U.S. Environmental Protection Agency
Region 10

Response to Comments

Meridian Beartrack Company - Beartrack Mine
NPDES Permit No.: ID0027022

October 31, 2003

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I. Introduction

A draft National Pollutant Discharge Elimination System (NPDES) permit for the Meridian Beartrack Company Beartrack Mine was issued for public notice on June 27, 2002. This public notice initiated a 30-day public comment period. This document responds to comments received during the public comment period. The EPA received comments from the following: Center for Science in Public Participation, on July 11, 2002; the Idaho Conservation League, on July 19, 2002; and the Meridian Beartrack Company (MBC), on July 29, 2002.

Information considered by EPA in establishing final permit conditions include public comments as well as information from actions by other federal agencies and the State of Idaho. The following summarizes the actions and new information that influenced finalization of the permit, the comments received, and EPA's responses to the comments.

II. Actions and New Information after the Public Comment Period

A. State of Idaho Clean Water Act 401 Certification

The State of Idaho Department of Environmental Quality (IDEQ) issued a Clean Water Act (CWA) 401 certification of the NPDES permit dated on October 22, 2002, and amended the certification on November 15, 2002. Appendix A includes a copy of the 401 certification. The 401 certification is, hereafter, referred to as the certification. The following summarizes the 401 certification requirements, which were incorporated into the final permit:

Alternative Limitations or Requirements

The certification offered that analytical testing requirements for mercury in the receiving stream would be sufficient to levels equivalent to average monthly permit limitations or a 0.04 MDL.

EPA disagrees with this requirement. The purpose of receiving water monitoring is to assess whether or not the discharge is impacting water quality. The data collected by the permittee would be of no use if the higher detection levels were used.

Mixing Zones

The certification provided the mixing zones provided in Table 1.

Table 1. Mixing Zones for Outfall 001 from IDEQ 401 Certification[1]								
Parameter	Acute Aquatic Life		Chronic Aquatic Life		Human Health		Agriculture	
	low flow	high flow	low flow	high flow	low flow	high flow	low flow	high flow
Ammonia	25	50	25	50	---	---	---	---
Arsenic	50	25	50	25	50	25	50	25
Cadmium	25	25	25	25	---	---	25	25
Copper	25	25	25	25	---	---	25	25
Cyanide WAD	50	50	50	50	50	50	---	---
Iron	---	25	---	25	---	---	0	25
Lead	25	25	25	25	---	---	25	25
Mercury	50	50	50	50	---	---	0	0
Nickel	0	0	25	25	25	25	25	25
Selenium	50	50	50	50	---	---	50	50
Silver	25	25	---	---	---	---	---	---
Zinc	50	25	50	25	---	---	50	25
WET	100	100	100	100	---	---	---	---

Footnote:
1. Values represent percent critical flows.

EPA has recalculated the effluent limitations based on the mixing zones provided in the certification.

Monitoring Requirements

The certification requires that the permittee:

1. conduct annual biomonitoring of macroinvertebrates and fish below the mixing zone of Outfall 001.

2. conduct an annual bioaccumulation study of mercury accumulation in fish tissues.

EPA has included these monitoring requirements into the final permit. EPA has also determined that the receiving water monitoring frequency for mercury may be reduced to once per year during the annual bioaccumulation study after one year if the monitoring results collected during the first year shows that the receiving water concentrations are below the critieria for mercury.

Compliance Schedule

The certification authorizes a three year compliance schedule for ammonia, arsenic, cadmium, copper, WAD cyanide, iron, mercury, pH selenium, silver, and zinc. The certification provided the interim limits provided in Table 2.

Table 2. Interim Effluent Limitations for Outfall 001

Parameter	Units	Low Flow[1]		High Flow[2]	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Ammonia[3]	mg/L	51	103	22	44
Arsenic[4]	µg/L	5,800	9,500	5,800	9,500
Cadmium[4]	µg/L	5.0	9.0	5.0	9.0
Copper[4]	µg/L	40	60	40	60
WAD Cyanide[3]	µg/L	61	123	60	120
Iron[4]	µg/L	30,400	50,000	30,400	50,000
Mercury[4]	µg/L	0.4	0.6	0.4	0.6
pH[4]	µg/L	6.0 - 9.0			
Selenium[4]	µg/L	59	118	58	116
Silver[3]	µg/L	2.1	4.2	2.4	4.8
Zinc[4]	µg/L	300	500	300	500

Footnotes:
1. The effluent limits for the low flow period apply from July 1 through April 30.
2. The effluent limits for the high flow period apply from May 1 through June 30.
3. These effluent limits are based on 100% mixing zone authorized by IDEQ.
4. These effluent limits are the same as the limits in the current permit.

The certification requires the permittee to submit an Annual Report of Progress that outlines the progress made towards achieving compliance by April 1st of each year. The report is required to include: (1) an assessment of the previous years data and comparison to the final effluent limitations, (2) a report on the progress made toward meeting the final effluent limitations, and (3) further actions and milestones targeted for the upcoming year.

The purpose for allowing a compliance schedule is to allow the permittee time to comply with new effluent limitations. Since the permittee has supplied EPA information that shows that they can currently comply with the new effluent limitations for arsenic, cadmium, copper, iron, lead, selenium, silver, and zinc, there is no need to implement a compliance schedule for these parameters in the final permit.

B. Endangered Species Act (ESA) Consultation

As discussed in the Fact Sheet, the U.S. Fish and Wildlife Service (USFWS) identified a number of threatened and endangered (T&E) species that may inhabit the area affected by the Outfall 001 discharge from the Beartrack Mine. In accordance with the ESA, EPA has currently engaged in formal consultation with USFWS regarding effects of the final NPDES permit on the T&E species.

On February 7, 2003, EPA requested initiation of formal consultation with USFWS and submitted a Biological Evaluation (BE). In the BE (EPA, 2003), EPA determined that the issuance of the proposed permit for the Beartrack Mine is not likely to adversely affect the gray wolf, Canada lynx, bald eagle, or Ute ladies' tresses. EPA has determined that the permitted discharges will likely adversely affect bull trout.

In March of 2003, EPA also requested conference with the USFWS on the affects of the above referenced permit on the proposed critical habitat for bull trout. We also request that the conference be conducted concurrent with the ongoing consultation and that the conference opinion be included in the biological opinion for the Beartrack Mine permit. EPA has determined that the discharge at the effluent limits is likely to adversely affect the critical habitat for bull trout.

The USFWS issued a draft Biological and Conference Opinion for the reissuance of the NPDES permit dated on July 22, 2003. Biological and Conference Opinion is, hereafter, referred to as the opinion. Since EPA has not received the final opinion in a timely manner and the permit contains more stringent water quality-based effluent limits and monitoring requirements, the permit is being issued with the terms and conditions (i.e., monitoring requirements) agreed upon by USFWS and EPA under the draft opinion. Should USFWS issue a final opionion with different or additional terms and conditions or monitoring requirements, EPA will modify the permit action to incorporate those conditions or requirements under our jurisdiction. The USFWS believes the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take anticipated by this biological opinion:

1. EPA will regularly review permit parameters in the permitted discharge to determine if there is acute and chronic toxicity from the permitted discharge to aquatic organisms (both bull trout and their prey items) from the edge of the mixing zone and extending 1444 meters from the point of discharge, in Napias Creek.

