

**National Pollutant Discharge Elimination System (NPDES) Permit for  
Formation Capital Corporation, U.S., Idaho Cobalt Project  
NPDES Permit No. ID-002832-1**

**Response to Comments**

February 9, 2009

U.S. Environmental Protection Agency, Region 10  
1200 Sixth Avenue, Suite 900  
Seattle, WA 98101

TABLE OF CONTENTS

- I. INTRODUCTION .....3
- II. ACTIONS AFTER THE PUBLIC COMMENT PERIOD.....3
  - A. Actions by EPA .....3
  - B. Actions by the State .....5
  - C. Actions regarding the Endangered Species Act and Essential Fish Habitat.....5
- III. COMMENTS RECEIVED ON THE DRAFT PERMIT AND RESPONSES .....8
  - A. General Comment – Support for the Permit .....8
  - B. Nitrate + Nitrite .....8
  - C. Arsenic .....9
  - D. Methylmercury .....12
  - E. Copper, pH, and Sediment .....20
  - F. Stormwater .....30
  - G. Hardness .....32
  - H. Groundwater .....33
  - I. Sulfate .....34
  - J. Whole Effluent Toxicity Test .....37
  - K. Biomonitoring .....38
  - L. Biotic Ligand Model (BLM) .....39
  - M. Cadmium .....39
  - N. New Source Performance Standard Prohibition Against Discharges  
From Froth Flotation Mills .....40
  - O. Mixing Zones .....49
  - P. Heavy Metal Contamination .....50
  - Q. Miscellaneous Comments .....50
  - R. Comments on the Fact Sheet .....55
- IV. REFERENCES .....60
- V. TABLE 1 – NUMBERED LIST OF COMMENTERS .....62

APPENDIX A – Ammonia and Sulfate Calculation Spreadsheet

APPENDIX B – State of Idaho CWA Section 401 Certification

APPENDIX C – NMFS ESA Biological Opinion Excerpt - Terms and Conditions for EPA Implementation

## **I. INTRODUCTION**

This document provides a response to comments on the draft National Pollutant Discharge Elimination System (NPDES) permit for the proposed Idaho Cobalt Project cobalt mine (ICP), owned by the Formation Capital Corporation, U.S. (FCC). This document also summarizes actions taken by EPA, the Idaho Department of Environmental Quality (IDEQ), the National Marine Fisheries Service (NMFS), and US Fish and Wildlife Service (USFWS) that influenced some of the final permit conditions.

A draft permit for the ICP was issued for public notice on February 8, 2007 (hereafter referred to as the draft permit). A Fact Sheet that accompanied the draft permit described how the draft permit conditions were developed. The public comment period was set to expire on April 9, 2007, but upon requests from Tribes and stakeholders was extended until May 24, 2007.

Under the authority of the U.S. Mining Law and in accordance with 36 CFR 228A, the FCC proposed Plan of Operations (POO) must be evaluated and processed by the Salmon-Challis National Forest (the Forest Service). The Forest Service prepared an Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA) to evaluate the environmental impacts of the POO and alternatives. EPA and the IDEQ were cooperating agencies in development of the EIS. The Final EIS (FEIS) and the Forest Service's Record of Decision (USFS ROD) were signed on June 12, 2008 and subsequently appealed by the Nez Perce Tribe, Noranda, Charles Pace, Earthworks and Boulder-White Clouds Council. The Regional Forester notified the appellants on September 30, 2008 that he was reversing the decision by the Forest Supervisor noting that the analysis of potential effects in the FEIS and record was sufficient and met NEPA. However, the USFS ROD failed to adequately address some of the criteria for approval of a plan of operations under 36 CFR 228.5. A revised USFS ROD was issued on January 22, 2009.

The FEIS contained responses to comments received on the draft EIS during the draft EIS public comment period. Responses to the NEPA comments were provided by the Forest Service. The FEIS also contained permit-related comments and responses. EPA provided some permit-related responses but deferred others until issuance of the final permit and completion of this Response to Comments. Permit-related responses were provided by agencies other than EPA, especially in instances where the comment letters did not clearly separate out NEPA, State CWA 401 certification, and NPDES issues. The responses of other agencies regarding the NPDES permit issues, particularly comments regarding copper, sediment, and pH, do not necessarily represent EPA's position on these issues. Therefore, this NPDES permit Response to Comments, which responds to permit-specific comments, supersedes permit-related responses in the FEIS. EPA will issue its own ROD with the issuance of the final NPDES permit.

## **II. ACTIONS AFTER THE PUBLIC COMMENT PERIOD**

### **A. Actions by EPA**

EPA may change technical errors within a draft permit prior to final issuance. The draft permit contained technical errors in Parts I.B.1, I.B.2, and I.D, Table 2.

Sample types: In the draft permit, Part I.B.1, Table 1 *Outfall 001 Effluent Limits and Monitoring Requirements* specified grab samples for all of the parameters. EPA consulted other mining permits in the Region and for consistency changed the sample types in the final permit to 24-hour composite samples on the metals (except mercury), ammonia, nitrate + nitrite, sulfate, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), and Whole Effluent Toxicity (WET). Composite samples are required to account for potential variability in the effluent and ensure samples are representative of the discharge. Also, in the draft permit Part I.B.1, there was no Outfall 001 flow monitoring. Although there are no flow limits for Outfall 001, it is necessary to monitor the amount. The final permit contains continuous monitoring for outfall flow, consistent with other recent permits in Region 10.

Ammonia nitrogen limits: When preparing the preliminary final permit, EPA believed that there had been a technical error in the calculation of the total ammonia nitrogen limitations in the draft permit Part I.B.1, Table 1, *Outfall 001 Effluent Limits and Monitoring Requirements*. In the fact sheet, it appeared that the limitations had been calculated based on EPA's 1991 *Technical Support Document for Water Quality-based Toxics Control* (TSD), which recommends calculating a chronic long term average for a toxic based on a 4-day averaging period (LTAc<sub>4</sub>), rather than the 1999 *Update of Ambient Water Quality Criteria for Ammonia*, which recommends calculating a chronic long term average for ammonia based on a 30-day averaging period (LTAc<sub>30</sub>). When calculating final permit limits, acute and chronic LTAs are compared, and the limits are based on the most stringent LTA.

When developing the preliminary final permit, EPA *incorrectly* recalculated the chronic LTA based on a 30-day averaging period. The final permit limits for ammonia nitrogen were then anticipated to be average monthly and daily maximum effluent limits of 1.6 mg/L and 4.1 mg/L, respectively. However, a technical error was made in the recalculation of the chronic LTAc<sub>30</sub>. Upon checking the recalculation, EPA determined that the most stringent LTA would not change from the draft to the final permit – it would still be the acute LTA (LTAA). In fact, it was discovered that the LTAc<sub>30</sub> had been used to calculate limits in the draft permit. As a result, the ammonia nitrogen limits will remain the same in the final permit as they were in the draft permit (2.8 mg/L average monthly limit and 5.6 mg/L daily maximum limit). See Appendix A spreadsheet titled *Water Quality-Based Ammonia and Sulfate Permit Limit Calculations*.

Notification of limit violations: Part I.B.2 of the draft permit, requiring notification within 24 hours of maximum daily limit violations, did not include ammonia, nickel, or zinc. EPA customarily includes notification within 24 hours of violations of maximum daily effluent limits. Because the permit contains maximum daily limits for these parameters, ammonia, nickel, and zinc were added to Part I.B.2 of the final permit.

Nitrate + nitrite surface water monitoring concentration units: In the draft permit, Part I.D, Table 2 *Ambient Surface Water Monitoring Requirements at WQ-24 and Downstream Station* contained units in mg/L for nitrate + nitrite surface water measurements. The final permit contains corrected units for nitrate + nitrite monitoring in µg/L.

EPA may also update boilerplate conditions based on revisions in the laws and regulations. Since the draft permit was developed, administrative penalty amounts for permit violations have changed. Final permit condition IV.B.2. Administrative Penalties, contains updated amounts for administrative penalties.

## **B. Actions by the State**

Section 401 of the CWA requires EPA to seek certification from the State that the permit is adequate to meet State water quality standards (WQS) before issuing the final permit. The NPDES regulations (40 CFR 124.53) allow for the State to stipulate more stringent conditions in the permit, if the certification cites the CWA or State law references upon which that condition is based. In addition, the regulations require a certification to include statements of the extent to which each condition of the permit can be made less stringent without violating the requirements of State law.

The IDEQ issued a CWA Section 401 certification of the NPDES permit dated February 6, 2009. The final certification conditions were included in the final NPDES permit. The final 401 certification is attached in Appendix B.

Four conditions that did not appear in the draft certification appeared in the final certification. These conditions were 1) a requirement for development and implementation of a Mercury Minimization Plan (MMP) outlining best management practices (BMPs) to minimize mercury in the discharge; 2) a Mixing Zone authorization for sulfate; 3) a discussion that final permit limits for arsenic (10 µg/L, daily maximum and monthly average limit, as requested by FCC) could be made less stringent (50 µg/L) and still comply with Idaho WQS; and 4) a statement that the certification is conditioned upon the requirement that any material modification of the permit or the permitted activities including without limitation, any modifications of the permit to reflect new or modified TMDL wasteload allocations or other new information, shall first be provided to IDEQ for review to determine compliance with state WQS and to provide additional certification pursuant to section 401. The final permit contains a requirement for development and implementation of an MMP, as well as the sulfate mixing zone as authorized by IDEQ, and daily maximum and monthly average arsenic limits of 10 µg/L, which meet the WQS.

The draft certification and final certification both contained requirements for submittal of a Methylmercury Fish Tissue Study Plan and a copper reduction plan, although reporting and implementation procedures were changed slightly. Both requirements from the final certification were placed in the final permit.

## **C. Actions regarding the Endangered Species Act and Essential Fish Habitat**

The Forest Service and EPA jointly conducted formal Section 7 consultation with NOAA National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS). NMFS and USFWS will collectively be referred to as the Services. The Forest Service (as the lead) and EPA prepared a Biological Assessment (BA, October 2007) that evaluated potential affects on the listed species from the proposed action as a whole, including EPA's proposed issuance of the NPDES permit. The BA determined that the proposed action is likely to adversely affect

federally listed Snake River spring/summer Chinook salmon, threatened Snake River Steelhead, and threatened bull trout. The BA determined that the NPDES discharge was likely to adversely affect the species because of potential avoidance behavior due to copper, zinc, and cobalt in the effluent. The NPDES discharge was determined not likely to adversely affect the species for other parameters. Based on the BA conclusions, the Services each prepared a Biological Opinion in May 2008. The BOs concluded that the project would not jeopardize listed species. The BOs included incidental take statements and identified Reasonable and Prudent Measures (RPMs) and Terms and Conditions to be implemented by the Forest Service and EPA.

EPA reviewed the BOs and Terms and Conditions and included conditions in the permit to implement Terms and Conditions that are related to our authorities. The regulations at 40 CFR 122.49(c) *The Endangered Species Act*, require that EPA ensure, in consultation with USFWS and NMFS, that any action EPA authorizes is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

1. NMFS issued the *Endangered Species Act – Section 7 Consultation Biological Opinion & Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation* (NMFS 2008) for the Idaho Cobalt Project. Appendix C contains an excerpt of the BO containing Terms and Conditions intended for EPA implementation. The following summarizes final permit requirements in accordance with EPA's CWA authorities that are based on the Terms and Conditions (T & Cs) identified in the BO.

a. The final permit contains maximum daily effluent limits for nitrate + nitrite equal to 10 mg/L at the end-of-pipe to prevent nutrient enrichment of habitat in Big Deer and Panther Creeks. This is based on T & C 2a.

b. The final permit requires FCC to develop a fish tissue sampling study for non-ESA salmonids, if available, in Big Deer Creek. If resident salmonids do not exist in adequate numbers, the permittee may use substitute species if approved by IDEQ. Within 90 days of the effective date of the permit, the fish tissue study must be submitted to EPA, IDEQ, and NMFS for review. The study must be approved by IDEQ. An approved baseline study must be conducted prior to the first effluent discharge and annually, with baseline results to be submitted prior to the first effluent discharge. Tissue sampling of non-ESA resident salmonids (or approved substitute species) collected downstream from the effluent and upstream of the falls in Big Deer Creek shall be done for bioaccumulation of aluminum, arsenic, cadmium, cobalt, lead, manganese, methylmercury, nickel, selenium, thallium, and zinc. This is based on T & C 3.b. This T & C recommended annual sampling for three years following the baseline sampling. The permit requires sampling annually for the remainder of the permit term, which EPA anticipates will be three years following baseline sampling, based on the 401 certification (for methylmercury) and CWA Section 308(a), which authorizes EPA to require monitoring to carry out the objectives of the CWA. See response to comment #47.

c. The final permit requires FCC to develop an aquatic invertebrate sampling program in Big Deer Creek. Within 90 days of the effective date of the permit, the sampling program must be submitted to EPA, IDEQ, and NMFS for review. The sampling program must be approved by IDEQ. An approved baseline sampling event shall be conducted prior to the first effluent

discharge, with results to be submitted to the agencies prior to the first effluent discharge. In accordance with the approved plan, sampling for aquatic invertebrates shall be conducted annually following the baseline to assess changes in community structure. This is based on T & C 3.c. This T & C recommended annual sampling for three years following the baseline sampling. The permit requires sampling annually for remainder of the permit term, which EPA anticipates will be three years following baseline sampling, based on CWA Section 308(a), which authorizes EPA to require monitoring to carry out the objectives of the CWA. See response to comment #33.

d. The final permit requires Discharge Monitoring Reports (DMRs), which include results from effluent monitoring, ambient monitoring, fish tissue monitoring, and aquatic invertebrate monitoring to be submitted to NMFS when they are submitted to EPA and IDEQ. The permit also requires notifications of non-compliance to be submitted to NMFS when they are submitted to EPA and IDEQ.

2. The USFWS issued the *Biological Opinion, Idaho Cobalt Project Mine, Salmon-Challis National Forest, Salmon-Cobalt Ranger District, Salmon, Idaho* (USFWS 2008). The Terms and Conditions in the BO required implementation by the Forest Service. However, the following Reporting and Monitoring Requirement on page 39 of the BO referenced the NPDES permit:

5. Reports generated from testing required as part of the NPDES permit (i.e., WET testing, toxicity tests, etc.) shall be submitted to the Service for our review as they become available. Additionally, any notifications of violations of compliance with the NPDES permit shall be submitted to the Service as they occur.

EPA implemented the above Reporting and Monitoring Requirement in the final NPDES permit, as summarized below:

The final permit requires Discharge Monitoring Reports (DMRs), which include results from effluent monitoring, ambient monitoring, fish tissue monitoring, and aquatic invertebrate monitoring to be submitted to USFWS when they are submitted to EPA, IDEQ, and NMFS. The permit also requires notifications of non-compliance to be submitted to USFWS when they are submitted to EPA, IDEQ, and NMFS.

NMFS conservation recommendations for Essential Fish Habitat (EFH) are set forth as Reasonable and Prudent Measure (RPM) #s 1 and 2 in the biological opinion. EPA's task under the EFH RPMs is implementation of term and condition (T&C) 2.a., which states that EPA shall modify the draft NPDES permit to limit the effluent's maximum daily concentration for levels of nitrate + nitrite to <10 mg/L at the end-of-pipe to prevent nutrient enrichment of habitat in Big Deer and Panther Creeks. To implement this T&C, as noted above, the final permit contains a maximum daily effluent limit of 10 mg/L for nitrate + nitrite.

### III. COMMENTS RECEIVED ON THE DRAFT PERMIT AND RESPONSES

Following are the comments received on the draft permit and EPA's responses. Comments and responses are grouped according to the subject area of the comment. The individual comments under each subject area are identified with the commenter(s) by a number. A list of the commenters that correspond to each number is included in Table 1. For consistency, the commenter numbers in Table 1 correspond to the commenter numbers in the June 2008 USDA Final Environmental Impact Statement (FEIS), Idaho Cobalt Project, Volume II, Appendix D, Responses to Comments on the DEIS, Table D-1.

In some cases, the exact phrasing of detailed comments is presented. In other cases, substantive portions were excerpted or summarized from the comment. Where more than one commenter submitted similar comments, a summary of the comment was included following the list of numbers of all those that provided the comment. In the case of several of the comments, which did not lend themselves to summarization, text was included verbatim from one commenter's letter that had adopted and incorporated by reference comments from other letters. In those cases, the particular commenter's letters were quoted because they contained the most comprehensive versions of the comments. The Administrative Record files contain complete copies of each comment letter and are available for review at EPA's Seattle office. EPA received some letters that did not contain permit-specific comments. These letters are also included in the Administrative Record files for the permit but are not listed in Table 1 of this document.

#### A. General Comment

##### **Comment #1: Support for Permit**

Several commenters expressed support for the issuance of the NPDES permit for the Idaho Cobalt Project (ICP).

**Response:** Comments noted.

#### B. Nitrate + Nitrite

##### **Comment #2: Nitrate + nitrite limit should be lower.**

###### Commenter No. 42

The commenter stated that the proposed daily effluent limit for nitrate + nitrite of 100 mg/L is insufficient to protect cold water aquatic life and primary contact recreation uses in Big Deer Creek. The commenter stated that a maximum level of 2 mg/L nitrate would be appropriate for protecting the most sensitive freshwater species and that using "visible slime growths" as a permit condition as in the draft would likely indicate severe damage already done. One study regarding nitrate toxicity was cited (Camargo, et al. 2005).

The commenter requested that the DEIS and draft NPDES permit be amended such that the maximum daily effluent for nitrate + nitrite is 10 mg/L at Outfall 001. The commenter also requested that the ambient surface water monitoring requirement at WQ-24 (upstream) and the downstream station be set a 2 mg/L for nitrate + nitrite.

**Response:** The draft NPDES permit contained a daily maximum nitrate + nitrite effluent limit of 100 mg/L. The NPDES regulations at 40 CFR 122.44(d)(vi) allow EPA to establish numerical effluent limits to implement state narrative criteria. The nitrate +nitrite limit was based on an interpretation of Idaho's narrative WQS for excess nutrients that states that surface waters shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses (IDAPA 58.01.02.200.06). In the draft permit, EPA based its interpretation on the EPA Blue Book numerical values for protection of agricultural uses. However, this waterbody is also designated for cold water biota aquatic life use. EPA received additional information on nitrate levels necessary to protect aquatic life uses from NMFS in its Biological Opinion (BO), which included detailed analysis and references to literature to support inclusion of a 10 mg/L numeric limit as necessary to prevent nutrient enrichment of habitat in Big Deer and Panther Creek to protect aquatic species. Therefore, EPA has lowered the nitrate + nitrite limit in the proposed final permit to 10 mg/L.

EPA was unclear about the second part of comment 1 and assumed that the commenter is requesting a lower detection level for instream nitrate + nitrite monitoring. The draft NPDES permit contained a typographical error on page 10, Table 2. *Ambient Surface Water Monitoring Requirements at WQ-24 and Downstream Station*. The incorrect units were used for the nitrate + nitrite detection level using approved EPA methods. The correct units should have been  $\mu\text{g/L}$  rather than mg/L. EPA has corrected the units in the permit so the nitrate + nitrite detection limit for ambient water quality monitoring is 10  $\mu\text{g/L}$ .

### C. Arsenic

#### **Comment #3: EPA used the wrong arsenic standard.**

##### Commenter Nos. 74, 108, and 110

The commenters maintain that the draft permit uses an incorrect human health criteria value of 50  $\mu\text{g/L}$ . Commenters state that 50  $\mu\text{g/L}$  was never lawfully approved by EPA and is not sufficient to protect human health. They state that the last arsenic standards that were properly approved were the standards of 6.2  $\mu\text{g/L}$  and 0.02  $\mu\text{g/L}$ , and those are the standards that should apply to the permit.

The following text was taken from letter 110, containing comments that adopt and incorporate by reference all comments from letters 74 and 108:

The Clean Water Act, 33 U.S.C. § 1251 et seq., requires States to develop water quality standards and receive approval for those standards from EPA. 33 U.S.C. § 1313. Any revisions of those standards must likewise be approved by EPA. *Id.* The draft NPDES permit for the Idaho Cobalt Project bases its conclusions concerning compliance with arsenic water quality standards on an incorrect arsenic standard. The draft permit depicts the human health standard for arsenic as 50

µg/L (*see* Table B-2 of draft permit fact sheet), but this standard is incorrect as it was never lawfully approved by EPA and in fact is not sufficient to protect human health.

