

**National Pollutant Discharge Elimination System (NPDES) Permit for  
Hecla Mining Company - Lucky Friday Mine  
NPDES Permit No. ID-000017-5**

**Response to Comments**

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U.S. Environmental Protection Agency, Region 10  
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Seattle, WA 98101

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## **I. INTRODUCTION**

This document provides a response to comments received on two draft National Pollutant Discharge Elimination System (NPDES) permits for the Lucky Friday Mine, owned and operated by Hecla Mining Company (Hecla). This document also summarizes actions taken by EPA and the Idaho Department of Environmental Quality (IDEQ) that influenced some of the final permit conditions.

A draft NPDES permit for the Lucky Friday Mine was issued for public notice on March 28, 2001 (hereafter referred to as the 2001 draft permit). A Fact Sheet that accompanied the 2001 draft permit described how the draft permit conditions were developed. The public notice initiated a 45-day public comment period. In response to requests from the Hecla Mining Company (Hecla) and the Shoshone Natural Resources Coalition (SNRC), the comment period was extended twice on May 8, 2001 and June 29, 2001 to end on August 3, 2001. A public meeting was held on June 5, 2001 for both the Hecla Lucky Friday Mine 2001 draft permit and the Coeur/Galena Mine 2001 draft permit.

The effluent limits for cadmium, lead, and zinc in the 2001 draft permit were based on wasteload allocations (WLAs) for the Lucky Friday discharges specified in the Coeur d'Alene River Basin Total Maximum Daily Load (TMDL) that was issued by EPA and the Idaho Department of Environmental Quality (IDEQ) on August 18, 2000. On September 6, 2001 (i.e., after the 2001 draft permit was prepared and public noticed) the TMDL was declared null and void in Idaho 1<sup>st</sup> District Court. Therefore, EPA could no longer use the TMDL as a basis for the effluent limits in the permit.

In August of 2002, EPA received the site-specific criteria (SSC) for cadmium, lead, and zinc for the South Fork Coeur d'Alene River (South Fork) from the State of Idaho for review and approval.

Because of these two actions (the court decision on the TMDL and receipt of the SSC for review), EPA decided that the cadmium, lead, and zinc effluent limits in the 2001 draft permit should be revised and the new effluent limits subject to public review. A revised draft permit was issued for public notice on January 6, 2003 (hereafter referred to as the 2003 revised draft permit). Changes between the 2001 draft permit and 2003 revised draft permit included the following: effluent limits for cadmium, lead, and zinc were no longer based on the TMDL, instead two sets of effluent limits for cadmium, lead, and zinc were calculated, one set based on the current Idaho water quality criteria and the other set based on the SSC; the effluent limits for the other metals were recalculated using updated effluent and receiving water data and information

from comments on the 2001 draft permit; and limits on TSS were proposed based on a draft suspended solids TMDL prepared by IDEQ. The Fact Sheet for the 2003 revised draft permit described how the revised draft permit conditions were developed. The public notice initiated a 50-day public comment period. In response to requests from Hecla and SNRC, the comment period was extended on February 21, 2003 to end on April 11, 2003. A public meeting was held on February 6, 2003 for both the Hecla Lucky Friday Mine 2003 revised draft permit and the Coeur/Galena Mine 2003 revised draft permit.

This document provides a response to comments received on both the 2001 draft permit and the 2003 revised draft permit. The written comments and oral testimony (from the public meetings) that were provided to EPA have been assigned a number based on the date they were received. The list of commenters and their assigned numbers are shown in Appendix A. Table A-1 is a list of comments received on the 2001 draft permit. Table A-2 is a list of comments received on the 2003 revised draft permit. The tables also indicate where in this Response to Comments document, comments provided by the commenter (and the response) can be found.

Public comments have led to a number of changes to the Lucky Friday permit. Information from actions by EPA and the State of Idaho have also resulted in changes to the permit. The following summarizes the actions that influenced finalization of the permit, the comments received on both the 2001 draft and 2003 revised draft versions of the permit, and EPA's responses to the comments. Appendix B includes tables that summarize the changes from the 2001 draft permit to the 2003 revised draft permit to the final permit.

## **II. ACTIONS AND NEW INFORMATION AFTER THE PUBLIC COMMENT PERIOD**

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

As discussed in the Introduction, the 2003 revised draft permit contained two sets of effluent limits for cadmium, lead, and zinc. One set was based upon the Idaho water quality criteria that were in effect at the time that the permit was drafted and one set was based upon the state-adopted SSC for the South Fork. Two sets of limits were included in the 2003 revised draft permit, since at the time that the permit was drafted, EPA had not yet reviewed the proposed SSC and was uncertain whether or not the SSC would be the basis for the final limits. Since then (on February 28, 2003), EPA approved the SSC for the South Fork. EPA's approval of the SSC made them effective under the Clean Water Act (CWA) and therefore, the SSC are the criteria upon which the water quality-based effluent limits in the final permit are based. The Fact Sheet

for the 2003 revised draft permit described how the effluent limits based on the SSC were developed.

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

The 2003 revised draft permit included mass-based (lbs/day) limits for total suspended solids (TSS). The mass-based TSS limits were based upon the WLAs included in a draft TMDL for suspended solids that was being developed by the State of Idaho Department of Environmental Quality (IDEQ). Since the State has not yet submitted the suspended solids TMDL to EPA for review and EPA has not approved the suspended solids TMDL, the mass-based TSS limits based on the TMDL WLAs were not included in the final permit.

Section 401 of the CWA requires EPA to seek certification from the State that the permit is adequate to meet State water quality standards 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 conditions 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 June 17, 2003 (IDEQ 2003). The following summarizes the 401 certification requirements which were incorporated into the final permit:

Mixing Zones: IDEQ authorized a mixing zone of 25% for copper, mercury, and silver. IDEQ also authorized a 25% mixing zone for calculating toxicity triggers for whole effluent toxicity (WET) testing. These same mixing zones were used to calculate copper, mercury, and silver limits and toxicity triggers in the 2003 revised draft permit.

Compliance Schedule: The 401 certification authorized a five year compliance schedule to meet the effluent limits for cadmium (outfall 001 only), lead, zinc, and mercury. The compliance schedule included the following requirements:

- Hecla shall design and implement a water recycling system within 24 months from the date the permit is issued to achieve permit limits.
- Hecla shall have, at the end of 24 months, an additional 12 months for testing and

analysis.

- If it is determined that a water treatment system is needed to comply with the limits set forth in the permit, Hecla shall design, build, and implement a water treatment system and comply with permit limits for cadmium (outfall 001 only), lead, zinc, and mercury on or before permit expiration.
- During the period that the compliance schedule is in effect, the following interim limits shall apply to the outfalls. The interim limits were determined based on Hecla's current performance. See IDEQ's 401 certification for details (IDEQ 2003).

Interim Effluent Limits					
Outfall	Parameter	Maximum Daily Limit		Average Monthly Limit	
		ug/l	lb/day	ug/l	lb/day
Outfall 001 and Outfall 002 when the discharge is from 001	cadmium	2.0	0.028	1.0	0.014
	lead	450	6.3	300	4.2
	zinc	500	7.0	280	3.9
	mercury	0.2	0.0028	0.2	0.0028
Outfall 003 and Outfall 002 when the discharge is from 003	lead	330	6.2	270	5.1
	zinc	500	9.4	410	7.7
	mercury	0.2	0.0038	0.2	0.0038

- Hecla shall submit written progress status reports to IDEQ and EPA in accordance with section I.A.4.e. of the final permit.

The compliance schedule requirements were incorporated into Part I.A.4. of the final permit. The requirements were similar to those included in the 2003 revised draft permit which were based on IDEQ's preliminary 401 certification of the permit. Differences between the compliance schedule requirements in the 2003 revised draft permit and final draft permit include: (1) in the 2003 revised draft permit the compliance schedule was for three years and in the final permit five years is allowed and, (2) the 2003 revised draft permit did not include interim effluent limits which are included in the final permit.

Bioassessment Monitoring: The final certification required annual instream bioassessment monitoring of the South Fork directly downstream of outfalls 001 and 003 in order to ensure compliance with the state Water Quality Standards. If effluent is discharged from outfall 002 for six months or longer, monitoring is also required downstream of outfall 002. In the event that discharge effluent is combined to one outfall, annual monitoring will be required directly downstream of the combined outfall and abandoned outfall for comparison. Bioassessment monitoring shall be consistent with the most recent IDEQ Beneficial Use Reconnaissance Project workplan for wadable streams. Copies of field forms, macroinvertebrate identification and enumeration, as well as fish taxa and abundance shall be provided to IDEQ by January 31 of the year following sample collection. The above requirements are similar to the bioassessment requirements that were in the 2003 revised draft permit which were based on IDEQ's 401 preliminary certification. The above requirements were incorporated into the final permit at



Parts I.D.3. and 5.

Flow Tiers: The 2003 revised draft permit included effluent limits for five receiving water flow tiers for parameters that have mixing zones (copper, mercury, and silver). The water quality-based effluent limits in the permit were calculated from the minimum flow of each tier. The final certification stated that the five flow tiers established in the permit will allow effluent limits to be increased while maintaining Idaho Water Quality Standards. The final permit, therefore, retained effluent limits based on five flow tiers. See Tables 1 through 4 of the final permit.

Hardness Used to Calculate Effluent Limits: The state water quality criteria for cadmium, copper, lead, silver, and zinc are based upon hardness. Where a mixing zone has not been authorized (cadmium, lead, and zinc), EPA calculated effluent limits based upon the effluent hardness. Where a mixing zone was authorized (copper and silver), EPA calculated limits based upon hardness at the edge of the mixing zone. IDEQ certified that these conditions are consistent with Idaho water quality standards. The effluent limits in the 2003 revised draft permit were based on the hardness considerations cited in the certification, therefore there was no change from the 2003 revised draft permit to the final permit based on this certification condition.

IDEQ Notification: IDEQ requested that EPA require the permittee to notify IDEQ in conjunction with EPA in all areas where notification is required. The certification also requested that the timeline for EPA notification apply to the state as well. The 2003 revised draft permit included notification for both EPA and IDEQ, therefore there was no change from the 2003 revised draft to the final permit based upon this certification condition.

### **III. COMMENTS RECEIVED ON THE 2001 DRAFT PERMIT**

Following are the comments received on the 2001 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 Appendix A (Table A-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. The Administrative Record files contain complete copies of each comment letter and the public hearing testimony and are available for review at EPA's Seattle office.

## **A. General Comments**

Comment #1 - Support EPA  
(commenter 1)

We support EPA efforts to reduce and eliminate pollution in our water.

Response: EPA acknowledges the comment.

Comment #2 - Do not allow mines to discharge  
(commenter 29)

Do not issue the final permits for the Lucky Friday, Coeur, and Galena Mines. These mining facilities in the past have caused major environmental problems seriously polluting both air and water. Further permits will add to this pollution.

Response: The final permit for the Lucky Friday Mine contains limits on the discharges that are designed to ensure that water quality standards protective of the South Fork are not exceeded. The new permit for the Lucky Friday Mine is much more stringent than their old permit. The new permit includes requirements to monitor the effluent for numerous parameters including metals and toxicity and to monitor the South Fork for metals and health of the biota. This information will be used to determine if discharges from the mine are causing environmental problems and to adjust the permit limits, if needed, in the future.

Comment #3 - Environmental commitment of mining companies  
(commenters 13, 14, 18, 20, 23, 34)

Commenter 13: Hecla is committed to operating the mine in an environmentally responsible matter. We currently remove 99.9% of the metals through treatment in the tailings impoundment. We are committed to renewing our wastewater discharge permit to be fully protective of the upper South Fork.

Commenters 14, 18, 20, 23, 34: The commenters state that the mine operators in this valley are responsible people and have been managing their discharges at a standard above what their expired permits allow.

Response: EPA acknowledges the comment.

## **B. Economic Considerations**

### Comment #4 - Costs of treatment to meet limits

(commenters 5, 9, 13, 16)

Commenters 5, 9: The commenters are concerned with the cost of treatment and that EPA has not yet made a case that treatment is necessary. The commenters state that Hecla estimates costs of \$3-\$4 million (or more) to upgrade their current treatment plant and up to \$750,000 per year to operate.

Commenter 13: Hecla is willing to accept a permit that would require additional wastewater recycling and volume reduction plus additional treatment if necessary to meet the in-stream site specific standards. Hecla is developing a water management plan to reduce effluent volumes and will consider adding additional treatment. However, we believe the site-specific study clearly shows that it is not necessary to spend the substantial additional dollars needed to meet the gold book standards implemented under the TMDL.

Commenter 16: The commenter stated that the statement “EPA believes that it is technically and economically feasible for the mines to meet the limits set in the draft permits” is fraudulent. As stated by Lucky Friday, they already remove 99 point whatever percent and the amount of money that it’s going to take to move that other percent is phenomenal compared to what they have already spent to get to the 99 percent.

Response: As discussed in Section II, the effluent limits for cadmium, lead, and zinc in the final permit are based on the SSC (rather than the TMDL). The SSC-based limits are higher than those in the 2001 draft permit. Therefore, the cost to meet the limits is probably less than the costs identified in the comments. In addition, the permit includes a five year compliance schedule for the facility to meet the limits that cannot currently be achieved (see Section II.B.). See also response to comments #6 related to economic impacts and #14 related to Hecla’s request for a variance from meeting water quality standards.

### Comment #5 - Supporting need to upgrade treatment

(commenter 27)

Hecla must upgrade its treatment facilities to ensure that its discharges meet applicable water quality standards for all of its discharge points.

Response: The final permit allows for a compliance schedule of five years to achieve the effluent limits for cadmium (outfall 001 only), lead, mercury, and zinc. In this time Hecla will have to change its wastewater management to ensure that effluent limits are met. The compliance schedule requires that Hecla implement a water recycling system and build a treatment system, if necessary, in order to comply with the effluent limits. See Part I.A.4. of the final permit.

Comment #6- The permit will cause economic hardship to the community (commenters 3, 4, 5, 6, 7, 9, 10, 11, 12, 17, 18, 22, 23, 26, 30, 31, 32, 34, 35)

All of the commenters listed above expressed extensive concern regarding the economic impact of the draft permit on the mining industry and the community. The Silver Valley is already economically depressed and cannot withstand the closure of another mine. There is extreme concern that the permits will destroy the mining industry in the Silver Valley and therefore also the economy of the community. In addition, the uncertainty of the future is causing people to leave and/or not want to invest in the Valley's future. Some commenters provided details on the extent to which the mines and community would be impacted. One commenter provided news articles which indicate the state of economy in Shoshone County.

Response: EPA recognizes that the mines in the Silver Valley are facing low precious metals prices, so this is a difficult time for the mines to be facing new requirements. It is not our intent to issue permits that will put the mines out of business. The CWA requires that limits in permits be stringent enough to meet water quality standards and in some cases this can result in water quality-based effluent limits that can only be met through wastewater treatment. The CWA and NPDES regulations also allow some flexibility. The flexibility incorporated into the Lucky Friday permit includes the use of flow-based limits and mixing zones for copper, mercury, and silver and a five-year compliance schedule for meeting the cadmium (for outfall 001), lead, zinc, and mercury limits. In addition, the cadmium, lead, and zinc limits in the final permit are based on the SSC which allows for higher discharges of metals while still protecting aquatic life.

The effluent limits in the final permit are more stringent than those in the previous Lucky Friday permit, which expired in 1980. Currently, Hecla cannot meet the cadmium, lead, and zinc limits in the new permit. It is uncertain whether or not Hecla can meet the mercury limits. The final permit includes a compliance schedule for these parameters that allows Hecla five years to meet the permit

limits, but it is clear that Hecla will need to make some investments to update their wastewater management operations. In their oral comments on the permit, Hecla stated that they are willing to implement wastewater recycling, volume reduction, and, if necessary, wastewater treatment to meet site-specific standards (see comment #4, commenter 13 on the 2001 draft permit). EPA is optimistic that conventional pollution control technologies including water management (recycling process water and water storage during low stream flow) and treatment can meet the effluent limits. Other mining companies in the U.S. are successfully managing and treating their wastewater in compliance with the CWA.

Where achievement of a water quality-based limit will result in widespread economic and social impact, a facility may request a variance from the limit. As discussed in response to comment #14, below, Hecla requested a variance from the water quality standards that were the basis for the lead and zinc limits in the draft 2001 permit. One basis for the variance request was that implementation of the limits would result in substantial and widespread economic and social impact. Hecla has since recently modified their variance request to include the water quality standards for cadmium, lead, mercury, and zinc. EPA is reviewing the variance request. If EPA approves the variance, then the Lucky Friday permit will be modified to incorporate the varied limits.

## **C. Health of the South Fork and Permit Impacts**

### Comment #7 - The South Fork is healthy

(commenters 5, 9, 13, 14, 22, 23, 34)

The commenters state that the South Fork is healthy. There is a native trout fishery both above and below Hecla's wastewater discharge point and EPA must consider and recognize this fact.

Response: EPA agrees that the fish community above Mullan is generally healthy and dominated by native species. Based on this observation, the State and Hecla initiated work on developing water quality criteria specific to the South Fork. The SSC was approved by EPA in February 2003. The SSC, were translated into the effluent limits included in the final permit. The effluent limits based on the SSC allow higher levels of lead and zinc to be discharged than effluent limits based on the previous Idaho standards. The effluent limits are necessary to ensure that the mine discharges are maintained at levels which will not adversely impact the South Fork.

### Comment #8 - The permitted mine discharges have little effect on water quality

(commenters 30, 31, 32, 35)

Commenters 30, 31, 32: As admitted by your agency, the permitted discharges are only 10 percent of the problem. Wouldn't it make more sense to use the time and money spent on these permits to clean up 90 percent of the problem? I understand that the Clean Water Act drives your action, but you have stated in public meetings that the permitted discharges will have no effect on the water quality.

Commenter 35: The majority of the metals loading to the river comes from existing tailings in the river itself. Some estimates indicate that 95% of the problem is due to these tailings. Therefore addressing 5% of the problem will be expensive and probably ineffective.

Response: When looking at the South Fork as a whole, EPA agrees that the discharges of metals from the permitted mines are a small percentage of the total load of metals in the river. However, when looking at discrete segments of the South Fork, individual sources of metals become significant. For example, the Final Remedial Investigation Report prepared by EPA's Superfund program identified the Lucky Friday Mine and Tailings Pond as a major source area for metals above Mullan (EPA Region 10 2001).

Establishing water quality-based permit limits for the mines is not sufficient by itself to meet water quality criteria in the whole of the South Fork. However, eliminating all the other sources of metals would also not be sufficient to meet the criteria. This highlights the scale of the metals problem and points to the need to reduce loadings from both the permitted discharges and the other sources in the basin. EPA believes that reductions in metals loading from the permitted point sources and from non-permitted sources should proceed on a parallel path.