2. EPA will implement a macroinvertebrate monitoring/sampling plan to assess potential impacts to bull trout.

3. EPA will submit to the FWS, reports from monitoring, to determine if the permitted discharge limits are adequate to minimize the impacts of the discharges to listed species.

To be exempt from the prohibitions of section 9 of the Act, the EPA must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. The terms and conditions are non-discretionary and must be undertaken by the EPA, or be made a binding condition of any permit issued to an applicant, as appropriate. The following summarizes the opinion requirements, which were incorporated into the final permit:

The following terms and conditions apply to implement Reasonable and Prudent Measure number 1:

1. Dye tests shall be performed once each during high and low flow events, for one year, to discern the size and shape of the mixing zone. The use of fluorescent dyes is encouraged, as small quantities are needed, lessening the potential for toxicity. Dye selection should be based on toxicity and rate of breakdown due to temperature and light. The dye solution should be pumped

into the discharge at a constant rate and monitored until the diluted concentration of the dye platueaus, indicating equilibrium. Protocols from the USGS or ASTM (or other protocol approved by the FWS), should be used. References for the aforementioned protocols, in addition to ancillary reports related to dye tests are included in this document following the References section. Results of the dye test analyses shall be verified using Cormix modeling. The results will be provided to the FWS by EPA, within 6 months following analyses.

2. In order to determine compliance with effluent limitations, sampling points for heavy metals shall be established within the mixing zone and extending 1444 meters downstream of the discharge point. No more than two sampling points shall be established between 500 and 1444 meters downstream of Outfall 001, in addition to the current requirements of the three sampling points located 30, 60, and 500 meters downstream of the Outfall. The locations of the additional one or two sampling points, along with the frequency of sampling, shall be established following the results of the dye test, and approved by the FWS. Sampling shall include at least 3 samples from each sample point in order to establish average values. Sampling shall occur for the first 2 years following FWS approval of the sampling locations, then every 5 years following for verification. Results from the sampling shall be provided to the FWS for our review.

3. As a permit condition, EPA will require an acclimation study be conducted to determine whether or not the test species can acclimate to Napias Creek water. If the species can acclimate, then Napias Creek water must be used for bi-annual WET testing to determine toxicity of the effluent, rather than laboratory water, as a control or dilution agent. In order to maintain the survivability of the test species, extended acclimation periods may be necessary (e.g., if hardness levels in Napias Creek water are much lower than laboratory water).

The following terms and conditions apply to implement Reasonable and Prudent Measure number 2:

4. Within three months following finalization of the biological opinion, EPA shall implement a macroinvertebrate sampling/monitoring plan, as described in Section E of the Proposed Final NPDES Permit for the Beartrack Mine, to be used as a surrogate indicator of impacts to bull trout. This plan, as stated in the Proposed Final NPDES permit, shall be in accordance with the Idaho Beneficial Use Reconnaissance Process (BURP) protocols. As part of the sampling/monitoring plan, a trend analysis of macroinvertebrate abundance,

diversity, and composition over time, as well as trace element concentration analysis in the macroinvertebrates upstream and downstream of the discharge, shall be included. The trend analysis should examine all available past data prior to discharge, during mining, as well as current data.

Four sampling points should be established. The first located upstream of the discharge to act as a control, a second at the edge of the furthest regulatory mixing zone (361 meters downstream of the discharge point), a third located 1444 meters downstream of the discharge point, and a fourth located 2888 meters downstream of the discharge point (to assess if macroinvertebrate populations are affected beyond the anticipated "affected area").

Specific endpoints such as: invertebrate density, number of taxa, diversity indices, EPT taxa, and mayfly richness shall be measured as a part of the sampling/monitoring plan. Additionally, statistical analyses shall be performed to assess if there are significant differences in macroinvertebrate chemical concentrations, diversity, abundance, or composition. These analyses should be included in the annual report. Chemical analyses of the macroinvertebrate samples shall be conducted in accordance with the protocols of the United States Geological Survey tissue sampling protocols (Crawford and Luoma 1993). Macroinvertebrate sampling should be done in such a manner as to not interfere with chemical analyses. Results of the chemical analyses should be included in the annual report. Constituents being analyzed shall include: arsenic, cadmium, copper, iron, lead, mercury, selenium, silver, and zinc. All constituents listed above shall be analyzed annually for the first 2 years following finalization of the biological opinion. Following the first 2 years the list of constituents to be analyzed can be re-evaluated, in consultation with Meridian Beartrack Company, EPA, and FWS, for refinement and possible exclusion of some constituents.

Sampling should be conducted in the late summer or early fall, once a year, at the same time every year, and continue throughout the life of the permit. Results of the monitoring shall be summarized into a report, and provided to the FWS by April 1st of each year for our review.

5. In order to assess compliance with the requirement that Napias Creek be free from toxic substances in concentrations that impair beneficial uses to cold water species, acute rainbow trout tests shall be conducted once annually to evaluate the potential for short-term adverse effects in the mixing zone. This WET testing shall be in addition to the *Selenastrum capricornutum*, *Ceriodaphnia dubia*,

and *Pimephales promelas* chronic WET testing established in the NPDES permit.

The following terms and conditions apply to implement Reasonable and Prudent Measure number 3:

6. If requested by the FWS, EPA through the NPDES permit, will make available the data (in electronic form) derived from terms and conditions 1, 2, and 4, to the FWS for our review.

7. EPA, through the NPDES permit, will provide to the FWS the following reports in electronic form in order to assess the impacts of the discharge to listed species:

   - Permit Part I.B and II.B.3. Biannual WET Test Results
   - Permit Part I.E.3.d. Annual Report of Biomonitoring
   - Permit Part I.E.4.e. Annual Report of Mercury Bioaccumulation Study
   - Permit Part III.G.2. Written Submission of Noncompliance Due to Bypass, Upset, or Violation of Maximum Daily Limits for Metals, Cyanide, and ammonia
   - Permit Part III.I. Notification of Changes in Discharge of Toxic Substances
   - Permit Part IV.F. Anticipated Bypass Notice

   Reports and data can be mailed on a CD to the FWS's Eastern Idaho Field Office at:

   USFWS
   Eastern Idaho Field Office
   4425 Burley Drive, Suite A
   Chubbuck, Idaho 83202

Additionally, the opinion requires the following reporting requirement is implemented in the permit:

> Upon locating dead, injured or sick bull trout, initial notification should be made to the FWS's Law Enforcement (LE) Office as well as the Eastern Idaho Field Office, via a phone call, within three working days of locating the fish. Notification must include the date, time, and location of the fish when found, and possible cause of injury or death of each fish. Contact information for the LE office follows:

Special Agent Craig Tabor
1387 S. Vinnell Way, Suite 341
Boise, Idaho 83709-1657
208-378-5333

III. Response to Comments Received on the Draft Permit

1. Comment. The commentor stated that even though there was not reasonable potential to exceed the human health arsenic criterion of 50 µg/L, EPA has recently adopted an arsenic criterion of 10 µg/L that Idaho may adjust their human health criterion to in the future. Since the potential calculations showed concentrations between 10 and 50 µg/L arsenic, the commentor requested that the permit require monitoring for arsenic at the same interval as other metals in the permit.

