COEUR
ALASKA
KENSINGTON GOLD MINE


March 7, 2011

Ms. Jackie Timothy
Regional Supervisor
Division of Habitat
Alaska Department of Fish and Game
P.O. Box 110024
Juneau, Alaska 99811-0024

**Re: Kensington Aquatic Resource Monitoring**

Dear Jackie:

Coeur Alaska requests that the Alaska Department of Fish and Game (ADF&G) consider completing the aquatic resource monitoring required for the Kensington Mine. Coeur currently envisions the monitoring to be completed by ADF&G to include the sediment toxicity, benthic invertebrate, resident fish, anadromous fish, aquatic vegetation and other associated monitoring with the scope of the monitoring to be further refined by Kate Kanouse with ADF&G and Kevin Eppers with Coeur Alaska. Coeur anticipates the monitoring to be completed by ADF&G would commence at the beginning of the 2011 field season.

We appreciate ADF&G's consideration of our request. If you have any questions regarding this request, please contact me at (907) 523-3309 or by email cgillespie@coeur.com .

Sincerely,

C. D. Gill

Clyde D. Gillespie
Environmental and Surface Operations Manager

XC: Kate Kanouse, ADF&G
Allan Nakanishi, ADEC
Luke Russell, CDA
Guy Jeske, Coeur AK
Al Ott, ADF&G
Tom Crafford, ADNR
Kevin Eppers, Coeur AK

Coeur Alaska, Inc.
3031 Clinton Dr., Suite 202
Juneau, Alaska 99801
Telephone 907.523.3309
Facsimile 907.523.3340
www.KensingtonGold.com

Permit No.: **AK-005057-1**

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq.*, as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

**Coeur-Alaska, Inc.**

is authorized to discharge from the **Kensington Project** located 40 miles north of Juneau, Alaska, at the following locations:

| Outfall | Receiving Water | Latitude | Longitude |
|---|---|---|---|
| 001 | Sherman Creek | 58° 52' 04"N | 135° 06' 55"W |
| 002 | East Fork Slate Creek | 58° 49' 58"N | 134° 57' 58"W |
| 003 | Lynn Canal | 58° 51' 58"N | 135° 08' 28"W |

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective **September 1 , 2005**

This permit and the authorization to discharge shall expire at midnight, **August 31, 2010**

The permittee shall reapply for a permit reissuance on or before **March 1, 2010**, 180 days before the expiration of this permit if the permittee intends to continue operations and discharges at the facility beyond the term of this permit.

Signed this **28th** day of July 2005.

/s/Michael Gearheard
Michael Gearheard
Director, Office of Water & Watersheds
Region 10
U.S. Environmental Protection Agency

# TABLE OF CONTENTS

# I. LIMITATIONS AND MONITORING REQUIREMENTS

During the effective period of this permit, the Permittee is authorized to discharge pollutants from the outfalls specified herein to Sherman Creek, East Fork Slate Creek, and Lynn Canal within the limits and subject to the conditions set forth herein. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process.

## A. Effluent Limitations and Monitoring - Outfall 001

The permittee must limit and monitor discharges from outfall 001 as specified in Table 1, below. All figures represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the tables at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

1. Table 1

**Table 1 - Outfall 001 Effluent Limitations and Monitoring Requirements**

| Parameter[1] | Hardness as mg/L $CaCO_3$ | Units | Effluent Limitations | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency[2] | Sample Location | Sample Type |
| Aluminum[3] | — | ug/L | 143 | 71 | weekly | Influent (I) /Effluent (E) | 24 hr. comp. |
| Ammonia, Total | — | mg/L as N | 4.0 | 2.0 | weekly | E | 24 hr. comp. |
| Arsenic | — | ug/L | — | — | monthly | I/E | 24 hr. comp. |
| Cadmium[3] | 50≤H<100 | ug/L | 0.3 | 0.1 | weekly | I/E | 24 hr. comp. |
| | 100≤H<200 | ug/L | 0.4 | 0.2 | weekly | I/E | 24 hr. comp |
| | H≥200 | ug/L | 0.7 | 0.4 | weekly | I/E | 24 hr. comp |
| Copper[3] | 50≤H<100 | ug/L | 7.3 | 3.6 | weekly | I/E | 24 hr. comp. |
| | 100≤H<200 | ug/L | 14.0 | 7.0 | weekly | I/E | 24 hr. comp |
| | H≥200 | ug/L | 26.9 | 13.4 | weekly | I/E | 24 hr. comp |

**Table 1 - Outfall 001 Effluent Limitations and Monitoring Requirements**

| Parameter[1] | Hardness as mg/L $CaCO_3$ | Units | Effluent Limitations | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency[2] | Sample Location | Sample Type |
| Chromium, Total[4] | — | ug/L | — | — | weekly | I/E | 24 hr. comp. |
| Chromium VI[4] | — | ug/L | 16 | 8 | --- | I/E | 24 hr. comp. |
| Iron | — | ug/L | 1700 | 800 | weekly | I/E | 24 hr. comp. |
| Lead[3] | 50≤H<100 | ug/L | 2.2 | 1.1 | weekly | I/E | 24 hr. comp. |
| | 100≤H<200 | ug/L | 5.2 | 2.6 | weekly | I/E | 24 hr. comp |
| | H≥200 | ug/L | 12.6 | 6.3 | weekly | I/E | 24 hr. comp |
| Manganese | — | ug/L | — | — | weekly | I/E | 24 hr. comp. |
| Mercury[3,5] | — | ug/L | 0.02 | 0.01 | weekly | I/E | 24 hr. comp. |
| Nickel[3] | 50≤H<100 | ug/L | 47.7 | 23.8 | weekly | I/E | 24 hr. comp. |
| | 100≤H<200 | ug/L | 85.7 | 42.7 | weekly | I/E | 24 hr. comp |
| | H≥200 | ug/L | 154.0 | 76.8 | weekly | I/E | 24 hr. comp |
| Nitrate | — | mg/L as N | 20 | 10 | weekly | E | 24 hr. comp |
| Selenium[3] | — | ug/L | 8.2 | 4.1 | weekly | I/E | 24 hr. comp. |
| Silver[3] | 50≤H<100 | ug/L | 1.2 | 0.6 | weekly | I/E | 24 hr. comp. |
| | 100≤H<200 | ug/L | 4.1 | 2.0 | weekly | I/E | 24 hr. comp |
| | H≥200 | ug/L | 13.4 | 6.6 | weekly | I/E | 24 hr. comp |
| Zinc[3] | 50≤H<100 | ug/L | 66.6 | 33.2 | weekly | I/E | 24 hr. comp. |
| | 100≤H<200 | ug/L | 119.8 | 59.7 | weekly | I/E | 24 hr. comp |
| | H≥200 | ug/L | 215.6 | 107.5 | weekly | I/E | 24 hr. comp |
| TDS | — | mg/L | 1000 | 1000 | weekly | E | 24 hr. comp. |
| TDS anions/cations[6] | — | mg/L | — | — | quarterly | E | 24 hr. comp. |

**Table 1 - Outfall 001 Effluent Limitations and Monitoring Requirements**

| Parameter[1] | Hardness as mg/L $CaCO_3$ | Units | Effluent Limitations | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency[2] | Sample Location | Sample Type |
| Sulfate | — | mg/L | 200 | 200 | weekly | E | 24 hr. comp. |
| Turbidity, effluent | — | NTU | see Permit Part 1.A.5. | | weekly | E | grab |
| Turbidity, natural condition | — | NTU | — | — | weekly | background | grab |
| Hardness | — | mg/L $CaCO_3$ | — | — | weekly | downstream | grab |
| pH | — | s.u. | see Permit Part 1.A.4. | | Continuous | E | Recorder |
| TSS | — | mg/L | 30 | 20 | daily | I/E | 24 hr. comp. |
| Flow | — | gpm | — | — | Continuous | I/E | Recorder |
| Temperature | — | °C | — | — | Weekly | E | Grab |
| Dissolved Oxygen | — | mg/L | — | — | Weekly | E | Grab |
| Chronic Whole Effluent Toxicity[7] (WET) | — | $TU_c$ | 1.6 | 1.1 | Monthly | E | 24 hr. comp. |

1 - Parameters must be analyzed and reported as total recoverable unless otherwise noted.
2 - Weekly sampling shall occur on the same day of each week, unless the Permittee can document that sampling could not be performed due to extreme conditions. In such cases, a detailed explanation of the reason sampling could not be performed shall be prepared and kept with the analytical results for that day.
3 - Reporting of a maximum daily limit violation is required according to Permit Part III.G.
4 - Chromium VI (Cr VI) must be analyzed during the next sampling event when results are received showing a total chromium measure exceeding 11 ug/L - the sample holding time for chromium VI is 24 hours. Cr VI must be analyzed and reported as dissolved.
5 - Mercury must be analyzed and reported as total.
6 - This monitoring shall include a standard and complete suite of those cations and anions contributing to TDS including but not limited to boron (B), sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), fluoride (F), chloride (Cl), sulfate ($SO_4$), total alkalinity, hardness, pH, and electrical conductivity.
7 - See Permit Part I.D. for whole effluent toxicity testing requirements.

2. Until underground activities commence, the following monitoring frequencies shall apply. These frequencies shall also apply during a long term shut down of the mine. These frequencies shall be implemented after a 6 month closure period.

TABLE 2
Monitoring Requirements for Outfall 001
(During Non-Mining Periods)

| Effluent Parameter[1] | Units | Monitoring Requirement | |
|---|---|---|---|
| | | Sampling Frequency | Sample Type |
| Aluminum | ug/L | Quarterly | Grab |
| Ammonia, Total | mg/L | Quarterly | Grab |
| Arsenic | ug/L | Quarterly | Grab |
| Cadmium | ug/L | Quarterly | Grab |
| Copper | ug/L | Quarterly | Grab |
| Total Chromium | ug/L | Quarterly | Grab |
| Iron | ug/L | Quarterly | Grab |
| Lead | ug/L | Quarterly | Grab |
| Mercury[2] | ug/L | Quarterly | Grab |
| Nickel | ug/L | Quarterly | Grab |
| Nitrate | mg/L | Quarterly | Grab |
| Selenium | ug/L | Quarterly | Grab |
| Silver | ug/L | Quarterly | Grab |
| Zinc | ug/L | Quarterly | Grab |
| Total Dissolved Solids | mg/L | Quarterly | Grab |
| TDS anions/cations | mg/L | Annually | Grab |
| Sulfate | mg/L | Quarterly | Grab |
| Hardness[3] | mg/L | Monthly - Instream | Grab |
| pH[4] | s.u. | Quarterly | Grab |
| Total Suspended Solids | mg/L | Daily | Grab |
| Flow | MGD | Continuous | Recorder |
| Temperature | °C | Quarterly | Grab |
| WET, Chronic | $TU_c$[5] | Annually | Grab |

1 The Permittee shall conduct analysis for total recoverable and dissolved.
2 Mercury shall be analyzed as total.
3 The Permittee shall sample the receiving water hardness downstream of the discharge.
4 The Permittee shall monitor and report the number of pH excursions outside the range of 6.5 to 8.5 Standard Units.
5 Chronic toxic units (See Definitions).

3. The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.

4. The pH must not be less than 6.5 standard units (s.u.) nor greater than 8.5 standard units (s.u.). During continuous monitoring required in Table 1, the

Permittee shall monitor the total time outside the range for the month, the length of each excursion and the number of pH excursions outside the range of 6.5 to 8.5 Standard Units (s.u.). The Permittee shall report the total time outside the range for the month as well as the number of individual excursions which exceed 60 minutes.

5. The turbidity measured in nephelometric turbidity units (NTU) must not be more than 5 NTUs above the natural condition. The natural condition sample taken from Sherman Creek must be taken upstream of the discharge point within an hour of the effluent sample.

6. The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

7. Minimum Levels. For all effluent monitoring, the permittee must use analytical methods that can achieve a minimum level (ML) less than the effluent limitation, if possible. For parameters that do not have effluent limitations, the permittee must use methods that can achieve MLs less than or equal to those specified in Table 6 (Permit Part I.E.1.).

8. Chromium VI has an average monthly effluent limit that is not quantifiable using EPA approved or approvable analytical methods. EPA will use 10 ug/L (the ML for EPA Method 218.4) as the compliance evaluation level for this parameter.

9. For purposes of reporting on the DMR, for a single sample, if a value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}." For purposes of calculating monthly averages, zero may be assigned for values less than the MDL, 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 the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If a value is greater than the ML, the permittee must report and use the actual value.

## B. Effluent Limitations and Monitoring - Outfall 002

The permittee must limit and monitor discharges from outfall 002 as specified in the Table 3, below. All figures represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the table at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

1. Table 3

| Table 3 - Outfall 002 Effluent Limitations and Monitoring Requirements | | | | | |
|---|---|---|---|---|---|
| Parameter[1] | Units | Effluent Limitations | | Monitoring Requirements | |
| | | Maximum Daily | Average Monthly | Sample Frequency[2] | Sample Type |
| Aluminum | ug/L | 143 | 71 | weekly | 24 hr. comp. |
| Ammonia, Total | mg/L as N | 3.5 | 1.7 | weekly | Grab |
| Arsenic | ug/L | — | — | monthly | 24 hr. comp. |
| Cadmium[3] | ug/L | 0.2 | 0.1 | weekly | 24 hr. comp. |
| Copper[3] | ug/L | 3.8 | 1.9 | weekly | 24 hr. comp. |
| Chromium, Total[4] | ug/L | — | — | weekly | 24 hr. comp. |
| Chromium VI[3,4] | ug/L | 16 | 8 | --- | 24 hr. comp. |
| Iron | ug/L | 1700 | 800 | weekly | 24 hr. comp. |
| Lead[3] | ug/L | 0.9 | 0.5 | weekly | 24 hr. comp. |
| Manganese | ug/L | — | — | weekly | 24 hr. comp. |
| Mercury[3, 5] | ug/L | 0.02 | 0.01 | weekly | 24 hr. comp. |
| Nickel[3] | ug/L | 26 | 13 | weekly | 24 hr. comp. |
| Selenium[3] | ug/L | 8.2 | 4.1 | weekly | 24 hr. comp. |
| Silver[3] | ug/L | 0.4 | 0.2 | weekly | 24 hr. comp. |
| Zinc[3] | ug/L | 37 | 18 | weekly | 24 hr. comp. |
| TDS | mg/L | 500 | 500 | weekly | 24 hr. comp. |
| TDS anions/cations | mg/L | — | | quarterly | 24 hr. comp. |
| Nitrates | mg/L | — | | weekly | grab |
| Sulfates | mg/l | 250 | 250 | weekly | 24 hr. comp. |
| Turbidity, effluent | NTU | see Permit Part 1.B.4. | | weekly | grab |
| Turbidity, natural condition | NTU | — | — | weekly | grab |
| pH | s.u. | see Permit Part 1.B.3. | | Continuous | Recorder |
| TSS | mg/L | 20 | 30 | daily | 24 hr. comp. |
| Outfall Flow | gpm | 1,100 | — | Continuous | Recorder |
| Temperature | °C | — | — | weekly | grab |
| Hardness, as $CaCO_3$ | mg/l | — | — | weekly | grab |

**Table 3 - Outfall 002 Effluent Limitations and Monitoring Requirements**

| Parameter[1] | Units | Effluent Limitations | | Monitoring Requirements | |
|---|---|---|---|---|---|
| | | Maximum Daily | Average Monthly | Sample Frequency[2] | Sample Type |
| Chronic Whole Effluent Toxicity[6] | $TU_c$ | 1.6 | 1.1 | Monthly | 24 hr. comp. |

1 - Parameters must be analyzed and reported as total recoverable unless otherwise indicated.
2 - Weekly sampling shall occur on the same day of each week, unless the Permittee can document that sampling could not be performed due to extreme conditions. In such cases, a detailed explanation of the reason sampling could not be preformed shall be prepared and kept with the analytical results for that day.
3 - Reporting of a maximum daily limit violation is required according to Permit Part III.G.
4 - Cr VI must be analyzed during the next sampling event when results are received showing a total chromium measure exceeding 11 ug/L - the sample holding time for Cr VI is 24 hours. Cr VI must be analyzed and reported as dissolved.
5 - Mercury must be analyzed and reported as total.
6 - See Permit Part I.D. for whole effluent toxicity testing requirements.

