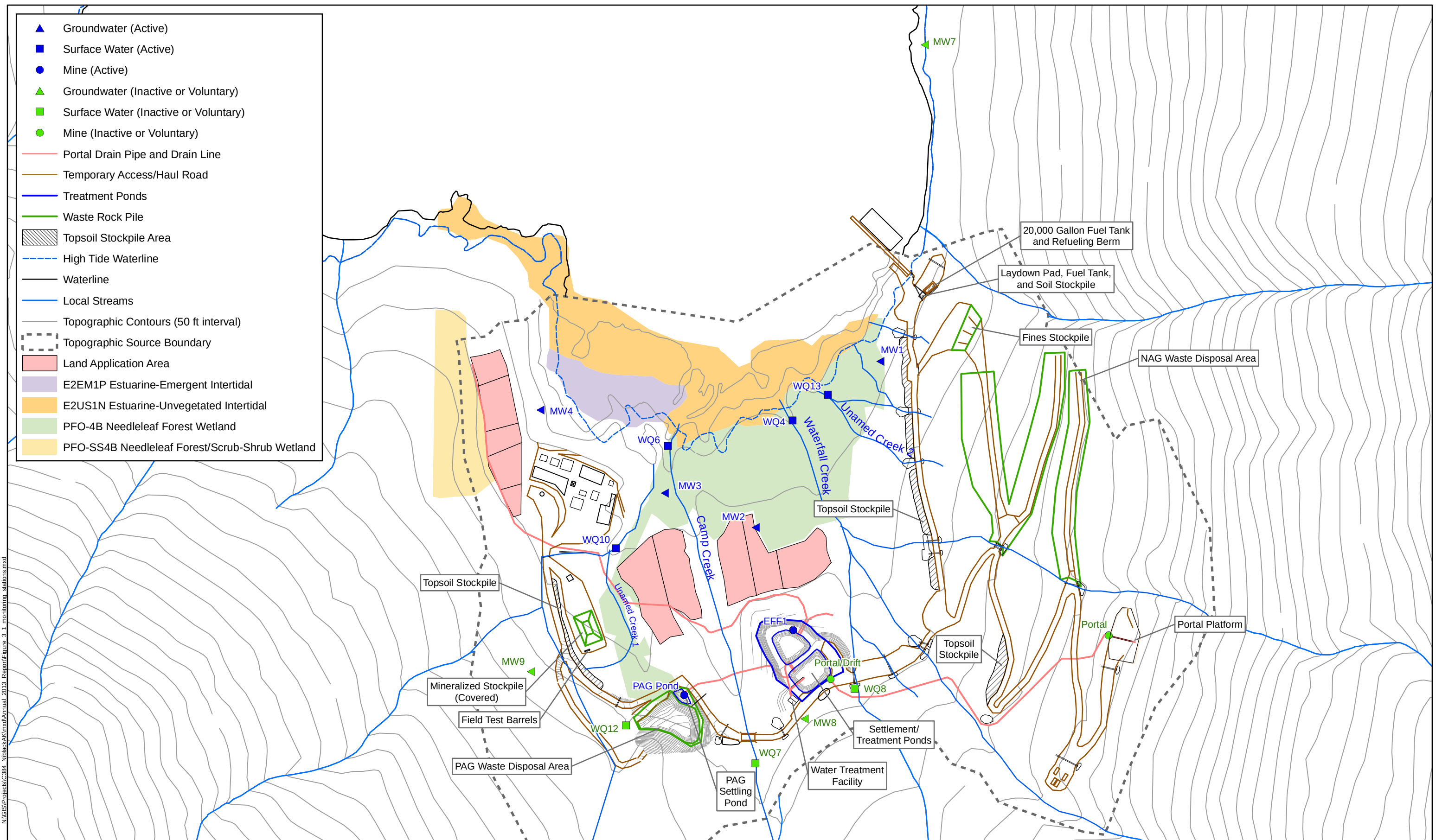
Note: Onsite weather station was not available for several periods during 2009, 2010, 2012, 2014, 2015, 2017, and 2018 to the date of this report due to instrument malfunction; daily records for the Ketchikan Airport NOAA weather station are shown for these time periods.



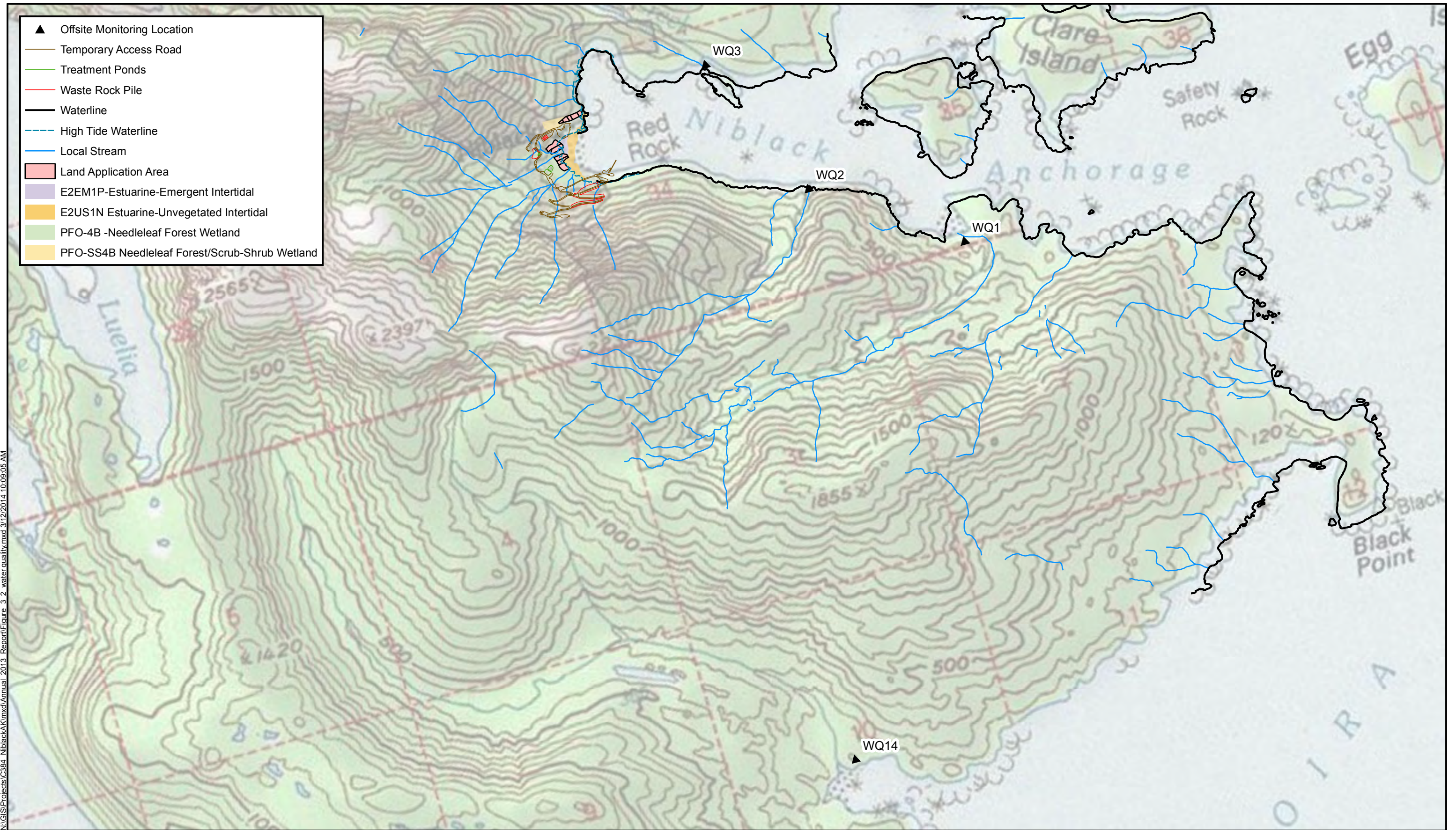
Source: Heatherdale (2011)

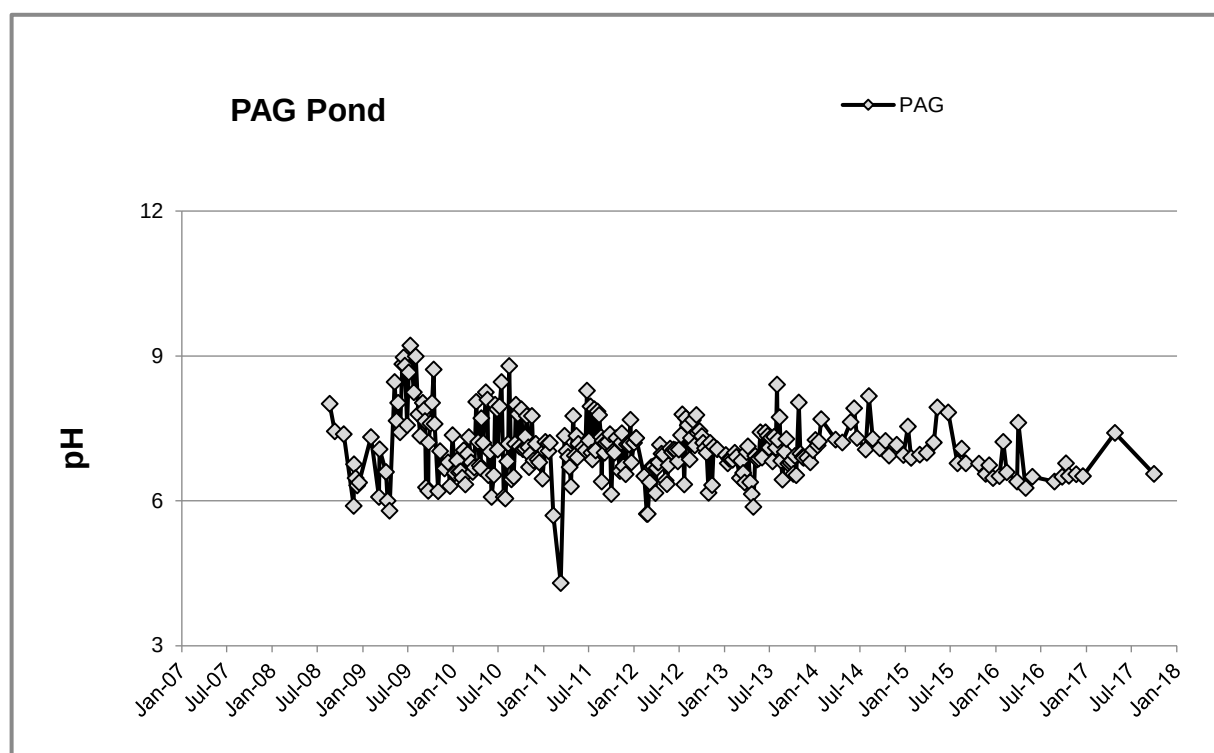
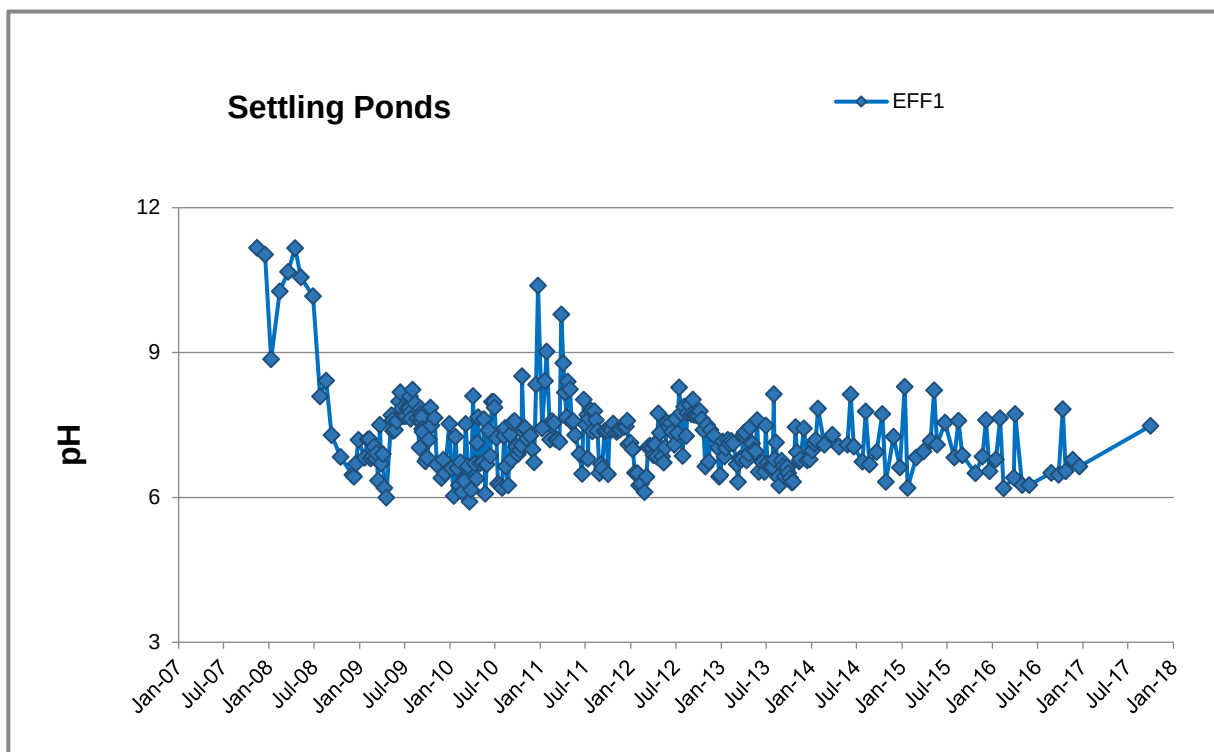


Source: Heatherdale (2011)

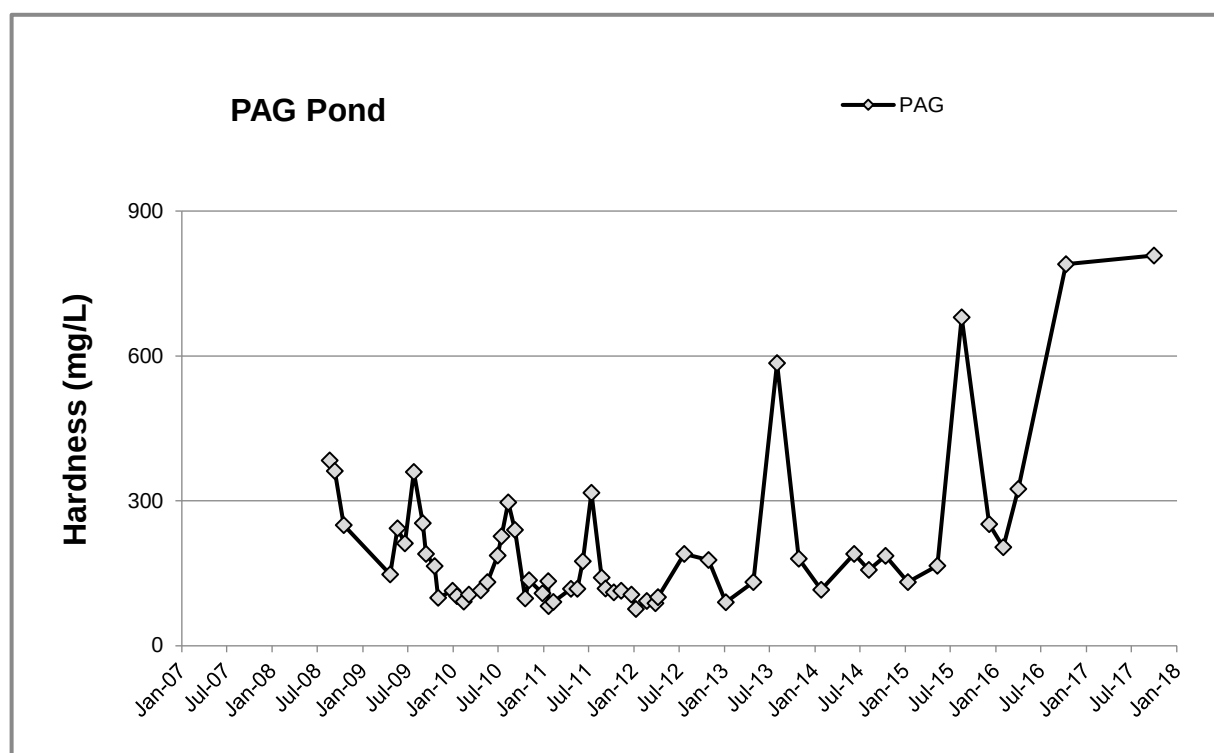
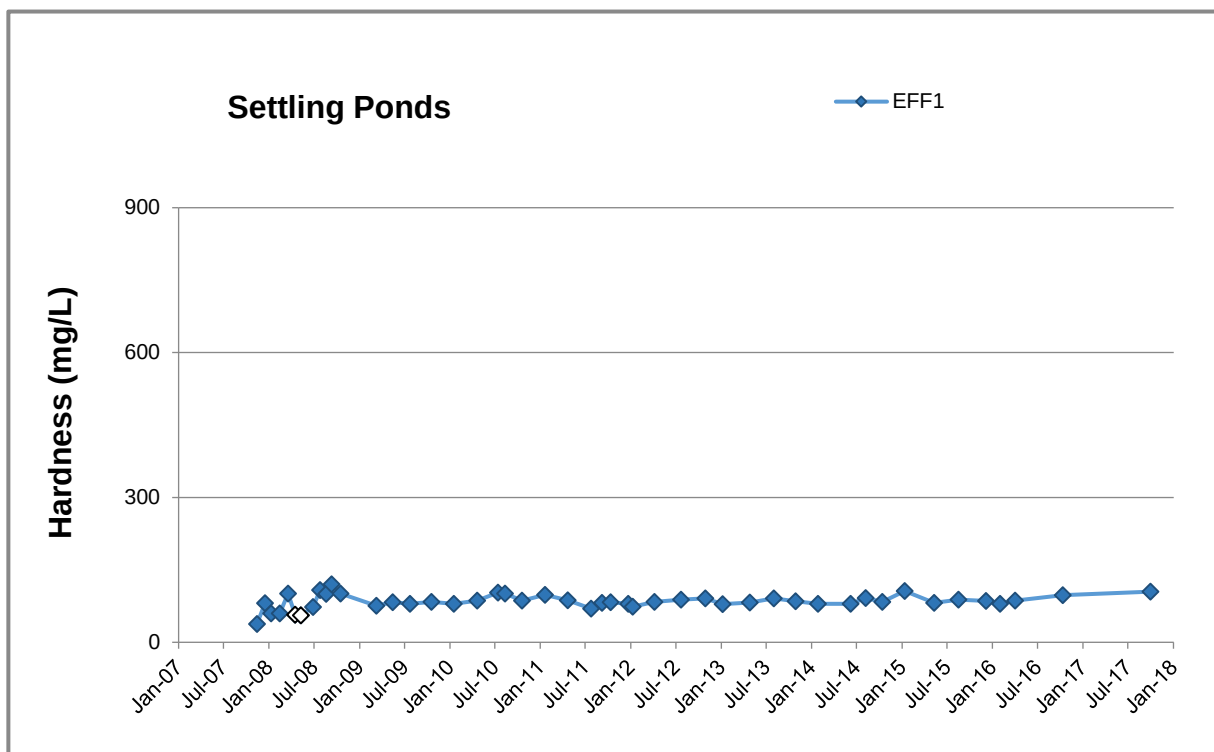


N:\GIS\Projects\0384 Niblack\K\mxd\Annual 2013 Report\Figure 3 2 water quality.mxd 3/12/2014 10:09:05 AM

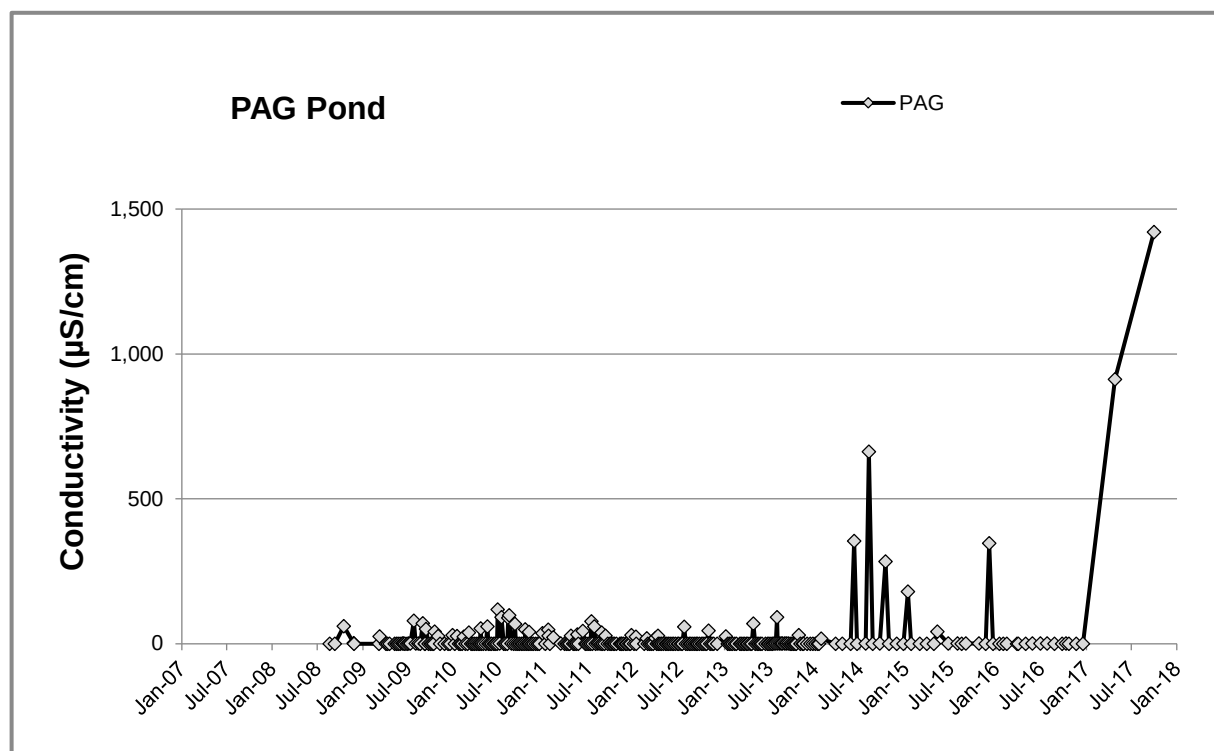
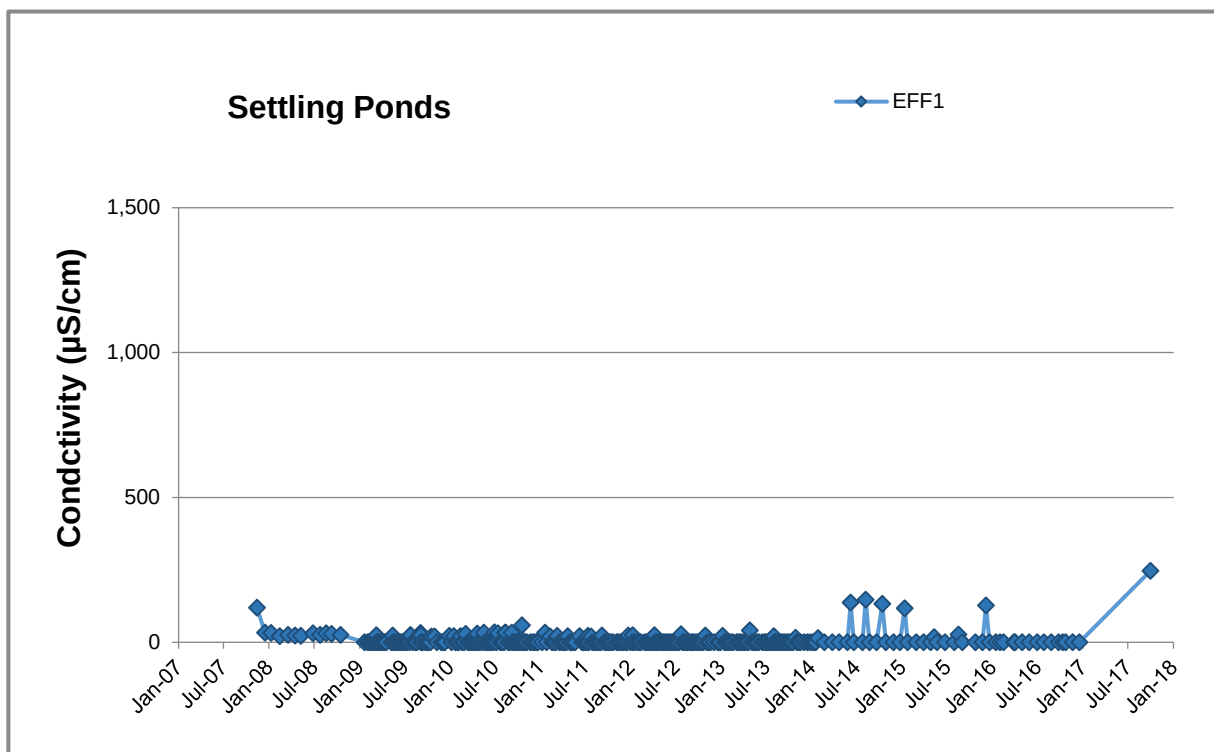