   Response. EPA has adopted a drinking water criterion for arsenic of 10 µg/L. Even though drinking water is not a designated use for Napias Creek, the state of Idaho may choose to adopt this number in the future for all human health activities. Therefore, EPA agrees with the commentor that monitoring of arsenic should be required by the permit at the same interval as the other metals.

   After the close of the comment period, EPA received a request from the permittee to include an effluent limitation for arsenic in the final permit, even though it was determined that there was not reasonable potential for the discharge to violate water quality standards. Thus, the final permit includes an effluent limitation for arsenic.

2. Comment. The commentor stated that EPA has inappropriately chosen to utilize a higher than observed hardness measure for Napias Creek that allows a higher level of pollutants to be discharged to Napias Creek. The commentor stated that EPA's use of 25 mg/L hardness as $CaCO_3$ (calcium carbonate) for determination of the metals criteria when the actual hardness value is below this value may not be fully protective and cites 62 Federal Register 42175, August 5, 1997, in support of their comment. The commentor requested that EPA utilize the actual hardness of the surface water when calculating the effluent limits.

   Response. EPA used the state of Idaho's water quality standards to develop this permit. The Idaho water quality standards (IDAPA 58.01.02.210.01) incorporate the toxic criteria set forth in 40 CFR 131.36(b)(1) (National Toxics Rule) as of July 1, 1993, which specifies a hardness range of 25 to 400 mg/L as $CaCO_3$.

   The commentor sites the federal register notice for the water quality standards and establishment of numeric criteria for priority toxic pollutants for the state of California. The California water quality standards do not apply in Idaho. The commentor is correct that in the

federal register notice they cited that EPA has stated that the use of the 25 mg/L hardness as $CaCO_3$ when the ambient (or actual) hardness is below this value may not be fully protective. However, the National Toxics Rule and the Idaho water quality standards still require the use of the lower hardness of 25 mg/L as $CaCO_3$ to protect for aquatic life. Therefore, the hardness of 25 mg/L as $CaCO_3$ was used to develop the appropriate water quality criterion for metals in this permit.

3. Comment. The commentor stated that EPA has inappropriately chosen to eliminate the current standards for arsenic, chromium and iron. The commentor requested that EPA, at a minimum, articulate a standard for these parameters and the permit should require testing for arsenic, chromium and iron in the event that these pollutants appear in the effluent stream in the future. The commentor stated that monitoring is imperative to warn of these pollutants entering the effluent stream and are necessary for ongoing monitoring in regards to the WET standard.

Response. EPA assumes that the commentor meant to say that the current effluent limits and monitoring for arsenic, chromium and iron have been inappropriately eliminated from the permit. The reason that these effluent limits and monitoring requirements were removed from the reissued permit is that the current permit derived these water quality effluent limits based on estimated concentrations in the effluent because this was a new discharge and measured concentrations were not available at the time. Since the issuance of that permit, the permittee has been monitoring both their effluent and the receiving water (Napias Creek) to obtain measured values of the actual concentrations. Based on this new information, EPA has shown that the effluent concentrations do not have the potential to cause or contribute to an exceedance of water quality standards and has decided to remove these effluent limitations. Section 402(o)(2)(B)(i) of the Clean Water Act allows for a reissued permit to contain a less stringent effluent limitation if information is available which was not available at the time of permit issuance and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. However, EPA has included effluent and receiving water monitoring, as well as effluent limits, for arsenic in the final permit (see response to comment #1).

In the draft permit, EPA did not determine reasonable potential for iron since the state of Idaho has not established a water quality criterion for iron to protect aquatic life. In the absence of state water quality criteria, federal regulations at 40 CFR 122.44(d)(vi) allow the establishment of effluent limits on a case-by-case basis using EPA's water quality criteria. In response to this comment, EPA evaluated the discharge for reasonable potential to exceed the aquatic life criterion of 1000 µg/L, which is EPA's national recommended water quality criterion for this non-priority pollutant. Based on the reasonable potential analysis, effluent limits were developed for iron during the high flow period. These effluent limitations and monitoring requirements have been incorporated into the final permit based on the mixing zones authorized

by the state of Idaho in their 401 certification of this permit. The calculations for the iron effluent limits are provided in Appendix B of this response to comments.

In regard to the statement that monitoring of arsenic, chromium and iron is imperative to warn of these pollutants entering the effluent stream, these parameters are present in all natural water systems and in the applicants effluent. Problems occur when the concentrations of these parameters in the receiving water body exceed or contribute to exceedances of criteria levels that are established to protect designated uses of that water body. EPA can only require monitoring when there is an effluent limitation for a parameter or when the information is necessary to determine the need for future effluent limitations. Monitoring is not necessary for parameters where the known effluent concentrations were considerably below the water quality criteria. Since the measured chromium concentrations show that the maximum effluent is less than half the criteria, there is no need to require further monitoring of this parameter.

In regard to the statement that monitoring of arsenic, chromium and iron is necessary in regards to the whole effluent toxicity (WET) standard, the monitoring of chemical specific parameters only provides an indicator of the source of toxicity but does not preclude the determination of WET under this permit. From past monitoring and the sources of the pollutants in the discharge, chromium is an unlikely source of WET. If WET testing indicates that the toxicity trigger is exceeded, then the permittee is responsible for investigating the cause of the exceedance.

4. Comment. The commentor stated that they are concerned that EPA is allowing too much ammonia to enter Napias Creek. The commentor requested that EPA revisit this issue and lower the effluent limit for ammonia so that it is fully protective for the sensitive fish species that utilize Napias Creek on a seasonal and year-round basis. The commentor further stated that EPA should direct MBC that all of the neutralized water from the heap leach pad be collected and evaporated and the residue should be collected and disposed of properly.

Response. The effluent limitations for ammonia in the permit are protective of Idaho water quality standards, which includes the designated use of aquatic life, cold water biota. The permittee is attempting to close this facility in a manner that complies with Idaho water quality standards. Currently, the permittee is collecting and evaporating the neutralized water from the heap leach pad. However, once the measured concentrations in the runoff from the reclaimed heap leach pad meet effluent limits which are based on water quality standards, the applicant would redirect the flow to discharge to Napias Creek. EPA has provided effluent limitations that allow the permittee to determine when this discharge will meet the water quality standards for Napias Creek.

5. Comment. The commentor stated that the draft permit is backsliding on lead by proposing to relax the effluent limit, which is inappropriate and a violation of section 402(o) of the Clean Water Act. The commentor stated that EPA must maintain the current effluent limit for lead.