In 1996, EPA approved changes to Idaho's water quality standards, including changing the human health criteria for arsenic to 6.2 µg/L (organism ingestion) and .02 µg/L (organism and water ingestion). Almost immediately after that approval, Idaho sought to revise the arsenic standards yet again, increasing them substantially to 50 µg/L for both human health categories. Idaho claimed that it could increase the standard because the national standard for drinking water allowed for 50 µg/L of arsenic and Idaho believed that its human health criteria for arsenic should match the drinking water standard.

DEQ first submitted this human health criteria to EPA in a temporary rule modification. But EPA recommended that Idaho retain its previous criteria of 6.2 µg/L and .02 µg/L because EPA was in the process of conducting research on arsenic, which would likely result in new national drinking water criteria that was more stringent than the 50 µg/L value.

Idaho ignored EPA's recommendation and in 1999 passed a Final Rule for arsenic human health standards of 50 µg/L, and then submitted that Rule to EPA for approval. EPA, however, has never lawfully approved this standard for Idaho and thus the Idaho Cobalt Project cannot rely on this standard to demonstrate compliance with water quality standards. Instead, the last arsenic standards that were properly approved by EPA were the standards of 6.2 µg/L and .02 µg/L, and those are the standards that apply here.

Indeed, an arsenic standard of 50 µg/L for human health criteria is not sufficient to protect human health. As EPA indicated in its response to Idaho's temporary rule modification, it did change the drinking water standard for arsenic, reducing it significantly to 10 µg/L. This standard became enforceable in all states on January 23, 2006. Since then, many states have also reduced their human health standards for arsenic to 10 µg/L or less, including Oregon, Utah, Montana, and Washington.

Because the 50 µg/L arsenic human health standard was never approved by EPA in accordance with the Clean Water Act, and in fact is not sufficient to protect human health, the draft permit is flawed in relying on that standard as a means to ensure compliance with water quality standards.

Utilization of the wrong arsenic standard creates several problems that ripple through the permit. Chief among these is the fact that EPA has called for limits and monitoring requirements at outfall 001 that are not consistent with Idaho's correct human health arsenic criteria. *See* Table 1 in draft permit.

Table 1 in the Fact Sheet reports that the applicant estimates that end of pipe arsenic discharge will have a maximum daily value of 8 µg/L and an average daily value of 5 µg/L. If these are in fact correct estimates of pollutant discharge at outfall 001, then the applicant will not meet Idaho's water quality standards at the end of pipe location. Thus, the discharge limits proposed in the draft permit violates applicable Clean Water Act requirements and state regulations and EPA is prohibited from issuing such a permit. EPA regulations state:

§ 122.4 Prohibitions

No permit may be issued:

(a) When the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA;

...

(d) When the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States; 40 CFR § 122.4.

Accordingly, EPA needs to withdraw the draft permit and craft a new permit based on the correct Idaho arsenic criteria. EPA should not amend the current draft permit to include a mixing zone. It is our position that mixing zones are never appropriate and that all discharges should be required to meet effluent limits at the end of their discharge pipe. With regard to mixing zones in the greater watershed area of the Blackbird Mine, inclusion of a mixing zone would be inappropriate and counter productive to the ongoing efforts of the Blackbird Mine Site Group to reduce pollutant levels in local water bodies.

**Response:** EPA does not agree with the commenters' assertions. The effluent limits for arsenic in the draft permit were derived from the applicable water quality standard in effect under the Clean Water Act. (CWA)

The commenters are correct that Idaho adopted arsenic criteria of 0.02 µg/L in 1996, which were approved by EPA. They are also correct that Idaho revised the arsenic criteria to 50 µg/L in 1999 and submitted it to EPA. EPA has not taken action to approve or disapprove this criterion.

Consistent with the water quality standards regulations at 40 CFR 131.21(c)-(e) (often referred to as "The Alaska Rule"), water quality standards adopted and submitted to EPA before May 30, 2000 are the applicable water quality standards for CWA purposes, unless or until EPA promulgates a more stringent standard or EPA approves a change, deletion, or addition to that water quality standard. Therefore, the arsenic criteria of 50 µg/L adopted by Idaho and submitted to EPA in 1999 remains the applicable water quality criteria for use in CWA regulatory programs unless or until EPA promulgates a more stringent standard or EPA approves a change, deletion, or addition to that standard.

The derivation of effluent limits in the draft permit was consistent with CWA section 301(b)(1)(C) and EPA's permitting regulations at 40 CFR §§ 122.44(d) and 122.4(d). While this comment raises commenters' concerns over the adequacy of Idaho's current water quality criteria for arsenic, that issue can not be resolved in the context of this NPDES permit.

However, by letter dated November 19, 2008, Formation Capital Corporation, U.S. (FCC), the Permittee, requested that EPA reduce the arsenic limits in the permit to 10 µg/L maximum daily limit and 10 µg/L average monthly limit. FCC requested lower arsenic limits in accordance with the company's settlement with Boulder-White Clouds Council and Earthworks and stated that it does not regard the limits as precedent-setting due to the unique circumstances of the ICP's geology and operations. EPA included the requested lower limits (10 µg/L MDL and 10 µg/L AML) in the final permit. These limits are consistent with the requirements of CWA section 301(b)(1)(C) and EPA's permitting regulations at 40 CFR §§ 122.44(d) and 122.4(d), which require that permits include limits to meet, achieve, and ensure compliance with applicable State water quality standards. The revised permit limits, which are 10 µg/L, will be sufficiently stringent to meet the applicable State water quality criteria of 50 µg/L.

**Comment #4: Permit fails to ensure that arsenic loading will remain constant or decrease.**Commenter Nos. 74, 108, and 110

The commenters note arsenic levels in Big Deer Creek are above 6.2 µg/L and 0.02 µg/L, which they assert are the applicable criteria under the CWA. Therefore, commenters assert that Big Deer Creek should be on the CWA section 303(d) list for arsenic and that the permit should include a no-net-increase plan requirement for arsenic.

**Response:** Table B-2 of the Fact Sheet identifies the applicable arsenic water quality criteria effective for CWA purposes in the State of Idaho. The cold water aquatic life criteria are 340 µg/L (acute) and 150 µg/L (chronic). The human health criterion is 50 µg/L. Water quality monitoring in Big Deer Creek shows that arsenic levels are below these values (see Table 3-5 of the FEIS). Consequently, Big Deer Creek is not listed as impaired for arsenic. The requirement for a no-net-increase plan is a requirement of State law that would be addressed by the State in its CWA section 401 Certification. The State CWA section 401 certification did not include a no-net-increase plan for arsenic. See also response to comment #3.

**D. Methylmercury****Comment #5: Compliance with Idaho's Methylmercury Water Quality Standard**Commenter Nos. 74, 108, and 110

The commenters asserted that the permit conditions fail to ensure compliance with Idaho's water quality standard for methylmercury. They commented that a study plan was not sufficient to ensure compliance with the standard during this permit cycle, as is required by 40 CFR 122.4(d). They recommended that 1) EPA require collection of fish tissue data prior to issuance of the permit, that 2) EPA direct IDEQ to develop implementation guidance prior to the permit, that 3) EPA require a Mercury Minimization Plan in the permit, and that 4) EPA include a bioaccumulation factor (BAF) in the permit.

The following text was taken from letter 110, containing comments that adopt and incorporate by reference all comments from letters 74 and 108:

In April 2005, in response to a petition from the Idaho Mining Association, the Idaho Department of Environmental Quality (DEQ) adopted a fish tissue methylmercury criteria to protect individuals who may eat fish from Idaho surface waters. The criteria is 0.3 milligrams methylmercury per kilogram of fresh weight fish. EPA approved this criteria in a 9/30/05 letter to DEQ.

DEQ has issued "Implementation Guidance for the Idaho Mercury Water Quality Criteria." However, EPA has voiced concern to DEQ that the Idaho guidance is not sufficient and has pointed out specifically that the guidance did not adequately allow the Idaho methylmercury criteria to be integrated into an NPDES permit.

EPA's draft NPDES permit for the Idaho Cobalt Project directs the operator to submit a "Methylmercury Study Plan" for approval to DEQ within 12 months of the effective date of this permit. The permittee "must prepare and implement a study plan to assess compliance with IDEQ's methylmercury fish tissue criteria in order to determine if additional effluent limitations will be necessary during the next permit cycle" (draft permit at II.C)

We do not believe that the permit requirement to "prepare and implement a study plan to assess compliance with IDEQ's methylmercury fish tissue criteria in order to determine if additional effluent limitations will be necessary during the next permit cycle" is sufficient to ensure compliance during the life of this permit with Idaho's methylmercury criteria.

Further, the reliance on a future study/report violates the public review requirements of NEPA and the CWA. At a minimum, the DEIS and draft NPDES Permit cannot rely on any study or analysis that has not been subject to public review. This is true for the mercury "study plan" as well as other reliance on such future studies or plans regarding copper loading and mitigation (see, e.g., NPDES Fact Sheet at 20).

As noted above, 40 CFR § 122.4(d) prohibits the EPA from issuing a NPDES permit if the permit cannot ensure compliance with applicable State water quality standards.

The plain language of the draft permit demonstrates that EPA cannot determine if the effluent limits established in the draft permit are sufficient to ensure compliance with Idaho's methylmercury criteria. Collecting data, over the life of this permit, to determine if additional limits are needed in the next permit is not sufficient to ensure compliance during the life of this permit.

EPA, IDEQ, the Forest Service, and the public cannot adequately determine if the Project ensures compliance with Idaho's methylmercury criteria for two primary reasons: 1) EPA has not required the applicant to provide sufficient fish tissue data specific to this area of impact prior to drafting this permit, 2) Idaho has not finalized its implementation guidance for this criteria pursuant to EPA's comments in the existing guidance document.

At a minimum, prior to reissuance of a new DEIS and draft NPDES Permit, and in addition to completing and making publicly-available for comment any "study plan" as part of the NEPA and draft NPDES Permit review process, EPA should require the following:

(1) Direct the applicant to collect such fish tissue data as is necessary to determine if the permit is in compliance with Idaho's criteria. EPA should issue a 308 request to the applicant to gather and provide the necessary information prior to issuing a revised draft NPDES permit.

We recognize that Big Deer Creek may lack sufficient numbers of appropriate trophic level fish to establish a fish tissue baseline. As a result, it may be appropriate for samples to be taken from Panther Creek. Additionally, EPA may wish to advise the applicant to review what other dischargers are doing with regard to "study plans." It may be that the applicant does not need to reinvent the wheel on this and can develop such a plan by consulting/coordinating with others.

(2) Direct IDEQ to develop implementation guidance on this matter prior to the issuance of a permit utilizing the Idaho methylmercury criteria.

(3) Require that this facility develop a mercury minimization plan (MMP) since this facility accepts ore that contains mercury. An approved MMP should then be integrated into the facilities

BMPs. Doing so is a necessary component of mercury control, made that much more necessary in light of the fact that there is insufficient fish tissue data for this area.

(4) Include a Bioaccumulation Factor (BAF) for mercury. Integration of Idaho's methylmercury fish tissue criteria into an NPDES permit, in the absence of appropriate implementation guidance from the State and sufficient fish tissue data, requires the development and use of a mercury BAF to allow for the conversion of current mercury levels in the creek and additional mercury discharges to be translated into projected fish tissue levels. The development of use of mercury BAF is required to show compliance with Idaho's methylmercury criteria.

**This is a general response to comments 5-10. Responses to specific issues follow in comments 6-10.**

**Response:** The comment asserts that the permit conditions fail to ensure compliance with the Idaho's methylmercury water quality standard of 0.3 mg methylmercury/kg fresh weight fish. As discussed in the Fact Sheet, the mercury limits in the draft permit were based on the Idaho's chronic aquatic life criterion of 0.012 µg/L in the water column. While we believe this stringent effluent limit will be protective of human health as well as aquatic life, we acknowledge that additional information needs to be collected to determine whether more stringent limits will be needed to meet Idaho's fish tissue criteria. The requirements for collecting this information are discussed below and also in responses to comment #s 6 and 7.

To address concerns expressed in this comment and comment #s 6 and 7, below, we have added the following reopener clause to the permit to modify the permit if fish tissue monitoring data indicate that more stringent mercury limits are needed. See permit Part II.C.7.

Reopener clause: This permit may be modified in accordance with the requirements set forth at 40 CFR Parts 122 and 124, to include appropriate conditions or limits to address reasonable potential to exceed fish tissue criteria based on newly available information.

Along with the reopener clause, the following requirements are included in the permit as required by the State 401 certification to ensure that the discharge is in compliance with the mercury standards. The permittee will not be authorized to discharge until it has submitted a fish tissue study for metals, including methylmercury, which has been approved by IDEQ. In addition, the permittee will not be authorized to discharge until it has submitted the data from the first sampling event, necessary to document baseline conditions for methylmercury, to IDEQ, EPA, NMFS, and USFWS.

Fish Tissue Study Plan: The draft IDEQ 401 certification required that Formation develop and submit a methylmercury study plan within 12 months of the permit effective date to assess whether more stringent permit limits are necessary to ensure compliance with Idaho's methylmercury criteria. IDEQ has since revised its language in the 401 certification as follows.

#### *Methylmercury Fish Tissue Study Plan*

##### Purpose

Through development and implementation of a fish tissue study plan, Formation must assess current (baseline) methylmercury concentrations in fish tissue and conduct annual monitoring of fish tissue methylmercury concentrations. .

#### Development and Implementation Schedule

Formation must develop and implement a fish tissue study plan to assess concentrations of methylmercury in fish tissue which achieves the objectives and the specific requirements listed below.

1. Prior to discharging pollutants, Formation must complete the following actions:
  - a. Within 90 days of the effective date of the permit, Formation must develop and submit to DEQ for approval a fish tissue study plan to assess fish tissue concentrations of methylmercury.
  - b. Within 30 days of approval of the plan by DEQ, Formation must submit notice to EPA and the National Marine Fishery Service (NMFS) that the plan has been approved by DEQ. The notice shall include a copy of DEQ's notice to Formation that the plan has been approved.
  - c. Prior to discharge of pollutants, Formation shall complete the baseline monitoring in accordance with the fish tissue study plan (i.e. the first round of sampling, to determine baseline methylmercury concentrations in fish tissue prior to the addition of Formation's discharge).
  - d. At least 30-days prior to discharge of pollutants, Formation shall submit the results from the baseline monitoring to DEQ, EPA, NMFS, and U.S. Fish and Wildlife Service (USFWS).
2. For the remainder of the permit term, Formation shall conduct annual fish tissue methylmercury monitoring in accordance with the approved fish tissue study plan.

#### Objectives

Formation must develop and implement the fish tissue study plan consistently with the following objectives:

1. Obtain baseline information to assess the concentrations of methylmercury in fish tissues prior to Formation's effluent discharge.
2. Perform annual fish tissue methylmercury monitoring to assess impacts from Formation's effluent discharge.
3. Compare results to DEQ's methylmercury fish tissue criterion.

#### Procedures Regarding the Fish Tissue Study Plan

The fish tissue study plan must be consistent with the state's *Idaho Fish Consumption Advisory Program* (IFCAP) protocol, the state's *Implementation Guidance for the Idaho Mercury Water Quality Criteria* (DEQ 2005), and EPA's *Guidance for Assessing Chemical Contaminant Data for use in Fish Advisories, Volume I* (EPA 823-B-00-007, November 2000).

After the baseline study is completed, fish tissue monitoring shall be performed annually in accordance with the approved plan. Formation must conduct fish tissue monitoring of non-ESA listed resident salmonids. If the permittee has difficulty obtaining adequate numbers of resident salmonids, other local species may be substituted with the approval of DEQ.

Fish for tissue samples must be collected in the reach of Big Deer Creek downstream of Outfall 001 and upstream from the falls.

#### Quality Assurance/Quality Control Plans

Quality assurance/quality control plans for all monitoring must be documented in the Quality Assurance Plan required under the permit, Part II.A., "Quality Assurance Plan."

#### Reporting

Baseline and annual fish tissue monitoring results must be submitted to EPA, DEQ, NMFS, and USFWS with the DMR for the month following Formation's receipt of the results. In addition, a summary of the results must be submitted with the application for renewal of the permit. At a minimum, results submitted must include the following:

1. Dates of sample collection and analysis.
2. Sample location.
3. Results of sample analysis.
4. Relevant quality assurance/quality control (QA/QC) information.
5. Analysis of any increases or decreases seen in tissue concentrations of methylmercury.

The final NPDES permit incorporates this requirement for a methylmercury fish tissue study plan in Part II.C.

Mercury Minimization Plan (MMP): The commenters' request that the permit require implementation of a Mercury Minimization Plan, which is a plan developed by the facility to minimize mercury in its discharge. EPA has included in the final permit a requirement for a MMP. This requirement is found in Part II.B. of the final permit as a subset of the Best Management Practices (BMP) plan. This was also a requirement of the final State 401 certification. The specific language in the 401 certification is as follows:

#### *Mercury Minimization Plan*

Formation must develop and implement a mercury minimization plan, outlining best management practices associated with mercury. This plan shall contain, at a minimum, the required elements as described in the permit, section B, "Best Management Practices Plan."

Within 120 days of the effective date of the permit, Formation shall submit notice to DEQ and EPA that the plan has been developed and implemented.

The commenter also asserts that reliance on a future methylmercury study/report violates the public review requirements of NEPA and the CWA. Studies, plans, and reports are often required in NPDES permits. The NPDES regulations do not require that such information be reviewed by the public. See response to comment #7 below. In addition, the State's cover letter accompanying the final certification states the DEQ intends to provide the public notice and an opportunity to comment on the Methylmercury Fish Tissue Study Plan prior to DEQ's final decision regarding the plan.

### **Comment #6: Methylmercury Fish Tissue Study Plan**

Commenter Nos. 74 and 110

We do not believe that the permit requirement to "prepare and implement a study plan to assess compliance with IDEQ's methylmercury fish tissue criteria in order to determine if additional effluent limitations will be necessary during the next permit cycle" is sufficient to ensure compliance during the life of this permit with Idaho's methylmercury criteria. Collecting data, over the life of this permit, to determine if additional limits are needed in the next permit is not sufficient to ensure compliance during the life of this permit.

**Response:** See response to comment #5, above. The permit requires that baseline methylmercury fish tissue data be collected as part of a fish tissue study and submitted to IDEQ for approval and EPA and NMFS for review before discharge commences. A reopener is included in the permit to allow EPA to reopen the permit during the five-year term of the permit if the data collected is determined to require that more stringent mercury effluent limits are needed.

### **Comment #7: Collection of methylmercury fish tissue data prior to permit issuance**

Commenter Nos. 74 and 110

EPA should require collection of methylmercury data prior to permit issuance. Collecting data, over the life of this permit, to determine if additional limits are needed in the next permit is not sufficient to ensure compliance during the life of this permit.

**Response:** As discussed in responses to comment #s 5 and 6, the permit requires that the fish tissue study plan be approved and that the baseline fish tissue sampling and analysis be completed and submitted at least 30 days prior to discharge for this permit. We do not agree that this data collection needs to be performed before the permit is issued.

Fish tissue monitoring studies must be adequately designed by the permittee and approved by the appropriate regulatory agencies, in this case, IDEQ. Multiple samples are required to ensure a certain level of statistical confidence. Permits for capture of fish must be obtained from Idaho Department of Fish and Game. We believe that the permit provisions (I.A., II.C.) which require the baseline study sampling and analysis be conducted before any discharge is authorized, will sufficiently protect the designated uses. The collection of baseline data will allow EPA to assess whether the discharge has the reasonable potential to exceed the fish tissue criteria prior to

discharge of the effluent. If this is the case, EPA can reopen the permit to revise the effluent limits if necessary. In addition, NMFS' BO (2008) concluded that indirect effects to fish such as bioaccumulation of methylmercury are not likely to occur with the levels of mercury in the discharge. Furthermore, EPA believes that compliance with end-of-pipe aquatic life limits will provide sufficient protection until the study plan data is collected and analyzed. Finally, the permit requires the development and implementation of a plan (MMP) by the permittee to minimize mercury discharges in the effluent within 120 days of the effective permit date. Implementation of this plan will further contribute to assuring protection of the designated uses.

EPA may, but is not required to, collect data prior to issuance of an NPDES permit. Chapter 6 of the *U.S. EPA NPDES Permit Writers' Manual* (December 1996) instructs permit writers to obtain data before the permit is issued or during the term of the permit. Chapter 8, Section 8.1 of the *Permit Writers' Manual* discusses special conditions placed in the permit, which include special studies and additional monitoring for collecting data that was not available to the permit writer for consideration during permit development. It further explains that special studies and additional monitoring requirements are generally used to supplement numeric effluent limits or support future permit development activities. In accordance with this section of the manual, since data was not available to EPA for consideration during permit development, EPA has placed a special fish tissue study, including methylmercury, and additional monitoring in the permit to supplement the numeric mercury effluent limits and to support future permit development activities (i.e. to determine reasonable potential to exceed fish tissue criteria and establish whether numeric effluent mercury limits need to be lower). In addition, the permit requires the baseline sampling results to be submitted to EPA, IDEQ, NMFS, and USFWS at least 30 days prior to the first effluent discharge.

