

AK-005334-1
Response to Comments

Teck-Pogo, Inc.
Pogo Mine
NPDES Permit

U.S. EPA, Region 10
February 2004

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Introduction

EPA received written comments on the issuance of the National Pollutant Discharge Elimination System (NPDES) permit for the Teck-Pogo, Inc.'s Pogo Mine from:

Native Village of Tanacross
Center for Science in Public Participation (CSP²)
Teck-Pogo, Inc. (Teck-Pogo)
Northern Alaska Environmental Center (NAEC)

A Public Hearing was also held in Delta Junction on April 29, 2003, and in Fairbanks on April 30, 2003. No oral comments were received on the NPDES permit during either hearing. Copies of the transcripts are part of the administrative record for the permit.

A Tribal Consultation meeting was held in Fairbanks on April 30, 2003. Although we did discuss water issues briefly, no oral comments were directed toward the NPDES permit. A copy of that transcript is included in the administrative record for the permit.

On August 14, 2000, EPA sent letters to the National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (USFWS) requesting a species list under the Endangered Species Act (ESA).

In a letter dated September 7, 2000, USFWS state that there are no threatened or endangered species in the project area so preparation of a Biological Assessment or further consultation regarding this project is not necessary unless the project plans changed or additional information on listed or proposed species becomes available.

On December 2, 2002, EPA sent a letter to NMFS requesting a current species list.

In a letter dated December 23, 2002, NMFS stated that no endangered species under their jurisdiction are likely to occur in the project vicinity.

A phone conversation between Elaine Gross of USFWS and Cindi Godsey of EPA confirmed that there have been no changes to the listed species in the project area. Ms Gross also confirmed that the USFWS decision on the Draft Environmental Impact Statement (DEIS) could be utilized for the NPDES) permit.

On March 19, 2003, EPA sent a copy of the draft NPDES permit and fact sheet to NMFS. The fact sheet contained the Essential Fish Habitat (EFH) determination that the issuance of the permit was not likely to have an adverse effect on EFH.

In a letter dated May 9, 2003, USFWS commented on the DEIS and stated that there were no threatened or endangered species in the project area.

In an e-mail to Elaine Gross, USFWS, dated October 17, 2003, Cindi Godsey, EPA, requested information on any changes to the species list.

An e-mail to Cindi Godsey, EPA, from Elaine Gross, USFWS, dated October 20, 2003, stated that there had been no change to the USFWS species list.

An e-mail to Cindi Godsey, EPA, from John Olson, NMFS, dated November 19, 2003, stated that there had been no change to the NMFS species list.

EPA approved the latest revision of the Alaska Water Quality Standards (WQS) on February 27, 2004.

On March 12, 2004, ADEC provided certification of this permit under Section 401 of the Clean Water Act (CWA).

List of Acronyms

ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
BMP	Best Management Practice
ADF&G	Alaska Department of Fish and Game
CFR	Code of Federal Regulations
cfs	cubic feet per second
CWA	Clean Water Act
DA	Department of the Army
DEIS	Draft Environmental Impact Statement
DO	Dissolved Oxygen
DMR	Discharge Monitoring Report
EFH	Essential Fish Habitat
ESA	Endangered Species Act
EPA	Environmental Protection Agency
gpd	gallons per day
gpm	gallons per minute
MDL	Method Detection Limit
ML	Minimum Level
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
QAP	Quality Assurance Plan
TSD	Technical Support Document for Water Quality-based Toxics Control
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WET	Whole Effluent Toxicity
WLA	Waste Load Allocation
WQS	Water Quality Standards

Response to Comments

1. Comment: The Native Village of Tanacross notes that the Method Detection Limit (MDL) for cyanide is less than the average monthly limit and asks how these numbers are used in calculations.

Response: The MDL for the total cyanide method is greater than the average monthly and assigning a value of zero would result in lower numbers than if actual values could be used. Since EPA has approved the state of Alaska's latest revision to the Water Quality Standards (WQS), the method for measuring cyanide will be in the permit as weak acid dissociable, not total cyanide.

2. Comment: The Native Village of Tanacross asks if the language in Permit Part I.B.4. stating that if the sample result is below the MDL then zero should be used in calculating an average, results in skewing the outcome of any calculation.

Response: For most parameters, the MDLs are expected to be less than the effluent limitations required in the permit, although this is not always the case. Using zero does change the outcome of what might have been had actual data existed and been used. There are several statistical methods that can be utilized for addressing values lower than the detection limit and the method using zero is utilized in NPDES permits issued by EPA, Region 10.

3. Comment: The Native Village of Tanacross expresses concern about juvenile fish in the stream when the dissolved oxygen allowed in the discharge from Outfall 002 is 2 mg/L while the WQS protecting fish is 5 mg/L.

Response: The limit is 2 mg/L because ADEC has authorized a mixing zone for the discharge from Outfall 002. The description of the mixing zone provided in the § 401 Certification describes the mixing zone 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 down stream end. The mixing zone includes the vertical extent of the water column from the water surface to, but not including, the riverbed.

According to the FEIS (page 4-39), this area is approximately 22 percent of the wetted stream width during a 2-year 3-day (3Q2) low-flow event. The discharge of domestic wastewater to the Goodpaster River is expected to

result in only localized measurable impacts to less than 7 percent of the design stream flow and to provide a zone of passage constituting 78 percent of the wetted stream width.

