ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FACT SHEET

Permit Number: AK0053341

Sumitomo Metal Mining Pogo LLC.: Pogo Gold Mine

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Wastewater Discharge Authorization Program

555 Cordova Street

Anchorage, AK 99501

Public Comment Period Start Date: October 27, 2010
Public Comment Period Expiration Date: November 26, 2010
Alaska Online Public Notice System

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Issuance of an Alaska Pollutant Discharge Elimination System (APDES) permit to

SUMITOMO METAL MINING POGO LLC

For wastewater discharges from the

Pogo Gold Mine
P.O. Box 145
Delta Junction, AK 99737

Alaska Department of Environmental Conservation (Department or DEC) reissued an APDES individual permit (permit) to the Pogo Gold Mine (Pogo). The permit authorizes and sets conditions on the discharge of pollutants from the mine to the Goodpaster River. In order to ensure protection of water quality and human health, the permit places limitations on the types and amounts of pollutants that can

be discharged from the facility and outlines best management practices to which the facility must adhere.

The fact sheet also outlines the development of the permit including:

- information appeal procedures
- a listing of effluent limitations and other conditions
- a description of the discharge location and a map and
- technical material supporting the conditions in the permit

Appeals Process

The Department has both an informal review process and a formal administrative appeals process for final APDES permit decisions. An informal review request must be delivered within 15 days after receiving the Department's decision to the Director of the Division of Water at the following address:

Director, Division of Water
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Interested persons can review 18 AAC 15.185 for the procedures and substantive requirements regarding a request for an informal Department review.
See http://www.dec.state.ak.us/commish/InformalReviews.htm for information regarding reviews of Department decisions.

An adjudicatory hearing request must be delivered to the Commissioner of the Department within 30 days of the permit decision or a decision issued under the informal review process. An adjudicatory hearing will be conducted by an administrative law judge in the Office of Administrative Hearings within the Department of Administration. A written request for an adjudicatory hearing shall be delivered to the Commissioner at the following address:

Commissioner
Alaska Department of Environmental Conservation
410 Willoughby Street, Suite 303
Juneau, AK 99811-1800

Interested persons can review 18 AAC 15.200 for the procedures and substantive requirements regarding a request for an adjudicatory hearing. See http://www.dec.state.ak.us/commish/ReviewGuidance.htm for information regarding appeals of Department decisions.

Documents are Available

The final permit and fact sheet, application, and related documents can be obtained by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below. The final permit, fact sheet, application, and other information are located on the Department's Wastewater Discharge Authorization Program website: http://www.dec.state.ak.us/water/wwdp/index.htm

Alaska Department of Environmental Conservation **Division of Water** **Wastewater Discharge Authorization Program** **610 University Ave.** **Fairbanks, AK 99709** **(907) 451-2136**	**Alaska Department of Environmental Conservation** **Division of Water** **Wastewater Discharge Authorization Program** **555 Cordova Street** **Anchorage, AK 99501** **(907) 269-6285**

TABLE OF CONTENTS

LIST OF TABLES

1. APPLICANT

Sumitomo Metal Mining Pogo LLC

APDES Permit No.:	AK0053341
Mailing Address:	Sumitomo Metal Mining Pogo LLC P.O. Box 145 Delta Junction, AK 99737
Facility Contact:	Todd Roth, General Manager

2. FACILITY ACTIVITY

2.1. Background

Sumitomo Metal Mining Pogo LLC is an operating gold mine located 38 miles northeast of Delta Junction, Alaska. The Pogo Mine includes an underground mine that feeds gold ore to a mill at a rate of approximately 2500 tons per day (tpd). The property will produce 380,000 to 400,000 ounces of gold annually.

The following are the major elements of the project:

- An underground cut-and-fill mine with a conveyor access to transfer ore to the surface,
- Surface gold mill for gold recovery through gravity concentration, flotation and cyanide leaching,
- Tailings preparation facilities, including cyanide destruction and filtration, to produce paste backfill for the underground mine workings and dewatered tailings material suitable for storage in a drystack facility on the surface,
- 249 person upper camp and an 126 person lower camp both with recreation and catering facilities,
- Transmission line along the Shaw Creek Hillside road and on-site electrical distribution system,
- 49 mile all-season road constructed along the Shaw Creek Hillside
- A water management system that maximizes recycling and treats all waters affected by the project in accordance with pertinent federal and state legislation.
- Pogo is expected to continue operating through 2017 based on the 2009 ore reserve statement.

3. RECEIVING WATERS

3.1. Outfall Location

The facility discharges to the Goodpaster River through two outfalls. Outfall 001, the discharge point for treated mine drainage and excess precipitation, is located at latitude 64° 28' 12" N, and longitude 144° 55' 03" W [NAD 83 Geographic]. Outfall 002, the discharge point for treated

domestic wastewater, is located at latitude 64° 26' 36" N, and longitude 144° 56' 30" W [NAD 83 Geographic].

3.2. Water Quality Standards

The Alaska State Water Quality Standards (WQS) are composed of use classifications, and numeric and/or narrative water quality criteria. The use classification system designates the beneficial uses that each water body is expected to achieve (such as contact recreation, growth and propagation of fish, etc.). The numeric and/or narrative water quality criteria are the criteria deemed necessary, by the State, to support the beneficial use classification of each water body.

The Goodpaster River is protected in the WQS for freshwater Classes (1) (A), (B), and (C) for uses in water supply (drinking, culinary and food processing, agriculture, aquaculture, and industrial water supply), water recreation (contact and secondary recreation), and growth and propagation of fish, shellfish, other aquatic life and wildlife.

3.3. Mixing Zone Analysis

In accordance with state regulations at 18 AAC 70.240, as amended through June 23, 2003, the Department has authority to authorize a mixing zone in a permit. In the Goodpaster River, the Department authorizes a mixing zone with dilution of 9 parts receiving flow to 1 part effluent flow, equaling a dilution multiplier of 10, for fecal coliform bacteria (FC), nitrate, pH, and dissolved oxygen, contained in the discharge from outfall 002. Modeling indicates that FC are the controlling parameter for the mixing zone size at outfall 002. The mixing zone is defined as a trapezoid with a downstream length of five feet. The bases of the trapezoid defining the mixing zone are five feet wide at the upstream end (the diffuser width is five feet) and seven feet at the downstream end for an area of 30 square feet. The mixing zone includes the vertical extent of the water column from the water surface to, but not including, the riverbed. There has been no change in the mixing zone and the design basis remains the same as in CORMIX model described in Basketfield, 2009. See Section 9.

4. DESCRIPTION OF DISCHARGE

The volume of effluent discharged from internal outfall 011 into the off-river treatment works (ORTW) and out of the ORTW through outfall 001 into the Goodpaster River varies with precipitation and mine drainage. Pogo selected a design basis for water treatment plant and dam sizing that provides an annual 95% probability of staying within the design criteria. These criteria estimated the net precipitation and mine drainage or Net Allowable Discharge at 487 gallons per minute (gpm). Current site water balance modeling predicts that the volume of water treated and discharged is less than 487 gpm. With 107 gpm consumed in the process during operating conditions, under average conditions the water treatment plant effluent will be 189 gpm while at the 95^{th} percentile, it would be 380 gpm. The main water treatment plant is designed to treat 400 gpm on a continuous basis with an ability to increase by approximately 20% (up to 480 gpm) for a few weeks at a time.

Modeling work completed for the ORTW indicates that under the conservative case of mine shutdown and maximum mine drainage, it would be necessary to discharge up to 600 gpm in order to maintain the Recycle Tailings Pond (RTP) volume at acceptable levels. This 600 gpm discharge rate would be achieved by combining effluents from both the underground and the main water treatment plants. During such a shut down period, the underground water treatment plant, which would otherwise be dedicated to treating mine drainage to return to the process plant, would be available to treat effluent for discharge. Therefore, the ORTW is designed for a maximum of 600 gpm with a mixing ratio maximum of 25:1, for a total maximum effluent rate of 15,600 gpm.

The ORTW is considered by EPA to be a type of flow augmentation. By EPA policy, flow augmentation can be used only as a supplement to adequate treatment and not as a substitute. The monitoring data conducted under the previous permit indicates that effluent from the treatment plant will be within the technology-based effluent guidelines. If it does not meet these standards, the treated water is routed back to the RTP. Therefore, EPA considers the requirements for this alternative to be met. The effluent from the water treatment plant is sampled and monitored at regular intervals prior to entering the ORTW between the first and second ponds. Samples are also taken upstream of the intake to the ORTW to determine the natural condition of the river. The final effluent is sampled at outfall 001, the discharge point from the second pond.

The domestic wastewater (human body wastes from toilets and urinals, as well as wastewater from sinks, showers, laundries, safety showers, eyewash stations and galleys) from the camp are treated and discharged through a diffuser at outfall 002 at an average flow rate of about 20 gpm.

Since commencing the discharge in July 2005, there have been few compliance issues with the permit.

Table 1: Non-Compliance Summary

Parameter	Maximum Daily[1]	Average Monthly[2]
Cadmium	4 (1.7%)	5 (8.8%)
Cyanide	6 (2.6%)	6 (10.5%)
Flow	3 (1.3%)	
Turbidity	2 (0.9%)	
pH values were lower than the designated range 3 times (1.3%)		
Footnotes: 1. Percentages based on weekly sampling for 228 weeks since 2005. 2. Percentages based on 57 months since July 2005		

5. PERMIT REQUIREMENTS

5.1. Applicable Laws and Regulations

In general, the CWA requires that the effluent limit for a particular pollutant is the more stringent of either technology-based effluent limit or water quality-based limit. A technology-based effluent limit requires a minimum level of treatment for industrial point sources based on currently available treatment technologies. A water quality-based effluent limit is derived to ensure that the criteria and designated uses of a waterbody are protected. See Appendix B.

5.2. Effluent Limitations

5.2.1. Wastewater from Outfall 001

An evaluation for the discharge from outfall 001 was done comparing the technology-limitations in 40 CFR Part 440 Subpart J plus other parameters of concern with the WQ-based limitations discussed in Appendix B. For most parameters, the WQ-based limitation is more restrictive.