Response. Section 402(o) of the Clean Water Act states that in the case of effluent limitations established on the basis of section 301(b)(1)(C) or section 303(d) or (e) (i.e., water quality-based effluent limits), a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 303(d)(4).

Since the water quality standards of Napias Creek are attained, section 303(d)(4)(B) states that any effluent limitation based on a total maximum daily load or other waste load allocation established under this section, or any water quality standard established under this section, or any other permitting standard may be revised only if such revision is subject to and consistent with the antidegradation policy established under this section.

A waste load allocation is derived from the criterion, upstream flow, upstream concentrations, and effluent flow. The basis for these parameters have changed since the issuance of the current permit. In the current permit, the water quality-based effluent limitation was based on EPA guidance [cite reference to Gold Book] (i.e., the Gold Book), which uses an equation based on hardness to determine the criteria. The Gold Book is silent as to the applicable hardness range to use in determining the criteria to base the waste load allocation to derive the effluent limit. The previous permit writer used best professional judgement to determine the applicable hardness of 10 mg/L as $CaCO_3$ to use in establishing the appropriate criteria for this permit. Since the issuance of that permit, EPA has promulgated regulations at 40 CFR 131.36(b)(1) (National Toxics Rule) in 1993 and Idaho has adopted this regulation in its water quality standards (IDAPA 58.01.02.210.01). The National Toxics Rule, and thus the Idaho water quality standards, require the use of a hardness range of 25 to 400 mg/L, even when the actual hardness is outside this range.

Additionally, the conversion factors used to determine the applicable criteria for the current permit were based on a default equation that is to be used in the absence of site-specific translators (a translator is the inverse of the conversion factor and allows for the chemical partitioning between the dissolved and adsorbed forms of the metal in the receiving water due to an effluent discharge). Site specific translators have since been developed for this permit and approved for use by EPA and the Idaho Department of Environmental Quality (IDEQ).

The flows used to derive the wasteload allocation in the current permit were based on estimates of critical receiving water and effluent flows that were established from four months of data, basin yields of gaged receiving waters in the region, and average precipitation measured at locations within the same region. This analysis only estimated a 1Q10 flow and the effluent

flow, which would not have accounted for and adequately protected the duration period of the chronic toxic effects. There is now eight years of gaged flow information for Napias Creek that can be better used to define the applicable receiving water flow. The waste load allocations have also been developed for both the high and low flow conditions of Napias Creek. The application of tiered effluent limits are more protective of the aquatic environment during the low flow periods because they do not include the high flows observed in May and June.

At the time the current permit was issued, the permittee's discharge was rainfall dominated. The permittee now has the capacity and capability to divert flows from the facility to the South Pit lake and control the amount of flow discharged to Napias Creek.

These changes in the basis for the waste load allocation must be consistent with the state of Idaho's antidegradation policy in their water quality standards. The state of Idaho has certified under section 401 of the Clean Water Act that the effluent limitation for lead will assure attainment of the water quality standards for Napias Creek. Even though the effluent concentrations are greater, the pollutant loadings proposed by the draft permit are about half those of the current permit. This will result in substantially less pollution into Napias Creek by this discharge.

6. Comment. The commentor stated that the EPA should not grant MBC the use of a mixing zone to dilute their waste should the IDEQ recommend or authorize one. The commentor believes that the use of a mixing zone causes harm by facilitating the release of additional pollutants and creating a potential barrier to fish movement. The commentor disagrees with EPA's conclusion that a mixing zone does not pose problems to salmon because of NMFS' finding that historically salmon may have been present above Napias Falls (page E-2 of the fact sheet) and are confused by the discussion of the mixing zone on page E-4 of the fact sheet that a mixing zone above the falls is not problematic for salmonids. The commentor requested that EPA remove the provision for a mixing zone from the permit and clarify how the mixing zone is not problematic for salmonids.

Another commentor stated that MBC has demonstrated through comprehensive biological, chemical and physical analyses, including aquatic habitat monitoring and water quality monitoring, that a mixing zone of 100% of the river volume would be wholly protective of all designated uses in Napias Creek.

Response. EPA does not have the authority to authorize mixing zones. Only the state of Idaho may authorize a mixing zone consistent with their water quality standards. In the draft permit, EPA only proposed what the mixing zones may be for this discharge. the proposed mixing zone dilutions were based on guidance in Idaho's water quality standards (IDAPA 58.01.02.060). The state of Idaho may authorize in their 401 certification of this permit a mixing zone other than those stated in the fact sheet and has authorized the mixing zones

provided in Table 1. Where the mixing zones differ from those used for the draft permit, EPA has recalculated reasonable potential, waste load allocations, and effluent limitations for those parameters.

In 1996, NMFS determined that Napias Creek above Napias Falls may have been accessible to the Snake River spring/summer chinook salmon historically and therefore, constituting Napias Creek above Napias Falls critical habitat. However, this determination was overturned in 1999 when NMFS published a rule in the federal register excluding the Snake River spring/summer chinook salmon from the areas of Napias Creek above Napias Falls because the falls were proven to be a fish barrier. Consequently, there are no Snake River spring/summer chinook salmon in Napias Creek above Napias Falls. EPA had concluded that since the Snake River spring/summer chinook salmon were not present above the Napias Falls, then they would not be affected by a mixing zone in the upper reaches of Napias Creek as long as the mixing zone did not extend beyond Napias Falls.

7. Comment. The commentor stated that EPA used flow estimates that no longer reflect flows of Napias Creek. The commentor is concerned that the critical receiving water flows were calculated from flows prior to MBC diverting flows to the South Pit. The commentor requested that EPA recalculate the critical flows by subtracting out the water that is currently being used to fill the South Pit.

   Response. The critical flows for Napias Creek used to develop the draft permit are correct. EPA used the flow of the receiving water upstream of the discharge in the calculations. The mine's current practice of diverting storm water to the South Pit will not affect the calculation of flow upstream of outfall 001 because they are only diverting water that would normally be discharged through outfall 001, which would only affect downstream flow.

8. Comment. The commentor is concerned over the amount of effluent flow relative to receiving water flow. The commentor stated that the estimates of effluent flow provided on page D-20 of the fact sheet would violate EPA's 30:1 dilution criteria for this area provided on page E-4 of the fact sheet.

   Response. The 30:1 dilution criteria was established as a 1Q10 for the current permit; it was not the basis for the draft permit. Page E-4 of the fact sheet was stating why the 30:1 dilution criteria was not accurate for this discharge and not protective of water quality standards. The draft permit is based on four flow regimes to protect for aquatic life: a 1Q10 and 7Q10 for both the high and low flow periods of the year. The dilution ratios are based on the flow volumes (i.e., critical flow times mixing zone volume) and the effluent flow rates.

   For example, using the low flow 1Q10 critical flow of 3.05 mgd, a mixing zone volume of 25%, and the effluent flow of 0.30 mgd, the corresponding dilution ratio would be 2.5:1.