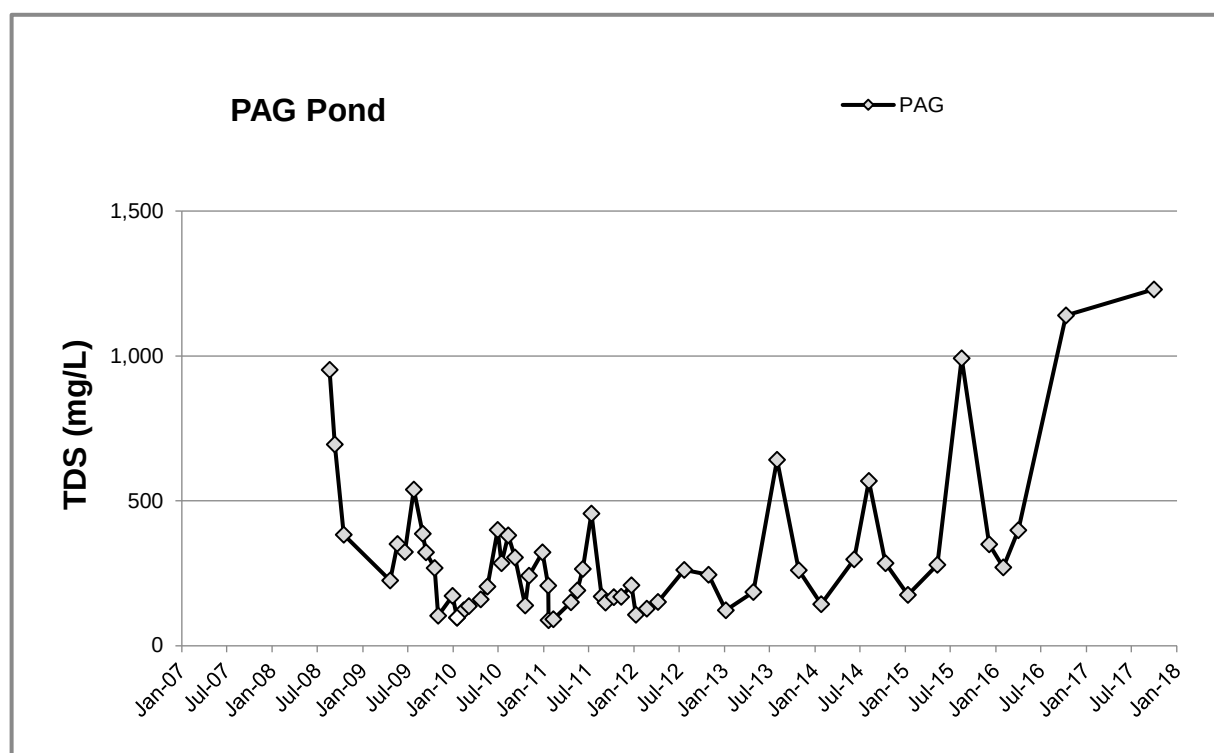
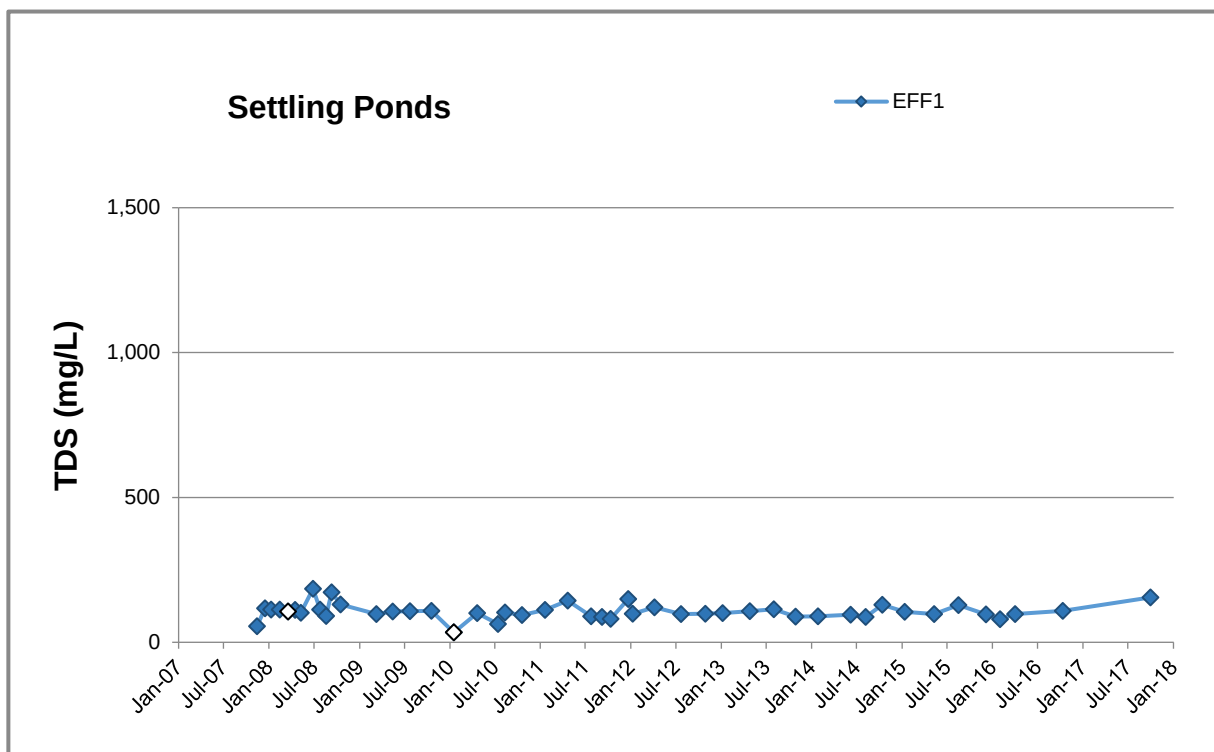
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



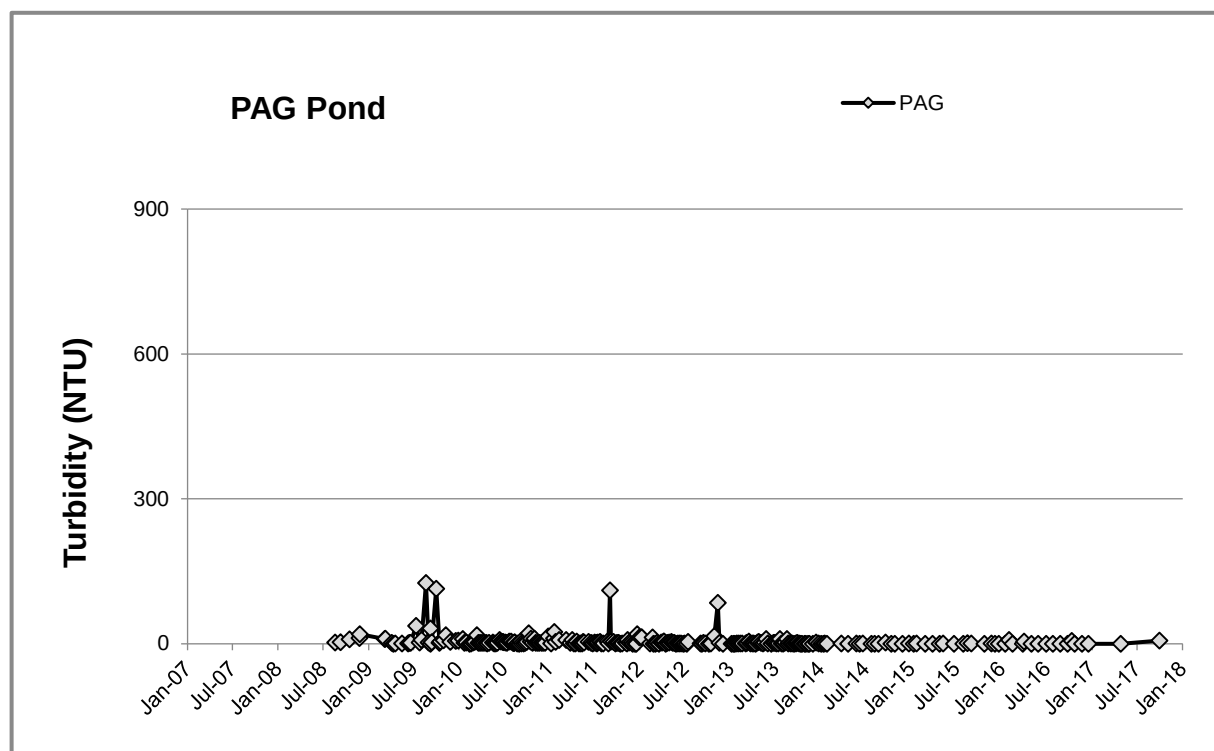
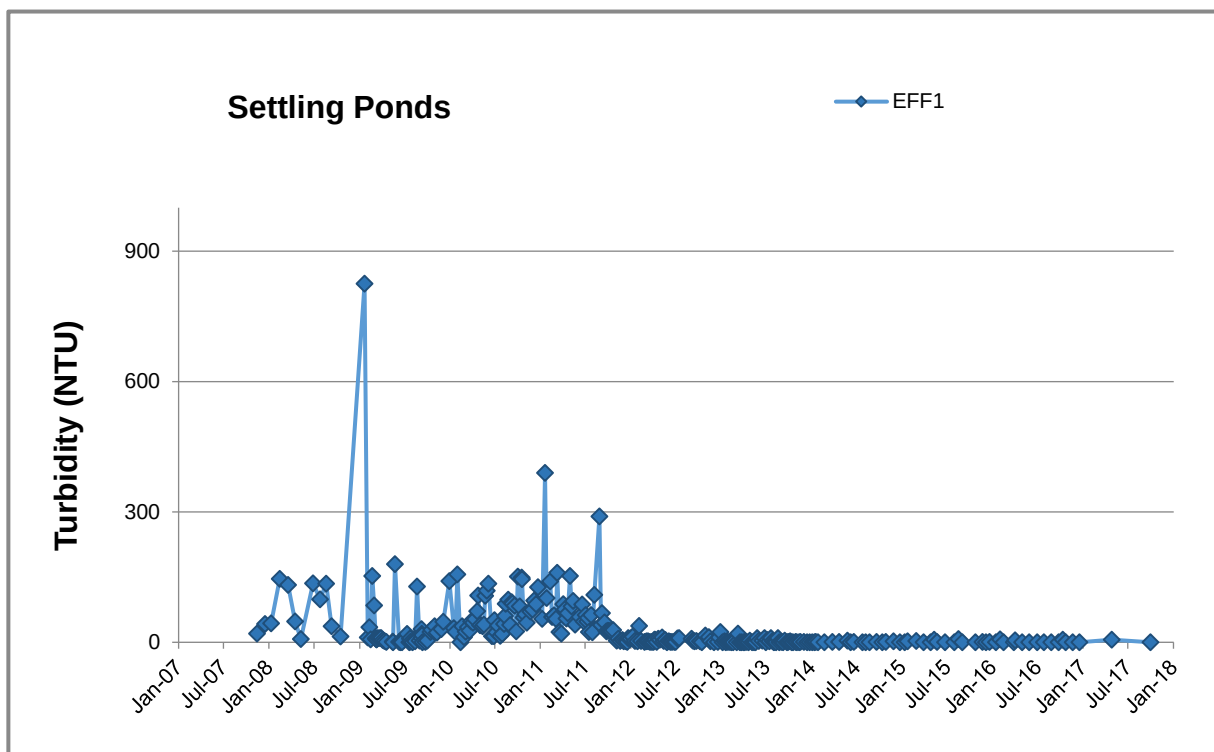
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



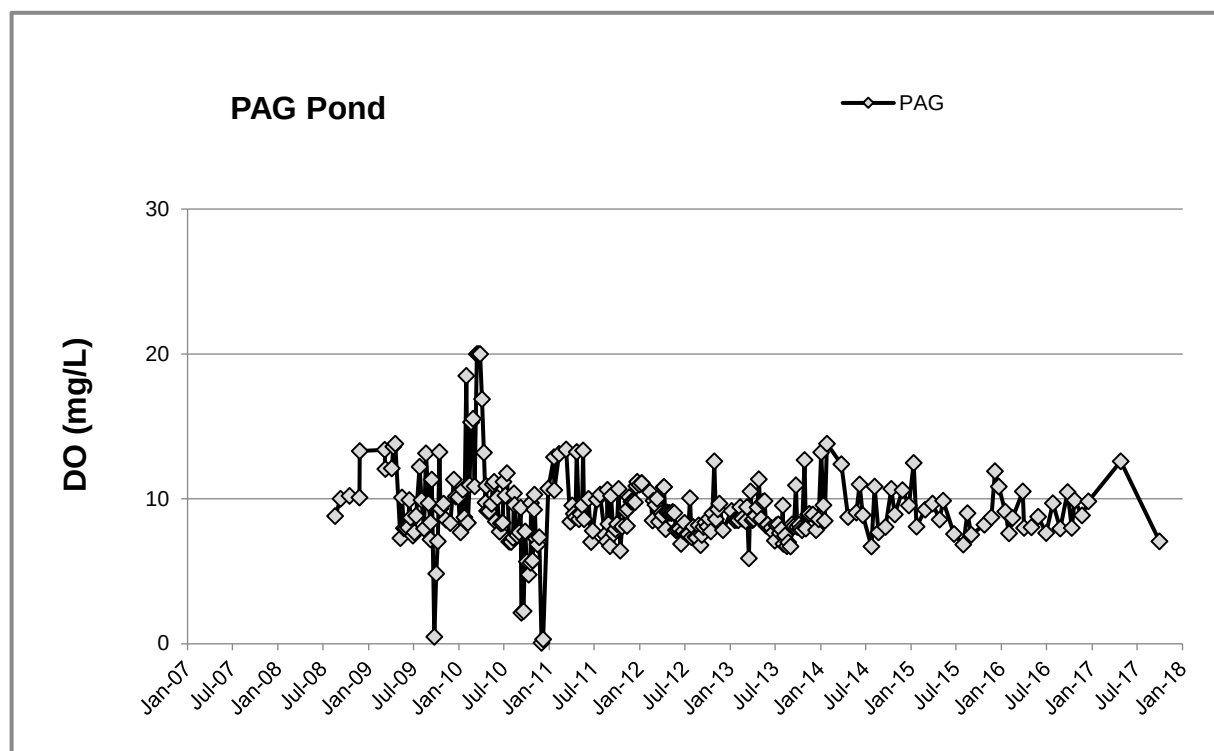
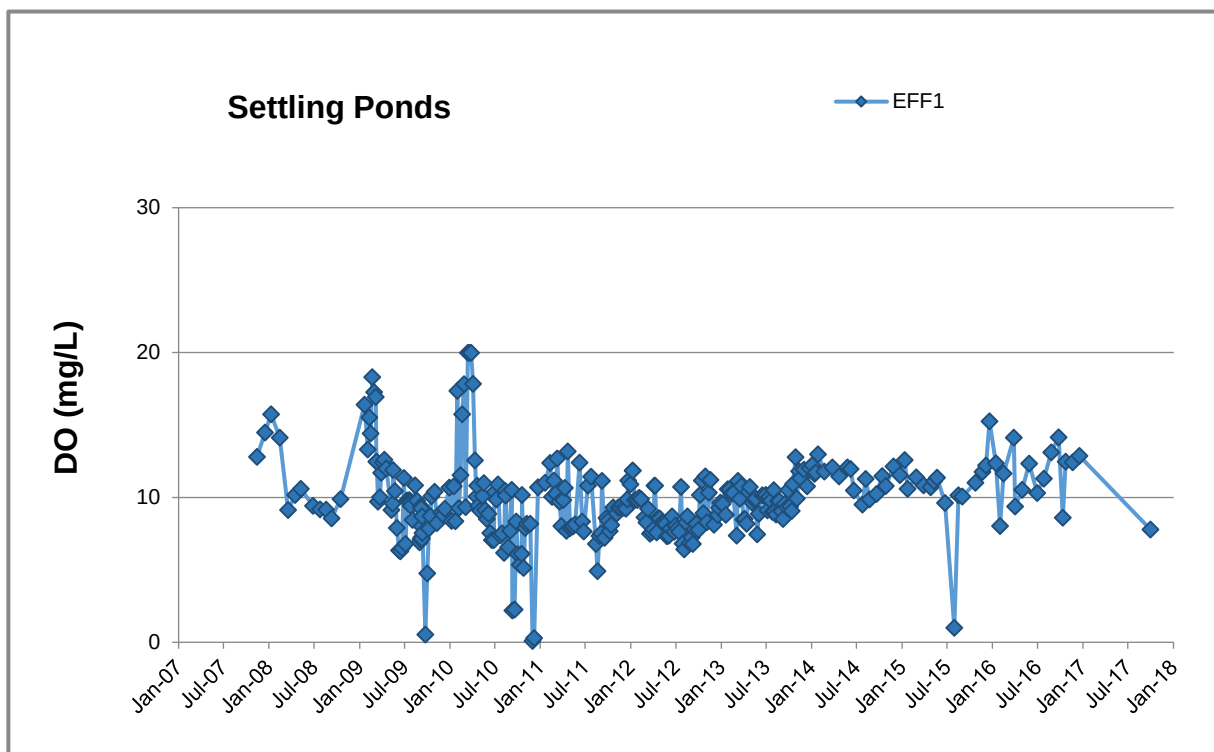
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



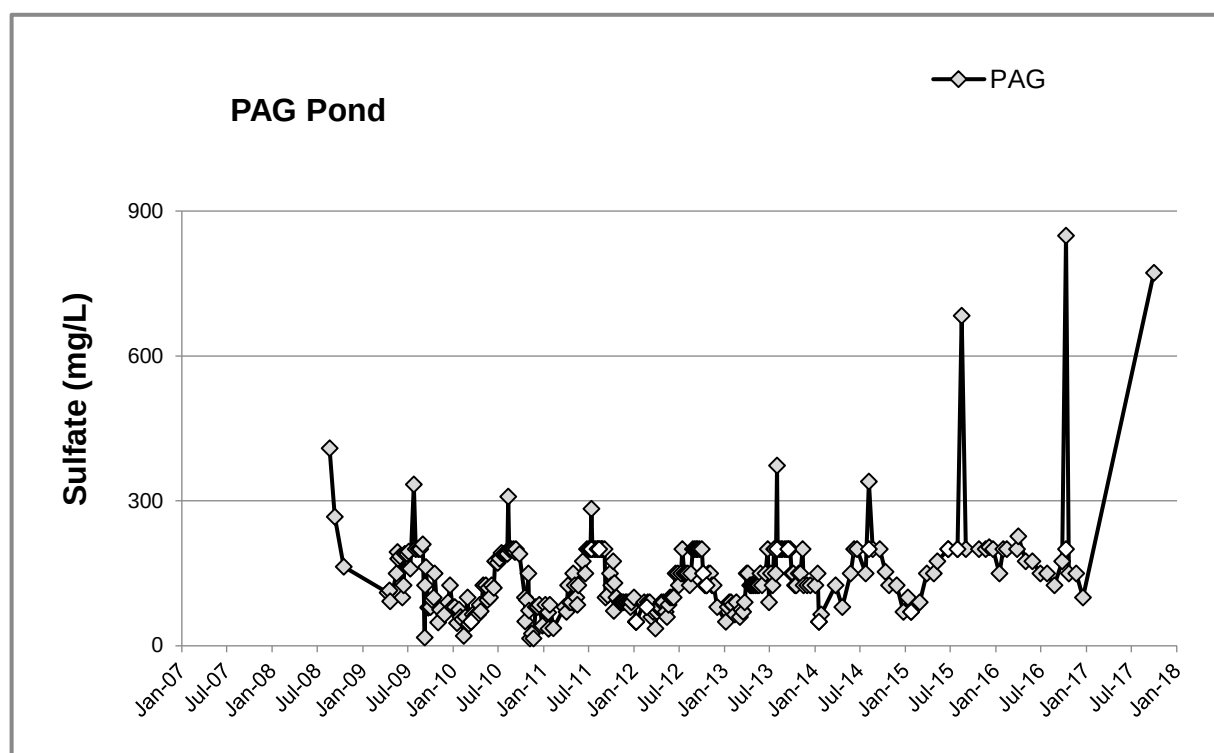
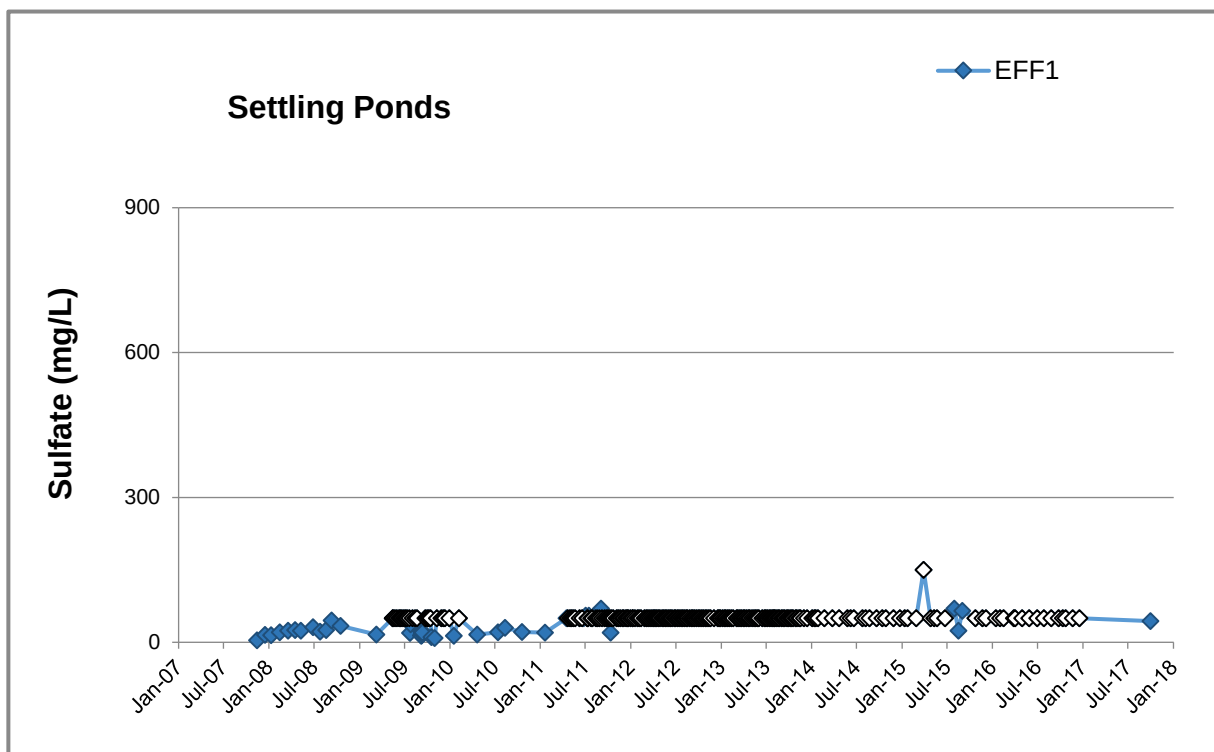
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



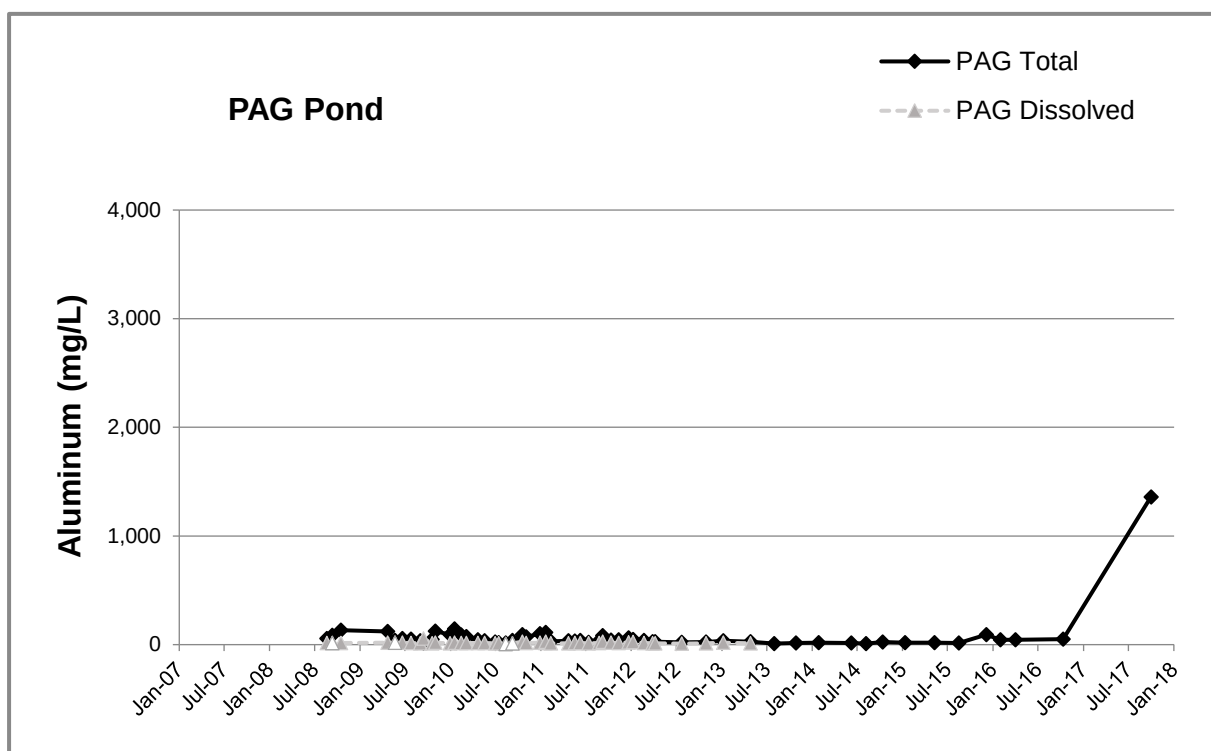
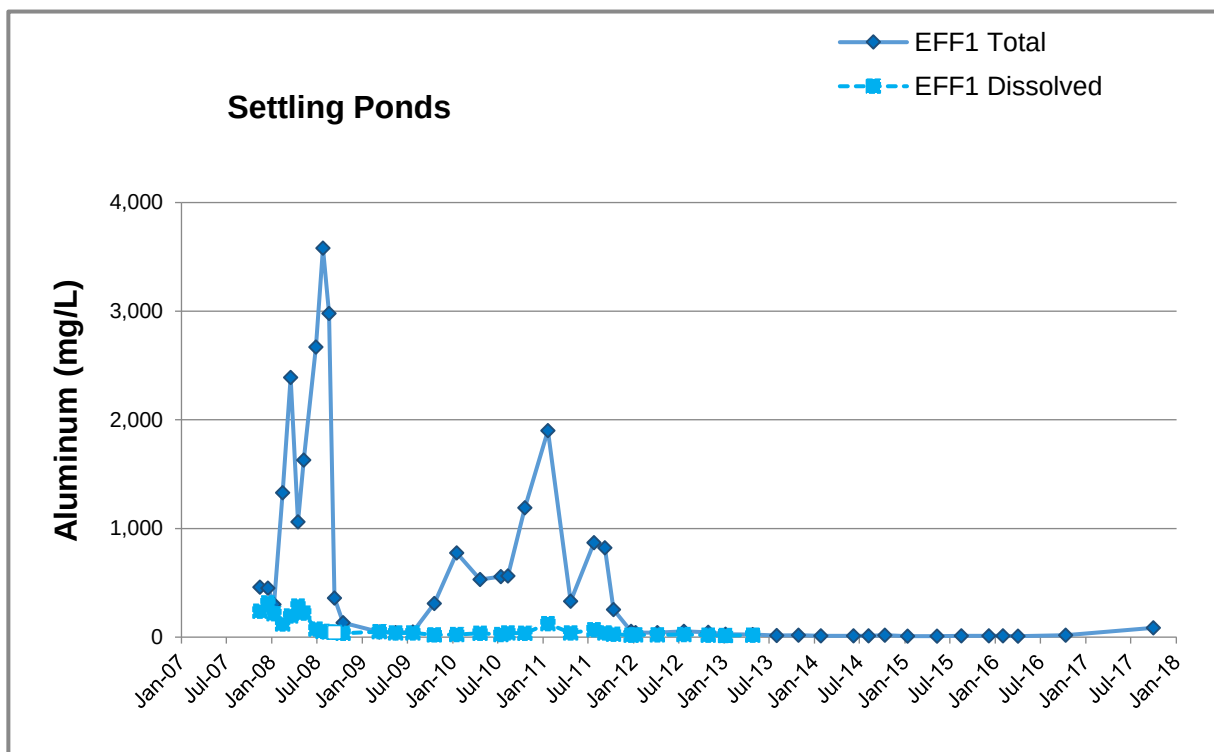
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