5.2.1.1. The following summarizes the effluent limitations that are included in the permit:

Table 2: Comparison of Previous and Reissued Permit Effluent Limitations

Parameter	Units	Effluent Limitations				Monitoring Requirements
		Maximum Daily		Average Monthly		
		Previous	Reissued	Previous	Reissued	
Arsenic	µg/L	100.5		50		
Cadmium[1, 3]	µg/L	0.22	0.2	0.11	0.1	
Copper[1, 3]	µg/L	4.5	4.5	2.2	2.2	
Chromium, Total	µg/L					
Chromium VI	µg/L	16		8		
Cyanide[4]	µg/L	8.5	6.9	4.3	4.7	
Lead[1, 3]	µg/L	1.1	1.3	0.6	0.5	See Appendix B Table B-4 for the effluent limitations and monitoring requirements included in the permit.
Manganese[1, 3]	µg/L	73		50		
Mercury[2, 3]	µg/L	0.02	0.02	0.01	0.01	
Nickel[1,3]	µg/L	27		13		
Zinc[1, 3]	µg/L	42.9	43.0	21.4	16.8	See Appendix B for rationale for the new cyanide limit contained in Table 2.
TDS	mg/L	820		408		
Turbidity, effluent	NTU	see FS Appendix B 2.3				
Turbidity, natural condition	NTU					
Sulfates	mg/L	410		204		
pH	s.u.	see FS 5.2.1.2, below				
Outfall Flow[5]	gpm	15,600	15,600			
Hardness, as $CaCO_3$	mg/L					
Chronic Whole Effluent Toxicity[6]	TU_c					

Footnotes:

1. These parameters must be analyzed and reported as total recoverable.
2. Mercury must be analyzed and reported as total.
3. Reporting is required within 24 hours of a maximum daily limit violation. See Permit Appendix A, Part 3.4.
4. Free cyanide will be analyzed as weak acid dissociable (WAD). A compliance level of 20 µg/L is designated based on a site specific Minimum Level.
5. Proposed that this flow limit not apply after 72 hours of the last effluent from the treatment plant entering the ORTW.
6. See Permit Part 1.4 for whole effluent toxicity testing requirements.

The flow limitation found in Table 2 of the permit does not apply to outfall 001 if the facility has not discharged effluent into the ORTW for 72 hours. At this time, the water flowing through the ORTW should consist of river water alone so there is no need to limit the flow in the system.

5.2.1.2. The pH shall not be less than 6.5 standard units nor greater than 8.5 standard units.

5.2.1.3. There shall be no discharge of floating solids, visible foam, other than in trace amounts, or oily wastes which produce a sheen on the surface of the receiving water.

5.2.1.4. The turbidity measured in nephelometric turbidity units (NTU) must not be more than 5 NTUs above the natural condition measured in a sample taken from the Goodpaster River within an hour of the effluent sample being made.

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

5.2.1.6. The outfall flow, while limited to a maximum of 15,600 gpm, shall not exceed 25 times the flow from the treatment plant.

5.2.2. Whole Effluent Toxicity (WET) Requirements

Chronic WET testing was required by the previous permit and is included in this permit on an annual basis. The testing will occur at outfall 001 so that the full effects of the discharge into the Goodpaster River will be determined. A target level for chronic toxicity of 2 TU_C shall apply in complying with the permit requirements for the potential of accelerated testing and the development, if need be, of a Toxicity Reduction Evaluation (TRE) or a Toxicity Identification Evaluation (TIE).

5.2.3. Outfall 011 (internal monitoring of waste stream 001)

The allowance for the use of flow augmentation results in the need for monitoring and limiting some parameters in the treatment plant effluent rather than in the discharge to the Goodpaster River. Because flow augmentation can only be used after treatment (rather than instead of treatment), the technology-based effluent limitations must be met prior to the mixing of the waste stream with the river water in the ORTW or the water cannot be discharged. At times during the previous permit cycle, pH limitations have not been met

after treatment but the plant is plumbed to direct the water back to the RTP when discharges will not meet the limitations. TSS and pH are monitored weekly and limited by the technology-based effluent guidelines. Metals will be monitored quarterly and limited by the technology-based effluent guidelines. Additional monitoring for other parameters is done to assess the characteristics of the waste stream.

5.2.3.1. The following table summarizes the limitations in this permit for outfall 011. These limitations, with the exception of the cyanide limitations, are unchanged from the previous permit. See Appendix B 2.1 for information on the cyanide limitations.

Table 3: Limitations at Outfall 011

Parameter	Units	Effluent Limitations		Monitoring Requirements	
		Maximum Daily	Average Monthly	Sample Frequency	Sample Type
Aluminum [1]	µg/L	—	—	quarterly	grab
Arsenic [1]	µg/L	—	—	quarterly	grab
Cadmium[1]	µg/L	100	50	quarterly	grab
Chromium, Total	µg/L	—	—	quarterly	grab
Copper[1]	µg/L	300	150	quarterly	grab
Cyanide[3]	µg/L	—	—	weekly	grab
Iron[1]	mg/L	1639	817	weekly	grab
Lead[1]	µg/L	600	300	quarterly	grab
Mercury[2]	µg/L	2	1	quarterly	grab
Nickel[1]	µg/L	—	—	quarterly	Grab
Selenium[1]	µg/L	—	—	quarterly	Grab
Silver[1]	µg/L	—	—	quarterly	Grab
Zinc[1]	µg/L	1500	750	quarterly	Grab
TSS	mg/L	30	20	weekly	Grab
TDS	mg/L	—	—	quarterly	Grab
Sulfates	mg/L	—	—	quarterly	Grab
Chlorides	mg/L	—	—	quarterly	Grab
pH	s.u.	See 5.2.3.2 below		weekly	Grab
Outfall Flow	gpm	600	—	continuous	Recording
Hardness, as $CaCO_3$	mg/L	—	—	weekly	Grab

Footnotes:

1. These parameters must be analyzed and reported as total recoverable.
2. Mercury must be analyzed and reported as total.
3. Cyanide must be analyzed and reported as weak acid dissociable (WAD) cyanide.

5.2.3.2. The pH must not be less than 6.0 standard units (s.u.) or greater than 9.0 standard units (s.u.).

5.2.3.3. Minimum Levels - For all effluent monitoring, the permittee must use methods that can achieve a minimum level (ML) less than the effluent limitation whenever possible. For parameters that do not have effluent limitations, the permittee must used methods that can achieve MLs less than or equal to those specified in Table 6 (Permit Part 1.5.3).

5.2.4. Outfall 002

This outfall discharges of domestic wastewater as defined in 18 AAC 72.990(23) as "waterborne human wastes or graywater derived from dwellings, commercial buildings, institutions or similar structures." As such, the appropriate standards are the wastewater disposal standards found in 18 AAC 72.

Pogo provides secondary treatment of domestic wastewater with a sequencing batch reactor and disinfection via ultraviolet disinfection light, thus avoiding the introduction of chlorine into the Goodpaster River. The discharge has been placed in an area of the river that was identified as a non-spawning area due to steep talus slopes and slab rock for a river bed. The mixing zone also allows dilution for pH, FC, nitrates, and dissolved oxygen.

This permit contains a provision to decrease monitoring frequency at outfall 002 if the facility has been in compliance with its effluent limitations for 6 consecutive months. This compliance level was achieved for all parameters except flow for the entire 12 month period of 2009. When all limitations have been met for 6 consecutive months, the monitoring frequency can be reduced to monthly after consultation with DEC.

5.2.4.1. The following table contains the limitations for outfall 002:

Table 4: Effluent Limitations at Outfall 002

Parameter	7-Day Average	30-Day Average	Daily Maximum	Units	Sampling Frequency[4]	Sample Type
Flow	---	---	50	gpm	Daily	Recording
Biochemical Oxygen Demand (BOD_5)	45	30	60	mg/L	Weekly	Grab
Total Suspended Solids (TSS)	45	30	60	mg/L	Weekly	Grab
Fecal Coliform[1, 2, & 3]	---	200[3]	400	#/100 ml	Weekly	Grab
Nitrates[1]	—	80	160	mg/L	Weekly	Grab
pH	See 5.2.4.3., below			s.u.	Weekly	Grab
Dissolved Oxygen	See 5.2.4.4., below			mg/L	Weekly	Grab

Parameter	7-Day Average	30-Day Average	Daily Maximum	Units	Sampling Frequency[4]	Sample Type

Footnotes:

1. Calculated using the mixing zone's dilution multiplier of 10.
2. The standard holding time for a FC sample is 6 hours or 6 hours transportation time if the sample analysis begins within 2 hours of receipt at the laboratory.
3. Averages are calculated as a geometric mean.
4. After consultation with DEC, the sampling frequency may decrease to monthly if this discharge has been in compliance with all effluent limitations for 6 consecutive months.

5.2.4.2. 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.

5.2.4.3. The pH must not be less than 6.0 standard units (s.u.) or greater than 9.0 standard units (s.u.).

5.2.4.4. Dissolved Oxygen (DO) must be greater than 2 mg/L.

5.2.4.5. Influent (prior to treatment) measurements of BOD_5 and TSS shall be conducted quarterly in January, April, July and October From this information, percent removal shall be calculated and reported on the Discharge Monitoring Report (DMR) for that month. Percent removal shall meet or exceed 85% for both parameters.

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

5.2.4.7. The previous permit contained an error in the holding time for FC. Although Standard Methods provide some relaxation of the holding time, EPA regulations at 40 CFR 136.3 specify that it is preferable to begin the analysis within 2 hours of sample collection but does allow a transport time of 6 hours as long as the analysis is begun within 2 hours of receipt at the laboratory.

5.2.5. Method Detection Limit (MDL) for Cyanide

EPA designated a site specific MDL for cyanide of 10 µg/L and an associated minimum level (ML) of 20 µg/L in the permit. Analysis done for an EPA Compliance Order by Consent shows that the colorimetric method for measuring cyanide can be unduly influenced by tannins in the sample added within the ORTW.

5.2.6. Surface Water (Ambient) Monitoring

Pogo conducted ambient monitoring and bioassessments in the Goodpaster River as part of their baseline work. The 2004 permit and this permit contain requirements to maintain two sites that have long term monitoring. The 2004 permit initiated monitoring at two other sites to monitor the water quality as construction and operation activities increase in

the project area and these sites are retained in this permit. This permit requires continued bioassessments at an upstream site (SW01) and the historic downstream site (SW12).