Comment #9 - Fish Impacts due to mine water pollutants and temperature  
(commenter 27)

What are the impacts of contaminated mine water reaching the South Fork, as it relates to cutthroat trout? Fish that seek cold water might be attracted to wastewater that was below river temperatures. The tailings pond water might also be above river temperatures - will this impact the aquatic organisms?

Response: The metals effluent limits in the permit were calculated based upon the water quality criteria. The water quality criteria are designed to be protective of aquatic life, therefore so long as the Lucky Friday Mine discharges comply with the effluent limits, there should be no adverse effect on aquatic life in the South Fork. The final permit includes whole effluent toxicity (WET) testing of the effluent and bioassessment monitoring of the South Fork below each of the outfalls. If the results of this testing and monitoring indicate that adverse impacts are occurring, then effluent limits or other permit conditions may be modified. There was not enough information to determine whether or not temperature limits are needed in the Lucky Friday permit. The final permit requires temperature monitoring of the effluent and South Fork which will help answer the question as to whether temperature-related impacts to aquatic life may be occurring.

**D. Water Quality Criteria Comments**

Comment #10 - Keep permit limits strict/support use of Gold Book standards/TMDL  
(commenters 2, 27, 37)

Commenters 2, 37: These commenters support the use of the TMDLs

Commenter 27: The commenter supports the use of Gold Book standards to develop effluent limits for metals for the Hecla Lucky Friday Mine.

Response: cadmium, lead, and zinc: The effluent limits for cadmium, lead, and zinc in the 2001 draft permit were based upon the TMDL WLAs. The WLAs were based upon the Idaho water quality standards that were in effect at that time, which were the Gold Book criteria. As discussed in Section I., the TMDL was declared null and void in Idaho District Court and is no longer the basis for the effluent limits in the final permit. As discussed in Section II.A., the site-specific criteria (SSC) for the South Fork are the effective criteria under the CWA and are therefore the criteria upon which the effluent limits in the final permit are based. EPA believes that the SSC and effluent limits based on the SSC are protective of the uses of the South Fork.

copper, mercury, and silver: The permit also includes effluent limits for copper, mercury, and silver. These limits are based on the Idaho water quality standards, which adopted the Gold Book criteria.

Comment #11 - Support the use of site specific water quality criteria

(commenters 12, 13 14, 15, 18, 19, 20, 22, 23, 24, 30, 31, 32, 33, 35, 36)

Commenters 12, 14, 15, 18, 19, 20, 22, 23, 24, 30, 31, 32, 33, 35: These commenters request that the SSC be adopted by the state, approved by EPA, and used in the new permit.

Commenters 13, 36: In 1993 EPA, the state of Idaho, and Hecla entered into an agreement to perform a site specific study of the upper South Fork. All parties involved agreed that the results of the site specific study would be then used to develop a permit for our mine that would be protective of the aquatic biota and the specific stream segment. The federal regulations allow for the development of site specific numeric criteria at 40 CFR 131.11(b). Since 1995, Hecla has been working with the state and EPA on the study which has cost in excess of one million dollars and is now substantially complete. Hecla is willing to accept the permit that would require additional wastewater recycling and volume reduction plus additional treatment if necessary to meet the in-stream site specific standards. The SSC must be utilized for developing the Lucky Friday permit limits.

Response: As discussed in Section II.A., in January 2003 EPA public noticed a revised draft permit for the Lucky Friday Mine that contained effluent limits based on the SSC. In February 2003 EPA approved the SSC for the South Fork and therefore, the cadmium, lead, and zinc effluent limits in the final permit are based on the SSC.

Comment #12 - Do not support site specific criteria



(commenter 27)

The poor state of in-stream macroinvertebrates indicate that the biota are impacted by heavy metal pollution and that site-specific limits should not be used.

Response: IDEQ submitted extensive technical documentation supporting the development of the SSC and the protectiveness of the SSC to the species present in the South Fork. EPA thoroughly reviewed IDEQ's work during and after development of the SSC. In addition, EPA requested peer review of the documents that supported the SSC. Based on our review and the peer review, EPA believes that the SSC is protective of aquatic life in the South Fork. That is why EPA approved the SSC in February 2003.

The SSC was already subject to a comment period. Changes to the SSC cannot be made in the context of an NPDES permit. Therefore, comments related to development of the SSC will not be responded to in detail in this Response to Comments document. EPA directs the commenter to the administrative record for the SSC which sets forth the basis for the SSC.

Comment #13 - Comments related to development of the site-specific criteria  
(commenter 27)

There is strong scientific literature that uses taxonomic groups to indicate the impact of pollution. For example, it is well accepted that certain taxonomic groups are more susceptible to metal pollution than are others. Midges tend to be most tolerant, caddisflies less tolerant, and mayflies the least tolerant. Therefore, the presence or absence of certain species, in addition to metal levels in organisms, water and sediments, provides a full picture of the health of a stream. To justify site-specific levels it would need to be shown from current data that the most susceptible taxonomic group (i.e., mayflies) are present in the South Fork at levels that would be predicted from nonsite-specific levels. Data from a 1998 study indicate that the South Fork does not support healthy, reproducing, populations of mayflies. The commenter presents references to support these statements.

Response: As discussed above, EPA believes that the SSC is protective of aquatic life in the South Fork. See response to comment #12, above.

## **E. Variance Comments**

Comment #14 - Allow for variances from water quality standards  
(commenters 12, 13, 14, 19, 20, 23, 30, 31, 32, 33, 36)

Commenters 12, 14, 19, 20, 23, 30, 31, 32, 33: The commenters request that EPA grant the variance for the Lucky Friday Mine. EPA should consider how important variances are to the future of the South Fork and the communities.

Commenter 13: Hecla has requested a variance for the interim period between now and the time that the site specific standard is approved.

Commenter 36: By correspondence dated 21 February 2001, Stoel Rives, LLP submitted to both EPA and IDEQ, on behalf of Hecla Mining Company, a variance request adequately justifying a variance for the Lucky Friday permit. In addition, limitations based upon the variance must be included as the effluent limitations in the permit. This variance request must be addressed as required in the regulations. Hecla hereby incorporates by reference into these comments all variance related documents submitted to EPA.

Response: In February 2001, Hecla submitted a request to EPA for a variance from the lead and zinc water quality standards (the Idaho water quality standards that were the basis for the TMDL) that were used to establish effluent limits in the 2001 draft NPDES permit. Hecla requested a variance from the lead and zinc standards until the SSC were approved. EPA approved the SSC in February 2003. After approval of the SSC, Hecla modified their variance request. In a July 11, 2003 letter, Hecla requested a variance from the water quality standards that are the basis for the cadmium, lead, and zinc limits (which are the SSC) and the mercury limits in the permit. EPA is reviewing their request. If EPA approves the variance, then the permit will be modified to incorporate the varied limits. See also, response to comment #14 on the 2003 revised draft permit (section IV.E. of the Response to Comments).

Comment #15 - Do not support the variances  
(commenter 37)

We support achievement of the TMDL's as proposed by the draft permit to be the minimum acceptable quality of discharge. Further, we believe that the draft permit limits should be practicable given the allowable variances in concentration based upon flow, and the inclusion of weekly rather than daily monitoring. We do not support the implementation of variances that would result in not meeting the established TMDL's for this watershed.

Response: The CWA does allow for variances from water quality standards under certain

conditions. EPA has not yet made a decision regarding Hecla's request for a variance. However, if information submitted by Hecla substantiates that a variance can be granted, consistent with the CWA, the NPDES regulations, and EPA guidance, then EPA will consider granting a variance. Any variance decision and modified permit incorporating the variance would be subject to public notice and comment.

**Comment #16** - The Fact Sheet did not consider the variance request (commenter 36)

The Fact Sheet does not contain all elements required in the federal regulations at 40 CFR 124.8(b). Specifically, the regulations at 124.8(b) requires that "The fact sheet shall include, when applicable" the following item (5) which states: "Reasons why any requested variances or alternatives to required standards do or do not appear justified;"

Response: EPA did not include in the Fact Sheet for the 2001 draft permit the reasons why "any requested variance or alternatives to required standards do or do not appear justified" since EPA had not made a determination as to whether or not the variance did or did not appear to be justified. Hecla's variance request was received just one month prior to the time that the permit was public noticed, which did not allow sufficient time for us to make that determination. EPA did acknowledge receipt of the variance and that EPA and IDEQ review of the variance was ongoing during the June 5, 2001 public meeting and in the "Frequently Asked Questions and Answers" handout that was provided at the public meeting.

**F. Compliance Schedule**

**Comment #17** - Support the use of compliance schedules (commenters 12, 14, 30, 31, 32, 33, 37)

The commenters request that EPA and the State of Idaho work together to set a compliance schedules that allows the Lucky Friday Mine to achieve permit level limits over a reasonable period of time. Some commenters requested a compliance schedule of up to 5 years.

Response: As discussed in Section II.B., IDEQ authorized a five year compliance schedule for cadmium (outfall 001), lead, mercury, and zinc in its final CWA Section 401 certification. A compliance schedule was not authorized for cadmium (outfall 003), copper, and silver, since based on monitoring data, it appears that Hecla can

comply with these limits. The compliance schedule time frame, interim limits, and conditions required by the CWA 401 certification were incorporated into the final permit in Part I.A.4.

## **G. Public Participation Process**

Comment #18 - Public notice all permits at the same time  
(commenters 10, 16)

The commenters urged the EPA to issue all the permits (mines, municipalities, and Central Treatment Plant) at the same time, so that the Public Hearing will encompass all the aspects of the permits. The commenters stated that this is desirable since: the public is less likely to attend 2 or 3 hearings on what is, essentially, the same subject; understanding the whole picture is the logical way to address the situation; by issuing the permits simultaneously the public can better address the burdens that are being placed on each discharger; and, people will be gone on vacation later in the summer.

Response: EPA acknowledges the desire to evaluate the permit actions and the Superfund Central Treatment Plant (CTP) action at the same time to understand how in total, they may affect the Silver Valley. However, it was not practical for EPA to combine all these different decisions into just one public comment process. While the permits for the mines were drafted for public notice, much more work needed to be done on the permits for the municipal treatment plants. EPA did extend the comment period for the 2001 draft mine permits so that it overlapped the comment period for the CTP proposed plan. Since the time that this comment was received, the draft permits for the three municipal treatment plants were public noticed and the 2003 revised draft permits for the Lucky Friday Mine and the Coeur/Galena Mine were public noticed.

Comment #19 - Insufficient time for public testimony  
(commenter 6)

You have your public hearing, but you take up all the time and do not let the public have their say.

Response: At both the June 5, 2001 and the February 6, 2003 public hearings on the mine permits, time was allowed for all present to speak.

Comment #20 - Insufficient notification of public hearing  
(commenter 18)

I'd like to formally submit a complaint that there were no ads placed in Saturday's, Sunday's or today's local paper (the Shoshone News Press), to announce this meeting. That should have happened and we're disappointed that it was not in there. At the very least, there should have been a large ad in the Friday (1<sup>st</sup>), Saturday (2<sup>nd</sup>), Sunday (3<sup>rd</sup>), and Tuesday (5<sup>th</sup>), papers announcing the hearing and it's time date, and place. This kind of attention to detail (or lack of) is what disappoints us about the EPA. It indicates that the agency is not really wanting to hear what the public has to say.

Response: The public was notified of the public hearings via an announcement mailed to the mailing list and an advertisement in three local papers. The mailing list consisted of individuals that expressed interest in both the Superfund and NPDES actions. The level of public notification was consistent with notification that occurs in the Superfund program.

Comment #21 - Monitoring the Media Coverage  
(commenter 15)

The commenter asks EPA and the State to begin a program to start monitoring the media coverage. This may not have to do with the permit, but it does have to do with the EPA and the State and our property values and everybody that lives in this valley that are suffering from all the news media that is going on in and around this valley. The commenter is concerned with outside perceptions of the valley as being a place where the river runs black, there's no trees left, and we're all dying of lead poisoning, which is not true. EPA came in here and started the Superfund site, which started the entire down spiral, and I would ask that the state and the EPA begin to start trying to control that media.

Response: EPA and the State do not have the authority to control the media.

## **H. Permit Process**

Comment #22 - Conduct of the permit process  
(commenters 12, 23)

Commenter 12: The commenter requested that the process continue in a cooperative manner with both the mining companies and the sewer treatment plants.

Commenter 23: In order for the agency to begin regaining its credibility and trust in these communities, we ask the EPA not to repeat the mistake of releasing important documents like the NPDES limits on the mines to the media or to others before the operators themselves.

Response: Since the 2001 draft permits for the mines were issued for public notice, EPA was very careful to ensure that the mining companies received their copies of the 2003 revised draft permits before EPA issued a press release to the media. We will maintain this communication strategy in the future. EPA will continue to work cooperatively with the mining companies and the sewage treatment plant operators.

Comment #23 - Issue permits in a timely manner  
(commenters 14, 27)

Commenter 14: The commenter requests that approval of the site-specific standards and variance and their use in permits be done in a timely manner.

Commenter 27: The Hecla permit has not been renewed since 1980 and we encourage EPA to issue a new permit as soon as possible.

Response: EPA approved the SSC in February 2003. See response to comment #14, above, regarding the variance. EPA acknowledges that the Lucky Friday Mine permit is long overdue for reissuance. We are working toward the goal of issuing the permit as soon as possible.

Comment #24 - Lack of peer review  
(commenters 19, 22, 27)

Commenters 19, 22: The commenters are concerned that EPA has nobody to judge them, to determine if their data is good, or whether everything has been done correctly.

Commenter 27: The NPDES proposes to present scientific studies yet no peer-reviewed scientific studies are referenced. All studies that are mentioned are government or mining documents.

Response: The 2001 draft permit and the 2003 revised draft permit for the Lucky Friday Mine was developed following EPA guidance and procedures (e.g., the *Technical Support Document for Water Quality-based Toxics Control*, EPA 1991a) that themselves have been peer reviewed. The data that was used to develop the permit effluent limits was largely collected by Hecla (not EPA). In response to commenter 27, the permit and Fact Sheet did not propose to present scientific studies. It is not clear what scientific studies are being referred to in the comment.

Comment #25 - Need for citizen oversight  
(commenter 27)

The health of downstream aquatic life and over 400,000 Spokane area residents depends on the safe operation of the mining facilities. We would like EPA to include a provision that allows citizens to participate in the monitoring of discharges.

Response: The NPDES program is a self-monitoring program. That is, the permittee is responsible for monitoring their discharge and reporting the results to EPA. EPA and IDEQ conduct regular compliance inspections of major NPDES permitted facilities, including the Lucky Friday Mine, to ensure that monitoring and reporting is conducted according to the permit requirements. The NPDES regulations do not include provisions for citizen oversight. However, should a citizen have a concern regarding a facility's discharge, they should contact EPA's NPDES permits compliance unit at (206) 553-1846 or 1-800-424-4372 (ask for NPDES permits compliance).

## **I. General Comments on Permit Limits**

Comment #26 - The permits require the mine to eliminate more waste than they are creating  
(commenters 3, 5, 6, 7, 8, 34)

Commenter 3: The commenter is adamantly opposed to the new discharge permits. How is a company that only discharges 790 lbs of lead per year supposed to remove 3,000 lbs from its discharges?

Commenters 5, 6, 7: It would appear that the permit will require the Lucky Friday Mine to eliminate more waste than what they are creating. I have seen reports that state the water coming out of the mines is cleaner than what went in.

Commenter 8: It is not logical to expect mining companies to try to clean up streams of minerals, so called pollutants, that are there from the water picking them up from the river sides and bottom. The mines should do what they can about their own discharge, but not for what they did not put there.

Commenter 34: I have heard that the water quality in the stream above the Lucky Friday Mine - which has never been affected by mining, does not meet the proposed EPA standards. This means that the EPA is expecting the mines to clean the water above and beyond what even nature can do.

Response: The commenters did not provide supporting information related to the assertions that the 2001 draft permit would require the Lucky Friday Mine to eliminate more metals than what is present in the discharge. However, as discussed in Sections I. and II., the effluent limits in the 2001 draft permit have since been revised. The effluent limits for cadmium, lead, and zinc are no longer based on the TMDL; instead they are based on the SSC. Implementation of the SSC allows higher levels of lead and zinc to be discharged.

Comment #27 - The existing permit limits are protective of water quality (commenter 36)

The existing Lucky Friday NPDES permit is already water quality-based. Effluent limitations in the existing permit are based upon dissolved metals. It is interesting to note that even during the early 1970's, Hecla, with the agreement of both EPA and the DEQ, agreed that it was indeed the dissolved fraction of metals that were of concern for protecting the fishery (thus the dissolved metals permit limits). The federal court in the National Toxics Rule (NTR) litigation (American Forest and Paper Ass'n, Inc. et al. v. EPA, Consolidated case No. 93-0694 RMU (D.D.C.)), subsequently validated this position. The existing Lucky Friday NPDES permit limits already provide for the appropriate level of water quality in the receiving water to meet the fishable CWA goal. Indeed, the state of Idaho, in exercise of the state's exclusive right to manage water resources as guaranteed by Congress at CWA Section 101(b), signed an agreement (as did EPA) with Hecla in which the state's position was that "bio-monitoring results (macroinvertebrate analysis and fish population and age class distribution) provide evidence that cold water biota use is in full support" even though numeric criteria "are often exceeded".



At this time it is important to emphasize that the Congressional intent of the fishable CWA goal is the attainment of the use at the level of water quality that provides for that use, i.e. the use drives the applicable water quality criteria and not the other way around. The intent of the agreement signed by Hecla, EPA, and DEQ mentioned above was for the purpose of developing appropriate criteria.

Response: The Lucky Friday permit was last issued in September 1977. Since that time, the State of Idaho water quality standards have been revised. Therefore, any water quality-based effluent limits in the permit must be revised. The CWA requires the establishment of limitations in permits necessary to meet water quality standards. Section 301(b)(1)(C) of the CWA requires “not later than July 1, 1977, any more stringent limitation, including those necessary to meet water quality standards...established pursuant to any State law or regulations...or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to the Act.” The regulations at 40 CFR 122.44(d) implement this section of the CWA. These regulations set out procedures to follow in determining the need for and establishing water quality-based effluent limits. Section 122.44(d)(1)(iii) states “When the permitting authority determines...that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant.” When developing water quality-based effluent limits the permitting authority shall ensure that “The level of water quality to be achieved by limits on point sources established under this paragraph is derived from and complies with all applicable water quality standards;..” (122.44(d)(1)(vii)(A)).

It is clear from the CWA and NPDES regulations that where there is reasonable potential to exceed a water quality criterion, then an effluent limit based on the water quality standard needs to be established. Hecla’s 1977 permit may have been protective of water quality standards at that time, but new limits needed to be developed reflective of the current standards. The fact sheets for the 2001 draft permit and 2003 revised draft permits describe in detail how the reasonable potential analysis was conducted and how the water quality-based effluent limits were calculated.

See response to comment #38, below, for a response to the comment that the criteria and limits be expressed as dissolved.