4. Comment: The Native Village of Tanacross states that the DMR compliance level for chlorine in Permit Part I.C.5. is 50 times higher than the effluent limit and requests that this discrepancy be reconciled.

Response: Measuring the amount of chlorine in water is accomplished by using either EPA Method 330.3 or 330.4. Neither of these methods is sensitive enough to achieve results as low as the limit specified in the permit nor is there a method available that can. Sometimes the development of criteria is done on an extrapolation or dilution basis rather than on actual measures of constituent levels showing an effect on aquatic life. Because of this methodology, this can result in criteria less than what can be measured in a water sample in laboratories. It is the policy of Region 10 to incorporate the ML specified in an approved method as the compliance level if the limit is below the MDL. The ML for both of the above EPA Methods is 0.1 mg/L and is the lowest ML available for an approved method so it is used in the permit as the compliance level

5. Comment: The Native Village of Tanacross comments that there may be an "out" for the Pogo Mine to request different MDLs. The Village asks if EPA and ADEC would do this without public input.

Response: EPA and ADEC would consider the scientific validity of the request for different MDLs but do not solicit public input on the final decision.

6. Comment: The Native Village of Tanacross asks if EPA will be approving the Quality Assurance Plan (QAP) and in a related question asks if any modification to the QAP would be approved by EPA and ADEC.

Response: Permit Part I.F. states:

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.

EPA, Region 10, will conduct the review of the QAP and approve it if it is adequate and disapprove it, with suggestions to improve the plan, if it is not adequate. According to the permit language, this includes modifications.

Some of the QAP language has been revised in the final permit. Permit Part

I.F.3. was removed since permit part I.F.2. already requires that the QAP be prepared as specified in the guidance documents and the guidance documents specify the information that was contained in permit part I.F.3.

7. Comment: The Native Village of Tanacross asks if there is opportunity for consultation on the BMP Plan. In a related comment, the Native Village of Tanacross asks what the process is to review Discharge Monitoring Reports (DMRs).

Response: The NPDES Permits Unit Tribal Consultation Plan does not provide for consultation in reviewing documents, such as the Best Management Practices (BMP) Plan, required of the permittee. However, upon request, EPA can assist others in obtaining access to permitting information, including BMPs, QAPs and DMRs.

8. Comment: CSP² and NAEC question the lack of an arsenic limitation in the permit especially in consideration that arsenic is a primary contaminant in the orebody. The commentors suggest that the percent removal for arsenic in the treatment plant of 99.44% (based on an input value of 5,360 ug/L and an output value of 30 ug/L from the Water Management Plan Supplement, June 2002) has yet to be demonstrated.

Response: The water from the facility would be treated in one of two treatment plants before discharge. The existing treatment plant will remain underground and the new 400 gpm plant will be built on the surface near the existing 1525 portal. The water treatment plants will use two processes to remove contaminants from the water before discharge. A high density sludge process will enhance co-precipitation of metals, including arsenic. A lime-softening and recarbonation process will remove calcium and magnesium and thereby reduce total dissolved solids. Sulfide precipitation, which will precipitate heavy metals . . . would be available as a contingent if additional treatment were necessary (Section 2.3.10 of the FEIS).

Since the existing treatment plant employs the same treatment processes as the new plant, EPA has evaluated the removal efficiencies of that plant. The percent removal data ranges between 92.11% to 98.85%. The 5th percentile of the data set is 96.30%. Using this as a conservative estimate of what the new plant capabilities are, the effluent from the treatment plant would be 198 ug/L.

$$\frac{5360 - x}{5360} = .963 \times = 198$$

Using 198 ug/L as the input to the off-river treatment works would give 1 part water at 198 ug/L mixed with 25 part of receiving water at 0.4 ug/L (the 95th percentile of the data provided by ambient monitoring points upstream of the

proposed mine), the concentration at Outfall 001 is projected to be:

$$1(198) + 25(0.4) = 26x \quad x = 8 \text{ ug/L}$$

To calculate whether there is a reasonable potential for arsenic to violate the WQS at the outfall, the projected effluent is multiplied by a reasonable potential multiplying factor which, in this case, is 13.2.

$$13.2 \times 8 = 105.6$$

Since this number is above the human health criteria of 50 ug/L, there is a reasonable potential to violate the arsenic criteria so an arsenic effluent limitation will be included in the permit. The effluent limitation will be based on the standard of 50 ug/L being used as a human health standard as well as the wasteload allocation (WLA). Where the limit is based on human health criteria, the Technical Support Document for Water Quality-based Toxics Control (TSD) recommends setting water quality-based limits as follows:

- Set the Average Month Limit equal to the WLA
- Calculate the Maximum Daily Limit based on effluent variability and the number of samples per month using the multipliers provided in Table 5-3 of the TSD. In this case, the number of samples per month will be 4 and the Maximum Daily uses a 99th percentile while the 95th is used for the Average Monthly. The multiplier will be 2.01. Therefore,

$$\text{Average Monthly Limit} = 50 \text{ ug/L}$$

$$\text{Maximum Daily Limit} = 2.01 \times 50 = 100.5 \text{ ug/L.}$$

9. Comment: CSP² and NAEC recommend that the sampling frequency for iron at Outfall 011 should be weekly, the same as metals monitored at outfall 001, since Outfall 011 is the only location where this parameter is monitored.