2. The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.

3. The pH must not be less than 6.5 standard units (s.u.) nor greater than 8.5 standard units (s.u.). The Permittee shall monitor the total time outside the range for the month, the length of each excursion and the number of pH excursions outside the range of 6.5 to 8.5 Standard Units (s.u.). The Permittee shall report the total time outside the range for the month as well as the number of individual excursions which exceed 60 minutes.

4. The turbidity measured in nephelometric turbidity units (NTU) must not be more than 5 NTUs above the natural condition. The background level for turbidity shall be measured at a point upstream of the discharge point in the diversion around the TSF.

5. The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

6. Minimum Levels. For all effluent monitoring, the permittee must use analytical methods that can achieve a minimum level (ML) less than the effluent limitation, if possible. For parameters that do not have effluent limitations, the permittee must use methods that can achieve MLs less than or equal to those specified in Table 6 (Permit Part I.E.1.).

7. Chromium VI has an average monthly effluent limit that is not quantifiable using EPA approved or approvable analytical methods. EPA will use 10 ug/L (the ML for EPA Method 218.4) as the compliance evaluation level for this parameter.

8. For purposes of reporting on the DMR, for a single sample, if a value is less

than the MDL, the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}." For purposes of calculating monthly averages, zero may be assigned for values less than the MDL, 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 the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If a value is greater than the ML, the permittee must report and use the actual value.

## C. Effluent Limitations and Monitoring Requirements - Outfall 003

The permittee must limit and monitor discharges from outfall 003 as specified in the Table 4, below. All figures represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the table at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

1. Table 4:

**TABLE 4**

| Parameter | Units | Effluent Limitations | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|
| | | Maximum Daily | Average Monthly | Weekly Average | Sample Frequency | Sample Type |
| Flow | gpd | 60,000 | 30,000 | — | Daily | Recording |
| Biochemical Oxygen Demand ($BOD_5$) | mg/L | 60 | 30 | 45 | Weekly | Grab |
| Total Suspended Solids (TSS) | mg/L | 60 | 30 | 45 | Weekly | Grab |
| Fecal Coliform | #/100 ml | 150,000 | 100,000 | — | Weekly | Grab |
| Chlorine[1] | mg/L | 0.02 | — | — | Weekly | Grab |
| pH | s.u. | See Permit Part I.C.3. | | | Weekly | Grab |

1 - Monitoring required only if chlorine is used. See Permit Part I.C.6., below.

2. The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.

3. The pH must not be less than 6.5 standard units (s.u.) nor greater than 8.5 standard units (s.u.).

4. Influent (prior to treatment) measures of $BOD_5$ and TSS shall be done on a quarterly basis. From this information, percent removal shall be calculated and reported on the DMR in January, April, July, and September for the previous quarter. Percent removal shall meet or exceed 85% for both

parameters.

5. The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

6. If chlorine (Cl) is used for disinfection, the compliance evaluation level will be 0.1 mg/L as a daily maximum. The effluent limit for chlorine is not quantifiable using EPA approved analytical methods. The ML for EPA Methods 330.3 and 330.4 is 0.1 mg/L and is used as the compliance evaluation level for this parameter.

7. For purposes of reporting on the DMR, for a single sample, if a value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}." For purposes of calculating monthly averages, zero may be assigned for values less than the MDL, 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 the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If a value is greater than the ML, the permittee must report and use the actual value.

8. The permittee is required to place signs along the beach near the mixing zone and outfall line for Outfall 003. The signs must provide the identity and telephone numbers of the permittee, must inform the public that a mixing zone exists, that treated wastewater is being discharged, and that users of the area should exercise caution.

9. The Permittee is required to inform ADEC and local fishing organizations of any upset in the treatment system likely to result in an exceedance of the permit limitations of Outfall 003.

**D. Whole Effluent Toxicity Testing (WET) Requirements**. The permittee must conduct chronic toxicity tests on effluent samples from outfall 001 and outfall 002. Testing must be conducted in accordance with subsections 1 through 6, below.

1. Toxicity testing must be conducted on 24-hour composite sample of the effluent. In addition, a split of each sample collected must be analyzed for the chemical and physical parameters required in Permit Part I.A. and B., above. The sample 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 Parts I.A. and B., analysis of the split sample will fulfill the requirements of Permit Parts I.A. and I.B. as well.

2. Chronic Test Species and Methods

   a. The permittee shall perform chronic toxicity test on samples

representative of the effluents discharged from Outfalls 001 and 002.

b. The permittee shall conduct one chronic toxicity test per month. Of the twelve annual tests:

Four tests shall be conducted using:

the fathead minnow, *Pimephales promelas* - static, renewal, larval survival and growth test;

Four tests shall be conducted using:

the water flea, *Ceriodaphnia dubia* - 7-day static renewal, survival and reproduction test;

Four tests shall be conducted using:

green algae, *Selanastrum capricornutum* - 4-day static, growth.

c. 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.

d. Results must be reported in $TU_c$ (chronic toxic units), where $TU_c = 100/IC_{25}$. See Permit Part VI. for a definition of inhibition concentration (IC).

3. Quality Assurance

a. The toxicity testing on each organism must include a series of five test dilutions (e.g., 100%, 75%, 50%, 25%, and 12.5%) and a control.

b. All quality assurance criteria and statistical analyses used for chronic tests and reference toxicant tests must be in accordance with *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 delivery of a sample to the laboratory, the permitee may collect only two samples for WET testing and the acceptable sample holding times can be extended from 36 to 48 hours.

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

i) If organisms are not cultured in-house, concurrent testing with reference toxicants must be conducted. If organisms are cultured in-house, monthly reference toxicant testing is sufficient.

Reference toxicant tests must be conducted using the same test conditions as the effluent toxicity tests.

ii) If either of the reference toxicant tests or the effluent tests do 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.

iii) 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 of EPA and ADEC. In no case shall water that has not met test acceptability criteria be used for either dilution or control.

4. Accelerated Testing.

a. Initial Investigation. If the permittee demonstrates through an evaluation of facility operations that the cause of the exceedence is known and corrective actions have been implemented, only one accelerated test is necessary. If toxicity exceeding the limit is detected in this test, then the TRE requirements in Permit Part I.D.6. shall apply, or

b. If chronic toxicity is detected above the limits specified in Table 1 or Table 3 and no initial investigation is conducted or no cause is determined by an initial investigation 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 exceedence.

c. The permittee must notify EPA and ADEC of the exceedence in writing within two weeks of receipt of the test results. The notification must include the following information:

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

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

iii) Where no actions have been taken, a discussion of the reasons for no taking action.

d. If none of the four accelerated tests exceed the toxicity limit, the permittee may return to the normal testing frequency. If any of the four tests exceed the limit, then the TRE requirements in Permit Part I.D.5., shall apply.

5. Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE):

   a. If chronic toxicity limits are exceeded during accelerated testing under Permit Part I.D.4., the permittee must initiate a toxicity reduction evaluation (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 exceedence. At a minimum, the TRE must include:

      i) Further actions to investigate and identify the cause of toxicity;

      ii) Actions the permittee will take to mitigate the impact of the discharge and to prevent the recurrence of toxicity; and

      iii) A schedule for these actions.

   b. 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.

   c. The permittee may initiate a Toxicity Identification Evaluation (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).

6. Reporting

   a. The permittee shall submit the results of the monthly toxicity tests in $TU_c$ with the discharge monitoring report (DMR) for the month in which the results are received.

   b. The permittee must submit the results of any accelerated testing, under Permit Part I.D.4., within 2 weeks of receipt of the results from the lab. The full report must be submitted within 4 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.

   c. 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 Parts I.A. and I.B.; and an explanation of logistical problems described in Permit Part I.D.3.b., if encountered.

**E. Receiving Water Monitoring.** The permittee must conduct the following receiving water monitoring program in the vicinity of the mine.

1. Water Column Monitoring

a. The permittee must conduct monthly monitoring at the following stations:

1) SL-B 10 m upstream of confluence with West Fork Slate Creek,
2) SL-C 30 m downstream of confluence with West Fork Slate Creek,
3) a newly named station that is representative of the flow diversion pipeline prior to commingling with the discharge from Outfall 002 (this could be within the diversion pipe and should be used as the background monitoring location for turbidity sampling).
4) Station 109 (or equivalent baseline location in Upper Sherman Creek),
5) Station 105,
6) a station downstream of Outfall 001,
7) a point in Johnson Creek immediately above the process area, and
8) a pont in Johnson Creek immediately below the process area.

The date, time, and weather conditions shall be recorded for each sample taken.

b. All ambient samples must be grab samples.

c. All samples must be analyzed for the parameters listed in Table 5, below to achieve MLs less than the effluent limitations of the limited parameters. For parameters not limited in Permit Parts I.A. or I.B., the MLs in Table 6 should be utilized.

**Table 5**
**Receiving Water Monitoring Parameters**

| | | |
|---|---|---|
| pH | TDS | Copper |
| Dissolved Oxygen | TSS | Manganese |
| Conductivity | Hardness | Mercury |
| Temperature | Aluminum | Nickel |
| Turbidity | Arsenic | Selenium |
| Total Ammonia | Cadmium | Silver |
| Nitrate | Chromium | Zinc |
| Sulfates | Lead | Color |

| Table 5<br>Receiving Water Monitoring Parameters | | |
|---|---|---|
| Iron | Chlorides | |
| Ambient Monitoring shall be done in dissolved metals. | | |

| Table 6: Addition MLs | | |
|---|---|---|
| Parameter | Units | Minimum Level (ML) |
| Manganese | ug/L | 10 |
| Chromium, Total | ug/L | 10 |

d. Quality assurance/quality control (QA/QC) plans for all the monitoring must be documented in the Quality Assurance Plan required under Permit Part I.F., "Quality Assurance Plan".

e. Results shall be included with the DMRs for the month samples were taken and all results shall be included in the Annual Water Quality Monitoring Summary (Permit Part I.E.4.). At a minimum, the monthly reports must include the following:

1) Dates of sample collection and analyses.
2) Results of sample analysis.
3) Relevant QA/QC information.

2. Sediment Monitoring

a. Samples shall be taken (1) immediately downstream of Outfall 001 and below the fish barrier in Sherman Creek, (2) immediately downstream of Outfall 002 and below the fish barrier in Slate Creek, and (3) immediately below the process area in Johnson Creek. If a site immediately downstream of the outfall or process area is not suitable for sample collection, the permittee shall sample at the nearest downstream site suitable for sampling.

b. One baseline sampling shall be conducted in Slate Creek prior to commencement of tailings disposal and in Johnson Creek prior to the initiation of process facility construction.

c. Sampling shall be conducted annually after the first baseline sample.

d. The Permittee shall monitor the parameters in Table 7 and shall achieve the listed detection levels for each sediment sample.

| TABLE 7<br>Sediment Monitoring Parameters and Analytical Methods | | | |
|---|---|---|---|
| Parameter | Preparation Method | Analysis Method | Sediment MDL[1] |
| Aluminum (mg/kg) | PSEP[2] | | |

**TABLE 7**
Sediment Monitoring Parameters and Analytical Methods

| Parameter | Preparation Method | Analysis Method | Sediment MDL[1] |
|---|---|---|---|
| Arsenic (mg/kg) | PSEP[2] | GFAA[3] | 2.5 |
| Cadmium (mg/kg) | PSEP[2] | GFAA[3] | 0.3 |
| Chromium (mg/kg) | PSEP[2] | | |
| Copper (mg/kg) | PSEP[2] | ICP[4] | 15.0 |
| Lead (mg/kg) | PSEP[2] | ICP[4] | 0.5 |
| Mercury (mg/kg) | 7471[5] | 7471[5] | 0.02 |
| Nickel (mg/kg) | PSEP[2] | ICP[4] | 2.5 |
| Selenium (mg/kg) | PSEP[2] | | |
| Silver (mg/kg) | PSEP[2] | GFAA[3] | 0.2 |
| Zinc (mg/kg) | PSEP[2] | ICP[4] | 15.0 |
| Acute Toxicity | see below | see below | NA |
| Total Solids (%) | ----- | PSEP[2], pg 17 | 0.1 |
| Total Volatile Solids (%) | ----- | PSEP[2], pg 20 | 0.1 |
| Total Organic Carbon (%) | ----- | PSEP[2,6], pg 23 | 0.1 |
| Total Sulfides (mg/kg) | ----- | PSEP[2], pg 32 | 0.1 |
| Grain Size | ----- | Modified ASTM with Hydrometer | NA |

1 Dry weight basis
2 Recommended Protocols for Measuring Selected Environmental Variables, in Puget Sound Estuary Program, EPA 910/9-86-157, as updated by Washington Department of Ecology; Subsection: Metals in Puget Sound Water, Sediment, and Tissue Samples
3 Graphite Furnace Atomic Absorption Spectrometry, SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, EPA 1986
4 Inductively Coupled Plasma Emission Spectrometry, SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, EPA 1986
5 Mercury Digestion and Cold Vapor Atomic Absorption Spectrometry, SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, EPA 1986 The Permittee shall sample the receiving water hardness downstream of the discharge.
6 Recommended Methods for Measuring TOC in Sediments, Kathryn Bragdon-Cook Clarification Paper, Puget Sound Dredged Disposal Authority Annual Review, May, 1993.

e. Biological Testing of Sediments

1) Sediment samples will undergo acute toxicity testing to assess the relative toxicity of the sediment to representative aquatic life. The following bioassays are required:

- Test Method 100.1: Hyalella azteca 10-day survival test for sediments
- Test Method 100.2: Chironomus tentans 10-day survival test for sediments

2) Test methods, QA/QC, data recording, data analysis and calculations, and reporting shall be in accordance with Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates, EPA/600/R-94/024.

Both Hyallella azteca and Chirmonous tentans are representative species for their respective classes of aquatic life.

f. The permittee shall collect sufficient sediment from each monitoring station to conduct all chemical and biological tests identified herein. Sediment samples shall consist of the upper two (2) centimeters of sediment. The minimum depth of sample penetration shall be four centimeters.