Comment #28 - Delay developing permit limits until new water management activities are implemented

(commenter 36)

The draft permit limits must be delayed pending implementation of water management activities and additional treatment of effluent. Hecla has had numerous discussions with both EPA and DEQ regarding Hecla's efforts to develop a water management plan to reduce wastewater volumes. Hecla is undertaking these efforts voluntarily since the CWA goals are already being met with the existing effluent limits. A reduction in discharge volume has a direct impact on the way effluent limits are calculated in the following ways: (1) if water use is reduced by, for example 40-50%, receiving water flows increase by a like amount (due to less fresh water withdrawals), thus more dilution in the receiving water, (2) reduced effluent volumes are an integral component of limitation derivation calculations, and (3) the ultimate wastewater reduction volume may warrant the use of one primary discharge point. In addition, the necessity for biomonitoring is based upon an evaluation of instream water quality, requiring actual flows both instream and of the effluents. As such, the WET permit provisions contained in the draft permit are premature. Further, additional treatment will change the hardness characteristics of the effluent - another component of the effluent limitation derivation procedure. Since the receiving water already supports the designated use, delaying the development of effluent limits using actual operating parameters is reasonable.

Response: The effluent limits in the 2001 draft permit and 2003 revised draft permit were based on flows and chemical monitoring data reported by Hecla over approximately the last five years (from the permit public notice dates) and based on information submitted by Hecla in their permit application and supplemental information submittals from Hecla (see the 2001 Fact Sheet for references). Hecla has not submitted specific data or information on the degree of flow reduction they plan to achieve, nor when they expect to implement actions leading to flow reduction. Effluent limits cannot be developed without such specific information, such as the maximum volume expected to be discharged from each outfall, expected pollutant concentrations, etc. EPA will not delay developing water quality-based effluent limits and will not delay implementation of other permit provisions (e.g., WET testing, bioassessment monitoring) since this permit is long overdue for reissuance and Hecla has submitted no specific information during the comment periods to verify when and to what extent flow reduction and/or treatment will occur. If and when Hecla submits such information, then this information might be a basis to modify the permit in the future.

## **J. Specific Comments on Permit Limits and Data Used to Calculate Limits**

### Comment #29 - EPA data skewed

(commenters 15, 19)

The commenters stated that the amount of minerals entering the creek will vary over time due to natural processes (erosion of ore bodies which outcrop). Commenter 15 was concerned that the river sampling was done only once or twice, which is not enough to get a level. Commenter 19 stated that since EPA sampling includes this material, the data is skewed.

Response: The South Fork data used to develop the permit limits was based on samples collected by Hecla upstream of their discharges (see Tables A-7, A-8, and A-9 of the Fact Sheet for the 2003 revised draft permit for a summary of upstream river concentrations). Approximately 10 samples were collected upstream of each outfall in order to determine upstream river conditions. These data may include ore body erosion, however in response to comments on the TMDL, EPA noted that based upon a report by Maest, the effect of such erosion would be minor (see TMDL Response to Comments, Section 2.5, comment #2). Background conditions (whether they are natural or not) must be subtracted from the water quality criteria to insure that the discharge will not result in an exceedence of the criteria in the river (see Appendix A of the Fact Sheet for the 2003 revised draft permit). The permit does require monitoring of the South Fork to collect additional data and create a more robust data set that can be used to help establish background levels to support the development of revised water quality-based effluent limits (if needed) in the next permit.

### Comment #30 - Where are water samples taken?

(commenter 25)

I want to know where exactly are your samples of water taken?

Response: The effluent data and upstream river concentrations were based on data collected by Hecla. The upstream monitoring locations were immediately (within 100 meters) upstream of outfall 001 near Mullan and 2.1 miles east of outfall 001 (which is upstream of outfall 003 at location AB#3). The outfall locations are shown in the map in Appendix A of the Fact Sheet for the 2001 draft permit.

### Comment #31 - Consideration of Hardness consistent with Spokane River permits

(commenters 21, 36)

Commenter 21: The publically owned treatment plants discharging into the Spokane River have been given simulative capacity considerations due to the hardness of the water they discharge. Why isn't that same consideration applied to the mine permits?

Commenter 36: We have not been able to adequately review the NPDES permits issued to the municipalities discharging to the Spokane River. Hecla expects to receive the same effluent hardness considerations provided to other point source dischargers.

Response: The effluent limits for the hardness-based metals were determined in two different ways:

(1) The effluent limits for cadmium, lead, and zinc in the 2001 draft permit were based on the WLAs in the TMDL. As discussed in Sections I. and II., the cadmium, lead, and zinc limits are no longer based on the TMDL. Instead the limits are based on the SSC. The SSC were calculated using the hardness of the effluent, since no mixing zone was authorized (see Appendix A, Section III.A.1. of the Fact Sheet for the 2003 revised draft permit).

(2) The effluent limits for copper and silver in the 2001 draft permit (and 2003 revised draft permit) were calculated using the hardness at the edge of the mixing zone in the receiving water (South Fork). The hardness at the edge of the mixing zone takes into account the receiving water hardness and the effluent hardness (see Appendix B, Section III.B.1. of the Fact Sheet for the 2001 draft permit and Appendix A, Section III.A.1. of the Fact Sheet for the 2003 revised draft permit).

The use of effluent hardness where a mixing zone is not authorized and edge of mixing zone hardness where a mixing zone is authorized is consistent with the approach used for NPDES permits issued to the municipalities discharging to the Spokane River. See also response to comment #17 on the 2003 revised draft permit (Section IV.H., of the Response to Comments).

Comment #32 - Use of outfall 002 at the same time as other outfalls

(commenters 36, 37)

Commenter 36: Footnotes contained in the draft permit and corresponding Fact Sheet are not

consistent, thus it is not possible to adequately comment. For example, Table 2 in the draft permit addresses effluent limitations for outfall 003 as does Table 3 in the Fact Sheet. However, a footnote from Table 3 of the Fact Sheet states "The permittee may discharge from either outfall 003 or 002, but not from both at the same time." Table 2 from the draft permit does not contain this footnote, thus we are not sure what permit condition is intended. We are opposed to this footnote from Table 3 of the Fact Sheet because it does not reflect the reality of the surge/holding capacity of a tailings impoundment. If outfall 002 is temporarily used and a discharge results, this discharge is a function of decant elevation and will continue to discharge even if outfall 003 is reactivated and producing a discharge. The point to keep in mind is that an influent volume increase does not result and if there are simultaneous discharges from all outfalls, weighted averages can be made of these combined discharges.

Commenter 37: The permit for Lucky Friday is written such that discharge from outfall 001 or outfall 003 may be allowed out of outfall 002; however, if the discharge from 001 is diverted to 002, then there cannot also be discharge from the 001 outfall and similarly from the 003 outfall. Also note that the 003 outfall is on the opposite bank of the South Fork from these other two outfalls; it is uncertain how the discharge is to be diverted across the River from 003 to 002. While monitoring from all three locations is required, this flexibility in the discharge location may result in a "shell game" with respect to actual and/or reported discharge locations, and may be difficult to regulate.

Response: EPA revised the 2001 draft permit to allow for the use of outfall 002 at the same time as outfalls 001 and 003 are used. Effluent limits were developed for outfall 002 such that discharge from all the outfalls could occur simultaneously and still be protective of water quality in the South Fork. These revisions to the 2001 draft permit were public noticed in the 2003 revised draft permit. See also response to comment #33, below.

Comment #33 - Outfall 002 limits should be representative of receiving water flow (commenter 36)

Table 2 of the draft permit contains limits applicable to outfall 003 that are the same if outfall 002 is used. The scenario where outfall 002 is used must contain limitations reflective of the discharge conditions in the receiving water at outfall 002 (i.e. more dilution in the receiving water thus higher limits).

Response: EPA agrees and therefore effluent limits were developed for outfall 002 reflective of the discharge conditions in the receiving water. Receiving water flows upstream

of outfall 002 were estimated based on data collected from the USGS gage of the South Fork at Deadman Gulch (upstream of outfall 002). These flows were used to calculate the water quality-based effluent limits for copper, mercury, and silver. Limits for cadmium, lead, and zinc do not depend upon receiving water flow since a mixing zone was not included for these parameters. The development of the new effluent limits for outfall 002 were described in Appendix A of the Fact Sheet for the 2003 revised draft permit. Two sets of effluent limits were developed; one set for the situation when outfall 001 is discharging through outfall 002 and one set for the situation when outfall 003 is discharging through outfall 002. The new limits for outfall 002 were public noticed with other changes to the effluent limits in the 2003 revised draft permit.

Comment #34 - Intake credits

(commenter 36)

Past correspondence to EPA provided intake pollutant concentration analysis for intake credits. This issue needs to be addressed.

Response: EPA could not locate any past correspondence and requested that Hecla resubmit this information. Hecla responded that this information was sent to EPA in 1990. Hecla commented on the 2003 revised draft permit, that based on conversations with EPA and Hecla, the issue of intake credits is best left to the future. See comment #25 on the 2003 revised draft permit and response (Section IV.H. of the Response to Comments).

Comment #35 - Use site-specific coefficients of variation (CV)

(commenter 36)

Default CVs were used to develop permit limits. The ultimate use of the site-specific criteria for lead and zinc will necessitate the derivation of site-specific CVs since adequate data is available for these parameters. Further, please explain how a default CV provision is appropriate for those parameters (such as mercury, cadmium and copper) when virtually all past analysis results are less than detection. It is not reasonable to presume high variability when results are less than detection levels.

Response: The following discusses the CVs that were used for each parameter.  
cadmium, lead, and zinc - The effluent limits in the 2001 draft permit were based directly upon the WLAs in the TMDL, therefore, a CV was not needed to

calculate the effluent limits. The effluent limits in the 2003 revised draft permit were based on the Idaho water quality criteria and the SSC and CVs were used to translate the criteria into effluent limits. The CVs used for the 2003 revised draft permit effluent limit calculations are shown in Tables A-7 through A-9 of the Fact Sheet for the 2003 revised draft permit. The tables show that the CVs are discharge-specific values rather than default values. These discharge-specific CVs were used to calculate the effluent limits in the final permit.

copper - The effluent limits in the 2001 draft permit were based upon a default CV of 0.6. That is because most of the effluent copper data was reported at levels below the method detection level so discharge-specific CVs could not be calculated. As stated in the Fact Sheet for the 2001 draft permit, where there are not enough effluent data to reliably determine a CV, the TSD recommends using 0.6 as the default CV (see the TSD for additional discussion). Since the 2001 draft permit was developed, additional effluent data was collected (by Hecla) and reported at lower detection limits. This enabled calculation of a discharge-specific CVs. The discharge-specific CVs were used to calculate the copper effluent limits in the 2003 revised draft permit (see Tables A-7 through A-9 of the Fact Sheet for the 2003 revised draft permit) and the final permit.

mercury - Default CVs were used for the 2001 draft permit and the 2003 revised draft permit calculations (and retained in the final permit) since all of the mercury effluent data has been reported at less than the detection limits, therefore, the actual CV cannot be determined. As discussed in the Fact Sheets supporting the draft permits, where there is not enough data to reliably determine a CV, the TSD recommends that a default CV of 0.6 be used. The TSD provides justification for the use of 0.6. The commenter did not provide any information to substantiate use of an alternate CV.

silver - Discharge-specific CVs were used for both the 2001 draft permit and 2003 revised draft permit calculations. See the Fact Sheets for these values.

Comment #36 - Reliance solely on the TSD  
(commenter 36)

Page 8 of the Fact Sheet, first paragraph - EPA references the 1991 *Technical Support Document for Water Quality-Based Toxics Control* (TSD), along with federal law and regulations, to develop the draft permit limits. It appears that the draft effluent limitations were based almost exclusively

on the TSD. It is important to note that the TSD is guidance only. The disclaimer in the forward to the TSD states “This document is agency guidance only. It does not establish or affect legal rights or obligations. It does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made applying the law and regulations on the basis of specific facts when permits are issued or regulations promulgated.” Based upon our review of the draft permit, it appears that the most stringent TSD conditions were applied while the facts concerning actual site conditions were not fully considered. This is an important consideration given the 14 March 2000 D.C. Circuit Court of Appeals decision in *Appalachian Power v. EPA* concerning EPA's use of guidance documents.

Response: EPA relied upon the TSD in developing the water quality-based effluent limits in the 2001 draft permit because the TSD is EPA's foremost guidance on how to determine the need for and develop water quality-based effluent limits. The TSD approach is a conservative approach which is necessary to ensure that water quality-based effluent limits are protective of the water quality criteria at most effluent and receiving water flow conditions. The TSD approach allows for taking into account site-specific conditions and EPA took into account site specific conditions, such as the use of actual upstream receiving water concentrations and flows, the mixing zones authorized by the state, discharge-specific CVs where data was available, effluent flow data, and establishment of limits for different receiving water flow tiers. In short, EPA based this permit on actual site specific information together with the national TSD guidance.

Comment #37 - Use of a permit limit formula instead of flow tiers  
(commenter 36)

Page 8 of the Fact Sheet, fourth paragraph - four tiers are used in the draft permit and the state's comments on the preliminary draft suggested 10. Since the limits are basically a calculation, couldn't the permit limits be a formula based upon flows (effluent and instream) and sample results? This would eliminate the need for multiple flow tiers.

Response: Permit limits are calculated from formulas, so conceivably the formula itself could be used as a permit limit. The CWA, however, requires that effluent limitations meet state water quality standards. The Idaho state water quality standards allow for the development of tiered effluent limits (see IDAPA 58.01.02400.05) but are silent on the use of a formula as an effluent limit. The State's 401 certification expressly authorized five flow tiers and stated that effluent limits are calculated from the minimum upstream flow of each tier.



EPA has accepted the use of tiered and seasonal limits in both guidance and on a case-by-case basis, however, EPA does not recommend developing limits that could vary daily as would be the case where a permit limit was based on a formula. The TSD *Responsiveness Summary* states (page 21), “However, seasonal limits are different than limits which vary daily based on river flow. EPA is not convinced that a daily variable approach would be universally practical given wastewater treatment response and performance; for this reason EPA has not included procedures for this approach.” (EPA 1991b) In addition, if permit limits were to be established as a formula, near daily monitoring of all the input parameters to the formula (e.g., flow, metals) would be required to ensure compliance on a daily basis. That is because the formula does not have the level of conservativeness built into it as do numerical limits based on conservative estimates of flow, hardness, chemistry, etc. It is this level of conservativeness that enables EPA to be comfortable with monitoring less frequently than daily to ensure compliance with numerical effluent limits. Use of a permit limit formula and the accompanied increased monitoring would require intensive permittee oversight and intensive EPA compliance oversight. Based on the discussion above, permit limits based on a formula were not included in the final permit.

Comment #38 - Total vs. Dissolved Metals - Expression of permit limits  
(commenter 36)

Hecla commented that the metals limits must be expressed as dissolved (instead of total recoverable), based on the following reasons:

- reason no. 1: Federal regulations at 40 CFR 122.45 do not mandate that permit limits be based upon “total recoverable metals”. Regulatory language at 122.45(c)(1) provides for the following exception: “... unless: (1) An applicable effluent standard or limitation has been promulgated under the CWA and specifies the limitation for the metal in the dissolved or valent or total form; or...” Water quality criteria, based upon dissolved metals, were promulgated for Idaho under the National Toxics Rule at 40 CFR 131.36(b)(1) and subsequently promulgated in Idaho regulations at IDAPA 58.01.02-210.

Hecla goes on to cite the Federal Register notice accompanying the rulemaking for 40 CFR 122.45 (49 FR 37998). The proposed rule was promulgated “unchanged”, identifying the procedure for “using total recoverable metals as the general standard, unless otherwise specified in a guideline or the permit writer determines other measures are appropriate”. Although using “dissolved metals limits is being strongly discouraged” by EPA in the rulemaking, “highly unusual cases to

implement the Clean Water Act” can allow limits to be expressed as “dissolved” metals, but “metals limits in permits should be stated as total recoverable”. (emphasis added) EPA's reinterpretation of “should” to “shall” in all cases has the effect of a new regulation and thus this action violates federal APA requirements.

- reason 2: Statements concerning “dissolved” metals are misleading. The statement by EPA in the rulemaking that “The total recoverable metals method is an intermediate method which uses a weak acid treatment to dissolve readily soluble solids and filtration to remove residual solids” is not true. The scientific faults to this statement include: (i) The pH of the sample prepared for total recoverable metals is subjected to a pH of approximately 0.1 s.u. This is an extremely *strong*, not weak, acid; and, (ii) The sample is subjected to temperatures that would also kill all aquatic life prior to filtration and analysis.

- reason 3: Hecla goes on to criticize the “dissolved” metals analysis procedure stating that it also measures more than true dissolved metals. The term “dissolved” is an operational definition of “dissolved”, i.e.; it is based upon a filtration method rather than the science of what truly constitutes dissolved metals. The operational “dissolved” method includes all matter passing a 0.45 micron filter. Nontoxic colloidal particles also pass through a 0.45 micron filter and are equated with toxic forms of the metal. Hecla summarizes information from the USGS and data from a contract laboratory to support this statement (the USGS and lab information was also sent to EPA as comments on the TMDL). Hecla states that EPA must address this scientific shortcoming in the Gold Book criteria to account for the coincidental measurement of nontoxic colloidal particles in the current “operational” definition of “dissolved” metals. It appears that the “latest scientific knowledge” as required by law is that “dissolved” must be based upon filtration through at least a 0.02 micron (and perhaps a 0.001 micron) filter. Indeed, EPA's own guidance document for deriving national criteria states “Criteria must be used in a manner that is consistent with the way in which they were derived.” The discrepancy is most evident, in the situation of the Lucky Friday discharge, concerning lead. The majority of the lead in the Lucky Friday discharge is in the solid form. Galena (lead sulfide) is mined at the Lucky Friday. EPA's lead criteria document used lead solutions of lead chloride, lead nitrate, and lead acetate. Lead nitrate, for example, is several orders of magnitude more soluble than lead sulfide, which is highly insoluble. In addition, the technology based limitations in the draft permit would control the total concentrations of the metals. The permit limits must be based on true dissolved metals.

Response: reason 1: The commenter is correct that the Idaho water quality criteria cited in the comment are expressed in terms of dissolved metal. However, the NPDES regulations cited in the comment (40 CFR 122.45(c)) require that all permit effluent limitations for metals be expressed in terms of total recoverable metals.

There are three exceptions to this requirement, including the exception referenced in the comment. However, the exception referenced in the comment (40 CFR 122.45(c)(1)) is not applicable since it applies only where an “effluent standard or limitation has been promulgated under the CWA and specifies the limitation for the metal in the dissolved. . . form”. The Idaho water quality criteria for metals although expressed as dissolved, are not an “effluent standard or limitation” developed under 301(b)(1)(B). Therefore the expression of metals limits as total recoverable is retained in the final permit.