In a related comment, Teck-Pogo notes that the technology-based effluent limitations at 40 CFR 440.104(a) do not include iron so the effluent limitation for iron should be removed from Table 2 but monitoring for iron should still remain. The commentor also notes that some iron removal is expected in Pond 2 of the off-river treatment works and the impact of iron on the environment is expected to be low (page 4-45 of the DEIS).

Response: Parameters not included in the technology-based effluent limitation guidelines are included because of water quality concerns. Iron shows a reasonable potential to violate the aquatic life criteria of 1 mg/L (1000 ug/L) so a limit on the amount of iron discharged is appropriate. EPA has considered the potential for the Goodpaster River concentrations of iron

to exceed the criteria by placing the permit limitation for iron at the internal wastestream monitoring point, Outfall 011, rather than at Outfall 001.

CSP² and NAEC are correct that Outfall 011 is the only point where iron is monitored. The monitoring frequency will be increased to weekly but after 2 years, the frequency may revert to quarterly if EPA and ADEC determine that there has been consistent compliance with the permit limits.

10. Comment: CSP² notes that Table 1 of the draft permit contains a nickel effluent limit while the same limit is not contained in Table C-3 of the Fact Sheet.

Response: The draft permit in this case is correct, nickel was inadvertently left out of the table in the Fact Sheet. Since there is a reasonable potential for nickel to violate the water quality criteria (Table C-2 of the Fact Sheet), an effluent limitation remains in the permit.

11. Comment: NAEC states that an NPDES permit is required for the disposal of tailings and development rock in Liese Creek valley wetlands.

Response: Changes to the dry stack tailings plan have taken place after the applicant's preferred alternative was described in Chapter 2 section 2.3 of the DEIS. The applicant's Department of Army (DA) permit application submitted to the Corps of Engineers (Corps) details these changes which may be found in the DA Public Notice of the permit application found in Appendix B of the FEIS. The applicant has proposed to the Corps to strip the organic wetlands, and place an under drain system of non-mineralized rock, prior to the placement of any tailings. The Corps regulates the placement of dredge and or fill material into waters of the United States. Mechanized land clearing of wetlands is a discharge of fill material into those waters. Land clearing operations involving vegetation removal with mechanized equipment such as front-end loaders, backhoes, or bulldozers with sheer blades, rakes, or discs in wetlands; or windrowing of vegetation, land leveling, or other soil disturbances in wetlands are considered placement of fill material under Corps jurisdiction. The Corps considers the mechanized land clearing a regulated activity. The placement of non-mineralized waste rock back into the area from which the wetlands were cleared will also be regulated as part of the placement of fill material into waters of the United States. See Appendix B for the cubic yards of non-mineralized rock fill to be placed into waters of the US. A Department of Army permit may only be issued after the DA permit application is reviewed by ADEC and Teck-Pogo Inc. obtains a Certificate of Reasonable Assurance, or waiver of certification, as required by Section 401(a)(1) of the Clean Water Act. ADEC must certify that the water quality standards of the State of Alaska will not be violated. This under drain system will convert the wetlands

to uplands. The dry stack tailings will be placed onto the under drain system, which the Corps considers an “upland”. The Corps does not regulate fill placement in “uplands”. There is no Corps 404 CWA permit required for the placement of dry stack tailings. The dry stack tailings require a solid waste permit from ADEC. There is no discharge from the dry stack disposal into waters of the United States. An EPA NPDES permit for the discharge of tailings is neither appropriate nor required. The seepage collected from the dry stack will be directed from the under drain system to the Recycle Tailings Pond (RTP). All effluent discharges from the RTP must pass through the onsite treatment facility. All water discharged from the treatment facility would be subject to effluent limits and other provisions of a NPDES permit.

12. Comment: Teck-Pogo suggests that the chromium sampling protocol is problematic because every sample for total chromium would need to be analyzed as if it were a chromium VI (Cr VI) sample.

Response: The wording of footnote 5 in Table 1 of the draft permit did not express the intent behind the requirement. The intent was that if total chromium did exceed the numeric value of the chronic aquatic life criteria for Cr VI, then another sample, which would coincide with the next weekly sample after receiving laboratory results, would be taken and analyzed for Cr VI. The chronic aquatic life is 11 ug/L not 8 ug/L as indicated in the draft permit.

13. Comment: Teck-Pogo states that weekly effluent sampling is excessive in the long term and would like to see sampling frequency decrease to monthly after 2 years if the discharge has been in compliance for 6 consecutive months.

Response: Major facilities throughout the state of Alaska, including other mines, have weekly monitoring requirements even though they have been operating for many years. Monitoring and prompt reporting are integral parts of determining compliance with the NPDES permit.

14. Comment: Teck-Pogo is concerned that the requirement in the permit to analyze for and report metals as total recoverable instead of dissolved is not what was expected when the 2002 revisions to the Water Quality Standards were approved by the State to change the metals criteria from total recoverable to dissolved. The commentor suggests adding a footnote to Tables 1 and 2 stating that:

“These parameters shall be collected and analyzed as dissolved, then converted by the appropriate translator and reported as total recoverable.”

Response: With few exceptions, effluent limits must be expressed in terms of total recoverable metal, not dissolved metal. 40 CFR 122.45(c) states that “All permit effluent limitation, standards, or prohibitions for a metal shall be expressed in terms of “total recoverable metal” as defined in 40 CFR Part 136 unless:

- (1) An applicable effluent standard or limitation has been promulgated under the CWA and specifies the limitation for the metal in the dissolved or valent or total form; or
- (2) In establishing permit limitations on a case-by-case basis under 125.3, it is necessary to express the limitation on the metal in the dissolved or valent or total form to carry out the provisions of the CWA; or
- (3) All approved analytical methods for the metal inherently measure only its dissolved form (e.g., hexavalent chromium).”