Finally, conditions in the final permit agree with recommendations in EPA's final *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion*, (January 2009) for permitting situations like Idaho Cobalt. Section 7.5.1.1.1 of the guidance recommends permit conditions in situations where it is unknown whether a discharge includes quantifiable amounts of mercury because there are limited or no effluent data to characterize the discharge of mercury, as follows:

In this situation, EPA recommends that the permitting authority include permit conditions that include the following elements:

- Effluent monitoring using a sufficiently sensitive EPA-approved analytical method to characterize the discharger's effluent for mercury
  
- A reopener clause to identify the actions that the permitting authority may take should the monitoring information indicate that a WQBEL for mercury is necessary.

EPA recommends that permitting authorities require monitoring, using a sufficiently sensitive EPA-approved method, by all facilities for which the mercury levels are unknown or previously undetected (using less sensitive methods) to characterize the discharger's effluent for mercury. EPA recommends this monitoring to help identify all facilities that contribute to mercury loads in the waterbody. The permitting authority

could obtain these monitoring data as part of the permit application, by requiring periodic (e.g., quarterly to annually) monitoring as part of the permit, or by invoking its authority under CWA section 308 (or equivalent state authority) to require NPDES facilities to collect information necessary for developing NPDES permit limits. The permit should include a reopener clause so that as soon as there is complete information and an indication that a more stringent limit is required, the permitting authority can establish the necessary requirements. The permitting authority may also decide to no longer require the monitoring if the information shows that the facility is not discharging mercury at quantifiable levels.

Until the permitting authority has sufficient data to determine whether the discharge has reasonable potential, and depending on the particular facts, the permit writer may reasonably conclude that the permit conditions described in this section are as stringent as necessary to achieve water quality standards, as required by CWA section 301(b)(1)(C).

### **Comment #8: Idaho Methylmercury Implementation Guidance**

Commenter Nos. 74 and 110

Idaho has not finalized its implementation guidance for this criterion pursuant to EPA's comments in the existing guidance document. EPA should direct the IDEQ to develop methylmercury implementation guidance prior to issuance of the permit.

**Response:** IDEQ considers the Implementation Guidance for the Idaho Mercury Water Quality Criteria of April, 2005 as final and it is so identified on the State website at [http://www.deq.state.id.us/water/data\\_reports/surface\\_water/monitoring/idaho\\_mercury\\_wq\\_guidance.pdf](http://www.deq.state.id.us/water/data_reports/surface_water/monitoring/idaho_mercury_wq_guidance.pdf). While EPA identified some suggested changes to the Guidance when draft, DEQ has not revised its Guidance in response to all those comments. However that is not a relevant issue that can be resolved in this permit. Furthermore, the final permit (II.C.) requires the fish tissue study plan be consistent with the final State Guidance as well as EPA Guidance.

### **Comment #9: Methylmercury Minimization Plan (MMP)**

Commenter Nos. 74 and 110

EPA should require the facility to develop a Methylmercury Minimization Plan.

**Response:** EPA has required a Mercury Minimization Plan (MMP) in the final permit as a part of the Best Management Practices (BMP) Plan; it is a requirement of the State 401 certification. See response to comment #5, above for a more complete discussion.

### **Comment #10: Mercury Bioaccumulation Factor (BAF)**

Commenter Nos. 74 and 110

EPA should include a BAF for mercury.

**Response:** At this time, EPA does not have data to establish a site-specific bioaccumulation factor (BAF) or to implement the approved methylmercury fish tissue criterion. The permit does not require that a BAF be developed for mercury. Instead, site-specific fish tissue data will be collected. Fish tissue data is a direct measure of tissue concentration and therefore more accurate than calculating a BAF. A BAF allows a translation between a water column concentration and a fish tissue concentration. However, translation of pollutant concentrations from one media to the other introduces uncertainty and possible error based on the assumptions that must be made in the translation equation. It is more accurate to use direct measure of fish tissue concentration to assess compliance with the Methyl Mercury water quality standard and that is what is required in this permit.

### **Comment #11: Mercury Method Detection Limit (MDL)**

Commenter No. 91

The commenter noted that the mercury MDL is considerably higher than concentrations recently measured in the Salmon River, as well as ambient concentrations predicted to exceed fish tissue criteria using EPA's median bioaccumulation factors from the 1997 Report to Congress. Mercury should be monitored with meaningful detection limits.

**Response:** Agreed. The mercury Minimum Level (ML) in the draft permit was 0.01 µg/L. EPA has revised this permit condition to require the facility to use a method that can attain a Method Detection Limit (MDL) of 0.2 ng/L (0.0002 µg/L). The USEPA approved method 1631e has a MDL of 0.2 ng/L. See Table 2 of the final permit.

### **E. Copper, pH, and Sediment**

#### **Comment #12: Draft NPDES Permit fails to ensure that copper, sediment and pH discharges do not "cause or contribute" to violation of water quality standards**

Commenter Nos. 110 (copper and sediment) and 74 (copper)

The following text was taken from letter 110, containing comments that adopt and incorporate by reference all comments from letter 74:

Big Deer Creek is on Idaho's 303(d) list as a result of elevated levels of pollutants, including copper, sediment and pH. NPDES Fact Sheet at 11. In other words, the receiving waters already have too much copper, sediment, and low pH and violate the applicable water quality standards for these parameters. As such, discharges of these pollutants will "cause or contribute" to a water quality standard violation and thus cannot be authorized. 40 CFR §122.4(i). *See also* IDAPA 58.01.02.054.04. These requirements are especially critical because of Big Deer Creek's status as a "high priority water body" with regard to TMDL development and implementation. Here, despite this recognition, neither Idaho nor EPA have completed this TMDL, as required.

**Response:** EPA believes that the NPDES permit ensures that copper, sediment, and pH discharges will not cause or contribute to violation of water quality standards. 40 CFR 122.4(i)

sets forth the requirements for water quality-based permitting for new dischargers and new sources. The water quality-based permitting requirements must be met before a permit can be issued. The regulation states the following:

**§ 122.4 Prohibitions (applicable to State NPDES programs, see § 123.25).**

No permit may be issued:

...

(i) To a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:

(1) There are sufficient remaining pollutant load allocations to allow for the discharge; and

(2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. The Director may waive the submission of information by the new source or new discharger required by paragraph (i) of this section if the Director determines that the Director already has adequate information to evaluate the request. An explanation of the development of limitations to meet the criteria of this paragraph (i)(2) is to be included in the fact sheet to the permit under §124.56(b)(1) of this chapter.

[48 FR 14153, Apr. 1, 1983, as amended at 50 FR 6940, Feb. 19, 1985; 65 FR 30905, May 15, 2000

In 40 CFR 122.4(i), the first sentence, EPA is prohibited from issuing a permit to a new source or new discharger if the discharge will cause or contribute to the violation of water quality standards. Parts 122.4(i)(1) and (2) in the second sentence apply only if the new discharge is to an impaired water body **and** the State or interstate agency or EPA has performed a pollutants load allocation for the pollutant to be discharged, i.e. a total maximum daily load (TMDL) has been established. The first sentence and second sentence of 122.4(i) are two separate requirements. The first sentence is a general requirement that prohibits issuance of an NPDES permit to a new source or new discharger if the discharge will cause or contribute to a violation of a water quality standard, regardless of whether the receiving water is impaired and regardless of whether a pollutant load allocation via a TMDL has been assigned. The second sentence sets forth demonstrations that must be made before the new source or new discharger can discharge to an impaired stream with a TMDL in place.

EPA's permitting regulation 40 CFR 122.4(i) does not prohibit all discharges from new sources or new dischargers to impaired waters, but prohibits the issuance of the permit to a new source or new discharger if the discharge will cause or contribute to a violation of the water quality standards. See 40 CFR 122.4(i). Furthermore, for concentration-based pollutants such as copper, effluent limits requiring compliance with water quality criteria at the end of the pipe (i.e., point of discharge) are derived from and comply with all applicable water quality standards, as required by 40 CFR 122.44(d)(1)(vii)(A). See Water Quality Guidance for the Great Lakes System, 60 Fed. Reg. 15366, 15423 (Mar. 23, 1995), Ex. M; see also Section VIII.E.2.h of the Water Quality Guidance for the Great Lakes System: Supplementary Information Document, March 1995, EPA Doc. No. 820-B-95-001, Ex. N. Therefore, EPA believes that limiting discharges for such pollutants at criteria end of pipe would ensure that the discharge would not cause or contribute to a violation of water quality standards, within the meaning of 40 CFR 122.4(i).

### **Copper Limits Do Not Cause or Contribute**

Big Deer Creek is identified as impaired for copper on Idaho's CWA section 303(d) list. Ambient monitoring data indicates exceedences of copper water quality criteria. However the permit's end-of-pipe effluent limits for copper do not cause or contribute to violations of the water quality standards. The critical factor in this analysis is that the water quality criteria for copper are concentration-based, expressed in units of mass per volume. The acute and chronic cold water aquatic life criteria for the Idaho Cobalt Project and Big Deer Creek are 4.6 µg/L and 3.5 µg/L, respectively. Thus, if the ambient concentration of copper in the waterbody were at the level of the criterion (i.e. 4.6 µg/L), the addition of an effluent discharge with limits calculated to meet the concentration of the standard, 4.6 µg/L, would not increase the concentration of copper in the waterbody. In other words, the addition of mass (copper) and volume (water) would maintain the concentration of copper necessary to meet the criterion and thus would not cause or contribute to an exceedance of the criterion. Similarly, when the ambient concentration of copper in a waterbody exceeds the criteria (e.g. 6.9 µg/L, as collected at Water Quality Site 24 on Big Deer Creek), than addition of a volume of water that contains a concentration of copper in compliance with the numeric criteria will not increase the ambient concentration in the waterbody, and thus not cause or contribute to the exceedance.

As long as the concentration of copper in the volume of discharge added complies with or is below the level of the numeric criterion, the ambient concentration of copper in the waterbody will not increase; in fact the discharge of an additional volume of water at a lower concentration than ambient could potentially result in dilution of the copper and thus actually reduce the ambient concentration in the immediate area of the discharge.

### **pH and Sediment**

Big Deer Creek was listed on the 2002 CWA section 303(d) list (Idaho's 2002 Integrated Report) as impaired for pH and sediment. Subsequently, DEQ determined, based on the most recent ambient monitoring data, that the waterbody is not impaired for these pollutants. As a result DEQ removed Big Deer Creek for these pollutants from the 2008 CWA section 303(d) list (Category 5 of Idaho's 2008 Integrated Report). EPA approved the removal (delisting) for

impairment of pH and sediment in Big Deer Creek in the 2008 CWA section 303(d) list (2008 Integrated Report) on February 4, 2009. The effluent limitations for pH and sediment in the NPDES permit will meet the state water quality criteria for pH and sediment and therefore comply with the CWA.

### **pH Limits Do Not Cause or Contribute**

The pH limit in the NPDES permit is 6.5 – 9.0 s.u. The concentration-based Idaho water quality limits for pH are 6.5 – 9.0 s.u. The pH limit complies with the water quality standards at the end of pipe and therefore does not cause or contribute to a violation of water quality standards regardless of whether or not Big Deer Creek is impaired. Because Big Deer Creek is not impaired for pH, a pH discharge with a concentration equal to the criteria will be diluted in the receiving water. This cannot result in a violation of the pH criteria.

### **EPA's Interpretation of Idaho's Sediment Standard**

Idaho's WQS for sediment is a narrative standard, and EPA has interpreted that narrative in terms of a concentration based limit for total suspended solids (TSS). This is consistent with Idaho's interpretation of its narrative standard in TMDLs such as the *South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Loads*, October 2003. The State has used TSS as a surrogate for sediment in assigning wasteload allocations to point sources.

The TSS effluent limits in the permit are based on the Effluent Limitation Guidelines at 40 CFR 440.104 (see the Fact Sheet). As explained in the following paragraphs, EPA has determined that these technology based limits for total suspended solids are protective of the uses of the water body and represent a reasonable interpretation of the narrative water quality criterion for sediments at IDAPA 58.01.02.200.08

To evaluate the protectiveness and reasonableness of the TSS permit limits EPA consulted other sources which evaluate appropriate numeric limits and targets for suspended sediment. Suggested limits for suspended sediment have been developed by the European Inland Fisheries Advisory Commission and the National Academy of Sciences, and have been used by the State of Idaho in TMDLs. In these studies, a limit of 25 mg/L of suspended sediment provides a high level of protection of aquatic organisms; 80 mg/L moderate protection; 400 mg/L low protection; and over 400 mg/L very low protection (USDA FS 1990, Thurston et al. 1979). IDEQ states in its June 2003 guidance document "Guide to Selection of Sediment Targets for Use in Idaho TMDLs:" "We propose no specific targets for total suspended solids. The effects of sediment are dependent on concentration and duration of exposure. We recognize that there can be effects on biota at concentrations of total suspended solids above 25 mg/L, and many papers recommend a long-term exposure of not greater than 80 mg/L to maintain a good fish community." From the *South Fork Clearwater River Subbasin Assessment and TMDLs*, October 2003, a comprehensive review of TSS criteria conducted by DEQ and USEPA (Rowe et al. 1998) suggests that 25 mg/L is a highly protective threshold for salmonids. This threshold can be variable but likely ranges from about 25 mg/L to 80 mg/L, depending on duration.

In addition, both NMFS' and FWS' BOs found no likelihood of adverse effects from effluent TSS on ESA-listed species. NMFS (2008) states that concentrations estimated at the end of the

pipe will be diluted 20-fold by mixing in Big Deer Creek before reaching habitat occupied by ESA-listed fish species downstream of the falls. Therefore, NMFS concluded that levels of TSS from the effluent should not rise to levels that are likely to result in significant effects to ESA-listed species. USFWS (2008) concluded that based on typical flows in Big Deer Creek, dilution of the effluent should minimize any potential adverse effects from TSS.

Therefore, based on the above-cited studies, the technology-based TSS limits (20 mg/L, monthly average, and 30 mg/L daily maximum) are sufficiently stringent to protect the uses of the receiving water and represent a reasonable interpretation of Idaho's narrative standard. The State of Idaho in its 401 certification certified the TSS limits as complying with Idaho water quality standards.

### **Sediment Limits Do Not Cause or Contribute**

Because the sediment standard is expressed as a concentration of TSS, a concentration at the level of the standard will not cause or contribute to a violation of the sediment standard in Big Deer Creek. Discharge of TSS in concentrations that meet the concentration-based quantification, and thus the narrative standard, will not cause or contribute to a violation of the standard. Because Big Deer Creek is not impaired for sediment, a TSS discharge with a concentration based on a reasonable interpretation of the criteria will be diluted in the receiving water. This cannot result in a violation of the sediment criteria.

### **Comment #13: EPA is prohibited from issuing new NPDES permits until TMDLs are done.**

#### Commenter No.110

Text from letter no. 110:

Federal courts have prohibited EPA from issuing any new NPDES permit "until all necessary TMDLs are established for a particular WQLS [water quality limited stream]." Friends of the Wild Swan, Inc. v. U.S. EPA, 130 F. Supp.2d 1199, 1203 (D. Mont. 1999)(emphasis added), *affirmed in relevant part*, 74 Fed. Appx. 718: 2003 WL 21751849 (9<sup>th</sup> Cir. 2003). As the Ninth Circuit has stated:

#### **Prohibition on Permit Issuance Until All TMDLs are Established**

Appellants argue that the district court's order prohibiting new permits or increases in permitted discharges until all necessary TMDLs are established for particular WQLSs interferes with the regulatory scheme, which does not require a complete ban on discharges in violation of state water quality standards. *See Arkansas v. Oklahoma*, 503 U.S. 91, 108, 112 S.Ct. 1046, 117 L.Ed. 239 (1992). The district court's order, however, does not impose a complete ban but only restricts the issuance of new permits or increased discharges for WQLSs, which are already in violation of state water quality standard. This comports with the regulatory requirement precluding issuance of new permits for new sources that will cause or contribute to a violation of water quality standards. *See* 40 C.F.R. § 122.4(i).

Friends of the Wild Swan, Inc. v. U.S. EPA, 74 Fed. Appx. 718: 2003 WL 21751849 (9<sup>th</sup> Cir. 2003)(emphasis added) (attached). Thus, until the TMDL is established, no new discharges of copper, sediment, or low (or high) pH are allowed.<sup>2</sup>

<sup>2</sup>Further, once the TMDL is established, no new discharges of these parameters are allowed until it can be assured that the affected stream segment can handle the new loadings. *See* 40 CFR 122.4(i). This means that the load reductions in the TMDL must be implemented before any new discharges of those applicable parameters are authorized.

**Response:** The comments are based on the assumption that any discharge to a stream impaired for discharged parameters will cause or contribute to a violation of the water quality standards. The commenter misconstrues the 9<sup>th</sup> Circuit’s decision upholding the district court’s order in Friends of the Wild Swan, Inc. v. U.S. EPA, 74 Fed. Appx. 718: 2003 WL 21751849 (9<sup>th</sup> Cir. 2003). In that case, the district court ordered, without citing to any relevant authority, that “[u]ntil all necessary TMDLs are established for a particular WQLS, the EPA shall not issue **any new permits or increase permitted discharge for any permittee** under the National Pollutant Discharge Elimination System permitting program.” (emphasis added) Friends of the Wild Swan, Inc. v. U.S. EPA, 130 F.Supp.2d 1199, 1203 (D. Mont. 2000). The Ninth Circuit upheld the court’s order, noting that it “comports with the regulatory requirement precluding issuance of **new permits for new sources that will cause or contribute to a violation of water quality standards**” (emphasis added), referring to 40 CFR 122.4(i). The key here is that the district court’s order was broader than the Ninth Circuit’s characterization of 40 CFR 122.4(i). The district court’s order was a case-specific order, not a holding, and prohibited any new or increased discharges to certain impaired waters until necessary TMDLs were established. The Ninth Circuit upheld the order, noting that it “comports with the regulatory requirement precluding issuance of new permits for new sources that will cause or contribute to a violation of water quality standards.” It is true that the district court order comports with 40 CFR 122.4(i) in that the order is at least as stringent as the regulation. Significantly, however, the district court’s order goes beyond the regulation by banning **any** new or increased discharge to an impaired water until a TMDL is established. 40 CFR 122.4(i), as characterized by the Ninth Circuit, merely states that “new permits for new sources that will cause or contribute to a violation of water quality standards” are prohibited by 40 CFR 122.4(i). As explained above in Response to Comment #13, EPA has included effluent limits in the permit for copper, the only remaining impaired parameter in Big Deer Creek, that ensure that the discharge will not cause or contribute to a violation of the applicable water quality standards. 40 CFR 122.4(i), as written and as characterized by the Ninth Circuit, does not prohibit new discharges to water bodies if the discharges do not cause or contribute to violation of the standards. Thus the permit complies with 40 CFR 122.4(i).

Finally, the U.S. Supreme Court’s decision in *Arkansas v. Oklahoma*, 503 U.S. 91, 108, 112 S.Ct. 1046, 117 L.Ed. 239 (1992), concluded that there was nothing in the CWA that prohibited any new discharge under an NPDES permit to an impaired water body when there is no TMDL. Nor does 40 CFR 122.4(i) prohibit new discharges to impaired waters prior to the establishment of TMDLs.

**Comment #14: Degradation of impaired waters**Commenter No.110

The commenter asserts that the discharge will degrade water quality and states that degradation of impaired waters is prohibited.

Text from letter no. 110:

The Forest Service's Manual also highlights the prohibition of degradation to impaired waters listed under Section 303d.

Ideally the terms and conditions necessary to protect water quality on NFS land would be an interactive process with the state, and would include preventive, protective and/or restorative measures for both point and nonpoint pollution sources. This cooperation is particularly important **when dealing with impaired waters as defined by the CWA § 303(d), where no further water resource degradation is allowed.**

**Response:** This comment pertains to the Forest Service EIS and Forest Service manual and is not applicable to the NPDES permit. The provisions in the Forest Service manual are not provisions in the NPDES or EPA's water quality standards regulations. Moreover, the permit contains final limits that meet and achieve the State water quality standards, thus maintaining the existing uses in Big Deer Creek. By including limits that will ensure the discharge meets applicable water quality criteria, the permit ensures maintenance of water quality, and for the 303(d)-listed parameter (copper), ICP's discharge will actually result in an improvement to water quality, not degradation. Therefore, the permit is in compliance with IDAPA 58.01.02.051.01 (i.e., Idaho's regulation requiring protection of water quality necessary to protect existing uses).

