ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

INDIVIDUAL PERMIT – PROPOSED FINAL

Permit Number: AK0053341

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

In compliance with the provisions of the Clean Water Act (CWA), 33 U.S.C. §1251 *et seq.*, as amended by the Water Quality Act of 1987, P.L. 100-4, this permit is issued under provisions of Alaska Statutes (AS) 46.03, Alaska Administrative Code (AAC), as amended, and other applicable State laws and regulations.

SUMITOMO METAL MINING POGO LLC.

is authorized to discharge from the Pogo Mine near Delta Junction, Alaska at the following locations:

Outfall	Receiving Water or Body	Latitude	Longitude
001	Goodpaster River	64° 28’ 12” N	144° 55’ 03” W
002	Goodpaster River	64° 26’ 36” N	144° 56’ 30” W

In accordance with the discharge point effluent limits, monitoring, requirements, and other conditions set forth herein:

This permit shall become effective [insert date]

This permit and the authorization to discharge shall expire after, [insert date]

The Permittee shall reapply for a permit reissuance on or before [insert date], 180 days before the expiration of this permit, to continue operations and discharge at the facility beyond the term of this permit.

The Permittee shall post or maintain a copy of this permit to discharge at the facility and make it available to the public, employees, and subcontractors at the facility.

DRAFT	**DRAFT**
Signature	Date
DRAFT	Program Manager
Printed Name	Title

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SCHEDULE OF SUBMISSIONS

The Schedule of Submissions summarizes some of the required submissions and activities the Permittee must complete or revise and submit to the Alaska Department of Environmental Conservation (Department or DEC) during the term of this permit. The Permittee is responsible for all submissions and activities even if they are not summarized below.

Table 1: Schedule of Submissions

Permit Part	Submittal or Completion	Frequency	Due Date	Submit to[a]
1.7.6.3	Exceedance of chronic toxicity trigger	As Necessary	Within two weeks of receipt of test results	Compliance
1.7.8.1	Whole Effluent Toxicity (WET) test results	Annually	Must be submitted with the first DMR following receipt of the test results.	Compliance
1.7.8.2	Accelerated testing results	As Necessary	Within two weeks of receipt of test results.	Compliance
1.8.9	Receiving water monitoring results	Annually	Must be included in the Annual Water Quality Monitoring Summary	Compliance
1.9	Annual Water Quality Monitoring Summary	Annually	March 1st of the next year	Compliance
2.1.1	Written notification that the Quality Assurance Project Plan (QAPP) has been updated	1/permit cycle	Within 60 days after the effective date of the permit	Compliance
2.2.2	Written notification that the Best Management Practices (BMP) Plan has been implemented	1/permit cycle	Within 60 days after the effective date of the permit	Compliance
2.2.5.2	BMP Plan Annual Review Certification	Annually	January 31st of the next year	Compliance
Appendix A, 1.3	Application for Permit Reissuance	1/permit cycle	180 days before expiration of the permit	Permitting
Appendix A, 3.2	Discharge Monitoring Report (DMR)	Monthly	Postmarked or submitted electronically on or before the 20th day of the next month	Compliance
Appendix A, 3.4	Oral notification of noncompliance	As Necessary	Within 24 hours of discovering noncompliance	Compliance[b]
Appendix A, 3.4	Written documentation of noncompliance	As Necessary	Within 5 days of discovering noncompliance	Compliance

a. See Appendix A.1.1 for addresses.

b. Oral notifications must be reported to the Department's noncompliance reporting hotline: 1-907-269-4114 (from Alaska) or 1-877-569-4114 (nationwide).

1.0 LIMITATIONS AND MONITORING REQUIREMENTS

1.1 Discharge Authorization

During the effective period of this permit, the Permittee is authorized to discharge pollutants from Outfalls 001 and 002 to the Goodpaster River, within the limits and subject to conditions set forth herein. This permit only authorizes the discharge of those pollutants resulting from facility processes, waste streams, and operations clearly identified in the permit application process.

1.2 Effluent Limits and Monitoring—General Conditions

1.2.1 Limits represent maximum effluent values, unless otherwise indicated. The Permittee must comply with effluent limits at all times, unless otherwise indicated, regardless of monitoring frequency or reporting required by other provisions of this permit.

1.2.2 For Outfalls 001 and 002, effluent samples must be collected from the effluent stream after the last treatment unit and before discharge to the receiving water.

1.2.3 The discharge shall not cause contamination of surface or ground waters, and shall not cause or contribute to a violation of the Alaska Water Quality Standards (18 AAC 70), unless allowed in this permit through exceptions to the standards or in a compliance schedule under 18 AAC 70.200 – 70.270 and 18 AAC 70.910.

1.2.4 The permittee must not discharge any floating solids, debris, sludge, deposits, foam, scum or other residues that cause a film, sheen, or discoloration on the surface of the receiving water or adjoining shorelines; cause leaching of toxic or deleterious substances; or cause a sludge, solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines, unless allowed in this permit through exceptions to the standards or in a compliance schedule.

1.2.5 For purposes of reporting on the Discharge Monitoring Report (DMR) for a single sample, if a value is less than the method detection level (MDL), the permittee must report “less than [numeric value of MDL]” and if a value is less than a minimum level (ML), the permittee must report “less than [numeric value of ML].”

1.2.6 For purposes of calculating a monthly average, zero may be assigned for values less than the MDL, and the numeric value of the MDL may be assigned for values between the MDL and the ML. If the average value is less than the MDL, the permittee must report “less than {numeric value of MDL}.” If the average value is less than the ML, the permittee must report “less than [numeric value of ML].” If a value is equal to or greater than the ML, the permittee must report and use the actual value. The resulting average value must be compared to the compliance level, ML, in assessing compliance.

1.2.7 For all effluent monitoring, with the exception of cyanide, the permittee must use a sufficiently sensitive Environmental Protection Agency (EPA) approved test method that quantifies the level of pollutants to a level lower than applicable limits or water quality standards or use the most sensitive Title 40 Code of Federal Regulations (CFR) Part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants), adopted by reference at 18 AAC 83.010(f), test method available. For cyanide, a facility specific ML of 20 µg/L is the compliance level with a method detection limit (MDL) of 10 µg/L.

1.2.8 Permittees have the option of taking more frequent samples than are required in the permit. If additional samples are taken, the provisions of Appendix A, Part 3.3 shall apply.

1.2.9 For continuous pH monitoring, excursions outside the range are permitted provided that

1.2.9.1 The total time during which the pH values are outside the range does not exceed 7 hours and 26 minutes in any calendar month and no individual excursion lasts longer than 60 minutes.

1.2.9.2 The Permittee shall monitor the total time outside the range for the month, recording the length and date of each excursion.

1.3 Effluent Limits and Monitoring—Outfall 001

1.3.1 The Permittee must limit and monitor discharges from Outfall 001 as specified in Table 2.

Table 2: Effluent Limits and Monitoring Frequencies for Outfall 001

Parameter[a]	Maximum Daily Limit	Average Monthly Limit	Units	Minimum Sample Frequency[b]	Sample Type
Cadmium[c]	0.2	0.1	µg/L[d]	1/Month	Grab
Copper[c]	6.5	2.8	µg/L	1/Week	Grab
Cyanide[e]	9.0	4.1	µg/L	1/Week	Grab
Lead[c]	1.4	0.4	µg/L	1/Week	Grab
Manganese	109	50	µg/L	1/Week	Grab
Mercury[f]	0.02	0.01	µg/L	1/Month	Grab
Zinc[c]	60	19	µg/L	1/Month	Grab
Turbidity, effluent	See Permit Part 1.3.2		NTU[g]	1/Month	Grab
Turbidity, natural condition	See Permit Part 1.3.2		NTU	1/Month	Grab
pH	See Permit Part 1.3.3		s.u.[h]	1/Week	Grab
Outfall Flow[i]	15,800	-	gpm[j]	Continuous	Recording
Temperature	-	-	°C[k]	1/Week	Grab
Hardness, as $CaCO_3$	-	-	mg/L[l]	1/Month	Grab
Whole Effluent Toxicity (WET)	See Permit Part 1.6		TU_c[m]	1/Year	Grab

a. All metals shall be measured as total recoverable unless otherwise noted.
b. If there is no discharge from Outfall 011 for 72 hours, routine sampling of Outfall 001 is not required. However, when discharge from Outfall 011 commences, a sample from Outfall 001 is required within 36 hours of the commencement of the discharge.
c. Hardness-based limits using a hardness of 44 mg/L $CaCO_3$, the 15th percentile of background data.
d. Micrograms per liter.
e. Cyanide must be analyzed as weak acid dissociable (WAD) cyanide.
f. Mercury must be analyzed and reported as total.
g. Nephelometric turbidity units.
h. Standard units.
i. See Permit Part 1.3.4.
j. Gallons per minute.
k. Degrees Celsius.
l. Milligrams per liter.
m. Chronic toxic units.

1.3.2 The turbidity measured in NTUs must not be more than 5 NTUs above the natural condition. The natural condition sample taken from the Goodpaster River at the point designated NPDES001B must be taken within an hour of the effluent sample.

1.3.3 The pH must not be less than 6.5 s.u. or greater than 8.5 s.u. for grab samples. If pH is continuously monitored, the provisions in Permit Part 1.2.9 will apply.

1.3.4 To allow for the free passage of fish, water withdrawal shall cease when the instream flow of the Goodpaster River decreases below 20 cubic feet per second. At all other times, water withdrawal from the Goodpaster River shall not exceed 15,000 gpm.

1.4 Internal Outfall Limits and Monitoring—Outfall 011

1.4.1 The Permittee must limit and monitor Outfall 011 as specified in Table 3. Sampling for Outfall 011 will occur after the treatment plant and prior to the flow entering the off-river treatment works.