Hecla commented on the Federal Register notice accompanying the rulemaking for 40 CFR 122.45 (49 FR 37998) that EPA's reinterpretation of “should” to “shall” in all cases has the effect of a new regulation and thus this action violates federal APA requirements. The permit must be based on the CWA and the implementing NPDES regulations. The regulations at 40 CFR 122.45(c) state that all permit effluent limits “shall be expressed in terms of total recoverable metals.” Therefore, the metals limits in the permit are expressed as total recoverable. The appropriate time to comment on the regulations is during the public comment period on the regulations. Comments on the permit can comment on the application of existing regulations. However, addressing comments on existing regulations and prior rulemakings are not within the scope of this permit action.

reason 2: The metals limits in the permit are established and monitored in a manner consistent with the NPDES regulations. EPA must calculate total recoverable metals limits in NPDES permits by regulation (40 CFR 122.45). The method for monitoring in NPDES permit as also established by regulation (40 CFR 136), which includes the total recoverable method described in the comment. This part of the comment apparently refers to a statement in an EPA rulemaking (which has already been subject to public review) and not in the NPDES permit. As stated above, comments on the permit can comment on the application of existing regulations. However, comments on existing regulations and prior rulemakings are not within the scope of this permit action.

reason 3: The Idaho state water quality standards established water quality criteria for most metals expressed as dissolved. The regulatory definition of dissolved metals is “Dissolved metals are defined as those constituents which will pass through a 0.45 micron membrane filter.” (see 40 CFR 136.3, Table IB, footnote 4). This filtration technique is the standard method used in criteria development, ambient sampling programs, and permitting programs under the

CWA. This NPDES permit cannot change the definition for dissolved that is the basis for the water quality criteria.

EPA agrees that part of what is measured as dissolved is particulate metal that is small enough to pass through the 0.45 micron filter, or that is adsorbed to or complexed with organic colloids and ligands. EPA does not agree that this colloidal or particulate metal is necessarily nontoxic, particularly after discharge to receiving waters where chemical conditions are different from those in the effluent and such particulates may redissolve. The potential for dissolution of particulates upon discharge to surface waters is the main reason that EPA requires permit limits to be expressed as total recoverable metals.

Comment #39 - Combined impact of maximum daily and average monthly TMDL-based limits on water rights  
(commenter 36)

The draft permit contains both "Maximum Daily" limits, that are "technology-based", and "Average Monthly" limits, based upon the TMDL, for lead, zinc, and cadmium. We are concerned about the impact both of these limits have on our water rights. The Lucky Friday has water rights for approximately 4.56 cfs (2047 gpm) and Congress was quite clear about State's rights under the CWA concerning water use. CWA Section 101(g) states: "It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction SHALL NOT be superseded, abrogated or otherwise impaired by this Act." (emphasis added)

If a water right allows the use of the appropriated water, it logically follows that the subsequent discharge is intended (i.e. Lucky Friday is not required to accumulate the 4.56 cfs allowed by the water rights). As mentioned in above comments, the Lucky Friday is not required to attain "zero" discharge, but the technology-based "daily maximum" limits, at the concentrations specified, would have this effect. For example, even at the "daily maximum" concentration, the "average monthly" limit would still have to be met. This scenario would only allow from less than 1/2 gpm to 14 gpm effluent flow rate (depending on the metal and pond) to be discharged at the maximum concentration allowed while still meeting the monthly average pounds/day limits.

The monthly average pounds/day from the TMDL have a similar effect on restricting flows. Given the flows for ponds #1 and #3 used by EPA in the draft permit of 4.4 cfs and 3.5 cfs respectively (Fact Sheet page B-13, flows which we do not agree with as being reasonable), coupled with the "<35 cfs" flow value tier pounds/day limits, results in extremely low concentrations. For example, at pond #3 the resultant concentrations at the 3.5 cfs flow and the <35 cfs lb/day for cadmium, lead, and zinc are as follows: 0.054 ug/l, 0.122 ug/l, and 5.08 ug/l respectively. Flow reductions and treatment well beyond that identified as economically achievable by EPA (i.e. Red Dog mine treatment) would be required.

Response: The average monthly limits for cadmium, lead, and zinc in the 2001 draft permit were based upon the TMDL. The maximum daily limits were based upon the technology-based effluent limitation guidelines. As discussed in Section II.A., above, the limits for cadmium, lead, and zinc have since been revised and (both the average monthly and maximum daily limits) are now based upon the SSC. Hecla's comments on the 2003 revised draft permit did not indicate that they were concerned that the SSC-based limits would affect their water rights.

Comment #40 - Increase upper bound pH limit  
(commenter 36)

Draft effluent limits for pH are limited to an upper boundary of 9.0 s.u. Optimum precipitation for zinc (the primary water quality limiting metal in the basin) is above 9.0 s.u. The pH limit in the effluent should be a water-quality based pH criteria. It does not make sense to raise the pH of the effluent to precipitate the metals of concern and then add additional pollutants (via acid neutralization) to reduce the pH prior to discharge when a water-quality based pH limit would assure protection of the beneficial uses. EPA has allowed such pH increases before and also allows higher pH in other technology-based limits for other industrial sectors (i.e. 40 CFR Part 461 for battery manufacturing has distinct subparts for lead, cadmium, and zinc with an upper pH limit of 10.0 s.u. - these categories would be treating to remove dissolved lead, zinc, and cadmium also). A pH limit of 10.0 s.u. should be allowed - an effluent pH of 10.0 s.u. would not violate state instream pH criteria.

Response: The pH limit of 9.0 as an upper boundary is a technology-based limit. Section 301(b) of the CWA requires technology-based controls on effluents and that all permits contain technology-based effluent limits by March 31, 1989. The NPDES regulations require that each NPDES permit include the technology-based effluent limitations and standards promulgated under Section 301 of the CWA (40 CFR 122.44(a)(1)). Technology-based effluent limitations for Copper, Lead,

Zinc, Gold, Silver, and Molybdenum ore mining and milling are found in Subpart J of 40 CFR Part 440. The technology-based pH limit that applies to the Lucky Friday discharges is that pH be within the range of 6.0 to 9.0 su. See Appendix B, section II. of the 2001 Fact Sheet for a discussion of the basis of the technology-based effluent limits.

The technology-based limits for the battery manufacturing industry as mentioned in the comment do not apply to the Lucky Friday Mine discharges and, therefore, cannot substitute for the 40 CFR Part 440 requirements.

Because the CWA requires that the technology-based limits be included in permits, the pH limit of 9.0 was retained in the final permit.

Comment #41 - Use data reflective of facility operations within the permit term (commenter 36)

At page B-4 of the Fact Sheet, the concept of “reasonable potential” is mentioned in the context of determining water quality-based effluent limits. The calculations used in the reasonable potential analysis carry over to the development of the actual permit limits as stated on page B-15. Therefore, the numbers used must reflect actual operation of the facility during the permit term. As stated in other comments (see comment #28, above), the water management plan will result in decreased effluent flow volumes and an increase in receiving water flows. Permit limits are dependent upon appropriate flows. Instead of using even an average or high flow from the most recent year, the draft permit was based upon completely unreasonable effluent flow volumes that haven't even occurred within the past five years. Indeed, the maximum flows used for both ponds #1 and #3 didn't even occur at the same time but are used to calculate effluent limits as if they do on a continuous basis!

In a separate comment, Hecla states: Page B-9, second to last paragraph - EPA states “The last five years of data was used - since it was determined to be most representative of current and future conditions.” Given the numerous discussions Hecla has had with both EPA and DEQ regarding water management plans and additional treatment (note the tailings pond already removes in excess of 99.9% of the metals), coupled with the overly conservative use of this historic data that will not be valid during the term of the permit, we are disappointed by this statement. Permit limits must reflect the actual conditions in realistic terms as our previous comments have addressed.

Response: See response to comment #28. Hecla has not submitted their water management

plan or any specific information on the degree of effluent flow reduction that they plan to achieve, nor when they expect to implement actions leading to flow reduction. Effluent limits cannot be developed without such specific information. EPA developed effluent limits in the 2001 draft permit and again in the 2003 revised draft permit based upon the specific information that Hecla had submitted to date including their permit application forms, discharge monitoring reports (DMRs), and supplemental documentation.

The following responds to the concern that the maximum effluent flows for outfalls 001 and 003 did not occur over the last five years and did not occur at the same time. The maximum effluent flow of 2.88 mgd for outfall 001 used to calculate effluent limits in the 2001 draft permit occurred in February of 1996 (according to data reported by Hecla on Discharge Monitoring Reports) which is just 5 years prior to the date that the draft permit limits were developed (the limits were developed in February 2001). This effluent flow value has since been revised. As discussed in the Fact Sheet for the 2003 revised draft permit, the effluent flows were revised to take into consideration more recent data. Maximum effluent flow values used to calculate limits in the 2003 revised draft permit were based on data reported by Hecla on DMRs since 1997 (approximately the last 5 years of data). The new maximum flow used to calculate effluent limits for outfall 001 in the 2003 revised draft permit is 1.7 mgd. The maximum effluent flow used to calculate limits for outfall 003 for both the 2001 draft permit and the 2003 revised draft permit is 2.275 mgd. This flow occurred in May 1999. EPA uses maximum effluent flows to ensure that limits are protective under all flow conditions.

Comment #42 - Background data

Upstream monitoring results previously submitted to EPA have been found to be incorrect due to laboratory error. This issue has been discussed with EPA under separate correspondence and this correspondence is hereby incorporated by reference into these comments. Correct upstream analysis data must be used. Appropriate analysis data has been developed by new samples and these results must be used to recalculate effluent limits.

Response: New upstream data for copper and silver were submitted by Hecla and used to recalculate the effluent limits in the 2003 revised draft permit. This is discussed in Section III.C. and Appendix A of the Fact Sheet for the 2003 revised draft permit.

Comment #43 - Use site-specific translators

(commenter 36)

Page B-8 of the Fact Sheet, last sentence - translators are discussed as not being site specific thus “conversion factors were used as default translators”. We expect that ultimately the site-specific criteria for lead and zinc will be used as agreed by EPA and when that happens the translator for lead used in the TMDL, at a minimum, should be used since the particulate lead in the effluent is highly insoluble as discussed in comments above. In addition, the permit should contain a reopener provision specific to the translator issue in the event site-specific translators are developed in the future.

Response: EPA agrees that the translator used in the TMDL for lead is preferable to the default translator used in the 2001 draft permit. The TMDL Technical Support Document developed translators for cadmium, lead, and zinc based on dissolved and total recoverable data from the South Fork. The method used in the TMDL to develop translators was consistent with EPA’s guidance (EPA 1996). Therefore, the translators for cadmium, lead, and zinc in the TMDL were used to develop effluent limits in the 2003 revised draft permit (see Appendix A of the Fact Sheet for the 2003 revised draft permit). Site-specific translators were not available for the other parameters (copper, mercury, and silver), therefore the default translators were used.

Hecla has since submitted comments on the 2003 revised draft permit that request that translators instead be developed based on monitoring data in the RI/FS for the South Fork above Wallace. In response to this more recent comment, EPA recalculated the translators based on RI/FS data. See comment #23 on the 2003 revised draft permit and response (Section IV.H. of the Response to Comments).

The above comment also requested that the permit should contain a reopener provision specific to the translator issue in the event site-specific translators are developed in the future. Part V.A. of the permit cites the NPDES regulations by which a permit can be modified. The permittee can always request modification of the permit for the causes listed in 40 CFR 122.62. Therefore, a reopener specific to the development of translators will not be included in the permit. One of the causes for modification is new information that was not available at the time of permit issuance and would have justified the application of different permit conditions. If Hecla develops site-specific translators for other parameters, this information may be submitted to EPA in a request to modify the permit.



Comment #44 - Use 95<sup>th</sup> instead of 99<sup>th</sup> percentile  
(commenter 36)

Page B-9 of the Fact Sheet discusses the use of 99th percentile data “Per the TSD”. As commented above, the TSD is guidance only and also allows the use of the 95th probability in Table 3.2. Given the fact that the existing permit limits protect the instream use, it is not reasonable to use the most stringent approach particularly since water management will reduce effluent volumes and additional treatment will reduce metal loads even though such reductions are not necessary.

Response: EPA Region 10 uses the 99<sup>th</sup> percentile in order to project the maximum effluent concentration for the reasonable potential evaluation. The maximum measured effluent concentrations is multiplied by a reasonable potential multiplier (RPM) to estimate the maximum projected effluent concentration (see Appendix B, Section III.B.2. of the 2001 Fact Sheet). The TSD allows for the RPM to be based on either the 95<sup>th</sup> percentile or the 99<sup>th</sup> percentile. EPA Region 10 uses the 99<sup>th</sup> percentile in order to ensure that reasonable potential is predicted in a conservative manner; i.e., reasonable worst case conditions are used. EPA consistently uses the 99<sup>th</sup> percentile in permits written in Region 10. Based on the above discussion, the reasonable potential evaluation was not revised to incorporate the 95<sup>th</sup> percentile.

It should be noted that the use of the 99<sup>th</sup> percentile of the data affects only the reasonable potential evaluation for silver. This is because RPMs were not developed for the other parameters (for the reasons discussed in Tables B-6 and B-7 of the 2001 Fact Sheet).

Comment #45 - Use of technology-based effluent limit as maximum effluent concentration  
(commenter 36)

Pages B-10 & 11 of the Fact Sheet, Tables B-6 & B-7 indicate that an effluent limitation guideline number was used, rather than actual monitoring data, for both copper and mercury. This is not reasonable. As discussed in above comments, the technology-based daily maximum values are meaningless given the effluent volume necessary to meet the pounds/day limit. Monitored data representative of actual effluent quality must be used.

Response: EPA based its reasonable potential analysis on the maximum allowable discharge that a technology-based permit would allow rather than on the actual discharge at this time. The technology-based limits are used since water quality-based limits

are only required if discharge at the technology-based limits have the reasonable potential to exceed water quality standards in the receiving water. The NPDES regulations at 40 CFR 122.44(d)(1) states “*Water quality standards and State requirements*: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318, and 405 of CWA...” If the reasonable potential analysis used the existing maximum effluent concentration and the analysis indicated that water quality-based limits were not needed, then there is the risk of giving the facility limits (technology-based) that authorize it to discharge at a level which would cause an excursion of water quality standards (prohibited by CWA 301(b)(1)(c) and 40 CFR 122.44(d)). That is why EPA has to test for reasonable potential using the technology-based limits.

Comment #46 - Use revised receiving water flows  
(commenter 36)

Hecla requested Brown and Caldwell (environmental engineering and consulting firm) to review certain flow derivations and the results of the Brown and Caldwell report are found at Attachment III to Hecla's comments. The Brown and Caldwell report indicates that at outfall 003 the estimate of instream flow is at least three times low if reasonable interpretations are made of the data used in the calculations by EPA. Brown and Caldwell further allude that the regression analysis may not be representative of true low flow conditions in certain areas of subwatersheds. Hecla has looked into this particular issue by reviewing low flow Deadman station readings and the corresponding Silverton station results (Attachment IV of Hecla's comments). For water year October 1998 to September 1999, during October low flow conditions, the cfs per square mile of drainage area is over 3.5 times higher at the Deadman station. Taking this factor into consideration, a 7Q10 flow of 31 cfs at the Silverton station would result in an upstream flow at 003 of over 6 cfs whereas EPA's regression analysis indicates 2.1 cfs and Brown and Caldwell's regression analysis indicates 5.2 cfs as the appropriate upstream flow. Hecla believes that EPA's 003 upstream flow estimates are low by at least a factor of 4. Similar adjustments must be made to EPA's estimates at outfall 001.

Brown and Caldwell also conducted a biologically-based low flow analysis for outfall 003. It is our understanding that EPA is moving towards this flow calculation method because it is more scientifically defensible. This is an appropriate action given EPA's failure to address the court's concerns over duration and frequency interval shortcomings in EPA's water quality criteria derivation process (AFPA, Inc. v. EPA -Consolidated Case No. 93-0694 RMU). The biologically-based flows at outfall 003 derived by Brown and Caldwell (Table 3 of Attachment

IV of Hecla's comments) could also be used by EPA (although the flow adjustments relative to cfs per square mile drainage discussed above would also have to be used in such calculations). Instream flows used to develop permit limits, at all outfalls, must be based upon realistic conditions by incorporating the above concerns.

Response: EPA agrees that the Brown and Caldwell analysis of low flow upstream of outfall 003, which takes into account the daily discharges from outfall 003 and their effect on downstream gaged flows, provides an improved estimate of the design flows for this location. EPA used the flows upstream of outfall 003 calculated by Brown and Caldwell to recalculate the effluent limits for outfall 003 in the 2003 revised draft permit and the final permit. See Section III.C. and Appendix A, Section III.A.2. of the Fact Sheet for the 2003 revised draft permit for details on the Brown and Caldwell values and how they were used.

Hecla adds a comment that differences in low flow/drainage area relationships between Silverton and Deadman's Gulch would support flow estimates even higher than the Brown and Caldwell analysis. It is not clear from the comment how Hecla proposes to reconcile the two approaches offered for estimating flows in one river using information from a different watershed: flow/area ratios and regressions of paired samples. EPA and Brown and Caldwell estimates are based on regressions, and EPA believes this method is reasonable and appropriate given the availability of paired samples.

Hecla also states that "similar adjustments must be made to EPA's estimates at outfall 001." As noted in the Fact Sheet for the 2001 draft permit (footnotes to Table B-8), the method for estimating flows at outfall 001 is different than the method used for estimation at outfall 003. In addition, there is significantly less information available for estimating flows at outfall 001. Hecla does not provide specific suggestions on how to adjust the flow estimates at outfall 001, nor is any analysis of outfall 001 included in the Brown and Caldwell report. Therefore, the South Fork flow estimates for outfall 001 from the 2001 draft permit were carried over to the 2003 revised draft permit. Hecla has since submitted comments on the 2003 revised draft permit regarding South Fork flows for outfall 001 that resulted in EPA recalculating the South Fork flows upstream of outfall 001. See comment #19 on the 2003 revised draft permit and response (Section IV.H. of the Response to Comments).

Comment #47 - Mixing Zones

(commenters 33, 36)

Commenter 33 - An increase in the mixing zones would not be applicable to the TMDL metals. However, a mixing zone of 75-100% would be applicable to the non-TMDL metals. SNRC would like you to evaluate these parameters based on an increase in the mixing zone to 75-100%.