Idaho's antidegradation standard is consistent with 40 CFR 131.12, and states the following:

**IDAPA 58.01.02.051. ANTIDEGRADATION POLICY.**

01. **Maintenance of Existing Uses for All Waters.** The existing in stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
02. **High Quality Waters.** Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Department finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the Department's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Department shall assure water quality adequate to protect existing uses fully. Further, the Department shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and cost-effective and reasonable best management practices for nonpoint source control. In providing such assurance, the

Department may enter together into an agreement with other state of Idaho or federal agencies in accordance with Sections 67-2326 through 67-2333, Idaho Code. (7-1-93)

03. **Outstanding Resource Waters.** Where high quality waters constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected from the impacts of point and nonpoint source activities.

Big Deer Creek is not a high quality water or outstanding resource water, so IDAPA 58.01.02.051.01 **Maintenance of Existing Uses for All Waters** is the applicable antidegradation standard.

For Big Deer Creek, a Tier 1 antidegradation analysis to maintain the existing uses is appropriate and is described below:

Tier 1 maintains and protects existing uses and water quality conditions necessary to support such uses. Where an existing use is established, it must be protected even if it is not listed in the water quality standards as a designated use. Tier 1 requirements are applicable to all surface waters. Waters that just meet the numeric criteria are tier 1.

### **Comment #15: No-net-increase plans for copper and sediment**

Commenter Nos. 110 (copper and sediment) and 74 (copper)

The commenters state that the discharge will violate the water quality standards for copper and that the Copper Reduction Plan should be in hand before the permit is issued 1) because the permit violates the water quality standards, and 2) because the public should be able to comment on the plan. The commenter also states that the discharge will violate sediment standards, and there should be a similar plan for sediments.

The following text was taken from letter 110, containing comments that adopt and incorporate by reference all comments from letter 74:

The draft NPDES Permit authorizes discharges of copper and sediment (as Total Suspended Solids, TSS) in violation of these prohibitions. For TSS, the Project would discharge up to 30 mg/L and 24.5 kg (daily max) and 15 mg/L and 9.2 kg (average daily value). Fact Sheet at 9. For copper, the Project would discharge up to 2.8 µg/L and 2.29 g (daily max) and 1.5 µg/L and .92 g (average daily value). *Id.* The Fact Sheet also admits that there will be “the addition of copper from the discharge.” Fact Sheet at 20.

EPA proposes to allow such new copper loadings from the Project as long as the discharge comes up with a plan in the future to reduce copper loadings in the overall drainage:

Prior to discharge, the permittee must prepare a written plan that: 1) describes the measures that will be implemented (if any) to ensure that, notwithstanding the addition of copper from the discharge, the total mass load of copper remains constant or decreases in the Big Deer Creek watershed; and 2) includes a schedule for the implementation of these measures.

Fact Sheet at 20. There is not even **any** requirement for such a “plan” regarding sediment/TSS.

However, the fact that future copper levels may “remain constant” or may even be reduced somewhat, still does not ensure that the new copper loadings will not “cause or contribute” to a violation of the copper standard in a stream segment that has too much copper, in violation of the CWA and 40 CFR 122.4(i). The draft NPDES Permit ignores the fact that, even with such a future, as-yet-unsubmitted plan, the stream will still violate water quality standards and thus cannot receive any more copper and sediment. Further, focusing on the “watershed” is vague and does not ensure that the receiving water at the point of discharge will comply with all water quality standards – the basic requirement of the CWA.

Further, issuance of the draft NPDES Permit for this project without an acceptable copper reduction plan in hand is inappropriate for two reasons: 1) it violates the requirement that EPA ensure that permit conditions comply with state water quality standards (see comments above), and 2) it denies the public the right to review and comment on a major component of the NPDES permit – in violation of NEPA and agency public notice and comment duties.

NEPA and the Clean Water Act provides for robust public participation and review. Compliance with an applicable federal and State water quality requirements is a key component of the proposed NPDES permit. It is not appropriate to issue this NPDES permit without allowing the public to review and comment on measures required to meet state standards.

This problem is made worse by the lack of any plan at all to ensure that the sediment/TSS standard is not violated. The revised DEIS and revised draft NPDES Permit must include not only a plan to ensure that copper standards are met at the point of discharge, but also sediment/TSS.

**Response:** As discussed in Response to Comment #12, the permit includes effluent limits for copper that ensure that the discharge will not cause or contribute to the exceedance of the copper water quality criteria. In addition, for high priority water quality-limited waters with no TMDLs, IDAPA 58.01.02.054.04 requires that a discharge not cause any increase in the total load of the limited parameter within the watershed. In the case of copper, which Idaho still considers a pollutant of concern in Big Deer Creek, IDEQ’s CWA section 401 certification required a no-net-increase plan to be submitted and approved by IDEQ prior to discharge to ensure compliance with IDAPA 58.01.02.054.04. The provisions at IDAPA 58.01.02.054 are not water quality standards but rather are additional requirements of state law. IDAPA 58.01.02.054 consists of regulations that describe the State’s CWA section 303(d) program for establishing TMDLs and CWA section 303(d) lists. The specific provision at issue, 58.01.02.054.04, is not a water quality standard, as it does not designate uses or establish criteria. Rather this provision states that Idaho will allow new or increased discharges in impaired waters prior to the State establishing a TMDL when interim changes to cap or decrease human caused discharges from point sources and nonpoint sources will be implemented. To implement this provision, the State has required in its CWA section 401 certification submission of a plan by the permittee showing how it will comply with this provision. The State must approve this plan before it will certify the discharge. If the State requires this limitation in its CWA section 401 certification, EPA is obligated to place the requirement in the permit based on Clean Water Act section 401(d), which states in part that any other appropriate requirement of State law set forth in such certification shall become a condition on any Federal permit subject to the provisions of the section. IDEQ’s CWA section 401 Certification did not require a no-net-increase plan for sediment because the State has submitted supporting documentation to EPA for removal of pH and sediments on Big Deer Creek from the

2008 CWA section 303(d) list. In a letter dated February 4, 2009, EPA approved the removal of the waterbody for these parameters from the CWA section 303(d) list, thus eliminating the need for a TMDL and thus the applicability of IDAPA 58.01.02.054.04.

To facilitate public participation, the State's final 401 certification states that DEQ intends to provide the public notice and an opportunity to comment on the Copper Loading Demonstration Plan prior to DEQ's final decision regarding the plan.

**Comment #16: Proof of no increase in copper loading is not possible.**

Commenter Nos. 115 and 156

Pages 14 and 15, item II.D: This requirement implies that Formation must prove that there will be no increase in copper loading prior to initiation of mining. Absolute proof is not technically possible. The EPA and the DEQ are cooperating agencies on the development of the Idaho Cobalt Project EIS which contains as definitive a projection of future copper loads in the Big Deer drainage as is possible. Please remove this requirement.

**Response:** EPA considers this to be a comment on the Idaho CWA section 401 Certification. IDEQ required the copper loading demonstration plan to ensure compliance with State water quality regulations at IDAPA 58.01.02.054.04. Although this provision is not a water quality standard under section 303(c) of the CWA, EPA is obligated to place the requirement in the permit based on Clean Water Act section 401(d), which states in part that any other appropriate requirement of State law set forth in such certification shall become a condition on any Federal permit subject to the provisions of the section.

**Comment #17: EPA should not grant an NPDES permit – “permit now, mitigate later approach is unacceptable.”**

Commenter No. 113

The commenter states that EPA is prohibited from issuing a permit to a new source if the discharge from its construction or operation will contribute to the violation of water quality standards and cites 40 CFR 122.4(i). The commenter asserts that the EIS would have to demonstrate that the discharge would not cause or contribute to violation of the water quality standards. The commenter goes on to say that no such showing had been made, and instead the fact sheet assumes that any additional pollutant loadings will somehow be captured and treated by the ICP with no specific plans or commitments at this time for meeting future requirements. The commenter states that EPA should not grant (i.e., issue) an NPDES permit, and that the “permit now, mitigate later approach is unacceptable and contrary to law.”

**Response:** This permit will not cause or contribute to violations of the water quality standards. Please see response to comment #12 above.

The “permit now, mitigate later” comment refers to the copper loading demonstration plan discussed on page 20 of the fact sheet. As required in IDEQ's CWA section 401 certification,

EPA has placed the requirement for a copper loading demonstration plan in the permit, so that there can be no discharge without a demonstration of a decrease or no change in the copper loading to the watershed (see response to comment #15). Independent of the mitigation plan, copper limitations in the permit have been calculated to meet the State's water quality standards at the end of the discharge pipe and will not cause or contribute to a violation of water quality criteria.

### **Comment #18: TMDL Completion**

#### Commenter No. 157

Overall, regarding the 303d streams, do you have an idea when the TMDL will be completed?

**Response:** EPA does not know when a copper TMDL will be completed for this waterbody. As discussed in responses to comment #s 12 and 13, sediment and pH are no longer pollutants of concern and have been removed from the CWA Section 303(d) list.

### **F. Stormwater**

#### **Comment #19: Stormwater – more information needed.**

#### Commenter Nos. 74 and 110

The commenters stated that more information needs to be provided to reviewers in order to determine if Stormwater discharges will impact the conditions of this NPDES permit and the receiving water. A general response offering more information is provided immediately below. Specific comments further below are taken verbatim from Commenter Nos. 74 and 110.

#### **General Response:**

Formation did not include storm water as a waste stream in their NPDES individual permit application. Instead they intend to apply for authorization of storm water discharges under the NPDES general permits for construction and operations. Therefore, stormwater discharges are not authorized under this permit.

Discharges during operations can be authorized by the Multi-Sector General Permit for Storm Water Associated with Industrial Activities in Idaho (MSGP) (NPDES Permit #IDR05-0000). EPA has recently completed the final version of the MSGP. Although, the effective date of the MSGP is September 29, 2008, facilities in Idaho are not expected to be eligible for coverage until early 2009, when the 401 certification of the permit has been obtained from the State. An advance version of the final MSGP proposed by EPA is available on EPA's website at <http://www.epa.gov/npdes/stormwater/msgp>. EPA expects to have MSGP coverage for facilities in Idaho prior to the operating phase at the ICP. In the event that the permit is not available before ICP enters the operating phase, FCC may submit a revised individual permit application to include coverage for storm water.

Storm water discharges occurring during construction at the facility may be permitted under the NPDES General Permit for Storm Water from Construction Activities in Idaho (NPDES Permit #IDR10-0000), otherwise known as the Construction General Permit or CGP. EPA has recently issued the 2008 final Construction General Permit (CGP). For more information regarding the CGP, see EPA's website at <http://cfpub2.epa.gov/npdes/stormwater/cgp.cfm>.

Since Formation is not authorized to discharge storm water under this permit, the permit does not need to provide information or analysis of storm water management or impacts. The FEIS describes storm water management for the selected alternative (Alternative IV) and potential impacts to surface waters. See Chapters 2 and 4 of the FEIS for more information.

**Comment #20: Leaching of stormwater metals**

Commenter Nos. 74 and 110

Will stormwater leach metals?

**Response:** See response to comment #19 above. This permit does not authorize storm water discharges. See the FEIS for information regarding potential for storm water to leach metals. See also FEIS responses to comments on pages D-54 and D-55.

**Comment #21: Treatment of stormwater metals**

Commenter Nos. 74 and 110

How will metals be treated?

**Response:** Again this permit does not require treatment of storm water since it does not authorize discharge of storm water. FCC will need to ensure they comply with the storm water general permits, which will require FCC to develop a Storm Water Pollution Prevention Control Plan. This plan will identify BMPs and any treatment needed for metals.

**Comment #22: Stormwater and IDAPA 58.01.02.054.04**

Commenter Nos. 74 and 110

Will stormwater metals be factored into compliance with IDAPA 58.01.02.054.04?

**Response:** This appears to be a comment on the Copper Loading Demonstration Plan. Since this is based on the certification, this comment applies to the certification.

**Comment #23: Additional stormwater outfalls**

Commenter Nos. 74 and 110

Are additional outfalls required?

**Response:** Not within this permit. No discharge of stormwater to Big Deer Creek is authorized by this permit. As noted above, stormwater may be regulated under the CGP and MSGP or a modified individual permit if the MSGP is not available before operation commences. Any precipitation which falls on the treatment facility and areas contributing runoff to the treatment facility is collected and treated and discharged from outfall 001.

**Comment #24: FCC application for storm water permit**

Commenter Nos. 115 and 156

In the event that EPA does not promulgate the MSGP before ICP enters the operating phase, Formation will submit a revised individual permit application requesting that EPA revise the permit to cover storm water discharges in a similar manner to the recently approved Teck Cominco Red Dog permit.

**Response:** Comments noted.

**G. Hardness**

**Comment #25: Hardness value used for calculation of hardness-dependent metals criteria**

Commenter Nos. 74 and 110

The permit needs to utilize hardness values of 10 mg/L with regard to hardness dependent metals. Idaho has refused to remove the 25 mg/L low end hardness cap with regard to gauging the toxicity of hardness dependent metals. The EPA needs to ensure that the toxicity calculations utilize EPA's recommendation that the low end hardness cap be lowered to 10 mg/L.

**Response:** EPA does not agree. The permit complies with the Idaho Water Quality Standards at IDAPA 58.01.02.210.03.c.i, which state in part:

For purposes of calculating aquatic life criteria for metals from the equations in Subsection 210.02, the minimum hardness allowed for use in those equations shall not be less than twenty-five (25) mg/L, as calcium carbonate, even if the actual ambient hardness is less than twenty-five (25) mg/L as calcium carbonate.

EPA calculated hardness dependent metals criteria using the low-end hardness cap of 25 mg/L as calcium carbonate in accordance with the Idaho Water Quality Standards. The State has certified in the Section 401 certification that calculating hardness-dependent metals criteria using 25 mg/L as calcium carbonate complies with the Idaho Water Quality Standards.

If there were no low-end hardness cap in the Idaho Water Quality Standards, EPA would have calculated the hardness dependent metals criteria according to EPA procedures. As noted in the fact sheet, for the purposes of calculating a conservative value for metals criteria, EPA uses the 5<sup>th</sup> percentile of hardness values measured in the receiving water. In the case of ICP, the 5<sup>th</sup> percentile of 16 hardness measurements collected from WQ-24 is 20.5 mg/L. For ICP, therefore,

the recommended low-end hardness cap of 10 mg/L would not have been used in the criteria calculations even if Idaho standards did not include such a requirement.

## H. Groundwater

### **Comment #26: The permit fails to integrate flow from the groundwater interception wells.**

Commenter Nos. 74 and 110

Text from letter 110, containing comments that adopt and incorporate by reference all comments from letter 74:

The Fact Sheet (at II C. Water Treatment) reports that the water treatment facility has a design capacity of 150 gpm. Anticipated inputs are 75 gpm from mine drainage and 38 gpm from the tailings facility. This totals 112 gpm expected inflow with 38 gpm additional capacity.

It is well understood that the rock structure in this area contains numerous fractures resulting in potentially rapid groundwater transport. Additionally, this area is understood to have significant hydrologic connection between groundwater and surface water via springs, seeps, etc.

Modeling incorporated in the Forest Services NEPA process seems to indicate that there is a likelihood that this mine operation may result in groundwater contamination. When this occurs, the preferred method of dealing with this situation appears to be based on using wells to intercept contaminate plumes and pumping the contaminated groundwater to the surface for treatment and eventual discharge via outfall 001.

In the event that this groundwater intercept approach is utilized, we are concerned that the treatment plant envisioned in the NEPA and NPDES process will be significantly undersized. The reserve capacity available at the proposed plant (38 gpm) will be quickly overwhelmed in the event that groundwater interception comes on line.

Subject to applicable requirements, EPA and the Forest Service should require the applicant to construct a treatment facility that has treatment capacity sufficient to treat groundwater assuming maximum intercept volume.

**Response:** During mining, groundwater collected from mine dewatering will be used in the milling process. A portion of the mine water will be treated and discharged via the NPDES outfall. According to the FEIS, ground water contamination is not predicted to occur during mining and mine dewatering. The application for this NPDES permit included water balance information reflective of mine operations. Therefore, the NPDES permit only covers those conditions. The FEIS identified the possibility of groundwater contamination at mine closure. If this occurs, the groundwater interception wells will be used to collect the groundwater. This could change the water balance for the NPDES permit, in which case a permit modification may be needed. If FCC modifies their operational plan to include other sources and flows of water to be discharged through their outfall such as groundwater interception flows that would discharge to surface water, FCC will be required to apply for a modification of the NPDES permit. Even if the operational plan is not modified, any surface water discharge related to the groundwater interception wells may be regulated in subsequent permits.

**Comment #27: More extensive groundwater monitoring network**Commenter Nos. 74 and 110

Text from letter 110, containing comments that adopt and incorporate by reference all comments from letter 74:

The permit needs to call for a more extensive network of groundwater monitoring wells.

As noted previously, this area has significant potential for a hydrologic connection between groundwater and surface water. As a result, the monitoring of groundwater contamination takes on significance with regard to preventing a discharge to a water of the United States.

The groundwater monitoring network described in the DEIS is not sufficient to ensure that contaminate plumes are detected. The fractured nature of rock in this area means that contaminated groundwater can move rapidly via narrowly defined fractures. It will be very difficult to detect contaminated plumes moving through these cracks in the absence of a very extensive monitoring well network.

The draft permit fails to incorporate groundwater monitoring. The draft permit at II D outlines requirements for surface water monitoring. A parallel permit condition needs to be created for groundwater monitoring.

**Response:** This permit authorizes the discharge from Outfall 001 to Big Deer Creek. EPA does not regulate groundwater in NPDES permits unless a hydrologic connection to surface water has been established. Such a hydrologic connection has not been shown to occur in the activities covered during this permit cycle. See also response to comment #26.

**I. Sulfate****Comment #28: Lower Sulfate Limit**Commenter No. 91

The commenter recommended that the final permit contain effluent sulfate limits that will result in no more than 50 mg/L for the average instream concentration and 100 mg/L for the maximum instream concentration. The commenter suggested effluent limits be no greater than an average of 500 mg/L or a maximum of 750 mg/L for protection of the beneficial uses in the stream.

Text from letter 91:

The best available science on the effects of sulfate on aquatic life is probably reflected in a recent analysis by the Ministry of Environment, Lands and Parks, Province of British Columbia, Canada (Singleton 2000). To protect freshwater organisms in British Columbia, a water quality guideline of <100 mg/L for dissolved sulfate, measured as SO<sub>4</sub>, is recommended. This guideline is a maximum concentration that should not be exceeded at any time. An average concentration of <50 mg/L to protect aquatic mosses is also recommended. Their recommendations considered a

series of toxicity tests with the amphipod *Hyalella azteca*, in which a 96-hour exposure to 205 mg/L in soft water (50 mg/L) killed 50% of the organisms. Dividing this result by 2 was intended to extrapolate from a severely toxic condition to a low or no-acute toxicity condition. Since water in Big Deer Creek is often of much lower hardness than 50 mg/L, it would be prudent to interpret this guideline conservatively. There was also some evidence that elevated sulfate levels (average of 71 mg/L sulfate; range of 27.7 to 189 mg/L) can stimulate large sulfur bacteria growths which can cover creek beds and result in significant changes to the macroinvertebrate community (Singleton 2000).

Therefore, to protect against adverse modification of critical habitats and discharge of deleterious materials in concentrations that impair the beneficial uses of the receiving waters, effluent limits sufficient to prevent average sulfate concentrations from reaching 50 mg/L or maximum concentrations from reaching 100 mg/L are recommended. Effluent limits greater than about 500 mg/L (long-term average) or 750 (maximum) would likely cause exceedences of these instream concentrations and should be avoided.

**Response:** Based on a literature review of the invertebrate studies cited below, EPA believes that there is insufficient data to support the 50 mg/L instream value suggested in the comment. In addition, NMFS' BO concluded that an instream sulfate target of 250 mg/L was not likely to cause adverse effects to ESA-listed salmonids. EPA believes that an instream value of 100 mg/L at the edge of the regulatory mixing zone, as required in the State's 401 certification, is protective based on the following discussion.

The 7-day EC50 for juvenile rainbow trout is 1105 mg/L at a hardness of 100 mg/L. Rainbow trout embryo viability in a 7-day test shows a No Observed Effect Concentration (NOEC) of 1060 mg/L and a Lowest Observed Effect Concentration (LOEC) of 3500 mg/L (BC Research 1998). NMFS' BO stated that other studies (Singleton 2000) have reported 96-hour LC<sub>50</sub>s for rainbow trout ranging from 5,000 mg/L in soft water (25 mg/L CaCO<sub>3</sub>, similar to the hardness in Big Deer Creek) to 9,900 mg/L SO<sub>4</sub> in hard water (250 mg/L CaCO<sub>3</sub>). NMFS' BO also states that Davies (2007) reevaluated toxicity studies on aquatic moss and found that the very low concentrations were in error and that his studies do not show toxicity effects at sulfate concentrations less than 600 mg/L at low hardness values similar to those found in Big Deer Creek.