9. Comment. The commentor stated that EPA should not use an upstream concentration of zero when the test results were non-conclusive due to MBC use of test methods that were not sufficiently sensitive to detect pollutants at the levels below the Napias Creek criteria. The commentor believes that requiring MBC to monitor Napias Creek water with more sensitive methodologies is unacceptable. The commentor has requested that EPA take a cautionary course and eliminate the use of mixing zones in the permit.

Response. In the draft permit, EPA assumed a zero upstream concentration for arsenic, cadmium, chromium, copper, cyanide (WAD), lead, mercury, selenium, silver, and zinc because most or all of the data were non-detect. Since arsenic, chromium, cyanide (WAD) and selenium data were all below detection and the detection levels were below the applicable water quality criteria, EPA applied one-half the detection level as the upstream concentration in the equations used to assess these parameters for the final permit. Nickel and zinc had a few detected values, so EPA applied those values in the equations used to assess these parameters for the final permit. Since there were no detected values for cadmium, copper, lead, mercury and silver and all the detection levels were above the applicable water quality criteria, EPA used zero as the upstream concentration. The upstream values used for the final permit are provided in Table 3.

The upstream values are used to determine reasonable potential for parameters that are found to cause or contribute to exceedances in the receiving water body and calculate the waste load allocations for those parameters. Using the assumption of zero upstream concentration for cadmium, copper, lead, mercury and silver, EPA still determined reasonable potential for these parameters. Therefore, this assumption did not affect the determination of the need for effluent limitations for these parameters.

The steady-state equation used to develop waste load allocations is conducted at critical conditions, which are the combination of worst-case assumptions of flow, effluent, and environmental effects. For example, a steady-state model for cadmium considers the maximum effluent concentration and flow to occur on the day of lowest river flow, highest upstream concentration, and lowest hardness level. Each condition by itself has a low probability of occurrence; the combination of conditions may rarely or never occur. Therefore, the permit limits that are derived from this waste load allocation will be protective of water quality standards at the critical conditions and for all environmental conditions less than critical. Such permit limits may be more stringent than necessary to meet the return frequency requirements of the water quality criterion for the pollutant of concern. The affect of assuming an upstream concentration of zero can reduce the level of protectiveness provided by the critical condition assumptions of the steady-state model approach. However, EPA believes that this assumption would have little effect on the waste load allocation because there are no upstream discharges that contribute to the impacts of this stream. Additionally, IDEQ has certified under 401 of the

Clean Water Act that the effluent limitations proposed by EPA in the final permit are protective of water quality standards for Napias Creek.

The final permit requires upstream monitoring for all these parameters, and requires that the monitoring be conducted to achieve MDLs less than the water quality criteria. Such monitoring will be used to revise the effluent limits, if needed, in the future.

Table 3. Upstream Concentrations (C_u) used to Determine Reasonable Potential and Develop Waste Load Allocations.

Parameter	Units	Dissolved Concentration		Total Concentration	
		low flow	high flow	low flow	high flow
Ammonia	mg/L	---	---	0.14	0.35
Arsenic	µg/L	2.5	2.5	4	4
Cadmium	µg/L	0	0	3	0.5
Chromium	µg/L	2.5	2.5	2.5	2.5
Copper	µg/L	0	0	2.5	2.5
Cyanide (WAD)	µg/L	0	0	---	---
Iron	µg/L	---	---	3,520	1,310
Lead	µg/L	0	0	7	5
Manganese	µg/L	---	---	70	20
Mercury	µg/L	0	0	0	0
Nickel	µg/L	20	10	30	5
Selenium	µg/L	---	---	2.5	2.5
Silver	µg/L	0	0	---	---
Turbidity	NTU	---	---	59	17
Zinc	µg/L	20	10	50	30

10. Comment. The commentor stated that it appears that EPA meant to reference equation 14 of the fact sheet on page D-33 rather than equation 13.

Response. EPA agrees with this comment.

11. Comment. The commentor stated that EPA has calculated a chronic toxicity trigger and requested that an acute toxicity trigger be calculated and integrated into the permit and effluent limits.

Response. The state of Idaho has authorized mixing zones for acute WET toxicity based on 100% critical flow (i.e., 1Q10) during the low flow period and 100% 1Q10 during the high flow period (i.e., May and June). Based on these dilutions, there is not reasonable potential for acute toxicity in Napias Creek. The following discussion provides the basis for this determination.

Table 4. Effluent Chronic Toxicity Data

Low Flow (May 1 - June 30)		High Flow (July 1 - April 30)	
Sample Date	Toxicity (TU_c)	Sample Date	Toxicity (TU_c)
October 1998	1.0	May 1996	3.0
October 1999	3.0	May 1998	1.0
		June 1999	1.0

The maximum effluent concentration is estimated by using the statistical approach in Chapter 3 of the Technical Support Document (TSD, EPA 1991). As shown in Table 4, above, there were two observations of whole effluent toxicity during the low flow period and three observations of whole effluent toxicity during the high flow period. Based on the guidance in the TSD, these are insufficient to determine the CV accurately; therefore, the default CV of 0.6 is used to determine the effluent multiplier. The effluent multipliers of 7.4 for the low flow period and 5.6 for the high flow period were obtained from Table 3-1 of the TSD using the number of observations, the CV and the 99-percent probability basis. To calculate the receiving water concentration for acute toxicity, the chronic toxicity data must be converted into acute toxicity units by applying the acute-to-chronic ratio (ACR). In the absence of data to develop an ACR, the TSD recommends using an ACR of 10. An ACR of 10 should provide ample protection against acute instream impacts given the protective margin of inherent with the use of a critical flow for the calculation of an acute receiving water waste concentration.

The maximum receiving water concentration for acute toxicity is calculated using the following equation:

$$C_d = \frac{[(M \times C_e + ACR \times Q_e) + (C_u + ACR \times Q_u \times MZ)]}{(Q_e + Q_u \times MZ)}$$

where, C_d is the projected downstream concentration, M is the effluent multiplier, Ce is the maximum observed effluent concentration, ACR is the acute to chronic ratio, Qe is the effluent flow rate, Cu is the upstream concentration, Qu is the receiving water critical flow rate, and MZ is the dilution provided by the mixing zone.