Stations SW01 and SW15 are the long term monitoring stations shown on the project map in Appendix A. SW01 is the monitoring point for the background conditions that exist in the Goodpaster River. SW15 is the monitoring point downstream of all proposed activities which will indicate any overall change in the water quality due to the presence of the project.

The ambient monitoring during the 2004 Permit cycle does not show that any level of lead or mercury exceeded the criteria for either parameter. As such, Part I.A.5 of the 2004 Permit which allowed concurrent monitoring of the natural conditions has been removed from this permit. This provision of the 2004 permit was included because previous monitoring at SW01 indicated that there had been slight exceedances of the criteria in the baseline data set.

Station SW 41 is located downstream of the junction of Liese Creek valley with the Goodpaster River. This point is downstream of the discharge for the ORTW and downstream of the drainage where most of the project's components are located. Station SW 42 is downstream from the mixing zone for the discharge at outfall 002.

The Table below contains the list of parameters that were monitored in the surface water during the last permit cycle.

Table 5: Surface Water Monitoring Parameters[1]

pH	TSS	Iron[4]
DO	Hardness	Lead
Conductivity	Alkalinity	Copper
Temperature	Cyanide, WAD	Manganese[4]
Turbidity	Aluminum[2]	Mercury
Chlorides	Antimony[3]	Nickel
Nitrates	Arsenic	Selenium[2]
Sulfates	Cadmium	Silver
TDS	Chromium	Zinc

Footnotes:

1. Freshwater criteria for metals are expressed in terms of the dissolved metal in the water column unless noted in other footnotes.
2. These values (Al and Se) are expressed in terms of total recoverable metal in the water column as expressly stated in the 2008 Toxics Manual included as part of the WQS.
3. This value should be expressed as total because the most stringent value for antimony is the drinking water MCL which are analyzed as total.
4. These values (Fe and Mn) are expressed in terms of total recoverable metal in the water column. Neither the WQS nor EPA's 1999 Recommended Criteria explicitly state the type of analysis to be used. In 1999, EPA was recommending for the first time that dissolved should be used over total recoverable and changes were noted for each parameter. Therefore, the lack of specification implies that if a parameter was not noted, the type of analysis remained total recoverable.

The 2004 ambient monitoring program mistakenly required that all ambient monitoring be done in the dissolved form for metals. The Alaska WQS contain various forms for metals and these have been outlined in the table above.

The Permittee must use Minimum Levels (MLs) that can measure compliance with the permit limitations. Table 6 contains MLs for parameters not limited in the permit. The Permittee may request different MLs. Such a request must be in writing and must be approved by DEC.

Table 6: Minimum Levels (MLs)

Parameter	Units	ML
Aluminum	µg/L	20
Antimony	µg/L	3
Arsenic	µg/L	5
Chromium, Total	µg/L	10
Selenium	µg/L	1.9
Silver	µg/L	0.3

5.3. Monitoring Requirements

40 CFR 122.48(b) requires that the permit contain monitoring requirements. Self-monitoring of effluent parameters is necessary for the permittee to demonstrate compliance with effluent limitations, to assure that WQS are met, and to provide information for future permitting actions. Monitoring frequencies are based on the Agency's determination of the minimum sampling frequency required to adequately monitor the facility's performance. Required sample types are based on the Agency's determination of the potential for effluent variability. These determinations take into consideration several factors, of which the most important are the type of pollutants of concern and the type of treatment system. The tables above and in Appendix B include the minimum monitoring frequency and associated sample type as required by the permit.

5.4. Best Management Practices

Section 304(e) of the CWA requires permit conditions that direct the permittee to develop a Best Management Practices (BMP) Plan. The BMP Plan will be used to control the discharge of toxics or hazardous pollutants by way of spillage or leaks, sludge or waste disposal, and drainage from raw material storage. Any applicable storm water requirements already included in the Storm Water Pollution Prevention Plan as required by the Storm Water Multi-Sector General Permit for Industrial Activities (MSGP) may be incorporated into the BMP Plan by reference.

The intent of the BMP Plan is to recognize the hazardous nature of various substances used and produced by the facility and the way such substances may be accidentally dispersed. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990, 42 U.S.C. 13101.

The BMP Plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants. Within 60 days of the effective date of the reissued permit, the permittee will be required to reevaluate its current BMP Plan and notify DEC when complete. Any changes made to the BMP Plan will follow the requirements of Permit Part 2.6. BMP Plan Modification.

5.5. Quality Assurance Plan

The permittee was required under the previous permit to develop and implement a Quality Assurance Plan. The purpose of the Quality Assurance Plan is to establish appropriate sampling, handling and analytical procedures for all effluent, ambient water, and fish tissue samples taken. This plan may be contained in an overall project monitoring plan. Within 60 days of the effective date of the permit, the permittee will reevaluate the QAP and notify DEC when this is complete.

5.6. Additional Permit Provisions

The standard regulatory language of an APDES permit varies from and NPDES permit. Appendix A to the permit contains standard regulatory language that must be included in all APDES permits. Because they are regulations, they cannot be challenged in the context of an APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

6. REISSUED PERMIT (ANTI-BACKSLIDING)

18 AAC 83.480 requires that effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the 2004 permit. 18 AAC 83.480(c) also states that a permit may not be reissued “to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed or reissued” unless the Department can justifying relaxing limits in accordance with 18 AAC 83.480 (b). With the exception of permit limit

changes allowed by 18 AAC 83.480(b)(2), this permit's effluent limitations, standards, and conditions are as stringent as in the 2004 permit.

The changes in the permit's effluent limitations are the result of the collection of information to characterize the effluent. The information used to calculate the limits for the 2004 permit was based on theoretical information on the efficacy of the treatment plant and ORTW which provided projections of the final effluent characteristics. The limitations developed for this draft permit are based on the analysis of actual effluent that has been treated within the system. Any changes in the effluent limitations are based on the collection and statistical analysis of this new information and, if the limitations increase or show no reasonable potential and are no longer necessary, backsliding is allowed per CWA 402(o)(B)(i). This is true only if the Wasteload Allocations (WLAs) relied on are the same as those previously used to calculate effluent limitations. The WLAs used to calculate the effluent limitations for this permit are the same as those used in the 2004 permit. DEC may elect to reissue the permit with the 2004 effluent limitations except where a WLA has become more stringent.

7. ANTIDEGRADATION

7.1. Receiving Waters

As described in Section 4 , outfalls 001 and 002 discharge treated mine and precipitation water and treated domestic wastewater, respectively, to the Goodpaster River.

7.2. Tier Determination

The Department's approach to implementing the antidegradation policy found in 18 AAC 70.015 is based on the requirements in 18 AAC 70 and the Interim Antidegradation Implementation Methods dated July 14, 2010. Using these requirements and policies, the Department determines whether a waterbody or portion of a waterbody is classified as Tier 1, Tier 2, or Tier 3, where a larger number indicates a greater level of water quality protection. To qualify as a Tier 3, or "outstanding national resource" water, one of two criteria must be met. The water must either be 1) in a national or state park or wildlife refuge or 2) possess exceptional recreational or ecological significance. This evaluation considers the segment of the Goodpaster River including outfall 001, which discharges treated, mine contact and precipitation water, and outfall 002, which discharges treated, domestic wastewater into a 30-square foot mixing zone. Neither Pogo Mine nor the Goodpaster River is located in a national or state park nor a wildlife refuge. Currently, the affected segment of the Goodpaster River is located in a remote and publicly inaccessible area, lacks exceptional recreational significance, and is not considered an area of exceptional ecological significance. Prevailing circumstances lack sufficient merit to consider designating the affected water as Tier 3. Since the Department determined that the Goodpaster River is not Tier 3 water, the following analysis provides highest available level of protection or classifies the water as Tier 2. Under 18 AAC 70.015(a)(2), antidegradation analysis was applied on a parameter-by-parameter basis to permit limits associated with reduction of water quality.

7.3. Analysis

Outfall 001 discharges treated, mine contact and precipitation water. Table 7 lists specific parameter-by-parameter changes made to effluent limits in this permit that are subject to antidegradation analysis.

Table 7: Comparison of Outfall 001 Limits in Previous and Reissued Permits

Parameter	Units	Effluent Limits			
		Daily Maximum		Monthly Average	
		Previous	Reissued	Previous	Reissued
Arsenic	µg/L	100.5	Limit removed but continue monitoring	50	Limit removed but continue monitoring
Cadmium	µg/L	0.22	0.2	0.11	0.1
Chromium, Total	µg/L	---	Monitoring removed	---	Monitoring removed
Chromium VI	µg/L	16	Limit and monitoring removed	8	Limit and monitoring removed
Cyanide	µg/L	8.5	6.9	4.3	4.7
Lead	µg/L	1.1	1.3	0.6	0.5
Manganese	µg/L	73	Limit removed but continue monitoring	50	Limit removed but continue monitoring
Nickel	µg/L	27	Limit and monitoring removed	13	Limit and monitoring removed
Zinc	µg/L	42.9	43.0	21.4	16.8
TDS	mg/L	820	Limit removed but continue monitoring	408	Limit removed but continue monitoring
Sulfates	mg/L	410	Limit removed but continue monitoring	204	Limit removed but continue monitoring

The Department authorizes a mixing zone at outfall 002, which discharges domestic wastewater after receiving secondary treatment. The mixing zone allows reduction of water quality within its boundaries (a trapezoid five feet extending five feet downstream to a width of seven feet) for pH and concentrations of FC, nitrate, and dissolved oxygen. The antidegradation analysis was applied on a parameter-by-parameter basis for pH and concentrations of FC, nitrate, and dissolved oxygen. The 2004 permit contained anticipated use of chlorine as a disinfectant for

treated domestic wastewater and imposed chlorine limits at outfall 002. This permit removed those limits because disinfection is achieved through the use of ultraviolet light, chlorine has never been used, and there are no plans to use chlorine.

18 AAC 70.015(a)(1) existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected;

18 AAC 70.015(a)(2) if the quality of water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the Department, in its discretion, upon application, and after receiving from the applicant all information reasonably necessary for a decision on the application, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose as authorized in a Department permit, certification, or other approval. The Department will allow a reduction of water quality only after finding that five specific requirements of the antidegradation policy at 18 AAC 70.015(a)(2)(A)-(E) are met. The Department's findings follow.

1) Allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located.