A permit limit based on rainbow trout data would be inappropriate because there is a possibility that the more sensitive bull trout could be exposed to the outfall. However, there is insufficient information to develop limits for bull trout.

It is EPA's belief that the appropriate data to use to determine a reasonable limit is from the invertebrate assemblage, as effects to the fish food base should be avoided to be protective of the ESA species in the action area. Further supporting this belief, sulfate toxicity testing generally indicates that invertebrates are more sensitive to sulfate than salmonids are (NMFS 2008).

Several studies are available on sulfate effects to invertebrates. The data from (PESC 1996) states LC<sub>50</sub>s of 205 mg/L, 3711 mg/L, and 6787 mg/L for *Hyalella azteca* 96-hour test for soft (25 mg/L CaCO<sub>3</sub>), medium (100 mg/L CaCO<sub>3</sub>) and hard water (250 mg/L CaCO<sub>3</sub>) (see Singleton 2000). Published data by Soucek (2004) has *Hyalella azteca* LC<sub>50</sub> 96-hour test results of 512 to 1,413 mg/L sulfate in moderate (100 mg/L CaCO<sub>3</sub>) to hard water. Other test

invertebrates were less sensitive to sulfate. Soucek (2004) also found LC50s increase dramatically depending on formulation of test water (both hardness and chloride) where *Hyalella* survival positively correlated with chloride concentration.

EPA interpreted Idaho's narrative standard for toxics and, based on the above information, concluded that sulfate in the discharge meets the definition of a toxic and that toxic levels of sulfate could impair designated beneficial uses. The final permit limits were calculated in accordance with EPA's 1991 *Technical Support Document for Water Quality-based Toxics Control*. See Appendix A spreadsheet titled *Water Quality-Based Ammonia and Sulfate Permit Limit Calculations*.

IDAPA 58.01.02.010. **DEFINITIONS** defines a toxic substance as the following:

**94. Toxic Substance.** Any substance, material or disease-causing agent, or a combination thereof, which after discharge to waters of the State and upon exposure, ingestion, inhalation or assimilation into any organism (including humans), either directly from the environment or indirectly by ingestion through food chains, will cause death, disease, behavioral abnormalities, malignancy, genetic mutation, physiological abnormalities (including malfunctions in reproduction) or physical deformations in affected organisms or their offspring. Toxic substances include, but are not limited to, the one hundred twenty-six (126) priority pollutants identified by EPA pursuant to Section 307(a) of the federal Clean Water Act.

Idaho's narrative criteria for toxics at IDAPA 58.01.02.200.02 states:

**.02 Toxic Substances.** Surface waters of the state shall be free from toxic substances in concentrations that impair designated beneficial uses. These substances do not include suspended sediment produced as a result of nonpoint source activities.

The final permit contains average monthly and maximum daily effluent sulfate limits of 930 mg/L and 1867 mg/L, respectively. These limits were calculated based on the State's CWA 401 certification, which allowed acute and chronic dilution factors of 20:1 and 23:1, respectively, based upon meeting an instream value of 100 mg/L at the edge of the regulatory mixing zone. According to the certification, the regulatory mixing zone shall not exceed 5 meters downstream of the diffuser and shall not use more than 25 percent of the width or volume of Big Deer Creek.

See response to comment #29.

**Comment #29: Remove the sulfate limit.**

Commenter Nos. 115, 121, and 156

The commenters state that sulfate is a secondary drinking water constituent, the standard for which is based on color, taste, and odor, not toxicity and that there are no drinking water supplies along Big Deer Creek. Thus, its inclusion in the effluent limits has no basis in protecting the beneficial uses of the stream. The commenters also noted that IDEQ commented to EPA that the

250 mg/L limit “may be overly stringent.” (James S. Johnston, Letter to Michael Lidgard, December 1, 2006. The commenters requested that the sulfate limit be removed from the permit.

**Response:** EPA did not remove the sulfate limit from the permit. EPA believes there is sufficient information to support the inclusion of a sulfate limit to protect the aquatic life uses in Big Deer Creek.

Information on sulfate levels necessary to protect aquatic life was presented by NMFS in its Biological Opinion (BO), which included detailed analysis and references to literature to support inclusion of a numeric limit as necessary to prevent sulfate toxicity in Big Deer and Panther Creek to protect aquatic species. Based on this information, and EPA’s review of the literature cited in Comment #28, EPA believes there is adequate information to support the inclusion of a sulfate limit.

However, in its final certification, IDEQ authorized acute and chronic dilution factors of 20:1 and 23:1, respectively, for sulfate, with an instream concentration of 100 mg/L at the edge of the regulatory mixing zone. This mixing zone resulted in a maximum daily permit limit of 1,867 mg/L and a monthly average permit limit of 930 mg/L. Based on treatment of sulfate as a toxic in NMFS’ BO and interpretation of Idaho’s narrative toxicity standard, EPA calculated the limits as water quality-based toxics limits. See response to comment #28.

The possibility of a mixing zone for sulfate was noted on page 39 of the Fact Sheet, which states, “If Alternative IV is selected, for the final actions, and Formation modifies their Plan of Operations accordingly, then the final NPDES permit may contain a mixing zone for sulfate or the sulfate limit may be removed entirely from the permit as authorized by IDEQ.”

## **J. Whole Effluent Toxicity (WET) Tests**

### **Comment #30: WET tests during high and low flows**

#### Commenter No. 91

The commenter stated that there was no rationale for the requirements to conduct WET tests twice during low flow conditions and not at all during high flow conditions. The commenter suggested that monitoring representative of effluent conditions during high and low flow would be of value.

**Response:** Agreed. EPA customarily requires WET testing during high and low flow conditions for more complete information. The final permit contains WET testing during both high and low flow periods.

**Comment #31: Trigger for follow-up to WET testing**Commenter No. 91

Commenter observes that there is no trigger for follow-up action if toxicity is observed and wonders what the purpose of requiring WET testing is.

**Response:** EPA customarily requires triggers to be included in permits to evaluate the toxicity and, if exceeded, require follow-up testing and evaluation. The permit has been revised (Part I.C.) to identify a WET trigger level (1 TUc) and, if toxicity is observed above the trigger level, the permit requires accelerated WET testing and potentially a Toxicity Reduction Evaluation and Toxicity Identification Evaluation (TRE/TIE). These are standard requirements that EPA includes in permits for mining operations and other industrial facilities and can be found in *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070), *Toxicity Identification Evaluation; Characterization of Chronically Toxic Effluents, Phase I* (EPA/600/6-91/005F), *Methods for Aquatic Toxicity Identification Evaluations, Phase II: Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080), and *Methods for Aquatic Toxicity Identification Evaluations, Phase III: Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA-600/R-92/081).

**Comment #32: Dilution series**Commenter No. 91

The commenter states that there is no need for a dilution series of effluent concentrations to be used during WET testing since the limits are end-of-pipe.

**Response:** EPA retained the requirement for a dilution series in the final permit. The EPA Technical Support Document for Water Quality-Based Toxics Control (EPA 1991) recommends the use of five effluent concentrations and a control to determine the magnitude of toxicity in an effluent.

**K. Biomonitoring**Commenter No. 91**Comment #33: Instream biomonitoring would be appropriate.**

The commenter states that instream biomonitoring of potential receiving water impacts to macroinvertebrate and fish assemblages would be appropriate.

**Response:** EPA has included in the final permit additional biomonitoring requirements, as supported by IDEQ in the cover letter accompanying their State CWA 401 certification. Clean Water Act Section 308 (a), authorizes EPA to require monitoring to carry out the objectives of the Clean Water Act. The final permit includes a requirement for an aquatic invertebrate

sampling program and fish tissue sampling for 11 metals. See section II.B. of this Response to Comments.

This additional monitoring is necessary to evaluate the discharge's impacts on the invertebrate community structure of the stream (the prey base) and to evaluate the bioaccumulation of metals in fish tissue. Changes in the invertebrate community structure could indicate degraded water quality due to the discharge and may result in impacts to higher trophic level species. Bioaccumulation of metals in fish tissues may indicate impacts from toxics in the discharge. EPA believes the evaluations are necessary to ensure that the aquatic life uses in Big Deer Creek, including the support of ESA species, are protected. These conclusions are supported in the National Marine Fisheries Service BO (NMFS 2008) in the Terms and Conditions for implementation of the Reasonable and Prudent measures.

#### **L. Biotic Ligand Model (BLM)**

Commenter No. 91

##### **Comment #34: Require monitoring for future BLM parameters.**

The commenter states that the EPA water quality criteria for copper are proposed to change soon from the traditional hardness-adjusted basis to a criteria based upon a biotic ligand model (BLM) that is intended to account for multiple interacting factors that modify copper bioavailability and toxicity. The commenter asserts that this change might occur during the life of this permit, and the permit should monitor for biotic ligand model parameters for future use. The commenter also states that the use of BLM to set copper criteria still has some important questions to resolve and may need refinement.

**Response:** EPA has not yet developed guidance on any details for monitoring for biotic ligand model purposes. EPA believes that it is premature to require the monitoring before there is adequate guidance on monitoring frequency, number of samples required, etc. Therefore, EPA did not add the suggested parameters for monitoring in the permit. When the BLM procedures are finalized, EPA can request that the permittee collect this information or modify the permit accordingly.

#### **M. Cadmium**

Commenter No. 91

##### **Comment #35: Cadmium criteria seem out of date.**

The commenter states that the criteria values for cadmium in the fact sheet appear out of date and seem higher than those published in the Idaho criteria, thus limits based on meeting instream concentrations could not meet the criteria without a mixing zone.

**Response:** The cadmium criteria that EPA used to calculate the limits (0.52 µg/L acute and 0.38 µg/L chronic) in the draft permit, are the criteria that are effective for the State of Idaho for

CWA purposes. In accordance with the water quality standards regulations at 40 CFR 131.21(c) (often referred to as “The Alaska Rule”), water quality standards adopted and submitted to EPA after May 30, 2000, do not become effective as WQS for CWA regulatory programs until approved by EPA. Although the State of Idaho adopted lower revised cadmium criteria in 2006, those revised criteria are not in effect under the CWA until EPA acts to approve them. At the present time, EPA has not yet acted on these revised criteria. Therefore, the permit contains cadmium limits that are derived from the applicable CWA criteria.

## **N. New Source Performance Standard Prohibition Against Discharges From Froth-Flotation Mills**

### **Comment #36: Permit violates the NSPS prohibition against discharges form froth-flotation mills.**

#### Commenter No. 110

The commenter sets forth the statutory and regulatory background to NSPS zero-discharge requirements and asserts that the NPDES permit violates the zero discharge prohibition. The text of the comment letter is included below for clarity. Below the text, EPA responded generally to the comments, then below that general response, specifically to individual issues gleaned from the contents of the comment letter (Comment #s 37 through 43).

The following text was taken from letter 110:

#### *Statutory and Regulatory Background to NSPS Zero-discharge Requirement*

The purpose of the Clean Water Act “is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” 33 U.S.C. § 125 l(a). To fulfill this purpose, the Clean Water Act aims to eliminate completely the discharge of all pollutants into navigable waters by 1985 and, as an interim goal, to make waters suitable for fish, shellfish, wildlife, and recreation by 1983. *Id.* § 1251(a)(1), (2).

The central provision, or “fundamental premise,” of the Clean Water Act is section 301(a), which provides that “the discharge of any pollutant by any person shall be unlawful,” except as in compliance with enumerated sections of the Act. Natural Res. Def. Council v. U.S. EPA, 822 F.2d 104, 109 (D.C. Cir. 1987)(quoting 33 U.S.C. § 1311 (a)). The enumerated sections relevant here are sections 301,306, and 402. 33 U.S.C. §§ 1311, 1316, 1342.

Section 301(b) requires EPA to adopt increasingly stringent, technology based effluent limitations for existing point sources over time. *See* 33 U.S.C. § 131 l(b); Chem. Mfrs. Ass 'n v. Natural Res. Def. Council, 470 U.S. 116, 118 (1985); E.L du Pont deNemours & Co. v. Train, 430 U.S. 112, 121 (1977). An effluent limitation is “any restriction established by a state or [EPA] on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters ....” 33 U.S.C. § 1362(11). Once EPA promulgates these effluent limitations, section 301 (e) requires that they “shall be applied to all point sources of discharge of pollutants in accordance with the provisions of” the Act. *Id.* § 1311(e).

Section 306 calls for the implementation of even more stringent effluent limitations--standards of performance--for "new sources," which Congress defined as "any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance ...." *Id.* § 1316(a)(2). Section 306(b) directs EPA to promulgate a list of categories of sources and, for new sources within each category, regulations establishing national standards of performance. *Id.* § 1316(b)(1). The standards of performance must reflect "the greatest degree of effluent reduction which [EPA] determines to be achievable through application of the best available demonstrated control technology ...." *Id.* § 1316(a)(1). Congress directed EPA to adopt, where practicable, "a standard permitting no discharge of pollutants." *Id.* See also Natural Res. Def. Council v. U.S. EPA, 822 F.2d 104, 123 (D.C. Cir. 1987) ("In setting new source standards, EPA is statutorily required to give serious consideration to a standard permitting *no* discharge of pollutants.") (emphasis in original).

Particularly relevant here, Congress further provided that, once the standards of performance are established, "it shall be unlawful for any owner or operator of any new source to operate such source in violation of any standard of performance applicable to such source." 33 U.S.C. § 1316(e).

Congress thus "intended these regulations to be absolute prohibitions .... [T]here is no statutory provision for variances, and a variance provision would be inappropriate in a standard that was intended to insure national uniformity and 'maximum feasible control of new sources.'" E.I. du Pont de Nemours & Co., 430 U.S. at 138 (quoting S. Rep. No. 92-414 at 58 (1971) (ER 107)). See also Riverkeeper, Inc. v. U.S. EPA, 358 F.3d 174, 192 (2nd Cir. 2004) (explaining that the "legislative history of [section 306] suggests that Congress made a deliberate choice not to allow variances for new sources").

To ensure compliance with effluent limitations and performance standards, Congress created a permitting scheme for EPA to administer: section 402's National Pollutant Discharge Elimination System (NPDES) permit program. 33 U.S.C. § 1342. This program is "is central to the enforcement of the" Act. Natural Res. Def. Council v. Costle, 568 F.2d 1369, 1374 (D.C. Cir. 1977). Through this program, EPA issues permits applying effluent limitations and standards of performance to dischargers of pollutants. *Id.* NPDES "permits contain specific terms and conditions, as well as numerical discharge limits, which govern the activities of pollutant dischargers." Rybachek v. U.S. EPA, 904 F.2d 1276, 1283 (9th Cir. 1990).

Pursuant to section 306(b) of the Clean Water Act, 33 U.S.C. § 1316(b), EPA has promulgated regulations establishing effluent limitations and standards of performance for a variety of point source categories. See 40 C.F.R. parts 405-471. In 1982, EPA promulgated such regulations for the ore mining and dressing category. See 47 Fed. Reg. 25,682 (June 14, 1982) (proposed); 47 Fed. Reg. 54,598 (Dec. 3, 1982) (final). Within this category, EPA established several subcategories, including one that covers ore mining for copper, lead, zinc, gold, silver, and molybdenum. See 40 C.F.R. §§ 440.100-440.104.

For mining mills that use a froth-flotation process, such as the mill at the proposed Idaho Cobalt Project, EPA promulgated a zero discharge standard:

Except as provided in paragraph (b)[(2)] of this section, 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 copper, lead, zinc, gold, silver, or molybdenum ores or any combination of these ores.

40 CFR § 440.104(b)(1). This standard prohibits the discharge of process water into waters of the United States such as Big Deer Creek. The Ninth Circuit recently reiterated this strict prohibition in Southeast Alaska Conservation Council v. U.S. Army Corps of Engineers, --- F.3d ----, 2007 WL 1469694 (May 22, 2007)(decision attached). *See also* Southeast Alaska Conservation Council v. U.S. Army Corps of Engineers, 479 F.3d 1148 (9<sup>th</sup> Cir. 2007). “[T]he regulation clearly states that the zero-discharge performance standard for froth-flotation mills will apply to all new sources. *See* 40 CFR § 440.104.” *Id.* at 1152.

In developing this standard, EPA studied the mining industry, identified actual and potential control and treatment technologies, and estimated their costs. 47 Fed. Reg. 25,682, 25,688 (June 14, 1982). EPA therefore proposed that new mills “that use froth flotation achieve zero discharge of process wastewater.” *Id.* at 25,697. Pursuant to congressional guidance, in promulgating the final rule, EPA found that a zero discharge standard for mills using a froth-flotation process was practicable. EPA explained that its decision was “based on the fact that 46 out of 90 existing facilities for which [EPA had] data achieve zero discharge through total recycle and evaporation of process wastewater.” 47 Fed. Reg. 54,598, 54,602 (Dec. 3, 1982).

Industry commenters “contended that in rainy or mountainous areas, the costs of constructing the tailings impoundment necessary to achieve zero discharge and the costs of transporting recycle water back to the mill could be prohibitive.” *Id.* EPA rejected this argument, finding that mills had succeeded in achieving zero discharge in both mountainous and wet regions. *Id.*

#### *The Draft NPDES Violates the Zero-discharge Requirement*

Here, the draft NPDES Permit allows the discharge of process wastewater from the Project’s froth-flotation mill. Fact Sheet at 33. The draft permit argues that this is allowed due to the “net precipitation” discharge allowance pursuant to 40 CFR 440.104(b)(2). Fact Sheet at 33. EPA relies on Formation’s calculation of this “net precipitation” amount to be 20.2 million gallons/year or 38 gpm, and “adopts uses this flow rate as an effluent limitation pursuant to 40 CFR §440.104(b).” *Id.* The total discharge flow rate is 112 gpm.

This calculation, taken verbatim from the company’s proposal, is not supported by the facts (or the law). First, the documents do not specify how these calculations were derived. Where, specifically, are the 112 gpm effluent waters coming from? For example, Figure 3 in the Fact sheet says that the figure is made up of mine drainage (75 gpm) and drainage from the TWSF (38 gpm), minus 1 gpm loss.

The 75 gpm is supposedly “mine drainage”, but the Draft EIS says that only 51 gpm will be drained/pumped from the mine (43 from the Ram workings, 8 from the Sunshine workings). DEIS at 2-22. Where will the additional 24 gpm come from (75-51)? Even if “mine drainage” was allowed to be included in the mill discharge under the NSPS (which may not be the case), “mine drainage” would not include additional water from ground water wells used to provide the mill with additional water. *See* DEIS at 2-22 (describing how “process water would be provided by pumping groundwater from wells as needed.”).

Regarding the other water in the discharge, the 38 gpm from the TWSF is, according to Formation and the draft NPDES permit, the “net precipitation.” However, the TWSF in Alternative IV is only 36 acres (and the process ponds are only 6.6 acres). Further, according to the Company’s Plan of Operation, at 2-4, it appears that net evaporation exceeds net precipitation – thus excluding any use of the “net precipitation” allowance.

Even if the discharger can utilize water seeping from the TWSF as part of the “net precipitation” allowance for the zero discharge NSPS (which is doubtful), the “net precipitation” is only an allowance for the actual net precipitation falling on the “treatment facility.” It is highly unlikely that a net of 38 gpm falls on the TWSF and is subsequently released 24/7 year round for the life of the Project. Further, the actual NPDES Permit application only lists 75 gpm as the total water inflow to the process, which includes **both** the “mine dewatering” and “precipitation on tailings and waste rock disposal facility.” NPDES application at 3.

Also, from DEIS Figure 2-8 (p. 2-24), there is water going directly from the "Tails De-watering" and some from the "Process Water" pond into the water treatment plant and then eventual discharge, with no recycling back to the mill (although, from Figure 2-8, some of the water from the process pond will go back to the mill). How much of this water that will eventually be discharged from the treatment plant will come directly from the "tails de-watering" and how much from the process pond, without going through the mill? Further, Figure 2-8 appears to show “Mine de-water” water going directly from the “Mine Workings” to the treatment plant, not the mill. Yet this water is calculated as part of the allowable flow discharging from the treatment plant. In other words, “mine drainage” can only be utilized as part of the flow allowance, if at all, if it enters the milling process. Make-up water from wells is not “mine drainage.”

The NSPS zero-discharge requirement is intended to fully capture and recycle mill effluent. These transfers of water to the water treatment plant, without being recycled back through mill, violates the NSPS.