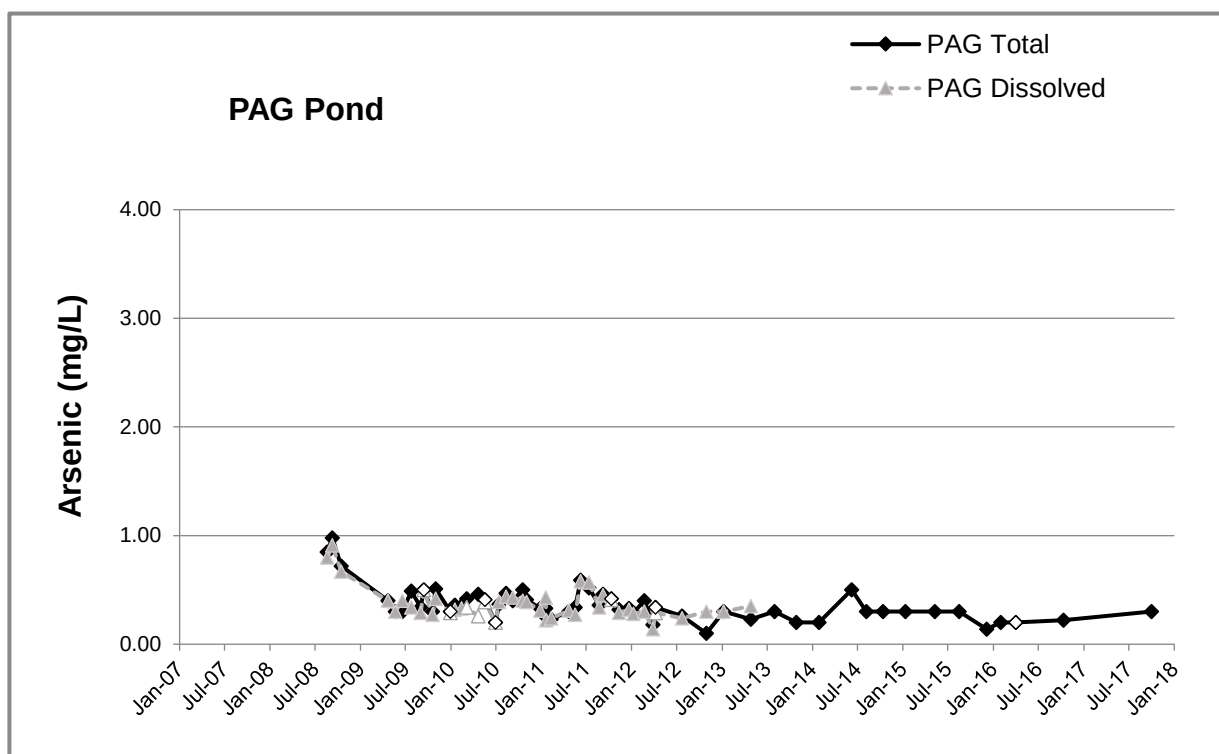
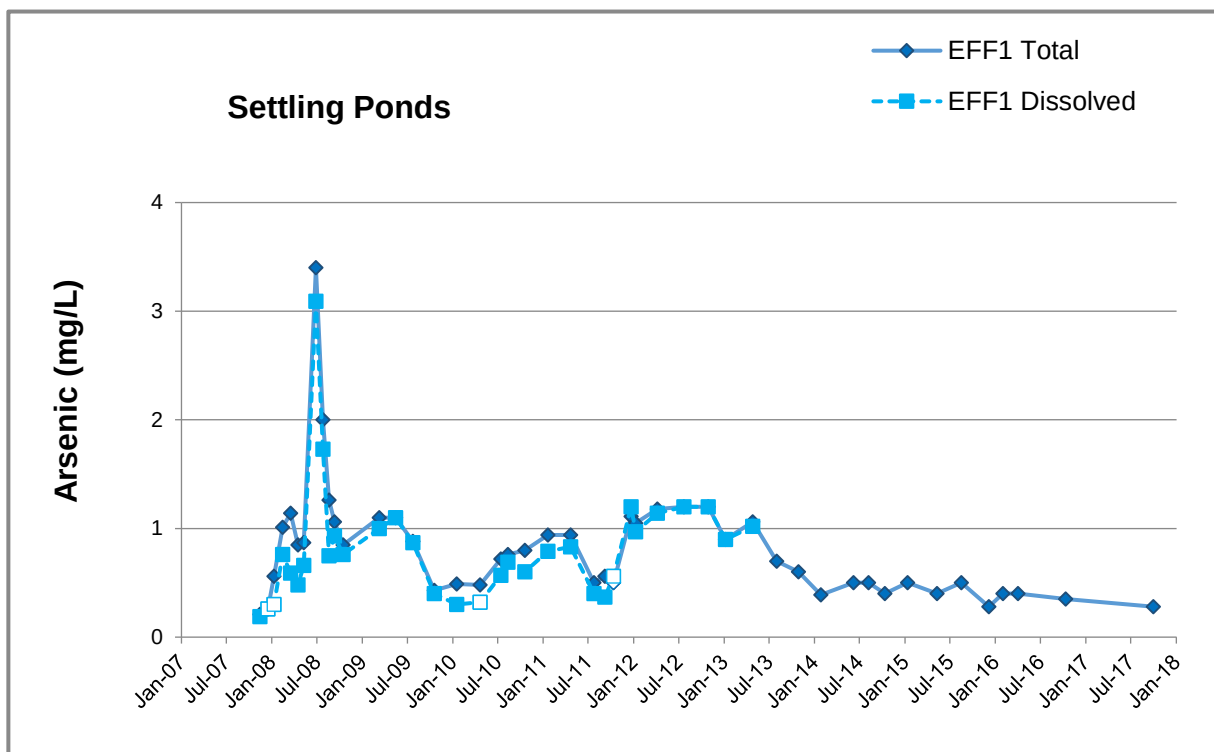
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



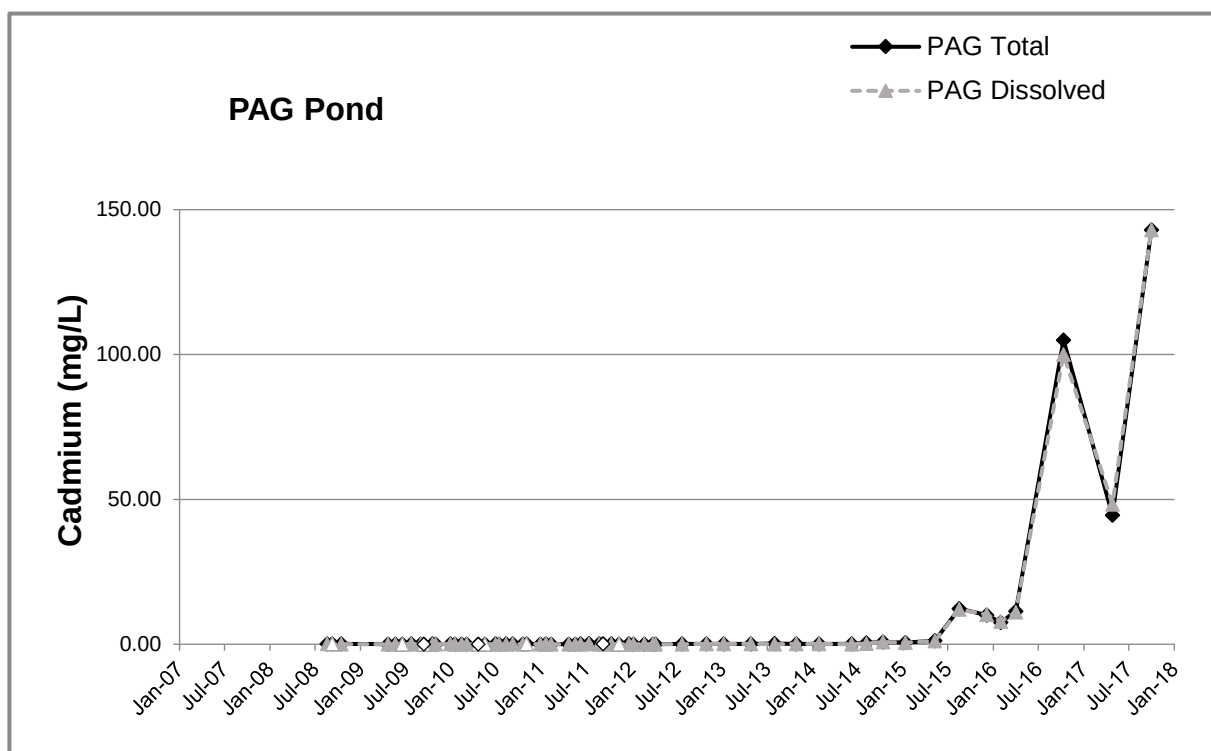
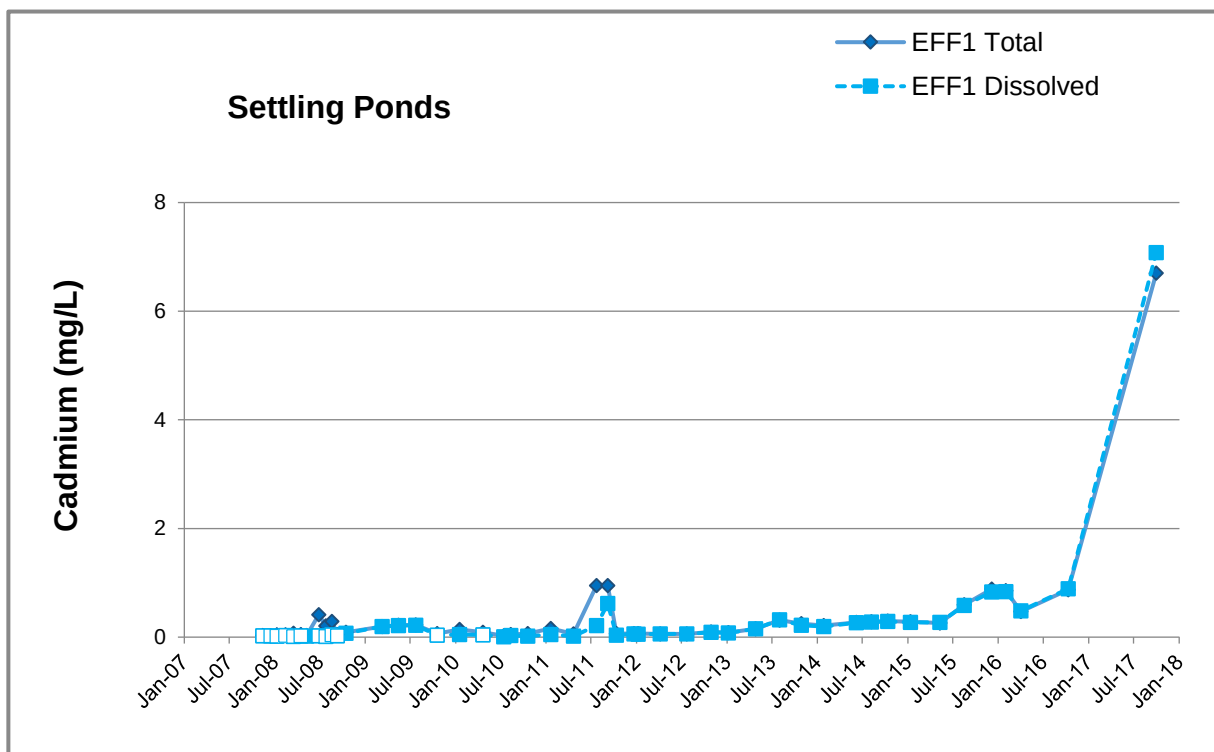
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



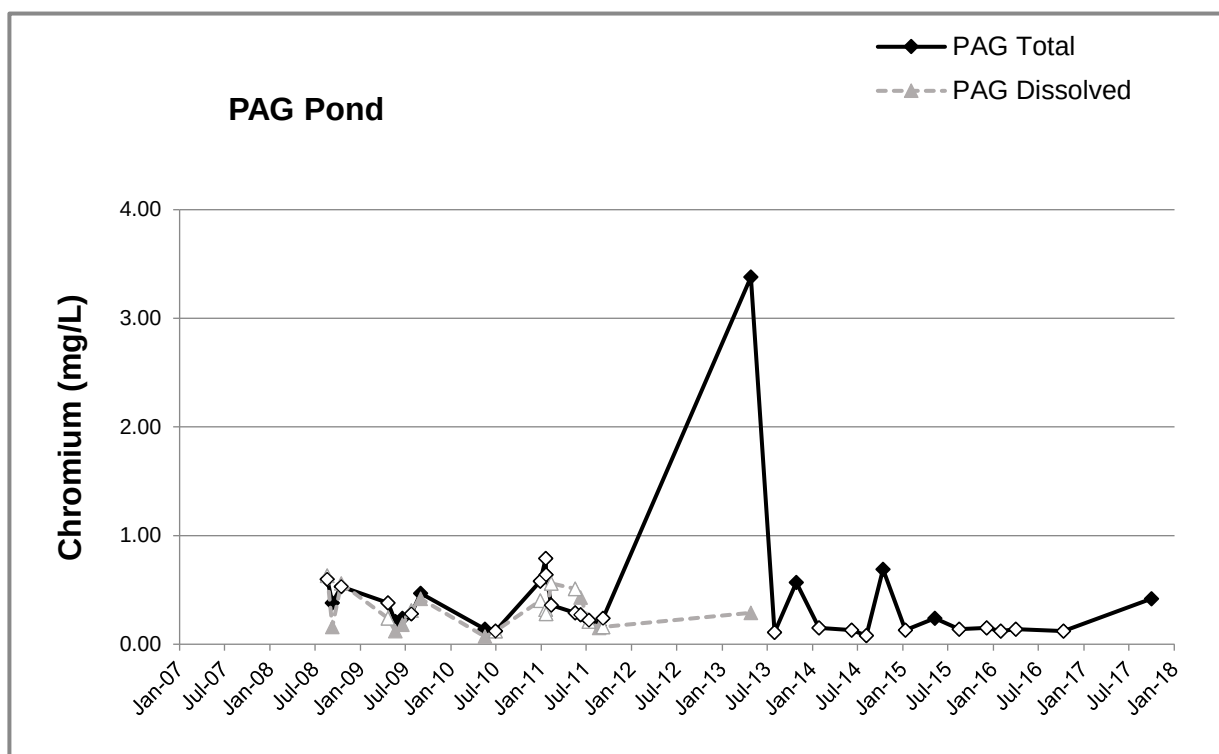
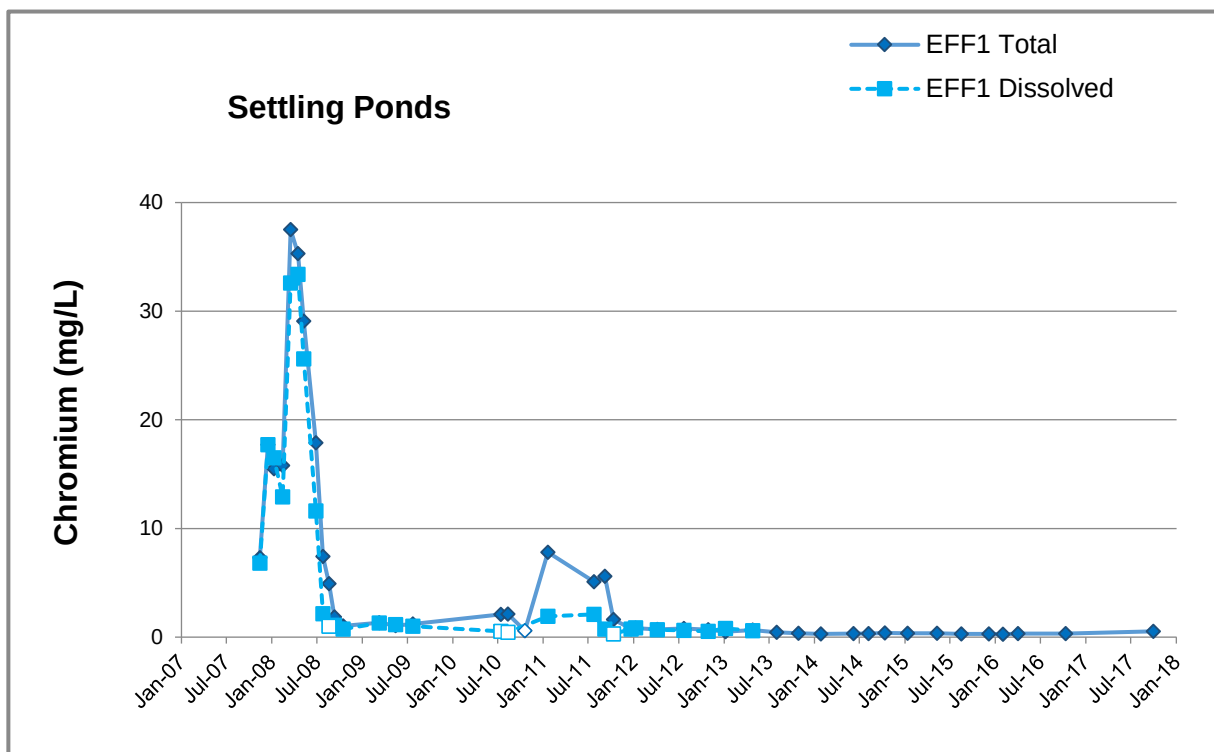
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



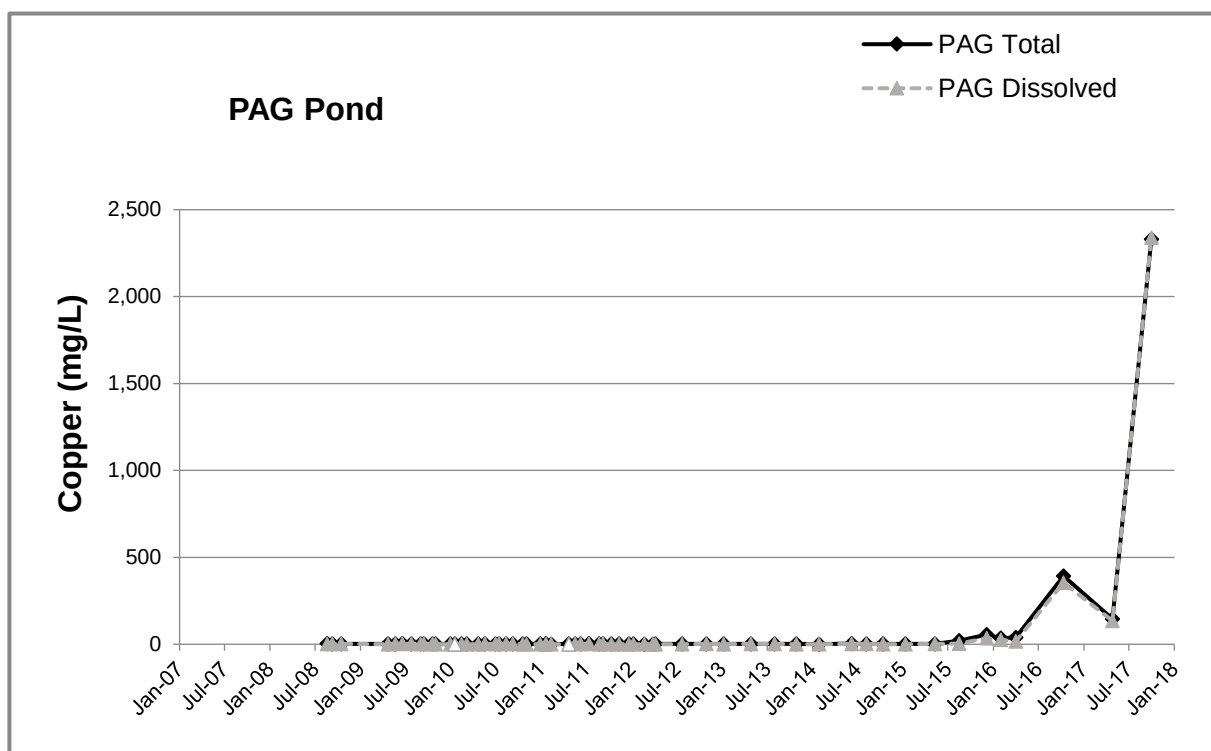
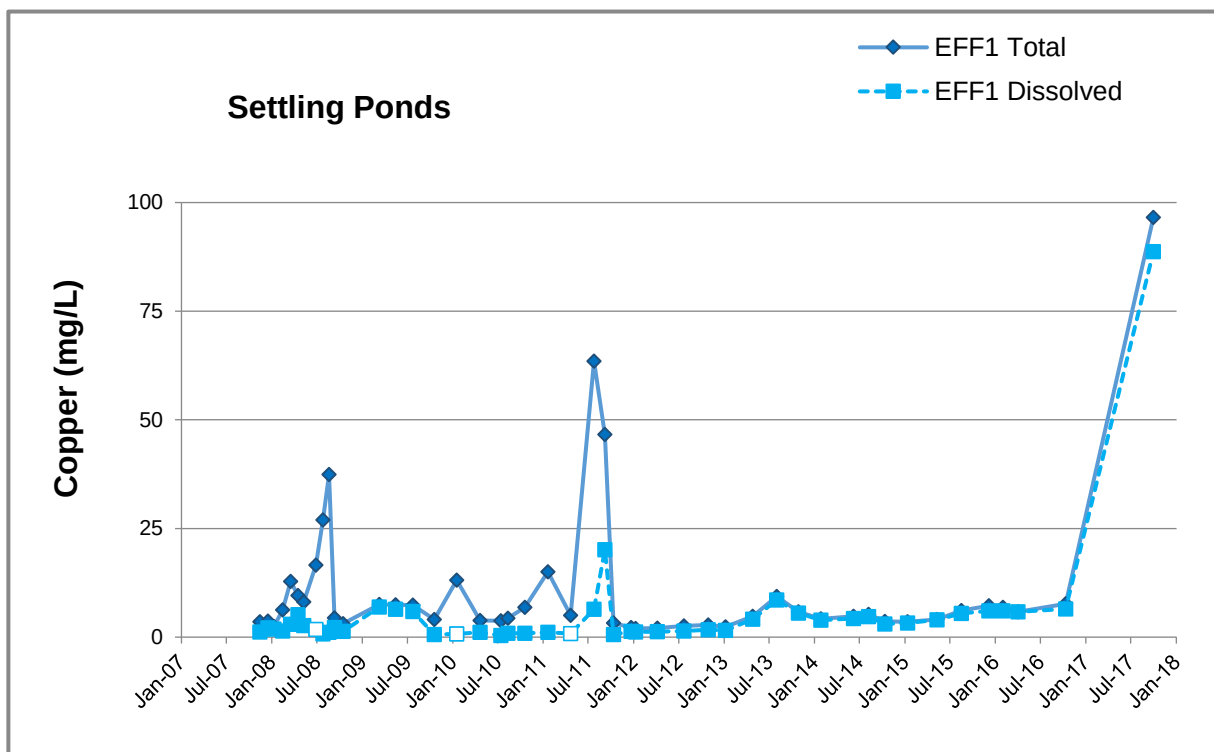
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



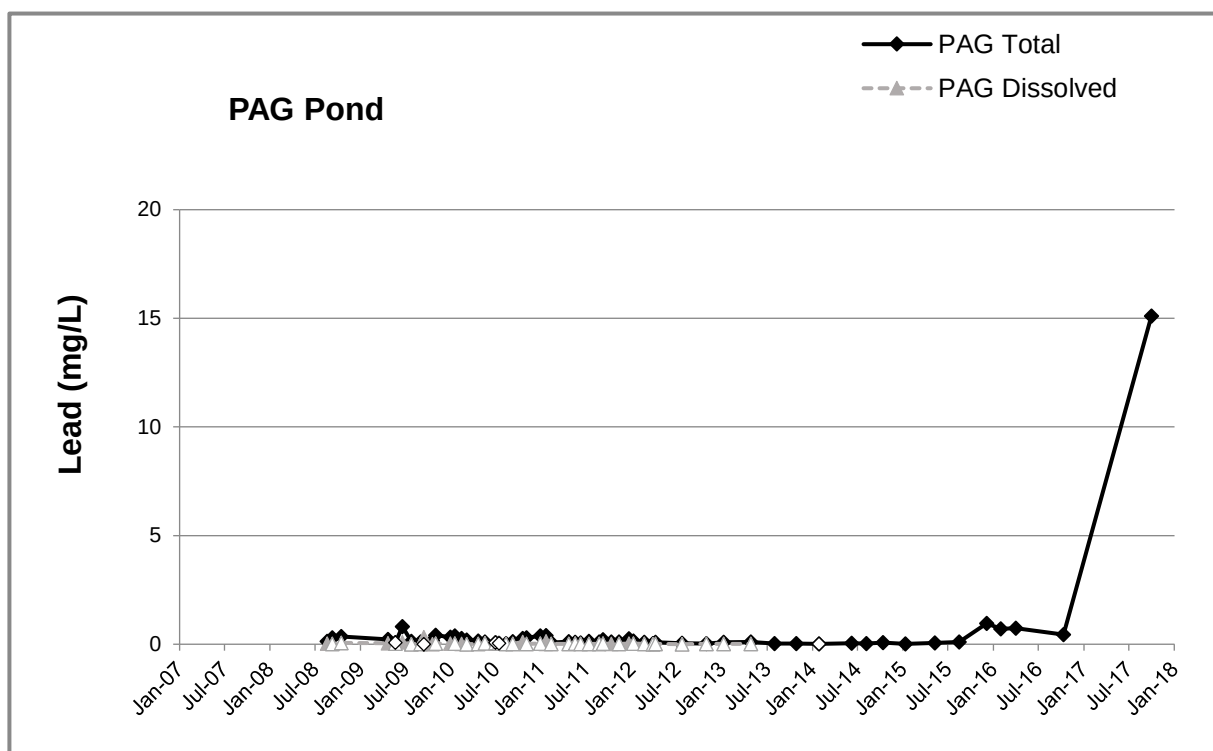
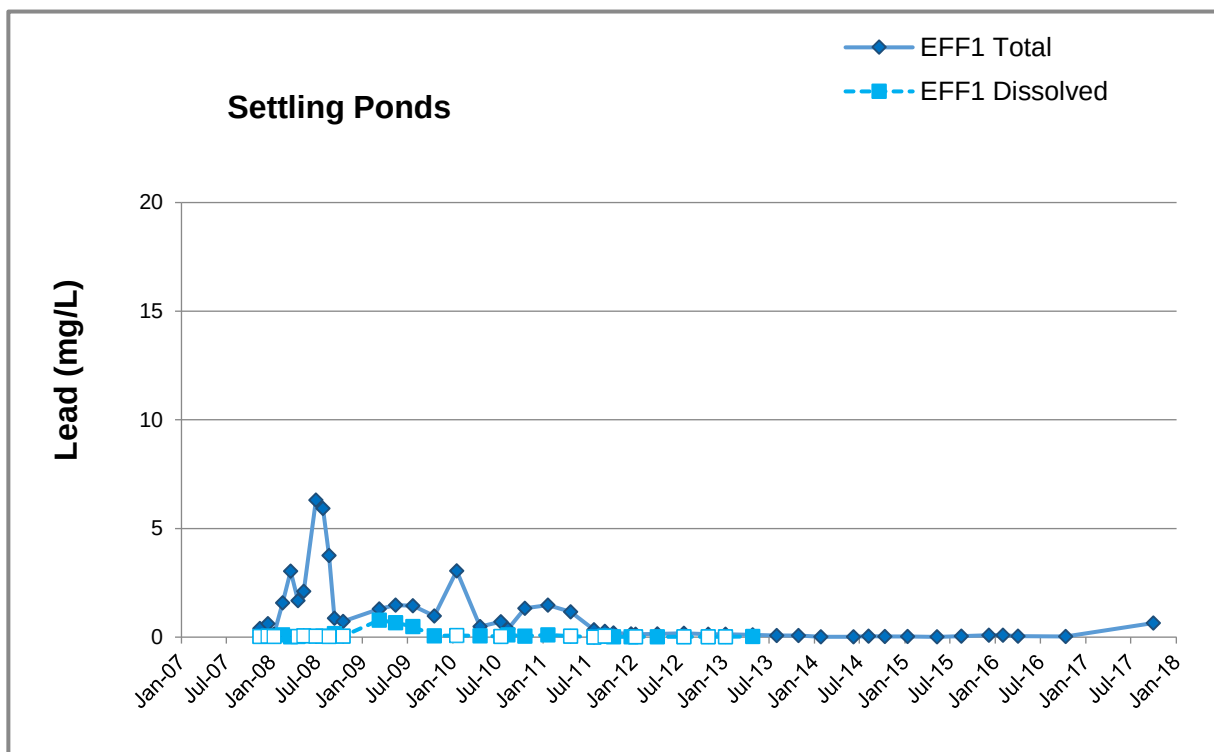
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