For the low flow period, the receiving water acute toxicity is evaluated using following calculation:

$$C_d = \frac{[(7.4 \times 3.0 \div 10 \times 0.3) + (0 \div 10 \times 3.05 \times 1.00)]}{(0.3 + 3.05 \times 1.00)} = 0.20 \text{ TUa,}$$

where

7.4 = effluent multiplier (TSD Table 3-1, n=2, CV=0.6)
3.0 = maximum effluent chronic toxicity (TUc)
10 = ACR
0.3 = effluent flow (mgd)
0 = upstream chronic toxicity (TUc)
3.05 = acute critical flow, 1Q10 (mgd)
1.00 = mixing zone dilution (100% 1Q10)

For the high flow period, the receiving water acute toxicity is evaluated using following calculation:

$$C_d = \frac{[(5.6 \times 3.0 \div 10 \times 1.05) + (0 \div 10 \times 12.39 \times 1.00)]}{(1.05 + 12.39 \times 1.00)} = 0.013 \text{ TUa,}$$

where

5.6 = effluent multiplier (TSD Table 3-1, n=2, CV=0.6)
3.0 = maximum effluent chronic toxicity (TUc)
10 = ACR
1.05 = effluent flow (mgd)
0 = upstream chronic toxicity (TUc)
12.39 = acute critical flow, 1Q10 (mgd)
1.00 = mixing zone dilution (100% 1Q10)

For both flow regimes, the value of the calculated receiving water concentration is less than the acute water quality standard of 1.0 TUa, and therefore there is no reasonable potential for the

acute criterion to be exceeded. Consequently, there is no need to require an acute toxicity trigger or monitoring in the permit.

12. Comment. The commentor stated that the effluent limits presented in Table 1 of the draft permit show average monthly limits that exceed the maximum daily limits and questions whether the values were transposed or an error in the calculations.

Response. In the draft permit, the maximum daily limits for the low flow period were entered into Table 1 as the average monthly limits for this high flow period and vice versa. Table 1 of the final permit contains the proper limits in the appropriate columns.

13. Comment. The commentor stated that the draft permit proposes ten chronic WET tests to be performed under this permit. The commentor requested that if four consecutive chronic WET tests pass (i.e., two years in a row), then subsequent toxicity testing may be discontinued.

Response. In order to "pass" a chronic WET test, the result would need to show "no toxicity." The chronic whole effluent toxicity waste load allocation (WLA) (i.e., chronic toxicity trigger) has been established at 4.2 TUc. Since this WLA was designed to protect the water quality standard, an effluent value below this value would be considered to show no toxicity. The Technical Support Document (TSD, EPA 1991) recommends a minimum testing frequency of quarterly for one year to adequately assess effluent toxicity. This testing frequency equates to four concurrent samples. Since it has been established that a quarterly monitoring frequency was inappropriate for this discharge, EPA would conclude that the minimum testing frequency for the permittee's effluent should be four concurrent samples in two consecutive years. EPA agrees that if the permittee can provide four observations below 4.2 TUc in any consecutive two year period under the permit and have no other observation under this permit above 4.3 TUc, that no further WET testing would be necessary. In order to discontinue WET monitoring, the permittee must obtain authorization from EPA. Therefore, footnote 6 of Table 1 in the final permit has been changed to reflect this requirement.

14. Comment. The commentor requested that section I.C.7 of the draft permit state "Within fifteen (15) working days..." rather than fifteen days total to allow adequate time to have samples re-tested, if necessary.

Response. The fifteen day requirement is for commencement of activities required under this section, not completion. EPA believes that fifteen days is adequate notice for the permittee to commence the required activities. However, EPA has re-examined the requirements of this section in light of this comment and has determined that it would be better to have the permittee submit an initial notice under the fifteen day requirement and submit a report within ninety days. This would allow the permittee adequate time to have samples tested and determine or correct the cause(s) of toxicity, as well as time to prepare the report. The initial notice will describe the

actions the permittee has taken or will take to investigate and correct the cause(s) of toxicity and provide a copy of the sample result that indicated the exceedance of the toxicity trigger. The final report will require the same information required in section I.C.7.b of the draft permit.

15. Comment. The commentor stated that it is not necessary to construct two additional flow-gauging stations (one at WQ-22 and one on Arnett Creek) to obtain the upstream flow. The commentor believes that the impact to the streams from the construction and operation of these stations is not warrented. The commentor requests that the permit specify that the existing USGS station No. 133066385 be utilized for the measurement of the flows downstream of the discharge and calculate the upstream flows by subtracting the effluent flows from the flows at the USGS gauging station.

    Response. It was not EPA's intent for MBC to install additional flow-gauging stations. EPA agrees that flow may be measured at the existing USGS gauging station and the reported upstream flows could be calculated by subtracting the effluent flows from the flows as the USGS gauging station. The surface water monitoring requirements in the final permit have been modified to reflect this change.

16. Comment. The commentor stated that draft surface monitoring requirements include both total recoverable and dissolved analyses for all metals except selenium. Since the state of Idaho water quality standards specify the dissolved fraction for metals under IDAPA 58.01.02.210, analysis of both dissolved and total recoverable will represent at least a doubling in laboratory analytical costs with no definite benefits. The commentor requested that the samples be analyzed for the dissolved fraction only.

    Response. The reason that EPA required both total recoverable and dissolved analysis of metals in the receiving water is that not all criteria are the dissolved fraction. EPA re-evaluated the need for both the dissolved and total recoverable data for Napias Creek. EPA determined that total data was not needed for cadmium, copper, lead, silver and zinc since the water quality criteria are expressed as dissolved. It was determined that additional total recoverable data would only be necessary for nickel and mercury. Since the agricultural numeric criterion is between the acute and chronic numeric criteria and the agricultural criterion is total recoverable while the aquatic life criteria are dissolved, both forms (total recoverable and dissolved) of nickel are necessary. However, there is a site specific translator for nickel so the dissolved data could be converted to total recoverable using that translator. Both forms of mercury are necessary because the acute aquatic life criterion is dissolved and the chronic aquatic life criterion is total recoverable. Since there is not a site specific translator for mercury, the final permit requires both dissolved and total recoverable analyses for mercury.

17. Comment. The commentor stated that the receiving water sampling frequency in the current NPDES permit requires monitoring of these stations five times per year on specific dates,

whereas the draft permit significantly increases the frequency from five times per year to 24 times per year (i.e., twice per month). The commentor believes that the monitoring schedule required by the current permit has adequately characterized the ambient water quality of Napias Creek and does not see the reason for the proposed change in sample frequency.

Response. EPA disagrees that there is sufficient information to adequately characterize the ambient water quality of Napias Creek. In the current NPDES permit, the permittee was required to sample at four receiving water stations (WQ-1, WQ-21, WQ-22, and WQ-9) five times per year (mid-March, mid-May, mid-June, mid August, and mid-October). Under this permit, the permittee did not monitor at all in 1992 or 1993, and did not monitor in March of 1994 or October of 1995. There are several other instances where the permittee did not monitor at all the required stations or did not monitor for all the required parameters. The permittee also chose to analyze receiving water samples using analytical methods that had detection levels higher than the water quality criteria applicable to Napias Creek. When a sample result is non-detect at a level above water quality criteria, the ambient water quality cannot be adequately characterized.

Additionally, EPA needs this information to ensure that the discharge is not adversely affecting endangered species. There is critical habitat for bull trout in the vicinity of the discharge and the Snake River spring/summer chinook salmon is downstream of this discharge.