Lastly, any effluent from the milling process consisting of “co-mingled” mine dewatering inflow water and water from the TWSF is limited to the total mine dewatering water, not the combined flow. *See* EPA Development Document for ELGs and NSPS (Ore Mining and Dressing), November 1982, at 507.

Overall, even if applicable, the “net precipitation” allowance should be very small, and is limited to the “net” that falls on the limited “treatment facility” itself. The “net precipitation” allowance cannot be used as justification to allow more effluent from the mill than is allowed under the CWA and the ELGs/NSPS. In this case, that amount should be very small (and may be zero because there is no water falling on the insides of the mill building). Even if the “treatment facility” was the TWSF, that figures would be extremely small and not the very large 38 gpm relied upon by the draft NPDES Permit.

**General Response:** As described in the Fact Sheet, the New Source Performance Standards at 40 CFR 440.104 are applicable to the ICP. The NSPS do not establish limits on the volume of mine drainage that can be discharged (40 CFR 440.104(a)). However, the NSPS do prohibit the discharge of process wastewater, with certain exceptions. There is an exception to the zero-discharge requirement at 40 CFR §440.104(b)(2)(i) that allows the discharge of “net precipitation.” The regulation allows a volume of water to be discharged which is equal to the difference between annual precipitation (which falls on the treatment facility and the drainage area contributing surface runoff to the treatment facility) and annual evaporation. The limitations on this discharge are set forth in 40 CFR §440.104(a). This differential volume of water allowed to be discharged is defined as “net precipitation.”

As discussed in the Fact Sheet, the flow limit in the draft permit is the net precipitation allowance and was based on water balance and modeling information available to EPA. The draft permit condition limited the combined flow of the TWSF and ore stockpile to 38 gpm or less. This value has been revised, and the final permit contains an annual limit (17.6 million gallons per year). This limit represents the net precipitation allowance in compliance with 40 CFR 440.104(b)(2)(i). The responses to the comments below describe the basis for the revised net precipitation limit.

### **Comment #37: Discharge Amounts**

Commenter Nos. 110 and 157

Regarding the zero discharge NSPS requirement. Where specifically are the 112 gpm effluent waters coming from?

**Response:** The 112 gpm includes the modeled 38 gpm of net precipitation drainage from the TWSF plus the estimated 75 gpm mine drainage. Mine drainage is not limited in the zero discharge NSPS requirement (40 CFR §440.104(a)); only process water is subject to the no discharge requirement (40 CFR §440.104(b)). As discussed above the 112 gpm value has been revised.

Effluent would primarily consist of treated mine water and TWSF runoff and drainage as shown on Figure 3 of the Fact Sheet. Effluent would also consist of minor sources contributing precipitation to the TWSF, including rainfall on the water management pond and waste rock/ore stockpile, as described at the top of page 8 of the Fact Sheet.

### **Comment #38: DEIS flow chart**

Commenter Nos. 110 and 157

DEIS Figure 2-8 appears to show “Mine de-water” water going directly from the “Mine Workings” to the treatment plant, not the mill. Yet this water is calculated as part of the allowable flow discharging from the treatment plant. In other words, “mine drainage” can only be utilized as part of the flow allowance, if at all, if it enters the milling process. Make-up water from wells is not “mine drainage.”

The NSPS zero-discharge requirement is intended to fully capture and recycle mill effluent. These transfers of water to the water treatment plant, without being recycled back through mill, violates the NSPS.

**Response:** Figure 2-8 of the DEIS and FEIS is a diagram showing the water balance and flow. The first part of this comment states: “mine drainage” can only be utilized as part of the flow allowance, if at all, if it enters the milling process. Make-up water from wells is not “mine drainage.” Dewatering wells may be identified as mine draining depending upon where the wells are located. The NSPS do not place volume restriction on mine drainage or dewatering wells.

In addition, 40 CFR 440.131(a) identifies the situation where waste streams are combined for treatment and discharge. This is allowed and in relation to flow, this regulation states "...the discharge flow from the combined discharge shall not exceed the volume that could have been discharged had each waste stream been treated separately." There are no volume limits required for mine drainage. To ensure that only the net precipitation volume of process water is discharged, an internal limit was established that applies to the discharge from the TWSF (see permit Part I.B.4.). So long as that internal limit is established, there is no need for a flow limit for the combined discharge.

The NSPS at 40 CFR 440.104(b)(2)(i) allow process water to be discharged equal to the net precipitation, as detailed in the response to comment #43 below. The figure shows the pathways that might be used to do this.

### **Comment #39: Estimation of mine drainage flows**

#### Commenter Nos. 110 and 157

The 75 gpm is supposedly "mine drainage," but the Draft EIS says that only 51 gpm will be drained/pumped from the mine. Where will the additional 24 gpm come from?

**Response:** FCC estimates that average annual mine water inflow rate (i.e., 50% exceedance probability) would be 51 gpm as described at DEIS 2-22 and at FEIS 2-23. For water treatment and discharge engineering design and permitting purposes, FCC assumed a higher annual inflow value of 75 gpm that corresponds to a 500-year recurrence interval (i.e., 0.2% exceedance probability) as shown on Figure 3 of the Fact Sheet.

### **Comment #40: Acreage of the TWSF**

#### Commenter Nos. 110 and 157

The 38 gpm from the TWSF is according to Formation and the draft NPDES permit, the "net precipitation." However, the TWSF in Alternative IV is only 36 acres (and the process ponds are only 6.6 acres).

**Response:** The draft NPDES permit was based on the NPDES application accepted by EPA on July 14, 2006, which included information based on FCC's proposed project at the time (this is the same as Alternative II in the EIS). Because Alternative IV was the selected alternative, FCC submitted a new application on January 23, 2008 to be consistent with Alternative IV. Alternative IV contains a phased approach to the construction of the TWSF with a final area of 52 acres. The first two phases of the TWSF will be completed during this five-year permit cycle, so net precipitation will be based on the phase 2 acreage of the TWSF (44 acres). Please see response to comment #43 below.

**Comment #41: Evaporation appears to exceed precipitation**Commenter No. 110

According to the Company's Plan of Operation, at 2-4, it appears that net evaporation exceeds net precipitation – thus excluding any use of the “net precipitation” allowance.

**Response:** Page 2-4 in the Company's Plan of Operation contains data for total pan evaporation, which is a different measurement than lake evaporation. According to EPA's November 1982 *Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category*, the net precipitation allowance is the difference between annual precipitation and annual lake evaporation rather than annual pan evaporation. EPA relied on the estimates of evaporation and precipitation and the water balance modeling in the EIS to calculate the net precipitation allowance.

**Comment #42: Process water and mine dewatering combined flow**Commenter No. 110

Any effluent from the milling process consisting of “co-mingled” mine dewatering inflow water and water from the TWSF is limited to the total mine dewatering water, not the combined flow.

**Response:** The total volume that the facility can discharge is the net precipitation allowance plus mine drainage. Mine drainage is not limited for flow in 40 CFR §440 subpart J. See also response to comment #38, which addresses the issue of combined waste streams.

**Comment #43: Net precipitation calculations**Commenter Nos. 110 and 157

Even if the “treatment facility” was the TWSF, the figures would be extremely small and not the very large 38 gpm relied upon by the draft NPDES permit.

**Response:** The value of 38 gpm is a modeled estimate of annual net precipitation on the TWSF, ponds, and ore stockpile areas with a 500-year recurrence interval as described at the top of page 8 of the fact sheet. Net precipitation is total annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility minus annual evaporation. Net precipitation at ICP includes precipitation on the facilities that reports to the process pond as surface runoff and drainage from the TWSF. Average flows of net precipitation would be 38 gpm on an annual basis (e.g., 24/7 flows) during a 500-year wet year. Instantaneous flows would likely be higher or lower than the average.

EPA considers the dry-stack TWSF to be a part of the treatment facility. However, to respond to the commenters' assertion that the TWSF should not be considered part of the treatment facility, EPA calculated the net precipitation in two ways: 1) EPA calculated net precipitation as if the TWSF was not part of the treatment facility; 2) EPA calculated net precipitation with the TWSF as part of the facility.

1) Using procedures in EPA's November 1982 *Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category*, EPA calculated the net precipitation allowance on the areas contributing precipitation to the TWSF and process pond using the annual average precipitation (24.4 inches on a total of 57 acres, including the TWSF and process pond) and the annual average lake evaporation (21 inches on a total of five acres, not including the TWSF). Evaporation from the TWSF was not taken into account because, for this calculation, it was assumed that the TWSF was not part of the treatment facility (i.e. not a tailings pond, just a part of the facility contributing rainwater to the pond). The calculation resulted in a net precipitation value of 66.5 gallons per minute, as follows:

((Precipitation acreage x annual average precip in feet) – (Evaporation acreage x annual evaporation in feet)) x 43,560 ft/ac x 7.5 gal/ft<sup>2</sup>/365 days

$$\frac{((57 \text{ acres} \times 2.03 \text{ ft}) - (5 \text{ acres} \times 1.75 \text{ ft})) \times 43,560 \text{ ft/ac} \times 7.5 \text{ gal/ft}^2}{365 \text{ days}} = 95,736.5 \text{ gal/day}$$

$$= 66.5 \text{ gpm}$$

2) Using procedures in EPA's November 1982 *Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category*, EPA also calculated the value obtained when evaporation from the TWSF was taken into account as part of the treatment facility, as it would be from a tailings pond. The evaporation from the TWSF was estimated by Hydrometrics as follows (email communication 2007):

The CES Land Application Analysis Report for the Idaho Cobalt Project (2005) provides an estimate of potential evapotranspiration from the Alternative III land application area (vegetated) of 15.4 inches for the growing season of June 1 – Sept 30 based on the FAO-modified Blaney Criddle model. Evapotranspiration from the TWSF would be less than this, as the surface is not vegetated.

In the DEIS Water Resource Technical Report (2006), Appendix A, page 72, there is a calculated reference evapotranspiration by the Penman Monteith equation of 19.4 inches/year. Again, evapotranspiration from the TWSF would be less than this, as the surface is not vegetated.

Based on these evapotranspiration estimates for vegetated surfaces at the ICP, a reasonable estimate of evapotranspiration from the TWSF would be in the range of 7.5 to 10 inches, or roughly half of the estimated evapotranspiration from vegetated surfaces.

Using the more conservative value of 10 inches or 0.83 feet for the annual evaporation from the TWSF, the calculation results in a net precipitation value of 39.8 gpm, as follows:

((precipitation acreage x annual average precipitation in feet) – (evaporation acreage x annual average evaporation in feet)) x 43,560 ft/ac x 7.5 gal/ft<sup>2</sup>/365 days

$$\frac{(57 \text{ acres} \times 2.03 \text{ ft}) - (5 \text{ acres} \times 1.75 \text{ ft}) - (52 \text{ acres} \times .0.83 \text{ ft})}{365 \text{ days}} \times 43,560 \text{ ft}^2/\text{ac} \times 7.5 \text{ gal}/\text{ft}^2 =$$

$$57,284.4 \text{ gal}/\text{day} = 39.8 \text{ gpm}$$

Based on the above information, EPA is satisfied that the modeled 38 gpm is a protective and reasonable net precipitation value when all three phases of the TWSF are complete.

However, the preferred alternative in the FEIS is alternative IV, which includes a phased approach to development of the TWSF. The TWSF will be completed through phase 2 during this permit cycle. For the final permit, EPA has calculated the net precipitation based on phase 2 acreage of the TWSF (44 acres). EPA used the equation that includes evaporation from the TWSF, as follows:

$$\frac{(49 \text{ acres} \times 2.03 \text{ ft}) - (5 \text{ acres} \times 1.75 \text{ ft}) - (44 \text{ acres} \times .0.83 \text{ ft})}{365 \text{ days}} \times 43,560 \text{ ft}^2/\text{ac} \times 7.5 \text{ gal}/\text{ft}^2 =$$

$$48,333.7 \text{ gal}/\text{day} = 33.6 \text{ gpm}$$

The NSPS at 40 CFR §440.104(2)(i), refer to net precipitation on an annual basis. Therefore, EPA has translated the 33.6 gpm limit into a not to exceed annual limit (17.6 million gallons per year), which was placed in the final permit. See also response to comment #44.

**Comment #44: Limit should be an annual average instead of gallons per minute**

Commenter Nos. 72, 115, and 156

The commenters stated that the drainage from the Tailings and Wasterock Storage Facility (TWSF) is calculated to be less than 38 gallons per minute on an average annual basis according to the DEIS, but realistically, flows from the facility should vary widely, with flows from less than 10 gpm to flows possibly exceeding 100 gpm. The commenters requested that the permit clarify that the 38 gpm limit is an average annual flow, not a daily or other short term flow limitation.

**Response:** We agree with the commenters that the net precipitation flows from the facility could vary widely. Therefore, it is more appropriate to include an annual net precipitation limit rather than one based on gallons per minute (gpm). The draft permit contained a limit that the flow of wastewater discharged from the TWSF and ore stockpiles not exceed 38 gpm. EPA agrees that it is appropriate to replace the gpm limit with an annual limit of 17.6 million gallons/year based on the following discussion.

The value of 38 gallons per minute (gpm) limit was a modeled value representing average flows of net precipitation on an annual basis expressed as gpm. The net precipitation limit was established to ensure that the facility complies with the New Source Performance Standards (NSPS) in 40 CFR §440.104(2)(i) that state if annual precipitation falling on the treatment facility and the contributing drainage area exceeds the annual evaporation, a volume of water

equal to the difference, known as “net precipitation” may be discharged subject to the effluent limitations for mine drainage. However, the NSPS limit the total volume of net precipitation over the period of a year and do not specify the units for rate of discharge when developing flow limits for net precipitation (e.g. gallons/minute or gallons/day). An annual limit is consistent with the language in the regulation regarding annual precipitation and annual evaporation. However, compliance with this net precipitation limit will be measured by continuous monitoring summed over an annual basis with a not to exceed annual limit of 17.6 million gallons. (see Permit Section I.B.4.)

In addition to revising the units for the flow limit, EPA has also recalculated the net precipitation value. This recalculation is based on the net precipitation value for the TWSF at phase 2 consisting of 44 acres. See detailed response in response to comment #43.

## **O. Mixing Zones**

### **Comment #45: Support for no mixing zones**

#### Commenter No. 108

The Tribe strongly supports the use of end-of-pipe discharge standards in the NPDES permit, as opposed to utilizing the regulatory flexibility of a mixing zone.

**Response:** With the exception of sulfate, the limits in the final permit are based on meeting water quality criteria at the end-of-pipe and therefore do not include mixing zones. IDEQ did authorize a mixing zone for sulfate, but certified that the mixing zone was protective of the beneficial uses of Big Deer Creek. Please see Responses to Comment #28 and #29 above.

### **Comment #46: Clarification regarding mixing zone**

#### Commenter No. 110

The EPA and Forest Service should clarify issues surrounding the mixing zone. Although the Fact Sheet says that there will be no mixing zone (Fact Sheet 8), which we support, the DEIS discusses the need for a mixing zone to dilute excessive sulfate discharges. DEIS at 4-40. The revised DEIS and revised draft NPDES permit must state that there will be no mixing zone and that effluent limitations will reflect this fact.

**Response:** The possibility of a mixing zone for sulfate was noted on page 39 of the fact sheet and in its final certification IDEQ did authorize a mixing zone for sulfate. Please see Responses to Comment #s 28 and 29 above.

**P. Heavy Metal Contamination**

**Comment #47: Heavy metal contamination is a significant concern.**

Commenter No. 108

The Nez Perce Tribe states that a significant concern is heavy metal contamination due to the fact that Tribal members eat roughly 142 grams/day of fish, whereas the current fish consumption standard used for determining toxic water quality standards is 17.5 grams/day. The Tribe raises environmental justice concerns and asks for greater protections for human health.

**Response:** As discussed in Section II.B. of this Response to Comments, the final permit includes a requirement for fish tissue monitoring to test for bioaccumulation of the following 11 metals: aluminum, arsenic, cadmium, cobalt, lead, manganese, methylmercury, nickel, selenium, thallium, and zinc. Clean Water Act Section 308(a) authorizes EPA to require monitoring to carry out the objectives of the Act. This monitoring was included in the permit to evaluate the potential bioaccumulation of metals and their possible impact on designated and existing uses which include cold water aquatic life and human health based on a use for fish consumption. EPA believes the evaluations are necessary to ensure that the human health fish consumption (fishable goal of the CWA) and aquatic life uses in Big Deer Creek, including the support of ESA species, are protected. The monitoring for methylmercury was required in the State's final CWA 401 certification. The monitoring for the other 10 metals was also supported by IDEQ, as noted in the cover letter accompanying the final certification.

**Q. Miscellaneous Comments**

**Comment #48: Applicable Legal and Technical Standards**

Commenter No. 111

The commenter states that the United States Forest Service and the US EPA should look to the Blackbird Mine remedial actions to determine the appropriate maximum applicable standards and the sufficiency of technical analyses that would be required. The commenter asserts that the same standards should apply to the ICP as apply to the Blackbird Mine remedial action.

**Response:** The standards and sufficiency of technical analyses required in NPDES permits are governed under the requirements of the CWA. This permit was developed in accordance with NPDES regulations and guidance ensuring compliance with CWA requirements and State water quality standards. As discussed in the Fact Sheet and the response to Comment #30, EPA did use the cobalt criteria developed for the Blackbird Mine remedial action.

**Comment #49: Compliance with NEPA and ESA**Commenter No. 113

The commenter stated that the draft NPDES permit failed to comply with NEPA and ESA. The commenter asserted that NEPA had not been complied with because the BMSG had no opportunity to review and comment on the Biological Assessment (BA) and other evaluations under the ESA, which the commenter believed should be an integral part of the Agency and public review process under NEPA. The commenter believed that the DEIS failed to provide information on the BA, resulting in a flawed assessment by the agencies. The commenter asserted that ESA had not been complied with and stated that EPA cannot take action that causes additional harm to a species even if existing baseline conditions already jeopardize a species and that the agency must consider the proposed actions on the potential impacts to recovery. The commenter stated that the Forest Service and EPA must prepare an in depth analysis and go through Section 7 consultation, as Panther Creek is a critical water body for recovery of listed salmon and steelhead in the area of the ICP.

**Response:** NEPA does not require public review of the BA. The purpose of the BA is to evaluate the potential effects of the project on ESA species and to facilitate Section 7 consultation. EPA will issue a Record of Decision with the issuance of the final NPDES permit to document our compliance with NEPA. As discussed in Section II.B., above, EPA coordinated with the USFS in completing ESA consultation for the NPDES permit. The final permit includes requirements based on Terms and Conditions required in the Services' Biological Opinions to implement Reasonable and Prudent Measures and ensure compliance with ESA. The BA is included in EPA's administrative record for the permit action.

**Comment #50: DMR postmark**Commenter No. 115

Page 2 and Page 16 Section III D, Discharge Monitoring Reports: The permit requires the DMRs to be postmarked by the 15<sup>th</sup> of the month following the sampling event. In order to meet this schedule, Formation will be required to process all samples on a "rush" basis. Rush processing generally involves a 50% cost premium over standard processing. Given the number of samples required by the permit, this would impose a significant cost on Formation. Formation requests that the requirement for DMR postmark be moved to the 20<sup>th</sup> of the month rather than the 15<sup>th</sup>.

**Response:** In other permits, upon request of the permittee due to difficulties meeting the due date of the 15<sup>th</sup>, EPA has extended the date to the 20<sup>th</sup> of the month. The final permit requires the DMRs to be postmarked by the 20<sup>th</sup> of the month.

**Comment #51: Removal of sulfide limit**Commenter Nos. 115 and 156

Page 5, Table 1: There is no “reasonable potential determination” in the accompanying fact sheet to support including an effluent limit for sulfide (Table 1). Furthermore, there is no technical basis or reason that sulfide would be expected in the system. All feed sources to the water treatment facility will operate under atmospheric conditions with no potential for formation of hydrogen sulfide gas. The only sulfide in the system is that associated with solid phases (e.g. cobaltite) and the mobilization of the solid phase sulfide sulfur occurs only by oxidation, which results in the transformation of sulfide-sulfur to sulfate-sulfur. Sulfide should be removed from this table.

**Response:** Agreed. EPA removed the sulfide limit in the permit because no reasonable potential could be demonstrated. The NPDES permit application indicated that sulfide is not expected to be in the effluent. Monitoring for sulfide was retained in the permit to provide data to reevaluate the need for effluent limits in the future. However, since there is no limit in the permit and no reasonable potential evaluation was done, if the facility does in fact discharge sulfate, the permit does not act as a shield, and there is no authorization to discharge sulfide.