While it is EPA policy that water quality criteria for aquatic life be expressed as dissolved, and that is true for the Alaska water quality criteria cited in the comment, the NPDES regulations, cited above, require that all permit effluent limitations for metals be expressed in terms of total recoverable metals. The first exception [40 CFR 122.45(c)(1)] is not applicable since it applies only where an “effluent standard or limitation has been promulgated under the CWA and specifies the limitation for the metal in the dissolved. . . form”. The Alaska water quality criteria for metals are expressed as dissolved, but the criteria themselves are not an “effluent standard or limitation”, rather they are water quality criteria. Therefore the expression of metals limits as total recoverable is retained in the final permit.

Teck-Pogo requests that metals be analyzed as dissolved and a translator be used to convert the data to total recoverable for reporting. As discussed above, the NPDES regulations require that metals be expressed as total recoverable as defined in 40 CFR 136. There is an exception to this requirement where approved analytical methods measure only the metals dissolved form [40 CFR 122.(c)(3)]. However, since there are 40 CFR 136 methods that measure the metals of concern as total recoverable (except chromium VI), EPA cannot allow for the use of dissolved metals measurements in this permit to determine compliance with effluent limits.

Translators are not used to convert dissolved effluent data to total for comparison to effluent limits, rather translators are used to calculate total recoverable water quality-based effluent limits for metals where the water quality criterion is expressed as dissolved. The translators convert the dissolved criterion to effluent limits expressed as total. Site-specific

translators are used where available; otherwise the water quality criterion conversion factor is used as the default translator. Site-specific translators are currently not available for the Pogo discharge. Teck-Pogo may develop such translators and apply to EPA to modify the permit to incorporate the translators into the effluent limit calculations. The most direct procedure for developing site specific translators is to measure the dissolved and total metals in the receiving water directly downstream of an ongoing discharge. Alternately, upstream receiving water and effluent can be mixed and the dissolved and total metals measured in the mixture to determine the translator. EPA's guidance document, "The Metals Translator: Guidance for Calculation a Total Recoverable Permit Limit from a Dissolved Criterion" (the Translator Guidance) provided guidance on how to develop translators. Although the Translator Guidance encourages the use of site-specific data, it does not preclude the use of a synthetic effluent in developing site specific translators (e.g., for new discharges such as the Pogo mine where there is no actual effluent data available). As stated above, Teck-Pogo could develop a plan to collect data and calculate translators for the Pogo discharge.

15. Comment: Teck-Pogo recommends that Footnote 3 of Table 1 be written more concisely to reference Permit Part III.G. instead of containing similar requirements and then referencing that Permit Part.

Response: Footnote 3 has been rewritten for the final permit and will state that "Reporting of a maximum daily limit violation is required according to Permit Part III.G."

16. Comment: Teck-Pogo requests that consideration be given to natural conditions that may exceed the criteria for some parameters some of the time.

Response: On August 28, 2003, ADEC received an application from Teck-Pogo requesting natural condition-based site specific criteria (NCBSSC) for the discharge at the Pogo mine. On September 12, 2003, ADEC signed a public notice. This notice was published in the Fairbanks Daily News Miner on September 19, 2003, and the Delta Wind on September 25, 2003. On March 4, 2003, ADEC submitted the NCBSSC to EPA for approval according to the April 7, 1997, letter approving the inclusion of this provision in the AWQS. On March 11, 2004, EPA approved the NCBSSC for the use of the natural condition as the criterion if the criterion is exceeded in the Goodpaster River for mercury and lead. The upstream monitoring point will be the same as that described in the fact sheet for monitoring upstream for turbidity:

"The measure of the natural condition of the Goodpaster

River will be 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 off-river treatment works if this point is not influenced by any facility disturbance that may cause increased turbidity in the Goodpaster River.”

ADEC, in its § 401 Certification of the permit, has designated the upstream point as NPDES 001b. The provision from the 401 Certification has been incorporated into the final permit.

17. Comment: Teck-Pogo requests deleting Permit Part I.A.6., the requirement for the outfall flow to not exceed 26 times the flow from the treatment plant. This request is made based on the off-river treatment works being a gravity flow system and its ability to provide residence time in case of a treatment plant upset and possible shutdown. Teck-Pogo further states that under normal circumstances, flow through the system will be controlled by monitoring flow in the water treatment plant effluent then controlling the pump between Pond 1 and Pond 2 to obtain the 25:1 ratio but if plant upsets or shutdowns occur, the permit should address these issues.

Response: EPA has modified Permit Part I.A.7. (formerly Permit Part I.A.6.) to better describe the desired result of achieving a specific ratio of dilution water with treatment plant flow as described in the comment. To account for extenuating circumstances, EPA has added the following language to this permit part:

Under extraordinary circumstances such as a system upset or unanticipated bypass, EPA and ADEC may authorize an increased dilution ratio to mitigate the impacts the upset or bypass would have on the Goodpaster River. In the event that no flow from the treatment plant was occurring, the dilution ratio would not apply because the flow from Pond 1 would not be diluting any flow from the treatment plant. In this case, the discharge from Pond 2 would be limited by the flow limit in Table 1, above.