Rationale: Pogo Mine contributes substantial economic benefit to local and state economies by providing employment opportunities, payments in lieu of taxes (PILT), annual payments to the state, and business to supporting industries.

Alaska's Office of Economic Development, Mineral Development section provided economic data for Pogo Mine. A portion of that information is contained in the following summary. As an annual average during the first three years of production, 2006 through 2008, the mine provided 357 full-time equivalent jobs, paid about $32,200,000 in wages, and spent $110,500,000. Considering businesses that supported the mine, local and otherwise, 529 jobs were created annually during that span. In 2009, Pogo Mine produced 389,808 ounces of gold worth approximately $379 million. The mine has also provided direct benefits to local government. To date, Pogo Mine has supplied $1,000,000 to the City of Delta Junction through PILT.

As noted above, the operation of Pogo Mine is important to the economies of the City of Delta Junction, Fairbanks North Star Borough, and State of Alaska. The Department finds that authorization of the mine's discharge accommodates important economic activity and that this requirement is met.

2) The reduced water quality will not violate applicable water quality criteria except as allowed under 18 AAC 70.015(a).

Rationale: The discharge allowed by the permit at outfall 001 conforms to the requirements of 18 AAC 70.020, 18 AAC 70.235, and 18 AAC 70.030. No mixing zones are authorized at outfall 001. More specifically, the effluent limits in this permit for outfall 001 are based on the applicable water quality standards (18 AAC 70.020), converted to maximum daily and average monthly limits using established, EPA-consistent requirements and procedures, prescribed calculations, and water quality data collected as required by the 2004 permit.

With the exception of the mixing zone at outfall 002, the permit effluent limits prohibit violation of water quality standards in 18 AAC 70.020. Reduction of water quality in the mixing zone is specifically authorized in accordance with 18 AAC 70.240 to 18 AAC 70.270 (as amended June 26, 2003). The authorized mixing zone has been sized to ensure that all applicable water quality criteria are met at all points outside of the mixing zone; therefore, reduction of water quality in the mixing zone is allowed under the antidegradation policy at 18 AAC 70.015(a)(2), and outside the mixing zone 18 AAC 70.020 is observed.

The Department finds that the reduced water quality will not violate applicable water quality criteria and that the requirement is met.

3) Resulting water quality will fully protect existing uses.

Rationale: Data and performance of the wastewater treatment plants indicate that the water quality of discharges can and has fully protected existing uses. Regardless of the changes to the permit, these facilities are expected and required to continue protecting all designated and existing uses in the Goodpaster River. Additionally, aquatic biomonitoring in the Goodpaster River, as required by the permit, will ensure that all limits remain protective.

No mixing zone is authorized for outfall 001. The water quality standards, upon which the effluent limits are based, serve the specific purpose of protecting the designated and existing uses. Effluent limits in this permit are the same as the 2004 permit or slightly different due to recalculation based on performance of the water treatment plant and water quality data.

A comparison of the effluent limits for cyanide, lead, and zinc from the permit to those in the 2004 permit shows that the daily maximum and monthly average limits increased or decreased slightly. That is because those limits were calculated using the 2005 through 2010 water quality data, and the more recent data set varied from previous data used to calculate limits. Despite the fact that some limits are less stringent, the limits are protective, based on new data, and resulted from strict adherence to prescribed limits and previously used calculation procedures.

Arsenic, manganese, total dissolved solids, and sulfate, monitoring requirements are carried forward in the permit, but limits contained in the 2004 permit are removed. The 2004 permit preceded construction and discharge from outfall 001. Development of the 2004 permit employed conservative assumptions broadening the constituents of concern to ensure protection of water quality. Consequently, arsenic, total dissolved solids, and sulfate were included. However, based on new data and strict adherence to prescribed limits calculation procedures, examination indicates that there is no reasonable potential for arsenic, total dissolved solids or sulfate to cause or contribute to an exceedance of water quality standards. Consequently, those limits cannot be generated, but monitoring for those parameters is carried forward in the permit as a measure for safety.

The data for total chromium, chromium VI, and nickel indicate that the pollutants are not constituents of concern. Further, the concentrations of these constituents in the effluent are exceptionally low, and statistical analyses of water quality data, reasonable potential analyses, indicate total chromium, chromium VI, and nickel monitoring is unnecessary and not required.

The permit proposes the same effluent limits for outfall 002 for discharge from the domestic wastewater treatment plant as the 2004 permit. The draft permit includes restrictions on flow and effluent limits for pH, FC, nitrate, and dissolved oxygen. Effluent water quality has been sampled and analyzed weekly since 2005. With the exception of five FC exceedances during upset conditions when effluent flows were greatly reduced, all effluent limits have been met and a large margin of compliance maintained.

Monitoring station SW-42 was established in Goodpaster River to measure impacts to water quality beyond the mixing zone. Since 2005, water from SW-42 has been sampled and analyzed six times per year for an array of constituents including those which have a mixing zone. Ambient downstream water quality data indicates that WQS have been maintained and all uses protected.

The Department finds that the resulting water quality will be adequate to fully protect existing and designated uses and that the requirement is met.

4) The most effective and reasonable methods of pollution prevention control and treatment will be applied to all wastes and other substances to be discharged.

Rationale: The Department finds the most effective methods of prevention, control, and treatment are the practices and requirements set out in this permit and currently in use for both outfalls at this mine. The permittee is required to implement a best management practices (BMP) plan as previously required by the 2004 permit. The permittee was required in the 2004 permit, and is still required in the permit, to review their BMP Plan annually. The BMP Plan includes pollution prevention measures and controls appropriate for each facility and discharge. The design, construction, and performance of the water treatment plants has also been reviewed and approved by the Department.

The water treatment plant uses three steps to remove contaminants from wastewater before discharge via outfall 001. First, a high-density sludge process co-precipitates metals. Second, a lime-softening and recarbonation process removes calcium and magnesium and thereby reduces total dissolved solids. Third, a multi-media pressure filter removes residual suspended before discharge. This is a proven treatment technology and water quality data of the water treatment plant effluent indicates that it performs effectively.

The facility treats domestic sewage with a sequencing batch reactor including nutrient removal and disinfection with ultraviolet light before discharging via outfall 002. This proven state of the art technology goes beyond secondary treatment standards in providing tertiary treatment.

The Department finds that this criterion to address pollution prevention, control, and treatment is met.

5) Wastes and other substances discharged will be treated and controlled to achieve the highest statutory and regulatory requirements.

Rationale: Applicable "highest statutory and regulatory requirements" are defined in 18 AAC 70.990(30) (as amended June 26, 2003). Accordingly, there are three parts to the definition. The first part of the definition includes all federal technology-based effluent limitation guidelines (ELGs). For outfall 001, the permit imposes the technology-based ELGs for the subcategory of gold mines as found in 40 Code of Federal Regulations (CFR), Part 440, Subpart J.

Pogo Mine's wastewater treatment plant is a privately owned treatment works, and there are no promulgated technology-based effluent limits that apply specifically to privately owned treatment works. When technology-based effluent limits have not been promulgated, technology-based effluent limits may be established using best professional judgment (BPJ) under the authority of Section 402(a)(1)(B) of the CWA. An accepted exercise of BPJ is to apply promulgated technology-based effluent limits for similar sources to the source being permitted (see page 71 in U.S. EPA NPDES Permit Writer's Manual, EPA-833-B-96-003). Even though the permitted facility is not a publicly owned treatment works (POTW), it serves the same function as a POTW, i.e. treat and discharge domestic wastewater. BPJ indicates that "secondary treatment" effluent limitations, found in 40 CFR §133.102 apply to Pogo Mine wastewater treatment plant under authority of Section 402(a)(1)(B) of the CWA, and the permit imposes "secondary treatment" standards at outfall 002.

The second part of the definition of "highest statutory and regulatory requirements" considers discharge of sewage to sewers and is not applicable to this facility.

The third part of "highest statutory and regulatory requirements" considers any more stringent treatment required by state law including 18 AAC 70 and 18 AAC 72. The permit requires the permittee to implement a BMP Plan, which will control the discharges to satisfy all applicable state and federal limitations.

The Department finds that the treatment required in this permit achieves the highest statutory and regulatory requirements and that the requirement is met.

8. OTHER LEGAL REQUIREMENTS

8.1. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding potential effects an action may have on listed endangered species. EPA sent letters to the Services on April 28, 2009, requesting species lists for the project area. However, no response was received. Another request for an updated species list was sent to the Services with the draft permit and fact sheet, but EPA received no response. As a state agency, DEC is not required to consult with USFWS or NMFS regarding permitting actions. Nonetheless, the Department values input from the Services and considered the Services non-response to EPA's solicitations as indicating no reason for concern. Neither EPA nor DEC is unaware of any ESA listed species in the project area.

8.2. Essential Fish Habitat

Section 305(b) of the Magnuson-Stevens Act [16 USC 1855(b)] requires federal agencies to consult with NMFS when any activity proposed to be permitted, funded, or undertaken by a federal agency may have an adverse effect on designated Essential Fish Habitat (EFH) as defined by the Act. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g., contamination or physical disruption, indirect (e.g., loss of prey, reduction in species' fecundity), site-specific, or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions. As a state agency, DEC is not required to consult with NMFS regarding permitting actions. However, the Department values NMFS input.

It has determined that reissuance of this permit is not likely to have an adverse effect on EFH in the vicinity of the discharge. Effluent limitations have been incorporated into this permit based on criteria considered to be protective of overall water quality necessary to support aquatic life in the Goodpaster River. Also, the facility will need to acquire any necessary Alaska Department of Fish and Game (ADF&G) permits which will be protective of the anadromous populations in the Goodpaster River. EPA provided NMFS with copies of the draft permit and fact sheet during the public comment period. If comments had been received from NMFS regarding EFH, they would have been considered prior to final reissuance of this permit.

8.3. Permit Expiration

This permit will expire five years from the effective date of the permit. Permits may be administratively extended under 40 CFR 122.6 if all the requirements of this regulation are met.

9. REFERENCES

Alaska Department of Commerce, Community, and Economic Development. June 8, 2010. Richard Hughes email and attached Excel file.

Basketfield, S.S. 2002. *Design of a Mixing Zone in the Goodpaster River for Discharge of Treated Domestic Wastewater from the Pogo Mine.* Design Science & Engineering, Inc. December 2002. 18 pp.