Table 3: Internal Outfall Limits and Monitoring Frequencies for Outfall 011

Parameter[a]	Maximum Daily Limit	Average Monthly Limit	Units	Minimum Sample Frequency	Sample Type
Arsenic	-	-	µg/L	1/Quarter	Grab
Cadmium	100	50	µg/L	1/Quarter	Grab
Copper	300	150	µg/L	1/Quarter	Grab
Cyanide[b]	-	-	µg/L	1/Week	Grab
Iron	1,639	817	µg/L	1/Quarter	Grab
Lead	600	300	µg/L	1/Quarter	Grab
Manganese	-	-	µg/L	1/Quarter	Grab
Mercury[c]	2	1	µg/L	1/Quarter	Grab
Selenium	-	-	µg/L	1/Quarter	Grab
Zinc	1,500	750	µg/L	1/Quarter	Grab
TDS	-	-	mg/L	1/Quarter	Grab
Sulfate	-	-	mg/L	1/Quarter	Grab
Total suspended solids (TSS)	30	20	mg/L	1/Quarter	Grab
pH	See Permit Part 1.4.2		s.u.	1/Week	Grab
Outfall Flow	800	-	gpm	Continuous	Recording
Hardness, as $CaCO_3$	-	-	mg/L	1/Quarter	Grab

a. All metals shall be measured as total recoverable unless otherwise noted.
b. Cyanide must be analyzed as weak acid dissociable (WAD) cyanide.
c. Mercury must be analyzed and reported as total.

1.4.2 The pH must not be less than 6.0 s.u. or greater than 9.0 s.u. for grab samples. If pH is continuously monitored, the provisions in Permit Part 1.2.9 will apply.

1.5 Effluent Limits and Monitoring—Outfall 002

1.5.1 The Permittee must limit and monitor discharges from Outfall 002 as specified in Table 4.

Table 4: Effluent Limits and Monitoring Frequencies for Outfall 002

Parameter[a]	Effluent Limits				Monitoring Requirements	
	Average Monthly Limit	Weekly Average Limit	Maximum Daily Limit	Units	Minimum Sample Frequency[b]	Sample Type
Outfall Flow	-	-	72,000	gpd[c]	1/Day	Recording
Temperature	-	-	-	°C	1/Month	Grab
Biochemical Oxygen Demand, 5 Day (BOD_5)	30	45	60	mg/L	1/Month	Grab
Influent BOD_5	See Permit Part 1.5.2			mg/L	1/Quarter	Grab
TSS	30	45	60	mg/L	1/Month	Grab
Influent TSS	See Permit Part 1.5.2			mg/L	1/Quarter	Grab
Fecal Coliform[d,e]	200	-	400	#/100 mL[f]	1/Month	Grab
Nitrate/Nitrite	80	-	160	mg/L	1/Month	Grab
pH	See Permit Part 1.5.3			s.u.	1/Month	Grab
Dissolved Oxygen (DO)	See Permit Part 1.5.4			mg/L	1/Month	Grab
Arsenic	-	-	-	µg/L	1/Month	Grab
Cadmium	-	-	-	µg/L	1/Month	Grab
Copper	-	-	-	µg/L	1/Month	Grab
Lead	-	-	-	µg/L	1/Month	Grab
Manganese	-	-	-	µg/L	1/Month	Grab
Mercury[g]	-	-	-	µg/L	1/Month	Grab
Zinc	-	-	-	µg/L	1/Month	Grab

a. All metals shall be measured as total recoverable unless otherwise noted.
b. If there is no discharge, sampling is not required. A sample shall be taken within 24 hours of the discharge recommencing.
c. Gallons per day.
d. The standard holding time for a fecal coliform sample is six hours or six hours transport time if the analysis commences within two hours of sample receipt at the laboratory. If EPA approves a variance from this holding time under 40 CFR 136.3(e), the new holding time will be applicable to samples from that date forward.
e. Averages are calculated as the geometric mean.
f. Number per 100 milliliters.
g. Mercury must be analyzed and reported as total.

1.5.2 Influent measurements of BOD_5 and TSS shall be done on a quarterly basis. Influent BOD_5 and TSS shall be measured in January, April, July, and October, and those data shall be used to calculate and report the percent removal on the DMR for each of those months. The Permittee shall use the effluent sample taken at the same time as the influent sample when calculating percent removal. If more than one influent sample is taken, the number of effluent samples corresponding to the number and timing of the influent samples must be used in the calculation. If more than one sample is taken, the arithmetic mean of the influent samples and the arithmetic mean of the effluent samples shall be used in the calculation. Percent removal shall meet or exceed 85% for both parameters. The minimum and the average shall be reported. The formula to be used is:

$$\text{Percent removal} = \frac{\text{Influent} - \text{Effluent}}{\text{Influent}} \text{ x } 100\%$$

1.5.3 The pH must not be less than 6.0 s.u. or greater than 9.0 s.u. for grab samples. If pH is continuously monitored, the provisions in Permit Part 1.2.9 will apply.

1.5.4 Dissolved oxygen must be greater than or equal to 2 mg/L.

1.5.5 At least one sign must be posted on the shoreline near the discharge area during discharge. Signs must inform the public that treated and disinfected wastewater is being discharged, state that there is a mixing zone and describe it, warn users of the area that certain activities such as the harvesting of aquatic life for raw consumption and bathing should not take place in the mixing zone, and provide the phone number and identify of the discharger.

1.6 Mixing Zone

1.6.1 In accordance with state regulations at 18 AAC 70.240, as amended through June 26, 2003, a mixing zone for fecal coliform bacteria, nitrate/nitrite, pH, dissolved oxygen, arsenic, cadmium, copper, lead, manganese, mercury, and zinc is authorized in the Goodpaster River for Outfall 002.

1.6.2 The chronic mixing zone for this discharge has a dilution factor of 23.4 and is defined as a trapezoid shape. The mixing zone is five feet wide (perpendicular to stream flow) at the upstream end, extends five feet downstream, and is seven feet wide at the downstream end. The total area of the mixing zone is 30 square feet.

1.6.3 The acute mixing zone for this discharge has a dilution factor of 15.6 and is defined as a rectangular box shape. The mixing zone is five wide perpendicular to stream flow and extends 1.1 feet downstream for a total area of 5.5 square feet.

1.7 Whole Effluent Toxicity Testing Requirements

1.7.1 The Permittee must conduct annual chronic whole effluent toxicity (WET) tests on effluent samples from Outfall 001. Testing must be conducted in accordance with Permit Parts 1.7.2 through 1.7.8.

1.7.2 Chronic toxicity testing must be conducted on a grab sample of the effluent. Additionally, a split of each sample collected must be analyzed for the chemical and physical parameters required in Permit Part 1.3. Samples for toxicity testing should be of adequate size to accommodate the split sample. When the timing of sample collection coincides with that of the sampling required in Permit Part 1.3, analysis of the split sample will fulfill the requirements of these parts as well.

1.7.3 Chronic Test Species and Methods

1.7.3.1 For Outfall 001, chronic tests must be conducted annually prior to August 1. The effluent collected for toxicity testing must be collected at the same time as the receiving water surface water monitoring (see Permit Part 1.8).

1.7.3.2 Tests shall be conducted using fathead minnows, *Pimephales promelas*.

1.7.3.3 The presence of chronic toxicity must be determined as specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition (EPA/821-R-02-013, October 2002).

1.7.3.4 Results must be reported in TU_c, where $TU_c = 100/IC_{25}$. See Appendix C for a definition of inhibition concentration 25% (IC_{25})

1.7.4 Quality Assurance

1.7.4.1 Toxicity testing on each organism must include the following series of five test dilutions (100%, 50%, 25%, 12.5%, and 6.25%) and a control.

1.7.4.2 All quality assurance criteria and statistical analyses used for chronic tests and reference toxicant tests must be according to *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms Fourth Edition* (EPA/821-R-02-013, October 2002). If logistical problems beyond the control of the Permittee prevent the timely delivery of a sample to the laboratory, the Permittee may collect only two samples for WET testing and the acceptable sample holding times can be extended from 36 to 48 hours.

1.7.4.3 In addition to those quality assurance measures specified in the methodology, the following quality assurance procedures must be followed:

1.7.4.3.1 If organisms are not cultured in-house, concurrent testing with reference toxicants must be conducted. If organisms are cultured in-house, quarterly reference toxicant testing is sufficient. Reference toxicant tests must be conducted using the same test conditions as the effluent toxicity tests.

1.7.4.3.2 If either of the reference toxicant tests or the effluent tests does not meet all test acceptability criteria, as specified in the test methods manual, the Permittee must re-sample and re-test within 14 days of receipt of the test results.

1.7.4.3.3 Control and dilution water must be receiving water or lab water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water must also be used. Receiving water may be used as control and dilution water upon notification and approval from DEC. In no case shall water that has not met test acceptability criteria be used for either dilution or control.

1.7.5 A trigger for chronic toxicity of 2 TU_c shall apply for the purposes of determining compliance with Permit Part 1.7.6 and 1.7.7.

1.7.6 Accelerated Testing

1.7.6.1 If the Permittee demonstrates through an evaluation of facility operations that the cause of the exceedance is known and corrective actions have been implemented, only one accelerated test is necessary and the Permittee would return to normal WET testing frequency. If toxicity exceeding the trigger is detected in this test, then the toxicity reduction evaluation (TRE) requirements in Permit Part 1.7.7 shall apply, or

1.7.6.2 If chronic toxicity is detected above the trigger specified in Permit Part 1.7.5 and no initial investigation is conducted or no cause is found then the Permittee must conduct four more biweekly tests over an eight week period. This accelerated testing must be initiated within two weeks of receipt of the test results that indicate an exceedance.