EPA has authorized the use of flow augmentation for this project based on the facility’s expressed need for a certain level of dilution within the treatment system as was described in the Fact Sheet. To have no control on this dilution ratio

18. Comment: Teck-Pogo states that weekly sampling is atypical for domestic waste treatment facilities in Alaska and that 2 years is an excessive amount of time to prove successful commissioning of the treatment facility. The

commentor recommends that weekly sampling be required for 6 months followed by monthly sampling for an additional 6 months after which sampling frequency may be reduced to quarterly.

Response: While the commentor believes that weekly sampling is atypical for domestic waste treatment facilities, the requirement is contained in other NPDES permits for domestic wastewater facilities in Alaska. However, EPA will decrease the commissioning time of the domestic wastewater treatment plant to 1 year and when the facility has been in compliance with all of its effluent limitations at Outfall 002 for 6 consecutive months, the monitoring will reduce to monthly - the evaluation will occur after month 12 starting with the information from month 6. Quarterly monitoring is usually reserved for the smallest domestic wastewater facilities discharging less than 5,000 gallons per day (gpd). With a design flow of 72,000 gpd, Pogo's discharge cannot be classified as small so quarterly monitoring is not appropriate.

19. Comment: Teck-Pogo states that the sample frequency for fecal coliform is excessive given the critical 6 hour holding time. It is also noted that the holding time is much more stringent than the 30 hour fecal coliform holding time that is typical in many remote treatment plants operating under state permits in Alaska. The commentor suggests that TSS will be the controlling parameter in determining plant operating performance and only periodic fecal coliform sampling is necessary to develop a reasonable correlation with TSS and plant performance so that fecal coliform sampling should be monthly at first with a reduction to quarterly at some point during the permit life.

Response: The methods used to analyze for fecal coliform do allow a holding time up to 24 hours for routine sampling. The sampling frequency will coincide with that described in Response #18.

20. Comment: Teck-Pogo suggests that Permit Part I.C.5. should specify whether the compliance level is to be a daily maximum, a 7-day average or a 30-day average for chlorine if it is used for disinfection.

Response: The final 401 Certification of the permit states that the compliance level shall be a daily maximum. This level has been incorporated into Permit Part I.C.5.

21. Comment: Teck-Pogo recommends that Permit Parts I.D.1. and I.D.2.a. be clarified by specifying that toxicity testing be conducted on a single grab sample of effluent.

Response: EPA will reword Permit Part I.D.1. to clarify that the single sample taken for Whole Effluent Toxicity (WET) testing must be large enough so the sample can be split for the analysis of the chemical and physical parameters

required in Permit Part I.A.

Permit Part I.D.2.a. specifies that the timing of the WET sample shall coincide with the timing of the surface water monitoring. EPA does not see the relevance in specifying the sample type in this Permit Part.

22. Comment: Teck-Pogo notes that annual WET testing should be completed early enough each year to allow for follow-up accelerated testing to occur if necessary. The commentor recommends that the permit require that chronic testing be conducted once per year prior to August.

Response: Permit Part I.D.2.a. required that the annual WET testing be conducted during the summer quarter - June through August. This requirement gives the permittee the flexibility to conduct testing within a two month window prior to August. The required time frame was selected because there were more opportunities during summer (open water) season due to the increased sampling requirements for Surface Water Monitoring but EPA sees no reason that the timing could not be changed as long as all other conditions are met. The permit will now require that the WET testing be conducted annually before August.

23. Comment: Teck-Pogo requests clarification on which organism to use if no toxicity is observed during the screening period, suggesting that the requirement be to use the fat minnow as being more representative of the fish found in the Goodpaster River.

Response: EPA will clarify in Permit Part I.D.2.b. that if no toxicity is observed in either species during the screening period that further WET testing required by the permit will use the fathead minnow.

24. Comment: Teck-Pogo notes that Permit Part I.D.4. refers to I.B.6. and I.B.7 instead of I.D.6 and 7.

Response: The commentor is correct and these changes will be made to the permit.

25. Comment: Teck-Pogo requests that lab water for dilution in WET testing be required in Permit Part I.D.5.c.iii.

Response: This Permit Part already specifies that dilution water can be either lab water or receiving water so EPA does not find it necessary to modify this Permit Part.

26. Comment: Teck-Pogo comments that the draft permit states that an exceedance of the 2 TU_c target level results in the initiation of accelerated

testing to consist of four additional tests conducted every two weeks. Failure of any one of these accelerated tests results in the required initiation of a toxicity reduction evaluation (TRE). Teck-Pogo believes this requirement is not reasonable for the following reasons:

Integral to completion of a TRE are activities to identify the toxin(s) in question, generally accomplished through use of a toxicity identification evaluation (TIE). The successful completion of a TIE, and hence a TRE, requires the presence of consistent and persistent toxicity. It is very difficult, if not impossible, to successfully complete a TIE on an effluent that only exhibits sporadic toxicity since toxicity must be present during the TIE activities. Further, it is impossible to “reduce toxicity” when it is not present.

As such, any WET that exceeds the trigger should first lead to the initiation of efforts to establish a “pattern of toxicity” - i.e., the presence of consistent and persistent toxicity. Simply failing one of four accelerated test, especially at the threshold contemplated, does not confirm the presence of consistent and persistent toxicity that may be actually identified and/or reduced during the TIE/TRE studies. Therefore Teck-Pogo recommends that the permit should recognize that a pattern of toxicity can only be reliably established by failure of two consecutive accelerated tests.