DEC (Alaska Department of Environmental Conservation). 2003. *18 AAC 70.240-270.* June 26, 2003. pp 41–47.

DEC. 2008. *18 AAC 83, Alaska Pollutant Discharge Elimination System*. October 31, 2008. 111 pp.

DEC. 2008. *18 AAC 70. Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*. December 12, 2008. 44 pp.

DEC. 2009. *18 AAC 70, Water Quality Standards*. September 19, 2009. 57 pp.

DEC. 2009. *18 AAC 72, Wastewater Disposal*. December 23, 2009. 82 pp.

DEC. 2010. *18 AAC 80, Drinking Water*. November 11, 2010. 156 pp.

DEC. 2010. *Interim Antidegradation Implementation Methods*. Policy and Procedure Number 05.03.103. July 14, 2010. 12 pp.

EPA (U.S. Environmental Protection Agency). 1976. *Memorandum from Assistant Administrator for Enforcement, Assistant Administrator for Water and Hazardous Materials and General Counsel to the Regional Administrators and State NPDES Directors*. Subject: Use of Low Flow Augmentation by Point Sources to Meet Water Quality Standards.

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. Washington, DC, March 1991. EPA/505/2-90-001.

EPA, 1996b. *The Metals Translator: Guidance for Calculation a Total Recoverable Permit Limit from a Dissolved Criterion*. EPA 823-B-96-007, June 1996.

EPA. 1999. *National Recommended Water Quality Criteria – Correction*. Office of Water, Washington DC, April 1999. EPA 822-Z-99-001.

EPA. March 11, 2004. Letter from EPA Region 10 Director, Randall Smith, to ADEC Division of Water Director, Dan Easton, approving Goodpaster River Natural Condition Site-Specific Criteria. 3 pp.

EPA. 2005. *Guidance on Water Quality Based Effluent Limits Set Below Analytical Detection/Quantitation Limits*. EPA Memorandum from Cindi Godsey, NPDES Permits Unit; Michael Lidgard, Manager NPDES Permits Unit; and Kim Ogle, Manager NPDES Compliance Unit to the NPDES Permits Unit Consistency Book; April 25, 2005. Seattle, Washington.

Final Environmental Impact Statement. September 2003.

Reapplication package dated September 29, 2008.

Sumitomo Metal Mining Pogo LLC. 2010. *Pogo Mine 2009 Annual Activity and Monitoring Report*. March 1, 2010. 86 pp.

Appendix A: Project Maps

Figure A-1: Pogo Project Location

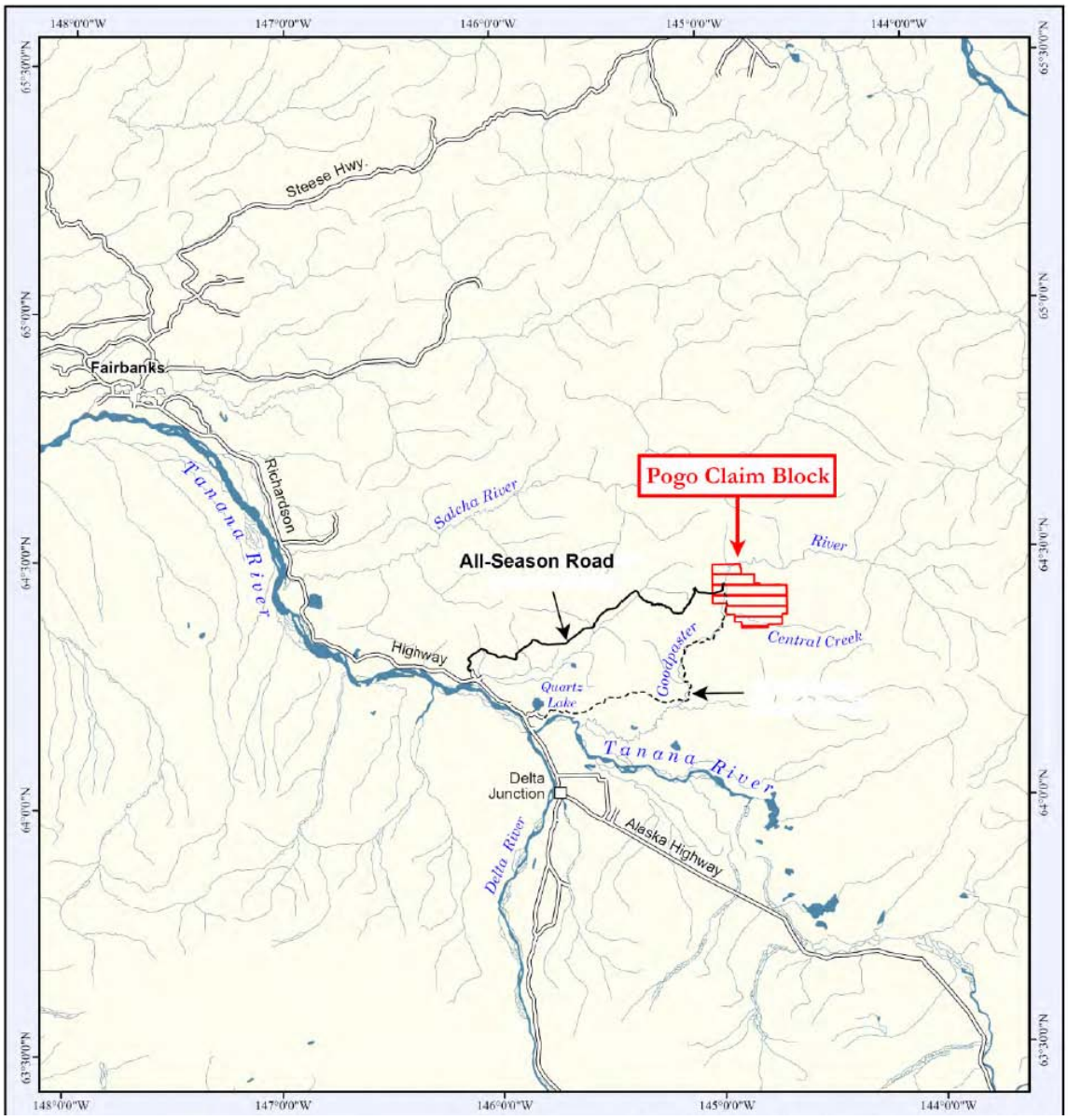
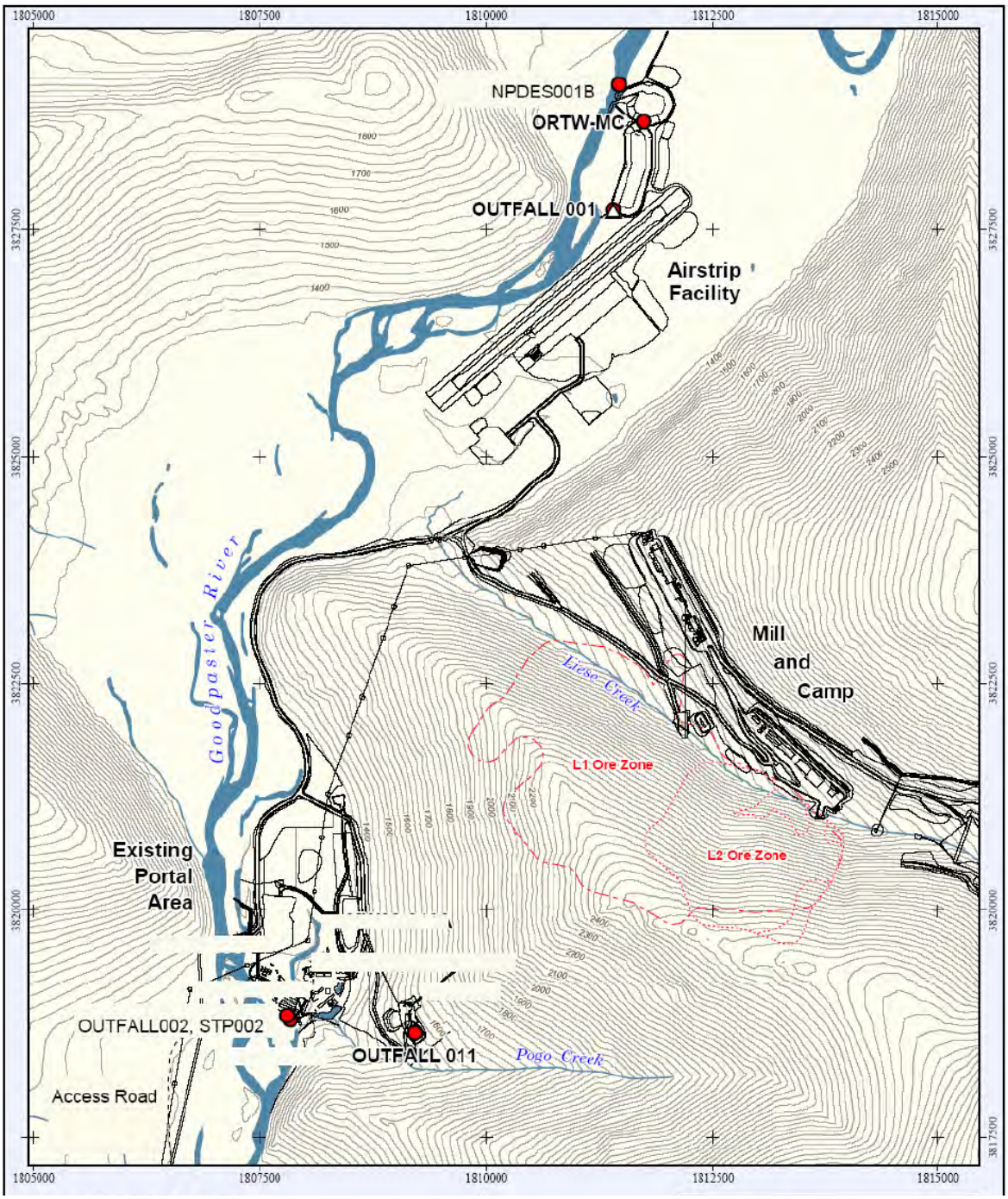


Figure A-2: Pogo Sampling Locations



Appendix B: Development of Effluent Limitations

The section discusses the basis for and the development of limitations in the permit. The discussions include the development of technology-based effluent limitations (Section 1) and water quality-based effluents limitations (Section 2) and a summary of the effluent limitations included in the permit.