The current permit requires 20 receiving water samples per year, while the draft permit proposed 48 receiving water samples per year. EPA believes that it is only necessary for the facility to gather receiving water information from March through October, as specified in the previous permit, because Napias Creek is usually iced over from November through February and snowmelt does not occur until late February or early March, which would make it difficult for the facility to obtain an adequate representative sample of the receiving water. Additionally, the historical data from the mine shows that they rarely discharged during this time period. The previous permit did not require sampling in July or September, however, EPA considers the information for this time period essential to adequate characterization of the water quality of Napias Creek. In order to reduce the burden of monitoring while providing the necessary information regarding the conditions of the receiving water, the final permit requires two samples per month from March through October for the first two years, and then one sample per month from March through October for the remainder of the permit. This will result in 32 samples per year for the first two years and then 16 samples per year thereafter.

18. Comment. The commentor requested that the permit clarify that surface water sampling occur only during months that discharge from outfall 001 occurs.

Response. Since the purpose of the receiving water sampling is to characterize the water quality of Napias Creek, EPA believes that it is necessary to obtain information about this water

body when the permittee is not discharging, as well as when they are discharging. This information will allow a better assessment of the impacts the discharge has on Napias Creek.

19. Comment. The commentor stated that past discussions with Misha Vakoc, Region 10 of the EPA, indicate that a BMP Plan was not necessary for the Beartrack Mine because all water, including storm water, is collected and routed through a single NPDES permitted outfall. No storm water is collected or discharged separate from outfall 001.

Response. Misha Vakoc is the Storm Water Coordinator under the NPDES program in Region 10. Misha's discussions with the permittee were related to the national Storm Water Multi-Sector general permit for Industrial Activities (MSGP) of 1998. Misha informed the permittee that a BMP plan was not required under the national storm water general permit because the permittee co-mingles their storm water with process water and discharges through one outfall (i.e., outfall 001). Therefore, the BMP plan is not required under the MSGP, but is required under the individual permit.

BMPs are appropriate for storm water sources that contribute to the outfall pursuant to 40 CFR 122.44(k)(2) and appropriate for the rest of the facility to achieve the effluent limitations and standards or to carry out the purposes and intent of the Clean Water Act (40 CFR 122.44(k)(3)). The primary authority for BMP Plan requirements is Section 402(a) of the Clean Water Act. Section 402(a)(1) of the Clean Water Act allows the Administrator to prescribe conditions in a permit determined necessary to carry out the provisions of the Clean Water Act. BMPs are one such condition. Section 402(a)(2) authorizes EPA to include miscellaneous requirements in permits on a case-by-case basis which are considered necessary to carry out the provisions of the Clean Water Act. Based upon this statutory authority, EPA promulgated regulations which provide for BMPs to be used to control or abate the discharge of pollutants when effluent limitations are infeasible or the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purpose and intent of the Act (40 CFR 122.44(k)(2) and (3)).

There is nothing in the law or regulations that limits the use of BMPs to only storm water discharges. To improve water quality, the CWA provides for water pollution controls supplemental to effluent limitations. BMPs are one such supplemental control. BMPs are also intended to complement and augment effluent limitations and incorporate pollution prevention practices. The intent is to avoid contact between pollutants and water media as a result of leaks, spills, improper waste disposal, etc. The BMP Plan is intended to achieve the following objectives: minimizing the quantity of pollutants discharged from the facility, reducing the toxicity of discharges to the extent practicable, preventing the entry of pollutants into waste streams, as well as minimizing storm water contamination EPA endorses pollution prevention as one of the best means of pollution control. In 1990, the Pollution Prevention Act was enacted and set forth a national policy that: "...pollution should be prevented or reduced at the source whenever

feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner." The requirement to develop BMPs is included in permits to require facilities to begin to address pollution prevention, as well as storm water.

Rather than requiring site-specific BMPs, EPA has required the development of a BMP Plan that will allow MBC the flexibility to address issues specific to the Beartrack Mine. This regulatory basis for developing BMP Plans is presented in more detail in EPA's BMP guidance (USEPA 1993). This guidance also provides information on how to develop BMP Plans. In summary, EPA has the authority to impose BMP requirements as an enforceable part of the permit. The requirement to develop a BMP Plan for the facility remains in the final permit.

20. Comment. The commentor stated that MBC's contract laboratory submits the analytical reports to MBC three to four weeks following the sampling event. The commentor requested that the monthly DMR reports be submitted (postmarked) by the 28th day of the following month, rather than the 20th day as proposed in the draft permit. The extra five days are required to ensure that enough time is available to receive the lab reports, incorporate them into the DMR, and submit the DMR on time.

Response. The draft permit language (at III.B.) requires DMRs to be submitted by the 20th day of the following month. For facilities in Region 10, DMR due dates range from the 10th day of the month to the 20th for facilities that have similar concerns (remote location). EPA has determined that the 20th of the following month as the reporting date is reasonable to address the need for adequate time to report results. With adequate planning, results can be obtained in time to record them on the monthly DMR. A deadline beyond that date would be inconsistent with reporting requirements for other industrial facilities.

21. Comment. The commentor stated that EPA regulation 40 CFR 136 Appendix B defines the method detection level (MDL) as: "the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." However, EPA regulations 40 CFR parts 141 and 142 define the practical quantitation limit (PQL) as, "the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions."

The commentor interpreted these regulations to mean that the MDL is specified by the ability of the instrumentation to provide 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte when following an EPA approved testing procedure and the PQL to be the minimum concentration that a normal laboratory under normal conditions using accepted EPA test

methods and QA/QC should be expected to analyze. Therefore, following the 40 CFR 136 guidelines, the currently attainable PQL for several constituents identified in Table 3 of the draft permit, page 11 of 36, are higher than the MDL specified as analytical testing requirements. The commentor supplied a table comparing MDL and PQL levels for the parameters listed in Table 4 of the draft permit citing EPA Method 200.8 for all parameters, except ammonia.

The commentor requested that the analytical testing requirements be changed to the PQL using EPA specified methods at an EPA certified analytical lab using as the analyte the solution to be discharged through the NPDES system. Additionally requested was that EPA discuss the measurement levels of EPA approved analytical procedures with MBC if this interpretation of the detection levels is incorrect so that there is consensus as to what measurement levels are attainable. The commentor supplied a copy of a letter from John Standish, Vice President of Energy Laboratories, Inc. in support of their comment.

Response. Section 304(h) of the Clean Water Act (CWA) requires the EPA Administrator to promulgate guidelines establishing test procedures for the analysis of pollutants. The EPA's approval of analytical methods is authorized under section 304(h) of the CWA, as well as the general rulemaking authority in section 501(a) of the Act. The EPA uses these test procedures to support the development of effluent limitations guidelines, to establish compliance with NPDES permits, for implementation of pretreatment standards, and for section 401 certifications. The section 304(h) test procedures (analytical methods) are specified in part 136 of title 40 of the Code of Federal Regulations (40 CFR 136).

The federal regulations at 40 CFR parts 141 and 142 are the national primary drinking water regulations. These regulations do not apply to this permit because the effluent is not a public water system as defined under 40 CFR 141.2.

All methods specified in Table 3 of the permit are published in the EPA Methods under 40 CFR 136. All of these methods have been validated by the EPA, published in the federal register for public comment, approved by the EPA and incorporated, by rulemaking, into the Code of Federal Regulations.