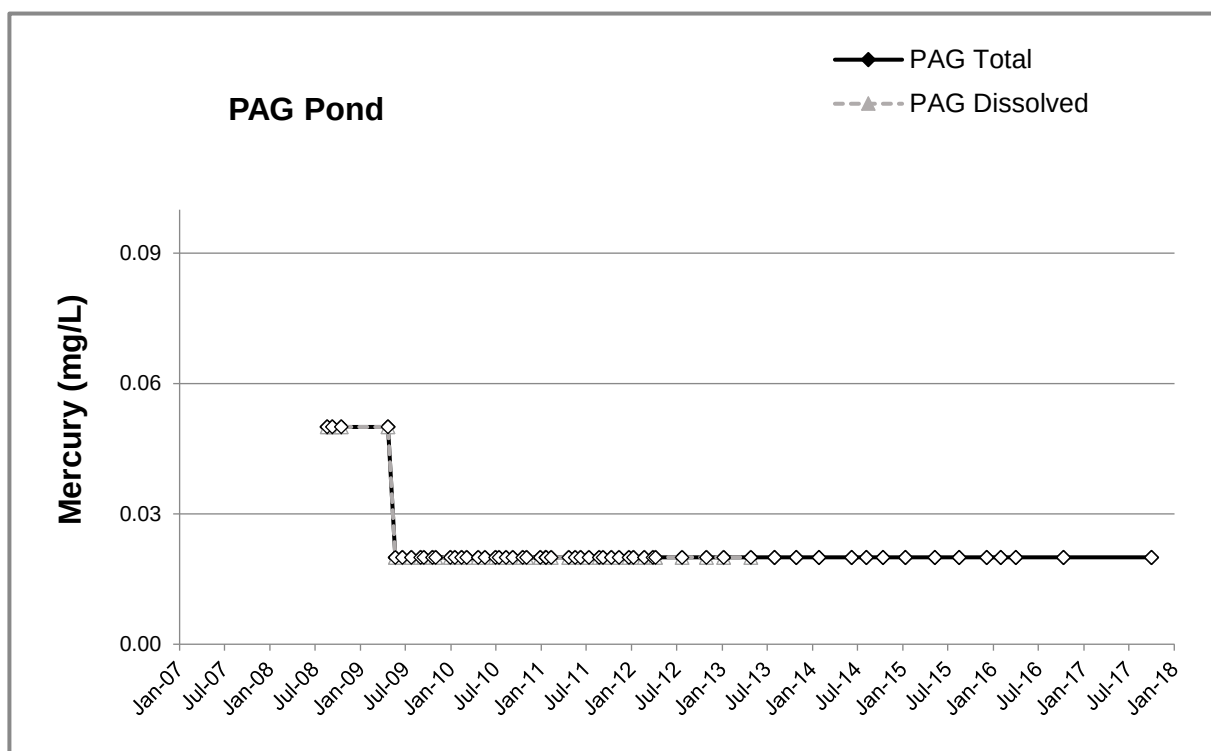
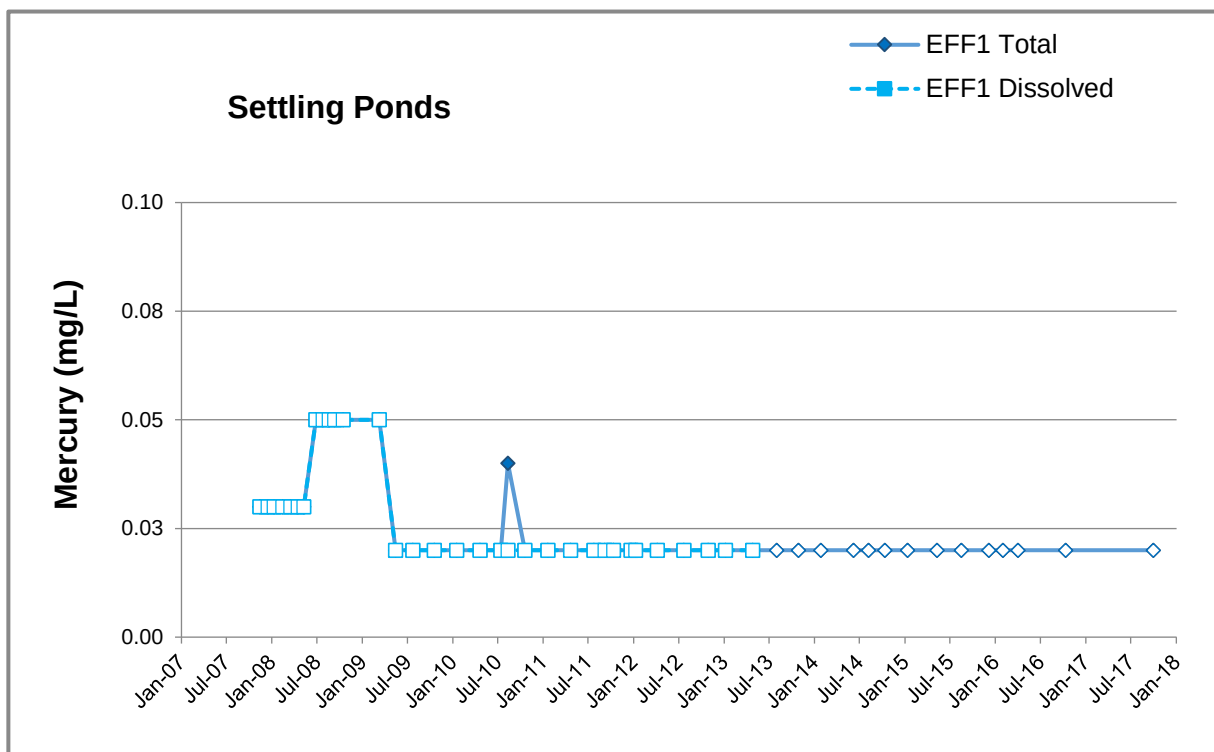
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



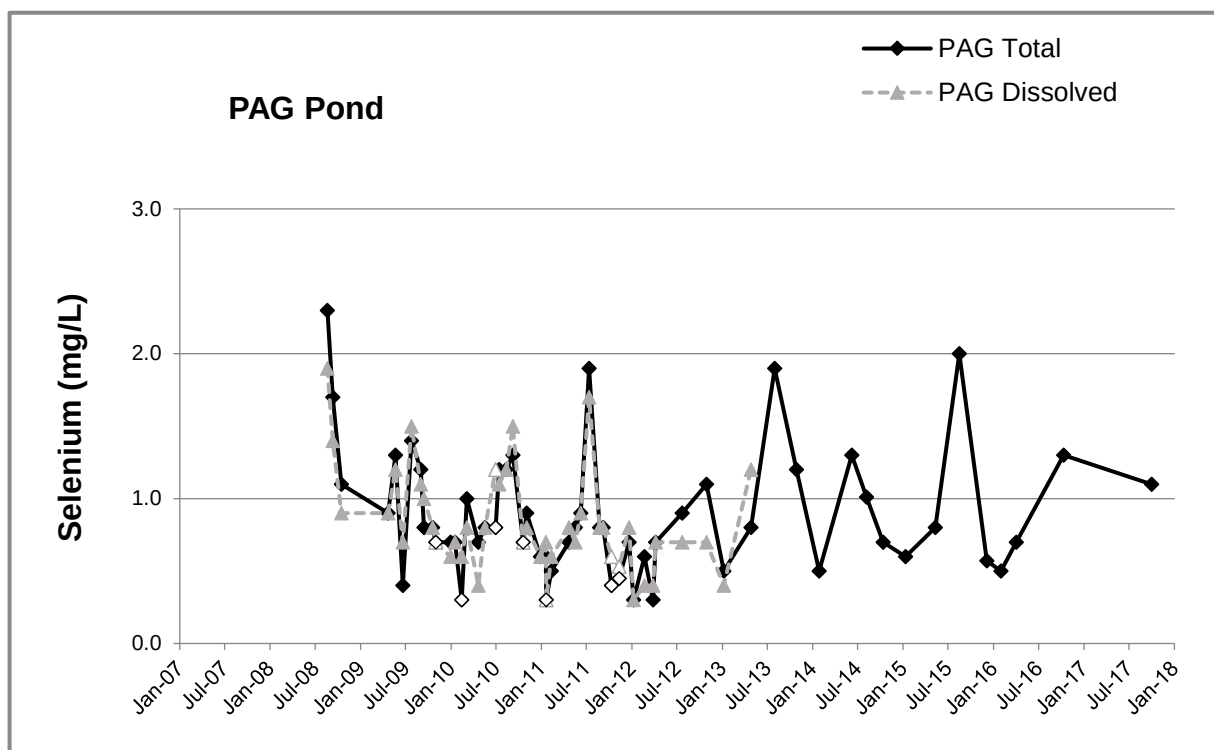
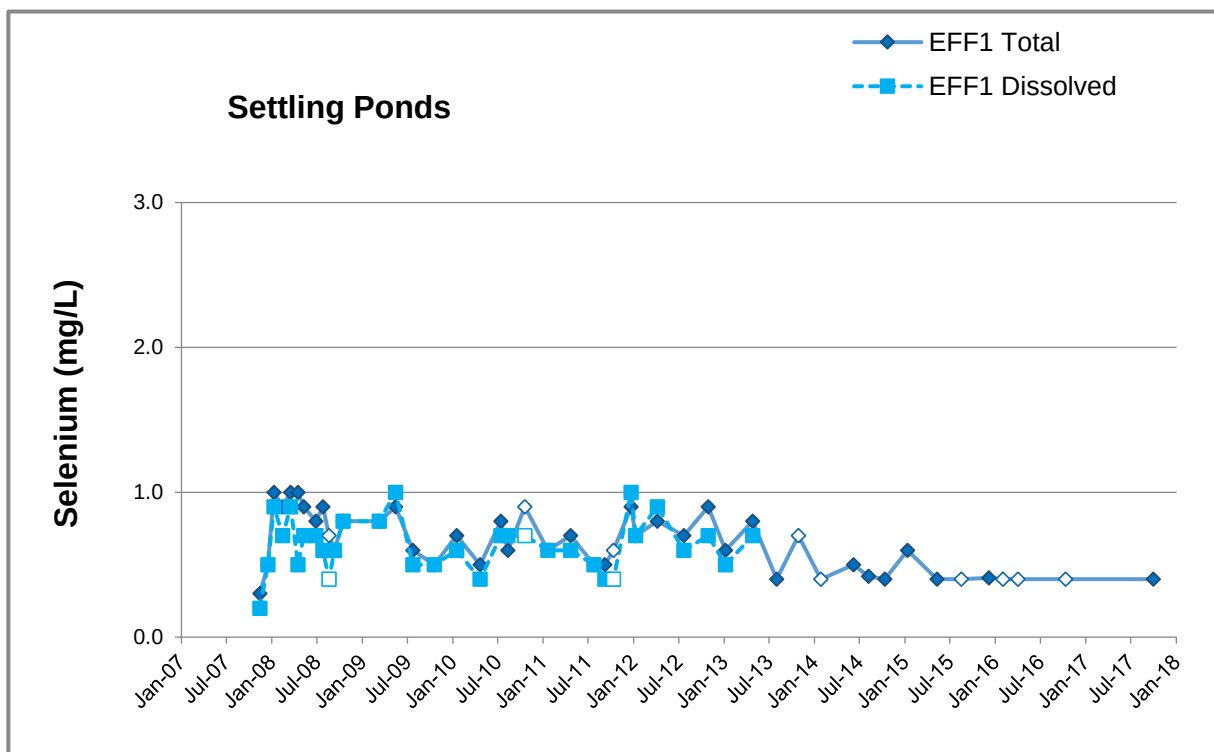
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



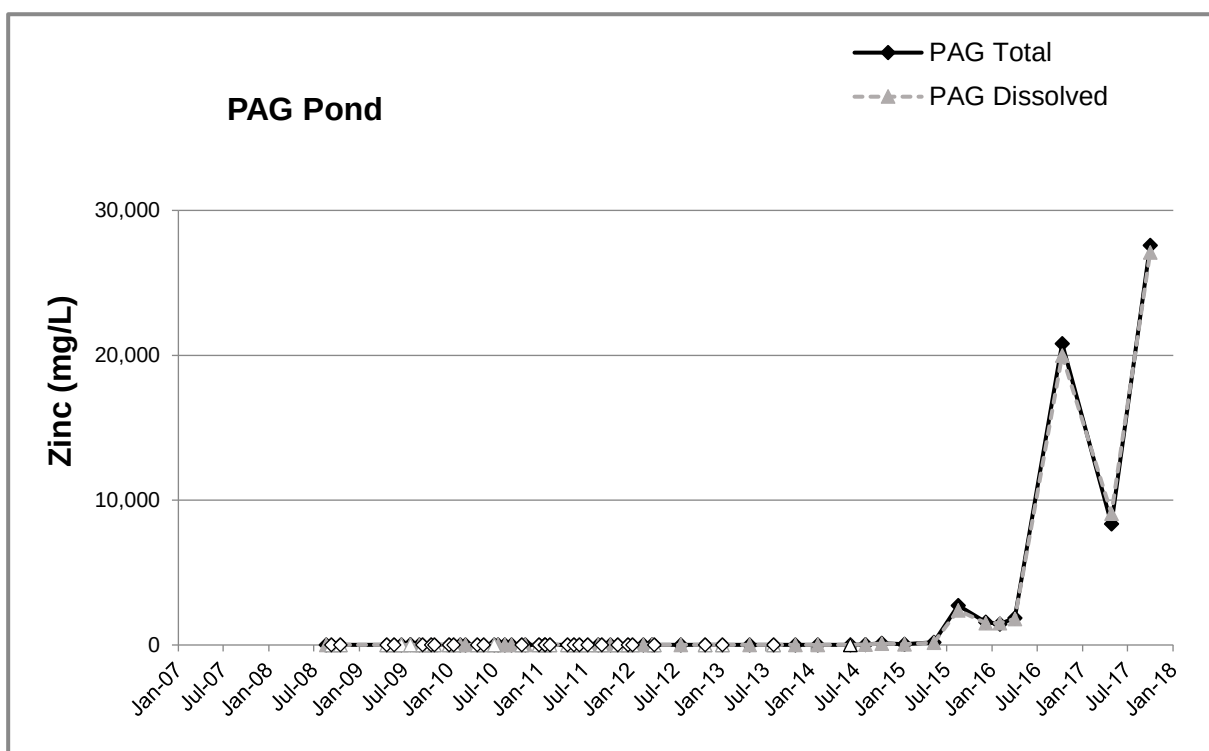
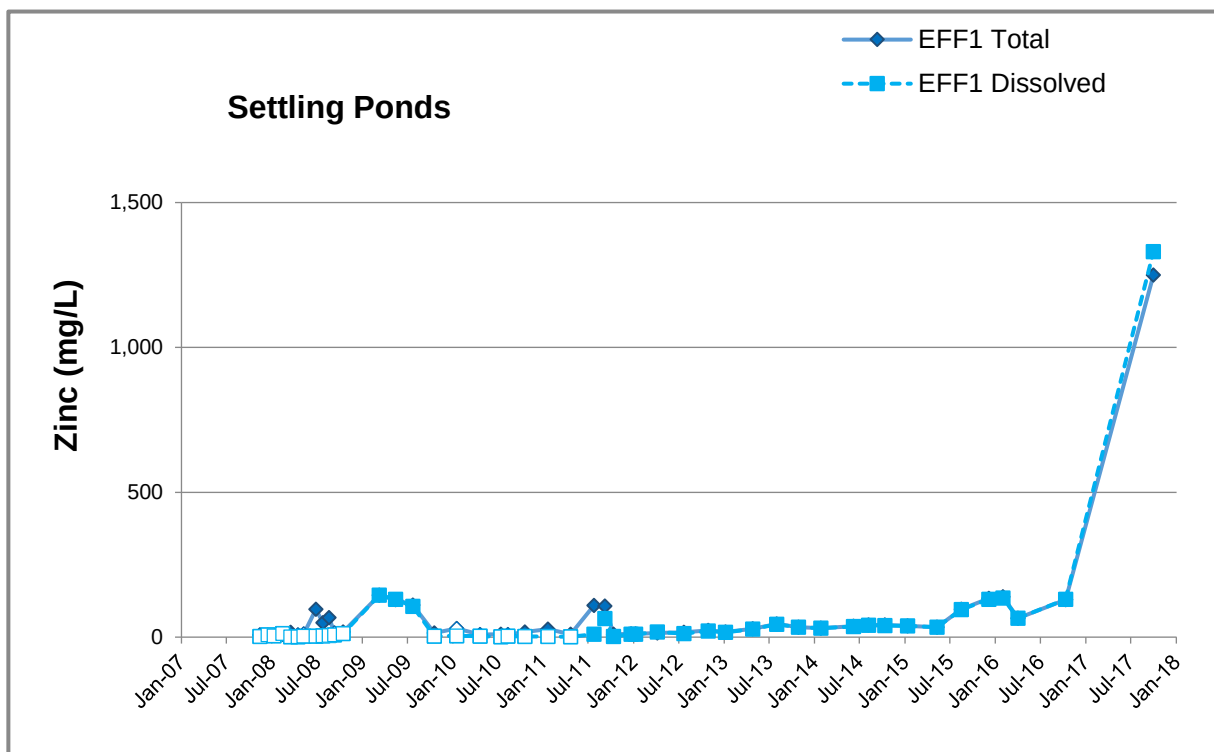
Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.



Note: Values qualified as nondetect, by the laboratory or during data validation, are plotted as hollow symbols at half the qualified value.

Table 3-1. Water Quality Monitoring Stations

Monitoring Point	Location	Coordinates (NAD27, UTM Zone 8N)		Status	Purpose			
		Easting	Northing		Pre-project Reference Conditions	Compliance Location	Information Only	Post-closure Monitoring
Surface Waters								
WQ1	Offsite at Deer Pasture Creek – downstream	684358.0	6104664.0	Inactive			X	
WQ2	Offsite at Lookout Creek – downstream	683575.0	6105162.0	Active			X	
WQ3	Offsite at Myrtle Creek – downstream	683179.0	6105980.0	Inactive			X	
WQ4	Waterfall Creek – downstream	682283.3	6105575.9	Active	X	X		X
WQ8	Waterfall Creek – upstream	682054.7	6105518.6	Discontinued ^a	X			
WQ5	Camp Creek – middle reach of creek	682054.7	6105518.6	Inactive	X			
WQ6	Camp Creek – downstream	682259.5	6105682.2	Active	X	X		
WQ7	Camp Creek – upstream	681989.1	6105602.1	Discontinued ^a	X			
WQ10	Unnamed Creek 1 – downstream	682171.0	6105725.0	Active	X	X		
WQ12	Unnamed Creek 1 – upstream	682019.5	6105713.6	Discontinued ^a	X			
Seep	Unnamed Creek 1 – upstream groundwater seep	682306.0	6105546.4	Inactive	X			
WQ13	Unnamed Creek 2 – downstream	682306.0	6105546.4	Active	X	X		X
WQ14	Unnamed Creek on South side of Lookout Mountain	682955.0	6101933.0	Discontinued ^b			X	
Groundwater Wells								
MW1	Wetlands below NAG site	682335.3	6105502.0	Active	X	X ^c		X
MW2	Wetlands below settling ponds and LAD area	682191.0	6105606.0	Active	X	X ^c		X
MW3	Wetlands below PAG site and LAD area	682219.1	6105684.2	Active	X	X ^c		X
MW4	Wetlands below and LAD area	682288.0	6105792.0	Active	X	X ^c		X
MW7	Wetlands – offsite and to the east of the project	682607.0	6105469.0	Discontinued ^a	X			
MW8	Upgradient of LAD area and MW3	682028.0	6105561.0	Discontinued ^a			X	
MW9	Upgradient of and LAD area and MW4	682064.0	6105796.0	Discontinued ^a			X	
GW1	Pre-existing drill hole	682134.0	6105711.0	Inactive	X			
GW2	Upgradient of LAD area and MW6	682178.0	6105640.0	Inactive	X			

Table 3-1. Water Quality Monitoring Stations

Monitoring Point	Location	Coordinates (NAD27, UTM Zone 8N)		Status	Purpose			
		Easting	Northing		Pre-project Reference Conditions	Compliance Location	Information Only	Post-closure Monitoring
Effluent, PAG Pond, and Barrels								
EFF1	Settling ponds at point of discharge to LAD	682103.6	6105572.1	Active			X	
PAG Pond	PAG leachate/runoff capture pond	682046.3	6105664.3	Active			X	
PAG Underdrain	PAG leak detection system	--	--	Active (no water) ^d			X ^d	
LO1	Field kinetic test barrel	--	--	Discontinued ^e			X	
LO2	Field kinetic test barrel	--	--	Discontinued ^e			X	
HW1	Field kinetic test barrel	--	--	Discontinued ^e			X	
PORTAL/Drift	Mine drift water at point of entry to the settling ponds	--	--	Active (intermittent)			X	
Portal (multiple locations)	Mine drift sampled within the drift or at the portal entrance	--	--	Active (intermittent)	X ^f		X	

Notes:

ADEC = Alaska Department of Environmental Conservation

LAD = land application/dispersion

NAG = non-acid-generating

PAG = potentially acid-generating

^a Removed from the water quality monitoring network subsequent to Q3 2008, as per agreement with ADEC.

^b Monitoring at station WQ14 was discontinued following collection of 20 baseline samples in the second quarter of 2012.

^c MW1, MW2, MW3, and MW4 will be used to monitor changes to natural water quality in wetlands water when compared to historical values and remote wetland wells.

^d A visual monitoring station was established below the PAG waste disposal area as part of a leak detection system. No water is anticipated to collect at this point unless there is a breach in the liner.

^e LO1, LO2, and HW1 were maintained for informational purposes only and were closed in-place on July 20, 2015. This temporary closure of the barrels may be removed and sampling resumed at the discretion of Niblack Project LLC.

^f As specified in Niblack Waste Management Permit 2013DB0001, samples were to be collected at seeps or drill holes near the portal entrance to determine natural groundwater quality to support post-closure monitoring of drainage water from the closed adit (if drainage occurs).

Table 3-2. Sampling Event Summary, 2017

Date of Sampling Event	Stations Sampled	QA/QC Samples Collected	Parameters Collected
January 17, 2017	EFF1, PAG pond	None	Field parameters only
February 26, 2017	EFF1, PAG pond	None	Field parameters only
March 27, 2017	EFF1, PAG pond	None	Field parameters only
April 24, 2017	EFF1, PAG pond	None	Field parameters only
April 26, 2017	PAG Pond	None	Analytical chemistry and field parameters
May 22, 2017	EFF1, PAG pond	None	Field parameters only
June 26, 2017	EFF1, PAG pond	None	Field parameters only
July 31, 2017	EFF1, PAG pond	None	Field parameters only
August 31, 2017	EFF1, PAG pond	None	Field parameters only
September 30, 2017	MW1, MW2, MW3, MW4 WQ4, WQ6, WQ10, WQ13, EFF1, PAG pond	Field replicates of MW1 and WQ6, total and dissolved field blanks	Analytical chemistry and field parameters
October 22, 2017	EFF1, PAG pond	None	Field parameters only
November 4, 2017	EFF1, PAG pond	None	Field parameters only
December 19, 2017	EFF1, PAG pond	None	Field parameters only

Notes:

The analyte list for each sampling event is presented in Tables 3-3 and 3-4.

PAG = potentially acid-generating

QA/QC = quality assurance and quality control

Table 3-3. Water Quality Parameters Monitored in Surface Water, Groundwater, and Effluent

Characteristic	Sample Type
Monitoring Required in Permit 2013DB0001	
<i>Field Parameters</i>	
Conductivity	Field test
Dissolved oxygen ^a	Field test
pH	Field test
Temperature	Field test
Turbidity ^a	Field test
<i>Conventional Analyses</i>	
Hardness (as CaCO ₃)	Grab
Total dissolved solids	Grab
<i>Cation, Anions, and Nutrients</i>	
Sulfate	Grab
Nitrogen (nitrate + nitrite)	Grab
<i>Total and Dissolved Metals ^b</i>	
Aluminum	Grab
Arsenic	Grab
Cadmium	Grab
Chromium	Grab
Copper	Grab
Lead	Grab
Mercury	Grab
Selenium	Grab
Zinc	Grab
Optional/Historical Monitoring (Not Required in Permit 2013DB0001) ^c	
<i>Field Parameters</i>	
Sulfate ^a	Hach field test
<i>Conventional Analyses</i>	
Total suspended solids	Grab
<i>Cation, Anions, and Nutrients</i>	
Alkalinity (as CaCO ₃)	Grab
Chloride	Grab
Ammonia as nitrogen	Grab
<i>Total and Dissolved Metals</i>	
Calcium	Grab
Iron	Grab
Magnesium	Grab
Nickel	Grab
Sodium	Grab

Table 3-3. Water Quality Parameters Monitored in Surface Water, Groundwater, and Effluent

Characteristic	Sample Type
Potassium	Grab
Silver	Grab

Notes:

NPLLC = Niblack Project LLC

PAG = potentially acid-generating

^a Permit 2013DB0001 requires field monitoring of conductivity, pH, and temperature at all stations on a quarterly basis. For stations PAG Pond and EFF1, conductivity, dissolved oxygen, pH, temperature, and turbidity are monitored when trained project field staff are onsite. Sulfate will also be measured in the field at the PAG Pond and EFF1 at the discretion of NPLLC.

^b Permit 2013DB0001 requires collection of total (unfiltered) and dissolved (filtered) fractions for cadmium, copper, and zinc. Only the total fraction is required for aluminum, arsenic, chromium, lead, mercury, and selenium.

^c Optional/Historical monitoring parameters are those which are not required under Permit 2013DB0001, but which NPLLC may chose to monitor to enhance understanding of site.