1. Outfall 001 Evaluation

1.1. Technology-Based Evaluation

Section 301(b) of the CWA requires technology-based controls on effluents. Pogo is considered a new source. The term "*new source*" means any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance under this section (Section 306 of the CWA) which will be applicable to such source, if such standard is thereafter promulgated in accordance with this section. On December 3, 1982, EPA published effluent guidelines for the mining industry which are found in 40 CFR Part 440. Within these guidelines, Subpart J of Part 440, titled *Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory*, applies to the mine discharges from Pogo. The New Source Performance Standards (40 CFR 440.104) are used to provide the technology-based effluent limitations for copper, zinc, lead, mercury, cadmium, pH and TSS.

40 CFR 440.104(a) states that the concentration of pollutants discharged in mine drainage from mines that produce copper, lead, zinc, gold, silver or molybdenum bearing ores or any combination of these ores from open-pit or underground operations other than placer deposits shall not exceed:

Table B- 1: Technology-Based Effluent Limitations

Parameter	Daily Maximum	Monthly Average
TSS, mg/L	30	20
Cadmium, µg/L	100	50
Copper, µg/L	300	150
Lead, µg/L	600	300
Zinc, µg/L	1500	750
Mercury, µg/L	2	1
pH, standard units	Between 6.0 and 9.0	

40 CFR 440.104(b) states that there shall be no discharge of process wastewater to navigable waters from mills that use the froth-flotation process alone or in conjunction with other processes for the beneficiation of gold ore. In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceed the annual evaporation, a volume of water equal to the difference (net precipitation) may be discharged subject to the limitations set forth in Table B-1, above.

2. Water Quality-Based Evaluation

CWA § 301(b)(1)(C) requires the development of limitations in permits necessary to meet water quality standards. Discharges to state waters must also comply with limitations imposed by the state as part of its certification of NPDES permits under CWA § 401. The NPDES regulation [40 CFR 122.44(d)(1)] implementing CWA § 301 (b)(1)(C) requires that permits include limits for all pollutants or parameters which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality."

The regulations require that this evaluation be made using procedures which account for existing controls on point and non-point sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

When evaluating the effluent to determine if water quality-based effluent limits are needed based on chemical specific numeric criteria, a projection of the effluent water concentration (where no mixing zone is authorized) for each pollutant of concern is made. The chemical specific concentration of the effluent and ambient water and, if appropriate, the dilution available from the ambient water are factors used to project the receiving water concentration. If the projected concentration of the effluent exceeds the numeric criterion for a specific chemical, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

The water quality parameters that may be affected by the discharge are metals (cadmium, copper, lead, manganese, mercury and zinc), cyanide, pH, sulfates, and turbidity.

2.1. Toxics - Metals and Cyanide

Water quality based effluent limitations for metals were develop based upon guidance in EPA's Technical Support Document for Water Quality-based Toxics Control (TSD). The water quality-based analysis consists of four steps:

- Determine the appropriate water quality standard,
- Determine if there is "reasonable potential" for the discharge to exceed the standard in the receiving water,
- If there is "reasonable potential", develop a wasteload allocation (WLA), and a long term average (LTA), then
- Develop effluent limitations based on the LTA.

The following sections provide a detailed discussion of each step. Appendix D provides an example calculation to illustrate how these steps are implemented.

2.1.1. Water Quality Standards

The first step in developing water quality-based limitations is to determine the applicable water quality standard. Alaska Water Quality Standards (WQS) are found in 18 AAC 70. The applicable criteria are based on the designated uses of the receiving water. The Goodpaster River is protected for all designated uses so the most stringent standard applicable is used in determining the reasonable potential to violate water quality standards for aquatic life and calculate the effluent limitations. These standards are provided in Table B-2.

Table B- 2: Water Quality Standards

Parameter, (in µg/L unless noted otherwise)	Aquatic Life		Other (D)rinking (H)uman Health (I)rrigation (S)tock
	Acute	Chronic	
Aluminum	750	87	5000(I)
Arsenic	340	150	10(D) 100(I) 50(S)
Cadmium[1]	0.62	0.11	5(D) 10 (S,I)
Chlorides (mg/L)	860	230	—
Chromium, III	670	32	—
Chromium, VI	16	11	50 (S)
Copper[1]	4.5	3.3	1300 (H) 200 (I)
Cyanide[2]	22	5.2	200 (D) 700 (H)
Iron	—	1000	5000 (I)
Lead[1]	17.5	0.68	5000 (I) 50 (S)
Manganese	—	---	50 (H) 200 (I)
Mercury	2.4	0.012	0.14
Nickel[1]	168.6	18.7	610 (H) 200 (I)
Selenium	20	5	50 (D) 170 (H) 20 (I) 10 (S)
Silver[1]	0.51	---	—
Zinc[1]	43	43	2000 (I) 9100(H)
TDS	Shall not exceed 500 mg/L		—
Sulfates	Shall not exceed 250 mg/L		—

Footnotes:

1. Hardness based standards at H = 29.82 mg/L
2. Free cyanide is measured as weak acid dissociable (WAD).

Some criteria are expressed as a function of hardness (measured in mg/L of calcium carbonate - $CaCO_3$). As the hardness of the receiving water increases, the toxicity decreases and the numerical value of the criteria increases. Because a mixing zone is not allowed where it could have an adverse impact on anadromous or resident fish spawning [18 AAC 70.250(2)(A)], the 5^{th} percentile receiving water hardness of 29.82 mg/L $CaCO_3$ was used to determine the criteria for the hardness-based metals indicated in Table B-2.

2.1.2. Reasonable Potential Evaluation

A reasonable potential analysis was performed to verify the need for limits. This analysis compares the maximum projected effluent concentration (C_e) to the standard for that pollutant. If the projected effluent concentration exceeds the standard, there is "reasonable potential" (RP) and a limit must be included in the permit. DEC uses the recommendations in Chapter 3 of the TSD to conduct this analysis.

The maximum projected effluent concentration (C_e) is defined by the TSD as the 99^{th} percentile of the effluent data. This is calculated by multiplying the maximum reported effluent concentration by a reasonable potential multiplier (RPM). Pogo is a new source and in 2004, no effluent had been discharged so modeling was done to determine the probable effluent characteristics for the RP evaluation performed for the 2004 permit. During the reissuance of this permit, the maximum value of the actual effluent data will be used to reanalyze the RP. For parameters with technology-based effluent limitations guidelines, the maximum effluent concentration used to determine the RP is the technology-based maximum daily limitation. The technology-based limits are used since water quality-based limits are only required if discharges at the technology-based limits have the RP to exceed water quality standards in the receiving water. The RPM accounts for uncertainty in the effluent data. The RPM statistically depends upon the amount of effluent data and the variability of the data as measured by the coefficient of variation (CV) of the data set. The RPM decreases as the number of data points increases and the variability of the data decreases. If the maximum projected effluent concentration is greater than the applicable water quality criterion then a water quality-based effluent limit is required.

Table B- 3: Reasonable Potential Determination

Parameter (in µg/L unless otherwise noted)	Maximum Effluent Concentration	Number of Samples	CV	RPM	Maximum Projected Effluent Concentration	Reasonable Potential (when compared with Standards in Table B-2)
Arsenic	1.73	257	0.73	1.2	2.0	No
Cadmium[1]				1.0	100	Yes
Cadmium	0.18	258	1.014	1.21	0.2	Yes
Chromium[2]	2.12	258	0.912	1.19	2.5	No
Copper[1]				1.0	300	Yes
Copper	5.0	250	0.6	1.14	5.7	Yes
Cyanide[3]	30.9	514	1.19	1.0	30.9	Yes
Lead[1]				1.0	600	Yes
Lead	0.894	259	1.093	1.22	1.1	Yes
Manganese	41.8	258	0.731	1.16	48.3	No
Mercury[1]				1.0	2	Yes
Mercury	0.0054	259	0.995	1.2	0.007	No
Nickel	5.0	258	1.369	1.26	6.3	No
Sulfate (mg/L)	43	258	0.232	1.05	45.2	No
TDS (mg/L)	149.0	258	0.155	1.04	154.2	No
Zinc[1]				1.0	1500	Yes
Zinc	13.4	259	1.033	1.21	16.2	No

Footnotes:

[1] Metals with technology-based effluent guidelines.
[2] These values are reported as total chromium but the comparison is to chromium VI. Even if all the chromium reported was chromium VI, there would be no reasonable potential to violate the Cr VI standard.
[3] Since the maximum value for WAD cyanide exceeds the criteria, there is reasonable potential to violate the standard without determining an RPM.

2.1.3. Water Quality-Based Permit Limitation Derivation

Once DEC has determined that a water quality-based limitation is required for a pollutant, the first step in developing the permit limitation is development of a Wasteload Allocation (WLA) for the pollutant. A WLA is the concentration (or loading) of a pollutant that the permittee may discharge without causing or contributing to an exceedence of water quality standards in the receiving water. WLAs and permit limitations are derived based on guidance in the TSD. WLAs for this permit were established based on meeting water quality standards at the end-of-pipe using the WQS. The WLAs used to determine the permit limitations are equal to those used to calculate the previous effluent limitations.

The acute and chronic WLAs are then converted to long term average concentrations (LTAs) and compared. The most stringent LTA concentration for each parameter is statistically converted to effluent limitations. This section describes each of these steps.

Calculations of WLAs:

Where no mixing zone is allowed, the standard becomes the WLA. Establishing the standard as the WLA ensures that the permittee does not contribute to an exceedence of the standard.

The NPDES regulations require that metals limits be expressed as total recoverable (TR) metals [40 CFR 122.45(c)]. This is because changes in water chemistry as the effluent and receiving water mix could cause some of the particulate metal in the effluent to dissolve. Because the WQS are expressed in dissolved, a translator is used in the WLA equation to convert the dissolved criteria to total recoverable. Since the State has not proposed translators in the recent revision to the WQS and there are no site-specific translators, the default of 1/CF where CF is the conversion factor in the WQS is used.

the WLA (TR) = the standard (diss) * the translator.