1.7.6.3 The Permittee must notify DEC of the exceedance in writing within two weeks of receipt of the test results. The notification must include the following information:

1.7.6.3.1 A status report on any actions required by the permit, with a schedule for actions not yet completed.

1.7.6.3.2 A description of any additional actions the Permittee has taken or will take to investigate and correct the cause(s) of the toxicity.

1.7.6.3.3 Where no actions have been taken, a discussion of the reasons for not taking action.

1.7.6.4 If none of the four accelerated tests exceed the chronic toxicity trigger specified in Permit Part 1.7.5, the Permittee may return to the normal testing frequency. If any of the four tests exceed the trigger, then the TRE requirements in Permit Part 1.7.7 shall apply.

1.7.7 Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE)

1.7.7.1 If the chronic toxicity trigger specified in Permit Part 1.7.5 is exceeded during accelerated testing under Permit Part 1.7.6, the Permittee must initiate a TRE in accordance with *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070) within two weeks of the receipt of the test results showing an exceedance. At a minimum, the TRE must include:

1.7.7.1.1 Further actions to investigate and identify the cause of toxicity;

1.7.7.1.2 Actions the Permittee will take to mitigate the impact of the discharge and to prevent the recurrence of toxicity; and

1.7.7.1.3 A schedule for these actions.

1.7.7.2 If a TRE is initiated prior to completion of the accelerated testing, the accelerated testing schedule may be terminated, or used as necessary in performing the TRE. The Permittee may initiate a TIE as part of the TRE process. Any TIE must be performed in accordance with EPA guidance manuals, *Toxicity Identification Evaluation; Characterization of Chronically Toxic Effluents, Phase I* (EPA/600/6-91/005F), *Methods for Aquatic Toxicity Identification Evaluations, Phase II: Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080), and *Methods for Aquatic Toxicity Identification Evaluations, Phase III: Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA-600/R-92/081).

1.7.8 Reporting

1.7.8.1 The Permittee shall submit the results of the toxicity tests in TU_c with the DMR for the month in which the results are received. The full toxicity test results will be included in the Annual Report due March 1st of the following year, as required in Permit Part 1.9.

1.7.8.2 The Permittee must submit the results of any accelerated testing, under Permit Part 1.7.6, within two weeks of receipt of the results from the lab. The full report must be submitted within four weeks of receipt of the results from the lab. If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, the result of the investigation must be submitted with the DMR for the month following completion of the investigation.

1.7.8.3 The report of toxicity test results must include all relevant information outlined in Section 10, Report Preparation of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA/821-R-02-013, October 2002). In addition to toxicity test results, the Permittee must report: dates of sample collection and initiation of each test; flow rate at the time of sample

collection; the results of the monitoring required in Permit Part 1.3; and an explanation of logistical problems described in Permit Part 1.7.4.2, if encountered.

1.8 Receiving Water Monitoring

1.8.1 The Permittee must perform receiving water monitoring to monitor changes that may occur as a result of activities associated with discharges from the facility.

1.8.2 The Permittee must conduct receiving water monitoring at the following stations in the Goodpaster River: SW01, SW15, SW41, SW42, and SW49.

1.8.3 Monitoring will be conducted during the following times: (a) late February to mid-March; (b) mid-May; (c) mid-June; (d) early August; (e) late September; and (f) during the month of December.

1.8.4 All receiving water samples must be grab samples.

1.8.5 Analytical methods must achieve MLs as described in Permit Part 1.2.7. The Permittee may request different MLs. The request must be in writing and must be approved by DEC prior to implementation.

1.8.6 All samples must be analyzed for the parameters in Table 5.

Table 5: Receiving Water Monitoring Parameters

Parameter	Units	Minimum Sample Frequency	Sample Type
Antimony[1]	µg/L	See Permit Part 1.8.3	Grab
Arsenic[1]	µg/L	See Permit Part 1.8.3	Grab
Cadmium[1]	µg/L	See Permit Part 1.8.3	Grab
Copper[1]	µg/L	See Permit Part 1.8.3	Grab
Cyanide, WAD	µg/L	See Permit Part 1.8.3	Grab
Iron[1]	µg/L	See Permit Part 1.8.3	Grab
Lead[1]	µg/L	See Permit Part 1.8.3	Grab
Manganese[1]	µg/L	See Permit Part 1.8.3	Grab
Mercury[1]	µg/L	See Permit Part 1.8.3	Grab
Nickel[1]	µg/L	See Permit Part 1.8.3	Grab
Selenium[1]	µg/L	See Permit Part 1.8.3	Grab
Silver[1]	µg/L	See Permit Part 1.8.3	Grab
Zinc[1]	µg/L	See Permit Part 1.8.3	Grab
Alkalinity, as $CaCO_3$	mg/L	See Permit Part 1.8.3	Grab
Conductivity	µS/cm[2]	See Permit Part 1.8.3	Grab
DO	mg/L	See Permit Part 1.8.3	Grab
Hardness, as $CaCO_3$	mg/L	See Permit Part 1.8.3	Grab
Nitrate/Nitrite, as N	mg/L	See Permit Part 1.8.3	Grab
pH	s.u.	See Permit Part 1.8.3	Grab
Sulfate	mg/L	See Permit Part 1.8.3	Grab
TDS	mg/L	See Permit Part 1.8.3	Grab
Temperature	°C	See Permit Part 1.8.3	Grab
Turbidity	NTU	See Permit Part 1.8.3	Grab

Notes:
1. Must be measured as total or total recoverable
2. Microsiemens per centimeter

1.8.7 Quality assurance/quality control plans for all monitoring must be documented in the quality assurance project plan required under Permit Part 2.1.

1.8.8 The Permittee shall collect a minimum of ten juvenile Chinook salmon at Station SW01 and ten juvenile Chinook salmon at Station SW12. Salmon shall be collected in late fall, prior to freeze up. A whole body metals analysis shall be conducted on each fish, and the concentrations of antimony, arsenic, cadmium, copper, lead, mercury, nickel, selenium, and silver shall be recorded. This record, including electronic copies of the raw data from each sample, shall be submitted with the Annual Report (see Permit Part 1.9).

1.8.9 All results shall be included in the Annual Report. At a minimum, the report must include the following:

1.8.9.1 Dates of sample collection and analyses.

1.8.9.2 Results of sample analyses

1.8.9.3 Relevant quality assurance/quality control (QA/QC) information.

1.9 Annual Water Quality Monitoring Summary

Annual discharge and receiving water quality monitoring results must be summarized in an Annual Water Quality Monitoring Summary (Annual Report) and submitted by March 1st of the next year. The report must include a presentation of the analytical results and an evaluation of the results. The evaluation must include an electronic spreadsheet containing all historical data for both water quality and whole body analysis, a graphical presentation of the data at each monitoring station, and a comparison of monitoring results for each station over time. The Annual Report must be certified and signed in accordance with Appendix A, Part 1.12, and it may reference the monthly reports for QA/QC information.

2.0 SPECIAL CONDITIONS

2.1 Quality Assurance Project Plan

2.1.1 The Permittee must develop a quality assurance project plan (QAPP) for all monitoring required by this permit. Within 60 days of the effective date of this permit, the Permittee must update the QAPP and submit written notification to DEC that the updated QAPP has been implemented. An existing QAPP may be modified for submittal under this section provided that Permit Parts 2.1.2 through 2.1.5 are satisfied.

2.1.2 The QAPP must be designed to assist in planning for the collection and analysis of effluent and receiving water samples in support of the permit and to help explain data anomalies whenever they occur.

2.1.3 Throughout all sample collection and analysis activities, the Permittee must use DEC-approved QA/QC and chain-of-custody procedures, as described in the *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5). The QAPP must be prepared in the format which is specified in these documents.

2.1.4 The Permittee must amend the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP.

2.1.5 Copies of the QAPP must be kept on site and made available to DEC upon request.

2.2 Best Management Practices Plan

2.2.1 Purpose. Through implementation of the BMP Plan, the Permittee must prevent or minimize the generation and the potential for release of pollutants from the facility to the lands and waters of the U.S. through normal and ancillary activities.

2.2.2 Development and Implementation Schedule. The Permittee currently has a BMP Plan which achieves the objectives and the specific requirements listed below. The existing BMP Plan may be modified under this section. The Permittee must implement the provisions of the BMP Plan as a condition of this permit and submit a notification to DEC within 60 days of the effective date of this permit.

2.2.3 Objectives. The Permittee must develop and amend the BMP Plan consistent with the following objectives for the control of pollutants.

2.2.3.1 The number and quantity of pollutants and the toxicity of effluent generated, discharged, or potentially discharged at the facility must be minimized by the Permittee to the extent feasible by managing each waste stream in the most appropriate manner.

2.2.3.2 Under the BMP Plan and especially within any standard operating procedures included in the BMP Plan, the Permittee must ensure proper operation and maintenance of water management and wastewater treatment systems. BMP Plan elements must be developed in accordance with good engineering practices.

2.2.3.3 Each facility component or system must be examined for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to lands and waters of the U.S. due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc. The examination must include all normal operations and ancillary activities including material storage areas, storm water, in-plant transfer, material handling and process handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage.

2.2.4 Elements of the BMP Plan. The BMP Plan must be consistent with the objectives above and the general guidance contained in *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004, October 1993) and *Storm Water Management for Industrial Activities, Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-006) or any subsequent revision to these guidance documents. The BMP Plan must include, at a minimum, the following items:

2.2.4.1.1 Statement of BMP Policy. The BMP Plan must include a statement of management commitment to provide the necessary financial, staff, equipment, and training resources to develop and implement the BMP Plan on a continuing basis.

2.2.4.1.2 The BMP Plan must establish a BMP Committee responsible for developing, implementing, and maintaining the BMP Plan. Specify the structure, functions, and procedures of the BMP Committee.

2.2.4.1.3 Description of potential pollutant sources.

2.2.4.1.4 Risk identification and assessment.

2.2.4.1.5 Standard operating procedures to achieve the objectives and specific best management practices (see below).

2.2.4.1.6 Reporting of BMP incidents. The reports must include a description of the circumstances leading to the incident, corrective actions taken, and recommended changes to operating and maintenance practices to prevent recurrence.