Sediment monitoring stations shall be located in areas where deposition is likely to occur (i.e. pools or moderately deep, slow-moving water with the surface not turbulent to the extent of being broken).

g. Sediment monitoring results shall be reported in the Annual Water Quality Monitoring Summary (see Permit Part I.E.4.) and must include, at a minimum: dates of sample collection and analyses, locations of samples collected, results of the monitoring required in Permit Parts I.E.2.d. and e., and relevant QA/QC information.

3. Aquatic Resource Monitoring

The Permittee shall monitor aquatic resources as described below and shall report results, including relevant quality assurance/quality control data, in the Annual Water Quality Monitoring Report.

a. Benthic Invertebrates

1) Benthic invertebrates shall be monitored using methods and locations established in baseline surveys in Sherman and Sweeny Creeks. The Permittee shall establish reaches to be sampled in Slate and Johnson Creeks that are representative of potential project impacts. Sweeny Creek data will provide baseline data for benthic invertebrates. Sherman Creek data shall be collected downstream of mine discharges to assess potential impacts.

For Sherman and Sweeny Creeks, two reaches in each creek shall be sampled. For Slate and Johnson Creeks, one reach shall be sampled. Sweeny Creek reaches shall be those identified in Reconnaissance Photograph Study of Sherman and Sweeny Creeks, Located Near the Kensington Mine, Alaska, During Mid-July 1991 (Konopacky Environmental, January 1992).

Each reach shall be delineated for all possible sampling sites (those areas containing stream substrate with particles <20 cm along the long axis). Every third or fourth sampling site shall be sampled until a total of 6 samples is obtained for each reach.

2) Samples shall be collected using a 0.093 $m^2$ Surber sampler equipped with a 300-micron mesh collection net. Collected samples shall be placed in labeled plastic containers and preserved with 70 percent ethyl alcohol. Samples shall be enumerated and identified to the generic level (except for oligochaetes to order). For each sample the following shall be calculated: density per unit area, Shannon Diversity and Evenness indices, EPT (epheropterans, plecopterans, and tricopterans), and number of EPT taxa.

3) Sampling shall be conducted once during the construction period and annually thereafter. Surveys shall be conducted between late March and the end of May, after spring breakup (ice out) and before peak snowmelt.

b. Resident Fish Monitoring - Population Status

1) Abundance and condition of Dolly Varden char in Sherman, Slate and Johnson Creeks shall be monitored annually using snorkel observations, electroshocking techniques, or other appropriate techniques. Surveys shall be conducted in lower, middle and upper Sherman Creek as identified in Presence-Absence Survey for Fish in Small Unnamed Streams, Located In and Near the Area Proposed for the Dry Tailings Storage Facility Associated with the Kensington Mine, Alaska, During May 1996 (Konopacky Environmental, May 1996). Similar locations shall be identified in Slate and Johnson Creeks. These surveys shall focus on fish greater than 25 mm. Data to be derived from these surveys shall include: (1) population estimates by species, habitat type and stratum, and (2) condition factor by stratum.

2) Monitoring shall be conducted annually between August 1 and September 15. Data shall be collected so that statistical comparisons can be made with the previous baseline data. Estimates shall be made of the variability of the data, including minimum detectable differences between samples as well as the precision of the 95 percent confidence interval. This information shall be used to refine or revise sampling protocols during the construction and operations phase.

c. Anadromous Fish Monitoring

1) Abundance of Spawning Salmon and Survival of Embryos

a) Annual surveys of spawning salmon in Sherman, Slate, and Johnson creeks shall be conducted to assess the size of the escapement. Surveys shall consist of weekly stream counts throughout the spawning season documenting the distribution of salmon within the surveyed areas.

b) Outmigrating juvenile pink salmon from the Sherman, Slate, and Johnson creek drainages will be sampled during the spring following each year of adult counts. These counts are to be conducted in April until population counts diminish. Quantitative methods, such as a screw trap or inclined plane trap will be used to estimate the relationship between adult escapement and fry protection

2) Quality of Spawning Substrate

The quality of spawning substrate used by pink salmon shall be

monitored annually to detect possible changes caused by potential introduction of fine sediments into lower Sherman, Slate, and Johnson Creeks. Sediment samples shall be collected in July prior to spawning activity. Four replicate samples shall be collected from 2 locations in each creek using a McNeil-type sampler, using techniques and locations comparable to those in Konopacky (1992). Reaches 1 and 3, as defined in Konopacky reports, shall be the sampling locations for Sherman Creek. The geometric mean particle size will be calculated for each sample.

d. Aquatic Vegetation

Annual visual surveys of aquatic vegetation in Sherman, Slate, and Johnson Creeks downstream of the discharges or project area shall be conducted during summer months. Evidence of algal mats, vegetation die-off, and/or other visible impacts shall be reported.

e. Aquatic resource monitoring results shall be reported in the Annual Water Quality Monitoring Summary (see Permit Part I.E.4.) and must include, at a minimum: dates of sample collection and analyses, locations of samples collected, results of all monitoring required in Permit Parts I.E.3., and relevant QA/QC information.

4. All discharge and receiving water monitoring results for the year must be included in an Annual Water Quality Monitoring Summary and submitted by March 1 for the previous 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, a graphical presentation of the data at each monitoring station, a comparison of upstream and downstream monitoring results (to show any differences) and a comparison of monitoring results for each station over time (to show any trends). This annual report may reference the monthly reports for QA/QC information.

**F. Quality Assurance Plan (QAP).** The permittee must develop a quality assurance plan (QAP) for all monitoring required by this permit. The QAP may be contained in an overall monitoring plan for the entire project. The QAP, or the QAP portion of an overall monitoring plan, must be submitted to EPA and ADEC for review and approval within 60 days of the effective date of this permit and implemented within 120 days of the effective date of this permit. Any existing QAPs may be modified for submittal under this section.

1. The QAP must be designed to assist in planning for the collection and analysis of effluent and receiving water samples in support of the permit and in explaining data anomalies when they occur.

2. Throughout all sample collection and analysis activities, the permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and

*Guidance for Quality Assurance Project Plans* (EPA/QA/G-5). The QAP must be prepared in the format which is specified in these documents.

3. The permittee must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP.

4. Copies of the QAP must be kept on site and made available to EPA and/or ADEC upon request.

## II. BEST MANAGEMENT PRACTICES PLAN

**A. Purpose.** Through implementation of the best management practices (BMP) plan the permittee must prevent or minimize the generation and the potential for the release of pollutants from the facility to the waters of the United States through normal and ancillary activities.

**B. Development and Implementation Schedule.** The permittee must develop and implement a BMP Plan which achieves the objectives and the specific requirements listed below. A copy of the BMP Plan must be submitted to EPA and ADEC within 120 days of the effective date of the permit. Any existing BMP plans may be modified for submittal and approval under this section. The BMP Plan may be included as part of a project wide document. The permittee must implement the provisions of the plan as conditions of this permit within 180 days of the effective date of this permit.

**C. Objectives.** The permittee must develop and amend the BMP Plan consistent with the following objectives for the control of pollutants.

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. Under the BMP Plan and 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.

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 waters of the United States 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.

**D. Elements of the BMP Plan.** The BMP Plan should 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:

1. Plan Components.

   a. 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.

   b. Structure, functions, and procedures of the BMP Committee. The BMP Plan must establish a BMP Committee responsible for developing, implementing, and maintaining the BMP Plan.

   c. Description of potential pollutant sources.

   d. Risk identification and assessment.

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

   f. 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.

   g. Materials compatibility.

   h. Good housekeeping.

   i. Inspections.

   j. Preventative maintenance and repair.

   k. Security

   l. Employee training.

   m. Recordkeeeping and reporting.

   n. 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.

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

2. Specific Best Management Practices. The BMP Plan must establish specific BMPs or other measures to achieve the objectives under Permit Part II.C. and which ensure that the following specific requirements are met:

a. Solids, sludges, or other pollutants removed in the course of treatment or control of water and wastewaters must be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

b. Ensure proper management of solid and hazardous waste in accordance with regulations promulgated under the Resource Conservation and Recovery Act (RCRA). Management practices required under RCRA regulations must be referenced in the BMP Plan.

c. Ensure proper management of materials in accordance with Spill Prevention, Control, and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 112. The BMP Plan may incorporate any part of such plans into the BMP Plan by reference.

d. Proper explosives management to minimize contamination of mine drainage with ammonia, nitrate and other explosives residuals.

3. Review and Certification. The BMP Plan must be reviewed and certified as follows:

a. Annual review by the plant manager and BMP Committee.

b. Certified statement that the above reviews have been completed and that the BMP Plan fulfills the requirements set forth in this permit. The statement must be certified by the dated signatures of each BMP Committee member. The statement must be submitted to EPA and ADEC on or before January 31$^{st}$ of each year of operation under this permit after the initial BMP submittal (the initial statement must be submitted to EPA and ADEC six months after submittal of the BMP Plan).

**E. Documentation.** The permittee must maintain a copy of the BMP Plan at the facility and make it available to EPA, ADEC or an authorized representative upon request.

**F. BMP Plan Modification.**

1. The permittee must amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to surface waters.

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 United States and/or the specific requirements above.

3. Any changes to the BMP Plan must be consistent with the objectives and specific requirements listed above. All changes in the BMP Plan must be reported to EPA and ADEC with the annual certification required under Permit Part D.3., above.

## III. MONITORING, RECORDING AND REPORTING REQUIREMENTS

### A. Representative Sampling (Routine and Non-Routine Discharges).

Samples and measurements must be representative of the volume and nature of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in Permit Part I.A. of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with paragraph III.C ("Monitoring Procedures"). The permittee must report all additional monitoring in accordance with paragraph III.D ("Additional Monitoring by Permittee").

**B. Reporting of Monitoring Results.** The permittee must summarize monitoring results each month on the Discharge Monitoring Report (DMR) form (EPA No. 3320-1) or equivalent. The permittee must submit reports monthly, postmarked by the 20th day of the following month. The permittee must sign and certify all DMRs, and all other reports, in accordance with the requirements of Permit Part V.E. of this permit ("Signatory Requirements"). The permittee must submit the legible originals of these documents to the Director, Office of Water, with copies to ADEC at the following addresses:

| | |
|---|---|
| USEPA<br>Region 10<br>1200 Sixth Avenue, OW-133<br>Seattle, Washington 98101 | ADEC<br>Division of Water<br>410 Willoughby, Suite 303<br>Juneau, Alaska 99801 |

**C. Monitoring Procedures**. Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures have been specified in this permit.

**D. Additional Monitoring by Permittee.** If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the permittee must include the results of this monitoring in the calculation and reporting of the data submitted in the DMR.

**E. Records Contents.** Records of monitoring information must include:

1. the date, exact place, and time of sampling or measurements;
2. the individual(s) who performed the sampling or measurements;
3. the date(s) analyses were performed;
4. the individual(s) who performed the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

**F. Retention of Records.** The permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director or ADEC at any time.

**G. Twenty-four Hour Notice of Noncompliance Reporting**

1. The permittee must report the following occurrences of noncompliance by telephone within 24 hours from the time the permittee becomes aware of the circumstances:

   a. any noncompliance that may endanger health or the environment;

   b. any unanticipated bypass that exceeds any effluent limitation in the permit (See Permit Part IV.F., "Bypass of Treatment Facilities");

   c. any upset that exceeds any effluent limitation in the permit (See Permit Part IV.G., "Upset Conditions"); or

   d. any violation of a maximum daily discharge limitation for any of the pollutants in Table 1 of Permit Part I.A.

2. The permittee must also provide a written submission within five days of the time that the permittee becomes aware of any event required to be reported under subpart 1 above. The written submission must contain:

   a. a description of the noncompliance and its cause;

   b. the period of noncompliance, including exact dates and times;

c. the estimated time noncompliance is expected to continue if it has not been corrected; and

d. steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

3. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Hotline in Seattle, Washington, by telephone, (206) 553-1846.

4. Reports must be submitted to the addresses in Permit Part III.B ("Reporting of Monitoring Results").

**H. Other Noncompliance Reporting**. The permittee must report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports for Permit Part III.B ("Reporting of Monitoring Results") are submitted. The reports must contain the information listed in Permit Part III.G.2 of this permit ("Twenty-four Hour Notice of Noncompliance Reporting").

**I. Changes in Discharge of Toxic Substances**. The permittee must notify the Director and ADEC as soon as it knows, or has reason to believe:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge may reasonably be expected to exceed the highest of the following "notification levels":

   a. One hundred micrograms per liter (100 ug/L);

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

   c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

   d. The level established by the Director in accordance with 40 CFR 122.44(f).

2. That any activity has occurred or will occur that would result in any discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in the permit, if that discharge may reasonably be expected to exceed the highest of the following "notification levels":

   a. Five hundred micrograms per liter (500 ug/L);

   b. One milligram per liter (1 mg/l) for antimony;

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by the Director in accordance with 40 CFR 122.44(f).

**J. Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date.

## IV. COMPLIANCE RESPONSIBILITIES

**A. Duty to Comply**. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

**B. Penalties for Violations of Permit Conditions**

1. Civil and Administrative Penalties. Pursuant to 40 CFR Part 19 and the Act, any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $32,500 per day for each violation).

2. Administrative Penalties. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Pursuant to 40 CFR 19 and the Act, administrative penalties for Class I violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $11,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $27,500). Pursuant to 40 CFR 19 and the Act, penalties for Class II violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $11,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $157,500).

3. Criminal Penalties:

   a. Negligent Violations. The Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both.

   b. Knowing Violations. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

   c. Knowing Endangerment. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

   d. False Statements. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000

per violation, or by imprisonment for not more than 6 months per violation, or by both.

C. **Need to Halt or Reduce Activity not a Defense**. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit.

D. **Duty to Mitigate**. The permittee must 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.

E. **Proper Operation and Maintenance**. The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. **Bypass of Treatment Facilities**

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this Permit Part.

2. Notice.

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior notice, if possible at least 10 days before the date of the bypass.

   b. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required under Permit Part III.G ("Twenty-four Hour Notice of Noncompliance Reporting").

3. Prohibition of bypass.

   a. Bypass is prohibited, and the Director may take enforcement action against the permittee for a bypass, unless:

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

      ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This

condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

iii) The permittee submitted notices as required under paragraph 2 of this Permit Part.

b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Permit Part.

## G. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee meets the requirements of paragraph 2 of this Permit Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the permittee can identify the cause(s) of the upset;

   b. The permitted facility was at the time being properly operated;

   c. The permittee submitted notice of the upset as required under Permit Part III.G, "Twenty-four Hour Notice of Noncompliance Reporting;" and

   d. The permittee complied with any remedial measures required under Permit Part IV.D, "Duty to Mitigate."

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

**H. Toxic Pollutants**. The permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

**I. Planned Changes**. The permittee must give notice to the Director and ADEC as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements under Permit Part III.I ("Changes in Discharge of Toxic Substances").

**J. Anticipated Noncompliance**. The permittee must give advance notice to the Director and ADEC of any planned changes in the permitted facility or activity that may result in noncompliance with this permit.