Results of toxicity testing are to be reported as chronic toxic units (TU_C) which are to be calculated as $TU_C = 1/\text{No observed effect concentration (NOEC)}$. NOEC values are generally determined with an alpha level of 0.05, meaning that statistical significance (or lack thereof) is determined with 05% confidence. This leaves a 5% chance of detecting a false positive, or a test failure when no toxicity actually exists. Over the course of many tests, the cumulative chance of a false positive rises to near certainty.

The deficiencies in NOEC can often be remedied by calculating an inhibition concentration, or 25% reduction in organism performance, (IC_{25}) test statistic for each chronic test. The IC_{25} metric is a point estimate that allows a measure of the magnitude of the biological impact to be calculated. As such, it can provide more information than a NOEC, which is restricted to the tested concentration series. However, there are potential problems with the current USEPA methodology for determining IC_{25} that need to be considered when interpreting the data.

Therefore given the strengths and weaknesses of each method, Teck-Pogo would recommend that the permit require both to be calculated during the accelerated testing. If effluent toxicity is real, the results of the NOEC and the IC_{25} should be similar. Substantially different values for the NOEC and IC_{25} metrics indicate the presence of a potential false positive “hit” for toxicity. Inclusion of both the NOEC and the IC_{25} approaches is the only method

approved by the USEPA to identify false positive results. Therefore, Teck-Pogo recommends that this provision be modified to read as follows:

“If no two consecutive tests of the four accelerated tests exceed a TU_c value of 2, when calculated using both the NOEC and the IC_{25} approaches, the permittee may return to the normal testing frequency. If any two consecutive accelerated tests exceed a TU_c value of 2, when calculated using both the NOEC and IC_{25} approaches, then the TRE requirement in Permit Part I.D.7. apply.

The last sentence of this Permit Part I.D.6.d should be deleted, as the pattern of toxicity should be reliably established in accordance with I.D.6.c., as described above, before the TRE requirements would be meaningful.

Response: Number of tests to establish no toxicity: Following national and Region 10 guidance the permit requires that accelerated monitoring be initiated upon exceedance of the WET permit limit or trigger. The draft permit allows for the permittee to conduct an initial investigation (see Part I.D.6.d.). If the permittee demonstrates through an evaluation of facility operations that the cause of the exceedance is known (for example a facility upset or a lab error) and corrective actions have been implemented, only one accelerated test is necessary. If results of the accelerated test do not exceed the trigger, then no further accelerated testing is necessary. If the accelerated test results do exceed the trigger, then the permittee must conduct a TRE. Therefore, if Teck-Pogo pursues an initial investigation, potentially only one accelerated test is necessary to demonstrate no toxicity. Permit Part I.D.6. of the final permit has been rewritten to clarify that only one accelerated test may be necessary under an initial investigation and states that if toxicity does not exceed the trigger, then the permittee may return to the normal WET testing frequency.

Number of tests to establish toxicity: The accelerated tests are used to establish the presence of consistent toxicity. If after, or in lieu of, an initial investigation, toxicity is detected in any of the accelerated WET tests, then the facility must begin a TRE to determine the cause of the toxicity. If toxicity is detected in any of the tests prior to the fourth one, the remaining tests do not need to be completed before starting the TRE. This scenario is comparable to the recommendation in that TSD that a TRE should be required where toxicity is present above effluent limits more than 20 percent of the time. One out of four tests (or two out of four tests if an initial investigation is performed) equates to more than 20 percent of the time. Since the draft permit language is consistent with the TSD, the permit will not be revised to allow three of the tests to fail before initiating a TRE.

NOEC vs. IC_{25} : The *Guidelines Establishing Test Procedures for the*

Analysis of Pollutants; Whole Effluent Toxicity Test Methods; Final Rule 67 FR 69952 published on November 19, 2002, recommends the use of point estimation techniques over hypothesis testing approaches for calculating endpoints for effluent toxicity tests. Therefore, the Final Permit has been revised to have the $TU_c = 100/IC_{25}$.

The final permit will not include both methods but if Teck-Pogo wishes to use the NOEC for comparative purposes, then they need ensure test acceptability. To perform the NOEC calculation, the permittee must follow the guidance of *The Guidelines Establishing Test Procedures for the Analysis of Pollutants; Whole Effluent Toxicity Test Methods; Final Rule 67 FR 69952* published on November 19, 2002, which states that to reduce the within-test variability and to increase statistical sensitivity when test endpoints are expressed using hypothesis testing rather than the preferred point estimation techniques, variability criteria must be applied as a test review step when NPDES permits require sublethal hypothesis testing endpoints [*i.e.*, NOEC or lowest observed effect concentration (LOEC)] and the effluent has been determined to have no toxicity at the permitted receiving water concentration. These variability criteria must be applied for the following methods: Fathead Minnow Larval Survival and Growth Test; Ceriodaphnia dubia Survival and Reproduction Test; Selenastrum capricornutum Growth Test; Mysidopsis bahia Survival, Growth, and Fecundity Test; and Inland Silverside Larval Survival and Growth Test. Within-test variability, measured as the percent minimum significant difference (PMSD), must be calculated and compared to upper bounds established for test PMSDs. Under this new requirement, tests conducted under NPDES permits that fail to meet the variability criteria (*i.e.*, PMSD upper bound) and show “no toxicity” at the permitted receiving water concentration (*i.e.*, no significant difference from the control at the receiving water concentration or above) are considered invalid and must be repeated on a newly collected sample. Lower bounds on the PMSD are also applied, such that test concentrations shall not be considered toxic (*i.e.*, significantly different from the control) if the relative difference from the control is less than the lower PMSD bound.