2.2.4.1.7 Materials compatibility.

2.2.4.1.8 Good housekeeping.

2.2.4.1.9 Inspections.

2.2.4.1.10 Preventative maintenance and repair.

2.2.4.1.11 Security.

2.2.4.1.12 Employee training.

2.2.4.1.13 Record keeping and reporting.

2.2.4.1.14 Prior evaluation of any planned modifications to the facility to ensure that the requirements of the BMP Plan are considered as part of the modifications.

2.2.4.1.15 Final constructed site plans, drawings, and maps (including detailed storm water outfall/culvert configuration).

2.2.4.2 Specific Best Management Practices. The BMP Plan must establish specific BMPs or other measures to achieve the objectives under Permit Part 2.2.3 ensuring that solids, sludge, or other pollutants removed in the course of treatment or control of water and wastewaters are disposed in a manner preventing any pollutant from such materials from entering waters of the U.S.

2.2.5 BMP Plan Annual Review and Certification.

2.2.5.1 The BMP Plan must be reviewed and updated annually to assure that the objectives of Permit Part 2.2.3 are being satisfied.

2.2.5.2 BMP Plan Annual Certification. The Permittee must prepare a certified statement that reviews (inspections and evaluations) required by Permit Part 2.2.5.1 have been completed and that the BMP Plan fulfills the requirements set forth in the permit. This statement must be signed in accordance with Appendix A, Part 1.12 and submitted to DEC by January 31st of the next year.

2.2.6 Documentation. The Permittee must maintain a copy of the BMP Plan at the facility and make it available to DEC upon request.

2.2.7 BMP Plan Modification

2.2.7.1 The Permittee must amend the BMP Plan whenever a change in the facility or in the operation of the facility materially increases the generation of pollutants or their release or potential release to receiving waters.

2.2.7.2 The Permittee must amend the BMP Plan whenever it is found to be ineffective in achieving the general objective of preventing and minimizing the generation and the potential for the release of pollutants from the facility to the waters of the U.S.

2.2.7.3 Any changes to the BMP Plan must be consistent with the objectives and specific requirements of Permit Part 2.2. All changes in the BMP Plan must be reported to DEC with the annual certification required under Permit Part 2.2.5.

2.3 Electronic Reporting (E-Reporting) Rule

2.3.1 The Permittee is responsible for electronically submitting DMRs and other reports in accordance with 40 CFR §127. The start dates for e-reporting are provided in 40 CFR §127.16. DEC has established a website at http://dec.alaska.gov/water/Compliance/EReportingRule.htm that contains general information. As DEC implements the E-Reporting Rule, more information will be posted on this webpage. The permittee will be further notified by DEC in the future about how to implement the conditions in 40 CFR §127.