The MDL concept origin is an article published in the peer-reviewed scientific literature in 1981 (Environmental Science and Technology 15 1426-1435). The MDL procedure has been used in the EPA's various environmental programs since it was published at 40 CFR Part 136, Appendix B in 1984. Application of the MDL procedure to particular methods has been subject to peer review and public comment with every MDL that the EPA publishes in nearly every chemical-specific method proposed in the Federal Register since 1984. The MDL procedure is accepted and used by nearly all organizations making environmental measurements. No other detection or quantitation limit procedure or concept has achieved this level of acceptance and use.

Since an analyte, in most instances, cannot be quantified at the MDL, the EPA uses the minimum level (ML) when it is necessary to quantify the concentration (i.e., compliance with an effluent limitation that falls below the level at which this parameter can be accurately quantified using the EPA approved methods). The ML is defined as the level at which the parameter can accurately be measured. Therefore, the permit will specify the ML as the final compliance evaluation level for all parameters that do not have an EPA approved method with low enough detection levels to quantify the parameter at the effluent limitation. Since silver was the only effluent limitation that was below the quatification level, or ML, in the final permit, the EPA has only provided the ML for silver in footnote 5 of Table 1[1].

The EPA's ML can be compared to the American Chemical Society's Limit of Quantitation (LOQ). The EPA's Office of Science and Technology currently uses the MDL multiplied by a factor of 3.18 to calculate the ML. The EPA's rational for selecting a factor or 3.18 is based on the following:

- The MDL is defined as the "minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero as determined by a specific laboratory methods. The MDL is equal to 3.14 times the standard deviation of seven replicate measurements.

  MDL = 3.14 × standard deviation

  OR

  $$\text{standard deviation} = \frac{MDL}{3.14}$$

- The American Chemical Society has defined the LOQ as the level at which a sample can be reasonably measured at 10 standard deviations above the average blank measurement using graphical and statistical techniques.

  ML = LOQ = 10 × standard deviation

  OR

  $$\text{standard deviation} = \frac{LOQ}{10} = \frac{ML}{10}$$

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[1]U.S. EPA. *Region 10 Guidance for WQBELs Below Analytical Detection/Quantitation Level*. March 22, 1996.

- Since the MDL is equal to 3.14 standard deviations about the replicate measurements, dividing this into 10 provides a multiplier of 3.18 between the MDL and ML.

$$\frac{MDL}{3.14} = \frac{ML}{10}$$

OR

$$ML = \frac{10}{3.14} MDL = 3.18 \times MDL$$

For non-metals, the ML is rounded to the nearest multiple of 1, 2, 5, 10, 20, 50. When a method does not express an explicit MDL, the ML is set as the low end, sensitivity, estimated detection limit, etc. listed in the method.

The purpose of the analytical testing requirements in Table 5 of the permit is to establish the expected levels of water quality monitoring such that reasonable assurance for compliance with water quality standards can be determined. The analytical testing requirements in Table 5 of the permit does not apply to the effluent limits listed in Table 1 of the permit. As stated in I.B.4 of the permit, "For all effluent monitoring, the permittee must use methods that can quantify the effluent limitation unless otherwise specified in Table 1. For parameters that do not have effluent limitations, the permittee must use methods that can achieve MDLs less than or equal to those specified in Table 5."

Table 5 of the permit provides the maximum MDL that is acceptable unless otherwise approved by EPA. EPA has changed the wording in I.E of the permit to make this expectation clear. The maximum MDLs were determined by dividing the most stringent water quality criterion for each parameter by 3.18 (the ML conversion factor) to ensure that the laboratory analysis could report to levels that could measure water quality. The permittee may choose any EPA method under 40 CFR 136 that can achieve the maximum MDL listed in the table. In Table 5, below, EPA has provided a list of EPA Methods under 40 CFR 136 that meet the analytical testing requirements in the permit. The permittee should chose a laboratory that can report at the ML listed in Table 5. Since Method 200.8 was discussed in the comment, EPA has included this method in Table 5. However, this method has not been published in 40 CFR 136 and the permittee would have to request the use of this method as an alternative test procedure under 40 CFR 136.4. It should be noted that the permittee would not need to submit data for the alternative test procedure Method 200.8, as required by the regulations, since this method has been recommended for approval by the EPA Laboratory in Cincinnati, Ohio, but must submit a letter requesting the use of this method and be approved by EPA under 40 CFR 136.5.

The Clean Water Act does not require laboratory certification under the NPDES program. Additionally, the EPA does not have a laboratory certification program, thus cannot require the permittee to use a certified laboratory to conduct the analysis. Any laboratory, including the permittee's laboratory, is required to follow the methods specified in 40 CFR 136 or in the permit. If the method is not properly followed, the permittee is held accountable. If a laboratory is unable to fulfill these requirements, the permittee needs to seek a laboratory that can fulfill these requirements.

Table 5. EPA Methods under 40 CFR 136 that Meet the Analytical Testing Requirements for the Beartrack Mine NPDES Permit

Parameter	Units	Most Stringent Criterion	Maximum MDL (Table 3 of permit)	EPA Method	MDL	ML
Ammonia	mg/L	1.9	1	350.1 Phenate	---	0.010
				350.2 Nessler	---	0.050
				350.2 Titr	---	1.0
				350.3 ISE	---	0.030
Arsenic	µg/L	50	10	200.7 ICP	8	20
				200.8 ICP-MS (scan)	1.4	4.5
				206.2 GFAA	1	5.0
				206.3 AA/GH	2	2.0
				206.7 ICP	8	25
Cadmium	µg/L	0.37	0.1	200.8 ICP-MS (scan)	0.5	1.6
				213.2 GFAA	0.1	0.5
Copper	µg/L	3.5	1	200.8 ICP-MS (scan)	0.5	1.6
				220.2 GFAA	1	5
Cyanide (WAD)	µg/L	5.2	2	OIA-1677	0.5	2
Lead	µg/L	0.54	0.2	200.8 ICP-MS (sims)	0.05	0.16
Mercury	µg/L	0.012	0.004	1631 Rev. B	0.0002	0.0005
Selenium	µg/L	5	2	270.2 GFAA	2	5
				270.3 FAA	2	6
Silver	µg/L	0.32	0.2	200.8 ICP-MS (scan)	0.1	0.3
				272.2 GFAA	0.2	1
Zinc	µg/L	32.3	11	200.7 ICP	2	5
				200.8 ICP-MS (scan)	1.8	5.7
				289.2 GFAA	0.05	0.2
				AES0029 DCP	6	19

REFERENCES

EPA 1993. *Guidance Manual for Developing Best Management Practices (BMP),* EPA 833-B-93-004, USEPA, Office of Water. Washington, D.C. October 1993.

EPA 1991. *Technical Support Document for Water Quality-based Toxics Contro*l, EPA/505/2-90-001, USEPA, Office of Water. Washington, D.C. March 1991.