## V. GENERAL PROVISIONS

**A. Permit Actions**. This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR 122.62, 122.64, or 124.5. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

**B. Duty to Reapply**. If the permittee intends to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. In accordance with 40 CFR 122.21(d), and unless permission for the application to be submitted at a later date has been granted by the Regional Administrator, the permittee must submit a new application at least **180 days before the expiration date of this permit**.

**C. Duty to Provide Information**. The permittee must furnish to the Director and ADEC, within the time specified in the request, any information that the Director or ADEC may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee must also furnish to the Director or ADEC, upon request, copies of records required to be kept by this permit.

**D. Other Information**. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or that it submitted incorrect information in a permit application or any report to the Director or ADEC, it must promptly submit the omitted facts or corrected information.

**E. Signatory Requirements**. All applications, reports or information submitted to the Director and ADEC must be signed and certified as follows.

1. All permit applications must be signed as follows:

   a. For a corporation: by a responsible corporate officer.

   b. For a partnership or sole proprietorship: by a general partner or the

proprietor, respectively.

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

2. All reports required by the permit and other information requested by the Director or ADEC must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above;

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

   c. The written authorization is submitted to the Director and ADEC.

3. Changes to authorization. If an authorization under Permit Part V.E.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Permit Part V.E.2. must be submitted to the Director and ADEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this Permit Part must make the following certification:

   "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."

**F. Availability of Reports.** In accordance with 40 CFR 2, information submitted to EPA pursuant to this permit may be claimed as confidential by the permittee. In accordance with the Act, permit applications, permits and effluent data are not considered confidential. Any confidentiality claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice to the

permittee. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR 2, Subpart B (Public Information) and 41 Fed. Reg. 36902 through 36924 (September 1, 1976), as amended.

G. **Inspection and Entry**. The permittee must allow the Director, ADEC, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

H. **Property Rights**. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of state or local laws or regulations.

I. **Transfers**. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act. (See 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory).

J. **State Laws**. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

## VI. DEFINITIONS

1. "Act" means the Clean Water Act.

2. "ADEC" means Alaska Department of Environmental Conservation.

3. "Administrator" means the Administrator of the EPA, or an authorized representative.

4. "Average monthly discharge limitation" means 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 during that month.

5. "Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of wasters 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.

6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

7. "Chronic toxic unit" ("$TU_c$") is a measure of chronic toxicity. The number of chronic toxic units in the effluent is calculated as $100/IC_{25}$ where the IC is measured in percent effluent.

8. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

9. "Director" means the Director of the Office of Water, EPA, or an authorized representative.

10. "DMR" means discharge monitoring report.

11. "EPA" means the United States Environmental Protection Agency.

12. "Grab" sample is an individual sample collected over a period of time not exceeding 15 minutes.

13. "Inhibition concentration", IC, is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).

14. "Maximum daily discharge limitation" means the highest allowable "daily discharge."

15. "Method Detection Limit (MDL)" means 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.

16. "Minimum Level (ML)" means 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.

17. "QA/QC" means quality assurance/quality control.

18. "Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

19. "Severe property damage" means 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.

20. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit 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.

Appendix A: Maps showing sampling locations will be included in the final.

See last 3 pages of the File named D-1b pages 3-5.pdf for the maps included in the permit.

# STATE OF ALASKA

**SEAN PARNELL, GOVERNOR**

**DEPARTMENT OF FISH AND GAME**

*DIVISION OF HABITAT*

*802 3rd Street, Douglas*
*P.O. BOX 110024*
*JUNEAU, AK 99811-0024*
*PHONE: (907) 465-4105*
*FAX: (907) 465-4759*


June 9, 2010

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

RE: Kensington Gold Project APDES Draft Permit AK-005057-1

Dear Mr. ~~George~~: Kenwyn

Alaska Department of Fish and Game Division of Habitat (Habitat) biologists reviewed the draft Alaska Pollutant Discharge Elimination System (APDES) permit (AK-005057-1) and Fact Sheet for the Kensington Gold Project. The proposed permit renewal would authorize continued use of Outfall 001 in Sherman Creek and Outfall 002 in East Fork Slate Creek. Outfall 001 discharges treated water from the underground mine workings, while Outfall 002 discharges treated water from the Tailings Treatment Facility (TTF).

The permit renewal contains several modifications to the aquatic biological monitoring requirements, most of which resulted from recommendations provided by Habitat biologists. Our recommendations for the annual monitoring are based on available data, stream-specific considerations, and reasonable foreseeable potential for adverse effects to occur from the project. Should any results of the required monitoring suggest that aquatic life may be affected from the discharges, we would work with you to determine if additional aquatic studies are necessary to document stream health following the incident(s). In addition, Habitat can require aquatic resource sampling to provide information about impact(s) to fishery resources and habitats.[1]

In the last several months, we've worked with a federal Marine Mammal Biologist, Habitat Conservation Biologist, Environmental Contaminants Biologist, and the Southeast Alaska Conservation Council's Clean Water Specialist to review the data collected to date by Coeur Alaska Inc. (2006-2008) and Aquatic Science Inc. (2009-2011), discuss the biological monitoring requirements in the current 2005 National Pollutant Discharge Elimination System (NPDES) permit, and discuss the rationale for our proposed changes in the APDES permit. This letter contains the data analyses and rationale that support our recommendations for the aquatic studies that should be included in the APDES permit.

Following are the aquatic biological monitoring studies listed in the draft APDES permit (*in italics*) and Habitat's recommendations for the final permit:

[1] Pursuant to Alaska Statute (AS) 16.05.841 and AS 16.05.871.

### 1.5.2 Sediment Monitoring and Biological Testing

*Annually sample sediment in 1) the inlet creek to Upper Slate Lake, 2) East Fork Slate Creek, 3) Lower Slate Creek, and 4) Johnson Creek.*

In the 2005 NPDES permit, sediment monitoring and biological testing was required in 1) East Fork Slate Creek (EFSC), 2) Lower Slate Creek, 3) Johnson Creek, 4) Middle Sherman Creek, and 5) Lower Sherman Creek. In the Slate Creek system, Habitat recommends retaining the sediment testing given the location of the TTF, and adding a sample reach in the inlet to Upper Slate Lake to provide reference data for comparing data collected downstream. Under the 2005 NPDES permit, sampling was only completed in EFSC during 2010 as sediment sufficient for sampling is uncommon in that reach. Of the eleven metals tested in 2010, only two were lower in EFSC than Lower Slate Creek (Cd and Hg). Sampling may also be difficult in the inlet to Upper Slate Lake as gravel is the dominant substrate, however, any data that is collected may assist with further interpretation of downstream data. We will review this sampling recommendation during the next permit renewal period to determine if further sampling would be useful.

We recommend discontinuing sampling in Johnson Creek as there are no discharges to the creek and project operations are unlikely to contribute metal loading. Ore is not transported on the adjacent road, concentrate produced at the Mill is transported in sealed containers, production rock stored at the Jualin portal is largely inert, major construction at the upper camp is complete, and sediment metals concentrations were stable between 2005 and 2010 during project construction. In addition, natural seeps containing metal-laden groundwater drain into upper Johnson Creek, which could influence results and not reflect project effects. There are two bridges that cross Johnson Creek that can be a source of sediment into Johnson Creek. We will work with Coeur to ensure Best Management Practices are implemented to reduce sediment input from those sources. For these reasons, we do not support continuing sediment monitoring in Johnson Creek.

In Sherman Creek, we recommend discontinuing sediment toxicity testing as sediment metals concentrations between 2005 and 2010 were stable during project construction. Though ore was not processed through the Mill during this period, mining activity was occurring underground at a smaller scale representative of full operations. Water quality monitoring of the effluent and receiving waters and permit limits further alleviate the need for sampling in Sherman Creek. Should any exceedances occur that are likely to change metals concentrations in Sherman Creek, we may request sediment testing to document conditions and detect change.

### 1.5.3.2 Benthic Invertebrates

*Annually sample benthic macroinvertebrates in 1) the inlet creek to Upper Slate Lake, 2) East Fork Slate Creek, 3) West Fork Slate Creek, and 4) Sherman Creek.*

In the 2005 NPDES permit, benthic macroinvertebrate sampling was required in 1) Slate Creek, 2) Johnson Creek, and two reaches each in 3) Sherman Creek, and 4) Sweeny Creek. In the Slate Creek system, Habitat recommends increasing the number of sample reaches from one to four. Samples collected from the inlet creek to Upper Slate Lake will provide local reference data, while samples from West Fork Slate Creek (WFSC) will provide additional reference data in an adjacent drainage where mine development and operations do not occur. The benthic invertebrate community in

WFSC may be different than in EFSC and Lower Slate Creek as no lakes are present upstream, however results may be comparable to those from the inlet to Upper Slate Creek. Samples collected between 2004 and 2010 in Lower Slate Creek contained more pollution-sensitive than less-sensitive taxa, generally comprising more than 60% of the sample, except in 2007 when less-sensitive taxa represented more than 50% of samples.

Between 2004 and 2010, the density and total number of benthic macroinvertebrate taxa in samples from upper Johnson Creek increased, and pollution-sensitive taxa represented 65-85% of samples. There are no outfalls to the creek and major construction at the upper camp is complete. Sufficient data was collected during construction under the 2005 NPDES permit and further monitoring is not warranted as there are no discharges to the creek and project operations are unlikely to contribute metal loading (see 1.5.2).

Benthic macroinvertebrate samples collected in both reaches of Sherman Creek between 2006 and 2010 had similar densities, except in 2010 when the mean density was several times more than the mean for each of the previous four years. Pollution-sensitive taxa have generally comprised 70-90% of samples in both reaches, except in 2009 and 2010 when pollution-sensitive taxa comprised 58-65% of samples. Comparing the two sample reaches, density and numbers of taxonomic groups are similar between years. Because of Outfall 001 in Sherman Creek and the recent changes in composition of benthic macroinvertebrate communities, we support continued monitoring of the benthic macroinvertebrate communities in the two established reaches in Sherman Creek.

Benthic macroinvertebrate samples collected in both reaches of Sweeny Creek between 2006 and 2010 had similar densities and number of taxa present. No mine development occurs in the Sweeny Creek watershed, thus monitoring benthic macroinvertebrate communities is unrelated to the project and unnecessary. Further, sufficient baseline and monitoring data was collected in Sherman Creek during the years 1991, 1995, 2000-2002 and 2006-2010 to track change over time, and data from Sweeny Creek is not an ideal reference site for comparison because it's a separate system, generally has fewer taxa than Sherman Creek, and baseline data from Sherman Creek can be used to evaluate data trends. Therefore, we support discontinuing benthic macroinvertebrate sampling in Sweeny Creek.

### 1.5.3.3 Resident Fish Monitoring – Population Status

*Annually sample abundance and condition of Dolly Varden char in 1) the inlet to Upper Slate Lake and 2) EFSC.*

In the 2005 NPDES permit, abundance estimates and condition of resident fish populations were required in the upper, middle and lower reaches of Slate Creek, Johnson Creek and Sherman Creek. Combined fish populations for all reaches in each creek have generally increased since 2006, and the condition factor (K) of Dolly Varden has remained fairly stable in each reach, generally exceeding 0.8.

We recommend continued monitoring of resident fish populations in the inlet to Upper Slate Lake, to provide reference data, and in EFSC downstream of the TTF. We assume that fish residing in EFSC originated from Upper Slate Lake, traveled downstream via the diversion pipeline, and do not reside in EFSC year-round as available habitats are unlikely to support a long-term population. The purposes for monitoring the resident fish population are 1) presence/absence and to 2) study the

outmigration rate of resident Dolly Varden from Upper Slate Lake, which will be helpful in designing the final TTF Reclamation Plan at closure. We do not recommend sampling in Lower Slate Creek as Dolly Varden present in the anadromous reach could be anadromous and from another system in Berners Bay, which would not represent a true resident fish population.

In Johnson Creek, sufficient baseline data was collected during construction under the 2005 NPDES permit during years 2005-2010 and further monitoring is not warranted as there are no discharges to the creek and project operations are unlikely to cause changes to resident fish populations downstream (see 1.5.2). Therefore, we support discontinuing resident fish surveys.

In Sherman Creek, sufficient baseline data was collected during the years 1998-2002 and sufficient monitoring data was collected between 2005 and 2010 when some underground mining activity was occurring. Except for access roads, the Comet water treatment plant, Outfall 001, and fairly inert production rock stored adjacent to Ophir Creek, no mine development or operations occur near Sherman Creek. Because the outfall water quality is closely monitored to meet water quality standards, and because little development related to the project occurs near Sherman Creek, we support discontinuing resident fish surveys in Sherman Creek.

We also recommend the methods included in 1.5.3.3.1 be unrestrictive, allowing other population survey methods to be used. To estimate fish abundance, baited minnow traps may be more advantageous than snorkeling and electroshocking in certain stream types (Bryant 2000). In addition, we recommend only requiring reporting of population estimates by reach (stratum), not by habitat type as this level of detail is not necessary for population monitoring purposes.

### 1.5.3.4 Resident Fish Monitoring – Whole Body Metal Analysis

*Annually retain six juvenile Dolly Varden for whole body metals concentrations of Al, Ag, Cd, Cr, Cu, Pb, Hg, Ni, Se, and Zn in 1) the inlet of Upper Slate Creek, 2) EFSC, and 3) Lower Slate Creek.*

This study was not a requirement in the 2005 NPDES permit. This requirement will provide additional data on metals concentrations in juvenile fish within the Slate Creek watershed. There are many sampling limitations for this study, including:

1) We assume juvenile fish in EFSC originated from Upper Slate Lake, therefore residency time downstream of the TTF will be unknown; and
2) Juvenile fish sampled from Lower Slate Creek may not be native to Slate Creek as fry and presmolt may migrate between streams in Berners Bay. To improve confidence of residency time in the lower reach, fish should be captured as far upstream from the mouth as possible.

Because of these limitations, we considered recommending aquatic macroinvertebrate tissue analyses for metals concentrations instead of juvenile fish to improve residency integrity. Aquatic macroinvertebrates, however, can retain higher concentrations of metals than fish, depending on physical structure, and some invertebrate structures cannot be digested by fish (Aquatic Science Inc 2000). Therefore, aquatic macroinvertebrates metals concentrations may not be appropriate to directly assess metal bioaccumulations in resident juvenile Dolly Varden, the target species.

Given the possible complications with this proposed monitoring component, we will reassess whether or not to continue this study after a three year trial period.

### 1.5.3.5 Anadromous Fish Monitoring

*Annually estimate pink salmon escapement and the number of outmigrating pink salmon fry in Slate Creek, and estimate egg-to-fry survival. In addition, sample pink salmon spawning substrate in Lower Slate Creek to determine particle size distribution and the calculate geometric mean size.*

In the 2005 NPDES permit, the anadromous fish surveys and spawning habitat sampling were required in Sherman Creek, Johnson Creek and Slate Creek. We recommend discontinuing sampling in all three creeks because fry mortalities caused by the required sample design are unacceptable, since the study does not provide useful data to detect change caused by mining operations and development upstream. However, Habitat does support monitoring pink salmon substrate composition in Lower Slate Creek to detect changes in anadromous fish spawning habitat downstream of mine development and operations at the TTF.