Commenter 36 - Page B-13 of the Fact Sheet addresses the mixing zone provisions utilized in the draft permit calculations. EPA correctly states that “Mixing zones are allowed at the discretion of the State, based on the State water quality standards regulations.” In fact, the EPA Administrator has specifically recognized that States have broad discretion in this area: “[Whether limited forms of relief such as variances, mixing zones, and compliance schedules should be granted are purely matters of state law, which EPA has no authority to override.” (In *the Matter of Star-Kist Caribe, Inc.*, NPDES Appeal No. 88-5 (1990) at 15-6)

However, the generic “definition” of a “mixing zone” preceding this statement in the Fact Sheet is not the Idaho definition. Idaho regulations, at IDAPA 58.01.02-003.60., define a mixing zone as “A defined area or volume of the receiving water surrounding or adjacent to a wastewater discharge where the receiving water, as a result of the discharge, may not meet all applicable water quality criteria or standards. It is considered a place where wastewater mixes with receiving water and not as a place where effluents are treated.” (emphasis added) The integral phrase “as a result of the discharge” means just that - upstream concentrations are not a consideration. A mixing zone is not automatically disallowed if the receiving water exceeds criteria. This is only reasonable since the Clean Water Act goal is to be met in “the Nation's waters” and not in 100% effluent. Further, the EPA Fact Sheet incorporates the phrase “acutely toxic conditions” into their generic mixing zone definition and this phrase does not appear, and is not defined, in Idaho regulations.

Aside from the legal and regulatory issues, existing conditions warrant a 100% mixing zone. As previously stated in these comments, the state of Idaho has determined that the receiving water fully supports the designated use. This is with the current volumes and quality of effluent discharge from the Lucky Friday. Also, as stated in the above comments, effluent volumes will be reduced and additional treatment added even with the use of site-specific criteria for lead and zinc. The use of a diffuser, if determined necessary, could be considered in supporting a 100% mixing zone.

For lead and zinc, any determination must be based on the site specific criteria. The appropriate screening level for cadmium is EPA's April 1999 “National Recommended Water Quality Criteria” since the stream is healthy even with occasional instream exceedences of the lower Idaho criteria for cadmium. EPA's April 1999 revised mercury criteria of 0.77 ug/l should be used due to

the fact that Idaho's criteria is based upon EPA's old criteria which relied upon organic mercury bioaccumulation and not toxicity - the conditions for methylation of mercury are not present in the Lucky Friday situation (inorganic mercury in the discharge and well-aerated and fast-moving cold water stream). In addition to using the correct upstream analysis values for silver and copper (as well as for all other metals), mixing zones for copper and silver should be evaluated based upon the genus mean acute values (GMAVs) for *oncorhynchus* (the genus containing the most sensitive species identified in the site-specific study).

Response: The 2001 draft permit assumed a 25% mixing zone was available for the non-TMDL metals (copper, mercury, and silver). This was based on the Idaho water quality standards at IDAPA 58.01.02060 which recommend that mixing zones should not be more than 25% of the volume of stream flow. IDEQ commented on the 2001 draft permit that mixing zones are appropriate, but did not provide specific mixing zone volumes. As discussed in Section II.B., the state is responsible for establishing mixing zones through the CWA Section 401 certification. IDEQ's final certification authorized 25% mixing zones for the copper, mercury, and silver limits and for whole effluent toxicity (WET) triggers. See Section II.B. These mixing zones were used to develop the effluent limits and toxicity triggers in the final permit.

EPA agrees that the generic definition of a mixing zone in the 2001 Fact Sheet is not exactly the same as the definition in the Idaho standards.

Following is a response to the last paragraph of the comment. CWA Section 301(b)(1)(C) requires the establishment of limitations in permits necessary to meet state water quality standards. The NPDES regulations state that limitations must control pollutants or pollutant parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standards (40 CFR 122.44(d)(1)(i)). EPA, therefore, develops effluent limits based on the state water quality standard. The state standard for cadmium, is based on the SSC, not EPA's 1999 National Recommended Water Quality Criteria. Therefore, the cadmium effluent limits in the final permit are based upon the SSC. The copper, mercury, and silver criteria shown in Table B-4 of the 2001 Fact Sheet are from the Idaho state water quality standards, therefore these criteria were used to establish the effluent limits in the final permit.



Comment #48 - Need for mass-based limits  
(commenter 36)

The Fact Sheet, at page B-18, states that “However, with a few exceptions, the NPDES regulations (40 CFR 122.45(f)) require that water-based effluent limits also be expressed in terms of mass.”(emphasis added) The regulatory language at 40 CFR 122.45(f) does not specify “water-based effluent limits” at all. In fact, the exception at §122.45(f)(ii) applies to the Lucky Friday permit (i.e. “When applicable standards and limitations are expressed in terms of other units of measurement;” - the applicable standards are instream dissolved metal criteria). The use of a “mass limitation” as proposed in the draft permit infringes upon the use of our water rights as discussed more thoroughly in above comments. For example, if all parameters in our effluent are below instream criteria, there could be no limit on the volume that could be discharged but “mass limitations” could have this effect.

Response: EPA believes that permit limits must be expressed in terms of mass in order to preclude the use of dilution as a substitute for treatment. (44 FR 32865). While 40 CFR 122.45(f) allows some exceptions to the requirement for mass limitations, the exception cited in the comment (122.45(f)(ii)) does not apply. According to 40 CFR 122.45(f)(ii) mass limitations are not required “When applicable standards and limitations are expressed in terms of other units of measurement”. The mass limitations requirements and exceptions at 122.45(f) were originally promulgated as 122.16(c) (mass limitations requirement) and 122.16(d) (mass limitations exceptions). The Federal Register preamble to the rulemaking for the exceptions to the mass limitation requirement states “Paragraph (d) of 122.16 allows the use of concentration limits under circumstances in which administrative or technical problems make the use of mass limits impracticable or inconsistent with other requirements such as promulgated effluent guidelines or pretreatment standards.” (Emphasis added). (44 FR 32865). Therefore, the exception at 122.45(f)(ii) cited in the comment applies to technology-based standards and limitations, not water quality standards. If the exception was intended for application to water quality standards, then the preamble and regulation itself would have been specific that “standard” meant “water quality standard”. Since the exceptions to the mass limitation requirement do not apply, the final permit includes mass-based limits for metals.

In addition, the TSD (EPA 1991a) at Section 5.7.1 provides guidance on the use of mass-based limits. The TSD specifically recommends that permit limits on both mass and concentration be specified for effluent discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards. Comparing

the effluent flows to the South Fork flows indicate that there is less than 100 fold dilution, therefore, for the water quality-based limits, mass-based limits as well as concentration-based limits are appropriate.

Comment #49 - Differences between the load limits  
(commenter 37)

In general, the maximum allowable concentrations are higher than those in the TMDL, however the monthly average values are exactly the same as the limits established in the TMDL.

There is apparently some variability in the load limits for zinc: the maximum discharge limit at Outfall 002 for Lucky Friday is 1,000 ug/L, the requirements for Coeur and for the remainder of the Lucky Friday discharge points are all 1,500 ug/L. While this variance is somewhat perplexing, it is apparently consistent with the TMDL as written.

Response: The average monthly limits for cadmium, lead, and zinc in the 2001 draft permit were based upon the TMDL WLAs. The TMDL WLAs were expressed as mass or load (lbs/day). The TMDL did not establish maximum daily limits, therefore the maximum daily limits for cadmium, lead, and zinc were technology-based limits based upon the effluent guidelines (see Appendix B, Sections IV.A. and II. of the 2001 Fact Sheet). The technology-based limits are expressed in terms of concentration. As discussed in Section II. of the Response to Comments, above, the cadmium, lead, and zinc effluent limits in the final permit have been revised and now are based upon the SSC. Concentration-based limits were derived from the SSC. Mass-based limits were calculated by multiplying the concentration-based limits by the effluent flow.

## **K. Monitoring**

Comment #50 - Arsenic monitoring  
(commenter 27)

We wonder why arsenic is not listed as one of the monitoring items. Does arsenic in the mine wastewater or tailings pond exceed limits?

Response: Limits and monitoring were not developed for arsenic since monitoring by Hecla and EPA indicated that arsenic was always reported as not detected in the discharges, at detection limits lower than the lowest water quality criteria (50



ug/l). Therefore, there is no reason to believe that arsenic in the discharges could cause or contribute to an exceedence of water quality standards in the South Fork and, therefore, effluent limits for arsenic were not developed. This is discussed in the Fact Sheet for the 2001 draft permit (see Appendix B, Section III.B.1.).

Comment #51 - Mining and milling reagents

(commenter 27)

What are the petroleum products, nitrates or other chemicals that are used in the mining and milling process - and how is the discharge of these chemicals to the South Fork monitored? Is there a potential for acid-mine drainage and how will this be monitored?

Response: Hecla reported the following list of reagents used at the Lucky Friday Mill (Hecla 1999): methyl isobutyl carbinol, Aerofloat Promoter 242 (ammonium dicresyl phosphorodithioate), copper sulfate, zinc sulfate, sodium bisulfate, sodium isopropyl xanthate, Aerofloat Promoter 3418A (sodium diisobutylidithiophosphinate), Nalco 7871 Flocculent (polyacrylamide), Nalco 7810 Antifoam (polyglycol esters), Lime, and Nalco Coagulant.

The permit does not require monitoring the discharge for each of these reagents since analytical methods to monitor such reagents are limited and water quality standards are not available for the reagents. However, the monitoring that is required in the permit will monitor some of the constituents of these reagents, for example copper and zinc. The permit requires whole effluent toxicity (WET) testing, which was included, in part, to evaluate whether the pollutants that are not being monitored or limited could be toxic to aquatic life. If the results of a WET test indicate that the effluent is toxic (i.e., exceeds a toxicity trigger), then additional WET testing is required. If additional WET testing results in another exceedence of a toxicity trigger, then an evaluation (Toxicity Reduction Evaluation) is required to determine the cause of the toxicity and prevent the recurrence of toxicity. Through the Toxicity Reduction Evaluation it may be determined whether one or a combination of the reagents listed above is causing a toxicity problem.

Comment #52 - Sampling frequency

(commenter 33)

Due to the current stressful financial environment of the community and the operating mines, SNRC would like to request a decline in the sampling frequency proposed in the draft permit.

Given the cost of laboratory analysis, it would be a financial burden to all of us if the permit conditions stand. In reviewing the data, we feel it seems unwarranted based on the consistency of the flows.

Response: It is not clear from the comment whether a reduction in sampling frequency is requested for the receiving water or for the effluent and for which parameters. Therefore, our response to the comment will also be general. The frequency of monitoring included in the 2001 draft permit is consistent with monitoring frequency required of other major mining facilities in Idaho and Alaska. In determining the monitoring frequency, EPA weighed the need to monitor frequently (e.g., to show compliance with the maximum daily and average monthly limits) with the cost of the monitoring. In their comments on the 2003 revised draft permit, Hecla submitted specific information related to the cost and difficulty of the effluent mercury monitoring. In response to this comment, the mercury monitoring was reduced from weekly to twice per month (see comment #30 and response on the 2003 revised draft permit, Section IV.I.). Monitoring frequencies for other parameters have not been revised since EPA believes that the monitoring frequencies in the permit are appropriate for the mine's permit.

Comment #53 - Method Detection Limit (MDL) and Minimum Level (ML) requirements (commenter 36)

The draft permit, on page 5 at item 7, discusses the use of the MDLs. The draft permits use of the MDL and ML conflicts with both EPA headquarters policy and EPA's Technical Support Document (TSD). The TSD states "EPA is not recommending use of the method detection level because quantitation at the method detection level is not as precise as at the ML." The EPA headquarters policy directs that if either the sampled effluent concentration is less than the MDL or the sampled effluent concentration is less than the ML but greater than the MDL, then in both cases the results should be reported as "zero" for DMR reporting purposes. The sole source of EPA authority on this issue is the Clean Water Act (CWA) itself. Congress did not include a provision in the CWA for members of the regulated community to be treated more stringently simply due the location of the regulated entity within a particular EPA region. Since such a break from EPA headquarters policy may result in unwarranted enforcement actions, this draft permit provision is both arbitrary and capricious. The draft permit must reflect national EPA headquarters policy.

Response: The part of the 2001 draft permit cited in the comment requires:  
“(1) That for all effluent monitoring, the permittee must use methods that can

achieve a MDL less than the effluent limitation, and

(2) For purposes of reporting on the DMR, if a value is greater than the MDL, the permittee must report the actual value. If a value is less than the MDL, the permittee must report “less than {numeric MDL}” on the DMR. For the purpose of calculating monthly averages, zero may be used for values less than the MDL.”

The section of the TSD cited in the comment (which comes from TSD Section 5.7.3, Detection Level Limits) concerns the approach to be used for situations where the effluent limit is below the analytical detection level (i.e., the MDL), not for situations where the effluent limit is greater than the MDL - which is the case for the limits in the Lucky Friday permit. The TSD recommends that where the water quality-based effluent limits are below the MDL, then the ML be used for compliance evaluation purposes. In the Lucky Friday permit, the effluent limits for all the parameters are greater than both the MDL and ML for at least one EPA-approved method. Therefore, the TSD quotation is not applicable to the portion of the permit cited.

The comment then refers to EPA headquarters policy. The headquarters policy is actually a draft policy upon which EPA received significant comments. The headquarters policy was never finalized, therefore, Region 10 developed our own guidance (EPA Region 10 1996).

- Region 10 guidance is that MDLs be incorporated into permits as the analytical method to be achieved to ensure that the laboratory is using the most sensitive analytical method. The permit requires that analytical methods achieve an MDL less than the effluent limits. (see Part I.A.6. of the final permit).
- Region 10 guidance recommends that if the analytical results are less than the MDL, then the permittee should report “less than <MDL number>” on the DMR. This ensures that data will not be “lost” even though it is less than the MDL. The permit is consistent with this guidance.

Comment #54 - Form of mercury limits and mercury analysis procedures  
(commenter 36)

The footnotes for "mercury" in Tables 1 & 2 of the draft permit require the reporting and analyzing of mercury “as total”. State water quality standards are based upon dissolved metals

(for mercury CMC) and the limits must reflect this. Further to the MDL comment directly above, the draft permit MDL conditions would require the use of the new 1600 series mercury analysis procedure. This is completely unjustified. Throughout either the TMDL or RI/FS process, the Lucky Friday has never been identified as a source of mercury at any level of concern. Further, the current Idaho mercury criteria is both based upon organic forms of mercury not applicable to our situation and over an order of magnitude lower than EPA's latest recommended mercury criteria. The 1600 series mercury analysis is both costly and attainable through a limited number of laboratories nationwide. Turnaround times alone would not allow for compliance with the DMR deadlines contained in the draft permit. There is no reasonable or scientifically defensible reason to require an analysis procedure other than method 245.1, Mercury limits must be based upon dissolved mercury and reflect a reasonable analysis procedure.

Response: In regards to the concern that mercury be expressed as dissolved, see response to comment #38, above. The NPDES regulations require that the effluent limits be established in terms of total recoverable.

The following responds to the concern over the mercury MDL and use of the 1600 series method for mercury analysis. The effluent limits for mercury in the 2001 draft permit and in the final permit are based upon the state water quality chronic criteria for mercury (0.012 ug/l). This mercury criteria is a low number which results in effluent limits at low levels. Effluent monitoring must therefore be conducted with a detection level low enough to show compliance with the effluent limit. The NPDES regulations at 40 CFR 122.44(i)(iv) require that monitoring be conducted according to test procedures approved under 40 CFR 136. Method 245.1 has a MDL of 0.2 ug/l which is not low enough to show compliance with the mercury effluent limits. The MDL for Method 1631 is low enough to show compliance with the mercury effluent limits. Method 1631 was promulgated by EPA as a 40 CFR 136 method on June 8, 1999 (64FR30417). The promulgation responded to comments regarding the availability and cost of Method 1631. The NPDES regulations require that 40 CFR 136 methods be used for analysis, unless an alternate test procedure has been approved. Permittees may apply for an alternative test procedure under 40 CFR 136.4. Such alternative test procedures may address site-specific considerations. EPA has guidelines on how a permittee may request alternative test procedures or discharge-specific MDLs. Hecla has not presented information to demonstrate that an alternative test procedure or different MDL are justified. The final permit retains the requirement that Hecla use EPA approved test methods that are less than the

effluent limits to determine compliance.

In regards to the concern about turnaround time, EPA will extend the DMR due date to the 20<sup>th</sup> of the month following sample collection (see Part III.B. of the final permit).

The MDLs reported by Hecla in their past mercury monitoring are greater than the chronic water quality criteria. Therefore, although mercury has not been detected in past monitoring, this does not provide proof that mercury is not present at levels greater than the chronic criterion.

Hecla submitted additional comments on the 2003 revised draft permit expressing their concern with mercury monitoring. Based on these comments the monitoring frequency for mercury in the final permit was reduced from weekly to twice per month and the requirement for collecting composite samples was replaced with grab samples. See comment #30 and response on the 2003 revised draft permit, Section IV.I.).

Comment #55 - Basis for monitoring instream water quality  
(commenter 36)

Hecla commented on EPA's reliance on CWA Section 308 and federal regulation 40 CFR 122.44(i) as a basis for ambient water monitoring (from page 13 of Fact Sheet). Hecla disagrees that either of these require the permittee to monitor instream water quality and states that federal regulations cited by EPA are specific to monitoring the effluent only. This is only appropriate since the CWA at Section 308 only mentions the permittee's responsibility (308(a)(A)) to "sample such effluents".

Federal regulations at 40 CFR 130.4(b) are quite clear on the state's obligation to monitor instream as follows:

"The state's water monitoring program shall include collection and analysis of physical, chemical and biological data and quality assurance and control programs to assure scientifically valid data. The uses of these data include determining abatement and control priorities; developing and reviewing water quality standards, total maximum daily loads; assessing compliance with National Pollutant Discharge Elimination System (NPDES) permits by dischargers; ..." (emphasis added).

In addition, there is nothing in the state's regulations requiring instream monitoring by permittees.

Instream monitoring is not required by law or regulation and cannot be a part of this permit. We are, however, open to discussions with the state to assist in their instream water quality monitoring obligations, but not as a condition of the Lucky Friday permit.

Response: CWA section 308 does provide EPA with the authority to require instream monitoring. Hecla is correct that 308(a)(A)(iv) refers to effluent sampling. However, section 308(a)(A)(v) allows EPA to require the owner or operator of any point source to “provide such other information as he may reasonably require”. Other information that is reasonably required by EPA for the Lucky Friday discharge, is the ambient monitoring laid out in the permit. The ambient monitoring is reasonably required for the following reasons:

South Fork flow monitoring: The effluent limits for copper, mercury, and silver depend upon receiving water flow. Therefore, flow monitoring of the South Fork is required to determine which flow tier and corresponding effluent limit applies. Flow information will also be used to refine upstream flows in calculating effluent limits in the next permit.

South Fork water quality monitoring: The development of water quality-based effluent limits takes into consideration receiving water characteristics such as upstream concentrations and downstream hardness. Therefore, water quality monitoring of the South Fork was included in the permit for use in determining the need for and calculating water quality-based effluent limits in future permits.

Bioassessment monitoring: This data is needed to determine whether or not the discharges could be impacting aquatic life in the South Fork and to ensure compliance with the Idaho water quality standards. This monitoring was required by the State’s CWA 401 certification (see also response to comment # 64, below).