27. Comment: Based on comment #26, Teck-Pogo suggests that the last sentence of Permit Part I.D.6.d. should be deleted because of the proposed “pattern” of toxicity established above.

Response: Due to the response to comment #26 above EPA feels the proposed language in the Draft Permit, along with the changes in the Final Permit are consistent both with EPA National and Region 10 policy, and consistent with the terms of the TSD for establishing a “pattern” of toxicity. Therefore, EPA does not find it necessary to modify this Permit Part.

28. Comment: Teck-Pogo requests the portion of Permit Part I.D.7.a. that reads "within two weeks of the exceedance" be changed to "within two weeks of receipt of the test results that indicate that a TRE is required under I.D.6.c."

Response: The requested change has been made to the final permit.

29. Comment: Teck-Pogo requests that the annual toxicity testing be submitted with the Annual Report instead of with the DMR for the month of September.

Response: The September DMR will include a provision to report that the testing was accomplished and whether toxicity was found. Full results will be submitted with the Annual Report.

30. Comment: In Permit Part I.E.1., Teck-Pogo suggests that the term "summer" should be replaced with "open water season" and "winter" be replaced with "freezing conditions."

Response: EPA will make these suggested changes to the permit language.

31. Comment: Teck-Pogo suggests a more focused parameter list than that listed in Table 4 of the Permit for the Surface Water Monitoring requirements because some parameters either exhibit and pattern of near "non-detects," have consistent values well below any applicable WQS or would not provide meaningful information. Teck-Pogo suggests that the following parameters be monitored:

Table 4 Surface Water Monitoring Parameters		
pH	TDS	Iron
DO	TSS	Lead
Conductivity	Hardness	Manganese
Temperature	Cyanide, WAD	Mercury
Turbidity	Aluminum	Nickel
Chlorides	Arsenic	Selenium
Nitrates	Cadmium	Silver
Sulfates	Chromium	Zinc
Alkalinity	Copper	

Response: EPA has analyzed the background water quality data collected for

since 1997 and has determined that the commentor is correct in its evaluation. However, ambient monitoring for antimony will remain in the permit because of its inclusion in the bioassessment requirement.

32. Comment: Teck-Pogo is concerned that it may not be possible to comply with both the requirement to do individual whole body analyses of juvenile Chinook salmon and the requirement to do all sample collection and analysis in accordance with the published EPA QA/QC procedures which require a certain size of sample to conduct the analysis. In the past, the dry weights of the individual juvenile salmon have been very near the required lower threshold weight. The commentor requests that the phrase "Notwithstanding the provisions of Section F. with respect to minimum sample weight" be added to the beginning of Permit Part I.E.5.

Response: The requirements of the methods found in 40 CFR Part 136 will not be discarded, however, if there is a time when sample weight is less than the required weight, this shall be indicated in the report and the data will be considered qualified. Reviewers will then use their best professional judgement in using this data as is done with other types of qualified data

33. Comment: Teck-Pogo requests that the Surface Water Monitoring results be reported in the Annual Water Quality Monitoring Summary report instead of twice during the course of the year.

Response: This change has been made to the permit.

34. Comment: Teck-Pogo requests that the Annual Water Quality Monitoring Summary report be due on March 1 to coincide with the ADEC annual report instead of on February 15. Also, the suggestion has been made that the annual report should include an electronic version that contains all historical data but that the hardcopy provided should only relate to the evaluation of results.

Response: These changes have been made to the permit.

35. Comment: Teck-Pogo has several concerns about the BMP Plan. Teck-Pogo indicates that the proposed language and structure of the permit is a disincentive to developing a comprehensive Environmental Management System (EMS) for construction and operation of the Pogo project.

Teck-Pogo believes that the language of Permit Part II. is over broad and that EPA stepped beyond its authority in stating in the Fact Sheet that a violation of the BMP Plan is a violation of the permit - Teck-Pogo believes that deviations from the BMP Plan should not be considered NPDES permit violations unless they contribute to an exceedance of the permit effluent

limitations. While Teck-Pogo is not questioning the ability for EPA to require a BMP Plan, they do question the ability of EPA to require the use of documents listed in the regulations as being there for informational purposes.

Teck-Pogo also recommends that language be added to clarify that EPA's authority via a BMP Plan is limited by Section 304(e) of the CWA which speaks to the supplement of effluent limitations regulating "toxic or hazardous" pollutants and to control discharges that may contribute significant amounts of such pollutants to navigable waters.

Response: The language in Permit Part II.B. allows for the BMP Plan to be part of a more comprehensive facility plan. If the language of the draft permit is limiting to Teck-Pogo, EPA is amending the language of this Permit Part to also allow for the BMP Plan to reference parts of the a more comprehensive facility plan. This would allow Teck-Pogo to develop the EMS without putting much additional work into a BMP Plan but still give EPA the assurance that the provisions of Permit Part II.D.1.a. were considered regarding management commitment to the intent of the BMP Plan.