Pink salmon escapement and fry outmigration estimates are highly variable between years. Escapement data collected during the years 2005-2011[2] for Slate and Johnson Creeks illustrate weak (odd year) and strong (even year) parent year trends, except in Johnson Creek during 2010, and the Sherman Creek escapement data does not show a trend. Comparing all streams between years, egg-to-fry survival rates between 2005 and 2006 were relatively low (<1-13%), and much higher than expected (11-34%) for the following five years, except in Johnson Creek during 2008 and 2009 when an average, expected survival rate of 11-15% was estimated. Low survival between 2005 and 2006 is believed to be due to a heavy rainstorm in November that caused significant substrate movement and flooding across northern southeast Alaska. Overall, the geometric mean particle size calculated from samples collected in Slate and Johnson Creeks was similar among years for 2005-2010, and some statistical differences are present in samples collected from Sherman Creek between years during the same period.

Methods used to estimate fry outmigration since 2005 do not provide accurate data, and excessive fry mortalities are caused from the sample design each year. For instance, fyke nets used to capture pink fry do not cover the same percentage of the stream in any 24 hour sampling period given stream characteristics and variable discharge rates. Additionally, occasional mark-recapture experiments using a small percentage of captured fish skews estimates produced from the data and result in additional mortalities. Net mesh also allows an unknown number of pink fry to pass undetected and causes mortalities, especially during high flows when debris caught in the net causes fry to be impinged or gilled and water pressure entrains fish against the holding box.

In 2011, a total of 305,568 pink fry were captured in Sherman Creek, Johnson Creek and Slate Creek, of which 11,877 were found dead within the fyke net (3.7%).[2] Of these mortalities, approximately 6,000 fry were killed in two separate events in Slate Creek during late-April when the stream level rose overnight due to heavy rainfall. Quinn (2005) reports the average pink salmon smolt-to-adult survival is 2.8%, which could result in the combined 2012 pink run for all three creeks reduced by 333 spawners. In the previous three years, 2,300-5,400 pink deaths were reported (1-3% of total captures) each year, though total captures were lower.

Federal biologists have requested anadromous population sampling be retained as a requirement of the APDES permit so that if an acute event happened at the mine that was missed by water quality

[2] Data collected in 2011 are preliminary and subject to additional review.

monitoring or aquatic studies, it could be detected in the anadromous population. We've asked federal biologists and SEACC's Clean Water Specialist to explain how they could use anadromous fish data to detect an event water quality or aquatic studies missed given population variability and sample design. We have not been provided an answer other than to except to ensure pink salmon production, an important food source for marine mammals. Any substantial impacts to aquatic resources from Outfall 001 and 002 will be detected in water quality monitoring and aquatic studies. Should the monitoring studies detect changes in the aquatic ecosystem in Slate Creek, ADEC and Habitat can seek additional studies, including anadromous fish studies. Discontinuing this study will eliminate outmigration mortalities and increase prey opportunities for marine mammals.

#### 1.5.3.5.2 Periphyton Biomass and Community Composition

*Annually sample periphyton biomass in 1) the inlet creek to Upper Slate Lake, 2) EFSC, 3) WFSC, 4) Lower Slate Creek, and 5) Sherman Creek.*

The 2005 NPDES permit did not include periphyton sampling in any of the three creeks. Periphyton data will provide another data set to assess overall stream health in Slate Creek and Sherman Creek, downstream of the outfalls (samples collected from the inlet to Upper Slate Lake and WFSC will provide reference data for Slate Creek samples). Data collected in WFSC will allow Habitat biologists to study stream health in the adjacent drainage, where mine development and operations do not occur, and compare changes in productivity between the two forks. The sampling will provide quantitative data to replace the subjective visual aquatic vegetation survey requirements included in the 2005 NPDES permit.

Thank you for the opportunity to provide recommendations for continuing aquatic biological monitoring at the Kensington Gold Project. We appreciate the Alaska Department of Environmental Conservation's consideration of our recommendations. The sampling data we request will provide adequate information for Habitat biologists to evaluate and detect changes in stream health from mine development and operations, particularly in Slate Creek where affects are most likely. Please contact Kate Kanouse by phone at (907) 465-4290 or by email at kate.kanouse@alaska.gov if you have any questions regarding these recommendations.

Sincerely,

Jackie Timothy
Regional Supervisor
Division of Habitat

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
Kate Kanouse, ADF&G Habitat, Douglas
Brian Glynn, ADF&G SF, Douglas
Kevin Monagle, ADF&G CF, Douglas
Ryan Scott, ADF&G Wildlife, Douglas
Benjamin Brewster, ADF&G Habitat, Douglas
Gordon Willson-Naranjo, ADF&G Habitat, Douglas
Sarah Samuelson, USFS, Juneau
Kevin Eppers, Coeur Alaska, Juneau
Chiska Derr, NOAA NMFS, Juneau
Ryan Kreiner, USFS, Juneau
Jack DiMarchi, ADNR OPMP, Fairbanks
Guy Archibald, SEACC, Juneau

References cited:

Aquatic Science Inc. 2000. Kensington Gold Project Invertebrate Tissue Analysis, October 2009. Prepared for Coeur Alaska, Inc.

Aquatic Science Inc. 2009. NPDES Annual Report 2008 Volume 1: Aquatic Resources.

Aquatic Science Inc. 2010. NPDES Annual Report 2009 Volume 1: Aquatic Resources.

Aquatic Science Inc. 2011. NPDES Annual Report 2010 Volume 1: Aquatic Resources.

Coeur Alaska Inc. 2006. Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary Volume 1: Aquatic Resource Surveys 2005.

Coeur Alaska Inc. 2007. Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary Volume 1: Aquatic Resource Surveys 2006.

Coeur Alaska Inc. 2008. Kensington Gold Project NPDES Annual Report 2007 Volume 1: Aquatic Resources.

Bryant, Mason D. 2000. Estimating fish populations by removal methods with minnow traps in southeast Alaska streams. United State Forest Service, Pacific Northwest Research Station, Juneau, Alaska.

Quinn, Thomas P. 2005. The behavior and ecology of Pacific trout and salmon. 1st edition. University of Washington Press, Seattle, Washington.

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

INDIVIDUAL PERMIT

Permit Number: AK0050571

**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; the Alaska Administrative Code (AAC) as amended; and other applicable State laws and regulations. The

**Coeur Alaska, Inc.,**
**3031 Clinton Dr., Suite 202**
**Juneau, Alaska 99801**

is authorized to discharge from the Kensington Gold Mine located 45 miles north of Juneau, Alaska at the following location(s):

| Outfall | Receiving Water or Body | Latitude | Longitude |
|---|---|---|---|
| 001 | Sherman Creek | 58° 52' 04" N | 135° 06' 55" W |
| 002 | East Fork Slate Creek | 58° 48' 23.8" N | 135° 02' 10.9" W |

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

This permit shall become effective September 1, 2011

This permit and the authorization to discharge shall expire at midnight, August 31, 2016

The permittee shall reapply for a permit reissuance on or before Friday March 4, 2016, 180 days before the expiration of this permit, if the permittee intends to continue operations and discharge(s) 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.

Signed

Sharon Morgan — Signature

11/7/11 — Date

Sharon Morgan — Printed Name

Program Manager — Title

# TABLE OF CONTENTS



# LIST OF TABLES



# LIST OF APPENDICES

## 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 (ADEC or the Department) 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] |
|---|---|---|---|---|
| Appendix A, 3.2 | Discharge Monitoring Report (DMR) | Monthly | Must be postmarked or submitted electronically through the eDMR system, on or before the 20th day of the following month. See http://dec.alaska.gov/water/Compliance/permittee.html for current compliance submittal information. | C |
| 1.6 | Annual Water Quality Monitoring Summary | Annually | Submitted by March 1st of each year for the previous year's data. | P |
| 2.2.1 | Quality Assurance Project Plan (QAPP) | 1/permit cycle | Within 60 days after the effective date of the final permit | P |
| 2.3.4.3.1 | Written certified statement that the BMP Plan fulfills the requirements set forth in this permit. | Annually | | P |
| Appendix A, 1.3 | Application for Permit Reissuance | 1/permit cycle | 180 days before expiration of the final permit | P |
| Appendix A, 2.4 | Reports of compliance or noncompliance with a Compliance Schedule | As required | The Report must be submitted no later than 14 days following each schedule date | C |
| Appendix A, 3.4 | Oral notification of noncompliance | As Necessary | Within 24 hours from the time the permittee becomes aware of the circumstances of noncompliance | O |
| Appendix A, 3.4 | Written documentation of noncompliance | As Necessary | Within 5 days after the permittee becomes aware of the circumstances | C |

Note a: Submittal information:

P – State of Alaska, Department of Environmental Conservation, Division of Water, Wastewater Discharge Authorization Program, 555 Cordova St., Anchorage, Alaska 99501.

C - State of Alaska, Department of Environmental Conservation, Division of Water, Compliance Enforcement Program, 555 Cordova St., Anchorage, Alaska 99501.

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

# LIMITATIONS AND MONITORING REQUIREMENTS

## 1.1 Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls specified herein to Sherman Creek and East Fork Slate Creek, within the limits and subject to the conditions set forth herein. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process. These processes, waste streams, and operations include mine drainage water and mill process waters.

## 1.2 Effluent Limits and Monitoring for Outfall 001

1.2.1 The permittee must limit and monitor discharges during mining and non-mining periods from Outfall 001 to Sherman Creek, as specified in Table 2 and 3, respectively. All figures represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the tables at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

**Table 2: Outfall 001 Effluent Limits and Monitoring Requirements (Frequency during mining periods)**

| Effluent Parameter [a] | Hardness as mg/L $CaCO_3$ | Units | Effluent Limits | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency[b] | Sample Location | Sample Type |
| Aluminum [c] | — | µg/L | 153 | 50 | Weekly | Effluent (E) | 24 hr. comp |
| Ammonia, Total | — | mg/L as N | 4.0 | 2.0 | Weekly | E | 24 hr. comp |
| Arsenic | - | ug/L | Monitor only | | Monthly | E | 24 hr. comp |
| Cadmium [c] | 50 ≤ H < 100 | µg/L | 0.3 | 0.1 | Weekly | E | 24 hr. comp |
| | 100 ≤ H < 200 | µg/L | 0.5 | 0.2 | Weekly | E | 24 hr. comp |
| | H ≥ 200 | µg/L | 0.8 | 0.3 | Weekly | E | 24 hr. comp |
| Copper [c] | 50 ≤ H < 100 | µg/L | 7.3 | 2.5 | Weekly | E | 24 hr. comp |
| | 100 ≤ H < 200 | µg/L | 14 | 4.8 | Weekly | E | 24 hr. comp |
| | H ≥ 200 | µg/L | 26.9 | 9.2 | Weekly | E | 24 hr. comp |
| Chromium, Total | — | µg/L | Monitor only | | Monthly | E | 24 hr. comp |
| Iron | — | µg/L | 1850 | 690 | Weekly | E | 24 hr. comp |
| Lead [c] | 50 ≤ H < 100 | µg/L | 2.3 | 0.8 | Weekly | E | 24 hr. comp |
| | 100 ≤ H < 200 | µg/L | 5.6 | 1.8 | Weekly | E | 24 hr. comp |
| | H ≥ 200 | µg/L | 13.4 | 4.4 | Weekly | E | 24 hr. comp |
| Manganese | — | µg/L | 98 | 50 | Weekly | E | 24 hr. comp |
| Mercury [c] | — | µg/L | 0.02 | 0.01 | Monthly | E | 24 hr. comp |
| Nickel [c] | 50 ≤ H < 100 | µg/L | 52.9 | 21.2 | Weekly | E | 24 hr. comp |

| Effluent Parameter [a] | Hardness as mg/L $CaCO_3$ | Units | Effluent Limits | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency[b] | Sample Location | Sample Type |
| | $100 \leq H < 200$ | µg/L | 95.0 | 38.1 | Weekly | E | 24 hr. comp |
| | $H \geq 200$ | µg/L | 170.3 | 68.5 | Weekly | E | 24 hr. comp |
| Nitrate | — | mg/L as N | 20 | 10 | Weekly | E | 24 hr. comp |
| Selenium | — | µg/L | Monitor only | | Monthly | E | 24 hr. comp |
| Silver | — | µg/L | Monitor only | | Monthly | E | 24 hr. comp |
| Zinc [c] | $50 \leq H < 100$ | µg/L | 66.6 | 29.1 | Weekly | E | 24 hr. comp |
| | $100 \leq H < 200$ | µg/L | 119.8 | 52.4 | Weekly | E | 24 hr. comp |
| | $H \geq 200$ | µg/L | 215.6 | 94.3 | Weekly | E | 24 hr. comp |
| TDS | — | mg/L | 1,000 | 1,000 | Weekly | E | 24 hr. comp |
| TDS anions/cations [d] | — | mg/L | Monitor only | | Quarterly | E | 24 hr. comp |
| Sulfate associated with Na & Mg | — | mg/L | 200 | 200 | Weekly | E | 24 hr. comp |
| Turbidity, effluent | — | NTU | See Part 1.2.6 | | Weekly | E | Grab |
| Turbidity, natural condition | — | NTU | Monitor only | | Weekly | Background | Grab |
| Hardness | — | mg/L $CaCO_3$ | Monitor only | | Weekly | Downstream | Grab |
| pH | — | s.u. | See Part 1.2.5 | | Continuous | E | Recorder |
| TSS | — | mg/L | 30 | 20 | Daily | E | 24 hr. comp |
| Flow | — | gpm | Monitor only | | Continuous | E | Recorder |
| Temperature | — | °C | Monitor only | | Weekly | E | Grab |
| Dissolved Oxygen | — | mg/L | Monitor only | | Weekly | E | Grab |
| Chronic Whole Effluent Toxicity [e] (WET) | — | $TU_c$ | 1.6 | 1.1 | Monthly | E | 24 hr. comp |

Note:

a. Parameters must be analyzed and reported as total recoverable, unless otherwise noted.

b. Weekly sampling shall occur on the same day of each week, unless the permittee can document that sampling could not be performed due to extreme conditions. In such cases, a detailed explanation of the reason sampling could not be performed shall be prepared and kept with the analytical results for that day.

c. Reporting of a maximum daily limit violation is required according to Appendix A, Item 3.4.3.3.

d. This monitoring shall include a standard and complete suite of those cations and anions contributing to TDS including but not limited to boron (B), sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), fluoride (F), chloride (Cl), sulfate ($SO_4$), total alkalinity, hardness, pH, and electrical conductivity.

e. See Permit Part 1.4. for whole effluent toxicity testing requirements.

1.2.2 Table 3 summarizes the sampling frequencies that shall apply during a long term shut down of the mine. These frequencies shall be implemented after a 6 month closure period. The reporting requirements of Appendix A, Part 3.2 apply.