Because the ambient monitoring laid out in the permit relates directly to the permitted discharges and is meant to collect data to be used in the next permit, it is appropriate that this information be a required part of the permit, rather than a state monitoring program.

Comment #56 - Composite vs. grab sampling

(commenter 36)

Page 13 of the Fact Sheet, Table 4 - Both continuous flow recording and 24-hour composite sampling are proposed in the draft permit without any justification as to why daily flow and grab samples contained in the current permit are not adequate. Federal regulations at 40 CFR 122.48 allow for such monitoring but such requirements are limited to situations “when appropriate”. For the past 30 years grab samples and once/day flow measurements have been adequate and EPA offers no explanation as to why these past permit conditions are no longer “appropriate.” Hecla provided the following reasons as to why continuous flow recording and composite sampling is not necessary:

- With large volumes of impounded water, it is not reasonable to expect radical changes of the discharge water quality within any 24-hour period.
- Where the draft permit expands the “Representative Sampling” requirements of 40 CFR 122.41(j), this added monitoring requirement covers any non-routine discharge for sampling purposes.
- Such sampling of the effluents was not believed necessary by either the state or EPA during development of either the TMDL or RI/FS and it is not justified into the future when total metal loads (via volume reduction and additional treatment) will be even less.
- The minor load contributed by the Lucky Friday to the South Fork drainage simply does not warrant such monitoring.
- Given the health of the receiving water, these added requirements are not justified as “appropriate”.
- Such monitoring requires installation, maintenance, and repair of expensive equipment that must be budgeted for. Such equipment is not 100% foolproof. Provisions would have to be made, if such monitoring is successfully justified, for times when monitoring equipment malfunctions.

Response: The regulations at 40 CFR 122.41(j)(1) require that samples be representative of the monitored activity. The 2001 draft permit required composite samples for metals and WET and grab samples for pH and temperature. The analytical methods found in 40 CFR Part 136 are required for NPDES monitoring. These regulations do not specify sample collection methods (grab or composite), except that grab samples must be collected for certain parameters that may change during the time necessary for composting, such as pH and temperature. Therefore, grab sampling was included in the permit for these parameters. For the other parameters, the *US EPA NPDES Permit Writers Manual* (EPA-833-B-96-003) and Appendix F of the TSD recommend that composite samples be collected when the effluent being sampled varies significantly over time, e.g., as a result of flow or quality changes. The Lucky Friday Mine discharges are a combination of

various waste streams; outfall 001 includes groundwater, cooling water, sanitary wastewater and mine water and outfall 003 includes storm water and water from the Lucky Friday mill. Even though these waste streams are combined in the tailings ponds, Hecla presents no information showing that the water chemistry does not change over time. In the absence of such specific information, 24-hour composite sampling is required.

The requirement for composite sampling is not related to the RI/FS sampling, the load contributed by the Lucky Friday Mine discharges to the South Fork, or the health of the South Fork (3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> bullets above). Composite sampling is needed to ensure that samples are representative of the discharge for determining compliance with the effluent limits.

EPA acknowledges that composite sampling is more operator intensive than grab sampling. However, many other facilities have made accommodations to collect composite samples. Composite sampling is required for most of the major facilities for which Region 10 writes NPDES permits.

Based on the above discussion and because of the desire to obtain representative samples, the final permit retains the requirements for composite sampling (except for mercury - see response to comment #30 on the 2003 revised draft permit, Section IV.I. of the Response to Comments).

## **L. Whole Effluent Toxicity (WET) Testing Conditions**

Comment #57 - Need for WET testing  
(commenter 33)

To perform toxicity tests on impaired waters would seem a wasted fiscal effort that would not give you any reliable data. We request that WET testing be removed from the permit until the South Fork meets water quality standards.

Response: Toxicity tests on the effluent are used to determine if the effluent is toxic to aquatic life. This is important to know regardless of whether or not the receiving water is impaired. In fact, the toxicity tests may provide information as to why a receiving water is impaired and therefore provide information on how the impairment may be remedied. The NPDES regulations require that permits contain effluent limits to control pollutants that are or may be discharged at levels



having the reasonable potential to cause or contribute to an excursion above any State water quality standard including any state narrative criteria for water quality (40 CFR 122.44(d)(1)(i)). As discussed in the 2001 Fact Sheet and also in response to the comment below, the State of Idaho has a narrative water quality criteria that surface waters of the State shall be free from toxic substances in concentrations that impair designated beneficial uses. Idaho's narrative toxic criteria is implemented through WET testing, and where needed, WET limits. The NPDES regulations require that EPA determine whether or not the discharge causes or contributes to excursion of the States narrative toxic criteria (40 CFR 122.44(d)(1)(i) and (v)). Sufficient WET testing was not available for the Lucky Friday discharges to make this determination, therefore WET testing is required in the permit. The WET testing required in the permit is consistent with WET testing required for other major mining and industrial facilities permitted in Idaho. See also response to comment #63, below.

Comment #58 - Interpretation of State narrative criteria  
(commenter 36)

EPA is proposing WET testing in the draft permit. The Fact Sheet references Idaho's regulations by stating "In Idaho, the relevant water quality standard states that surface waters of the State shall be free from toxic substances in concentrations that impair designated beneficial uses." (Emphasis added). Idaho's regulation referenced here is found at IDAPA 58.01.02.200.02 and this language represents a "general surface water quality criteria". A "water quality standard is defined at 40CFR 130.2(d) as "...a designated use or uses of the water of the United States and water quality criteria for such waters based upon such uses." A "criteria" is defined a 40 CFR 131.3(b) as either numeric level of narrative statement "representing a quality of water that supports a particular use." The criteria serve the express purpose of protecting the designated use(s) and WET testing, as proposed, does nothing of the sort. The fact is Idaho regulations do not have any type of criteria that translates WET test results into criteria and neither do federal regulations. It is no wonder Idaho has declined to use WET testing in state regulations to implement a narrative standard due to the numerous shortcomings of the WET test methods (the shortcomings are noted in comments 59 - 67).

Response: Where a numeric criteria has not been adopted for a narrative toxics criteria, EPA has the authority to interpret the State narrative criteria in order to establish effluent limitations, including any necessary toxicity limitations. In fact, the regulations at 40 CFR 122.44(d)(1)(vi) require EPA to interpret the narrative criterion numerically where the state has not developed a numeric criterion.

EPA's TSD provides a detailed explanation and references for the basis of using WET testing to implement a state's narrative criteria (see Chapters 1 and 2 of the TSD) (EPA 1991a). EPA's *WET Control Policy for the Development of Effluent Limitations and NPDES Permits to Control WET for the Protection of Aquatic Life* (EPA 1994) also describes the justification for the use of WET testing to implement a state narrative toxicity criteria. EPA's interpretation of the State's narrative criteria for toxicity in this permit is consistent with EPA's application of that criteria in other permits it has developed and which have been certified by the State of Idaho. In addition, IDEQ did not comment on Region 10's interpretation of their narrative criterion for toxicity in this permit and certified a mixing zone of 25% to calculate the toxicity triggers for WET testing (see Section II.B. of the Response to Comments).

Comment #59 - Laboratory error resulting in false positives  
(commenter 36)

A study by Moore et al. (*Developing a Method Detection Limit for Whole Effluent Toxicity*, WEFTEC, Oct. 1998) involved sending samples for WET testing to seventeen commercial labs. These samples contained NO toxicity and yet approximately 35% of the sample results were reported as showing toxicity.

Response: Not enough information was supplied in the comment and how it relates to the Lucky Friday discharges in order to respond. It appears that the comment is implying that results of this one study indicates that there might be laboratory error resulting from false positives and as a result, WET tests are too variable and thus unreliable to use as a method to determine compliance with the narrative toxicity water quality criteria. EPA disagrees. See response to comment #60, below, for details.

Comment #60 - Laboratory organisms are not standard  
(commenter 36)

The use of laboratory organisms is not a "standard" in any sense of the term. EPA noted this in the proposed rule in 1995 (60 FR 53537) stating "the sensitivity of organisms to pollutants ... varies somewhat among organisms within the same species, and is affected by the condition or the health of the organisms." Even in single laboratory precision tests of *Ceriodaphnia* where organism health would presumably be constant, the NOEC varied by a factor of 3, the IC25 varied by a factor of 2.8, and the IC50 varied by a factor of 2.6 (TSD, Table A-1-25). These tests

only involved a single toxicant! It is important to note that this table in the TSD is not clear that all tests were actually included in this data set, thus the ranges may actually be larger (i.e. “test number” values range from 19-57 but only seven test results are contained in the table). In stark contrast, EPA's annual DMR-QA laboratory performance evaluation studies for metals analysis (lead, zinc, cadmium, and copper) does not allow analysis variation of more than 20% for acceptable results, let alone factors of up to three.

Response: This comment appears to criticize the use of laboratory organisms to measure toxicity and that because of organism sensitivity, there is too much variability in WET test results and therefore WET tests should not be used. The 40 CFR 136 approved test procedures for WET utilize standard laboratory species. EPA developed standard test procedures and toxicity test methods to minimize intralaboratory and interlaboratory variability. In the final rule amending 40 CFR 136 to add WET testing methods, EPA responded specifically to the concern that WET tests are variable. EPA's response concluded that on the basis of data included in the TSD and the methods manual, “EPA is comfortable with the conclusion that whole effluent toxicity tests are no more variable than chemical analytical methods in Part 136 and, therefore, stands behind the conclusion that toxicity tests in NPDES permits provide reliance; indicators of whole effluent toxicity.” (60 FR 53535). In addition, as part of the July 1998 settlement agreement with litigants for the Western Coalition of Arid States and Edison Electric Institute, EPA studied the variability of the test methods for WET under 40 CFR 136. EPA concluded that the variability of the WET test methods is within the range of variability experienced in other types of analysis (EPA 2000). Furthermore, in a final rule issued November 19, 2002, EPA ratified the approval of several test procedures for measuring toxicity (including the *Ceriodaphnia* procedure mentioned in the comment). The final rule discussed the issues of WET test availability, adequacy, comparability, and variability. The final rule stated that “EPA believes that the WET Interlaboratory Variability Study accurately estimated the precision of WET test methods, and that this precision is adequate for regulatory use of the WET methods. The precision measured for the WET test methods is comparable to that of chemical methods.” (67FR69967).

Comment #61 - Use of non-native organisms  
(commenter 36)

WET tests on non-native organisms means nothing in terms of the real world receiving waters designated use(s). A study presented at technical conferences on WET issues, at which EPA was an active participant, highlighted the lack of correlation between WET test results and actual

instream impairments. (*Defining the Relationship Between Whole Effluent Toxicity Testing and Instream Toxicity*, SETAC News, Nov. 1998).

Response: The NPDES regulations at 40 CFR 122.44(i)(1)(iv) and 122.41(j)(4) require that monitoring must be conducted according to test procedures approved under 40 CFR 136. The 40 CFR 136 approved test procedures for WET utilize standard laboratory species, which may not necessarily be species native to the receiving water. The use of standard laboratory species in toxicity tests is consistent with EPA's TSD, national policies regarding WET, and the various EPA toxicity test protocols, which were promulgated as 40 CFR 136 NPDES methods. The species required by EPA for effluent toxicity tests in the NPDES program were selected to represent a "performance standard" or indicator of appropriate sensitivity to toxicity for a given phylogenetic category. Standard laboratory species are used to ensure that the organisms used in WET testing have adequate quality control and to reduce interlaboratory and intralaboratory variability. The TSD (EPA 1991a) and the rulemaking promulgating the 40 CFR 136 WET methods (60 FR 53529-53544) provide information that substantiates the use of standard laboratory species and demonstrates the correlation between WET test results and adverse effects on aquatic life in receiving water. In addition see "A Review of Single Species Toxicity Tests: Are the Tests Reliable Predictors of Aquatic Ecosystem Responses?" (EPA 1999), which reviews, in part, the use of standard laboratory organisms vs. native organisms and concludes that a preponderance of evidence reveals that laboratory toxicity test results are reliable predictors of aquatic community impacts.

Hecla may apply for approval of toxicity test method based on other organisms (such as native organisms). These toxicity test methods would need to include QA/QC provisions that assure a proper level of precision and reproducibility, and would need to use organisms cultured in a laboratory that are unaffected by environmental stresses. Such methods could be submitted for approval as an alternative test procedure under 40 CFR 136.4.

Comment #62 - Laboratory culture water unlike receiving water (commenter 36)

The test organism Ceriodaphnia not only does not exist in the receiving water but the laboratory culture conditions for the organism do not even duplicate actual receiving water conditions (i.e. culture temperatures of 25 degrees C +/- 1 degree C and culture water hardness 80- 100 mg/l as CaCO<sub>3</sub> - Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving

Waters to Freshwater Organisms, EPA, March 1989, pg. 111).

Response: The laboratory culture conditions for Ceriodaphnia are based on the conditions that Ceriodaphnia are used to inhabiting. If receiving water conditions were used then there could be stress to the organisms (possibly resulting in a report of toxicity) due solely to the receiving water rather than the effluent. However, the permit does allow the consideration of receiving water conditions by allowing site receiving water to be used to dilute the effluent subject to WET tests (see permit Part I.B.3.c.iii.), so long as the water meets test acceptability criteria.

Comment #63 - Need for testing given the site-specific criteria  
(commenter 36)

Actual health of the receiving water has been documented during the development of the site-specific criteria and EPA has been an active participant in this process. The state of Idaho, under the exclusive Congressional authority of the CWA to manage water resources of the state, is on record as saying that the designated use is fully supported (at a time when the Lucky Friday was discharging under current limits). It is hard to understand why the real world science obtained during this study is being ignored in the draft permit while hypothetical laboratory WET tests are being proposed with organisms that don't even exist in the receiving water. CWA Section 304(a)(1) is quite clear that the intent of the development of water quality criteria is for “criteria for water quality accurately reflecting the latest scientific knowledge”. (emphasis added)

Response: The receiving water studies performed to develop the SSC involved toxicity testing and bioassessment monitoring of the South Fork. Toxicity testing of the Lucky Friday discharges were not conducted as part of the SSC development work. Such toxicity testing is required in order to determine if effluent limits for WET are needed in future permits. The NPDES regulations at 40 CFR 122.44(d)(1) requires, among other things, that the permitting authority establish a WET limit where a discharge has the reasonable potential to cause or contribute to an exceedence of a numeric WET criteria. See response to comment #58 regarding EPA’s interpretation of the state’s narrative toxicity criteria. EPA agrees that water quality criteria must accurately reflect the latest scientific knowledge. To date no national water quality criteria or Idaho state water quality criteria has been developed for WET. That is why the recommended magnitudes of the WET criteria (1 TU<sub>c</sub> for chronic toxicity, for example) in the TSD were used to establish toxicity triggers. These magnitudes reflect the latest scientific knowledge and Hecla has provided no alternative WET criteria to substitute for

the TSD values.

The comment implies that attainment of a designated use negates the need for WET testing. EPA does not agree. The NPDES regulations mentioned above apply regardless of whether or not a use is attained. In addition, the TSD discusses the concept of “independent applicability”. EPA believes that independent consideration of chemical-specific, WET, and bioassessment be applied to water quality-based situations. That is because each assessment method has unique as well as overlapping attributes and sensitivities. Some advantages of WET testing include: the toxicity of effluent is measured directly for the species tests; the aggregate toxicity of all constituents in a complex effluent is measured, and toxics effect can be limited by limiting one parameter, i.e., WET; and ecological impacts can be predicted before they occur. The bioassessment approach is limited in that the methods detect problems after they have occurred or the impacts may not yet have occurred. So, even though there is existing bioassessment data for the South Fork, which was valuable in determining the SSC, this does not negate the need for WET testing of the Lucky Friday discharges.

See response to comment #61 regarding the use on non-native organisms.

Comment #64 - Interpretation of IDEQ preliminary draft permit comments  
(commenter 36)

We believe that EPA misinterpreted the IDEQ comments on the preliminary draft permit concerning WET testing and actual instream bioassessment. We believe IDEQ intended that instream bioassessment be used instead of, not in addition to, WET testing. The fact is that an instream bioassessment has already been completed during the site-specific study efforts and the receiving water is healthy.

Response: IDEQ’s comment on the 2001 draft permit did not request instream bioassessment in lieu of WET testing. IDEQ commented specifically that the green alga test not be used to evaluate the State narrative criteria, but did not specifically comment that the other WET tests not be conducted. In their final certification, IDEQ continued to require bioassessment monitoring and did not state that the bioassessment monitoring was to be performed in lieu of WET testing. In fact, IDEQ certified a mixing zone of 25% for calculating the toxicity triggers for WET testing.

Regardless, as discussed in response to previous WET comments, the regulations at 40 CFR 122.44(d)(1) require that WET testing must be addressed.

Comment #65 - WET reasonable potential analysis  
(commenter 36)

A "reasonable potential" analysis cannot be conducted until water management is implemented as discussed in comments above. Both effluent quality and quantity, as well as receiving water volume and quality, will be different - affecting the structure of any effluent tests or limits.

Response: As discussed in the 2001 Fact Sheet, sufficient WET data did not exist in order to determine reasonable potential. Therefore, WET monitoring was included in the 2001 draft permit. As discussed in response to comment #28, Hecla has not provided any specific information on how water management will affect their effluent flows or quality, therefore, the WET monitoring included in the permit is based on existing information. The existing information (effluent and receiving water flows) impacted the development of the toxicity triggers in the 2001 draft permit and the 2003 revised draft permit. The effluent and receiving water flow information did not effect the selection of the test species or other WET testing requirements.

Comment #66 - Responsibility for retesting  
(commenter 36)

We also note that Section I.B.3.c.ii) of the draft permit (page 11) requires re-testing even if the "reference toxicant tests" does not meet all "test acceptability criteria" - this is a problem with the WET method and/or the lab; we should not be liable for costs associated with the faults of others.

Response: Obviously retesting is necessary if a test does not meet test acceptability criteria. Just as retesting is necessary if there is a QA/QC problem when analyzing for metals. It is between Hecla and the lab as to who pays for the cost associated with a lab error. The permit will not specify who will be liable for the costs.

Comment #67 - WET translator  
(commenter 36)

WET testing imposes both costs and obligations on the Lucky Friday when the results of WET testing mean absolutely nothing concerning actual protection of a designated use. WET testing must be removed from the permit until such a time when the state has developed and promulgated a numeric translator for WET tests that is based upon the testing of actual resident organisms in site waters.

Response: See response to comment #63 regarding the need for WET testing and comment #61 regarding the use of non-native organisms. In regards to a numeric translator for WET, it is not clear what is meant by a numeric translator.

## **M. Quality Assurance Plan**

Comment #68 - Quality Assurance Plan (QAP) - authority for requiring QAP (commenter 36)

The Fact Sheet on page 16, Item VII.A. - EPA presumes some authority under 40 CFR 122.41(e) to require the development of a Quality Assurance Plan (QAP) and submittal of such a plan to EPA within 60 days. While the cited regulation does require the permittee to take certain measures, the regulations do not require development and submittal of a QAP, thus this must be deleted from the draft permit.