Figure 1: Pogo Project Location Map

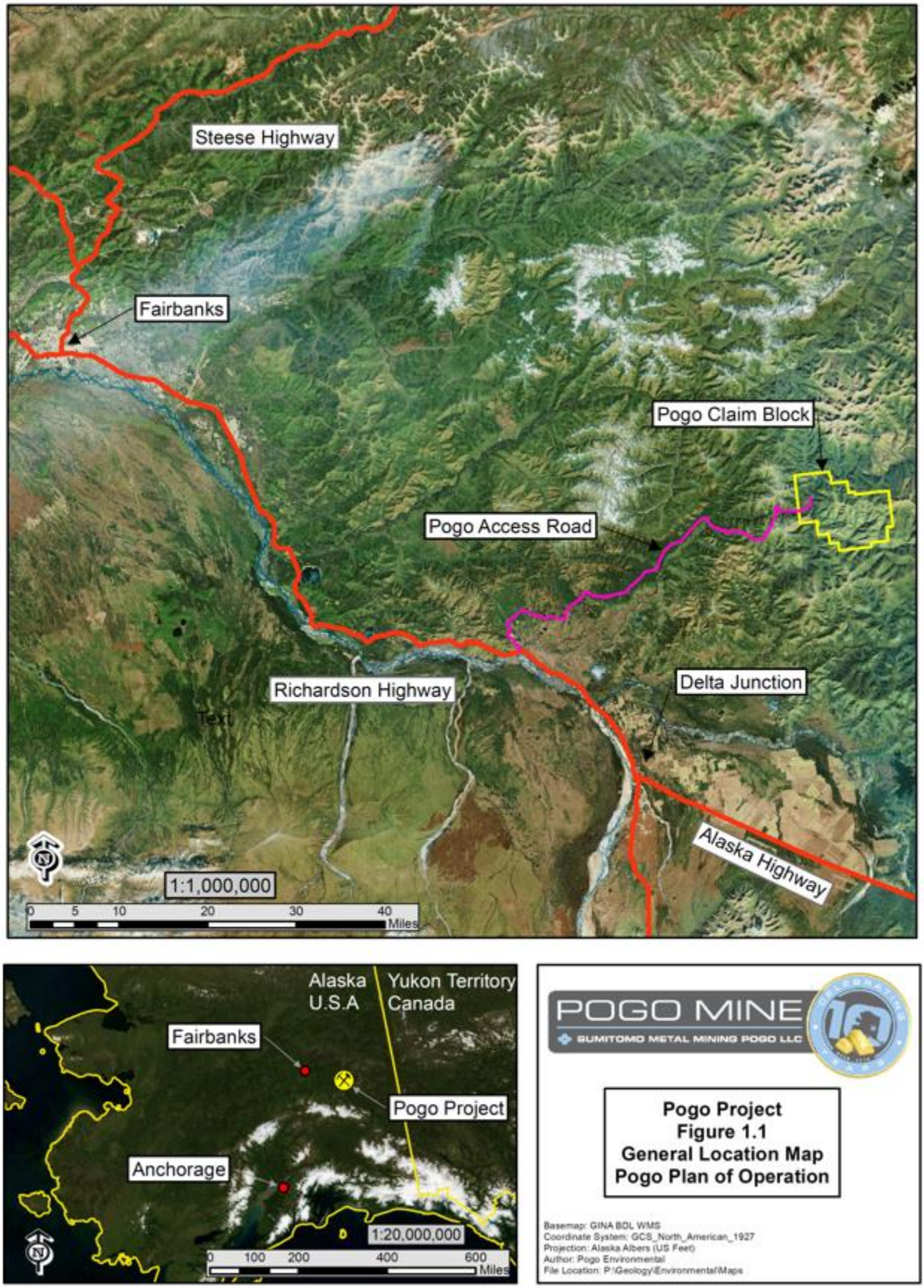


Figure 2: Monitoring Sites

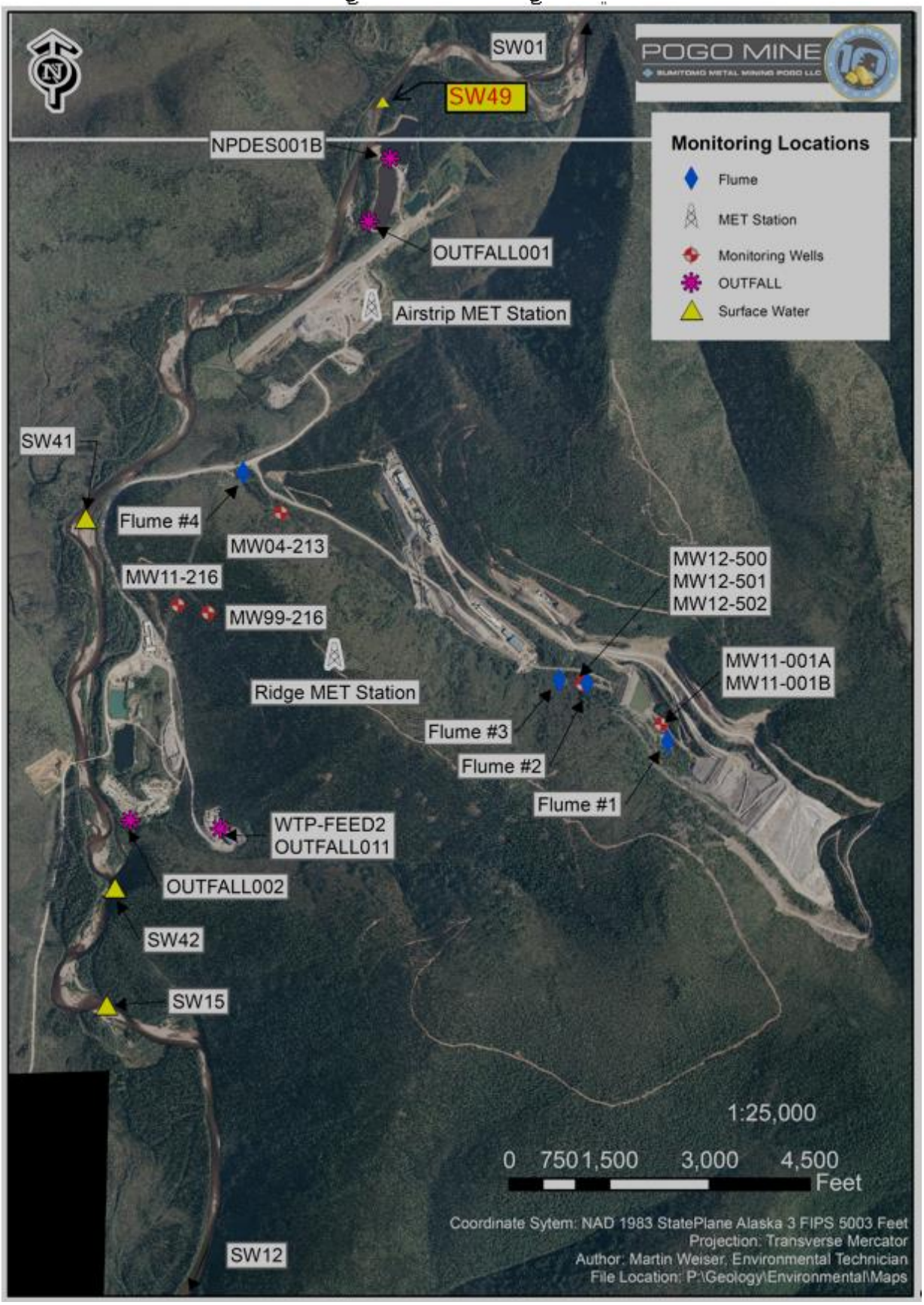
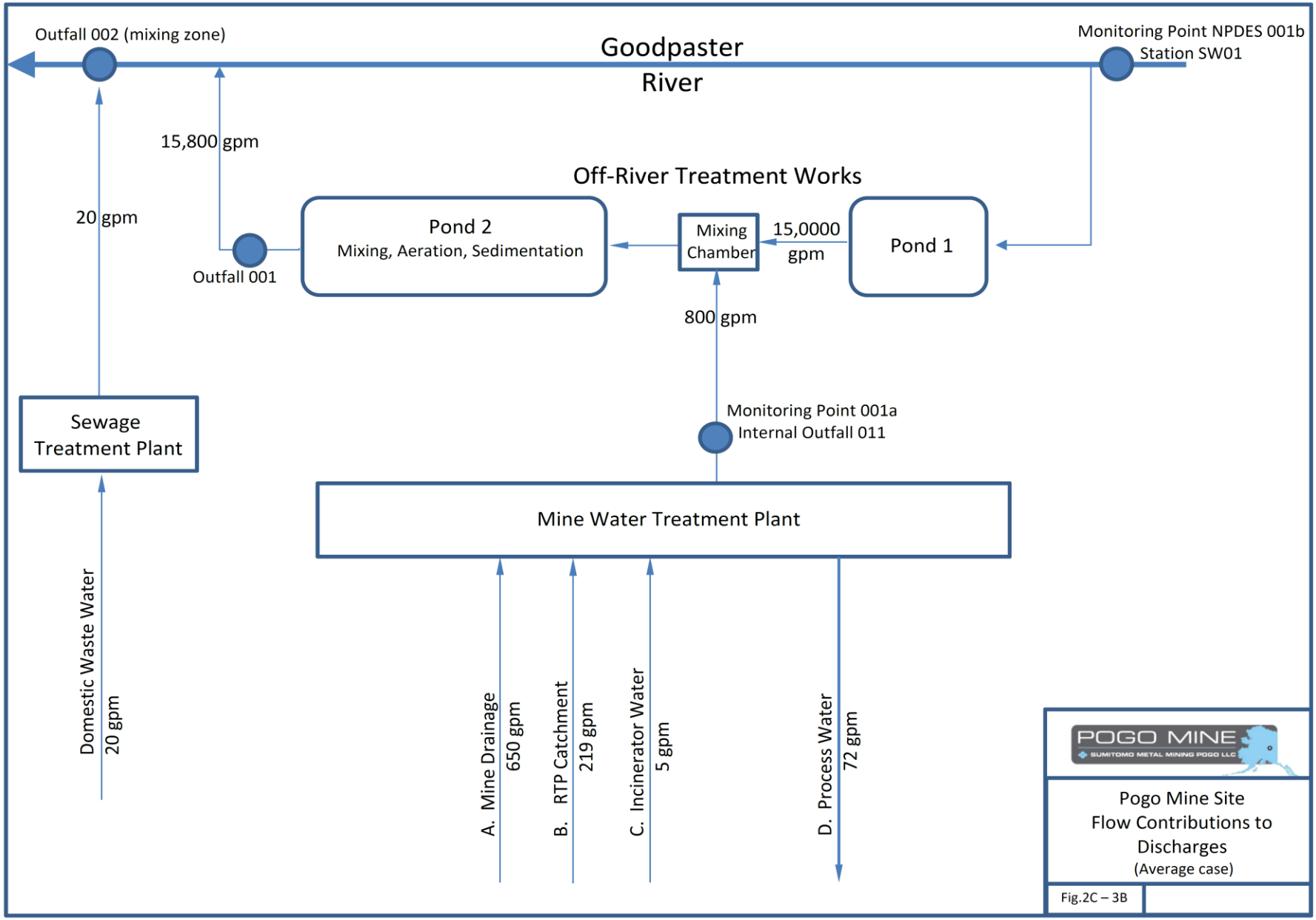


Figure 3: Line Drawing



Appendix A

STANDARD CONDITIONS

APDES PERMIT

NONDOMESTIC DISCHARGES

June 2010

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Appendix A of the Fact Sheet contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an individual APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements. Appendix A, Standard Conditions is an integral and enforceable part of the permit. Failure to comply with a Standard Condition in this Appendix constitutes a violation of the permit and is subject to enforcement.

1.0 Standard Conditions Applicable to All Permits

1.1 Contact Information and Addresses

1.1.1 Permitting Program

Documents, reports, and plans required under the permit and Appendix A are to be sent to the following address:

State of Alaska
Department of Environmental Conservation
Division of Water
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, Alaska 99501
Telephone (907) 269-6285
Fax (907) 269-7508
Email: DEC.Water.WQPermit@alaska.gov

1.1.2 Compliance and Enforcement Program

Documents and reports required under the permit and Appendix A relating to compliance are to be sent to the following address:

State of Alaska
Department of Environmental Conservation
Division of Water
Compliance and Enforcement Program
555 Cordova Street
Anchorage, Alaska 99501
Telephone Nationwide (877) 569-4114
Anchorage Area / International (907) 269-4114
Fax (907) 269-4604
Email: dec-wqreporting@alaska.gov

1.2 Duty to Comply

A permittee shall comply with all conditions of the permittee's APDES permit. Any permit noncompliance constitutes a violation of 33 U.S.C 1251-1387 (Clean Water Act) and state law and is grounds for enforcement action including termination, revocation and reissuance, or modification of a permit, or denial of a permit renewal application. A permittee shall comply with effluent standards or prohibitions established under 33 U.S.C. 1317(a) for toxic pollutants within the time provided in the regulations that establish those effluent standards or prohibitions even if the permit has not yet been modified to incorporate the requirement.

1.3 Duty to Reapply

If a permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. In accordance with 18 AAC 83.105(b), a permittee with a currently effective permit shall reapply by submitting a new application at least 180 days before the existing permit expires, unless the Department has granted the permittee permission to submit an application on a later date. However, the Department will not grant permission for an application to be submitted after the expiration date of the existing permit.

1.4 Need to Halt or Reduce Activity Not a Defense

In an enforcement action, a permittee may not assert as a defense that compliance with the conditions of the permit would have made it necessary for the permittee to halt or reduce the permitted activity.

1.5 Duty to Mitigate

A permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

1.6 Proper Operation and Maintenance

1.6.1 A permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances that the permittee installs or uses to achieve compliance with the conditions of the permit. The permittee's duty to operate and maintain properly includes using adequate laboratory controls and appropriate quality assurance procedures. However, a permittee is not required to operate back-up or auxiliary facilities or similar systems that a permittee installs unless operation of those facilities is necessary to achieve compliance with the conditions of the permit.

1.6.2 Operation and maintenance records shall be retained and made available at the site.

1.7 Permit Actions

A permit may be modified, revoked and reissued, or terminated for cause as provided in 18 AAC 83.130. If a permittee files a request to modify, revoke and reissue, or terminate a permit, or gives notice of planned changes or anticipated noncompliance, the filing or notice does not stay any permit condition.

1.8 Property Rights

A permit does not convey any property rights or exclusive privilege.

1.9 Duty to Provide Information

A permittee shall, within a reasonable time, provide to the Department any information that the Department requests to determine whether a permittee is in compliance with the permit, or whether cause exists to modify, revoke and reissue, or terminate the permit. A permittee shall also provide to the Department, upon request, copies of any records the permittee is required to keep under the permit.

1.10 Inspection and Entry

A permittee shall allow the Department, or an authorized representative, including a contractor acting as a representative of the Department, at reasonable times and on presentation of credentials establishing authority and any other documents required by law, to:

1.10.1 Enter the premises where a permittee's regulated facility or activity is located or conducted, or where permit conditions require records to be kept;

1.10.2 Have access to and copy any records that permit conditions require the permittee to keep;

1.10.3 Inspect any facilities, equipment, including monitoring and control equipment, practices, or operations regulated or required under a permit; and

1.10.4 Sample or monitor any substances or parameters at any location for the purpose of assuring permit compliance or as otherwise authorized by 33 U.S.C. 1251-1387 (Clean Water Act).

1.11 Monitoring and Records

A permittee must comply with the following monitoring and recordkeeping conditions:

1.11.1 Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.

1.11.2 The permittee shall retain records in Alaska of all monitoring information for at least five years, or longer at the Department's request at any time, from the date of the sample, measurement, report, or application. Monitoring records required to be kept include:

1.11.2.1 All calibration and maintenance records,

1.11.2.2 All original strip chart recordings or other forms of data approved by the Department for continuous monitoring instrumentation,

1.11.2.3 All reports required by a permit,

1.11.2.4 Records of all data used to complete the application for a permit,

1.11.2.5 Field logbooks or visual monitoring logbooks,

1.11.2.6 Quality assurance chain of custody forms,

1.11.2.7 Copies of discharge monitoring reports, and

1.11.2.8 A copy of this APDES permit.

1.11.3 Records of monitoring information must include:

1.11.3.1 The date, exact place, and time of any sampling or measurement;

1.11.3.2 The name(s) of any individual(s) who performed the sampling or measurement(s);

1.11.3.3 The date(s) and time any analysis was performed;

1.11.3.4 The name(s) of any individual(s) who performed any analysis;

1.11.3.5 Any analytical technique or method used; and

1.11.3.6 The results of the analysis.

1.11.4 Monitoring Procedures

Analyses of pollutants must be conducted using test procedures approved under 40 CFR Part 136, adopted by reference at 18 AAC 83.010, for pollutants with approved test procedures, and using test procedures specified in the permit for pollutants without approved methods.