The WQS are expressed as a total recoverable number or an equation multiplied by a conversion factor (CF). Since the default translator is 1/CF, the equation becomes:

WLA (TR) = CF* standard (TR) * 1/CF
WLA (TR) = standard (TR).

Calculations of Long-term Average (LTA) Concentrations:

As discussed above, WLAs are calculated for each parameter for each standard (acute, chronic). Because standards are based on different criteria which apply over different time frames, it is not possible to compare them or the WLAs directly to determine which results in the most protective limits. For example, acute criteria are applied as a one-hour average, while chronic criteria are applied as a four-day average.

To allow for comparison, the acute and chronic WLAs are statistically converted to LTA concentrations. The conversion is dependent upon the coefficient of variation (CV) of the effluent data and the probability basis used. The probability basis corresponds to the percentile of the estimated concentration. DEC uses a 99^{th} percentile for calculating LTA, as recommended in the TSD. The following equation from Chapter 5 of the TSD is used to calculate the LTA concentrations (Table 5-1 of the TSD may also be used).

$$LTA = WLA * \exp[0.5\sigma^2 - z\sigma]$$

Where:
$\sigma^2 =$ $\ln(CV^2 + 1)$ for acute WLA, and

σ^2 = $\ln(CV^2/4 + 1)$ for chronic WLA
CV= the coefficient of variation (see Table B-3)
Z = 2.326 for the 99^{th} percentile probability basis (TSD)

Calculation of Effluent Limitations:

The LTA concentration is calculated for each WLA and compared. The most stringent LTA concentration is then used to develop the maximum daily limitation (MDL) and the average monthly limitation (AML) to be used in the permit. The MDL is based on the CV of the data and the probability basis while the AML is dependent upon these two variables and the monitoring frequency. As recommended in the TSD, DEC used a probability basis of 95 percent for the AML calculation and 99 percent for the MDL calculation. The MDL and AML are calculated using the following equations from the TSD (Table 5-2 of the TSD may also be used).

$$MDL \text{ or } AML = LTA * \exp[z\sigma - 0.5\sigma^2]$$

For the MDL: $\sigma^2 = \ln(CV^2 + 1)$
$z = 2.326$ for the 99^{th} percentile probability basis (TSD)

For the AML: $\sigma^2 = \ln(CV^2/4 + 1)$
$z = 1.645$ for the 95^{th} percentile probability basis (TSD)

For setting water quality-based limits for protection of human health (Manganese), the TSD recommends setting the AML equal to the WLA then calculating the MDL. The human health MDL is calculated based on the ratio of the AML and MDL as described in Table 5-3 of the TSD.

Appendix D shows an example of the WLA, LTA, and permit limitation calculations for copper in outfall 001.

2.2. Total Dissolved Solids (TDS)

The WQS require that the level of TDS not exceed 500 mg/L and the level of neither chlorides nor sulfates may exceed 250 mg/L.

The maximum value measured in the effluent over the period from July 2005 to December 2009 was 149 mg/L. The maximum projected effluent concentration is 154 mg/L. Since this level does not exceed the WQS, there is no reasonable potential to violate the standard and no effluent limitation is required. Effluent monitoring for TDS will still be required but at the reduced frequency of monthly.

2.3. Turbidity

The most protective standard for turbidity is for the water supply use for drinking, culinary and food processing. The turbidity may not exceed 5 nephelometric turbidity units (NTU) above natural conditions. Natural conditions, as defined in 18 AAC 70.990(42), means any physical, chemical, biological, or radiological condition existing in a waterbody before any human- caused influence on, discharge to, or addition of material to the waterbody. The measure of the natural condition of the Goodpaster River is upstream of the discharge at a point where the river is not influenced by the presence of the mine development. This point could be immediately upstream of the intake to the ORTW if this point is not influenced by any facility disturbance that may cause increased turbidity in the Goodpaster River.

2.4. Chromium

The most protective standard for Chromium is for the hexavalent form or Cr VI. The acute criterion is 16 µg/L and the chronic value is 11 µg/L. Sampling for Cr VI is challenging because the hold time is only 24 hours. The 2004 permit contained limitations for Cr VI based on the projected effluent quality from the modeling but only required that Cr VI be analyzed if the total Chromium levels were greater than 11 µg/L. The data collected for total Chromium during the 2004 permit cycle shows that even if all the Chromium found in the effluent was Cr VI, there would be no reasonable potential for the effluent to exceed the criteria. DEC removed the limitations and monitoring for Cr VI and the monitoring requirements for total Chromium because there is no reasonable potential to exceed the criteria so limitations are not warranted.

2.5. pH

The WQS require a pH range of 6.5 - 8.5 standard units for waters protected for aquaculture, water supply and contact recreation.

3. Summary of Permit Effluent Limitations

As discussed in Section 5.1. of the fact sheet, the permit contains the more stringent of technology and water quality-based effluent limitations. The water quality-based limits are more stringent than the technology-based limits for the metals of concern and have therefore been included in the permit.

3.1. Effluent Limitations & Monitoring Requirements for Outfall 001

Table B-4 contains the effluent limitations and monitoring requirements contained in this permit. The above calculations to determine reasonable potential show that limitations are not required for the following parameters: Total Chromium, Chromium VI, and Nickel. Limitations and monitoring for these parameters have been removed from the permit.

Some parameters that show no reasonable potential in the above calculations still are required to be monitored in the permit. These include: arsenic, manganese, total dissolved solids, sulfates and turbidity.

Changes in the monitoring requirements are based on the reasonable potential evaluation. Monthly monitoring is for those parameters that have no effluent limitations except for WET which contains annual monitoring. Parameters that have no reasonable potential to violate WQS but are required to be included in the permit because they are contained in the ELG have monthly monitoring as well. Any parameter showing a reasonable potential to violate WQS will continue to be monitored weekly.

Table B- 4: Effluent Limitations & Monitoring Requirements Outfall 001

Parameter	Units	Effluent Limitations		Monitoring Requirements	
		Maximum Daily	Average Monthly	Sample Frequency	Sample Type
Arsenic[1]	ug/l	---	---	Monthly	Grab
Cadmium[1]	ug/l	0.2	0.1	Weekly	Grab
Copper[1]	ug/l	4.5	2.2	Weekly	Grab
Cyanide[2]	ug/l	6.9	4.7	Weekly	Grab
Lead[1]	ug/l	1.3	0.5	Weekly	Grab
Manganese[1]	ug/l	88.0	50.0	Monthly	Grab
Mercury[3]	ug/l	0.02	0.01	Monthly	Grab
Zinc[1]	ug/l	43.0	16.8	Monthly	Grab
TDS	mg/l	---	---	Monthly	Grab
Turbidity, effluent	NTU	---	---	Monthly	Grab
Turbidity, natural condition	NTU	---	---	Monthly	Grab
Sulfates	mg/l	---	---	Monthly	Grab
pH	s.u.	6.5 to 8.5		Weekly	Grab
Outfall Flow	gpm	15,600	---	Continuous	Recording
Hardness, as $CaCO_3$	mg/l	---	---	Weekly	Grab
Chronic Whole Effluent Toxicity	TU_c	---	---	Annual	Grab

Footnotes:
1. These parameters must be analyzed and reported as total recoverable.
2. Free cyanide is analyzed and reported as weak acid dissociable (WAD)
3. Mercury must be analyzed and reported as total.

The flow limitation found in Table 1 of the permit does not apply to outfall 001 if the facility has not discharged effluent into the ORTW for 72 hours. At this time, the water flowing through the ORTW should consist of river water alone so there is no need to limit the flow in the system.

3.2. Backsliding

Under the anti-backsliding provisions of the Act, any limit in a reissued permit must be at least as stringent as the previous limit unless a change meets one of the exceptions listed in CWA § 402(o)(2):

> 402(o)(2) EXCEPTIONS — A permit with respect to which paragraph (1) applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if —
>
> (A) material and substantial alterations or addition to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;
>
> (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or
>
> (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B).
>
> (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
>
> (D) the permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
>
> (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the current permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the current effluent limitation, in which case the limitation in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).
>
> Subparagraph (B) shall not apply to any revised waste load allocations or any alternative grounds for translating water quality standards into effluent limitation, except where the cumulative effect of such revised allocations results in a decrease in the amount of pollutants discharged into the concerned waters and such revised allocations are not the result of a discharger eliminating or substantially reducing its discharge of pollutants due to complying with the requirements of this Act of for reasons otherwise unrelated to water quality.

The changes in the permit's effluent limitations are the result of the collection of information to characterize the effluent. The information used to calculate the limits for the 2004 permit was based on theoretical information on the efficacy of the treatment plant and ORTW which provided projections of the final effluent characteristics. The limitations developed for this permit are based on the analysis of actual effluent that has been treated within the system. Any changes in the effluent limitations are based on the collection and statistical analysis of this new information and, if the limitations increase or show no reasonable potential and are no longer necessary, backsliding is allowed per CWA 402(o)(B)(i). This is true only if the Wasteload Allocations (WLASs) relied on are the same as those previously used to calculate effluent limitations. The WLAs used to calculate the effluent limitations for this permit are the same as those used in the 2004 permit. DEC may elect to reissue the permit with the 2004 effluent limitations except where a WLA has become more stringent.

Appendix C: Example Water Quality-Based Effluent Limitation Calculation

This appendix demonstrates how the water quality-based analysis (reasonable potential determination and development of effluent limitations) was performed using copper at Outfall 001 as an example.

Step 1: *Determine the applicable water quality standard.*

Table C- 1: Copper Criteria

Parameter	Acute standard	Chronic standard	Human Health Standard	Drinking Water Standard
Copper*, ug/L	4.48	3.3	1300	---
* these standards are already translated from the dissolved standard to a total recoverable standard				

Step 2: *Determine if there is reasonable potential for the discharge to exceed the standard.*

To determine reasonable potential, the maximum projected effluent concentration, when no mixing zone is authorized, is compared to the applicable water quality standards. If this exceeds the standard, then a reasonable potential exists and a water quality-based effluent limit is established.