Table 3-4. Alaska Water Quality Criteria, Analytical Methods, and Detection Limits

Parameter	Units	Fraction	Project Applicability	Criteria	Criteria Source	Analytical Method	MDL ^b	MRL ^b
Monitoring Required in Permit 2013DB0001								
<i>Field Parameters</i>								
Conductivity	mS/m	--	--	--	--	Field test	--	--
Dissolved oxygen	mg/L	--	--	--	--	Field test	--	--
pH	pH units	--	Surface Water	6.5 - 8.5 ^c	18 AAC 70	Field test	--	--
Temperature	°C	--	Surface Water	13 ^d	18 AAC 70	Field test	--	--
Turbidity	ntu	--	--	--	--	Field test	--	--
<i>Physical Tests</i>								
Hardness (as CaCO ₃)	mg/L	--	--	--	--	SM 2340C	0.8	2
Total Dissolved Solids	mg/L	--	Surface Water	1000 ^e	18 AAC 70	SM 2540C	5	5
<i>Cation, Anions, and Nutrients</i>								
Nitrogen (nitrate + nitrite)	mg/L	--	--	--	--	EPA 353.2	0.009	0.05
Sulfate	mg/L	--	--	--	--	EPA 300.0	0.01	0.2
<i>Total and Dissolved Metals ^f</i>								
Aluminum	µg/L	Total	Surface Water	Surface water, chronic: 87 - 750 ^g Surface water, acute: 750	18 AAC 70	EPA 6020	0.3	2
Arsenic	µg/L	Dissolved	Surface Water	Surface water, chronic: 150 Surface water, acute: 340	18 AAC 70	EPA 6020	0.1	0.5
Cadmium	µg/L	Dissolved	Surface Water, Groundwater	Surface water, chronic: 0.01 - 0.17 ^h Surface water, acute: 0.02 - 1 ^h Groundwater: 0.044 - 0.07 ⁱ	Surface water: 18 AAC 70 Groundwater: Permit 2013DB0001	EPA 6020	0.005	0.02
Chromium (Cr III + Cr VI)	µg/L	Dissolved	Surface Water, Groundwater	Surface water, chronic: 11 ^j Surface water, acute: 16 ^j Groundwater: 6.31 ^k	Surface water: 18 AAC 70 Groundwater: Permit 2013DB0001	EPA 6020	0.04	0.2
Copper	µg/L	Dissolved	Surface Water, Groundwater	Surface water, chronic: 0.18 - 6 ^h Surface water, acute: 0.18 - 8 ^h Groundwater: 2.61 ^l	Surface water: 18 AAC 70 Groundwater: Permit 2013DB0001	EPA 6020	0.02	0.1
Lead	µg/L	Dissolved	Surface Water	Surface water, chronic: 0.01 - 1 ^h Surface water, acute: 0.34 - 38 ^h	18 AAC 70	EPA 6020	0.005	0.02
Mercury	µg/L	Dissolved	Surface Water	Surface water, human health: 0.051	18 AAC 70	EPA 7470A	0.02	0.2
Selenium	µg/L	Total	Surface Water	Surface water, chronic: 5 Surface water, acute: none	18 AAC 70	EPA 6020	0.3	1
Zinc	µg/L	Dissolved	Surface Water, Groundwater	Surface water, chronic: 2 - 78 ^h Surface water, acute: 2 - 77 ^h Groundwater: 7.59 - 11.76 ^m	Surface water: 18 AAC 70 Groundwater: Permit 2013DB0001	EPA 6020	0.2	0.5

Table 3-4. Alaska Water Quality Criteria, Analytical Methods, and Detection Limits

Parameter	Units	Screening Criteria (Fresh Water Aquatic Life) ^a					MDL ^b	MRL ^b
		Fraction	Project Applicability	Criteria	Criteria Source	Analytical Method		
Optional/Historical Monitoring (Not Required in Permit 2013DB0001) ⁿ								
Field Parameters								
Sulfate	mg/L	--	PAG Pond	--	--	Hach field test	--	--
Physical Tests								
Total Suspended Solids	mg/L	--	Surface Water	--	--	SM 2540D	5	5
Cation, Anions, and Nutrients								
Alkalinity (as CaCO ₃)	mg/L	--	Surface Water	--	--	SM 2320B	3	9
Ammonia as nitrogen	mg/L	--	Surface Water	--	--	SM 4500-NH3E	0.009	0.05
Bromide	mg/L	--	Surface Water	--	--	EPA 300.0	0.004	0.1
Chloride	mg/L	--	Surface Water	--	--	EPA 300.0	0.03	0.2
Fluoride	mg/L	--	Surface Water	--	--	EPA 300.0	0.003	0.2
o -Phosphate as phosphorus, dissolved	mg/L	--	Surface Water	--	--	EPA 365.3	0.004	0.01
Phosphate as phosphorus, dissolved	mg/L	--	Surface Water	--	--	EPA 365.3	0.004	0.01
Phosphate as phosphorus, total	mg/L	--	Surface Water	--	--	EPA 365.3	0.004	0.01
Total and Dissolved Metals								
Antimony	µg/L	--	Surface Water	--	--	EPA 6020	0.02	0.05
Barium	µg/L	--	Surface Water	--	--	EPA 6020	0.02	0.05
Beryllium	µg/L	--	Surface Water	--	--	EPA 6020	0.006	0.02
Bismuth	µg/L	--	Surface Water	--	--	EPA 6020	0.02	0.1
Boron	µg/L	--	Surface Water	--	--	EPA 6010	2	50
Calcium	µg/L	--	Surface Water	--	--	EPA 6010	9	50
Cobalt	µg/L	--	Surface Water	--	--	EPA 6020	0.006	0.02
Iron	µg/L	--	Surface Water	--	--	EPA 6010	3	20
Lithium	µg/L	--	Surface Water	--	--	EPA 6010	2	10
Magnesium	µg/L	--	Surface Water	--	--	EPA 6010	0.4	20
Manganese	µg/L	--	Surface Water	--	--	EPA 6020	0.006	0.05
Molybdenum	µg/L	--	Surface Water	--	--	EPA 6020	0.008	0.05
Nickel	µg/L	--	Surface Water	--	--	EPA 6020	0.03	0.2
Phosphorus	µg/L	--	Surface Water	--	--	EPA 6010	60	200
Potassium	µg/L	--	Surface Water	--	--	EPA 6010	40	400
Silicon	µg/L	--	Surface Water	--	--	EPA 6010	6	400
Silver	µg/L	--	Surface Water	--	--	EPA 6020	0.004	0.02
Sodium	µg/L	--	Surface Water	--	--	EPA 6010	20	200
Strontium	µg/L	--	Surface Water	--	--	EPA 6010	0.9	10
Thallium	µg/L	--	Surface Water	--	--	EPA 6020	0.005	0.02
Tin	µg/L	--	Surface Water	--	--	EPA 6010	9	50
Titanium	µg/L	--	Surface Water	--	--	EPA 6010	4	10
Uranium	µg/L	--	Surface Water	--	--	EPA 6020	0.003	0.02
Vanadium	µg/L	--	Surface Water	--	--	EPA 6020	0.03	0.2

Table 3-4. Alaska Water Quality Criteria, Analytical Methods, and Detection Limits

Parameter	Units	Fraction	Screening Criteria (Fresh Water Aquatic Life) ^a			Analytical Method	MDL ^b	MRL ^b
			Project Applicability	Criteria	Criteria Source			

Notes:

-- = Not applicable to the Niblack Project and/or not included in *Alaska Water Quality Manual for Toxic and Other Deleterious Organic and Inorganic Substances* or *18 AAC 70 Water Quality Standards*.

MDL = method detection limit

MRL = method reporting limit

NPLLC = Niblack Project LLC

TDS = total dissolved solids

^a Freshwater Aquatic Life Criteria from *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*, December 12, 2008 and from *18 AAC 70 Water Quality Standards*, September 19, 2009.

^b ALS periodically updates MDLs and MRLs. Listed MDLs and MRLs are current as of May 3, 2012.

^c pH, for freshwater uses (variation of pH for water naturally outside the specified range must be toward the range). May not be less than 6.5 or greater than 8.5. May not vary more than 0.5 pH unit from natural conditions.

^d Temperature may not exceed 20°C at any time. The following maximum temperatures may not be exceeded, where applicable: migration routes, 15°C; spawning areas, 13°C; rearing areas, 15°C; and egg and fry incubation, 13°C. For all other waters, the weekly average temperature may not exceed site-specific requirements needed to preserve normal species diversity or to prevent appearance of nuisance organisms.

^e TDS may not exceed 1,000 mg/L. A concentration of TDS may not be present in water if that concentration causes or reasonably could be expected to cause an adverse effect to aquatic life.

^f Permit 2013DB0001 requires collection of total (unfiltered) and dissolved (filtered) fractions for cadmium, copper, and zinc. Only the total fraction is required for aluminum, arsenic, chromium, lead, mercury, and selenium. However, NPLLC may collect both total and dissolved data for all trace elements to allow for screening against water quality criteria and to enhance understanding of trace element behavior in site waters.

^g Aluminum chronic standards are pH and hardness dependent. Where the pH is greater than or equal to 7.0 and the hardness is greater than or equal to 50 ppm as CaCO₃, the chronic aluminum standard will then be equal to the acute aluminum standard, 750 µg/L as total recoverable aluminum.

^h Water quality criterion is hardness dependent. A range of values based on hardness measured at surface water stations from 2007 to 2012 is presented.

ⁱ Niblack Permit 2013DB0001 specifies facility-specific groundwater well threshold values for dissolved cadmium of 0.044 µg/L at MW2 and 0.07 µg/L at MW3.

^j No aquatic life screening value is available for total recoverable chromium (III + VI). The chromium VI screening levels are presented here for comparison. As noted in Niblack Permit 2013DB0001, Table B, if the unfiltered total chromium value exceeds the chromium (VI) water quality standard of 50 µg/L, samples of dissolved chromium (VI) may be requested.

^k Niblack Permit 2013DB0001 specifies a facility-specific groundwater well threshold value for total recoverable chromium of 6.31 µg/L at MW3. As noted in Niblack Permit 2013DB0001, Table B, if the unfiltered total chromium value exceeds the chromium (VI) water quality standard of 50 µg/L, samples of dissolved chromium (VI) may be requested.

^l Niblack Permit 2013DB0001 specifies a facility-specific groundwater well threshold value for dissolved copper of 2.61 µg/L at MW1.

^m Niblack Permit 2013DB0001 specifies facility-specific groundwater well threshold values for dissolved zinc of 7.59 µg/L at MW2 and 11.76 µg/L at MW3.

ⁿ Optional/Historical monitoring parameters are those which are not required under Permit 2013DB0001, but which NPLLC may chose to monitor to enhance understanding of site water quality.

Table 3-5. Summary of Water Quality Monitoring Conducted through Q4 2017

Year	Quarter	Month	Permit-Required Stations (Active)		Discharge Water and Waste Rock Monitoring (Active)			Reference/Background Stations (Discontinued)			Offsite Stations (As-needed)				Portal Stations (As-Needed)
			Surface Water (WQ4, WQ6, WQ10, WQ13)	Monitoring Wells (MW1, MW2, MW3, MW4)	Settling Ponds (EFF1)	PAG Pond (PAG)	Kinetic Test Barrels (LO1, LO2, HW1)	Surface Water (WQ7, WQ8, WQ12) ^a	Monitoring Wells (MW7, MW8, MW9)	Monitoring Wells & Seep (GW1, GW2, SEEP) ^b	Surface Water (WQ1)	Surface Water (WQ2)	Surface Water (WQ3)	Surface Water (WQ14)	PORTAL/Drift
2017	Q1	Jan Feb Mar													
	Q2	Apr May Jun				X									
	Q3	Jul Aug Sep	X	X	X	X									
	Q4	Oct Nov Dec													
2016	Q1	Jan Feb Mar	X	X	X	X									
	Q2	Apr May Jun	X	X	X	X									
	Q3	Jul Aug Sep													
	Q4	Oct Nov Dec	X	X	X	X									
2015	Q1	Jan Feb Mar	X	X ^c	X	X	X								
	Q2	Apr May Jun	X	X	X	X	X								
	Q3	Jul Aug Sep	X	X	X	X									
	Q4	Oct Nov Dec	X	X	X	X									
2014	Q1	Jan Feb Mar	X	X	X	X	X								
	Q2	Apr May Jun	X	X	X	X	X								
	Q3	Jul Aug Sep	X	X ^d	X	X	X								
	Q4	Oct Nov Dec	X	X	X	X	X								

Table 3-5. Summary of Water Quality Monitoring Conducted through Q4 2017

Year	Quarter	Month	Permit-Required Stations (Active)		Discharge Water and Waste Rock Monitoring (Active)			Reference/Background Stations (Discontinued)			Offsite Stations (As-needed)				Portal Stations (As-Needed)
			Surface Water (WQ4, WQ6, WQ10, WQ13)	Monitoring Wells (MW1, MW2, MW3, MW4)	Settling Ponds (EFF1)	PAG Pond (PAG)	Kinetic Test Barrels (LO1, LO2, HW1)	Surface Water (WQ7, WQ8, WQ12) ^a	Monitoring Wells (MW7, MW8, MW9)	Monitoring Wells & Seep (GW1, GW2, SEEP) ^b	Surface Water (WQ1)	Surface Water (WQ2)	Surface Water (WQ3)	Surface Water (WQ14)	PORTAL/Drift
2013	Q1	Jan	X	X	X	X	X								
		Feb													
		Mar													
	Q2	Apr	X	X	X	X	X					X		X	
		May													
		Jun													
2012	Q3	Jul	X	X	X	X	X					X			X
		Aug													
		Sep													
	Q4	Oct	X	X	X	X	X					X			X
		Nov													
		Dec													
2011	Q1	Jan	X	X	X	X	X							X	
		Feb					X							X	
		Mar					X							X	
	Q2	Apr	X	X	X	X	X					X		X	
		May					X							X	
		Jun					X							X	
2010	Q3	Jul	X	X	X	X	X							X	
		Aug												X	
		Sep					X							X	
	Q4	Oct	X	X	X	X	X							X	
		Nov												X	
		Dec					X							X	

Table 3-5. Summary of Water Quality Monitoring Conducted through Q4 2017

Year	Quarter	Month	Permit-Required Stations (Active)		Discharge Water and Waste Rock Monitoring (Active)			Reference/Background Stations (Discontinued)			Offsite Stations (As-needed)				Portal Stations (As-Needed)
			Surface Water (WQ4, WQ6, WQ10, WQ13)	Monitoring Wells (MW1, MW2, MW3, MW4)	Settling Ponds (EFF1)	PAG Pond (PAG)	Kinetic Test Barrels (LO1, LO2, HW1)	Surface Water (WQ7, WQ8, WQ12) ^a	Monitoring Wells (MW7, MW8, MW9)	Monitoring Wells & Seep (GW1, GW2, SEEP) ^b	Surface Water (WQ1)	Surface Water (WQ2)	Surface Water (WQ3)	Surface Water (WQ14)	PORTAL/Drift
2009	Q1	Jan													
		Feb													
		Mar	X	X	X	X									X
	Q2	Apr													
		May	X	X	X	X	X								X
		Jun					X								
	Q3	Jul	X	X	X	X	X								X
		Aug					X								
		Sep					X								X
2008	Q4	Oct	X	X	X	X	X								X
		Nov													
		Dec				X									X
	Q1	Jan	X	X	X			X	X		X		X		
		Feb	X	X	X			X	X		X		X		
		Mar	X	X	X			X	X		X		X		
	Q2	Apr	X	X	X			X	X		X		X		
		May	X	X	X			X	X		X		X		
		Jun	X	X	X			X	X		X		X		
2007	Q3	Jul	X	X	X		X	X	X ^e		X		X		
		Aug		X	X	X	X						X		
		Sep		X	X	X	X						X		
	Q4	Oct	X	X	X	X	X						X		
		Nov						X	X		X		X		
		Dec						X	X		X		X		
	Q1	Jan													
		Feb	X	X				X	X ^e		X		X		
		Mar													
2006	Q2	Apr	X	X				X	X ^e		X		X		
		May	X	X				X	X ^e		X		X		
		Jun	X	X				X	X ^e	X	X		X		
	Q3	Jul	X	X				X	X		X		X		
		Aug	X	X				X	X		X		X		
		Sep	X	X				X	X		X		X		
	Q4	Oct	X	X				X	X		X		X		
		Nov	X	X	X			X	X		X		X		
		Dec	X	X	X			X	X		X		X		

Notes:

Monitoring for full analyte list (does not include field parameter-only monitoring events)

PAG = potentially acid-generating

^a Surface Water station WQ5 (Camp Creek middle reach) was monitored 6 times from 1996 - 2006. No samples have been collected since 2006.

^b Preliminary Monitoring Wells GW1 and GW2 were also sampled in October and December 2006. The SEEP station was also monitored in August, October, and December 2006.

^c MW4 was not monitored during Q1 2015 because a stormwater flow event exposed the well screen at the ground surface.

^d Sample not collected at MW4; well was dry.

^e Monitoring at MW7 only. Completion and monitoring of wells MW8 and MW9 began in July 2007.

Table 3-6a. QA/QC Replicate Results and Relative Percent Differences, Physical Parameters, Anions and Nutrients

Station ID Sample ID ALS Kelso Lab SDG Collection Contractor Sample Event Date Time							Dissolved Anions and Nutrients									
							TDS (mg/L)	Hardness as CaCO ₃ (mg/L)	TSS (mg/L)	Alkalinity as CaCO ₃ (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Ammonia as N (mg/L)	Nitrate+Nitrite as N (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
Permit Stations - Surface Water																
WQ6	WQ6	K1710675	Integral	September 2017	30/09/2017	15:10	30.7	10	--	--	--	2.31	--	0.082	--	--
WQ6	WQ20	K1710675	Integral	September 2017	30/09/2017	15:10	35	12	--	--	--	2.28	--	0.084	--	--
Sample Difference							4.3	2	NC	NC	NC	-0.03	NC	0.002	NC	NC
RPD							-13%	-18%	NC	NC	NC	1%	NC	-2%	NC	NC
abs (RPD)							13%	18%	NC	NC	NC	1%	NC	2%	NC	NC
Permit Stations - Groundwater																
MW1	MW1	K1710675	Integral	September 2017	30/09/2017	11:25	91	43.2	--	--	--	10.8	--	0.02 <i>U</i>	--	--
MW1	MW20	K1710675	Integral	September 2017	30/09/2017	11:25	87	44.8	--	--	--	11.3	--	0.02 <i>U</i>	--	--
Sample Difference							-4	1.6	NC	NC	NC	0.5	NC	NC	NC	NC
RPD							4%	-4%	NC	NC	NC	-5%	NC	NC	NC	NC
abs (RPD)							4%	4%	NC	NC	NC	5%	NC	NC	NC	NC

Notes:

Relative Percent Difference (RPD) calculated by:
RPD = [X1 - X2] / [Xavg x 100]
where:
X1 = concentration of normal sample
X2 = concentration of duplicate
Xavg = average concentration [(X1 + X2)/2]
abs(RPD) = absolute value of the RPD

-- = data not available
ALS = ALS Laboratory Group
QA/QC = quality assurance and quality control
SDG = sample digestion group
TDS = total dissolved solids
TSS = total suspended solids

NC = RPD not calculated in cases where one or more concentrations were below reporting limits or not available (i.e., U or J qualified data not included in RPD calculation).
Sample Difference = (replicate sample - primary sample)
Replicate pairs are in bold.

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 3-6b. QA/QC Replicate Results and Relative Percent Differences, Trace Elements, 2016

Station ID Sample ID ALS Kelso Lab SDG Collection Contractor Sample Event Date Time							Trace Elements							
							Aluminum (µg/L), Total	Aluminum (µg/L), Dissolved	Arsenic (µg/L), Total	Arsenic (µg/L), Dissolved	Cadmium (µg/L), Total	Cadmium (µg/L), Dissolved	Calcium (µg/L), Total	Calcium (µg/L), Dissolved
Permit Stations - Surface Water							50.6	--	0.08 <i>U</i>	--	0.029	0.029	--	--
WQ6	WQ6	K1710675	Integral	September 2017	30/09/2017	15:10	53.4	--	0.08 <i>U</i>	--	0.03	0.031	--	--
WQ6	WQ20	K1710675	Integral	September 2017	30/09/2017	15:10	2.8	NC	NC	NC	0.001	0.002	NC	NC
Sample Difference							-5%	NC	NC	NC	-3%	-7%	NC	NC
RPD							5%	NC	NC	NC	3%	7%	NC	NC
abs (RPD)														
Permit Stations - Groundwater							206	--	0.22 <i>J</i>	--	0.061	0.047	--	--
MW1	MW1	K1710675	Integral	September 2017	30/09/2017	11:25	220	--	0.22 <i>J</i>	--	0.064	0.048	--	--
MW1	MW20	K1710675	Integral	September 2017	30/09/2017	11:25	14	NC	NC	NC	0.003	0.001	NC	NC
Sample Difference							-7%	NC	NC	NC	-5%	-2%	NC	NC
RPD							7%	NC	NC	NC	5%	2%	NC	NC
abs (RPD)														

Notes:

Relative Percent Difference (RPD) calculated by:
RPD = [X1 - X2] / [Xavg x 100]
where:
X1 = concentration of normal sample
X2 = concentration of duplicate
Xavg = average concentration [(X1 + X2)/2]
abs(RPD) = absolute value of the RPD

-- = data not available
ALS = ALS Laboratory Group
QA/QC = quality assurance and quality control
SDG = sample digestion group
TDS = total dissolved solids
TSS = total suspended solids

Notes:

NC = RPD not calculated in cases where one or more concentrations were below reporting limits or not available (i.e., U or J qualified data not included in RPD calculation).
Sample Difference = (replicate sample - primary sample)
Replicate pairs are in bold.

Data Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 3-6b. QA/QC Replicate Results and Relative Percent Differences, Trace Elements, 2016

Station ID Sample ID ALS Kelso Lab SDG Collection Contractor Sample Event Date Time							Trace Elements							
							Chromium (µg/L), Total	Chromium (µg/L), Dissolved	Copper (µg/L), Total	Copper (µg/L), Dissolved	Iron (µg/L), Total	Iron (µg/L), Dissolved	Lead (µg/L), Total	Lead (µg/L), Dissolved
Permit Stations - Surface Water							0.17 <i>J</i>	--	1.23	1.08	--	--	0.004 <i>U</i>	--
WQ6	WQ6	K1710675	Integral	September 2017	30/09/2017	15:10	0.35	--	1.26	1.16	--	--	0.009 <i>J</i>	--
WQ6	WQ20	K1710675	Integral	September 2017	30/09/2017	15:10	NC	NC	0.03	0.08	NC	NC	NC	NC
		Sample Difference					NC	NC	-2%	-7%	NC	NC	NC	NC
		RPD					NC	NC	2%	7%	NC	NC	NC	NC
		abs (RPD)												
Permit Stations - Groundwater							0.4	--	4.81	4.06			0.717	
MW1	MW1	K1710675	Integral	September 2017	30/09/2017	11:25	0.4	--	4.8	3.86			0.719	
MW1	MW20	K1710675	Integral	September 2017	30/09/2017	11:25	0	NC	-0.01	-0.2	NC	NC	0.002	NC
		Sample Difference					0%	NC	0%	5%	NC	NC	0%	NC
		RPD					0%	NC	0%	5%	NC	NC	0%	NC
		abs (RPD)												

Notes:

Relative Percent Difference (RPD) calculated by:
RPD = [X1 - X2] / [Xavg x 100]
where:
X1 = concentration of normal sample
X2 = concentration of duplicate
Xavg = average concentration [(X1 + X2)/2]
abs(RPD) = absolute value of the RPD

-- = data not available
ALS = ALS Laboratory Group
QA/QC = quality assurance and quality control
SDG = sample digestion group
TDS = total dissolved solids
TSS = total suspended solids

Notes:

NC = RPD not calculated in cases where one or more concentrations were below reporting limits or not available (i.e., U or J qualified data not included in RPD calculation).
Sample Difference = (replicate sample - primary sample)
Replicate pairs are in bold.

Data Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 3-6b. QA/QC Replicate Results and Relative Percent Differences, Trace Elements, 2016

Station ID Sample ID ALS Kelso Lab SDG Collection Contractor Sample Event Date Time							Trace Elements							
							Magnesium (µg/L), Total	Magnesium (µg/L), Dissolved	Mercury (µg/L), Total	Mercury (µg/L), Dissolved	Nickel (µg/L), Total	Nickel (µg/L), Dissolved	Potassium (µg/L), Total	Potassium (µg/L), Dissolved
Permit Stations - Surface Water							--	--	0.02 <i>U</i>	--	--	--	--	--
WQ6	WQ6	K1710675	Integral	September 2017	30/09/2017	15:10	--	--	0.02 <i>U</i>	--	--	--	--	--
WQ6	WQ20	K1710675	Integral	September 2017	30/09/2017	15:10	NC	NC	NC	NC	NC	NC	NC	NC
Sample Difference							NC	NC	NC	NC	NC	NC	NC	NC
RPD							NC	NC	NC	NC	NC	NC	NC	NC
abs (RPD)							NC	NC	NC	NC	NC	NC	NC	NC
Permit Stations - Groundwater									0.02 <i>U</i>		--	--	--	--
MW1	MW1	K1710675	Integral	September 2017	30/09/2017	11:25			0.02 <i>U</i>		--	--	--	--
MW1	MW20	K1710675	Integral	September 2017	30/09/2017	11:25	NC	NC	NC	NC	NC	NC	NC	NC
Sample Difference							NC	NC	NC	NC	NC	NC	NC	NC
RPD							NC	NC	NC	NC	NC	NC	NC	NC
abs (RPD)							NC	NC	NC	NC	NC	NC	NC	NC

Notes:

Relative Percent Difference (RPD) calculated by:
RPD = [X1 - X2] / [Xavg x 100]
where:
X1 = concentration of normal sample
X2 = concentration of duplicate
Xavg = average concentration [(X1 + X2)/2]
abs(RPD) = absolute value of the RPD

-- = data not available
ALS = ALS Laboratory Group
QA/QC = quality assurance and quality control
SDG = sample digestion group
TDS = total dissolved solids
TSS = total suspended solids

Notes:

NC = RPD not calculated in cases where one or more concentrations were below reporting limits or not available (i.e., U or J qualified data not included in RPD calculation).
Sample Difference = (replicate sample - primary sample)
Replicate pairs are in bold.

Data Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 3-6b. QA/QC Replicate Results and Relative Percent Differences, Trace Elements, 2016

ALS Kelso Lab Collection SDG Contractor Sample Event Date Time							Trace Elements							
							Selenium (µg/L), Total	Selenium (µg/L), Dissolved	Silver (µg/L), Total	Silver (µg/L), Dissolved	Sodium (µg/L), Total	Sodium (µg/L), Dissolved	Zinc (µg/L), Total	Zinc (µg/L), Dissolved
Permit Stations - Surface Water														
WQ6	WQ6	K1710675	Integral	September 2017	30/09/2017	15:10	0.1 <i>U</i>	--	--	--	--	--	7.1	7.4
WQ6	WQ20	K1710675	Integral	September 2017	30/09/2017	15:10	0.1 <i>U</i>	--	--	--	--	--	7.6	7.2
			Sample Difference				NC	NC	NC	NC	NC	NC	0.5	-0.2
			RPD				NC	NC	NC	NC	NC	NC	-7%	3%
			abs (RPD)				NC	NC	NC	NC	NC	NC	7%	3%
Permit Stations - Groundwater														
MW1	MW1	K1710675	Integral	September 2017	30/09/2017	11:25	0.1 <i>J</i>	--	--	--	--	--	7.7	7.2
MW1	MW20	K1710675	Integral	September 2017	30/09/2017	11:25	0.1 <i>J</i>	--	--	--	--	--	7.5	7.1
			Sample Difference				NC	NC	NC	NC	NC	NC	-0.2	-0.1
			RPD				NC	NC	NC	NC	NC	NC	3%	1%
			abs (RPD)				NC	NC	NC	NC	NC	NC	3%	1%

Notes:

Relative Percent Difference (RPD) calculated by:
RPD = [X1 - X2] / [Xavg x 100]
where:
X1 = concentration of normal sample
X2 = concentration of duplicate
Xavg = average concentration [(X1 + X2)/2]
abs(RPD) = absolute value of the RPD

-- = data not available
ALS = ALS Laboratory Group
QA/QC = quality assurance and quality control
SDG = sample digestion group
TDS = total dissolved solids
TSS = total suspended solids

Notes:

NC = RPD not calculated in cases where one or more concentrations were below reporting limits or not available (i.e., U or J qualified data not included in RPD calculation).
Sample Difference = (replicate sample - primary sample)
Replicate pairs are in bold.

Data Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 3-7. Percent Completeness for Surface Water and Groundwater – 2017

Analysis	Total # of Data Points ^a	Number of Data Points		Completeness (%)
		Accepted	Rejected	
Permit Stations - Surface Water (WQ4, WQ6, WQ10, WQ13)				
Conventionals ^b	16	16	0	100
Metals ^c	48	48	0	100
Field ^d	20	20	0	100
Permit Stations - Groundwater (MW1, MW2, MW3, MW4)				
Conventionals ^b	16	16	0	100
Metals ^c	48	48	0	100
Field ^d	20	20	0	100
Effluent and PAG Pond				
Conventionals ^b	8	8	0	100
Metals ^c	30	30	0	100
Field ^e	17	17	0	100

Notes:

PAG = potentially acid-generating

^a Totals include field duplicate samples and exclude field blanks.

^b Conventionals include total dissolved solids, hardness, sulfate, and nitrate/nitrite as N.

^c Metals include total Al, As, Cd, Cr, Cu, Pb, Hg, Se, Zn, and dissolved Cd, Cu, and Zn.

^d Field parameters include conductivity, dissolved oxygen, pH, temperature, and turbidity; turbidity and dissolved oxygen are not required field parameters.

^e Field parameters include sulfate, conductivity, dissolved oxygen, pH, temperature, and turbidity; turbidity and dissolved oxygen are required parameters for the PAG facility.