1.12 Signature Requirement and Penalties

1.12.1 Any application, report, or information submitted to the Department in compliance with a permit requirement must be signed and certified in accordance with 18 AAC 83.385. Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under a permit, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be subject to penalties under 33 U.S.C. 1319(c)(4), AS 12.55.035(c)(1)(B), (c)(2), and (c)(3) and AS 46.03.790(g).

1.12.2 In accordance with 18 AAC 83.385, an APDES permit application must be signed as follows:

1.12.2.1 For a corporation, by a responsible corporate officer.

1.12.2.2 For a partnership or sole proprietorship, by the general partner or the proprietor, respectively.

1.12.2.3 For a municipality, state, federal, or other public agency, by either a principal executive officer or ranking elected official.

1.12.3 Any report required by an APDES permit, and a submittal with any other information requested by the Department, must be signed by a person described in Appendix A, Part 1.12.2, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1.12.3.1 The authorization is made in writing by a person described in Appendix A, Part 1.12.2;

1.12.3.2 The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, including the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility; or an individual or position having overall responsibility for environmental matters for the company; and

1.12.3.3 The written authorization is submitted to the Department to the Permitting Program address in Appendix A, Part 1.1.1.

1.12.4 If an authorization under Appendix A, Part 1.12.3 is no longer effective because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Appendix A, Part 1.12.3 must be submitted to the Department before or together with any report, information, or application to be signed by an authorized representative.

1.12.5 Any person signing a document under Appendix A, Part 1.12.2 or Part 1.12.3 shall certify as follows:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

1.13 Proprietary or Confidential Information

1.13.1 A permit applicant or permittee may assert a claim of confidentiality for proprietary or confidential business information by stamping the words "confidential business information" on each page of a submission containing proprietary or confidential business information. The Department will treat the stamped submissions as confidential if the information satisfies the test in 40 CFR §2.208, adopted by reference at 18 AAC 83.010, and is not otherwise required to be made public by state law.

1.13.2 A claim of confidentiality under Appendix A, Part 1.13.1 may not be asserted for the name and address of any permit applicant or permittee, a permit application, a permit, effluent data, sewage sludge data, and information required by APDES or NPDES application forms provided by the Department, whether submitted on the forms themselves or in any attachments used to supply information required by the forms.

1.13.3 A permittee's claim of confidentiality authorized under Appendix A, Part 1.13.1 is not waived if the Department provides the proprietary or confidential business information to the EPA or to other agencies participating in the permitting process. The Department will supply any information obtained or used in the administration of the state APDES program to the EPA upon request under 40 CFR §123.41, as revised as of July 1, 2005. When providing information submitted to the Department with a claim of confidentiality to the EPA, the Department will notify the EPA of the confidentiality claim. If the Department provides the EPA information that is not claimed to be confidential, the EPA may make the information available to the public without further notice.

1.14 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any action or relieve a permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under state laws addressing oil and hazardous substances.

1.15 Cultural and Paleontological Resources

If cultural or paleontological resources are discovered because of this disposal activity, work that would disturb such resources is to be stopped, and the Office of History and Archaeology, a Division of Parks and Outdoor Recreation of the Alaska Department of Natural Resources (http://www.dnr.state.ak.us/parks/oha/), is to be notified immediately at (907) 269-8721.

1.16 Fee

A permittee must pay the appropriate permit fee described in 18 AAC 72.

1.17 Other Legal Obligations

This permit does not relieve the permittee from the duty to obtain any other necessary permits from the Department or from other local, state, or federal agencies and to comply with the requirements contained in any such permits. All activities conducted and all plan approvals implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations.

2.0 Special Reporting Obligations

2.1 Planned Changes

2.1.1 The permittee shall give notice to the Department as soon as possible of any planned physical alteration or addition to the permitted facility if:

2.1.1.1 The alteration or addition may make the facility a "new source" under one or more of the criteria in 18 AAC 83.990(44); or

2.1.1.2 The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged if those pollutants are not subject to effluent limitations in the permit or to notification requirements under 18 AAC 83.610.

2.1.2 If the proposed changes are subject to plan review, then the plans must be submitted at least 30 days before implementation of changes (see 18 AAC 15.020 and 18 AAC 72 for plan review requirements). Written approval is not required for an emergency repair or routine maintenance.

2.1.3 Written notice must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.2 Anticipated Noncompliance

2.2.1 A permittee shall give seven days' notice to the Department before commencing any planned change in the permitted facility or activity that may result in noncompliance with permit requirements.

2.2.2 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.3 Transfers

2.3.1 A permittee may not transfer a permit for a facility or activity to any person except after notice to the Department in accordance with 18 AAC 83.150. The Department may modify or revoke and reissue the permit to change the name of the permittee and incorporate such other requirements under 33 U.S.C. 1251-1387 (Clean Water Act) or state law.

2.3.2 Written notice must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.4 Compliance Schedules

2.4.1 A permittee must submit progress or compliance reports on interim and final requirements in any compliance schedule of a permit no later than 14 days following the scheduled date of each requirement.

2.4.2 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.5 Corrective Information

2.5.1 If a permittee becomes aware that it failed to submit a relevant fact in a permit application or submitted incorrect information in a permit application or in any report to the Department, the permittee shall promptly submit the relevant fact or the correct information.

2.5.2 Information must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.6 Bypass of Treatment Facilities

2.6.1 Prohibition of Bypass

Bypass is prohibited. The Department may take enforcement action against a permittee for any bypass, unless:

2.6.1.1 The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2.6.1.2 There were no feasible alternatives to the bypass, including use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. However, this condition is not satisfied if the permittee, in the exercise of reasonable engineering judgment, should have installed adequate back-up equipment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

2.6.1.3 The permittee provides notice to the Department of a bypass event in the manner, as appropriate, under Appendix A, Part 2.6.2.

2.6.2 Notice of bypass

2.6.2.1 For an anticipated bypass, the permittee submits notice at least 10 days before the date of the bypass. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the conditions of Appendix A, Parts 2.6.1.1 and 2.6.1.2.

2.6.2.2 For an unanticipated bypass, the permittee submits 24-hour notice, as required in 18 AAC 83.410(f) and Appendix A, Part 3.4, Twenty-four Hour Reporting.

2.6.2.3 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.6.3 Notwithstanding Appendix A, Part 2.6.1, a permittee may allow a bypass that:

2.6.3.1 Does not cause an effluent limitation to be exceeded, and

2.6.3.2 Is for essential maintenance to assure efficient operation.

2.7 Upset Conditions

2.7.1 In any enforcement action for noncompliance with technology-based permit effluent limitations, a permittee may claim upset as an affirmative defense. A permittee seeking to establish the occurrence of an upset has the burden of proof to show that the requirements of Appendix A, Part 2.7.2 are met.

2.7.2 To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:

2.7.2.1 An upset occurred and the permittee can identify the cause or causes of the upset;

2.7.2.2 The permitted facility was at the time being properly operated;

2.7.2.3 The permittee submitted 24-hour notice of the upset, as required in 18 AAC 83.410(f) and Appendix A, Part 3.4, Twenty-four Hour Reporting; and

2.7.2.4 The permittee complied with any mitigation measures required under 18 AAC 83.405(e) and Appendix A, Part 1.5, Duty to Mitigate.

2.7.3 Any determination made in administrative review of a claim that noncompliance was caused by upset, before an action for noncompliance is commenced, is not final administrative action subject to judicial review.

2.8 Existing Manufacturing, Commercial, Mining, and Silvicultural Discharges

2.8.1 In addition to the reporting requirements under 18 AAC 83.410, an existing manufacturing, commercial, mining, and silvicultural discharger shall notify the Department as soon as that discharger knows or has reason to believe that any activity has occurred or will occur that would result in:

2.8.1.1 The discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

2.8.1.1.1 One hundred micrograms per liter (100 µg/L);

2.8.1.1.2 Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile, 500 micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol, and one milligram per liter (1 mg/L) for antimony;

2.8.1.1.3 Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 18 AAC 83.310(c)-(g); or

2.8.1.1.4 The level established by the Department in accordance with 18 AAC 83.445.

2.8.1.2 Any discharge, on a non-routine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

2.8.1.2.1 Five hundred micrograms per liter (500 µg/L);

2.8.1.2.2 One milligram per liter (1 mg/L) for antimony;

2.8.1.2.3 Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 18 AAC 83.310(c)-(g); or

2.8.1.2.4 The level established by the Department in accordance with 18 AAC 83.445.

3.0 Monitoring, Recording, and Reporting Requirements

3.1 Representative Sampling

A permittee must collect effluent samples from the effluent stream after the last treatment unit before discharge into the receiving waters. Samples and measurements must be representative of the volume and nature of the monitored activity or discharge.

3.2 Reporting of Monitoring Results

At intervals specified in the permit, monitoring results must be reported on the EPA discharge monitoring report (DMR) form, as revised as of March 1999, adopted by reference.

3.2.1 Monitoring results shall be summarized each month on the DMR or an approved equivalent report. The permittee must submit reports monthly postmarked by the 20th day of the following month.

3.2.2 The permittee must sign and certify all DMRs and all other reports in accordance with the requirements of Appendix A, Part 1.12, Signatory Requirements and Penalties. All signed and certified legible original DMRs and all other documents and reports must be submitted to the Department at the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

3.2.3 If, during the period when this permit is effective, the Department makes available electronic reporting, the permittee may, as an alternative to the requirements of Appendix A, Part 3.2.2, submit monthly DMRs electronically by the 20th day of the following month in accordance with guidance provided by the Department. The permittee must certify all DMRs and other reports, in accordance with the requirements of Appendix A, Part 1.12, Signatory Requirements and Penalties. The permittee must retain the legible originals of these documents and make them available to the Department upon request.