EPA will agree that unless certain BMPs are required by EPA, EPA would consider the lack of implementation of other BMPs in the Plan to be deficiencies rather than violations if these deficiencies did not lead to a violation of the permit or the CWA. If it is clear that a violation of either occurred due to a lack of BMPs, the facility would likely be cited for the violation and not necessarily for a violation of the BMP Plan. The intent of a BMP Plan is to carry out the provisions of the CWA, not only to prevent violations of the permit's effluent limitations so limiting the scope of the BMP Plan is not in keeping with the CWA. EPA intended that the BMP guidance document cited in the permit be used by the permittee for informational purposes. The guidance document, however, is non-binding, therefore the term "must" was removed from the final permit (see Part II.D.).

The primary authority for BMP Plan requirements is Section 402 of the CWA. Section 402(a)(1) of the CWA allows the Administrator to prescribe conditions in a permit determined necessary to carry out the provisions of the CWA. BMPs are one such condition. Section 402(a)(2) authorizes EPA to include miscellaneous requirements in permits on a case-by-case basis which are considered necessary to carry out the provisions of the CWA. Section 402(a) is not necessarily limited to developing numerical effluent limits, nor does this section of the CWA prohibit the requirement to establish BMP plans. Based upon this statutory authority, EPA promulgated regulations which provide for BMPs to be used to control or abate the discharge of pollutants when effluent limitations are infeasible or the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purpose and intent of the Act (40 CFR

122.44(k)(3) and (4)). EPA agrees that the BMP guidance cites 304(e) as a basis for establishing BMPs, but it does not cite it as the only basis. Section 1.2 of the BMP guidance generally cites Section 402 of the CWA. The guidance also cites 40 CFR 122.44(k) which authorizes the use of BMP for three scenarios. Only one of these scenarios is covered under Section 304(e).

36. Comment: Teck-Pogo states that it will not be able to comply with the provision to submit DMRs by the 15th of each month due to the potential need to sample late in the month. They recommend that the DMRs be due the end of the following month.

Response: To address this concern, EPA will extend the DMR due date until the 20th of the month following sample collection (see Part III.B. of the final permit)

37. Comment: Teck-Pogo requests that the second paragraph of Permit Part III.D be clarified that it is applicable to sampling related to the monitoring locations identified in the permit.

Response: The second paragraph of Permit Part III.D. has been removed from the permit because of its redundancy with Permit Part V.C. which is based in regulation at 40 CFR 122.41(h), which reads:

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

The information the Director may request to make any of the above determinations may not be related to a permitted outfall or monitoring point. For example, information may exist on discharges to waters of the United States that are unpermitted and, as such, this information would fall under this provision of the regulations.

38. Comment: Teck-Pogo comments that for the requirements of Permit Part III.E.4., an individual's name should be required if the sample is analyzed onsite and if the sample is analyzed at a lab, that the name of the lab would be provided, not the name of the individual performing the analysis.

Response: Permit Part III.E.4. is required to be included in the permit based on the regulation found at 40 CFR 122.41(j)(3). The language of Permit Part III.E.4. has been modified slightly to exactly match the regulation but still requires that an individual performing the analysis be identified. The

justification for this requirement is found in the Fact Sheet Section V.F., Additional Permit Provisions, which states:

Sections II, III, and IV of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

39. Comment: Teck-Pogo notes that the company name on the Fact Sheet was not the same as that found on the permit.

Response: Comment is noted.

40. Comment: Teck-Pogo believes that the criteria for aluminum, cadmium and manganese are more restrictive than necessary to protect the designated uses of the waterbody described in Section III.B. of the Fact Sheet. Teck-Pogo states that they will request that the State of Alaska review these criteria during its next triennial review.

Response: EPA notes this comment on the Fact Sheet. Since the criteria used were designated to protect human health and aquatic life, and most waterbodies in Alaska are protected for all uses, including the Goodpaster River, the appropriate criteria were used in the permit.

References

<http://www.nemi.gov> for information related to the chlorine methods 330.3 and 330.4.

Final § 401 Certification from ADEC dated March 12, 2004.

EPA, 2003. Final Environmental Impact Statement (FEIS) Pogo Gold Mine Project.

40 CFR 122 - EPA administered permit programs: the National Pollutant Discharge Elimination System.

40 CFR 136 - Guidelines establishing test procedures for the analysis of pollutants

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

Application package dated January 2, 2003. This package includes references to the original application dated August 1, 2000; the February 2002 Water Management Plan

as supplemented in June 2002; the February 2002 Plan of Operations as supplemented in November 2002.

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.

The Guidelines Establishing Test Procedures for the Analysis of Pollutants; Whole Effluent Toxicity Test Methods; Final Rule 67 FR 69952 published on November 19, 2002.

EPA 1993. Guidance Manual for Developing Best Management Practices (BMP). Office of Water. October 1993. EPA 833-B-93-004.

Letter dated March 4, 2004, from ADEC to EPA requesting approval of natural condition-based site specific criteria (NCBSSC).

E-mail dated March 10, 2004, from ADEC to EPA clarifying the request for NCBSSC.

Letter dated March 11, 2004, from EPA to ADEC approving the NCBSSC.

Letter dated February 23, 2004, from Teck-Pogo, Inc. to EPA requesting Alternate Test Procedures for methods to measure metals, WAD cyanide, and inorganic ions.

Letter dated February 27, 2004, to Teck-Pogo, Inc. from EPA approving the Alternate Test Procedures requested in the February 23, 2004, letter.