Table 4-1a. Water Quality Monitoring Data, Field Parameters, 2017

Station IDCollection Contractor Sample Event			DateTime		In situ (field measurements)					
					Temperature (deg C)	Conductivity (µS/cm)	DO (mg/L)	Turbidity (NTU)	pH (SU)	Sulfate (mg/L)
Permit Stations - Surface Water										
WQ4	NPLLC	Annual Sample	9/30/17	1350	10.37	62	10.7	5.2	7.63	--
WQ6	NPLLC	Annual Sample	9/30/17	1510	10.28	38	10.46	4.2	7.76	--
WQ10	NPLLC	Annual Sample	9/30/17	1555	10.90	68	9.99	5.2	7.5	--
WQ13	NPLLC	Annual Sample	9/30/17	1425	10.29	53	10.19	4.4	7.69	--
Permit Stations - Groundwater										
MW1	NPLLC	Annual Sample	9/30/17	1125	12.8	105	3.11	9.3	4.97	--
MW2	NPLLC	Annual Sample	9/30/17	1220	11.36	42	3.48	46.5	4.19	--
MW3	NPLLC	Annual Sample	9/30/17	1310	11.27	37	4.0	11.3	6.24	--
MW4	NPLLC	Annual Sample	9/30/17	1830	11.03	91	3.11	14.0	6.0	--
Effluent and PAG Pond										
EFF1	NPLLC	Monthly Field Parameters	1/27/2017	1047	3.2	189	12.23	0	6.68	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	2/26/2017	923	5.60	183	11.87	0.0	6.24	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	3/27/17	846	7.6	190	12.06	0	7.01	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	4/24/17	1436	8.5	157	10.46	0	7.23	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	5/22/17	1148	8..9	252	12.73	2.0	7.77	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	6/26/17	0945	10.1	198	10.41	0	7.36	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	7/30/17	1729	10.5	248	9.44	2	6.78	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	8/31/17	1128	9.8	184	9.82	1	6.69	50 <i>U</i>
EFF1	NPLLC	Annual Sample	9/30/17	1725	10.3	247	7.97	6.2	7.48	60
EFF1	NPLLC	Monthly Field Parameters	9/30/17	1623	10.1	246	8.24	0	6.98	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	10/22/17	1545	4.5	258	13.10	1	6.72	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	11/4/17	1017	3.9	205	12.37	1	6.70	50 <i>U</i>
EFF1	NPLLC	Monthly Field Parameters	12/19/17	1009	4.3	224	12.18	0.0	6.88	50 <i>U</i>

Table 4-1a. Water Quality Monitoring Data, Field Parameters, 2017

Station ID	Collection Contractor	Sample Event	DateTime		In situ (field measurements)					
					Temperature (deg C)	Conductivity (µS/cm)	DO (mg/L)	Turbidity (NTU)	pH (SU)	Sulfate (mg/L)
PAG	NPLLC	Monthly Field Parameters	1/27/17	1106	2.6	687	10.17	0	6.72	175
PAG	NPLLC	Monthly Field Parameters	2/26/17	1048	4.8	586	10.40	0.0	6.81	200
PAG	NPLLC	Monthly Field Parameters	3/27/17	912	8.9	726	10.31	0	6.92	175
PAG	NPLLC	Monthly Field Parameters	4/24/17	1543	12.8	930	10.28	0	7.1	200
PAG	NPLLC	Supplemental Sample	4/26/17	1450	10.4	912	12.60	0.0	7.12	--
PAG	NPLLC	Monthly Field Parameters	5/22/17	1210	10.5	626	10.36	7	7.04	200
PAG	NPLLC	Monthly Field Parameters	6/26/17	1006	15.4	1240	10.80	0	6.6	200
PAG	NPLLC	Monthly Field Parameters	7/31/17	1746	17.5	1460	7.24	2	4.53	200
PAG	NPLLC	Monthly Field Parameters	8/31/17	1057	15.1	855	6.58	2	5.52	200 >
PAG	NPLLC	Annual Sample	9/30/17	1640	12.2	1420	7.08	6.9	6.56	200 >
PAG	NPLLC	Monthly Field Parameters	9/30/17	1604	12.9	1370	10.53	1	5.3	200 >
PAG	NPLLC	Monthly Field Parameters	10/22/17	1608	4.2	1240	11.19	1	5.7	200 >
PAG	NPLLC	Monthly Field Parameters	11/4/17	1041	3.40	1280	10.89	0.0	5.73	200 >
PAG	NPLLC	Monthly Field Parameters	12/19/17	940	3.5	842	10.64	0	6.18	200 >

Notes:
NPLLC = Niblack Project LLC
-- = data not available
DO = dissolved oxygen
NTU = nephelometric turbidity unit
U = The analyte was not detected above the reported sample quantitation limit.
> = The analyte was positively identified at a concentration greater than the given value.

Table 4-1b. Water Quality Monitoring Data, Physical Parameters, Anions and Nutrients, 2017

Sample ALS Kelso Collection Station ID ID Lab SDG Contractor Sample Event Date Time							TDS (mg/L)Hardness as CaCO ₃ (mg/L)TSS (mg/L)			Dissolved Anions and Nutrients						
										Alkalinity as CaCO ₃ (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Ammonia as N (mg/L)	Nitrate+Nitrite as N (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
Permit Stations - Surface Water																
WQ10	WQ10	K1710675	NPLLC	September 2017	09/30/2017	15:55	50.2	23.2	--	--	--	7.16	--	0.072	--	--
WQ13	WQ13	K1710675	NPLLC	September 2017	09/30/2017	14:25	45.7	15.2	--	--	--	5.95	--	0.171	--	--
WQ4	WQ4	K1710675	NPLLC	September 2017	09/30/2017	13:50	44.0	20.0	--	--	--	4.75	--	0.115	--	--
WQ6	WQ6	K1710675	NPLLC	September 2017	09/30/2017	15:10	30.7	10	--	--	--	2.31	--	0.082	--	--
Permit Stations - Groundwater																
MW1	MW1	K1710675	NPLLC	September 2017	09/30/2017	11:25	91	43.2	--	--	--	10.8	--	0.02 <i>U</i>	--	--
MW2	MW2	K1710675	NPLLC	September 2017	09/30/2017	12:20	49	20.8	--	--	--	1.1	--	0.030 <i>J</i>	--	--
MW3	MW3	K1710675	NPLLC	September 2017	09/30/2017	13:10	80.3	22	--	--	--	0.18 <i>J</i>	--	0.02 <i>U</i>	--	--
MW4	MW4	K1710675	NPLLC	September 2017	09/30/2017	18:30	79.8	34	--	--	--	1.09	--	0.037 <i>J</i>	--	--
Effluent and PAG Pond																
EFF1	EFF1	K1710675	NPLLC	September 2017	09/30/2017	17:25	155	105	--	--	--	43.7	--	0.043 <i>J</i>	--	--
PAG	PAG	K1710675	NPLLC	September 2017	09/30/2017	16:40	1230	808	--	--	--	772	--	0.08	--	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating
SDG = sample digestion group

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate.

Table 4-1c. Water Quality Monitoring Data, Trace Elements, 2017

						Aluminum (µg/L), Total	Aluminum (µg/L), Dissolved	Arsenic (µg/L), Total	Arsenic (µg/L), Dissolved	Cadmium (µg/L), Total	Cadmium (µg/L), Dissolved	Calcium (µg/L), Total	Calcium (µg/L), Dissolved
Station ID	ALS Kelso Lab	Collection SDG Contractor	Sample Event	Date	Time								
Permit Stations - Surface Water													
WQ10	K1710675	NPLLC	September 2017	09/30/2017	15:55	56.5	--	0.1 <i>U</i>	--	0.21	0.191	--	--
WQ13	K1710675	NPLLC	September 2017	09/30/2017	14:25	53.7	--	0.1 <i>U</i>	--	0.01 <i>J</i>	0.005 <i>U</i>	--	--
WQ4	K1710675	NPLLC	September 2017	09/30/2017	13:50	50.6	--	0.1 <i>U</i>	--	0.01 <i>J</i>	0.009 <i>J</i>	--	--
WQ6	K1710675	NPLLC	September 2017	09/30/2017	15:10	50.6	--	0.1 <i>U</i>	--	0.029	0.029	--	--
Permit Stations - Groundwater													
MW1	K1710675	NPLLC	September 2017	09/30/2017	11:25	206	--	0.2 <i>U</i>	--	0.06	0.05	--	--
MW2	K1710675	NPLLC	September 2017	09/30/2017	12:20	525	--	0.2 <i>U</i>	--	0.008 <i>J</i>	0.005 <i>U</i>	--	--
MW3	K1710675	NPLLC	September 2017	09/30/2017	13:10	958	--	0.3 <i>U</i>	--	0.008 <i>J</i>	0.005 <i>J</i>	--	--
MW4	K1710675	NPLLC	September 2017	09/30/2017	18:30	218	--	0.9	--	0.005 <i>U</i>	0.009 <i>J</i>	--	--
Effluent and PAG Pond													
EFF1	K1710675	NPLLC	September 2017	09/30/2017	17:25	86.3	--	0.28 <i>J</i>	--	6.7	7.1	--	--
PAG	K1704538	NPLLC	April 2017	04/26/2017	14:50	--	--	--	--	44.6 <i>J</i>	48.3 <i>J</i>	--	--
PAG	K1710675	NPLLC	September 2017	09/30/2017	16:40	1360	--	0.30 <i>J</i>	--	143	143	--	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 4-1c. Water Quality Monitoring Data, Trace Elements, 2017

ALS Kelso Collection Station ID Lab SDG Contractor Sample Event Date Time						Trace Elements							
						Chromium (µg/L), Total	Chromium (µg/L), Dissolved	Copper (µg/L), Total	Copper (µg/L), Dissolved	Iron (µg/L), Total	Iron (µg/L), Dissolved	Lead (µg/L), Total	Lead (µg/L), Dissolved
Permit Stations - Surface Water													
WQ10	K1710675	NPLLC	September 2017	09/30/2017	15:55	0.26	--	2.81	2.31	--	--	0.015 <i>U</i>	--
WQ13	K1710675	NPLLC	September 2017	09/30/2017	14:25	0.20 <i>U</i>	--	1.41	1.36 <i>J</i>	--	--	0.013 <i>U</i>	--
WQ4	K1710675	NPLLC	September 2017	09/30/2017	13:50	0.24	--	0.99	1.08 <i>J</i>	--	--	0.006 <i>U</i>	--
WQ6	K1710675	NPLLC	September 2017	09/30/2017	15:10	0.17 <i>U</i>	--	1.23	1.1 <i>J</i>	--	--	0.004 <i>U</i>	--
Permit Stations - Groundwater													
MW1	K1710675	NPLLC	September 2017	09/30/2017	11:25	0.40	--	4.81	4.06	--	--	0.717	--
MW2	K1710675	NPLLC	September 2017	09/30/2017	12:20	0.89	--	1.5	0.50 <i>J</i>	--	--	0.299	--
MW3	K1710675	NPLLC	September 2017	09/30/2017	13:10	1.29	--	1.47	1.07 <i>J</i>	--	--	0.200	--
MW4	K1710675	NPLLC	September 2017	09/30/2017	18:30	1.70	--	0.88	0.89 <i>J</i>	--	--	0.064	--
Effluent and PAG Pond													
EFF1	K1710675	NPLLC	September 2017	09/30/2017	17:25	0.54	--	96.6	88.7	--	--	0.642	--
PAG	K1704538	NPLLC	April 2017	04/26/2017	14:50	--	--	146	135	--	--	--	--
PAG	K1710675	NPLLC	September 2017	09/30/2017	16:40	0.42	--	2330	2340	--	--	15.1	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 4-1c. Water Quality Monitoring Data, Trace Elements, 2017

ALS Kelso Collection Station ID Lab SDG Contractor Sample Event Date Time						Trace Elements							
						Magnesium (µg/L), Total	Magnesium (µg/L), Dissolved	Mercury (µg/L), Total	Mercury (µg/L), Dissolved	Nickel (µg/L), Total	Nickel (µg/L), Dissolved	Potassium (µg/L), Total	Potassium (µg/L), Dissolved
Permit Stations - Surface Water													
WQ10	K1710675	NPLLC	September 2017	09/30/2017	15:55	--	--	0.02 <i>U</i>	--	--	--	--	--
WQ13	K1710675	NPLLC	September 2017	09/30/2017	14:25	--	--	0.02 <i>U</i>	--	--	--	--	--
WQ4	K1710675	NPLLC	September 2017	09/30/2017	13:50	--	--	0.02 <i>U</i>	--	--	--	--	--
WQ6	K1710675	NPLLC	September 2017	09/30/2017	15:10	--	--	0.02 <i>U</i>	--	--	--	--	--
Permit Stations - Groundwater													
MW1	K1710675	NPLLC	September 2017	09/30/2017	11:25	--	--	0.02 <i>U</i>	--	--	--	--	--
MW2	K1710675	NPLLC	September 2017	09/30/2017	12:20	--	--	0.02 <i>U</i>	--	--	--	--	--
MW3	K1710675	NPLLC	September 2017	09/30/2017	13:10	--	--	0.02 <i>U</i>	--	--	--	--	--
MW4	K1710675	NPLLC	September 2017	09/30/2017	18:30	--	--	0.02 <i>U</i>	--	--	--	--	--
Effluent and PAG Pond													
EFF1	K1710675	NPLLC	September 2017	09/30/2017	17:25	--	--	0.02 <i>U</i>	--	--	--	--	--
PAG	K1704538	NPLLC	April 2017	04/26/2017	14:50	--	--	--	--	--	--	--	--
PAG	K1710675	NPLLC	September 2017	09/30/2017	16:40	--	--	0.02 <i>U</i>	--	--	--	--	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 4-1c. Water Quality Monitoring Data, Trace Elements, 2017

ALS Kelso Collection Station ID Lab SDG Contractor Sample Event Date Time						Trace Elements							
						Selenium (µg/L), Total	Selenium (µg/L), Dissolved	Silver (µg/L), Total	Silver (µg/L), Dissolved	Sodium (µg/L), Total	Sodium (µg/L), Dissolved	Zinc (µg/L), Total	Zinc (µg/L), Dissolved
Permit Stations - Surface Water													
WQ10	K1710675	NPLLC	September 2017	09/30/2017	15:55	0.1 <i>J</i>	--	--	--	--	--	43.7	42.0
WQ13	K1710675	NPLLC	September 2017	09/30/2017	14:25	0.3 <i>J</i>	--	--	--	--	--	1.5 <i>U</i>	1.7 <i>U</i>
WQ4	K1710675	NPLLC	September 2017	09/30/2017	13:50	0.2 <i>J</i>	--	--	--	--	--	1.8 <i>U</i>	1.9 <i>U</i>
WQ6	K1710675	NPLLC	September 2017	09/30/2017	15:10	0.1 <i>U</i>	--	--	--	--	--	7.1 <i>U</i>	7.4 <i>U</i>
Permit Stations - Groundwater													
MW1	K1710675	NPLLC	September 2017	09/30/2017	11:25	0.1 <i>J</i>	--	--	--	--	--	7.7 <i>U</i>	7.2 <i>U</i>
MW2	K1710675	NPLLC	September 2017	09/30/2017	12:20	0.1 <i>J</i>	--	--	--	--	--	1.4 <i>U</i>	1.0 <i>U</i>
MW3	K1710675	NPLLC	September 2017	09/30/2017	13:10	0.2 <i>J</i>	--	--	--	--	--	3.60 <i>U</i>	3.50 <i>U</i>
MW4	K1710675	NPLLC	September 2017	09/30/2017	18:30	0.2 <i>J</i>	--	--	--	--	--	2.2 <i>U</i>	1.5 <i>U</i>
Effluent and PAG Pond													
EFF1	K1710675	NPLLC	September 2017	09/30/2017	17:25	0.4 <i>J</i>	--	--	--	--	--	1250	1330
PAG	K1704538	NPLLC	April 2017	04/26/2017	14:50	--	--	--	--	--	--	8370	9080
PAG	K1710675	NPLLC	September 2017	09/30/2017	16:40	1.1	--	--	--	--	--	27600	27100

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the reported sample quantitation limit.

Table 4-2a. Method Detection Limits, Physical Parameters, Anions and Nutrients, 2017

ALS Kelso Lab SDG Collection Contractor Sample Event			Analytical Physical Tests			Dissolved Anions and Nutrients						
			TDS (mg/L)	Hardness as CaCO ₃ (mg/L)	TSS (mg/L)	Alkalinity as CaCO ₃ (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Ammonia as N (mg/L)	Nitrate+Nitrite as N (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
Permit Stations - Surface Water												
K1710675	NPLLC	September 2017	--	0.8	--	--	--	0.02 - 0.05	--	0.02	--	--
Permit Stations - Groundwater												
K1710675	NPLLC	September 2017	--	0.8 - 2	--	--	--	0.02 - 0.1	--	0.02	--	--
Effluent and PAG Pond												
K1710675	NPLLC	September 2017	--	0.8 - 4	--	--	--	0.1 - 5	--	0.02	--	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating
TDS = total dissolved solids

Table 4-2b. Method Detection Limits, Trace Elements, 2017

ALS Kelso Lab SDG Collection Contractor Sample Event			Trace Elements									
			Aluminum (µg/L), Total	Aluminum (µg/L), Dissolved	Arsenic (µg/L), Total	Arsenic (µg/L), Dissolved	Cadmium (µg/L), Total	Cadmium (µg/L), Dissolved	Calcium (µg/L), Total	Calcium (µg/L), Dissolved	Chromium (µg/L), Total	Chromium (µg/L), Dissolved
Permit Stations - Surface Water												
K1710675	NPLLC	September 2017	0.4	--	0.1	--	0.005	0.005	--	--	0.05	--
Permit Stations - Groundwater												
K1710675	NPLLC	September 2017	0.4	--	0.1	--	0.005	0.005	--	--	0.05	--
Effluent and PAG Pond												
K1704538	NPLLC	April 2017	--	--	--	--	0.070	0.070	--	--	--	--
K1710675	NPLLC	September 2017	0.4	--	0.1	--	0.005	0.005	--	--	0.05	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Table 4-2b. Method Detection Limits, Trace Element

ALS Kelso Lab SDG Collection Contractor Sample Event			Trace Elements									
			Copper (µg/L), Total	Copper (µg/L), Dissolved	Iron (µg/L), Total	Iron (µg/L), Dissolved	Lead (µg/L), Total	Lead (µg/L), Dissolved	Magnesium (µg/L), Total	Magnesium (µg/L), Dissolved	Mercury (µg/L), Total	Mercury (µg/L), Dissolved
Permit Stations - Surface Water												
K1710675	NPLLC	September 2017	0.03	0.03	--	--	0.004	--	--	--	0.02	--
Permit Stations - Groundwater												
K1710675	NPLLC	September 2017	0.03	0.03	--	--	0.004	--	--	--	0.02	--
Effluent and PAG Pond												
K1704538	NPLLC	April 2017	0.20	0.20	--	--	--	--	--	--	--	--
K1710675	NPLLC	September 2017	0.03	0.03	--	--	0.004	--	--	--	0.02	--

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Table 4-2b. Method Detection Limits, Trace Element

ALS Kelso Lab SDG Collection Contractor Sample Event			Trace Elements											
			Nickel (µg/L), Total	Nickel (µg/L), Dissolved	Potassium (µg/L), Total	Potassium (µg/L), Dissolved	Selenium (µg/L), Total	Selenium (µg/L), Dissolved	Silver (µg/L), Total	Silver (µg/L), Dissolved	Sodium (µg/L), Total	Sodium (µg/L), Dissolved	Zinc (µg/L), Total	Zinc (µg/L), Dissolved
Permit Stations - Surface Water														
K1710675	NPLLC	September 2017	--	--	--	--	0.4	0.1	--	--	--	--	0.1	0.1
Permit Stations - Groundwater														
K1710675	NPLLC	September 2017	--	--	--	--	0.4	0.1	--	--	--	--	0.1	0.1
Effluent and PAG Pond														
K1704538	NPLLC	April 2017	--	--	--	--	--	--	--	--	--	--	0.1	0.1
K1710675	NPLLC	September 2017	--	--	--	--	0.4	0.1	--	--	--	--	2	2

Notes:
NPLLC = Niblack Project LLC
-- = data not available
ALS = ALS Laboratory Group
PAG = potentially acid-generating

Table 4-3. ADEC Water Quality Criteria Screening Summary - Permit Stations - Surface Water and Groundwater

			Site Data						Screening Criteria							
			Number of Samples	Number of Detected Samples (n _{det})	Minimum Detected Value	Maximum Detected Value	Minimum Detection Limit	Maximum Detection Limit	Criteria	Exceedance Flag	Minimum Screening Value ^a	Maximum Screening Value ^a	Exceedance Count ^b	Exceedance Frequency ^b	Stations Where Exceedances Have Been Recorded	Date of Most Recent Exceedance
Permit Stations - Surface Water																
Aluminum	Total	µg/L	306	306	15.6	2120	--	--	Chronic AK Water Quality Criteria Manual for Toxics (12/12/2008)	Yes	87	750	57	19%	WQ10; WQ12; WQ13; WQ4; WQ6; WQ7; WQ8	12/5/2015 (WQ10)
Aluminum	Total	µg/L	306	306	15.6	2120	--	--	Acute AK Water Quality Criteria Manual for Toxics (12/12/2008) ^c	Yes	750	750	2	1%	WQ4	2/14/2008 (WQ4)
Cadmium	Dissolved	µg/L	306	16	0.004	0.191	0.003	0.033	Acute AK Water Quality Criteria Manual for Toxics (12/12/2008)	--	0.02	1	0	0%	--	--
Cadmium	Dissolved	µg/L	306	16	0.004	0.191	0.003	0.033	Chronic AK Water Quality Criteria Manual for Toxics (12/12/2008)	Yes	0.01	0.19	1	0%	WQ10	9/30/2017 (WQ10)
Chromium	Dissolved	µg/L	175	5	0.35	0.58	0.2	1.03	Niblack Permit 2013DB-0001, Table B	--	50	50	0	0%	--	--
Copper	Dissolved	µg/L	306	250	0.33	3.67	0.03	1.77	Chronic AK Water Quality Criteria Manual for Toxics (12/12/2008)	Yes	0.18	7	35	11%	WQ10; WQ12; WQ13; WQ4; WQ6; WQ7; WQ8	10/12/2014 (WQ13, WQ4, WQ6)
Copper	Dissolved	µg/L	306	250	0.33	3.67	0.03	1.77	Acute AK Water Quality Criteria Manual for Toxics (12/12/2008)	Yes	0.18	10	21	7%	WQ10; WQ12; WQ13; WQ4; WQ6; WQ7; WQ8	10/12/2014 (WQ6)
Selenium	Total	µg/L	306	36	0.2	0.5	0.1	1	Chronic AK Water Quality Criteria Manual for Toxics (12/12/2008)	--	5	5	0	0%	--	--
Zinc	Dissolved	µg/L	306	32	1	42	0.1	24.7	Acute AK Water Quality Criteria Manual for Toxics (12/12/2008)	--	2	87	0	0%	--	--
Zinc	Dissolved	µg/L	306	32	1	42	0.1	24.7	Chronic AK Water Quality Criteria Manual for Toxics (12/12/2008)	--	2	87	0	0%	--	--
Permit Stations - Groundwater																
Cadmium	Dissolved	µg/L	113	16	0.004	0.062	0.003	0.06	Niblack Permit 2013DB-0001, Table B	--	0.044	0.07	0	0%	--	--
Chromium	Total	µg/L	221	142	0.22	71.5	0.05	3.35	Niblack Permit 2013DB-0001, Table B	Yes	6.31	50	1	0%	MW4	2/27/2007 (MW4)
Copper	Dissolved	µg/L	61	56	0.48	4.06	0.03	1.38	Niblack Permit 2013DB-0001, Table B	Yes	2.61	2.61	1	2%	MW1	9/30/2017 (MW1)
Zinc	Dissolved	µg/L	113	13	3.5	19.6	0.1	12.4	Niblack Permit 2013DB-0001, Table B	Yes	7.59	11.76	3	3%	MW2; MW3	1/15/2010 (MW3)

Notes:
Summary based on January 2006 - October 2016 natural samples from relevant stations.
-- = value either not applicable or not available
AK = Alaska

^a Criteria for Cd, Cu, Pb, Ni, and Zn are calculated based on the hardness of the sample.
^b Values below detection limits were not included in screening.
^c Where the pH is greater than or equal to 7.0 and the hardness is greater than or equal to 50 ppm as CaCO₃, the chronic aluminum standard will then be equal to the acute aluminum standard, 750 µg/L as total recoverable aluminum.