3.3 Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than the permit requires using test procedures approved in 40 CFR Part 136, adopted by reference at 18 AAC 83.010, or as specified in this permit, the results of that additional monitoring must be included in the calculation and reporting of the data submitted in the DMR required by Appendix A, Part 3.2. All limitations that require averaging of measurements must be calculated using an arithmetic means unless the Department specifies another method in the permit. Upon request by the Department, the permittee must submit the results of any other sampling and monitoring regardless of the test method used.

3.4 Twenty-four Hour Reporting

A permittee shall report any noncompliance event that may endanger health or the environment as follows:

3.4.1 A report must be made:

3.4.1.1 Orally within 24 hours after the permittee becomes aware of the circumstances, and

3.4.1.2 In writing within five days after the permittee becomes aware of the circumstances.

3.4.2 A report must include the following information:

3.4.2.1 A description of the noncompliance and its causes, including the estimated volume or weight and specific details of the noncompliance;

3.4.2.2 The period of noncompliance, including exact dates and times;

3.4.2.3 If the noncompliance has not been corrected, a statement regarding the anticipated time the noncompliance is expected to continue; and

3.4.2.4 Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3.4.3 An event that must be reported within 24 hours includes:

3.4.3.1 An unanticipated bypass that exceeds any effluent limitation in the permit (see Appendix A, Part 2.6, Bypass of Treatment Facilities).

3.4.3.2 An upset that exceeds any effluent limitation in the permit (see Appendix A, Part 2.7, Upset Conditions).

3.4.3.3 A violation of a maximum daily discharge limitation for any of the pollutants listed in the permit as requiring 24-hour reporting.

3.4.4 The Department may waive the written report on a case-by-case basis for reports under Appendix A, Part 3.4 if the oral report has been received within 24 hours of the permittee becoming aware of the noncompliance event.

3.4.5 The permittee may satisfy the written reporting submission requirements of Appendix A, Part 3.4 by submitting the written report via e-mail, if the following conditions are met:

3.4.5.1 The Noncompliance Notification Form or equivalent form is used to report the noncompliance;

3.4.5.2 The written report includes all the information required under Appendix A, Part 3.4.2;

3.4.5.3 The written report is properly certified and signed in accordance with Appendix A, Parts 1.12.3 and 1.12.5.;

3.4.5.4 The written report is scanned as a PDF (portable document format) document and transmitted to the Department as an attachment to the e-mail; and

3.4.5.5 The permittee retains in the facility file the original signed and certified written report and a printed copy of the conveying email.

3.4.6 The e-mail and PDF written report will satisfy the written report submission requirements of this permit provided the e-mail is received by the Department within five days after the time the permittee becomes aware of the noncompliance event and the e-mail and written report satisfy the criteria of Part 3.4.5. The e-mail address to report noncompliance is: dec-wqreporting@alaska.gov

3.5 Other Noncompliance Reporting

A permittee shall report all instances of noncompliance not required to be reported under Appendix A, Parts 2.4 (Compliance Schedules), 3.3 (Additional Monitoring by Permittee), and 3.4 (Twenty-four Hour Reporting) at the time the permittee submits monitoring reports under Appendix A, Part 3.2 (Reporting of Monitoring Results). A report of noncompliance under this part must contain the information listed in Appendix A, Part 3.4.2 and be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

4.0 Penalties for Violations of Permit Conditions

Alaska laws allow the State to pursue both civil and criminal actions concurrently. The following is a summary of Alaska law. Permittees should read the applicable statutes for further substantive and procedural details.

4.1 Civil Action

Under AS 46.03.760(e), a person who violates or causes or permits to be violated a regulation, a lawful order of the Department, or a permit, approval, or acceptance, or term or condition of a permit, approval or acceptance issued under the program authorized by AS 46.03.020 (12) is liable, in a civil action, to the State for a sum to be assessed by the court of not less than $500 nor more than $100,000 for the initial violation, nor more than $10,000 for each day after that on which the violation continues, and that shall reflect, when applicable:

4.1.1 Reasonable compensation in the nature of liquated damages for any adverse environmental effects caused by the violation, that shall be determined by the court according to the toxicity, degradability, and dispersal characteristics of the substance discharged, the sensitivity of the receiving environment, and the degree to which the discharge degrades existing environmental quality;

4.1.2 Reasonable costs incurred by the State in detection, investigation, and attempted correction of the violation;

4.1.3 The economic savings realized by the person in not complying with the requirements for which a violation is charged; and

4.1.4 The need for an enhanced civil penalty to deter future noncompliance.

4.2 Injunctive Relief

4.2.1 Under AS 46.03.820, the Department can order an activity presenting an imminent or present danger to public health or that would be likely to result in irreversible damage to the environment be discontinued. Upon receipt of such an order, the activity must be immediately discontinued.

4.2.2 Under AS 46.03.765, the Department can bring an action in Alaska Superior Court seeking to enjoin ongoing or threatened violations for Department-issued permits and Department statutes and regulations.

4.3 Criminal Action

Under AS 46.03.790(h), a person is guilty of a Class A misdemeanor if the person negligently:

4.3.1 Violates a regulation adopted by the Department under AS 46.03.020(12);

4.3.2 Violates a permit issued under the program authorized by AS 46.03.020(12);

4.3.3 Fails to provide information or provides false information required by a regulation adopted under AS 46.03.020(12);

4.3.4 Makes a false statement, representation, or certification in an application, notice, record, report, permit, or other document filed, maintained, or used for purposes of compliance with a permit issued under or a regulation adopted under AS 46.03.020(12); or

4.3.5 Renders inaccurate a monitoring device or method required to be maintained by a permit issued or under a regulation adopted under AS 46.03.020(12).

4.4 Other Fines

Upon conviction of a violation of a regulation adopted under AS 46.03.020(12), a defendant who is not an organization may be sentenced to pay a fine of not more than $10,000 for each separate violation (AS 46.03.790(g)). A defendant that is an organization may be sentenced to pay a fine not exceeding the greater of: (1) $200,000; (2) three times the pecuniary gain realized by the defendant as a result of the offense; or (3) three times the pecuniary damage or loss caused by the defendant to another, or the property of another, as a result of the offense (AS 12.55.035(c)(B), (c)(2), and (c)(3)).

Appendix B

Acronyms

APPENDIX B

The following acronyms are common terms that may be found in an Alaska Pollutant Discharge Elimination System (APDES) permit.

18 AAC 15	Alaska Administrative Code. Title 18 Environmental Conservation, Chapter 15: Administrative Procedures
18 AAC 70	Alaska Administrative Code. Title 18 Environmental Conservation, Chapter 70: Water Quality Standards
18 AAC 72	Alaska Administrative Code. Title 18 Environmental Conservation, Chapter 72: Wastewater Disposal
18 AAC 83	Alaska Administrative Code. Title 18 Environmental Conservation, Chapter 83: Alaska Pollutant Discharge Elimination System

All chapters of Alaska Administrative Code, Title 18 are available at the Alaska Administrative Code database http://www.legis.state.ak.us/cgi-bin/folioisa.dll/aac

40 CFR	Code of Federal Regulations Title 40: Protection of Environment
AAC	Alaska Administrative Code
ACMP	Alaska Coastal Management Program
ADEC	Alaska Department of Environmental Conservation
Ag	Silver
Al	Aluminum
As	Arsenic
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statutes
AS 46.03	Alaska Statutes Title 46, Chapter 03: Environmental Conservation. Available at http://www.legis.state.ak.us/default.htm
BOD_5	Biochemical Oxygen Demand, 5-day
BMP	Best Management Practice
Cd	Cadmium
CFR	Code of Federal Regulations
Cr^{+3}	Chromium (III) or Trivalent Chromium
Cr^{+6}	Chromium (VI) or Hexavalent Chromium
Cu	Copper
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
FC	Fecal Coliform Bacteria
Fe	Iron

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GPD or gpd	Gallons per day
GPY or gpy	Gallons per year
Hg	Mercury
IC_{25}	Inhibition Concentration 25%
I/I	Infiltration and Inflow
LC_{50}	Lethal Concentration 50%
MDL	Method Detection Limit
mg/L	Milligrams per Liter
MGD or mgd	Million gallons per day
ML	Minimum Level
MLLW	Mean Lower Low Water
MZ	Mixing Zone
N/A	Not Applicable
Ni	Nickel
NOEC	No Observed Effect Concentration
Pb	Lead
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
RL	Reporting Limit
Se	Selenium
SIU	Significant Industrial User
SU	Standard Units
TIE	Toxicity Identification Evaluation
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TUc	Toxic Unit, Chronic
µg/L	Micrograms per Liter
U.S.C.	United States Code
WQS	Water Quality Standards
WWTF	Wastewater Treatment Facility
Zn	Zinc

Appendix C

Definitions

APPENDIX C

The following are common definitions of terms associated with APDES permits. Not all the terms listed may appear in a permit. Consult the footnote references for a complete list of terms and definitions.