**Table 3: Monitoring Frequencies for Outfall 001 During Non-Mining Periods**

| Effluent Parameter | Monitoring Requirement | |
|---|---|---|
| | Sampling Frequency | Sample Type |
| Aluminum | Quarterly | Grab |
| Ammonia, Total | Quarterly | Grab |
| Arsenic | Quarterly | Grab |
| Cadmium | Quarterly | Grab |
| Copper | Quarterly | Grab |
| Chromium, Total | Quarterly | Grab |
| Iron | Quarterly | Grab |
| Lead | Quarterly | Grab |
| Mercury | Quarterly | Grab |
| Nickel | Quarterly | Grab |
| Nitrate | Quarterly | Grab |
| Selenium | Quarterly | Grab |
| Silver | Quarterly | Grab |
| Zinc | Quarterly | Grab |
| Total Dissolved Solids | Quarterly | Grab |
| TDS anions/cations | Annually | Grab |
| Sulfate associated with Na and Mg | Quarterly | Grab |
| Turbidity - effluent | Weekly | Grab |
| Turbidity - upstream | Weekly | Grab |
| Hardness - downstream | Monthly – Instream | Grab |
| pH | Quarterly | Grab |
| Total Suspended Solids | Daily | Grab |
| Flow | Continuous | Recorder |
| Temperature | Quarterly | Grab |
| WET, Chronic | Annually | Grab |

1.2.3 The discharge shall not cause contamination of receiving or ground waters and shall not cause 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.

1.2.4 The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water. Monitoring for floating materials listed shall be conducted on a weekly basis.

1.2.5 The pH must not be less than 6.5 standard units (units) nor greater than 8.5 units. During continuous monitoring required in Table 2, the permittee shall monitor the total time outside the range for the month, the length of each excursion, and the number of pH excursions outside the range of 6.5 to 8.5 units. The permittee shall report the total time outside the range for the month, as well as the number of individual excursions which exceed 60 minutes. The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month.

1.2.6 The turbidity measured in nephelometric turbidity units (NTU) must not be more than 5 NTUs above the natural condition. The natural condition sample taken from Sherman Creek must be taken upstream of the discharge point at SH109 within an hour of the effluent sample.

1.2.7 The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

1.2.8 Minimum Levels. For all effluent monitoring, the permittee must use analytical methods that can achieve a minimum detection limit (MDL) less than the effluent limit, if possible. For parameters that do not have effluent limits, the permittee must use methods that can achieve minimum levels (MLs) less than or equal to those specified in Table 6 (Part 1.5.1.3).

1.2.9 For purposes of reporting on the DMR, for a single sample, if a value is less than the MDL, the permittee must report "less than numeric value of the MDL" and if a value is less than the ML, the permittee must report "less than numeric value of the ML." For purposes of calculating monthly averages, zero may be assigned for values less than the MDL. 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 the MDL" and if the average value is less than the ML, the permittee must report "less than numeric value of the ML." If a value is greater than the ML, the permittee must report and use the actual value. The resulting average value must be compared to the permit limit in assessing compliance.

## 1.3 Effluent Limits and Monitoring - Outfall 002 – East Fork Slate Creek

1.3.1 The permittee must limit and monitor discharges from Outfall 002 to East Fork Slate Creek, as specified in Table 4. All figures represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the table at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

**Table 4: Outfall 002 Effluent Limits and Monitoring Requirements**

| Parameter [a] | Units | Hardness as mg/L $CaCO_3$ | Effluent Limits | | Monitoring Requirements | |
|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency [b] | Sample Type |
| Aluminum | µg/L | | 143 | 71 | Weekly | 24 hr. comp |
| Ammonia, Total | mg/L as N | | 3.5 | 1.7 | Weekly | Grab |
| Arsenic | µg/L | | Monitor only | | Monthly | 24 hr. comp |
| Cadmium [c] | µg/L | H < 30 | 0.2 | 0.1 | Weekly | 24 hr. comp |
| | µg/L | H ≥ 30 | 0.2 | 0.1 | Weekly | 24 hr. comp |
| Copper [c] | µg/L | H < 30 | 3.8 | 1.9 | Weekly | 24 hr. comp |
| | µg/L | H ≥ 30 | 4.5 | 2.2 | Weekly | 24 hr. comp |
| Chromium, Total [d] | µg/L | | Monitor only | | Weekly | 24 hr. comp |
| Chromium VI [c, d] | µg/L | | 16 | 8 | See note (d) | Grab |
| Iron | µg/L | | 1,700 | 800 | Weekly | 24 hr. comp |
| Lead [c] | µg/L | H < 30 | 0.9 | 0.5 | Weekly | 24 hr. comp |
| | µg/L | H ≥ 30 | 1.1 | 0.6 | Weekly | 24 hr. comp |
| Manganese | µg/L | | 98 | 50 | Weekly | 24 hr. comp |
| Mercury [c] | µg/L | | 0.02 | 0.01 | Weekly | 24 hr. comp |

| Parameter [a] | Units | Hardness as mg/L $CaCO_3$ | Effluent Limits | | Monitoring Requirements | |
|---|---|---|---|---|---|---|
| | | | Maximum Daily | Average Monthly | Sample Frequency [b] | Sample Type |
| Nickel [c] | µg/L | H < 30 | 26 | 13 | Weekly | 24 hr. comp |
| | µg/L | H ≥ 30 | 31 | 15 | Weekly | 24 hr. comp |
| Selenium [c] | µg/L | | 8.2 | 4.1 | Weekly | 24 hr. comp |
| Silver [c] | µg/L | H < 30 | 0.4 | 0.2 | Weekly | 24 hr. comp |
| | µg/L | H ≥ 30 | 0.5 | 0.25 | Weekly | 24 hr. comp |
| Zinc [c] | µg/L | H < 30 | 37 | 18 | Weekly | 24 hr. comp |
| | µg/L | H ≥ 30 | 43 | 22 | Weekly | 24 hr. comp |
| TDS | mg/L | | 500 | 500 | Weekly | 24 hr. comp |
| TDS anions/cations[e] | mg/L | | Monitor only | | Quarterly | 24 hr. comp |
| Nitrates | mg/L | | Monitor only | | Weekly | 24 hr. comp |
| Sulfates | mg/L | | 250 | 250 | Weekly | 24 hr. comp |
| Turbidity, effluent | NTU | | See Permit Part 1.3.5 | | Weekly | Grab |
| Turbidity, natural condition , Site MLA | NTU | | Monitor only | | Weekly | Grab |
| Hardness – Site #5 | mg/L | | Monitor only | | Weekly | Grab |
| pH | s.u. | | See Permit Part 1.3.4 | | Continuous | Recorder |
| TSS | mg/L | | 30 | 20 | Daily | 24 hr. comp |
| Outfall Flow | gpm | | 1,500 | — | Continuous | Recorder |
| Temperature | °C | | Monitor only | | Weekly | Grab |
| Hardness, as $CaCO_3$ | mg/L | | Monitor only | | Weekly | Grab |
| Chronic Whole Effluent Toxicity [f] (WET) | $TU_c$ | | 1.6 | 1.1 | Monthly | 24 hr. comp |

Note:

a. Parameters must be analyzed and reported as total recoverable unless otherwise noted.

b. Weekly sampling shall occur on the same day of each week, unless the permittee can document that sampling could not be performed due to extreme conditions. In such cases, a detailed explanation of the reason sampling could not be performed shall be prepared and kept with the analytical results for that day.

c. Reporting of a maximum daily limit violation is required according to Appendix A.

d. Chromium VI (Cr VI) must be analyzed during the next sampling event when results are received showing a total chromium measure exceeding 11 µg/L — the sample holding time for Cr VI is 24 hours. Cr VI must be analyzed and reported as dissolved.

e. This monitoring shall include a standard and complete suite of those cations and anions contributing to TDS including but not limited to boron (B), sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), fluoride (F), chloride (Cl), sulfate ($SO_4$), total alkalinity, hardness, pH, and electrical conductivity.

f. See Part 1.4 for whole effluent toxicity testing requirements.

1.3.2 The discharge shall not cause contamination of receiving or ground waters and shall not cause 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.

1.3.3 The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water. Monitoring for floating materials listed shall be conducted on a weekly basis.

1.3.4 The pH must not be less than 6.5 standard units (units) nor greater than 8.5 units. The permittee shall monitor the total time outside the range for the month, the length of each excursion and

the number of pH excursions outside the range of 6.5 to 8.5 units. The permittee shall report the total time outside the range for the month, as well as the number of individual excursions which exceed 60 minutes. The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month.

1.3.5 The turbidity measured in nephelometric turbidity units (NTU) must not be more than 5 NTUs above the natural condition. The background level for turbidity shall be measured at Site MLA.

1.3.6 The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

1.3.7 Minimum Levels. For all effluent monitoring, the permittee must use analytical methods that can achieve a minimum detection limit (MDL) less than the effluent limit, if possible. For parameters that do not have effluent limits, the permittee must use methods that can achieve MLs less than or equal to those specified in Table 6 (Permit Part 1.5.1.3).

1.3.8 Chromium VI has an average monthly effluent limit that is not quantifiable using EPA-approved or approvable analytical methods. ADEC will use 10 µg/L (the ML for EPA Method 218.4) as the compliance evaluation level for this parameter.

1.3.9 For purposes of reporting on the DMR, for a single sample, if a value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}." For purposes of calculating monthly averages, zero may be assigned for values less than the MDL, 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 the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If a value is greater than the ML, the permittee must report and use the actual value. For all metals but hexavalent chromium the resulting average value must be compared to the permit limit. . For hexavalent chromium the resulting average value must be compared to the permit limit or compliance level

## 1.4 Whole Effluent Toxicity Testing (WET) Requirements.

1.4.1 The permittee must conduct chronic toxicity tests on effluent samples from Outfall 001 and Outfall 002. Testing must be conducted in accordance with Parts 1.4.1.1 through 1.4.1.3.6.

1.4.1.1 Toxicity testing must be conducted on a 24-hour composite sample of the effluent. In addition, a split of each sample collected must be analyzed for the chemical and physical parameters required in Parts 1.2 and 1.3 above The sample 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 Parts 1.2 and 1.3, analysis of the split sample will fulfill the requirements of Permit Parts 1.2 and 1.3, as well.

1.4.1.2 Chronic Test Species and Methods

1.4.1.2.1 The permittee shall perform chronic toxicity tests on samples representative of the effluents discharged from Outfalls 001 and 002.

1.4.1.2.2 The permittee shall conduct one chronic toxicity test per month. Of the twelve annual tests:

1.4.1.2.2.1 Four tests shall be conducted using: the fathead minnow, *Pimephales promelas* - static, renewal, larval survival, and growth test;

1.4.1.2.2.2 Four tests shall be conducted using: the water flea, *Ceriodaphnia dubia* - 7-day static renewal, survival, and reproduction test; and

1.4.1.2.2.3 Four tests shall be conducted using: green algae, *Selanastrum capricornutum* - 4-day static and growth.

1.4.1.2.3 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.

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

1.4.1.3 Quality Assurance

1.4.1.3.1 The toxicity testing on each organism must include a series of five test dilutions (e.g., 100%, 75%, 50%, 25%, and 12.5%) and a control.

1.4.1.3.2 All quality assurance criteria and statistical analyses used for chronic tests and reference toxicant tests must be in accordance with *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 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.

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

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

1.4.1.3.3.2 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.

1.4.1.3.3.3 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 of ADEC. In no case shall water that has not met test acceptability criteria be used for either dilution or control.

1.4.1.3.4 Accelerated Testing

1.4.1.3.4.1 Initial Investigation. 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. If toxicity exceeding the limit is detected in this test, then the Toxicity Reduction Evaluation requirements in Permit Part 1.4.1.3.5 shall apply, or

1.4.1.3.4.2 If chronic toxicity is detected above the limits specified in Table 2 or Table 4 and no initial investigation is conducted or no cause is determined by an initial investigation, 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.

1.4.1.3.4.3 The permittee must notify ADEC of the exceedance in writing within two weeks of receipt of the test results. The notification must include the following information:

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

1.4.1.3.4.3.2 A description of any additional actions the permittee has taken or will take to investigate and correct the cause(s) of the toxicity; and

1.4.1.3.4.3.3 Where no actions have been taken, a discussion of the reasons for taking no action.

1.4.1.3.4.4 If none of the four accelerated tests exceed the toxicity limit, the permittee may return to the normal testing frequency. If any of the four accelerated tests exceed the limit, then the TRE requirements in Permit Part 1.4.1.3.5, shall apply.

1.4.1.3.5 Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE):

1.4.1.3.5.1 If chronic toxicity limits are exceeded during accelerated testing under Permit Part 1.4.1.3.4, the permittee must initiate a toxicity reduction evaluation (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:

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

1.4.1.3.5.1.2 Actions the permittee will take to mitigate the impact of the discharge and to prevent the recurrence of toxicity; and

1.4.1.3.5.1.3 A schedule for these actions.

1.4.1.3.5.2 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.

1.4.1.3.5.3 The permittee may initiate a Toxicity Identification Evaluation (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).

1.4.1.3.6 Reporting

1.4.1.3.6.1 The permittee shall submit the results of the monthly toxicity tests in $TU_c$ with the discharge monitoring report (DMR) for the month in which the results are received.

1.4.1.3.6.2 The permittee must submit the results of any accelerated testing, under Permit Part 1.4.1.3.4, within 2 weeks of receipt of the results from the lab. The full report must be submitted within 4 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.

1.4.1.3.6.3 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 Parts 1.2 and 1.3; and an explanation of logistical problems described in Permit Part 1.4.1.3.2, if encountered.

## 1.5 Receiving Water Monitoring

1.5.1 The permittee must conduct the following receiving water monitoring program in the vicinity of the mine.

1.5.1.1 Water Column Monitoring

1.5.1.1.1 The permittee must conduct monthly monitoring for all parameters at the following stations (See Attachment A: Maps showing sampling locations).

1.5.1.1.1.1 Sherman Creek – above Outfall 001at station SH109, below the outfall at station SH113, and in Lower Sherman Creek at station SH105;

1.5.1.1.1.2 Slate Creek – prior to Outfall 002 mixing with Upper Slate Lake water within the bypass pipe at either station MLA or from the bypass pipe, Site 5 at the tree-line below the TTF dam, 10m upstream of the confluence with West Fork Slate Creek at station SLB, and 30m downstream of the confluence with West Fork Slate Creek at station SLC; and

1.5.1.1.1.3 Johnson Creek – above any mine runoff from present mining activities at station JS2 and below the mill at station JS5.

1.5.1.1.1.4 Ophir Creek – above the waste rock pile at station SH111 and below the waste rock pile at station SH103.

1.5.1.1.2 Additional monitoring for manganese shall be conducted at site SH113 and Site 5 at the tree line below the TTF dam. Monitoring at SH113 shall be increased to once every 2 weeks. Monitoring at Site 5 shall be monthly with samples taken mid-way between the sample times at Site SLB. This additional monitoring shall continue until two months after water quality criteria have been met in the receiving waters.

1.5.1.1.3 The date, time, and weather conditions shall be recorded for each sample taken.

1.5.1.2 All receiving water samples must be grab samples.

1.5.1.3 All receiving water samples must be analyzed for the parameters listed in Table 5 to achieve MLs less than the effluent limits of the limited parameters. For parameters not limited in Permit Parts 1.2 or 1.3, the MLs in Table 6 must be utilized.