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
Sample Event	Date	Sample Purpose		Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic	AWQ CrVI	Acute	Chronic	Acute	Chronic	AKWQ-HH	Chronic	Acute	Chronic
				AKWQCMT	AKWQCMT	AKWQCMT	AKWQCMT	AKWQCMT	AKWQCMT	AKWQCMT	AKWQCMT		AKWQCMT	AKWQCMT	AKWQCMT	AKWQCMT			AKWQCMT	AKWQCMT
WQ10	29/08/2006	August 2006 II	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ10	17/10/2006	October 2006	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ10	07/12/2006	December 2006	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ10	14/05/2007	May 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ10	04/06/2007	June 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Fail	Pass	Pass	ND	ND	Pass	Pass
WQ10	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ10	24/07/2007	July 2007 II	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ10	14/08/2007	August 2007 I	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	11/09/2007	September 2007 I	Field Replicate	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ10	11/09/2007	September 2007 I	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ10	01/10/2007	September 2007 II	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ10	17/10/2007	October 2007	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ10	13/11/2007	November 2007	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ10	15/12/2007	December 2007 I	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	09/01/2008	January 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ10	14/02/2008	February 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ10	15/03/2008	March 2008	Compliance	Pass	Fail	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	15/03/2008	March 2008	Field Replicate	Pass	Fail	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	14/04/2008	April 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	08/05/2008	May 2008	Compliance	Pass	Pass	ND	ND	Pass	Pass	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	28/06/2008	June 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	24/07/2008	July 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ10	15/10/2008	October 2008	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	09/03/2009	March 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	13/05/2009	May 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ10	13/05/2009	May 2009	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ10	23/07/2009	July 2009	Compliance	Pass	Fail	Pass	Pass	ND	ND	--	--	--	Fail	Fail	Pass	Pass	ND	ND	ND	ND
WQ10	05/09/2009	September 2009 I	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	12/09/2009	September 2009 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	17/10/2009	October 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ10	17/10/2009	October 2009	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ10	15/01/2010	January 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	15/01/2010	January 2010	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	22/04/2010	April 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	22/04/2010	April 2010	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	10/08/2010	August 2010	Compliance	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	10/08/2010	August 2010	Field Replicate	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	19/10/2010	October 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	21/01/2011	January 2011	Compliance	Pass	Fail	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	20/04/2011	April 2011	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	20/04/2011	April 2011	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ10	25/07/2011	July 2011 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	21/12/2011	December 2011	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ10	08/01/2012	January 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	08/04/2012	April 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	21/07/2012	July 2012	Compliance	Pass	Fail	Pass	Pass	ND	ND	--	--	--	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ10	27/10/2012	October 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	27/10/2012	October 2012	Field Replicate	Pass	Pass	ND	ND	Pass	Pass	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station IDSample EventDateSample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ10	06/01/2013	January 2013	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	26/04/2013	April 2013	Compliance	Pass	Fail	ND	ND	ND	ND	Pass	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ10	30/07/2013	July 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	30/07/2013	July 2013	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	27/10/2013	October 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	25/01/2014	January 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	07/06/2014	June 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	06/08/2014	August 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	12/10/2014	October 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	12/10/2014	October 2014	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	11/01/2015	January 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	10/05/2015	May 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	16/08/2015	August 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	05/12/2015	December 2015	Compliance	Pass	Fail	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	31/01/2016	January 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ10	01/04/2016	April 2016	Compliance	Pass	Pass	--	--	Pass	Pass	--	--	--	Pass	Pass	--	--	--	ND	Pass	Pass
WQ10	01/04/2016	April 2016	Field Replicate	Pass	Pass	--	--	Pass	Pass	--	--	--	Pass	Pass	--	--	--	ND	Pass	Pass
WQ10	10/10/2016	October 2016	Compliance	Pass	Pass	--	--	Pass	Pass	--	--	--	Pass	Pass	--	--	--	ND	Pass	Pass
WQ10	30/09/2017	September 2017	Compliance	Pass	Pass			Pass	Fail				Pass	Pass				Pass	Pass	Pass
WQ12	29/08/2006	August 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	17/10/2006	October 2006	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ12	07/12/2006	December 2006	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	14/05/2007	May 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	04/06/2007	June 2007	Field Replicate	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	04/06/2007	June 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	Fail	ND	Pass	Pass
WQ12	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ12	24/07/2007	July 2007 II	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Pass	ND	ND
WQ12	14/08/2007	August 2007 I	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	11/09/2007	September 2007 I	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ12	01/10/2007	September 2007 II	Field Replicate	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	01/10/2007	September 2007 II	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ12	17/10/2007	October 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ12	13/11/2007	November 2007	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	Pass	ND	ND
WQ12	15/12/2007	December 2007 I	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	09/01/2008	January 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ12	14/02/2008	Februrary 2008	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	Pass	ND	ND
WQ12	15/03/2008	March 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	14/04/2008	April 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ12	08/05/2008	May 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	28/06/2008	June 2008	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ12	24/07/2008	July 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ13	10/04/2007	April 2007	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ13	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ13	14/05/2007	May 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ13	04/06/2007	June 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	Pass	Pass
WQ13	01/07/2007	July 2007 I	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ13	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station IDSample EventDateSample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ13	24/07/2007	July 2007 II	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ13	14/08/2007	August 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	27/08/2007	August 2007 II	Field Replicate	Pass	Pass	ND	ND	Pass	Pass	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	Pass	Pass	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	11/09/2007	September 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ13	01/10/2007	September 2007 II	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	17/10/2007	October 2007	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ13	13/11/2007	November 2007	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	16/12/2007	December 2007 I	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ13	09/01/2008	January 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ13	09/01/2008	January 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ13	14/02/2008	February 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ13	14/02/2008	February 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ13	15/03/2008	March 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	15/04/2008	April 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	08/05/2008	May 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	27/06/2008	June 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ13	27/06/2008	June 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ13	25/07/2008	July 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ13	25/07/2008	July 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	15/10/2008	October 2008	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ13	08/03/2009	March 2009	Compliance	Pass	Pass	ND	ND	Pass	Pass	--	--	--	ND	ND	Pass	Pass	ND	ND	Pass	Pass
WQ13	08/03/2009	March 2009	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	Pass	Pass	ND	ND	Pass	Pass
WQ13	13/05/2009	May 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ13	23/07/2009	July 2009	Compliance	Pass	Fail	Pass	Pass	ND	ND	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ13	17/10/2009	October 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	17/01/2010	January 2010	Compliance	Pass	Pass	ND	ND	Pass	Pass	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ13	22/04/2010	April 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	14/07/2010	July 2010	Compliance	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WQ13	10/08/2010	August 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ13	18/10/2010	October 2010	Compliance	Pass	Pass	Pass	Pass	Pass	Pass	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ13	18/10/2010	October 2010	Field Replicate	Pass	Pass	ND	ND	Pass	Pass	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	19/01/2011	January 2011	Compliance	Pass	Fail	ND	ND	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ13	20/04/2011	April 2011	Compliance	Pass	Pass	ND	ND	Pass	Pass	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ13	25/07/2011	July 2011 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ13	21/12/2011	December 2011	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ13	21/12/2011	December 2011	Field Replicate	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	09/01/2012	January 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	09/01/2012	January 2012	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	08/04/2012	April 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	21/07/2012	July 2012	Compliance	Pass	Pass	Pass	Pass	Pass	Pass	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	27/10/2012	October 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	05/01/2013	January 2013	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	05/01/2013	January 2013	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ13	26/04/2013	April 2013	Compliance	Pass	Pass	ND	ND	ND	ND	Pass	Pass	Pass	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ13	26/04/2013	April 2013	Field Replicate	Pass	Pass	ND	ND	ND	ND	Pass	Pass	Pass	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ13	31/07/2013	July 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	27/10/2013	October 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	25/01/2014	January 2014	Compliance	Pass	Pass	--	--	Pass	Pass	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	25/01/2014	January 2014	Field Replicate	Pass	Pass	--	--	Pass	Pass	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	07/06/2014	June 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station ID Sample Event Date Sample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ13	06/08/2014	August 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND
WQ13	06/08/2014	August 2014	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	12/10/2014	October 2014	Compliance	Pass	Fail	--	--	ND	ND	--	--	--	Pass	Fail	--	--	--	ND	ND	ND
WQ13	11/01/2015	January 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	10/05/2015	May 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	10/05/2015	May 2015	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	16/08/2015	August 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND
WQ13	16/08/2015	August 2015	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	05/12/2015	December 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	31/01/2016	January 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	01/04/2016	April 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ13	10/10/2016	October 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND
WQ13	10/10/2016	October 2016	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND
WQ13	30/09/2017	September 2017	Compliance	Pass	Pass			ND	ND				Pass	Pass				Pass	ND	ND
WQ4	16/10/1996	October 1996 II	Historical	ND	ND	Pass	Pass	Fail	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	Fail	Fail
WQ4	03/09/1997	September 1997	Historical	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	20/04/2005	April 2005 II	Historical	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	15/02/2006	February 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	16/05/2006	May 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	29/08/2006	August 2006 II	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	17/10/2006	October 2006	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	07/12/2006	December 2006	Reference	Fail	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	26/02/2007	February 2007	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	14/05/2007	May 2007	Field Replicate	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	14/05/2007	May 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	04/06/2007	June 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ4	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ4	24/07/2007	July 2007 II	Field Replicate	Pass	Pass	Pass	Pass	Pass	Pass	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	Pass
WQ4	24/07/2007	July 2007 II	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ4	14/08/2007	August 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ4	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	11/09/2007	September 2007 I	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ4	02/10/2007	September 2007 II	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	17/10/2007	October 2007	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ4	13/11/2007	November 2007	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ4	15/12/2007	December 2007 I	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	09/01/2008	January 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ4	14/02/2008	Februrary 2008	Compliance	Fail	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	Pass	ND	ND
WQ4	15/03/2008	March 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	14/04/2008	April 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	08/05/2008	May 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	28/06/2008	June 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	24/07/2008	July 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ4	15/10/2008	October 2008	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	09/03/2009	March 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	13/05/2009	May 2009	Compliance	Pass	Pass	ND	ND	Pass	Pass	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ4	23/07/2009	July 2009	Compliance	Pass	Fail	Pass	Pass	ND	ND	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ4	05/09/2009	September 2009 I	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	05/09/2009	September 2009 I	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station ID Sample Event Date Sample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ4	12/09/2009	September 2009 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	12/09/2009	September 2009 II	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	17/10/2009	October 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ4	15/01/2010	January 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	22/04/2010	April 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	14/07/2010	July 2010	Compliance	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WQ4	10/08/2010	August 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	18/10/2010	October 2010	Compliance	Pass	Fail	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	19/01/2011	January 2011	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ4	19/01/2011	January 2011	Field Replicate	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ4	20/04/2011	April 2011	Compliance	Pass	Pass	Pass	Pass	Pass	Pass	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ4	25/07/2011	July 2011 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	21/12/2011	December 2011	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	Pass	Pass	ND	Pass	ND	ND
WQ4	09/01/2012	January 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	08/04/2012	April 2012	Compliance	Pass	Pass	ND	ND	ND	ND	Pass	Pass	Pass	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ4	08/04/2012	April 2012	Field Replicate	Pass	Pass	ND	ND	ND	ND	Pass	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	21/07/2012	July 2012	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	27/10/2012	October 2012	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ4	06/01/2013	January 2013	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ4	26/04/2013	April 2013	Compliance	Pass	Pass	ND	ND	ND	ND	Pass	Pass	Pass	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ4	31/07/2013	July 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	27/10/2013	October 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	27/10/2013	October 2013	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	25/01/2014	January 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	07/06/2014	June 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND
WQ4	07/06/2014	June 2014	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	06/08/2014	August 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	Pass	ND	ND
WQ4	12/10/2014	October 2014	Compliance	Pass	Fail	--	--	ND	ND	--	--	--	Pass	Fail	--	--	--	ND	ND	ND
WQ4	11/01/2015	January 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	11/01/2015	January 2015	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	10/05/2015	May 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	16/08/2015	August 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	05/12/2015	December 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	05/12/2015	December 2015	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	31/01/2016	January 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	01/04/2016	April 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	10/10/2016	October 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ4	30/09/2017	September 2017	Compliance	Pass	Pass			Pass	Pass				Pass	Pass				Pass	ND	ND
WQ6	16/10/1996	October 1996 II	Historical	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Pass	Fail	ND	ND	ND	ND
WQ6	03/09/1997	September 1997	Field Replicate	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	03/09/1997	September 1997	Historical	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	20/04/2005	April 2005 II	Historical	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ6	15/02/2006	February 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	16/05/2006	May 2006 II	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	16/05/2006	May 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	29/08/2006	August 2006 II	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ6	17/10/2006	October 2006	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	07/12/2006	December 2006	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	14/05/2007	May 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station ID Sample Event Date Sample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ6	04/06/2007	June 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	Pass	Pass
WQ6	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ6	24/07/2007	July 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	14/08/2007	August 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	11/09/2007	September 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	02/10/2007	September 2007 II	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ6	17/10/2007	October 2007	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ6	17/10/2007	October 2007	Field Replicate	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ6	13/11/2007	November 2007	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	15/12/2007	December 2007 I	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ6	15/12/2007	December 2007 I	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	09/01/2008	January 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ6	14/02/2008	Februrary 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ6	15/03/2008	March 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Pass	Pass
WQ6	14/04/2008	April 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	08/05/2008	May 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	28/06/2008	June 2008	Compliance	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	24/07/2008	July 2008	Compliance	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	15/10/2008	October 2008	Compliance	Pass	Fail	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	15/10/2008	October 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	09/03/2009	March 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	13/05/2009	May 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ6	23/07/2009	July 2009	Compliance	Pass	Fail	ND	ND	ND	ND	--	--	--	Fail	Fail	Pass	Pass	ND	ND	ND	ND
WQ6	05/09/2009	September 2009 I	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	12/09/2009	September 2009 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	17/10/2009	October 2009	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Fail	Pass	Pass	ND	ND	ND	ND
WQ6	15/01/2010	January 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	22/04/2010	April 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	10/08/2010	August 2010	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	19/10/2010	October 2010	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	21/01/2011	January 2011	Compliance	Pass	Fail	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	20/04/2011	April 2011	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
WQ6	25/07/2011	July 2011 II	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ6	21/12/2011	December 2011	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	08/01/2012	January 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	08/04/2012	April 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	21/07/2012	July 2012	Compliance	Pass	Pass	Pass	Pass	ND	ND	--	--	--	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ6	27/10/2012	October 2012	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	06/01/2013	January 2013	Compliance	Pass	Pass	ND	ND	ND	ND	--	--	--	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ6	26/04/2013	April 2013	Compliance	Pass	Pass	ND	ND	ND	ND	Pass	Pass	Pass	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ6	30/07/2013	July 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	27/10/2013	October 2013	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	25/01/2014	January 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	07/06/2014	June 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	06/08/2014	August 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	12/10/2014	October 2014	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Fail	Fail	--	--	--	ND	ND	ND
WQ6	11/01/2015	January 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	10/05/2015	May 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	16/08/2015	August 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	05/12/2015	December 2015	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station ID Sample Event Date Sample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ6	31/01/2016	January 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	31/01/2016	January 2016	Field Replicate	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	01/04/2016	April 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	10/10/2016	October 2016	Compliance	Pass	Pass	--	--	ND	ND	--	--	--	Pass	Pass	--	--	--	ND	ND	ND
WQ6	30/09/2017	September 2017	Compliance	Pass	Pass			Pass	Pass				Pass	Pass				ND	ND	ND
WQ6	30/09/2017	September 2017	Field Replicate	Pass	Pass			Pass	Pass				Pass	Pass				ND	ND	ND
WQ7	15/02/2006	February 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	16/05/2006	May 2006 II	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	29/08/2006	August 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ7	17/10/2006	October 2006	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	07/12/2006	December 2006	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	14/05/2007	May 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	04/06/2007	June 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	Pass	Pass
WQ7	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	24/07/2007	July 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	14/08/2007	August 2007 I	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ7	14/08/2007	August 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	11/09/2007	September 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ7	02/10/2007	September 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Fail	ND	ND	ND	ND	ND	ND
WQ7	17/10/2007	October 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ7	13/11/2007	November 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	15/12/2007	December 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ7	09/01/2008	January 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass
WQ7	14/02/2008	Februrary 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	Pass	Pass	Pass
WQ7	15/03/2008	March 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	14/04/2008	April 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	14/04/2008	April 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	08/05/2008	May 2008	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	08/05/2008	May 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ7	28/06/2008	June 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ7	24/07/2008	July 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	Pass	Pass	ND	ND	ND	ND
WQ8	15/02/2006	February 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ8	17/05/2006	May 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ8	29/08/2006	August 2006 II	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	29/08/2006	August 2006 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	17/10/2006	October 2006	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ8	07/12/2006	December 2006	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ8	26/02/2007	February 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ8	10/04/2007	April 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	14/05/2007	May 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ8	04/06/2007	June 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ8	01/07/2007	July 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	Pass	Pass	ND	ND	Pass	Pass
WQ8	24/07/2007	July 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	14/08/2007	August 2007 I	Reference	Pass	Pass	Pass	Pass	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	27/08/2007	August 2007 II	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	11/09/2007	September 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	ND	ND
WQ8	02/10/2007	September 2007 II	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Fail	Fail	ND	ND	ND	ND	ND	ND
WQ8	17/10/2007	October 2007	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	Pass	Fail	Pass	Pass	ND	ND	ND	ND

Table 4-4a. Water Quality Criteria Screening Results - Permit Stations - Surface Water

Station ID Sample Event Date Sample Purpose				Aluminum, Total		Arsenic, Dissolved		Cadmium, Dissolved		Chromium, Dissolved			Copper, Dissolved		Lead, Dissolved		Mercury, Dissolved	Selenium, Total	Zinc, Dissolved	
				Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AWQ CrVI	Acute AKWQCMT	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT	AKWQ-HH	Chronic AKWQCMT	Acute AKWQCMT	Chronic AKWQCMT
WQ8	13/11/2007	November 2007	Field Replicate	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	13/11/2007	November 2007	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	15/12/2007	December 2007 I	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	09/01/2008	January 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	Pass	Pass	Pass
WQ8	14/02/2008	Februrary 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	15/03/2008	March 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	Pass	Pass
WQ8	14/04/2008	April 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	08/05/2008	May 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
WQ8	28/06/2008	June 2008	Reference	Pass	Fail	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WQ8	24/07/2008	July 2008	Reference	Pass	Pass	ND	ND	ND	ND	ND	ND	ND	Pass	Pass	ND	ND	ND	ND	ND	ND
Count of Exceedances - All Data				2	63	0	0	1	2	0	0	0	23	38	0	1	1	0	1	1
Count of Exceedances - Compliance Samples Only				1	33	0	0	0	1	0	0	0	10	20	0	0	0	0	0	0

Notes:
Shaded cells indicate samples collected during 2017.
Fail = Indicates that a detected sample concentration exceeds ADEC chronic aquatic life criterion.
Pass = Indicates that a detected sample concentration is equal to or below ADEC chronic aquatic life criterion.

-- = sample not collected
NA = ADEC chronic aquatic life criterion does not exist for silver
ND = Concentration below laboratory detection limit. Nondetect values were not screened against ADEC chronic aquatic life criteria.
R = The sample results are rejected. Rejected values were not screened against ADEC chronic aquatic life criteria.

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW1	28/02/2007	February 2007	Reference	--	--	Pass	Pass	--
MW1	10/04/2007	April 2007	Reference	--	--	ND	Pass	--
MW1	14/05/2007	May 2007	Reference	--	--	ND	Pass	--
MW1	04/06/2007	June 2007	Field Replicate	--	--	ND	Pass	--
MW1	04/06/2007	June 2007	Reference	--	--	ND	Pass	--
MW1	02/07/2007	July 2007 I	Reference	--	--	ND	Pass	--
MW1	24/07/2007	July 2007 II	Reference	--	--	ND	Pass	--
MW1	14/08/2007	August 2007 I	Field Replicate	--	--	ND	Pass	--
MW1	14/08/2007	August 2007 I	Reference	--	--	ND	Pass	--
MW1	28/08/2007	August 2007 II	Reference	--	--	ND	Pass	--
MW1	11/09/2007	September 2007 I	Reference	--	--	ND	Pass	--
MW1	30/09/2007	September 2007 II	Compliance	--	--	ND	Pass	--
MW1	16/10/2007	October 2007	Compliance	--	--	ND	Pass	--
MW1	16/10/2007	October 2007	Field Replicate	--	--	ND	Pass	--
MW1	12/11/2007	November 2007	Compliance	--	--	ND	Pass	--
MW1	14/12/2007	December 2007 I	Compliance	--	--	Pass	Pass	--
MW1	14/12/2007	December 2007 I	Field Replicate	--	--	ND	Pass	--
MW1	09/01/2008	January 2008	Compliance	--	--	ND	Pass	--
MW1	14/02/2008	February 2008	Compliance	--	--	ND	Pass	--
MW1	14/03/2008	March 2008	Compliance	--	--	ND	Pass	--
MW1	15/04/2008	April 2008	Compliance	--	--	ND	Pass	--
MW1	07/05/2008	May 2008	Compliance	--	--	ND	Pass	--
MW1	26/06/2008	June 2008	Compliance	--	--	ND	ND	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station ID	Sample Event	Date	Sample Purpose	Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
				NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW1	24/07/2008	July 2008	Compliance	--	--	ND	Pass	--
MW1	24/07/2008	July 2008	Field Replicate	--	--	ND	Pass	--
MW1	19/08/2008	August 2008	Compliance	--	--	--	Pass	--
MW1	09/09/2008	September 2008	Compliance	--	--	--	Pass	--
MW1	09/09/2008	September 2008	Field Replicate	--	--	--	Pass	--
MW1	15/10/2008	October 2008	Compliance	--	--	--	ND	--
MW1	15/10/2008	October 2008	Field Replicate	--	--	--	Pass	--
MW1	09/03/2009	March 2009	Compliance	--	--	--	ND	--
MW1	09/03/2009	March 2009	Field Replicate	--	--	--	ND	--
MW1	13/05/2009	May 2009	Compliance	--	--	--	Pass	--
MW1	24/07/2009	July 2009	Compliance	--	--	--	Pass	--
MW1	17/10/2009	October 2009	Compliance	--	--	--	Pass	--
MW1	17/10/2009	October 2009	Field Replicate	--	--	--	Pass	--
MW1	17/01/2010	January 2010	Compliance	--	--	--	ND	--
MW1	22/04/2010	April 2010	Compliance	--	--	--	Pass	--
MW1	10/08/2010	August 2010	Compliance	--	--	--	Pass	--
MW1	10/08/2010	August 2010	Field Replicate	--	--	--	Pass	--
MW1	19/10/2010	October 2010	Compliance	--	--	--	Pass	--
MW1	20/01/2011	January 2011	Compliance	--	--	--	Pass	--
MW1	20/01/2011	January 2011	Field Replicate	--	--	--	Pass	--
MW1	20/04/2011	April 2011	Compliance	--	--	--	ND	--
MW1	25/07/2011	July 2011 II	Compliance	--	--	--	Pass	--
MW1	20/12/2011	December 2011	Compliance	--	--	--	Pass	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW1	09/01/2012	January 2012	Compliance	--	--	--	Pass	--
MW1	09/01/2012	January 2012	Field Replicate	--	--	--	Pass	--
MW1	07/04/2012	April 2012	Compliance	--	--	--	Pass	--
MW1	07/04/2012	April 2012	Field Replicate	--	--	--	Pass	--
MW1	21/07/2012	July 2012	Compliance	--	--	--	Pass	--
MW1	28/10/2012	October 2012	Compliance	--	--	--	Pass	--
MW1	28/10/2012	October 2012	Field Replicate	--	--	--	Pass	--
MW1	04/01/2013	January 2013	Compliance	--	--	--	Pass	--
MW1	04/01/2013	January 2013	Field Replicate	--	--	--	Pass	--
MW1	25/04/2013	April 2013	Compliance	--	--	Pass	Pass	--
MW1	25/04/2013	April 2013	Field Replicate	--	--	Pass	Pass	--
MW1	30/07/2013	July 2013	Compliance	--	--	ND	Pass	--
MW1	30/07/2013	July 2013	Field Replicate	--	--	Pass	Pass	--
MW1	26/10/2013	October 2013	Compliance	--	--	Pass	Pass	--
MW1	26/10/2013	October 2013	Field Replicate	--	--	Pass	Pass	--
MW1	26/01/2014	January 2014	Compliance	--	--	Pass	Pass	--
MW1	26/01/2014	January 2014	Field Replicate	--	--	Pass	Pass	--
MW1	08/06/2014	June 2014	Compliance	--	--	ND	Pass	--
MW1	08/06/2014	June 2014	Field Replicate	--	--	ND	Pass	--
MW1	05/08/2014	August 2014	Compliance	--	--	ND	Pass	--
MW1	05/08/2014	August 2014	Field Replicate	--	--	ND	Pass	--
MW1	12/10/2014	October 2014	Compliance	--	--	Pass	Pass	--
MW1	12/10/2014	October 2014	Field Replicate	--	--	Pass	Pass	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW1	10/01/2015	January 2015	Compliance	--	--	Pass	Pass	--
MW1	10/01/2015	January 2015	Field Replicate	--	--	Pass	Pass	--
MW1	10/05/2015	May 2015	Compliance	--	--	Pass	Pass	--
MW1	10/05/2015	May 2015	Field Replicate	--	--	Pass	Pass	--
MW1	15/08/2015	August 2015	Compliance	--	--	Pass	Pass	--
MW1	15/08/2015	August 2015	Field Replicate	--	--	Pass	Pass	--
MW1	04/12/2015	December 2015	Compliance	--	--	Pass	Pass	--
MW1	04/12/2015	December 2015	Field Replicate	--	--	ND	Pass	--
MW1	31/01/2016	January 2016	Compliance	--	--	ND	Pass	--
MW1	31/01/2016	January 2016	Field Replicate	--	--	ND	Pass	--
MW1	01/04/2016	April 2016	Compliance	--	--	Pass	Pass	--
MW1	01/04/2016	April 2016	Field Replicate	--	--	Pass	Pass	--
MW1	10/10/2016	October 2016	Compliance	--	--	Pass	Pass	--
MW1	10/10/2016	October 2016	Field Replicate	--	--	Pass	Pass	--
MW1	30/09/2017	September 2017	Compliance	Pass	Pass	Pass	Fail	ND
MW1	30/09/2017	September 2017	Field Replicate	Pass	Pass	Pass	Fail	ND
MW2	10/04/2007	April 2007	Reference	ND	--	Pass	--	Pass
MW2	14/05/2007	May 2007	Reference	ND	--	Pass	--	Pass
MW2	04/06/2007	June 2007	Reference	ND	--	Pass	--	Pass
MW2	02/07/2007	July 2007 I	Reference	Pass	--	ND	--	Pass
MW2	24/07/2007	July 2007 II	Reference	ND	--	Pass	--	ND
MW2	14/08/2007	August 2007 I	Reference	ND	--	ND	--	ND
MW2	28/08/2007	August 2007 II	Reference	Pass	--	Pass	--	ND

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW2	11/09/2007	September 2007 I	Reference	ND	--	Pass	--	ND
MW2	30/09/2007	September 2007 II	Compliance	ND	--	Pass	--	ND
MW2	16/10/2007	October 2007	Compliance	Pass	--	Pass	--	Fail
MW2	12/11/2007	November 2007	Compliance	ND	--	Pass	--	ND
MW2	14/12/2007	December 2007 I	Compliance	ND	--	Pass	--	Fail
MW2	08/01/2008	January 2008	Compliance	ND	--	Pass	--	ND
MW2	13/02/2008	February 2008	Compliance	ND	--	Pass	--	ND
MW2	14/03/2008	March 2008	Compliance	ND	--	Pass	--	ND
MW2	14/04/2008	April 2008	Compliance	ND	--	Pass	--	ND
MW2	07/05/2008	May 2008	Compliance	ND	--	Pass	--	ND
MW2	26/06/2008	June 2008	Compliance	ND	--	Pass	--	ND
MW2	24/07/2008	July 2008	Compliance	ND	--	Pass	--	ND
MW2	19/08/2008	August 2008	Compliance	ND	--	--	--	ND
MW2	09/09/2008	September 2008	Compliance	ND	--	--	--	ND
MW2	15/10/2008	October 2008	Compliance	ND	--	--	--	ND
MW2	08/03/2009	March 2009	Compliance	ND	--	--	--	ND
MW2	13/05/2009	May 2009	Compliance	Pass	--	--	--	ND
MW2	24/07/2009	July 2009	Compliance	ND	--	--	--	ND
MW2	08/09/2009	September 2009 I	Compliance	--	--	--	--	--
MW2	12/09/2009	September 2009 II	Compliance	ND	--	--	--	ND
MW2	17/10/2009	October 2009	Compliance	ND	--	--	--	ND
MW2	15/01/2010	January 2010	Compliance	Pass	--	--	--	ND
MW2	22/04/2010	April 2010	Compliance	ND	--	--	--	ND

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW2	10/08/2010	August 2010	Compliance	ND	--	--	--	ND
MW2	19/10/2010	October 2010	Compliance	ND	--	--	--	ND
MW2	20/01/2011	January 2011	Compliance	ND	--	--	--	ND
MW2	20/04/2011	April 2011	Compliance	ND	--	--	--	ND
MW2	24/07/2011	July 2011 II	Compliance	ND	--	--	--	ND
MW2	20/12/2011	December 2011	Compliance	ND	--	--	--	ND
MW2	09/01/2012	January 2012	Compliance	ND	--	--	--	ND
MW2	07/04/2012	April 2012	Compliance	ND	--	--	--	ND
MW2	21/07/2012	July 2012	Compliance	ND	--	--	--	ND
MW2	28/10/2012	October 2012	Compliance	ND	--	--	--	ND
MW2	05/01/2013	January 2013	Compliance	ND	--	--	--	ND
MW2	25/04/2013	April 2013	Compliance	ND	--	Pass	--	ND
MW2	30/07/2013	July 2013	Compliance	ND	--	Pass	--	ND
MW2	26/10/2013	October 2013	Compliance	ND	--	Pass	--	ND
MW2	26/01/2014	January 2014	Compliance	ND	--	Pass	--	ND
MW2	08/06/2014	June 2014	Compliance	ND	--	Pass	--	ND
MW2	05/08/2014	August 2014	Compliance	ND	--	Pass	--	ND
MW2	11/10/2014	October 2014	Compliance	ND	--	Pass	--	ND
MW2	10/01/2015	January 2015	Compliance	ND	--	Pass	--	ND
MW2	11/05/2015	May 2015	Compliance	ND	--	Pass	--	ND
MW2	15/08/2015	August 2015	Compliance	ND	--	Pass	--	ND
MW2	04/12/2015	December 2015	Compliance	ND	--	Pass	--	ND
MW2	31/01/2016	January 2016	Compliance	ND	--	Pass	--	ND

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station ID	Sample Event	Date	Sample Purpose	Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
				NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW2	01/04/2016	April 2016	Compliance	ND	--	Pass	--	ND
MW2	10/10/2016	October 2016	Compliance	ND	--	Pass	--	ND
MW2	30/09/2017	September 2017	Compliance	ND	Pass	Pass	Pass	ND
MW3	28/02/2007	February 2007	Reference	Pass	Pass	Pass	--	Pass
MW3	10/04/2007	April 2007	Reference	ND	Pass	Pass	--	Pass
MW3	14/05/2007	May 2007	Field Replicate	ND	Pass	Pass	--	Pass
MW3	14/05/2007	May 2007	Reference	ND	Pass	Pass	--	Pass
MW3	04/06/2007	June 2007	Reference	ND	Pass	Pass	--	Pass
MW3	02/07/2007	July 2007 I	Reference	ND	Pass	Pass	--	Pass
MW3	24/07/2007	July 2007 II	Reference	ND	Pass	Pass	--	ND
MW3	14/08/2007	August 2007 I	Reference	ND	ND	ND	--	ND
MW3	28/08/2007	August 2007 II	Reference	Pass	ND	ND	--	ND
MW3	10/09/2007	September 2007 I	Reference	Pass	Pass	Pass	--	ND
MW3	30/09/2007	September 2007 II	Compliance	ND	Pass	Pass	--	ND
MW3	17/10/2007	October 2007	Compliance	ND	Pass	Pass	--	Pass
MW3	12/11/2007	November 2007	Compliance	ND	Pass	Pass	--	ND
MW3	15/12/2007	December 2007 I	Compliance	ND	ND	ND	--	ND
MW3	08/01/2008	January 2008	Compliance	ND	ND	ND	--	ND
MW3	08/01/2008	January 2008	Field Replicate	ND	ND	ND	--	ND
MW3	13/02/2008	February 2008	Compliance	ND	ND	ND	--	ND
MW3	14/03/2008	March 2008	Compliance	ND	ND	ND	--	ND
MW3	14/04/2008	April 2008	Compliance	ND	Pass	Pass	--	ND
MW3	07/05/2008	May 2008	Compliance	ND	ND	ND	--	ND