Response: As discussed in the Fact Sheet, 40 CFR 122.41(e) requires permittees to properly operate and maintain their facilities, including “adequate laboratory controls and appropriate quality assurance procedures.” To implement this requirement, EPA requires permittees to develop QAPs for monitoring required in the permit. EPA requires that QAPs be submitted so that we can review them for compliance with the permit requirements. The QAP requirements in the permit are consistent with QAP requirements for other major facilities permitted by EPA in Region 10. Hecla may utilize any existing QAPs to meet the permit requirements so long as the existing QAP contains all the provisions required in Section I.E. of the permit. The last sentence of the first paragraph of Section I.E. allows for this by stating that any existing QAPs may be modified for submittal. Based on the above discussion, it is appropriate for EPA to include in the permit QAP requirements and submittal for monitoring that is required in the permit.

Some of the QAP language has been revised in the final permit. Permit language at part I.E.2. was clarified to require the most recent editions of EPA’s QA guidance and provide the Internet locations of the guidance. Part I.E.3. was removed since



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

## **N. Groundwater Issues and Seepage Study Requirements**

Comment #69 - Recognition of ground water in permit  
(commenter 28)

By Idaho regulation, ground water resources must be protected for the same beneficial use as surface waters if there is a direct inter-relationship between the two. This interaction is well established in the South Fork. Flow measurements and load carrying capacity must be determined and distributed for ground waters as they have been for surface waters. This additional load carrying capacity has not been recognized in the draft permits for any of the facilities.

Response: The NPDES permit does not include effluent limits for groundwater since Clean Water Act jurisdiction does not extend to groundwater. However, limits can be established on the seepage to groundwater where it is shown that there is a hydrological connection between the groundwater and a surface water of the U.S. and where it is shown that the seepage may cause or contribute to an excursion of a water quality standard in the receiving surface water. At this time, EPA does not have enough information to quantify the hydrological connection from seepage from any sources at the Lucky Friday Mine to the South Fork. That is why the final permit requires a seepage study and a hydrological analysis (see response to comment #72) to quantify the impact of seepage from the tailings ponds to the South Fork. If this connection is established, effluent limits, if needed, can be established for discharge to surface water from the combined flow (seepage and outfall) from the tailings ponds.

Comment #70 - Include water balance for all three ponds and other on-site source areas  
(commenter 37)

The permit requires a water balance for Tailing Ponds at Outfall 001 and 003 within 18 months, and if Outfall 002 is used for more than 6 months, then an additional study for this outfall. We believe that it is pertinent to include a water balance for all three ponds, and any other on-site sources such as the mill area, and waste rock piles.

Response: The seepage study requirements in the permit does include a water balance for all three ponds. The pond no. 2 water balance is only required if there is a discharge from that pond for more than 6 months. EPA does not agree that a water balance be required for pond no. 2 if there is no discharge from the pond.

The commenter provided EPA with no specific information to substantiate requiring a water balance for the mill area or waste rock piles. In supplemental information submitted to support their permit application, Hecla reported that water from the mill and storm water is discharged through outfall 003. The effluent limits for outfall 003 include these discharges. In addition, storm water that is not authorized for discharge from the individual permit outfalls is authorized for discharge under the Multi-sector Storm Water General Permit (MSGP) (see response to comment # 78, below). Through implementation of the Best Management Practices (BMP) Plan (see final permit Part II.) and the Storm Water Pollution Prevention Plan (required under the MSGP), Hecla must prevent or minimize the generation and the potential for the release of pollutants from the facility to the waters of the U.S. The BMP Plan covers all components of the facility (i.e., including the mill area and waste rock piles).

Comment #71 - Other sources of groundwater contamination  
(commenter 37)

The sources of contaminants at the sites, such as tailings piles, or lagoons, are discrete sources which should be considered point sources for the purpose of NPDES. The ground water at the sites is hydrologically connected to nearby surface water bodies. EPA has on several occasions (see the Preamble to the Storm water Phase 1 Final Rule, 55FR 47990, Nov. 16, 1990) stated that discharges to groundwater may fall under the requirements of the CWA where the ground water is hydrologically connected to nearby surface waters. Court decisions (including *McClellan Ecological Seepage Situation v. Weinberger*, *Washington Wilderness Coalition v. Hecla Mining Co.*, and *Friends of the coast Fork v. Turner*) also support the position that discharges to ground water that effect (are hydrologically connected to) surface waters may require an NPDES permit.

Precipitation infiltrates through the exposed metal-contaminated areas at these sites and leachate from the ponds and piles then infiltrates into ground waters that are hydrologically connected to adjacent surface waters including the South Fork. These discharges should be permitted such that the total discharge from the site (including storm water discharge and discharges to ground water) does not exceed the facility's discharge limits established in the TMDL.

Response: As discussed in response to comments #69, #70, and #72 the permit requires that seepage from the tailings ponds be studied for its occurrence and hydrologic connection to the South Fork. Information from these studies will be used to determine the need for permit conditions related to tailings pond seepage. At this time, there is not enough information to determine the need for limits or other

restrictions on the seepage.

The response to comment #70 addressed sources other than the tailings ponds. The commenter has provided EPA with no information (i.e., a name/location of a specific source) to substantiate similar investigations of seepage and hydrologic connection other than from the tailings ponds. As discussed in response to the previous comment, storm water that is not already authorized for discharge through the outfalls in the individual permit, is authorized under the MSGP.

Comment #72 - Include a hydrological analysis in the seepage study requirements (commenter 27)

A series of ground water wells would be needed to determine the extent of groundwater contamination, and a hydrological analysis to indicate whether seepage is entering the South Fork - and contaminating the river.

Response: The 2001 draft permit required that the permittee quantify seepage from the ponds by performing a water balance analysis for each tailings pond. The 2001 draft permit did not require a hydrological analysis to indicate whether seepage is entering the South Fork. EPA agrees that such an analysis is necessary in order to demonstrate that there is a hydrological connection between the seepage and the South Fork. The final permit, therefore, includes a requirement that Hecla perform a hydrological analysis to make this determination. The permit does not specify how the analysis will be performed (i.e, by the use of groundwater wells and/or modeling), to provide the permittee with the flexibility to conduct the analysis using the most cost-effective methods applicable to the site. Because this additional work was added to the permit, EPA added more time to the date that the work is due to EPA. Instead of being due 18 months from the effective date of the permit, the seepage study and hydrological analysis are due three years from the permit effective date. Part I.C. of the final permit reflects changes as a result of this comment.

Comment #73 - Specific sampling suggestions for seepage study and water balance (commenter 37)

There is a wetlands/drain that follows the toe of the Lucky Friday Pond 1 that encroaches upon the adjacent UPRR corridor. Numerous seeps from these ponds into this channel have been observed by technical personnel associated with UPRR, EPA, IDEQ, and the Coeur d'Alene

Tribe. Sampling and analyses of these seeps should be incorporated into any formal seepage analyses of these ponds. In addition, this encroachment and subsequent discharge through adjacent properties should be addressed in this permit.

We suggest ground water and concurrent surface water monitoring up and downstream of each pond or other source to be used in support of the water balance analyses. This type of monitoring will provide data that may indicate the presence of discharge(s) from these sources that may not be apparent from modeling alone.

Response: The permit requires that seepage from the tailings ponds be quantified based on monitoring and evaluation of inflows, outflows, and estimated losses. The permit does not prescribe how the inflows, outflows, and losses will be estimated. This may include sampling and analysis of the seeps mentioned in the comment and/or it may include concurrent ground water and surface water monitoring. At this point, EPA does not have enough information to dictate in the permit exactly how the water balance should be performed and we believe that is appropriate to allow the permittee the flexibility to perform the seepage study using whatever techniques are most applicable to the site. EPA will review the Seepage Study Report for adequacy and, based on that report, may require that the permittee perform specific types of monitoring.

Comment #74 - Include requirements based on seepage study results  
(commenters 27, 37)

Commenter 27: The permit discusses that a seepage analysis for the tailings ponds will be completed within 18 months. We would like more discussion of the mitigation that would be required if seepage is significant.

Commenter 37: There are no requirements for addressing seepage from these facilities should the seepage analyses confirm previous observations. As these facilities are fairly well-defined, there should be consideration of the pathway of surface water to groundwater through these facilities, and incorporation of those considerations into the permit requirements.

Response: At this time, EPA is not including mitigation of the seepage or other requirements for addressing the seepage in the permit. That is because, we are not sure of the extent of the seepage (thus the seepage study requirements in the permit) and what mitigation would be required if seepage is significant. The mitigation may include attempting to reduce the seepage or it may involve requiring that the

loading due to seepage be added to the loading from the outfall in determining compliance with the permit limits. Either of these situations would require modifying the permit, at which time discussion of mitigation measures and/or incorporation of seepage into the permit requirements would occur.

Comment #75 - Authority for requiring seepage study  
(commenter 36)

The Fact Sheet at Item B. on page 16 requires a “Seepage Study”-- We are not aware of any legal authority to require such a study and we fail to see a reasonable basis for this requirement. The cold water biota use is supported in the receiving water. Further, the construction of tailings impoundments is under the exclusive jurisdiction of the Idaho Department of Water Resources (IDWR) by authority of Idaho Code Section 42-1714. The fact of the matter is that the approved design of the tailings impoundments, and subsequent safety factors of these impoundments, is based upon a permeability of the tailings (i.e. seepage is expected). EPA's development document for the ore mining industry is the definitive source of EPA's authority and position on impoundments. Hecla, Sunshine, Bunker Hill, and ASARCO facilities were all evaluated as part of the studies supporting the development document. Seepage is specifically discussed in the “Control and Treatment Practices” section of the development document and nowhere does EPA either allege a legal authority to prescribe tailings impoundment construction or allege that seepage is not allowed from such structure in any circumstance. Even where new source performance standards (NSPS) for “new” mills (Lucky Friday is an “existing” mill) are required to meet “zero” discharge in the regulations based upon the conclusions of the development document, EPA does not mention that this includes any seepage from tailings impoundments (note that even synthetic liners have a rated permeability for seepage); therefore the “zero” discharge requirement as NSPS for mills only applies to the decant of ponded water in the impoundment to surface waters. It is appropriate to note that there is even an exclusion from the NSPS requirement of “zero” discharge for new mills in net precipitation areas. Further, Sunshine Mining Company conducted a seepage study for EPA in the summer of 1992. Results of the study submitted to EPA were no seepage impacts to the receiving water. Tailings impoundment design and operation at the Sunshine facility is no different than for any other impoundment approved by IDWR in the drainage.

Since the tailings impoundments are designed to seep there is no need to conduct a water balance study. Seepage estimates are included in the engineering reports for construction of the ponds. Even knowing the estimates of seepage, it would be technologically impossible to determine what percent of the seepage, if any, enters the surface water. Inherent inaccuracies of both flow measurement and analysis could not be conclusive. Besides, what possible difference could it make on the receiving water if a few extra gallons eventually entered surface water via seepage as

opposed to direct discharge to surface water? If this is indeed occurring, instream water quality is already accounted for in permit limit derivation calculations resulting in a reduction in load available to the outfall.

Due to the fact that the beneficial use is currently protected in the receiving water, the design and approval of impoundments is under state jurisdiction, a study could only be inconclusive, and a study conducted on a similar site showed no impact, then this provision is not necessary for the Lucky Friday permit.

Response: EPA is not intending to assert authority over IDWR's approval of the tailings impoundment by requiring a seepage study in the permit. We agree with the commenter that seepage is expected for some types of tailings impoundments. However, where there is a hydrologic connection between the seepage and adjacent surface water, then that seepage is considered a point source and therefore subject to NPDES requirements. The Lucky Friday tailings ponds are located adjacent to the South Fork and are unlined and therefore it is reasonable to assume that there is a hydrologic connection and some fraction of the tailings pond seepage will reach the adjacent stream. The purpose of the seepage study is to determine how much seepage is occurring from the ponds. EPA determined, based on response to comment #72, above, that a hydrological analysis must also be performed (to determine if the seepage enters the South Fork). If, as Hecla suggests, the amount of seepage is just a few extra gallons and that amount does not cause or contribute to exceedences of water quality standards in the South Fork, then it is unlikely that seepage monitoring or control requirements will be included in the next permit.

Hecla also states that the seepage study is not necessary since the beneficial uses are attained. There are exceedences of water quality criteria in the South Fork downstream of the tailings ponds. The NPDES regulations require that water quality-based effluent limits be established if the discharge could cause or contribute to an exceedence of a water quality standard. Therefore, EPA is requiring that the permittee gather data (through the seepage study) in order to determine whether limits or other permit conditions might be needed related to tailings pond seepage in the future.

Hecla states that the seepage study is not necessary since the results of the study would be inconclusive. EPA agrees that it is difficult to determine the quantity of seepage and what percent of the seepage enters the surface water. However, we

believe that these quantities can be estimated and should be estimated in order to determine to what extent the seepage might impact the receiving water.

The commenter states that results of the seepage study performed by the Sunshine Mining Company indicated no receiving water impacts and that tailings impoundment design and operation at the Sunshine facility is no different than that for any other impoundment approved by IDWR in the drainage. Results of the seepage study for the Sunshine tailings impoundment cannot be used to make conclusions about the Lucky Friday impoundments since the impoundments were constructed at different times, contain different amounts and types of tailings and other waste streams, and are located in different places (e.g., the ground water hydrology may be different).

Hecla did not provide information as to the extent of the tailings ponds seepage nor demonstrated that there is no hydrologic connection between the tailings pond seepage and the receiving water. Therefore, the seepage study requirement remains in the permit.

## **O. Storm Water Issues and Best Management Practices Plan**

### Comment #76 - Monitoring during storm events (commenter 27)

Heavy rainstorm or rain-or-snow events have the potential to overwhelm the tailings ponds and the permit should have a mechanism to monitor the mining sites at those times - outside of the weekly or monthly monitoring schedule. We ask EPA to develop a procedure to address these non-routine discharges for the Lucky Friday Mine.

Response: The permittee is required to comply with the effluent limits in the permit regardless of the frequency of sampling. Even during rain and snow events, the permittee must comply with the permit. In order to ensure that the limits are not violated at times other than when routine samples are taken, Part III.A. of the permit requires that the permittee collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. EPA believes that this existing permit provision addresses the commenters concern regarding non-routine discharges. The permit also requires that: the permittee must at all times properly operate and maintain all facilities and



systems and control (Part IV.E.) and that the permittee report all instances of noncompliance, including those due to bypass and upset conditions (Parts IV.F. and IV.G.). In addition, the permit requires preparation and implementation of a BMP Plan (Part II.). The BMP Plan must include a release identification and assessment, which would include the potential for releases such as those mentioned in the comment, and measures and controls appropriate for the pollutant sources identified.

Comment #77 - Include storm water in the permit  
(commenter 37)

It is not certain whether the permit includes consideration of storm water run-on and run-off from these facilities. This should be clarified; if storm water is not specifically included, EPA should consider requiring an NPDES Permit for the storm water discharges from the facility. Clearly non-point sources of metal pollution in the basin must be significantly reduced to meet the TMDL allowances and in order to meet water quality criteria in the South Fork.

Response: Some of the storm water from the site flows to tailings pond nos. 1 and 3 and is discharged through outfalls 001 and 003. The storm water that is discharged from outfalls 001 and 003 (and 002 when either of these outfalls are diverted), therefore, is covered by this individual permit. Storm water that is not discharged through the individual permit outfalls is authorized for discharge under the Multi-sector storm water general permit (MSGP). Both the individual permit and MSGP require that best management practices (BMPs) be developed and implemented to reduce the quantity and toxicity of storm water generated.

Comment #78 - Authority or need for BMP Plan requirement  
(commenter 36)

Page 16 of the Fact Sheet, item C. - states “Section 402 of the Clean Water Act and federal regulations at 40 CFR 122.44(k)(2) and (3) authorize EPA to require best management practices (BMPs) in NPDES permits.” In addition, the draft permit on page 18, item D. (Elements of the BMP Plan) states “The BMP Plan must be consistent with the objectives above and the general guidance contained in *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004, October 1993)” (underlined emphasis added). We fail to see the legal or reasonable applicability of these citations.

First, CWA Section 402(a)(1) is only generic “...to carry out the provisions of this Act”. It is

enlightening to note that the BMP guidance referenced in the draft permit contains a “BMP Regulatory History” with the sole statutory authority correctly stated as being “Section 304(e) of the CWA”. CWA Section 304(e) is specific to CWA Section 402 in that “Any applicable controls established under this subsection shall be included as a requirement for the purposes of ... any permit issued to a point source pursuant to section 402 of the Act.” Further, the guidance notes that the regulations proposed under this statutory authority “never became effective”, thus they are guidance only.

Second, the regulatory citation is a requirement only “when applicable”. The BMPs are only “applicable” when:

“(2) Numeric effluent limitations are infeasible, or (3) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of CWA.”

Neither condition applies, nor have these conditions been shown to be applicable by EPA, to the Lucky Friday. The draft permit contains “numeric effluent limitations”. No evidence has been provided by EPA that the BMPs “are reasonably necessary to achieve effluent limitations”. As detailed in general comment #1 above, the existing Lucky Friday permit already is both water quality-based and meets the CWA goal.

Third, the draft permit is attempting to mandate conditions of a guidance document as “must” conditions in the permit. This violates APA requirements as decided in the U.S. District Circuit Court of Appeals decision (*Appalachian Power*) discussed in above comments.

Fourth, the Lucky Friday is covered under EPA's multi-sector storm water permit and the BMP requirements of this storm water permit. In addition, a SPCC Plan meeting the requirements of 40 CFR 112, protects the water resources from petroleum products. These two BMP plans, already in place as required by other federal regulations, are sufficient to protect state water resources along with the existing NPDES permit limitations.

The BMP Plan is neither justified nor necessary for the Lucky Friday permit and should be deleted.