**Table 5: Receiving Water Monitoring Parameters**

| | | | |
|---|---|---|---|
| Aluminum, TR | Lead | Nitrate | Dissolved Oxygen |
| Ammonia, Total | Manganese, TR | Sulfates | Temperature |
| Arsenic | Mercury | Chlorides | Conductivity |
| Cadmium | Nickel | Turbidity | Hardness |
| Chromium | Selenium, TR | TDS | Color |
| Copper | Silver | TSS | |
| Iron, TR | Zinc | pH | |

Note:
1) Receiving water metals analyses shall be dissolved unless otherwise specified.
2) Total Recoverable (TR)

**Table 6: Additional Minimum Levels**

| Parameter | Units | Minimum Level (ML) |
|---|---|---|
| | | |
| Chromium, Total | µg/L | 10 |

1.5.1.4 Quality assurance/quality control (QA/QC) plans for all the monitoring must be documented in the Quality Assurance Project Plan required under Permit Part 2.1, "Quality Assurance Project Plan".

1.5.1.5 Results shall be included with the DMRs for the month samples are taken and all results shall be included in the Annual Water Quality Monitoring Summary, Part 1.6. At a minimum, the monthly reports must include the following:

1.5.1.5.1 Dates of sample collection and analyses.

1.5.1.5.2 Results of sample analysis.

1.5.1.5.3 Relevant QA/QC information.

1.5.1.5.3.1 In addition to the requirements for the Annual Water Quality Monitoring Summary, manganese results shall be submitted monthly in Excel format until two months after water quality criteria have been met in the receiving waters.

1.5.2 Sediment Monitoring

1.5.2.1 Samples shall be taken at Lower Sherman Creek, the inlet creek to Upper Slate Lake, East Fork Slate Creek between Site #5 and SLB, Lower Slate Creek, and lower Johnson Creek. Sampling shall be conducted annually in July prior to spawning and the results included in the Annual Water Quality Monitoring Summary, Part 1.6.

1.5.2.2 The permittee shall monitor the parameters in Table 7 and shall achieve the listed detection levels for each sediment sample.

**Table 7: Sediment Monitoring Parameters and Analytical Methods**

| Parameter | Units | Preparation Method | Analysis Method | Sediment MDL [a] |
|---|---|---|---|---|
| Aluminum | mg/Kg | PSEP [b] | — | — |
| Arsenic | mg/Kg | PSEP [b] | GFAA [c] | 2.5 |
| Cadmium | mg/Kg | PSEP [b] | GFAA c | 0.3 |
| Chromium | mg/Kg | PSEP [b] | | — |
| Copper | mg/Kg | PSEP [b] | ICP [d] | 15.0 |
| Lead | mg/Kg | PSEP [b] | ICP [d] | 0.5 |
| Mercury | mg/Kg | 7471 [e] | 7471 [e] | 0.02 |
| Nickel | mg/Kg | PSEP [b] | ICP [d] | 2.5 |
| Selenium | mg/Kg | PSEP [b] | | — |
| Silver | mg/Kg | PSEP [b] | GFAA [c] | 0.2 |
| Zinc | mg/Kg | PSEP [b] | ICP [d] | 15.0 |
| Acute Toxicity | % | See Below | See Below | NA |
| Total Solids | % | — | PSEP [b], pg 17 | 0.1 |
| Total Volatile Solids | % | — | PSEP [b], pg 20 | 0.1 |
| Total Organic Carbon | % | — | PSEP [b, f], pg 23 | 0.1 |
| Total Sulfides | mg/Kg | — | PSEP [b], pg 32 | 1 |
| Grain Size | — | — | Modified ASTM with Hydrometer | NA |

Note:

a. Dry weight basis
b. Recommended Protocols for Measuring Selected Environmental Variables, in Puget Sound Estuary Program, EPA 910/9-86-157, as updated by Washington Department of Ecology; Subsection: Metals in Puget Sound Water, Sediment, and Tissue Samples
c. Graphite Furnace Atomic Absorption Spectrometry, SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, EPA 1986

| Parameter | Units | Preparation Method | Analysis Method | Sediment MDL [a] |
|---|---|---|---|---|
| d. Inductively Coupled Plasma Emission Spectrometry, SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, EPA 1986<br>e. Mercury Digestion and Cold Vapor Atomic Absorption Spectrometry, SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, EPA 1986. The permittee shall sample the receiving water hardness downstream of the discharge.<br>f. Recommended Methods for Measuring TOC in Sediments, Kathryn Bragdon-Cook Clarification Paper, Puget Sound Dredged Disposal Authority Annual Review, May, 1993. | | | | |

1.5.2.3 Biological Testing of Sediments

1.5.2.3.1 Sediment samples will undergo acute toxicity testing to assess the relative toxicity of the sediment to representative aquatic life. The following bioassays are required:

- Test Method 100.1: *Hyalella azteca* 10-day survival test for sediments
- Test Method 100.2: *Chironomus dilutus* 10-day survival test for sediments

1.5.2.3.2 Test methods, QA/QC, data recording, data analysis and calculations, and reporting shall be in accordance with *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates*, EPA/600/R-94/024.

1.5.2.3.3 *Hyalella azteca* and *Chironomus dilutus* are representative species for their respective classes of aquatic life.

1.5.2.4 The permittee shall collect sufficient sediment from each monitoring station to conduct all chemical and biological tests identified herein. Sediment samples shall consist of the upper two (2) centimeters of sediment. The maximum depth of sample penetration shall be four (4) centimeters.

1.5.2.5 Sediment monitoring stations shall be located in areas where deposition is likely to occur (i.e. pools or moderately deep, slow-moving water with the surface not turbulent to the extent of being broken).

1.5.2.6 Sediment monitoring results shall be reported in the Annual Water Quality Monitoring Summary (Part 1.6) and must include, at a minimum: dates of sample collection and analyses, locations of samples collected, results of the monitoring required in Permit Parts 1.5.2.2 and 1.5.2.3, and relevant QA/QC information.

1.5.3 Aquatic Resource Monitoring

1.5.3.1 The permittee shall monitor aquatic resources, as described in Part 1.5.3.2, and shall report results, including relevant quality assurance/quality control data, in the Annual Water Quality Monitoring Report, Part 1.6.

1.5.3.2 Benthic Invertebrates

1.5.3.2.1 Benthic invertebrates shall be monitored in inlet creek to Upper Slate Lake, East Fork Slate Creek, Lower Slate Creek, West Fork Slate Creek, lower Sherman Creek and upper Johnson Creek using established methods. The permittee shall

continue sampling the East Fork Slate Creek and Lower Sherman Creek reaches, and establish new sampling reaches in Upper East Fork Slate Creek, Lower Slate Creek, and in West Fork Slate Creek. The Inlet creek to Upper Slate Lake reach shall be located in the inlet stream to Upper Slate Lake, which will provide reference data for comparing downstream sites subject to mine development. The Lower Slate Creek site shall be located downstream of the anadromous fish barrier, which will provide information on stream health in anadromous fish habitat. The West Fork Slate Creek reach shall be located upstream of the anadromous fish barrier and the confluence with East Fork Slate Creek, which will provide additional reference data to compare with that portion of the Slate Creek watershed not subject to development. Sampling in Johnson Creek will be in the previously established reach.

1.5.3.2.1.1 Each reach shall be delineated for all possible sampling sites (those areas containing stream substrate with particles <20 cm along the long axis). Every third or fourth sampling site shall be sampled until a total of 6 samples are obtained for each reach.

1.5.3.2.2 Samples shall be collected using a 0.093 $m^2$ Surber sampler equipped with a 300-micron mesh collection net. Collected samples shall be placed in labeled plastic containers and preserved with 70 percent ethyl alcohol. Samples shall be enumerated and identified to the genus level (except for oligochaetes to order). For each sample the following shall be calculated: density per unit area, Shannon Diversity and Evenness indices, EPT (epheropterans, plecopterans, and tricopterans), and number of EPT taxa.

1.5.3.2.3 The permittee shall sample annually between late March and late May, after spring breakup (ice out) and before peak snowmelt.

1.5.3.3 Resident Fish Monitoring - Population Status

1.5.3.3.1 Abundance and condition of Dolly Varden char in the inlet creek to Upper Slate Lake and East Fork Slate Creek shall be monitored annually using snorkel observations and electroshocking, or similar approved techniques. The permittee shall continue using established methods in the established reaches. Sampling is not required in Lower Slate Creek since Dolly Varden present in that reach may be anadromous. Data to be derived from these surveys shall include: (1) population estimates by species, habitat type and stratum; and (2) condition factor by stratum.

1.5.3.3.2 The permittee shall monitor annually between July 1 and September 15. Data shall be collected so that statistical comparisons can be made with the previous baseline data. Estimates shall be made of the variability of the data, including minimum detectable differences between samples, as well as the precision of the 95 percent confidence interval. This information shall be used to refine or revise sampling protocols.

1.5.3.4 Resident Fish Monitoring – Whole Body Metal Analysis

1.5.3.4.1 Whole body metal analysis for metals concentrations in resident Dolly Varden tissues shall be tested annually for the following nine elements: Al, Ag, Cd, Cr, Cu, Pb, Hg, Ni, Se, and Zn. Six fish within the size class 90-130 mm (generally 2-3 year old fish) shall be collected from the inlet creek to Upper Slate Lake, East Fork Slate Creek, and Lower Slate Creek for a total of 18 fish collected each year. The tissue analysis will provide metal bioaccumulation data in resident fish. ADEC and ADFG will evaluate the results after three years of data collection to determine if some elements do not need to be monitored and if further testing is necessary.

1.5.3.5 Anadromous Fish Monitoring

1.5.3.5.1 Quality of Spawning Substrate

1.5.3.5.1.1 The quality of spawning substrate used by pink salmon shall be monitored annually in Lower Slate Creek to detect changes in composition. Sediment samples shall be collected in July prior to spawning activity. Four replicate samples shall be collected from 2 locations using a McNeil-type sampler using established locations and methods. The geometric mean particle size will be calculated for each sample.

1.5.3.5.2 Periphyton Biomass and Community Composition

1.5.3.5.2.1 The permittee shall annually monitor periphyton biomass and composition in the inlet creek to Upper Slate Lake, East Fork Slate Creek, West Fork Slate Creek, Lower Slate Creek, and Lower Sherman Creek. The permittee shall establish sample reaches similar to those for benthic invertebrate sampling, and use methods employed at other Alaskan mines. For each reach ten periphyton samples from stream benthos shall be collected using methods established by Barbour et al (1999) or similar during the period late-June through early-August at low stream flow and not within three weeks after peak snowmelt/outfall discharge. Annual sampling timing will depend on snowmelt rate combined with discharge from Outfall 002, and sampling conditions should be consistent in all years to compare data between years, to the extent possible. ADF&G Habitat biologists are available to assist the permittee in identifying appropriate timing, if necessary. Estimate periphyton biomass densities and proportions of mean chlorophyll a, b, and c concentrations shall be reported for each reach sampled. An analysis of stream flow four weeks prior to sampling shall also be included using a local stream gage data (e.g. Johnson Creek). This information shall be included in the Annual Water Quality Monitoring Summary (Part 1.6).

1.5.4 Biological data collection is for data analysis purposes to assess the overall health of the ecosystem. This data is used to determine whether any changes are necessary during the next permit reissuance, and may be modified in the next permit if necessary.

## 1.6 Annual Water Quality Monitoring Summary

All discharge and receiving water monitoring results for the year must be included in an Annual Water Quality Monitoring Summary and submitted by March 1st for the previous 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, a graphical presentation of the data at each monitoring station, a comparison of upstream and downstream monitoring results (to show any differences), and a comparison of monitoring results for each station over time (to show any trends). The annual report may reference the monthly reports for QA/QC information.

# 2.0 SPECIAL CONDITIONS

## 2.1 Compliance schedule for manganese

2.1.1 Manganese exceeds water quality criteria at Outfalls 001 and 002. The 2005 permit only required reporting of manganese, and treatment plants were not designed to remove manganese. Manganese levels have increased since mining commenced in July 2010.

2.1.2 In order to comply with 2011 permit limits, the permittee shall comply with the following schedule:

| **Action** | **Completion Date (months after permit effective date)** |
|---|---|
| a. Compliance alternatives analysis | 1 month |
| b. Treatability tests | 3 months |
| c. Select compliance alternative | 4 months |
| d. Preliminary design report | 8 months |
| e. Final design report and drawings | 12 months |
| f. Construction | 18 months |
| g. Comply with manganese limits | 20 months |

## 2.2 Quality Assurance Project Plan (QAPP)

2.2.1 Any modification or update of the QAPP must be submitted to ADEC for review and approval within 60 days after the effective date of the permit. The modification or update shall be in accord with the latest ADEC guidance at http://dec.alaska.gov/water/wqapp/Generic_Tier_2_WQ_QAPP_Rev_1.pdf.

2.2.2 The QAPP must assist in planning for the collection and analysis of effluent and receiving water samples in support of the permit and in explaining data anomalies when they occur.

2.2.3 Throughout all sample collection and analysis activities, the permittee must use the ADEC-approved QA/QC and chain-of-custody procedures described in *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.

2.2.4 At a minimum, a QAPP must include:

2.2.4.1 Details on number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements;

2.2.4.2 Maps indicating the location of each sampling point;

2.2.4.3 Qualification and training of personnel; and

2.2.4.4 Name, address, and telephone number of all laboratories used by or proposed to be used by the permittee.

2.2.5 The permittee must amend the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP. Any amendment to the QAPP must be reviewed and approved by ADEC before the amendment is implemented.

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

## 2.3 Best Management Practices Plan

2.3.1 Purpose. Through implementation of the best management practices (BMP) plan, the permittee must prevent or minimize the generation and the potential for the release of pollutants from the facility to the waters of the United States through normal and ancillary activities.

2.3.2 Maintenance. The permittee currently has an approved and implemented BMP Plan, which achieves the objectives and the specific requirements of Parts 2.3.3 through 2.3.6. The existing BMP Plan may be modified for submittal under this section. The BMP Plan may be included as part of a project wide document.

2.3.3 Objectives. The BMP Plan must be maintained to be consistent with the following objectives for the control of pollutants.

2.3.3.1 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.

2.3.3.2 Under the BMP Plan and 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.

2.3.3.3 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 waters of the United States due to equipment failure, improper operation, and 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.

2.3.4 Elements of the BMP Plan. The BMP Plan should be consistent with the objectives of Part 2.2.3 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, September, 1992), or any subsequent revision to these guidance documents. The BMP Plan must include, at a minimum, the following items:

2.3.4.1 Plan Components

2.3.4.1.1 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.

2.3.4.1.2 Structure, functions, and procedures of the BMP Committee. The BMP Plan must establish a BMP Committee responsible for developing, implementing, and maintaining the BMP Plan.

2.3.4.1.3 Description of potential pollutant sources.

2.3.4.1.4 Risk identification and assessment.

2.3.4.1.5 Standard operating procedures to achieve the objectives of Part 2.3.3and specific best management practices under Part 2.2.4.2.

2.3.4.1.6 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.

2.3.4.1.7 Materials compatibility.

2.3.4.1.8 Good housekeeping.

2.3.4.1.9 Inspections.

2.3.4.1.10 Preventative maintenance and repair.

2.3.4.1.11 Security

2.3.4.1.12 Employee training.

2.3.4.1.13 Recordkeeping and reporting.

2.3.4.1.14 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.