**Comment #52: Priority pollutant testing requirement**Commenter Nos. 115 and 156

Page 6, Table 1 Note 1: The requirement to test for the 126 chemicals listed in 40 CFR Sec.131.36 is unsupported. This list of chemicals contains many organic carbon based compounds that will never be part of the treatment process. There is no basis for including this testing requirement in the permit and it should be removed.

**Response:** The specification for all 126 chemicals has been removed from the permit. The final permit requires expanded effluent testing as per 40 CFR 122.21 *Application for a permit* and the NPDES Application Form 2C *Application for Permit to Discharge Wastewater: Existing Manufacturing, Commercial, Mining, and Silvicultural Operations*.

**Comment #53: Deleterious materials definition**Commenter No. 115

Page 6, sub item 6 and page 26: The definitions of “deleterious materials” should be included in Section VI, Definitions.

**Response:** Agreed. EPA placed the definition in permit Section VI.

**Comment #54: Minimum levels (MLs) as compliance levels**Commenter No. 115

Page 7, sub item 12. The language of this item implies that the ML is the compliance level, which is in direct conflict with item 10 and Table 1.

**Response:** Page 7, sub item 12 of the draft permit is standard EPA “boilerplate” language and is retained in the final permit on page 9 as sub item 13. “Minimum Level (ML)” means the concentration at which the entire analytical system must give a recognizable signal and an acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed. EPA believes that it is reasonable to leave the condition in the permit.

**Comment #55: Minimum levels (MLs) for surface water monitoring**Commenter Nos. 115, 121, and 156

The commenters stated that the “Maximum ML” values should be removed from Table 2 of the permit.

Text from letters 115 and 156:

Pages 9 and 10, Table 2: The definition of “ML” given in the definition section appears to define this term as similar to the concept of the Practical Quantitation Limit (PQL), a more common term, often used in discussing laboratory analytical procedures, albeit, without benefit of accounting for matrix effects of the solution being analyzed. The explicit requirement of such analytical sensitivity may result in interpretation problems due to naturally occurring solution matrix effects. The implication of this table is that the analytical analysis will require use of ultra-sensitive methods with detection limits and PQLs much lower than required for analyses at analogous sites in Idaho. As EPA is well aware, such ML values are not required for analytical work at any other Idaho mine site with NPDES permits, nor are they required in recent Alaska mine NPDES permits issued by EPA. These levels are not required for analytical work at the adjacent Blackbird Mine site and annual reports from the Blackbird site demonstrate an inability to achieve analytical results at or near these levels. This requirement flies in the face of repeated statements in the ICP DEIS that there will be “coordination of ICP with BMSG monitoring activities to ensure consistency and comparability of data.” In order for any form of “coordination” to occur, there must, at a minimum, be parity between the monitoring programs. Moreover, this ignores MDL, a concept and practice that is both defined (40 CFR 136.2(f)) and has a specific regulatory procedure at 40 CFR 136. In short, imposing such a requirement at the ICP would impose burdens not seen at other sites, ignores established analytical concepts and practices with regulatory standing and imposes in their place a concept that has no regulatory standing, and requires use of non-standard analytical procedures which are of questionable reliability using commercial technology and laboratories. The column labeled “Maximum ML” must be removed from this table.

The concept of mandating a Minimum Level (ML), as seen in the draft permit, seems to have originated within EPA Region 10, evidently from some internal guidance specific to Region 10. Mandating such a requirement clearly violates administrative procedures act requirements. We believe that case law is quite clear; any guidance developed by EPA has no legal authority, but here EPA Region 10 is attempting to give legal authority to internal guidance via a permit requirement.

Discussions with contract labs revealed that the labs are not familiar with the term "Minimum Level (ML)". When provided with the definition from the draft permit, the lab reported that ML appears to be what they call their "reporting limit". Further, labs report that they cannot meet several of the "MLs" specified in the draft permit. It is unreasonable to require Formation to shop around for a contract lab to meet the requirements of some guidance, which is novel to a single mine permittee in Region 10.

Further, this may well require shipping samples to multiple labs rather than a single lab. EPA Region 10 has no authority to be somehow directing business to select labs when all contract labs utilize EPA approved analytical methods, in compliance with the approved MDL methods specified in federal regulations.

Use of a novel "ML" violates the provisions of standard permit condition III.C., which states "Monitoring must be conducted according to test procedures approved under 40 CFR 136". All test procedures have specific MDLs, but a ML is not part of the test procedures specified under 40 CFR 136.

There is absolutely no discussion of EPA Region 10's novel use of the ML in the Fact Sheet for the draft permit. The regulatory requirements for Fact Sheets at 40 CFR §124.8 clearly requires that EPA "shall" include in the Fact Sheet specific items such as significant factual, legal, methodological and policy questions considered in preparing the draft permit". Further, the regulations require that EPA "shall" provide a "brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions and appropriate supporting references to the administrative record."

EPA Region 10's novel use of the ML clearly warrants the discussions and references mandated by these regulations.

**Response:** It was EPA's intent to require monitoring that resulted in usable data, i.e. data quantifiable below the ambient water quality criteria. Since 40 CFR 136.2(f) and 136 Appendix B define the detection limit as the MDL, EPA has changed Table 2 in the permit to reflect maximum values for MDLs. The permit also states that the permittee may request different MDLs in writing, subject to approval by EPA.

#### **Comment #56: Dynamic Systems Model (DSM) – choice of model**

##### Commenter Nos. 115 and 156

Page 15, item E: The Dynamic Systems Model (DSM) used to evaluate alternatives in the EIS is not a hydrologic model. It is a systems model that in some areas incorporates routines equivalent to hydrologic model outputs. The DSM is an extremely large, complex model. It contains components that may not be helpful when evaluating ongoing ICP performance, and may require

expansion in other areas to address field observations and data that arise from project operations. Performance evaluation might be better served by a streamlined model, or a different model altogether. In other words, the model is a means to an end, not an end itself. Formation urges the EPA to articulate the underlying need being addressed by this permit condition so that Formation and EPA can determine the best means of filling the need.

**Response:** Agreed. Any model that adequately will serve the underlying need is acceptable. The purpose of this permit requirement is to provide EPA with updated water balance information and predictions of future water quality that can be utilized to determine if permit effluent limits or the net precipitation limit need to be revised with permit reissuance. The permit has been changed to articulate this requirement and that any model that will meet this requirement may be used.

### **Comment #57: Integration of Idaho's comments and water quality laws**

#### Commenter No. 121

While EPA is the permit writer, EPA should wholly respect and fully integrate all of Idaho's comments, and water quality laws in the permit. This is consistent with the intent, if not the letter of Clean Water Act section 401.

**Response:** Comment noted. EPA has worked closely with IDEQ and has developed the permit to be consistent with Idaho's water quality laws. EPA has included requirements from IDEQ's 401 certification in the permit.

### **R. Comments on the Fact Sheet**

Note: The Fact Sheet is a final document that provides a basis for the draft permit. The Fact Sheet itself, therefore, is not subject to change as a result of comment. This Response to Comments document provides a record for the basis for changes to the draft permit to finalize the permit. EPA has, however, provided responses to specific comments on the Fact Sheet language, as follows.

### **Comment #58: Permit process has failed to provide necessary information to reviewers**

#### Commenter Nos. 74 and 110

Text from letter 110, containing comments that adopt and incorporate by reference all comments from letter 74:

The draft permit's Fact Sheet is intended to provide the public with critical information on the proposed permit and the impact that the permit will have on water quality. However, fact sheet fails to provide reviewers with key information critical to understanding the proposed permit.

For instance, the Fact Sheet does not include any information on the current pollutant levels in Big Deer Creek. Of particular concern, there is no information about current levels of arsenic, and

mercury in the receiving water. This information is necessary since the proposed discharge will result in arsenic and mercury releases to Big Deer Creek.

Failure to provide such information violates NEPA and the CWA's public review requirements. This applies to any instances noted in these comments where information is lacking.

**Response:** The regulations at 40 CFR §124.8 **Fact Sheet** and §124.56 **Fact sheets** specify the information that fact sheets shall contain. Section 124.8 applies to several types of federal draft permits and contains general information requirements. Section 124.56 is specific to NPDES draft permits and requires that fact sheets contain any calculations or other necessary explanation of the derivation of specific effluent limitations and conditions as required by 40 CFR §122.4 and reasons why they are applicable or if not, how the alternate effluent limitations were developed. The section also requires that for certain conditions in the draft permit, such as limitations to control toxic discharges, the fact sheet must contain an explanation of the reasons that such conditions are applicable.

Fact Sheet Appendix D (Calculation of WQBELs) contains explanations of the derivation of the effluent limitations. Appendix B (Basis for Effluent Limitations) contains the reasons that the permit conditions (the limits) are applicable. As explained in the fact sheet, the criteria are to be met at the end of the discharge pipe (i.e. there are no mixing zones, with the recent exception of sulfate). When there are no mixing zones, ambient pollutant levels are not factored into the development of permit limits. The permit limits are derived by using the criteria as the Wasteload Allocations (WLAs) to statistically determine maximum and average daily discharge levels that are protective of the criteria in the receiving water. Since the ambient receiving water quality was not required in the derivation of the limitations, it was not required information in the fact sheet and did not violate the public review requirements.

However, Page 10, Table 2 of the fact sheet contains water quality information for cobalt, copper and sulfate on Big Deer Creek. Receiving water information for arsenic was obtained for this response from IDEQ. Data collected by IDEQ on splits obtained from BMSG and analyzed by IDEQ on 32 dissolved arsenic samples from several sites on Big Deer Creek between 2000 through 2006 showed a maximum dissolved arsenic concentration of 5 µg/L and a mean concentration of 0.64 µg/L. Per IDEQ, there has been no true low-level mercury sampling on Big Deer Creek. EPA is requiring collection of this data in the permit. This data will become public information.

Note: A mixing zone for sulfate has been requested by the facility and granted by IDEQ, which was discussed in the fact sheet as a possible outcome in the final permit. The fact sheet contained sulfate receiving water data.

Analysis of the impact of the NPDES permit and discharge to Big Deer Creek is included in Chapter 4 of the EIS. EPA believes and will document in our ROD that the EIS fulfills our NEPA requirements.

**Comment #59: Short term vs. annual flow rates**Commenter Nos. 115 and 156

Page 8, Item D: This paragraph states that "Formation estimates that their discharge through Outfall 001 will generally not exceed 112 gpm." The 112 gpm estimate is an average annual estimated flow, not a short term flow. Formation has designed its water treatment plant to produce up to 150 gpm of clean water for discharge and expects the plant to operate at capacity for several weeks each year. This statement should be clarified to distinguish between short term flow rates and average annual flow rates.

Page 16, sub item 7: Please see our comment on the Draft NPDES permit - Page 6, sub item 3. The fact sheet should clarify that that 38 gpm flow rate is an average annual flow, not a daily or other short term flow.

**Response:** Comments noted. Please see response to comment #44 above.

**Comment #60: Remove sulfate from Table 2**Commenter Nos. 115 and 156

Page 10, Table 2: Inclusion of the sulfate secondary drinking water standard as the basis for comparison in this table, placed in a position analogous to limits for copper and cobalt is misleading at best. Copper and cobalt are constituents for which limits are set to prevent impacts to living organisms, whereas the sulfate limit is set based on human perceptions of odor, taste and smell, not health effects. Moreover, copper and cobalt are both directly applicable to Big Deer Creek as a cold water fishery whereas sulfate's only applicability is to drinking water supplies, and there are no drinking water supplies on Big Deer Creek and are unlikely to be any such supplies given the remoteness of the area. At a minimum, the sulfate criteria should be removed from the table, but a more appropriate presentation would remove the total sulfate columns from the table altogether.

**Response:** Comment noted.

**Comment #61: Dynamic Systems Model (DSM) language**Commenter Nos. 115 and 156

Text from letter nos. 115 and 156:

Page 11, Paragraph beginning "in accordance with Idaho ... :". This paragraph contains the following statements: (1) Under preferred Alternative IV, the DSM predicts decreased copper loading to Big Deer creek during both operational and post-operational phases under any model scenario," and (2) "For the proposed plan under Alternative II, the DSM predicts slight increases in copper loading to Big Deer creek during the closure period under the worst case scenario. However, this increase can be mitigated under Formation's proposal to activate the ground water pumpback wells during the post-operational phase, if necessary." This comparison of model

results leads to the misleading conclusion that Alternative IV produces superior water quality results as compared to Alternative II. The DSM runs for Alternative II were conducted without considering the effects of mitigation, while the model runs for Alternative IV did consider the effects of mitigation. Please modify the fact sheet to include appropriate narrative so that the reader can understand the model results presented.

This same paragraph contains the statement; "Modeled scenarios included the most probable or expected case (i.e. the 50<sup>th</sup> percentile) the worst case (90% probability the concentrations will be higher) and the best case (90% probability that concentrations will be lower) scenario." There are a couple of things that need to be addressed here. First, the stochastic analysis performed using the DSM produces a range of possible outcomes, rather than a single predicted outcome. It then allows one to determine the probability that a particular outcome will fall within a specific interval within the range of predicted outcomes. It does not allow one to assign a probability to a predicted outcome. Therefore, in the 90<sup>th</sup> percentile case, 90 percent of the possible outcomes fall at or below the stated value. If one adopts the 90<sup>th</sup> percentile prediction as the case used for regulatory purposes, one can be certain that 90% of the total possible outcomes will be better than predicted. In other words, it gives insight into the risk associated with adopting a particular value for regulatory purposes, but no insight into the actual outcome. The actual outcome can still be anywhere within the full range of the stochastic analysis. Second, as we understand the nomenclature used in the EIS, the worst case is defined to be the 90<sup>th</sup> percentile case (case where there is a 90% cumulative probability that the actual value will fall below the predicted value), and the best case is defined to be the 10<sup>th</sup> percentile case (case where there is a 10% cumulative probability that the actual value will fall below the predicted value). By choosing these definitions for best case and worst case, the EIS has selected high values for the worst case and low values for the best case, at least in terms of metals loading. EPA should reword this section to accurately portray the meaning of the 90<sup>th</sup> percentile and 10<sup>th</sup> percentile cases.

**Response:** Comments noted.

**Comment #62: Sulfate and sulfide**

Commenter No. 115

Page 15, Table 4: Please see our comment on the Draft NPDES permit - Page 5, Table 1. Sulfate and sulfide should be removed from this table.

**Response:** Comments noted. Please see Responses to Comment #s 28, 29, and 51.

**Comment #63: Sulfate and “sulfite” surface water monitoring**

Commenter No. 115

Page 18, Table 5: Please see our comment on the Draft NPDES permit - Page 5, Table 1. Sulfate and sulfide should be removed from this table. Note, Formation has assumed that EPA intended to reference sulfide not sulfite in this table. In the event that sulfite is the intended analyte, please provide justification for its inclusion.

**Response:** EPA intended to reference sulfide. Sulfite (and sulfide) surface water monitoring was omitted from the final permit. Sulfate was retained. Please see Responses to Comment #s 28, 29, and 51.

**Comment #64: Copper loading demonstration plan**

Commenter No. 115

Page 20, item D: Please see our comment on the Draft NPDES permit - Pages 14 and 15 item II D.

**Response:** Please see response to comment #16.

**Comment #65: Predictive hydrologic model updates**

Commenter No. 115

Page 21, item E: Please see our comment on the Draft NPDES permit - Page 5, Table 1.

**Response:** Comment noted. Please see response to comment #56.

**Comment #66: Sulfate and sulfide water quality criteria, Table B-2**

Commenter No. 115

Page 35, Table B-2: Please see our comment on the Draft NPDES permit - Page 5, Table 1. Sulfate and sulfide should be removed from this table.

**Response:** Comment noted.

**Comment #67: Sulfates and sulfides discussion**

Commenter No. 115

Page 38, Item 6: Please see our comment on the Draft NPDES permit - Page 5, Table 1. The sulfate discussion should either be (1) modified to indicate that the sulfate limit is not applicable to Big Deer Creek, or (2) eliminated altogether as it is superfluous. The sulfide discussion should be eliminated in its entirety as inapplicable to the ICP.

**Response:** Comments noted. Please see response to comment #s 28, 29, and 51.

#### IV. REFERENCES

- Hydrometrics, Inc. 2006. Water Resources Technical Report for the Idaho Cobalt Project. Prepared for U.S. Department of Agriculture Salmon-Challis National Forest. March 2006. Revised December 2006.
- Hydrometrics, Inc. 2007. Email communication between Lisa Olson and Scott Mason regarding estimated evaporation from the Tailings and Wasterock Storage Facility (TWSF). October 4.
- IDEQ. 2005. Implementation Guidance for the Idaho Mercury Water Quality Criteria. Idaho Department of Environmental Quality Negotiated Rulemaking Committee.
- IDEQ. 2003. Guide to Selection of Sediment Targets for Use in Idaho TMDLs. Idaho Department of Environmental Quality. June 2003.  
[http://www.deq.idaho.gov/water/data\\_reports/surface\\_water/monitoring/publications.cfm#standards](http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/publications.cfm#standards).
- IDEQ and USEPA. 2003. *South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Loads*. Idaho Department of Environmental Quality and U.S. Environmental Protection Agency. October 2003.
- NMFS. 2008. Endangered Species Act - Section 7 Consultation, Biological Opinion & Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation. National Marine Fisheries Service, Northwest Region, Portland, Oregon. May 20.
- Pacific Environmental science Center (PESC). 1996. Unpublished data submitted to British Columbia Ministry of Environment, Lands and Parks. (Cited in Singleton 2000).
- Singleton, H. (2000). Ambient water quality guidelines for sulphate. Victoria, British Columbia, Canada, Ministry of Environment, Lands, and Parks, Water Quality Section , Water Management Branch.: 15pp.
- Soucek, D. J. (2004). Effects of hardness, chloride, and acclimation on the acute toxicity of sulfate to freshwater invertebrates. Illinois Natural History Survey, Champaign, IL., Submitted to Robert Mosher, Illinois Environmental Protection Agency, Division of Water Pollution Control, Standards Section.: 17pp.
- Thurston R.V., R.C. Russo, C.M. Fetterolf, T.A. Edsall, Y.M. Barber Jr., editors. 1979. *Review of the EPA Red Book: Quality Criteria for Water*. Bethesda, MD. Water Quality Section, American Fisheries.
- U.S. Department of Agriculture Forest Service (USDA FS). 1990. *Salmonid-habitat Relationships in the Western United States: A Review and Indexed Bibliography*. USDA Forest Service. General Technical Report RM-188. Fort Collins, CO. Rocky Mountain Forest and Range Experiment Station, USDA FS.

U.S. Department of Agriculture Forest Service (USDA FS). 2008. *Final Environmental Impact Statement, Idaho Cobalt Project*. USDA Forest Service. Salmon-Cobalt Ranger District, Salmon-Challis National Forest, USDA FS.

U.S. Fish and Wildlife Service (USFWS). 2008. Section 7 Consultation for Formation Capital Corporation's Proposed Idaho Cobalt Project Mine in the Panther Creek Drainage, Salmon-Cobalt Ranger District, Idaho – Biological Opinion. Snake River Fish and Wildlife Office. Boise, Idaho.

USEPA (U.S. Environmental Protection Agency). 1991. *Technical Support Document for Water Quality-based Toxics Control*. EPA 505/2-90-001. Washington, DC: U.S. Environmental Protection Agency, Office of Water Enforcement and Permits and Office of Water Regulations and Standards. <http://www.epa.gov/npdes/pubs/owm0264.pdf>

USEPA. 1999. *1999 Update of ambient water quality criteria for ammonia*. U.S. Environmental Protection Agency. EPA/822/R-99-014.

USEPA. 2009. *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion*. EPA 823-R-09-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

USEPA. 1996. *NPDES Permit Writers' Manual*. EPA-833-B-96-003. Washington, DC: U.S. Environmental Protection Agency, Office of Wastewater Management. <http://www.epa.gov/npdes/pubs/owm0243.pdf>

USEPA. 1982. *Development Document for Effluent Limits Guidance and Standards for Ore Mining and Dressing Point Source Category*. EPA 440/1-82/061. Washington, DC: U.S. Environmental Protection Agency, Office of Water and Waste Management.