Alaska Pollutant Discharge Elimination System (APDES)[a]	The state's program, approved by EPA under 33 U.S.C. 1342(b), for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits and imposing and enforcing pretreatment requirements under 33 U.S.C. 1317, 1328, 1342, and 1345
Annual	Annual shall be once per calendar year
Average	An arithmetic mean obtained by adding quantities and dividing the sum by the number of quantities
Average Monthly Discharge Limitation[a]	The highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured for that month
Best Management Practices (BMPs)[a]	Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
Biochemical Oxygen Demand (BOD)[c]	The amount, in milligrams per liter, of oxygen used in the biochemical oxidation of organic matter in five days at 20º C
Boundary[b]	Line or landmark that serves to clarify, outline, or mark a limit, border, or interface
Bypass[a]	The intentional diversion of waste streams from any portion of a treatment facility
Clean Water Act (CWA)[a]	Means the federal law codified at 33 U.S.C. 1251-1387, also referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972
Commissioner[a]	The commissioner of the Alaska Department of Environmental Conservation or the commissioner's designee
Contact Recreation[b]	Activities in which there is direct and intimate contact with water. Contact recreation includes swimming, diving, and water skiing. Contact recreation does not include wading.
Criterion[b]	A set concentration or limit of a water quality parameter that, when not exceeded, will protect an organism, a population of organisms, a community of organisms, or a prescribed water use with a reasonable degree of safety. A criterion might be a narrative statement instead of a numerical concentration or limit.
Daily Discharge[a]	The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants measured in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with a limitation expressed in other

a) See 18 AAC 83
b) See 18 AAC 70.990
c) See 18 AAC 72.990
d) See 40 CFR Part 136
e) See EPA Technical Support Document
f) See Standard Methods for the Examination of Water and Wastewater 18th Edition
g) See EPA Permit Writers Manual

	units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.
Datum	A datum defines the position of the spheroid, a mathematical representation of the earth, relative to the center of the earth. It provides a frame of reference for measuring locations on the surface of the earth by defining the origin and orientation of latitude and longitude lines.
Department[a]	The Alaska Department of Environmental Conservation
Director[a]	The commissioner or the commissioner's designee assigned to administer the APDES program or a portion of it, unless the context identifies an EPA director
Discharge[a]	When used without qualification, discharge means the discharge of a pollutant
Discharge of a Pollutant[a]	Any addition of any pollutant or combination of pollutants to waters of the United States from any point source or to waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft that is being used as a means of transportation. Discharge includes any addition of pollutants into waters of the United States from surface runoff that is collected or channeled by humans; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person that do not lead to a treatment works; discharges through pipes, sewers, or other conveyances leading into privately owned treatment works; and does not include an addition of pollutants by any indirect discharger.
Dissolved Oxygen (DO)[b]	The concentration of oxygen in water as determined either by the Winkler (iodometric) method and its modifications or by the membrane electrode method The oxygen dissolved in water or wastewater and usually expressed in milligrams per liter or percent saturation
Domestic Wastewater[c]	Waterborne human wastes or graywater derived from dwellings, commercial buildings, institutions, or similar structures. "Domestic wastewater" includes the contents of individual removable containers used to collect and temporarily store human wastes.
Effluent[b]	The segment of a wastewater stream that follows the final step in a treatment process and precedes discharge of the wastewater stream to the receiving environment
Estimated	A way to estimate the discharge volume. Approvable estimations include, but are not limited to, the number of persons per day at the facility, volume of potable water produced per day, lift station run time, etc.
Fecal Coliform Bacteria (FC)[b]	Bacteria that can ferment lactose at 44.5° + 0.2°C to produce gas in a multiple tube procedure. Fecal coliform bacteria also means all bacteria that produce blue colonies in a membrane filtration procedure within 24 ± 2 hours of incubation at 44.5° + 0.2°C in an M-FC broth.
Geometric Mean	The geometric mean is the Nth root of the product of N. All sample results of zero will use a value of 1 for calculation of the geometric mean. Example geometric mean calculation: $\sqrt[4]{12x23x34x990} = 55$.

a) See 18 AAC 83
b) See 18 AAC 70.990
c) See 18 AAC 72.990
d) See 40 CFR Part 136
e) See EPA Technical Support Document
f) See Standard Methods for the Examination of Water and Wastewater 18th Edition
g) See EPA Permit Writers Manual

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Grab Sample	A single instantaneous sample collected at a particular place and time that represents the composition of wastewater only at that time and place
Influent	Untreated wastewater before it enters the first treatment process of a wastewater treatment works
Inhibition Concentration 25% (IC_{25})[e]	The point estimate of the toxicant concentration that would cause 25% reduction in a nonlethal biological measurement of the test organisms, such as reproduction or growth
Lethal Concentration 50% (LC_{50})[e]	The point estimate of the toxicant that would be lethal to 50% of the test organisms during a specific period
Maximum Daily Discharge Limitation[a]	The highest allowable "daily discharge"
Mean[b]	The average of values obtained over a specified period and, for fecal coliform analysis, is computed as a geometric mean
Measured	The actual volume of wastewater discharged using appropriate mechanical or electronic equipment to provide a totalized reading. Measure does not provide a recorded measurement of instantaneous rates.
Method Detection Limit (MDL)[d]	The minimum concentration of a substance (analyte) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte
Micrograms per Liter (μg/L)[b]	The concentration at which one millionth of a gram (10^{-6} g) is found in a volume of one liter
Milligrams per Liter (mg/L)[b]	The concentration at which one thousandth of a gram (10^{-3} g) is found in a volume of one liter. It is approximately equal to the unit "parts per million (ppm)," formerly of common use.
Minimum Level (ML)[e]	The concentration at which the entire analytical system must give a recognizable signal and an acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed. This level is used as the compliance level if the effluent limit is below it.
Mixing Zone[b]	A volume of water adjacent to a discharge in which wastes discharged mix with the receiving water
Month	Month shall be the time period from the 1st of a calendar month to the last day in the month
Monthly Average	The average of daily discharges over a monitoring month calculated as the sum of all daily discharges measured during a monitoring month divided by the number of daily discharges measured during that month
No Observed Effect	The NOEC is the highest concentration of an effluent or a toxicant at which no adverse

a) See 18 AAC 83
b) See 18 AAC 70.990
c) See 18 AAC 72.990
d) See 40 CFR Part 136
e) See EPA Technical Support Document
f) See Standard Methods for the Examination of Water and Wastewater 18th Edition
g) See EPA Permit Writers Manual

Concentration (NOEC)[e]	effects are observed on the aquatic test organisms at a specific time of observation. NOEC is determined using hypothesis testing.
Permittee	A company, organization, association, entity, or person who is issued a wastewater permit and is responsible for ensuring compliance, monitoring, and reporting as required by the permit
pH[g]	A measure of the hydrogen ion concentration of water or wastewater; expressed as the negative log of the hydrogen ion concentration in mg/L. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic.
Primary Contact Recreation	See Contact Recreation
Principal Executive Officer[a]	The chief executive officer of the agency or a senior executive officer having responsibility for the overall operations of a principal geographic unit of division of the agency
Pollutant[a]	Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under 42 U.S.C. 2011), heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, or agricultural waste discharged into water
Quality Assurance Project Plan (QAPP)	A system of procedures, checks, audits, and corrective actions to ensure that all research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality
Quarter	The time period of three months based on the calendar year beginning with January
Receiving Waterbody	Lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, straits, passages, canals, the Pacific Ocean, Gulf of Alaska, Bering Sea, and Arctic Ocean, in the territorial limits of the state, and all other bodies of surface water, natural or artificial, public or private, inland or coastal, fresh or salt, which are wholly or partially in or bordering the state or under the jurisdiction of the state. (See "Waters of the U.S." at 18 AAC 83.990(77))
Recorded	A permanent record using mechanical or electronic equipment to provide a totalized reading, as well as a record of instantaneous readings
Report	Report results of analysis
Responsible Corporate Officer[a]	A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision making functions for the corporation The Responsible Corporate Officer can also be the manager of one or more manufacturing, production, or operating facilities if the requirements of 18 AAC 83.385(a)(1)(B)(i)-(iii) are met.
Secondary Recreation[b]	Activities in which incidental water use can occur. Secondary recreation includes boating, camping, hunting, hiking, wading, and recreational fishing. Secondary contact

a) See 18 AAC 83
b) See 18 AAC 70.990
c) See 18 AAC 72.990
d) See 40 CFR Part 136
e) See EPA Technical Support Document
f) See Standard Methods for the Examination of Water and Wastewater 18th Edition
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	recreation does not include fish consumption.
Severe Property Damage[a]	Substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
Sheen[b]	An iridescent appearance on the water surface
Significant Industrial User (SIU)[g]	An indirect discharger that is the focus of control efforts under the national pretreatment program; includes all indirect dischargers subject to national categorical pretreatment standards, and all other indirect dischargers that contribute 25,000 gpd or more of process wastewater, or which make up five percent or more of the hydraulic or organic loading to the municipal treatment plant, subject to certain exceptions [40 CFR $403.3(t)].
Suspended Solids	Insoluble solids that either float on the surface of, or are in suspension in, water, wastewater, or other liquids. The quantity of material removed from wastewater in a laboratory test, as prescribed in *Standard Methods for the Examination of Water and Wastewater* and referred to as nonfilterable.
Total Suspended Solids (TSS)[g]	A measure of the filterable solids present in a sample, as determined by the method specified in 40 CFR Part 136
Toxic Unit, Chronic (TUc)[e]	Is a measure of chronic toxicity. The number of chronic toxic units in the effluent is calculated as $100/IC_{25}$ where the IC_{25} is measured in percent effluent.
Twice per year	Shall consist of two time periods during the calendar year: October through April and May through September
Upset[a]	An exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
Wastewater Treatment	Any process to which wastewater is subjected in order to remove or alter its objectionable constituents and make it suitable for subsequent use or acceptable for discharge to the environment
Waters of the United States or Waters of the U.S.	Has the meaning given in 18 AAC 83.990(77)
Water Recreation[b]	See contact recreation or secondary recreation
Week	The time period of Sunday through Saturday

a) See 18 AAC 83
b) See 18 AAC 70.990
c) See 18 AAC 72.990
d) See 40 CFR Part 136
e) See EPA Technical Support Document
f) See Standard Methods for the Examination of Water and Wastewater 18th Edition
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