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

2.3.4.2 Specific Best Management Practices. The BMP Plan must establish specific BMPs or other measures to achieve the objectives under Part 2.3.3 and which ensure that the following specific requirements are met:

2.3.4.2.1 Solids, sludges, or other pollutants removed in the course of treatment or control of water and wastewaters must be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

2.3.4.2.2 Ensure proper management of solid and hazardous waste in accordance with regulations promulgated under the Resource Conservation and Recovery Act (RCRA). Management practices required under RCRA regulations must be referenced in the BMP Plan.

2.3.4.2.3 Ensure proper management of materials in accordance with Spill Prevention, Control, and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 112. The BMP Plan may incorporate any part of such plans into the BMP Plan by reference.

2.3.4.2.4 The permittee is required to develop and implement a BMP to ensure that best blasting practices are used in any wet blast holes to minimize the amount of blasting agent that dissolves in the groundwater in the vicinity of the blast hole.

2.3.4.3 Review and Certification. The BMP Plan must be reviewed and certified as follows:

2.3.4.3.1 Annual review by the plant manager and BMP Committee: An annual review is required with a certified statement that the BMP Plan fulfills the requirements set forth in this permit. The statement is considered certified when it contains the dated signatures of each BMP Committee member. The statement must be submitted to ADEC on or before January 31st of each year.

2.3.5 Documentation. The permittee must maintain a copy of the BMP Plan at the facility and make it available to EPA, ADEC or an authorized representative upon request.

2.3.6 BMP Plan Modification.

2.3.6.1 The permittee must amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to surface waters.

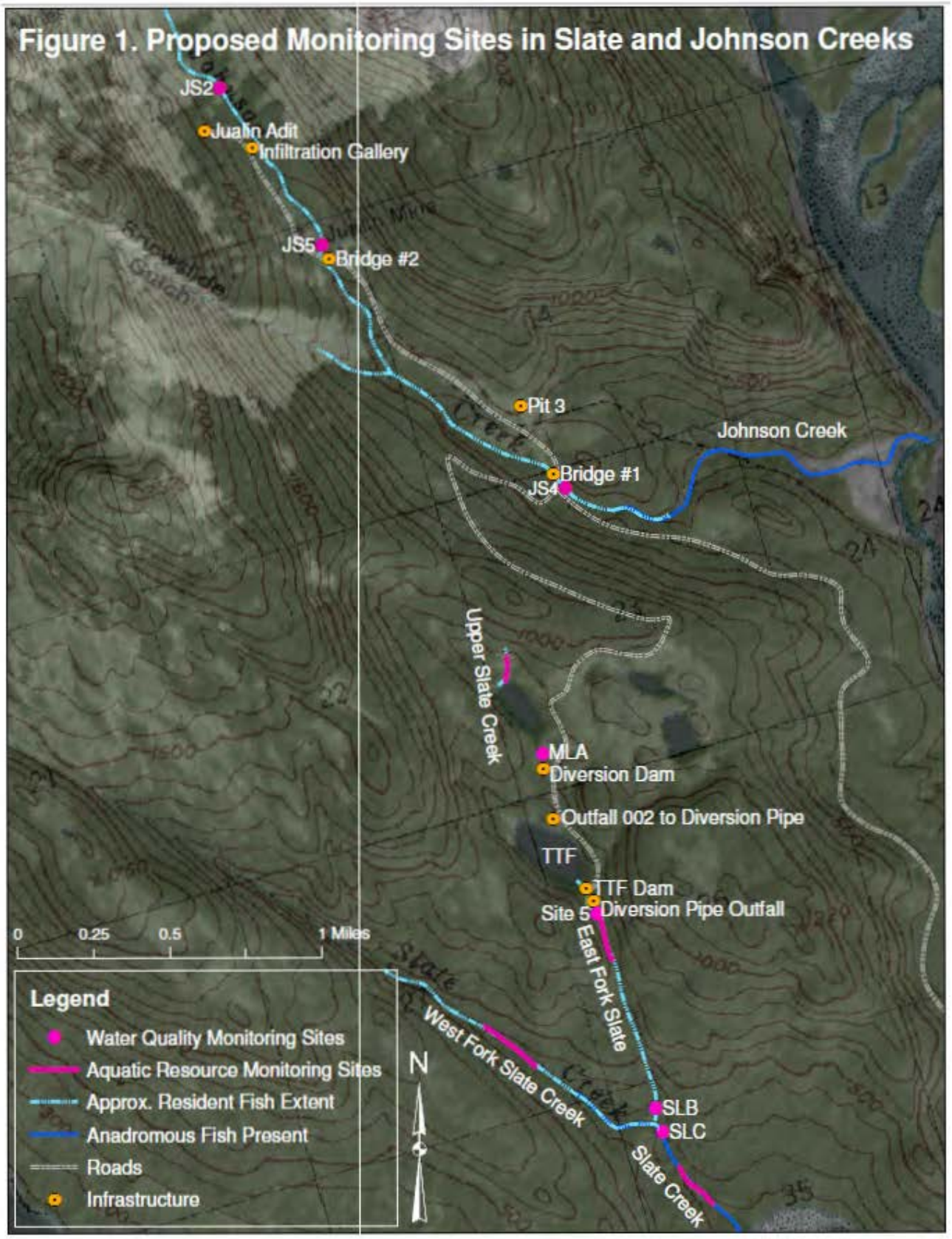
2.3.6.2 The permittee must amend the BMP Plan whenever it is found to be ineffective in achieving the general objective of preventing and minimizing the generation and the potential for the release of pollutants from the facility to the waters of the United States and/or the specific requirements in Part 2.3.4.2.

2.3.6.3 Any changes to the BMP Plan must be consistent with the objectives and specific requirements of Part 2.3.4.2. All changes in the BMP Plan must be reported to ADEC with the annual certification required under Permit Part 2.3.4.3.

## 2.4 Air and Land Releases

Except as otherwise permitted, the permittee must not place, deposit, or allow to be placed or deposited on the premises, any material which may produce, cause or contribute to the spread of disease, create a safety hazard or in any way endanger the health of the public.

## Attachment A: Maps showing sampling locations



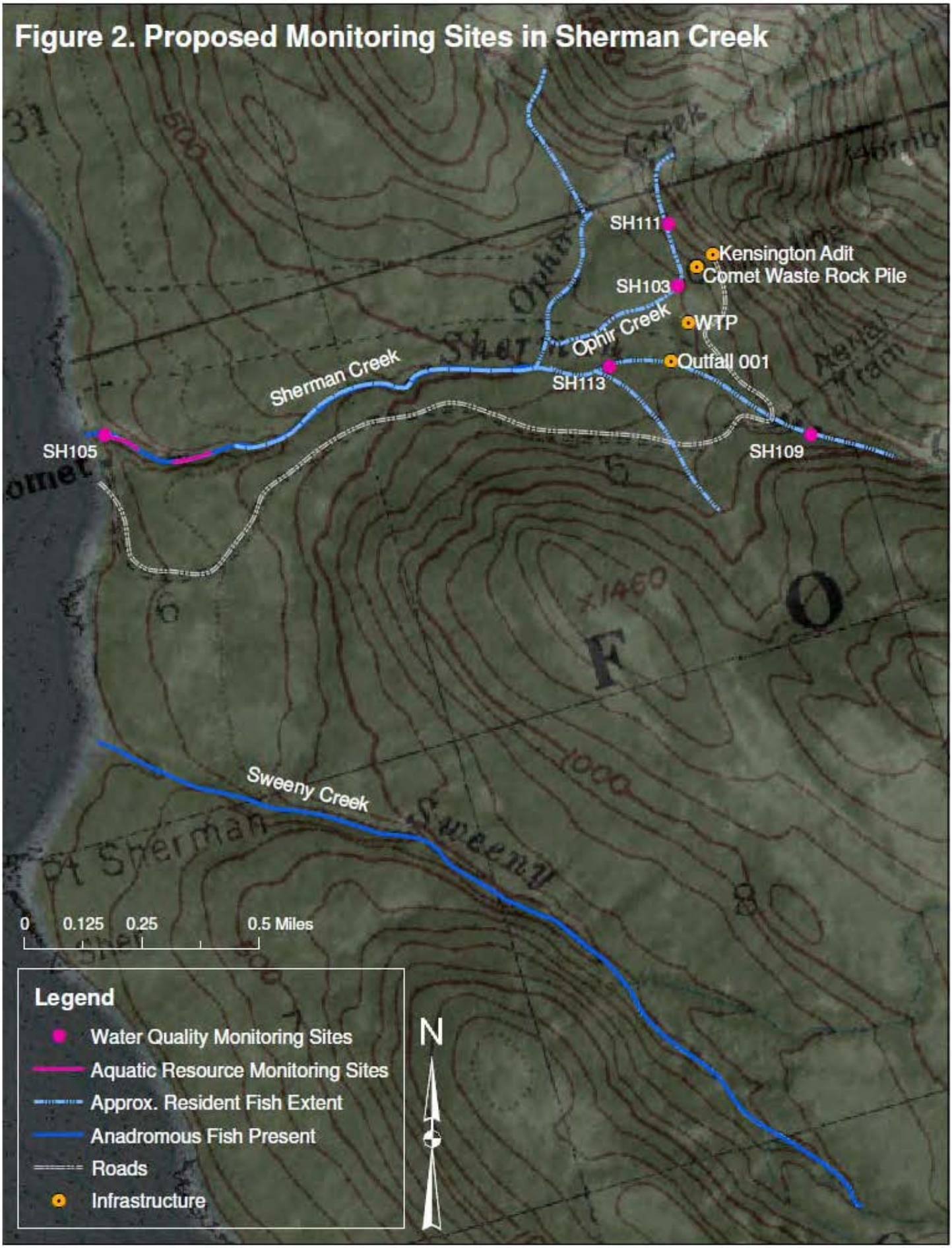


Figure 2. Proposed Monitoring Sites in Sherman Creek
SH111
Kensington Adit
Comet Waste Rock Pile
SH103
WTP
Ophir Creek
Outfall 001
SH113
Sherman Creek
SH105
SH109
Sweeny Creek
0
0.125
0.25
0.5 Miles
Legend
Water Quality Monitoring Sites
Aquatic Resource Monitoring Sites
Approx. Resident Fish Extent
Anadromous Fish Present
Roads
Infrastructure
N

# APPENDIX A

# STANDARD CONDITIONS

# APDES PERMIT

# NONDOMESTIC DISCHARGES

**June 2010**

# TABLE OF CONTENTS

Appendix A of the permit 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 three 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 15th 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) $200,00; (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 in the Alaska Pollutant Discharge Elimination System (APDES) permit and fact sheet.

| | |
|---|---|
| 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 |
| BMP | Best Management Practice |
| Cd | Cadmium |
| CFR | Code of Federal Regulations |
| Cr | Chromium |
| Cu | Copper |
| CWA | Clean Water Act |
| DMR | Discharge Monitoring Report |
| DO | Dissolved Oxygen |
| DTF | Dry Tailings Facility |
| EPA | U.S. Environmental Protection Agency |

# APPENDIX B

| | |
|---|---|
| Fe | Iron |
| GFRD | Geosynthetic Face Rock fill Dam |
| Hg | Mercury |
| $IC_{25}$ | Inhibition Concentration 25% |
| MDL | Method Detection Limit |
| mg/L | Milligrams per Liter |
| MGD or mgd | Million gallons per day |
| ML | Minimum Level |
| MWTP | Mine Water Treatment Plant |
| N/A | Not Applicable |
| NEPA | National Environmental Policy Act |
| Ni | Nickel |
| Pb | Lead |
| POO | Plan of Operations |
| PQL | Practical Quantification Limit |
| QA | Quality Assurance |
| QA/QC | Quality Assurance/Quality Control |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| Se | Selenium |
| TIE | Toxicity Identification Evaluation |
| TPY | Tons per Year |
| TRE | Toxicity Reduction Evaluation |
| TSS | Total Suspended Solids |
| TTF | Tailings Treatment Facility |
| TTFWTP | Tailings Treatment Facility Water Treatment Plant |
| TUc | Toxic Unit, Chronic |
| µg/L | Micrograms per Liter |
| U.S.C. | United States Code |
| WQBEL | Water Quality Based Effluent Limit |
| WQS | Water Quality Standards |
| Zn | Zinc |

# Appendix C

Definitions

# APPENDIX C

The following definitions of terms are associated with the APDES permit and fact sheet. 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 |
| Aquaculture[b] | The cultivation of aquatic plants or animals for human use or consumption |
| Average | An arithmetic mean obtained by adding quantities and dividing the sum by the number of quantities |
| Average Monthly (Effluent) Limit[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. |
| 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 |
| Color[b] | The condition that results in the visual sensations of hue and intensity as measured after turbidity is removed |
| Commissioner[a] | The commissioner of the Alaska Department of Environmental Conservation or the commissioner's designee |
| Composite Samples | Composite samples must consist of at least eight equal volume grab samples. 24 hour composite sample means a combination of at least eight discrete samples of equal volume collected at equal time intervals over a 24-hour period at the same location. A "flow proportional composite" sample means a combination of at least eight discrete samples collected at equal time intervals over a 24-hour period with each sample volume proportioned according to the flow volume. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of *Standard Methods for the Examination of Water and Wastewater*. |
| 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. |

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

# APPENDIX C

| | |
|---|---|
| Department[a] | The Alaska Department of Environmental Conservation |
| Design Flow[a] | The wastewater flow rate that the plant was designed to handle |
| 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 |
| 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<br><br>The oxygen dissolved in water or wastewater and usually expressed in milligrams per liter or percent saturation |
| Diversion Pipeline | A pipe installed to convey Upper Slate Lake water around the Tailings Treatment Facility to East Fork Slate Creek. Outfall 002 from the TTFWTP discharges into the diversion pipeline. |
| 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 |
| Fish[b] | Any of the group of cold-blooded vertebrates that live in water and have permanent gills for breathing and fins for locomotion |
| 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 |
| Maximum Daily[a] | The highest allowable "daily discharge" |
| 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. |
| Mine Water Treatment Plant (MWTP) | The treatment plant on the Comet side of the project that treats only mine drainage water. |

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

# APPENDIX C

| | |
|---|---|
| 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. |
| 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 |
| 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. |
| Practical Quantification Limit (PQL)[g] | The lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. |
| 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 Water Body | 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 |
| Settleable Solids[b] | Solid material of organic or mineral origin that is transported by and deposited from water, as measured by the volumetric Imhoff cone method and at the method detection |

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

| | |
|---|---|
| | limits specified in method 2540(F), *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992), adopted by reference in 18 AAC 70.020(c)(1) |
| 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. |
| Tailings | Material from the milling process. |
| Tailings Treatment Facility (TTF) | An impoundment used for the treatment of process water. |
| 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] | The reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/NOEC) |
| TTF Embankment | The dam constructed to retain tailings in the former Lower Slate lake. |
| 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 Supply[b] | Any of the waters of the United States that are designated in 18 AAC 70 to be protected for fresh water or marine water uses. Water supply includes waters used for drinking, culinary, food processing, agricultural, aquacultural, seafood processing, and industrial purposes. Water supply does not necessarily mean that water in a waterbody that is protected as a supply for the uses listed in this paragraph is safe to drink in its natural state. |
| 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
g) See EPA Permit Writers Manual