Since copper is a technology-based effluent limit, the following equation applies:

300 * RPM (reasonable potential multiplier) = 300 * 1 =300 ug/L

If this had been based on a water quality-based limit, the following calculations apply where:

$P_n = (1 - \text{confidence level})^{1/n} = (1 - 0.99)^{1/250} = 0.982$

Where P_n is the percentile represented by the highest concentration in the data set
the confidence level is the 99^{th} percentile = 0.99
n = the number of samples = 250

$RPM = C_{99}/C_{0.982} = \exp(z_{0.99}\sigma - 0.5\sigma^2) / \exp(z_{0.982}\sigma - 0.5\sigma^2)$

Where $z_{0.99} = 2.326$ for 99^{th} percentile probability basis
$\sigma^2 = \ln(CV^2 + 1) = \ln(0.598^2 + 1) = 0.306 \quad \sigma = 0.553$
$z_{0.982} = 2.097$ for 98.2^{th} percentile probability basis

$RPM = \exp[(2.326*0.553) - (0.5*0.306)] / \exp[(2.097*0.553) - (0.5*0.306)]$
$= 1.14$

The maximum measured effluent value is 5.0 so the calculated maximum effluent value is 5.0 * 1.14 = 5.7. Since this value exceeds the copper criteria of 3.32 ug/L, the effluent from Outfall 001 has the reasonable potential to exceed the copper water quality standard therefore, water quality-based limitations are required.

Step 3: *Determine the wasteload allocation.*

The wasteload allocations (WLAs) for cadmium are equal to the standards:

WLA			
Acute	4.48	Chronic	3.32

Step 4: *Develop long-term average (LTA) concentrations.*

Effluent limitations are developed by converting the aquatic WLAs to LTAs. The most stringent of the acute or chronic LTA is then used to develop the effluent limitations.

$LTA = WLA * \exp[0.5\ \sigma^2 - z\sigma]$

where,

z = 2.326 for 99th percentile probability basis (per the TSD)
CV = 0.598
For acute: $\sigma^2 = \ln(CV^2 + 1) = \ln[(0.598)^2 + 1] = 0.306$ $\sigma = 0.55$
For chronic: $\sigma^2 = \ln(CV^2/4 + 1) = \ln[(0.598)^2/4) + 1] = 0.086$ $\sigma = 0.29$

LTA		
Acute	4.48*exp[(0.5*0.306) – (2.326*0.55)] =	1.45
Chronic	3.3*exp[(0.5*0.086) – (2.326*0.29)] =	1.75

The most stringent LTA concentration (acute) is used to derive the aquatic life effluent limitations for copper for outfall 001.

Step 5: *Develop effluent limitations*

The acute LTA concentration is converted to a maximum daily limit (MDL) and an average monthly limit (AML).

$MDL, AML = LTA * \exp[z\sigma - 0.5\sigma^2]$

where, for the MDL:
z = 2.326 for 99th percentile probability basis (per the TSD)
σ^2, σ See acute, above

for the AML:
z = 1.645 for the 95th percentile probability basis (per the TSD)
σ^2,σ See chronic, above
n = number of samples per month = 4

$MDL = 1.45 * \exp[z\sigma - 0.5\sigma^2] = 1.45 * \exp[2.326*0.55 - 0.5*0.306] = 4.47$

$AML = 1.45 * \exp[z\sigma - 0.5\sigma^2] = 1.45 * \exp[1.645*0.29 - 0.5*0.086] = 2.24$

Appendix D: Response to Comments

Responses to Comments

During the public comment period which began on October 27, 2010 and ended on November 26, 2010, EPA and DEC received 12 written comments on the Pogo NPDES draft permit and Clean Water Act (CWA) § 401 Certification from Sumitomo Metal Mining Company LLC (SMM), the Center for Science in Public Participation (CSP^2), and the Resource Development Council (RDC).

In reviewing the draft permit package, DEC discovered a discrepancy between the fact sheet and draft permit on the pH sampling type and frequency. The draft permit included continuous recording while the fact sheet contains weekly grab samples. Table 1 of the final permit requires weekly grab samples. In addition, Footnote 7 contains the reporting requirements for continuous monitoring so reporting of any additional monitoring under Permit Appendix Part 3.3 can be reported correctly.

Commenter, comments, and responses follow.

1. Comment: SMM requested that the final permit be reformatted into APDES format to remove references to EPA and federal citations to avoid potential confusion in permit requirements.

Response: *DEC reformatted the final permit which was the intent expressed by the language in the fact sheet stating, "Because of the timing of the public notice of this permit, it will be issued as an APDES permit and as such, may be presented in a different format than that noticed by EPA although all required elements will be present."*

2. Comment: SMM requested that the final permit be revised to clarify that flow limitations and weekly sampling do not apply at outfall 001 if there are no discharges at outfall 011.

Response: *DEC and EPA do not usually require monitoring when no discharge is occurring. The facility arrangement at Pogo with the off-river treatment works complicates this matter. To allow for the holding time in the pond plus a residual safety factor, sampling will not be required if a routine sample is scheduled 72 hours after the last discharge from outfall 011. For example, if weekly sampling occurs on Mondays and the last discharge from outfall 011 was on a Thursday, sampling would not be required on the following Monday. However, the facility must sample within 36 hours once the discharge recommences even if the discharge stops within the 36 hours. For example, if the facility starts discharging on a Tuesday, routine weekly sampling would be missed. If the discharge were to stop by Thursday, no sampling would capture this discharge event. In this case, a sample would be taken by Thursday to account for this discharge event even if the discharge has ceased. This is reflected in Footnote 8 of Table 1.*

3. Comment: SMM commented that the daily visual monitoring provision for floating solids, visible foam, or oily wastes should be clarified to indicate that monitoring is only required if there is a discharge. For outfall 001, the monitoring should not be required when sampling is not, see Comment 2.

Response: *Monitoring is not required if a discharge is not occurring. The final permit clarifies this for outfall 002 in Table 3 but does require a sample within 24 hours of the discharge recommencing. For outfall 001, see Response #2.*

4. Comment: SMM requested an increase in holding time for fecal coliform bacteria samples because of the distance from the mine to the laboratory stating that 40 CFR 136.3 gives EPA the flexibility to do this.

Response: *In the fact sheet, EPA admitted that it erred in authorizing a longer holding time than allowed under 40 CFR 136 in the previous permit. While 40 CFR 136.3 does give EPA some flexibility, it does not do so without a process. SMM should apply for a variance as required by 40 CFR 136.3(e) providing the necessary data at that time rather than on a sample-by-sample basis as seemed to be proposed in the comment. Footnote 1 in Table 3 of the final permit indicates that if a variance is approved, it will be applicable to samples from that date forward.*

5. Comment: SMM asked that the final permit clarify how the percent removal for TSS and BOD are calculated for outfall 002.

Response: *Percent removal is calculated using the following equation:*

$$((\text{influent} - \text{effluent}) / \text{influent}) \times 100$$

Since influent samples are only required on a quarterly basis, the Permittee should use the effluent sample taken at the same time as the influent sample when calculating percent removal. If more than one influent sample is taken, the number of effluent samples corresponding to the number and timing of the influent samples are used in the calculation. If more than one sample is taken, the arithmetic mean of both the influent and effluent samples are used in the calculation. This information has been added to Permit Part 1.3.5.

6. Comment: SMM requested that the provision for natural conditions from the previous permit be included in the new permit.

Response: *The natural condition provision for lead and mercury was included in the previous permit based on the presence of these substances above their respective criterion once each during the seven years of pre-mining sampling. During the five years of the previous permit cycle, the receiving water did not exceed the criteria for either of these parameters. Since the waterbody is not of lower quality than the criterion set out in 18 AAC 70.020, a natural condition is no longer applicable. SMM may continue to monitor the upstream point for these parameters to provide an affirmative defense should a violation of an effluent limitation occur.*

7. Comment: SMM requested a natural condition provision be included in the permit for pH.

Response: *Even though the pH in the Goodpaster River has, at times, been outside the pH range expressed in the WQS, authorizing a natural condition provision is a Site Specific Criterion (SSC) and must follow the SSC process. DEC would have to propose the SSC for public notice either through a permit action or as a separate WQS action, take comments, respond to those comments and prepare the final criterion for submission to EPA for review and approval.*

8. Comment: SMM stated that, based on the reasonable potential (RP) analysis, the effluent limitations for manganese, mercury and zinc should be eliminated from the final permit.

Response: *The limitations for manganese have been reviewed and EPA should not have included a limitation in the draft permit because there is no RP to violate the WQS. However, monitoring will still be required on a monthly basis. The effluent limitations for mercury and zinc cannot be removed because, as explained in the fact sheet, the Effluent Limitation Guideline (ELG) applicable to the discharge contains these parameters. In the fact sheet, EPA calculated the RP for these two parameters based on the ELG then calculated the RP based on only the water quality data. The second method is only utilized in making determinations such as reduced monitoring. Table C-4 of the fact sheet contained monthly monitoring for both zinc and mercury based on this analysis. Table 1 of the draft permit only reflected the reduced monitoring for zinc. This discrepancy has been rectified in the final permit.*

9. Comment: SMM requested that the MDL for cyanide be included in the final permit.

Response: *The MDL discussed in the fact sheet was not carried forward into the permit. The MDL is required for reporting purposes under Permit Part 1.1.8., and the MDL for cyanide is listed in Permit Part 1.1.7.*

10. Comment: SMM commented that draft Permit Part II.D.3. is grammatically incorrect and confusing.

Response: *The language in what was the draft permit has been changed, and in APDES Permit Part 2.4.3, it has been replaced by language that should clearly and concisely reflect the requirement for an annual review of the BMP Plan by the BMP Committee, the requirement for a certified statement declaring that the review has been done and the intent of the permit has been met by the Plan, and the due date of the statement.*

11. Comment: CSP^2 commented that if EPA approves a site specific standard for cyanide, then EPA should verify that there is indeed interference in the samples, and the source of this interference, by testing these samples at its own laboratory before granting a significant increase in the standard at Pogo.

Response: *The permit does not propose a site specific standard for cyanide by providing a different method detection level (MDL) and minimum level (ML). The standard that is used in calculating the effluent limitation is the state-wide WQS used in the previous permit. SMM provided information as part of the EPA Compliance Order by Consent, and while the fact sheet may have oversimplified the explanation, the submitted information was reviewed by an EPA chemist and he stated that an ML of 20 µg/L is realistic given the information that was provided. EPA does not require that work on site specific MDL and MLs be performed by their own labs.*

12. Comment: The RDC expressed support of the reissuance of the Pogo permit.

Response: *Thank you for your comment.*