**V. TABLE 1 – NUMBERED LIST OF COMMENTERS**

Commenter/ Document No.	Date	From / Author / Specialist
42	March 26, 2007	Hammond, Brian F.
72	April 20, 2007	Briggs, Jack
73	April 26, 2007	Gunderson, Michael
74	April 4, 2007	Hayes, Justin; Idaho Conservation League
91	May 10, 2007	Mabe, David; NOAA
108	May 24, 2007	Penney, Samuel N., Chairman; Nez Perce Tribal Executive Committee
110	May 23, 2007	Flynn, Roger; Atty for Earthworks, BWCC, and ICL
111	May 24, 2007	Baird, Joseph H.; Atty for FCC
113	May 23, 2007	Garrett, Theodore; Covington & Burling, Atty For BMSG
115	May 24, 2007	Scales, W.G., President FCC
121	May 24, 2007	Whitman, Adam
156	May 24, 2007	Skaer, Laura; Northwest Mining Association
157	May 1, 2007	Flynn, Roger; Atty for Earthworks, BWCC, and ICL

**APPENDIX A**

**AMMONIA AND SULFATE LIMIT CALCULATIONS SPREADSHEET**

*Page intentionally left blank*

**APPENDIX A  
WATER QUALITY-BASED  
AMMONIA and SULFATE PERMIT LIMIT CALCULATIONS**

PARAMETER	Permit Limit Calculation Summary									Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations						Statistical variables for permit limit calculation				
	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translat or Acute	Metal Criteria Translat or Chronic	Ambient Concentration mg/L	Water Quality Standard Acute mg/L	Water Quality Standard Chronic mg/L	Average Monthly Limit (AML) mg/L	Maximum Daily Limit (MDL) mg/L	WLA Acute mg/L	WLA Chronic mg/L	LTA Acute mg/L	LTA Chronic mg/L	LTA Coeff. Var. (CV) decimal	LTA Prob'y Basis decimal	Limiting LTA mg/L	Coeff. Var. (CV) decimal	AML Prob'y Basis decimal	MDL Prob'y Basis decimal	# of Samples per Month n
Ammonia (end-of-pipe)	1	1			0.02	5.60	2.34	2.78	5.57	5.60	2.34	1.79	1.82	0.60	0.99	1.79	0.60	0.95	0.99	4.00
Sulfate	20.00	23.00			7.00	100.00	100.00	930.62	1867.00	1867.00	2146.00	599.46	1131.87	0.60	0.99	599.46	0.60	0.95	0.99	4.00
Ammonia Chronic 30-day Long Term Average (LTA <sub>C30</sub> ) Calculation										This spreadsheet calculates water quality based permit limits based on the two value steady state model. The procedure and calculations are done per the Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001), page 99 and the Federal Register Notice of 1999 Update of Ambient Water Quality Criteria for Ammonia.										
$LTA_{C30} = WLA_C \times \exp(0.5\sigma_{30}^2 - z\sigma_{30})$ $= 2.34 \times \exp(0.5(0.01) - 2.326(0.11))$ $= 1.82$																				
$\sigma_{30}^2 = \ln(CV^2/30 + 1)$ $= 0.01$																				
$\sigma_{30} = 0.11$																				

**APPENDIX B**

**Idaho Department of Environmental Quality  
CWA Section 401 Certification**

*Page intentionally left blank*



STATE OF IDAHO  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY

900 North Skyline Drive, Suite B • Idaho Falls, Idaho 83402 • (208) 528-2650

C.L. "Butch" Otter, Governor  
Toni Hardesty, Director

February 6, 2009

Mr. Michael Lidgard  
US Environmental Protection Agency  
Region 10  
1200 6<sup>th</sup> Avenue, OW-130  
Seattle, Washington 98101

**RE: Final §401 Water Quality Certification for the Formation Capital Corporation, Idaho Cobalt Project NPDES Permit No. ID-002832-1.**

Dear Mr. Lidgard:

The State of Idaho Department of Environmental Quality (DEQ) has attached the final 401 certification for the Idaho Cobalt Project NPDES permit. In addition to the 401 certification, DEQ has included below several comments regarding the preliminary final permit.

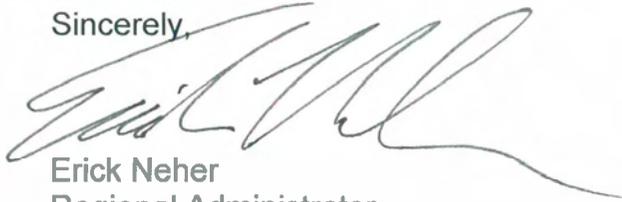
Fish Tissue Study Plan for Pollutants Other Than Methylmercury and Aquatic Invertebrate Sampling

DEQ's certification includes a requirement to develop and implement a Methylmercury Fish Tissue Study Plan. The preliminary final NPDES permit, however, contains a requirement that the fish tissue study plan address not only bioaccumulation of methylmercury, but also bioaccumulation of aluminum, arsenic, cadmium, cobalt, lead, manganese, nickel, selenium, thallium, and zinc. In addition, the permit contains a requirement that Formation develop and implement an Aquatic Invertebrate Sampling Program. DEQ does not believe that bioaccumulation monitoring for the additional pollutants or aquatic invertebrate sampling is required in order to assure compliance with Idaho Water Quality Standards (WQS). DEQ, however, believes that the additional information required to be collected in the permit will be beneficial in understanding the health of the aquatic life in Big Deer Creek before and after the Idaho Cobalt discharge. Therefore, although DEQ has not included the collection of this information as a requirement of the 401 certification, DEQ does support EPA's inclusion of these provisions in the permit.

Public Notice and Comment for Plans

The certification requires Formation to submit to DEQ for approval a Methylmercury Fish Tissue Study Plan and a Plan for Compliance with IDAPA 58.01.02.054.04. DEQ intends to provide the public notice and an opportunity to comment on these plan prior to DEQ's final decision regarding the plans.

Sincerely,

A handwritten signature in black ink, appearing to read "Erick Neher", written over a light gray circular background.

Erick Neher  
Regional Administrator  
Idaho Falls Regional Office

c: Doug Conde, Deputy AG  
Lisa Olson, US EPA Region 10  
Brian Hanson, Hanson Baird  
William Scales, Formation Capital Corp.  
Ray Henderson, USFS, Salmon-Challis NF  
Barry N. Burnell, DEQ, Water Quality Division Administrator



Idaho Department of Environmental Quality  
**FINAL §401 Water Quality Certification**

February 6, 2009

NPDES Permit Number: **ID-002832-1** Formation Capital Corporation, Idaho Cobalt Project

---

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended, 33 USC Section 1341 (a)(1), the Idaho Department of Environmental Quality (DEQ) has authority to review National Pollution Discharge Elimination System (NPDES) permits and issue a water quality certification decision.

DEQ has reviewed the preliminary final NPDES permit and associated fact sheet for the above-referenced facility. Based upon its review and consideration of this information, DEQ certifies that if the permittee complies with the terms and conditions imposed by the above-referenced permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the discharge(s) will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, including the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02) and other appropriate requirements of state water quality law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations or permits.

## **CONDITIONS THAT ARE NECESSARY TO ASSURE COMPLIANCE WITH WQS**

### *Methylmercury Fish Tissue Study Plan*

#### Purpose

Through development and implementation of a fish tissue study plan, Formation must assess current (baseline) methylmercury concentrations in fish tissue and conduct annual monitoring of fish tissue methylmercury concentrations.

#### Development and Implementation Schedule

Formation must develop and implement a fish tissue study plan to assess concentrations of methylmercury in fish tissue which achieves the objectives and the specific requirements listed below.

1. Prior to discharging pollutants, Formation must complete the following actions:
  - a. Within 90 days of the effective date of the permit, Formation must develop and submit to DEQ for approval a fish tissue study plan to assess fish tissue concentrations of methylmercury.

- b. Within 30 days of approval of the plan by DEQ, Formation must submit notice to EPA and the National Marine Fishery Service (NMFS) that the plan has been approved by DEQ. The notice shall include a copy of DEQ's notice to Formation that the plan has been approved.
  - c. Prior to discharge of pollutants, Formation shall complete the baseline monitoring in accordance with the fish tissue study plan (i.e. the first round of sampling, to determine baseline methylmercury concentrations in fish tissue prior to the addition of Formation's discharge).
  - d. At least 30-days prior to discharge of pollutants, Formation shall submit the results from the baseline monitoring to DEQ, EPA, NMFS, and U.S. Fish and Wildlife Service (USFWS).
2. For the remainder of the permit term, Formation shall conduct annual fish tissue methylmercury monitoring in accordance with the approved fish tissue study plan.

### Objectives

Formation must develop and implement the fish tissue study plan consistently with the following objectives:

1. Obtain baseline information to assess the concentrations of methylmercury in fish tissues prior to Formation's effluent discharge.
2. Perform annual fish tissue methylmercury monitoring to assess impacts from Formation's effluent discharge.
3. Compare results to DEQ's methylmercury fish tissue criterion.

### Procedures Regarding the Fish Tissue Study Plan

The fish tissue study plan must be consistent with the state's *Idaho Fish Consumption Advisory Program* (IFCAP) protocol, the state's *Implementation Guidance for the Idaho Mercury Water Quality Criteria* (DEQ 2005), and EPA's *Guidance for Assessing Chemical Contaminant Data for use in Fish Advisories, Volume I* (EPA 823-B-00-007, November 2000).

After the baseline study is completed, fish tissue monitoring shall be performed annually in accordance with the approved plan. Formation must conduct fish tissue monitoring of non-ESA listed resident salmonids. If the permittee has difficulty obtaining adequate numbers of resident salmonids, other local species may be substituted with the approval of DEQ.

Fish for tissue samples must be collected in the reach of Big Deer Creek downstream of Outfall 001 and upstream from the falls.

### Quality Assurance/Quality Control Plans

Quality assurance/quality control plans for all monitoring must be documented in the Quality Assurance Plan required under the permit, Part II.A., "Quality Assurance Plan."

### Reporting

Baseline and annual fish tissue monitoring results must be submitted to EPA, DEQ, NMFS, and USFWS with the DMR for the month following Formation's receipt of the results. In addition, a summary of the results must be submitted with the application for

renewal of the permit. At a minimum, results submitted must include the following:

1. Dates of sample collection and analysis.
2. Sample location.
3. Results of sample analysis.
4. Relevant quality assurance/quality control (QA/QC) information.
5. Analysis of any increases or decreases seen in tissue concentrations of methylmercury.

#### *Mercury Minimization Plan*

Formation must develop and implement a mercury minimization plan, outlining best management practices associated with mercury. This plan shall contain, at a minimum, the required elements as described in the permit, section B, "Best Management Practices Plan."

Within 120 days of the effective date of the permit, Formation shall submit notice to DEQ and EPA that the plan has been developed and implemented.

### **CONDITIONS NECESSARY TO ASSURE COMPLIANCE WITH OTHER APPROPRIATE REQUIREMENTS OF STATE WATER QUALITY LAW**

#### *Compliance with IDAPA 58.01.02.054.04*

Prior to commencing any pollutant discharge to Big Deer Creek, Formation shall submit a plan to DEQ for approval that describes how Formation will comply with IDAPA 58.01.02.054.04 as it relates to copper in the Big Deer Creek watershed. At a minimum, the plan shall:

1. Describe the measures Formation will implement to ensure that Formation's discharge does not increase the total load of copper in the Big Deer Creek watershed.
2. Include a schedule for the implementation of the measures

The plan must be approved by DEQ prior to any discharge to Big Deer Creek. If approved by DEQ, the plan shall be implemented according to the schedule in the approved plan. Formation must provide notice to EPA of DEQ's approval of the plan. The notice shall include a copy of DEQ's notice to Formation that the plan has been approved.

### **MIXING ZONES**

Pursuant to IDAPA 58.01.02.060, DEQ authorizes the use of a mixing zone exclusively for sulfate. The approved regulatory mixing zone (RMZ) shall not exceed 5 meters downstream of the diffuser and shall not use more than 25% of the width or volume of Big Deer Creek. This equates to dilution ratios for the 1Q10 and 7Q10 flow tiers of 20:1 and 23:1, respectively. Modeling suggests in-stream concentrations of sulfate will never approach the No Observed Effects Concentration (NOEC) value of 1,060 mg/L because effluent concentrations discharged will be less than 1,000 mg/L. Furthermore, sulfate concentrations at the downstream, end of the RMZ will be less than 100 mg/L.

## **ALTERNATIVE LIMITATIONS**

The following describes how the permit can be made less stringent and still comply with Idaho WQS.

### *Arsenic limitations*

The permit includes a daily maximum limit and an average monthly limit of 10 ug/l for arsenic. These limits were requested by Formation in a letter dated November 19, 2008. The most stringent arsenic criteria in the Idaho WQS is 50 ug/l. Therefore, the permit could be made less stringent and still comply with Idaho WQS by raising the arsenic limits to 50 ug/l.

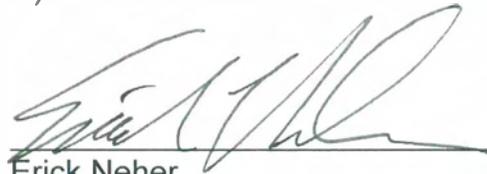
## **OTHER CONDITIONS**

The certification is conditioned upon the requirement that any material modification of this permit or the permitted activities including without limitation, any modifications of the permit to reflect new or modified TMDL waste load allocations or other new information, shall first be provided to DEQ for review to determine compliance with state Water Quality Standards and to provide additional certification pursuant to section 401.

## **RIGHT TO APPEAL FINAL CERTIFICATION**

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5), and the Rules of Administrative Procedure Before the Board of Environmental Quality, IDAPA 58.01.23, within thirty-five (35) days of the date of the final certification.

Questions regarding the actions taken in this certification should be directed to Troy Saffle, DEQ (Idaho Falls Regional Office) at (208) 528-2650.



Erick Neher  
Regional Administrator  
DEQ Idaho Falls Regional Office

**APPENDIX C**

**National Marine Fisheries Service  
Endangered Species Act Section 7 Consultation Biological Opinion  
Pages 133-136 Terms and Conditions to be Implemented by EPA**

*Page intentionally left blank*

## APPENDIX C

### National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion Pages 133-136 Terms and Conditions to be Implemented by EPA

#### 2.2.3. Terms and Conditions (T&Cs)

To be exempt from the prohibitions of section 9 of the ESA, the SCNF, EPA, and their cooperators, including the applicant, if any, must fully comply with conservation measures described as part of the proposed action and the following terms and conditions that implement the RPMs described above. Partial compliance with these terms and conditions may invalidate this take exemption, result in more take than anticipated, and lead NMFS to a different conclusion regarding whether the proposed action will result in jeopardy or the destruction or adverse modification of designated critical habitats.

(Note: RPM #1 was only for US Forest Service implementation. Terms and conditions for EPA implementation appeared in T&C Nos. 2 and 3 and are in **bold type** below.)

2. To implement RPM #2, minimizing incidental take from effects to water quality:
  - a) **The EPA shall modify the draft NPDES permit to limit the effluents maximum daily concentration for levels of nitrate + nitrite to <10 mg/L at the end-of-pipe to prevent nutrient enrichment of habitat in Big Deer and Panther Creeks.**
  - b) The SCNF shall work with the applicant to prioritize, schedule, and complete road reconstruction/improvements to ensure that all road segments with environmental or safety concerns are addressed in Phase I. This includes all road segments in RHCAs or draining directly into perennial or intermittent streams. The SCNF will work with the Interagency Oversight Task Force to identify and prioritize the road segments of concern.
  - c) The SCNF shall ensure that an appropriate native seed mix is used to mulch and seed all cuts and fills of roads, and disturbed areas from road maintenance. As described in the Mitigations section of the ICP DEIS (page 2-55), Item 3/c), disturbed areas will be treated during the same years as the construction/disturbance activity. If vegetation is not adequately established for erosion control the mulch and seed will be applied in subsequent years until natural vegetation is established.
  - d) The SCNF shall require the FCC implement the following process (Table 17) to screen new reagents/formulas before changing the manufacturer, the formula, or adding a chemical not considered in the BA.
    - i. **Toxicity** - If the new material is considered highly or very highly toxic with a 96 hr LC50 < 1,000 µg/L for fish species or aquatic invertebrates the material needs to be carefully reviewed regardless of accident probability or spill risk. If the toxicity of the proposed new material is below this threshold then the spill risk

and accident probability need to be considered and evaluated in coordination with NMFS.

- ii. **Screen for Probability of Accident** – If the accident probability as described in the BA indicates that accidents near a stream are not likely to occur in more than 100 years (equates to < 59 trips/year), and toxicity is rated Moderate or lower, then no additional analysis will be required regardless of spill risk. However, if the accident rate predicts that accidents near a stream would occur in less than 100 years (>59 trips/year), toxicity is rated Moderate or High, and spill risk is rated High, additional analysis will need to be completed in coordination with NMFS.

**Table 17. Screen to identify when additional toxic effects analysis is needed.**

# of Trips/ year (accident probability near streams)	Spill Risk	Toxicity	Coordination Needed?
Any	Any	very highly toxic or highly toxic (Fish 96 hr LC50 < 1,000 µg/L)	Additional Analysis and Coordination with NMFS Necessary.
>59 (less than 100 yrs between accidents)	High or Moderate	moderately toxic (Fish 96 hr LC50 < 10,000 µg/L)	Additional Analysis and Coordination with NMFS Necessary.
<59 (more than 100 yrs between accidents)	Low, Moderate, or High	moderately toxic, slightly toxic, not acutely toxic	No Coordination with NMFS Necessary.

The risk of a material spill happening in case of an accident is determined based on the material packaging. Containerized solid = **Low Risk**, Containerized liquids in small containers (<100 gallons) = **Moderate Risk**, Bulk liquids = **High Risk**.

3. To implement RPM #3, monitoring and reporting:
- a) The SCNF shall monitor and report compliance with the project's proposed effects minimization measures. Ensure completion of a monitoring and reporting program to confirm that the amount and/or extent of take anticipated in this Opinion is not exceeded and that the project is implemented as proposed.
    - ii. Annually report on the compliance with and implementation of the RPMs and Terms and Conditions.
    - iii. Adhere to the proposed monitoring as described in the ICP BA, ROD, and Supplemental Reports.
  - b) **The EPA shall work with FCC to develop a tissue sampling protocol and sampling scheme for salmonids in Big Deer Creek. The protocol and sampling scheme must be approved by NMFS prior to first effluent discharge. A baseline study shall be conducted prior to first effluent discharge, and annually for 3**

**years following, conduct tissue sampling of non-ESA listed resident salmonids in Big Deer Creek collected downstream from effluent and upstream from the falls for:**

- i. Bioaccumulation of aluminum, arsenic, cadmium, cobalt, lead, manganese, mercury, nickel, selenium, thallium, and zinc;**

**Measureable bioaccumulation of these metals and pollutants will indicate the amount of take authorized has been exceeded. If resident fish are not collected in numbers suitable for tissue sampling purposes, coordinate with NMFS to develop an alternative sampling protocol.**

- c) The EPA shall work with FCC to develop an aquatic invertebrate sampling scheme and protocol in Big Deer Creek. The protocol and sampling scheme must be approved by NMFS prior to first effluent discharge. Prior to first effluent discharge, and annually for 3 years following, conduct sampling of aquatic invertebrates in Big Deer Creek to assess the potential for bioaccumulation of pollutants and/or changes in community structure. Measureable bioaccumulation of metals/pollutants identified in Term and Condition 3.b.i. and/or changes in community structure will indicate the amount of take authorized has been exceeded.**
- d) The SCNF and EPA will annually report monitoring results as described in the ICP BA, ROD, Supplemental Reports, and this Opinion. The report shall identify in separate sections: (1) any results indicating adverse habitat modification or other adverse effects of the action on spring/summer Chinook salmon, steelhead, or sockeye salmon; (2) persistence of adverse conditions that could be improved through modification of the proposed action, or through additional actions; and (3) recommended remedies to address the problems identified in items 1 and 2. NMFS shall work with the SCNF and EPA to determine any corrective actions, which the applicant must implement.**
- e) The SCNF and EPA shall submit reports and annual monitoring results noted in the BA, ROD, Supplemental Reports, and this Opinion to: NMFS, Attn: David Mabe, 10095 W Emerald, Boise, Idaho 83704.**
- f) NOTICE: If a sick, injured or dead specimen of a threatened or endangered species is found in the project area, the finder must notify NMFS through the contact person identified in the transmittal letter for this Opinion, or through Idaho State Habitat Office of NMFS Law Enforcement at (208) 321-2956, and follow any instructions. If the proposed action may worsen the fish's condition before NMFS can be contacted, the finder should attempt to move the fish to a suitable location near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead, or dies while being captured or moved, report the following information: (1) NMFS consultation number; (2) the date, time, and location of discovery; (3) a brief description of circumstances**

and any information that may show the cause of death; and (4) photographs of the fish and where it was found. NMFS also suggests that the finder coordinate with local biologists to recover any tags or other relevant research information. If the specimen is not needed by local biologists for tag recovery or by NMFS for analysis, the specimen should be returned to the water in which it was found, or otherwise discarded.