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW3	27/06/2008	June 2008	Compliance	ND	Pass	Pass	--	ND
MW3	24/07/2008	July 2008	Compliance	ND	Pass	Pass	--	ND
MW3	19/08/2008	August 2008	Compliance	ND	--	--	--	ND
MW3	09/09/2008	September 2008	Compliance	ND	--	--	--	ND
MW3	15/10/2008	October 2008	Compliance	ND	--	--	--	ND
MW3	08/03/2009	March 2009	Compliance	Pass	--	--	--	ND
MW3	13/05/2009	May 2009	Compliance	Pass	--	--	--	ND
MW3	24/07/2009	July 2009	Compliance	ND	--	--	--	ND
MW3	12/09/2009	September 2009 II	Compliance	ND	--	--	--	ND
MW3	17/10/2009	October 2009	Compliance	ND	--	--	--	ND
MW3	15/01/2010	January 2010	Compliance	Pass	--	--	--	Fail
MW3	22/04/2010	April 2010	Compliance	ND	--	--	--	ND
MW3	10/08/2010	August 2010	Compliance	ND	--	--	--	ND
MW3	19/10/2010	October 2010	Compliance	Pass	--	--	--	ND
MW3	20/01/2011	January 2011	Compliance	ND	--	--	--	ND
MW3	20/04/2011	April 2011	Compliance	Pass	--	--	--	ND
MW3	24/07/2011	July 2011 II	Compliance	ND	--	--	--	ND
MW3	20/12/2011	December 2011	Compliance	ND	--	--	--	ND
MW3	09/01/2012	January 2012	Compliance	ND	--	--	--	ND
MW3	07/04/2012	April 2012	Compliance	ND	--	--	--	ND
MW3	21/07/2012	July 2012	Compliance	ND	--	--	--	ND
MW3	28/10/2012	October 2012	Compliance	ND	--	--	--	ND
MW3	05/01/2013	January 2013	Compliance	ND	--	--	--	ND

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW3	25/04/2013	April 2013	Compliance	ND	Pass	Pass	--	ND
MW3	30/07/2013	July 2013	Compliance	ND	Pass	Pass	--	ND
MW3	26/10/2013	October 2013	Compliance	ND	Pass	Pass	--	ND
MW3	26/01/2014	January 2014	Compliance	ND	Pass	Pass	--	ND
MW3	08/06/2014	June 2014	Compliance	ND	Pass	Pass	--	ND
MW3	05/08/2014	August 2014	Compliance	ND	Pass	Pass	--	ND
MW3	11/10/2014	October 2014	Compliance	ND	Pass	Pass	--	ND
MW3	10/01/2015	January 2015	Compliance	ND	Pass	Pass	--	ND
MW3	11/05/2015	May 2015	Compliance	ND	Pass	Pass	--	ND
MW3	15/08/2015	August 2015	Compliance	ND	Pass	Pass	--	ND
MW3	04/12/2015	December 2015	Compliance	ND	Pass	Pass	--	ND
MW3	31/01/2016	January 2016	Compliance	ND	Pass	Pass	--	ND
MW3	01/04/2016	April 2016	Compliance	ND	Pass	Pass	--	ND
MW3	10/10/2016	October 2016	Compliance	ND	Pass	Pass	--	ND
MW3	30/09/2017	September 2017	Compliance	Pass	Pass	Pass	Pass	ND
MW4	27/02/2007	February 2007	Field Replicate	--	--	Fail	--	--
MW4	27/02/2007	February 2007	Reference	--	--	Fail	--	--
MW4	10/04/2007	April 2007	Reference	--	--	Pass	--	--
MW4	14/05/2007	May 2007	Reference	--	--	Pass	--	--
MW4	04/06/2007	June 2007	Reference	--	--	Pass	--	--
MW4	23/07/2007	July 2007 II	Reference	--	--	Pass	--	--
MW4	27/08/2007	August 2007 II	Reference	--	--	Pass	--	--
MW4	10/09/2007	September 2007 I	Reference	--	--	Pass	--	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW4	30/09/2007	September 2007 II	Compliance	--	--	Pass	--	--
MW4	16/10/2007	October 2007	Compliance	--	--	Pass	--	--
MW4	12/11/2007	November 2007	Compliance	--	--	Pass	--	--
MW4	12/11/2007	November 2007	Field Replicate	--	--	Pass	--	--
MW4	15/12/2007	December 2007 I	Compliance	--	--	ND	--	--
MW4	08/01/2008	January 2008	Compliance	--	--	Pass	--	--
MW4	13/02/2008	February 2008	Compliance	--	--	ND	--	--
MW4	15/03/2008	March 2008	Compliance	--	--	Pass	--	--
MW4	14/04/2008	April 2008	Compliance	--	--	Pass	--	--
MW4	08/05/2008	May 2008	Compliance	--	--	Pass	--	--
MW4	08/05/2008	May 2008	Field Replicate	--	--	Pass	--	--
MW4	27/06/2008	June 2008	Compliance	--	--	Pass	--	--
MW4	24/07/2008	July 2008	Compliance	--	--	Pass	--	--
MW4	19/08/2008	August 2008	Compliance	--	--	--	--	--
MW4	09/09/2008	September 2008	Compliance	--	--	--	--	--
MW4	15/10/2008	October 2008	Compliance	--	--	--	--	--
MW4	08/03/2009	March 2009	Compliance	--	--	--	--	--
MW4	13/05/2009	May 2009	Compliance	--	--	--	--	--
MW4	23/07/2009	July 2009	Compliance	--	--	--	--	--
MW4	24/07/2009	July 2009	Compliance	--	--	--	--	--
MW4	25/07/2009	July 2009	Compliance	--	--	--	--	--
MW4	13/09/2009	September 2009 II	Compliance	--	--	--	--	--
MW4	17/10/2009	October 2009	Compliance	--	--	--	--	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW4	15/01/2010	January 2010	Compliance	--	--	--	--	--
MW4	22/04/2010	April 2010	Compliance	--	--	--	--	--
MW4	10/08/2010	August 2010	Compliance	--	--	--	--	--
MW4	19/10/2010	October 2010	Compliance	--	--	--	--	--
MW4	20/01/2011	January 2011	Compliance	--	--	--	--	--
MW4	20/04/2011	April 2011	Compliance	--	--	--	--	--
MW4	24/07/2011	July 2011 II	Compliance	--	--	--	--	--
MW4	20/12/2011	December 2011	Compliance	--	--	--	--	--
MW4	09/01/2012	January 2012	Compliance	--	--	--	--	--
MW4	07/04/2012	April 2012	Compliance	--	--	--	--	--
MW4	21/07/2012	July 2012	Compliance	--	--	--	--	--
MW4	05/01/2013	January 2013	Compliance	--	--	--	--	--
MW4	25/04/2013	April 2013	Compliance	--	--	Pass	--	--
MW4	26/10/2013	October 2013	Compliance	--	--	Pass	--	--
MW4	26/01/2014	January 2014	Compliance	--	--	Pass	--	--
MW4	08/06/2014	June 2014	Compliance	--	--	Pass	--	--
MW4	12/10/2014	October 2014	Compliance	--	--	Pass	--	--
MW4	11/05/2015	May 2015	Compliance	--	--	Pass	--	--
MW4	15/08/2015	August 2015	Compliance	--	--	Pass	--	--
MW4	04/12/2015	December 2015	Compliance	--	--	Pass	--	--
MW4	31/01/2016	January 2016	Compliance	--	--	Pass	--	--
MW4	01/04/2016	April 2016	Compliance	--	--	Pass	--	--
MW4	11/10/2016	October 2016	Compliance	--	--	Pass	--	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station ID	Sample Event	Date	Sample Purpose	Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
				NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW4	30/09/2017	September 2017	Compliance	Pass	Pass	Pass	Pass	ND
MW7	28/02/2007	February 2007	Reference	--	--	Pass	--	--
MW7	10/04/2007	April 2007	Field Replicate	--	--	Pass	--	--
MW7	10/04/2007	April 2007	Reference	--	--	Pass	--	--
MW7	15/05/2007	May 2007	Reference	--	--	Pass	--	--
MW7	05/06/2007	June 2007	Reference	--	--	Pass	--	--
MW7	01/07/2007	July 2007 I	Reference	--	--	Pass	--	--
MW7	23/07/2007	July 2007 II	Reference	--	--	ND	--	--
MW7	13/08/2007	August 2007 I	Reference	--	--	ND	--	--
MW7	28/08/2007	August 2007 II	Reference	--	--	ND	--	--
MW7	10/09/2007	September 2007 I	Field Replicate	--	--	ND	--	--
MW7	10/09/2007	September 2007 I	Reference	--	--	ND	--	--
MW7	30/09/2007	September 2007 II	Reference	--	--	ND	--	--
MW7	16/10/2007	October 2007	Reference	--	--	Pass	--	--
MW7	13/11/2007	November 2007	Reference	--	--	ND	--	--
MW7	15/12/2007	December 2007 I	Reference	--	--	ND	--	--
MW7	09/01/2008	January 2008	Reference	--	--	ND	--	--
MW7	14/02/2008	Februrary 2008	Reference	--	--	ND	--	--
MW7	13/03/2008	March 2008	Reference	--	--	ND	--	--
MW7	13/04/2008	April 2008	Field Replicate	--	--	ND	--	--
MW7	13/04/2008	April 2008	Reference	--	--	ND	--	--
MW7	06/05/2008	May 2008	Reference	--	--	ND	--	--
MW7	26/06/2008	June 2008	Field Replicate	--	--	Pass	--	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW7	26/06/2008	June 2008	Reference	--	--	Pass	--	--
MW7	25/07/2008	July 2008	Reference	--	--	ND	--	--
MW8	02/07/2007	July 2007 I	Information only	--	--	ND	--	--
MW8	23/07/2007	July 2007 II	Field Replicate	--	--	ND	--	--
MW8	23/07/2007	July 2007 II	Information only	--	--	ND	--	--
MW8	13/08/2007	August 2007 I	Information only	--	--	ND	--	--
MW8	28/08/2007	August 2007 II	Field Replicate	--	--	ND	--	--
MW8	28/08/2007	August 2007 II	Information only	--	--	ND	--	--
MW8	10/09/2007	September 2007 I	Information only	--	--	ND	--	--
MW8	30/09/2007	September 2007 II	Field Replicate	--	--	Pass	--	--
MW8	30/09/2007	September 2007 II	Information only	--	--	ND	--	--
MW8	16/10/2007	October 2007	Information only	--	--	ND	--	--
MW8	12/11/2007	November 2007	Information only	--	--	ND	--	--
MW8	14/12/2007	December 2007 I	Information only	--	--	ND	--	--
MW8	08/01/2008	January 2008	Information only	--	--	ND	--	--
MW8	13/02/2008	February 2008	Field Replicate	--	--	ND	--	--
MW8	13/02/2008	February 2008	Information only	--	--	ND	--	--
MW8	13/03/2008	March 2008	Information only	--	--	ND	--	--
MW8	14/04/2008	April 2008	Information only	--	--	ND	--	--
MW8	06/05/2008	May 2008	Information only	--	--	ND	--	--
MW8	26/06/2008	June 2008	Information only	--	--	ND	--	--
MW9	02/07/2007	July 2007 I	Field Replicate	--	--	Pass	--	--
MW9	02/07/2007	July 2007 I	Information only	--	--	Pass	--	--

Table 4-4b. Water Quality Criteria Screening Results - Permit Stations - Groundwater

Station				Cadmium, Dissolved	Chromium, Total		Copper, Dissolved	Zinc, Dissolved
ID	Sample Event	Date	Sample Purpose	NP2013DB	NP2013DB	AWQ CrVI	NP2013DB	NP2013DB
MW9	23/07/2007	July 2007 II	Information only	--	--	Pass	--	--
MW9	13/08/2007	August 2007 I	Information only	--	--	ND	--	--
MW9	28/08/2007	August 2007 II	Information only	--	--	ND	--	--
MW9	10/09/2007	September 2007 I	Information only	--	--	ND	--	--
MW9	30/09/2007	September 2007 II	Information only	--	--	ND	--	--
MW9	16/10/2007	October 2007	Information only	--	--	Pass	--	--
MW9	12/11/2007	November 2007	Information only	--	--	ND	--	--
MW9	14/12/2007	December 2007 I	Information only	--	--	Pass	--	--
MW9	08/01/2008	January 2008	Information only	--	--	Pass	--	--
MW9	13/02/2008	February 2008	Information only	--	--	ND	--	--
MW9	13/03/2008	March 2008	Field Replicate	--	--	ND	--	--
MW9	13/03/2008	March 2008	Information only	--	--	Pass	--	--
MW9	14/04/2008	April 2008	Information only	--	--	ND	--	--
MW9	06/05/2008	May 2008	Information only	--	--	ND	--	--
MW9	26/06/2008	June 2008	Information only	--	--	ND	--	--
Count of Exceedances - All Data				0	0	2	2	3
Count of Exceedances - Compliance Samples Only				0	0	0	1	3

Notes:

Shaded cells indicate samples collected through Q4 2017.

Fail = Indicates that a detected sample concentration exceeds ADEC chronic aquatic life criterion.

Pass = Indicates that a detected sample concentration is equal to or below ADEC chronic aquatic life criterion.

-- = sample not collected

NA = ADEC chronic aquatic life criterion does not exist for silver

ND = Concentration below laboratory detection limit. Nondetect values were not screened against ADEC chronic aquatic life criteria.

R = The sample results are rejected. Rejected values were not screened against ADEC chronic aquatic life criteria.

APPENDIX A

PHOTOGRAPHS OF SITE FACILITIES AND WATER QUALITY MONITORING LOCATIONS

SITE DEVELOPMENT



Photo 1. Aerial view of site, looking southwest (March 2008).



Photo 2. Mine portal (October 2009).



Photo 3. Surface drill setup at the landing just up from Old Camp (May 2011).

STORMWATER MANAGEMENT STRUCTURES



Photo 4. Roadside ditch including culvert and straw bale sediment trap.



Photo 5. Sediment trap located along road down slope of NAG waste rock site. Photo taken during period of heavy rainfall.



Photo 6. Culvert and sump near sediment ponds.

SEDIMENT POND AND LAND APPLICATION AREAS – WATER TREATMENT FACILITY



Photo 7. Sediment pond construction, including sand bedding layer (water treatment plant in background).



Photo 8. Sediment pond construction, showing geotextile placement, anchor trench, and HDPE liner.



Photo 9. Sediment pond construction, showing HDPE liner installation.



Photo 10. Completed sediment ponds (2009).



Photo 11. EFF1 sample location (May 2011).



Photo 12. Partially completed water treatment facility, showing treatment tanks and mixers.



Photo 13. HDPE pipes exiting water treatment facility/sediment ponds and leading to Land Application Area.



Photo 14. Land Application Area, distribution system with 6-in. main line connecting to 2-in. pipe that services drip emitter lines for a single land application zone.

PAG TEMPORARY WASTE ROCK STORAGE SITE



Photo 15. Crushed rock base of PAG site prior to compaction, placement of sand layer, and liner installation (November 2007).



Photo 16. PAG site (2009).



Photo 17. PAG Pond capturing runoff from PAG Pile (May 2011).



Photo 18. PAG Pond (July 2011).



Photo 19. PAG Pond sampling (August 2011).

**ENVIRONMENTAL LAB FOR OPERATIONAL CHARACTERIZATION PLAN AND
GEOCHEMICAL ANALYSIS OF WASTE ROCK**



Photo 20. Sample preparation lab for onsite XRF analysis, including crusher and pulverizer.



Photo 21. Sample preparation lab for onsite XRF analysis, including drying oven, riffle splitter, and press.

FLOAT, RAMP, AND BARGE CAMP



Photo 22. Barge ramp, float dock, and floating barge camp.



Photo 23. Barge camp (September 2009).



Photo 24. Old Camp and Niblack Anchorage (January 2011).

SURFACE WATER MONITORING STATIONS



Photo 25. Surface water monitoring station WQ4, Waterfall Creek downstream location (photo taken from footbridge, January 2011).



Photo 26. WQ4 sampling (April 2011).



Photo 27. Surface water monitoring station WQ8, Waterfall Creek upstream location (looking downstream; April 2008).



Photo 28. Surface water monitoring station WQ8, Waterfall Creek upstream location (looking upstream; April 2008).



Photo 29. Surface water monitoring station WQ6, Camp Creek downstream location (September 2009).



Photo 30. Sampling at WQ6—very high flow (January 2011).



Photo 31. Surface water monitoring station WQ7, Camp Creek upstream location (looking downstream; April 2008).

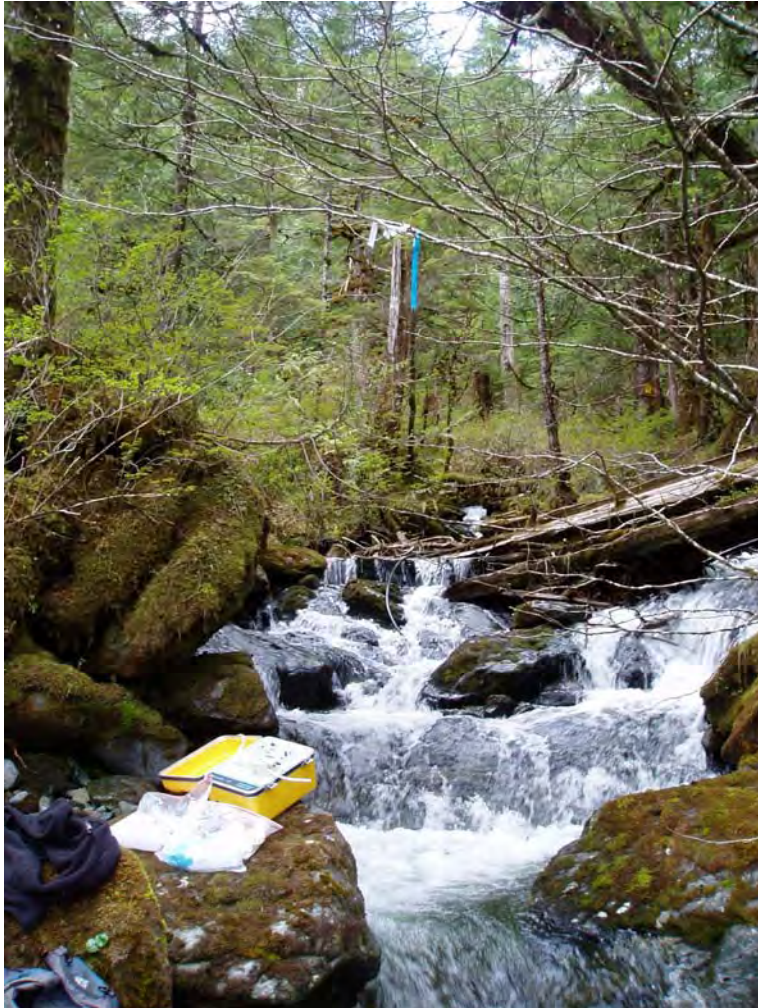


Photo 32. Surface water monitoring station WQ7, Camp Creek upstream location (looking upstream; April 2008)



Photo 33. Surface water monitoring station WQ10, Unnamed Creek 1 downstream location (April 2011).



Photo 34. Sampling WQ10 (September 2009).



Photo 35. Surface water monitoring station WQ12, Unnamed Creek 1 upstream location (looking upstream; April 2008).



Photo 36. Surface water monitoring station WQ13, Unnamed Creek 2 downstream location (low flow, August 2010).



Photo 37. Sampling at WQ13 (April 2011).

GROUNDWATER MONITORING WELLS

Photo 38. Groundwater monitoring well MW1, wetlands below NAG storage site; photo shows purging prior to sample collection (December 2011).



Photo 39. Groundwater monitoring well MW2, wetlands below settling/treatment ponds (January 2010).



Photo 40. Groundwater monitoring well MW3, wetlands below PAG storage site (October 2010).



Photo 41. Groundwater monitoring well MW4, wetlands below LAD infiltration system area (January 2010).



Photo 42. Groundwater monitoring well MW7, wetlands offsite and east of the project area (April 2008).



Photo 43. Sampling at groundwater monitoring well MW8, located upgradient of monitoring well MW3 and the LAD application area (April 2008).



Photo 44. Construction of groundwater monitoring well MW8 (June 2007).

Appendix A

Photographs of Site Facilities and Water Quality Monitoring Locations

April 1, 2018

NOTE: Photos were not available for groundwater reference monitoring well MW9 (upgradient of LAD application area and MW3).

APPENDIX B

VISUAL SITE INSPECTION FORMS

NIBLACK**VISUAL SITE INSPECTION FORM**

Page 1

PROJECT LLCInspected by: GRAHAM NDate of inspection: 00/11/18

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	SOME	LANDING => NAG SITE
Channelization	SOME	UNDER SCHEDULE RECLAMATION
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	CLEAR	
Settlement	NO	
Erosion	SOME	SOME SLOUGHING - UNDER OBS
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GERMAN N

Date of inspection: 01/17/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-4, 6, 7	
Weather Conditions	OVERCAST	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 1

Inspected by: GRAHAM N

Date of inspection: 02/26/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	SOME	LANDING ⇒ NAG
Channelization	SOME	UNDER REMEDIAL RECLAMATION
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition		
Ditches	CLEAN	
Settlement	NO	
Erosion	SOME	SOME SLOUGHING UNDER OBS
Thawing	NO	
Frost Action	SOME	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability	GOOD	
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 02/26/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, 5, 7	
Weather Conditions	CLEAR	26° F
NAG SITE		
Settlement/Geotechnical Instability	GOOD	
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 03/27/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	SOME	LANDING ⇒ NAG
Channelization	SOME	UNDER BENEFICIAL RECLAMATION
Thawing	NO	
Frost Action	SOME	DITCH SLOPES FROST ⇒ UNDER OBS
PORTAL PAD/SHOP SITE		
General Surface Condition		
Ditches	OK	SOME SLOUGHING, NEEDS CLEAR
Settlement	SOME	SOME SLOUGHING
Erosion	SOME	
Thawing	YES	
Frost Action	SOME	UNDER OBS
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GRAN N

Date of inspection: 03/27/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	SOME	ALL UNITS WORKING PROPER
Active Zones	1-3, 5	
Weather Conditions	OVERCAST	LT RAIN
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

NIBLACK

VISUAL SITE INSPECTION FORM

Page 1

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 04/24/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	SOME	LANDING E7 NAG
Channelization	SOME	UNDER REMEDIAL REPAIR
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition		
Ditches	OK	REQUIRES CLEANING
Settlement	SOME	SOME SLOUCHING
Erosion	SOME	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: Gregory N

Date of inspection: 04/24/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, 5, 6	
Weather Conditions	CLEAR	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

PROJECT LLC

Inspected by: Gregory N

Date of inspection: 05/22/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	SOME	LANDING -> NAG
Channelization	SOME	UNDER REMEDIAL RECLAMATION
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	OK	REQUIRES CLEANOUT
Settlement	SOME	SLOUGHING
Erosion	SOME	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 2

Inspected by: GRAHAM N

Date of inspection: 05/22/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, 5, 7	
Weather Conditions		
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 06/26/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	SOME	LANDING => NAG
Channelization	SOME	UNDER RECLAMATION
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	CLEANED	EXCAVATOR ON SITE
Settlement	NO	GEOPUS STABILIZED
Erosion	NO	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 2

Inspected by: GRAHAM N

Date of inspection: 06/26/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, 8, 9	
Weather Conditions	CLEAR	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

PROJECT LLC

Inspected by: CEAN N

Date of inspection: 07/31/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	PREVIOUS EROSION &
Channelization	NO	CHANNELS REPAIRED
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	CLEANED	
Settlement	NO	
Erosion	NO	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 07/31/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CUMED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, B, A	
Weather Conditions	CLEAR	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 1

Inspected by: GRAHAM N

Date of inspection: 08/31/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Channelization	NO	
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	CLEAR	
Settlement	NO	
Erosion	NO	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	NO	
Erosion Control Structures	NO	
Run-on Control Structures	NO	
Diversion Structures	NO	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GERARD N

Date of inspection: 08/31/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	13, 8, 9	
Weather Conditions	CLEAR	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

PROJECT LLC

Inspected by: GEORGE N

Date of inspection: 09/30/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Channelization	NO	
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	GOOD	
Settlement	NO	
Erosion	NO	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 09/30/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, 5, 6	
Weather Conditions	CLEAR	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 1

Inspected by: GEAUM N

Date of inspection: 10/22/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Channelization	NO	
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	GOOD	
Settlement	NO	
Erosion	NO	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 10/22/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-3, 5	
Weather Conditions	RAIN	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 1

Inspected by: GRAHAM N

Date of inspection: 11/4/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Channelization	NO	
Thawing	NO	
Frost Action	NO	
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	GOOD	
Settlement	NO	
Erosion	NO	STABILIZED
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

NIBLACK

PROJECT LLC

VISUAL SITE INSPECTION FORM

Page 2

Inspected by: COADMAN N

Date of inspection: 11/4/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-5	
Weather Conditions	RAIN	
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	

NIBLACK**VISUAL SITE INSPECTION FORM**

Page 1

PROJECT LLCInspected by: CRAIG NDate of inspection: 12/14/17

AREA	STATUS	OBSERVATIONS/COMMENTS
ROADS		
General Surface Condition	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Channelization	NO	
Thawing	NO	
Frost Action	NO	NO FREEZING CONDITIONS IN DEC
PORTAL PAD/SHOP SITE		
General Surface Condition	GOOD	
Ditches	GOOD	
Settlement	NO	
Erosion	NO	
Thawing	NO	
Frost Action	NO	
SEDIMENT PONDS		
Liner Slippage / Damage	NO	
Retaining Walls	GOOD	
Erosion Control Structures	GOOD	
Run-on Control Structures	GOOD	
Diversion Structures	GOOD	
Geotechnical Stability		
Settlement	NO	
Erosion	NO	
Frost Action	NO	
Thawing	NO	

PROJECT LLC

Inspected by: GRAHAM N

Date of inspection: 12/19/17

LAD SITE		
LAD Outflow Valves	OPEN	
LAD Outflow Screen	CLEANED	
Stress to Vegetation	NO	
Channelization/Ponding	NO	
Leakage	NO	
Freezing	NO	
Active Zones	1-5	
Weather Conditions	OVERCAST	30°F
NAG SITE		
Settlement/Geotechnical Instability		
Erosion	NO	
Sediment Ponds	N/A	
Blockages to Diversion Ditches	NO	
Drainage Control	GOOD	
Permit Condition Violations	NO	
PAG SITE		
Visible signs of Damage to Liner	NO	
Liner Slippage	NO	
Damage to the Facility From:		
Settlement	NO	
Erosion	NO	
Operator Negligence	NO	
Freezing	NO	
Frost Action	NO	
Permit Condition Violations	NO	
Escaped Leachate	NO	
Damage to or improper Operation of:		
Backwall	NO	
Diversion berm/stormwater structures	NO	
Containment structures	NO	
Erosion control/run-on structures	NO	