Response: Following is a response to each of Hecla's assertions:

First: As stated in the 2001 Fact Sheet, the primary authority for BMP Plan requirements is Section 402 of the CWA. Section 402(a)(1) of the CWA allows the Administrator to prescribe conditions in a permit determined necessary to carry out the provisions of the CWA. BMPs are one such condition. Section

402(a)(2) authorizes EPA to include miscellaneous requirements in permits on a case-by-case basis which are considered necessary to carry out the provisions of the CWA. Section 402(a) is not necessarily limited to developing numerical effluent limits, nor does this section of the CWA prohibit the requirement to establish BMP plans. Based upon this statutory authority, EPA promulgated regulations which provide for BMPs to be used to control or abate the discharge of pollutants when effluent limitations are infeasible or the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purpose and intent of the Act (40 CFR 122.44(k)(3) and (4)). EPA agrees that the BMP guidance cites 304(e) as a basis for establishing BMPs, but it does not cite it as the only basis. Section 1.2 of the BMP guidance generally cites Section 402 of the CWA. The guidance also cites 40 CFR 122.44(k) which authorizes the use of BMP for three scenarios. Only one of these scenarios is covered under Section 304(e).

second: EPA determined that BMPs are appropriate since the practices are reasonably necessary to achieve the effluent limitations and standards or to carry out the purposes and intent of the CWA (40 CFR 122.44(k)(4)). 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. 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 consistently included in major permits issued by Region 10 to require facilities to begin to address pollution prevention. The BMP Plan is intended to achieve the following objectives: minimize the quantity of pollutants and toxicity of effluent discharged from the facility to the extent feasible, ensure proper operation and maintenance of water management and wastewater treatment systems, and examine the facility for waste minimization opportunities. EPA believes that the BMPs developed under the BMP Plan to fulfill these objectives are reasonably necessary to achieve effluent limitations and standards and to carry out the purposes and intent of the CWA. Hecla cannot currently meet some of the effluent limits in the new permit (e.g., lead, zinc, and cadmium), BMPs are

reasonably necessary to help the permittee meet the new limits (although BMPs, alone, may not be sufficient). EPA also believes that BMPs are reasonably necessary to carry out the purposes and intent of the CWA by encouraging pollution prevention.

third: EPA intended that the BMP guidance document cited in the permit be used by the permittee for informational purposes. The guidance document, however, is non-binding, therefore the term “must” was removed from the final permit (see Part II.D.).

fourth: EPA agrees that site storm water (except for storm water that contributes to outfalls 001 and 003 as disclosed in Hecla’s permit application and supplemental information) is covered under the Multi-Sector Storm Water General Permit (MSGP). The MSGP requires the preparation of a Storm Water Pollution Prevention Plan (SWPPP). This is not the same as the BMP Plan requirements in the permit. The BMP Plan is a management plan for the entire site, not just for the storm water components of the site. Therefore, the SWPPP required of the MSGP cannot replace the BMP Plan requirements in the permit. However, Hecla may prepare one plan which addresses both the individual permit and the general permit BMP requirements. Part II.B. of the permit specifically allows that any existing BMP plans may be modified for submittal. In regards to the SPCC Plan, the permit allows that the BMP Plan may incorporate any part of the SPCC plan into the BMP Plan by reference (Part II.D.5.c.).

In summary, EPA has the authority to impose BMP Plan development and implementation requirements as an enforceable part of the permit. The requirement to develop a BMP Plan for the facility remains in the final permit.

## **P. Comments on Specific Permit Language**

Comment #79 - Changes to regulatory language  
(commenter 36)

The Fact Sheet, page 17 at section VII. D., states that “...most of sections III, IV, and V of the draft permit contain standard regulatory language. Standard regulatory language must be included in NPDES permits. Because it is based on regulations, the standard regulatory language cannot be challenged in the context of an NPDES permit action.” While we certainly do not oppose conditions applicable to all permittees as codified in the federal regulations, we do oppose any

change of wording to these regulatory conditions. We expect such regulatory language to be verbatim from the regulations at 40 CFR 122, otherwise the “cannot be challenged” language of the draft permit does not apply. Hecla commented on specific instances where the language is not verbatim in comments 80 through 90, below.

Response: The Fact Sheet correctly stated that “most” of the cited sections contained regulatory language. Some changes to the regulatory language were made for the reasons discussed in the following responses to Hecla’s specific comments. In addition, some language that is not verbatim from the NPDES regulations was included in the permit. The NPDES regulations at 40 CFR 122.43 allow for the establishment of additional permit conditions, as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the CWA and regulations. EPA agrees that language that is not verbatim from the regulations is subject to challenge. The responses below address Hecla’s comments on specific sections of the permit that are not verbatim.

Comment #80 - Permit Part III.A.  
(commenter 36)

The draft permit language at III.A. is not verbatim according to the regulations and appears to impose more stringent requirements. The situations discussed in this draft permit language are addressed adequately in the regulations with the true “boilerplate” sections of 40 CFR 122.41(j)(1) and 122.42(a)(1)&(2). Please justify why the exact regulatory language is not sufficient and that the changes are necessary.

Response: The first paragraph of Part III.A. has been revised to be verbatim from the regulations at 40 CFR 122.41(j)(1).

The second and third paragraphs of Part III.A. is not contained in the NPDES regulations cited in the comment. The language was included in this permit to ensure that any spills, bypasses, treatment plant upsets, or other non-routine events will not result in violation of the effluent limits. The third paragraph describes how such samples will be collected, analyzed, and reported. These paragraphs are included in all permits issued by Region 10 for industrial facilities. This language is necessary to ensure compliance with the CWA and compliance with the limits in the permit and is therefore authorized by 40 CFR 122.43(a) and 122.44.

Comment #81 - Permit Part III.D.

(commenter 36)

Draft permit language at III.D. includes an additional provision that “Upon request by the Director, the permittee must submit results of any other sampling regardless of the test method used.” (emphasis added) This is not “boilerplate” and is more stringent than the regulatory language at 40 CFR 122.41(l)(4)(ii). The open ended nature of “any other sampling” is alarming. This could be interpreted to mean any sampling of any media at any location for any purpose. Further, it is curious how the regulations require approved test procedures, and only such monitoring using an approved procedure is valid for permit compliance, yet the additional language added to the so-called “standard regulatory language” also includes any other monitoring “regardless of the test method used”. Please explain why the existing verbatim regulatory language is not sufficient for this permit.

Response: The second paragraph of Part III.D. cited in the comment is based on CWA Section 308 authority, which provides broad authority for the Administrator to require sampling and reporting to carry out the objective of the CWA. EPA Region 10 includes this sentence in all permits it issues so that the permittees are aware that EPA may request the submittal of any sampling results.

Comment #82 - Permit part III.F.

(commenter 36)

Draft permit language at III.F. requires records retention “of at least five years” while the regulatory language at 40 CFR 122.41(j)(2) only requires “3 years from the date of the sample, measurement, report, or application”. The “five years” contained in this regulatory citation only applies to “sewage sludge use and disposal activities”. Please explain the necessity of this change for this permit.

Response: EPA requires that records be retained for five years since this is the expiration date of the permit and EPA may need these records for use in reissuing the permit.

Comment #83 - Permit Part III.G.1.d.

(commenter 36)

Draft permit language at III.G.1.d. is not consistent with the regulatory language at 40 CFR 122.41(l)(6)(ii)(C). Draft permit language at “d.” pulls out the phrase “listed by the Director (in the permit) to be reported within 24 hours” found at 121(l)(6)(ii)(C), thus changing the meaning of this regulation. The intent of this portion of the regulations is clear; there may be certain pollutants under certain conditions that warrant such expedited reporting. These pollutants/conditions must be identified and justified in the permit. For example, the draft permit limits (to which we strongly disagree as commented on elsewhere) could be exceeded but the effluent concentration could still be less than the concentration either allowed in or existing in the receiving water! The regulatory burden of an expedited reporting of such situations clearly is not the intent of the regulations. The deleted portions of this applicable regulation must be included and appropriate pollutants/situations identified and justified as requiring “24-hour notice” in the permit as intended by the regulations.

Response: The regulatory language at 122.41(l)(6)(ii)(C) states “Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. (See 122.44(g)).” Section 122.44(g) requires that the permit list pollutants which require 24 hour reporting of maximum daily discharge limit violations and that the list shall include any toxic pollutant or hazardous substance, or any pollutant specifically identified as the method to control a toxic pollutant or hazardous substance. The 2001 draft permit did not list which pollutants require 24 hour reporting. The final permit includes a footnote to the table of effluent limits and interim limits (footnote 2 to Tables 1, 2, 3, and 4 and footnote 1 to Table 5) that identifies the pollutants that require 24 hour reporting (which are the metals since these are the toxic

pollutants) and III.G.1.d. has been revised to read: “any violation of a maximum daily discharge limitation for any of the pollutants listed in Tables 1, 2, 3, 4 and 5 of Part I.A. of the permit requiring 24-hour reporting.” These changes to the permit language are consistent with the intent of 122.41(l)(6)(ii)(C).

Comment #84 - Permit Part III.G.3.  
(commenter 36)

Draft permit language at III.G.3. adds to the regulations at 40 CFR 122.41(l)(6)(iii) by specifying a single location for receiving the “oral report”. The regulatory language at 40 CFR 122.41(l)(6)(iii) does not mandate one location/telephone number. We are concerned that a situation where this particular telephone number is either temporarily out of service or cannot be reached from our location would constitute a technical procedural problem even though an oral report could be given to another EPA contact, such as the EPA Idaho Operations Office (IOO), or even the state DEQ. These alternative contacts should also be allowed to meet the regulatory requirement.

Response: EPA agrees that the regulatory language does not mandate one location/telephone number, but neither does it prohibit one location/telephone number. The EPA Region 10 NPDES Compliance Office is the appropriate office to report non-compliance, not IDEQ or EPA IOO. IDEQ is not responsible for issuing or enforcement of this permit and EPA’s IOO does not have a 24-hour compliance hotline.

Comment #85 - Permit Part III.H.1. & 2. (the comment refers to III.H., but we believe that Part III.I. was meant)  
(commenter 36)

Draft permit language at III.H. 1. & 2. substitutes the phrase “may reasonably be expected to” for the word “will” found in the regulations at 40 CFR 122.42(a)(1) & (2). This completely changes the regulatory meaning by going from an absolute (i.e. “will”) to a hypothetical maybe. This regulatory section is not generic. It is specific to *"Existing manufacturing, commercial, mining, and silvicultural dischargers."* The permit must reflect the exact regulatory language.

Response: The phrase “may reasonably be expected to” was replaced with “will” in Part III.I.1. & 2. so that the final permit language is verbatim from the regulations.



Comment #86 - Permit Part IV.C.

(commenter 36)

Draft permit language at IV.C. is not consistent with the regulations at 40 CFR 122.41(c). The words "...the conditions of..." contained in the regulations are deleted. The permit language must be verbatim with the regulations.

Response:     The permit language was revised to be verbatim with the regulations as suggested in the comment.

Comment #87 - Permit Parts IV & V.

(commenter 36)

The draft permit, in Sections IV. & V., presumes either statutory or regulatory authority to establish dual obligations to both EPA and IDEQ. Draft permit sections IV, H. & J., and V. C., D., E., & G. all add IDEQ. Under the applicable regulations, it is clear that a permittee's obligation is to one permitting authority and not to multiple authorities. If it is EPA's intent, to include IDEQ under the assumption that Idaho will be granted NPDES primacy during the term of the permit, we would not object to IDEQ being included provided the permit language clarified EPA “or IDEQ in the event Idaho is granted NPDES primacy during the term of the permit”.

Response: In their final 401 certification, IDEQ requested that EPA require the permittee to notify IDEQ in conjunction with EPA in all areas where notification is required (see Section II.B.). Therefore, notification to IDEQ as well as EPA was retained in permit parts III.B., III.I., IV.F., IV.I., IV.J., V.C., V.D., V.E., and V.G.

Comment #88 - Permit Part V.C.

(commenter 36)

Draft permit language at V.C. changes the regulatory phrase “within a reasonable time” (40 CFR 122.41(h)) to “within the time specified in the request”. This could result in noncompliance with this permit provision without justification. For example, if a request for information is received stating a “time specified” of ten days, such information may not be available within a “reasonable time” due to employee availability and/or laboratory turnaround times. We can see no justification for the change in this regulatory requirement specific to this particular permit.

Response: The phrase “within the time specified in the request” was replaced with “within a reasonable time” as stated in the regulations.

Comment #89 - Permit Part V.H.

(commenter 36)

Draft permit section V.H. adds the following to the regulatory language of 40 CFR 122.41(g): “...nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of state or local laws or regulations”. The NPDES permit is limited to the authorities of the CWA and promulgated regulations. Any other legal requirements outside the authority of the CWA cannot be required as NPDES permit provisions. We are concerned about possible attempts to utilize a federal permit provision as an inroad to enforce other laws due to noncompliance with such a permit provision. The fact that such language does not appear in a

permit does not negate the applicability of other laws, but it does provide an avenue of potential abuse if such language is included in the permit. The permit language must repeat verbatim the regulatory provisions.

Response: The draft permit language in V.H. is from both 40 CFR 122.41(g) and 40 CFR 122.5(c). 40 CFR 122.5(c) states: “The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.” This is the same as the language that was of concern in the comment (“...nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of state or local laws or regulations). Since the phrase is consistent with 40 CFR 122.5(c), the language remains the same in the final permit.

Comment #90 - Permit Part V.J.

(commenter 36)

Draft permit language at V.J. contains the same type of concern discussed immediately above by incorporating the CWA Section 510 language. This language is not required to be contained in a permit as a potential compliance item under the permit and should be removed.

Response: The “State Laws” language is not included in the regulations. However, it is an accurate statement of law and is included in EPA Region 10 permits to clarify that the NPDES permit does not relieve the permittee of liability under state law (such as state water quality standards).

Comment #91 - General Comment on Definitions

(commenter 36)

The draft permit on page 33, section VI., contains certain definitions that are not part of either codified federal or state regulations. Any such definition that has not been subjected to regulatory APA requirements must not be included in this permit (i.e. the definition of “IC25”).

Response: There is no requirement in the NPDES regulations that definitions included in the permit must be limited to those codified in federal or state regulations. Definitions were included in the permit in order to clarify the meaning of terms according to the regulations or specific to the permit. Response to comments on specific definitions follow.

Comment #92 - Definition of Director  
(commenter 36)

The definition of "Director" in the draft permit means "the Director of the Office of Water, EPA" whereas the definition of "Director" found at 40 CFR 122.2 means "the Regional Administrator".

Response: The 40 CFR 122.2 definition is "Director means the Regional Administrator or the State Director, as the context requires, or an authorized representative. When there is no "approved State program" and there is an EPA administered program, "Director" means the Regional Administrator." The Regional Administrator of Region 10 has authorized the Director of the Office of Water as an authorized representative. Therefore, the definition in the 2001 draft permit is consistent with the regulatory definition and was not changed in the final permit.

Comment #93 - Definition of 24-hour composite  
(commenter 36)

The definition for "24-hour composite" has no regulatory definition and is, in fact, not even consistent with EPA's 1996 Permit Writer's Manual (which has no regulatory effect). The draft permit states a composite sample "must be flow proportional" whereas the Manual only requires the composite to "reflect the average water quality". This definition appears to be intended solely to support the draft permit requirement for continuous monitoring, which we do not agree with as commented on elsewhere in these comments.

Response: There is no regulatory definition of "24-hour composite". Therefore, the definition of "24-hour composite" in the 2001 draft permit was based on the definition in the Permit Application Form 2C - Wastewater Discharge Information Consolidated Permits Program (EPA Form 3510-2C, Revised February 1985). It was not verbatim from the definition in the permit form, although the meaning was the same. The definition in the final permit has been revised to be verbatim from EPA Form 3510-2C, except the term "stream" in the Form was replaced with "effluent" so that it would not be confused with river flow. An additional clause was included as the last sentence of the 2001 draft permit definition to specify how sample aliquots must be collected and stored. This is important to protect the quality of the sample and therefore will be retained in the final permit.

**Q. 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 (as well as the Fact Sheet for the 2003 revised draft permit) provides a record for the basis for changes to the draft permit to finalize the permit. EPA, has, however provided a response to specific comments on the Fact Sheet language, as follows.

Comment #94 - Use of coarse tailings

(commenter 36)

Page 6 of the Fact Sheet, second paragraph under "FACILITY ACTIVITY" - it should be noted that the "coarse tailings" are used for mine backfill on an "as needed basis".

Response: Comment noted.

Comment #95 - Composition and flow of outfall 001

(commenter 36)

Page 6 of the Fact Sheet, at "outfall 001 (1) storm water and sand plant water would also be a component of this outfall. (2) the 2.88 mgd flow did not occur during the "last 5 years". The average flows should be noted as per EPA's "LUCKY FRIDAY MINE - Pollutant reduction numbers for general communications" document dated 15 May 2001. The average flow given in this document for outfall 001 is 0.93 mgd based upon average flows from Jan. 1995-Sept. 2000.

Response: Response to (1): The constituents of outfall 001 listed in the 2001 Fact Sheet were based on the Lucky Friday NPDES Permit Supplemental Information submitted to EPA from Hecla on August 2, 1999 (letter from William B. Booth, Hecla, to Randall F. Smith, EPA). If other wastewater streams are proposed for discharge from outfall 001 (i.e., storm water and sand plant water as suggested in the comment), then EPA should be notified in a revised permit application or letter.

Response to (2): The 2.88 mgd flow occurred in February of 1996 (according to data reported by Hecla on Discharge Monitoring Reports) which is just 5 years prior to the date that the draft permit limits were developed (the limits were developed in February 2001). See response to comment #41 (Section III.J. of the Response to Comments) for more information on the outfall 001 effluent flows used to calculate the limits. EPA notes the average flows in the comment, however, average flows are not used to calculate water quality-based effluent limitations as discussed in the Fact Sheets.

Comment #96 - Composition and flow of outfall 003

(commenter 36)

Page 6 of the Fact Sheet, at “outfall 003.” - it should be clarified that 003 receives wastewater flows from numerous activities associated with the mill operations. The average discharge for outfall 003 in the EPA document mentioned above (comment #95) is 0.73 mgd and this average should be mentioned along with the range. It is also important to note that routine maintenance activities can account for flow range variations at the outfalls. For example, decants may be switched at pond 3 and water levels at the decant being activated may either be high relative to the decant opening (resulting in high outfall flows) or low. Ranges in flow volumes due to maintenance activities have nothing to do with, and should not be confused as, increased water use for mine and/or mill operation.

Response:     Comment noted.

Comment #97 - Original permit application

(commenter 36)

Page 7 of the Fact Sheet, second paragraph under III. - it should be noted that original applications were filed for the discharges in June 1971 and timely applications for renewal have occurred since that time.

Response:     The paragraph in the 2001 Fact Sheet cited in the comment concerned the permit applications and related information that is the basis for the new permit. We did not feel it important to list permit applications for previous permits.

Comment #98 - Definition of readily available technology

(commenter 36)

Page 8 of the Fact Sheet, second paragraph - we are not familiar with the term “readily available technology”. Is this intended to mean either “best practicable control technology currently available” (BPT) or “best available technology economically achievable” (BAT) covered as CWA Section 301 (b), or is this a term addressed elsewhere in the CWA?

Response:     The term “readily available technology” is not defined in the CWA. It was meant to encompass BPT and BAT in a more easily understood way for the public rather than providing the actual BPT and BAT terminology.

Comment #99 - Correction to Fact Sheet language  
(commenter 36)

Page 8, last paragraph, last sentence -there is something missing “...a compliance schedule in for these parameters...”.

Response: The word “in” should be deleted to make this a correct sentence.

Comment #100 - Fact Sheet table IDAPA references  
(commenter 36)

Page B-6 of the Fact Sheet, Table B-4, the IDAPA references in the footnotes do not contain citations accurate to the Idaho regulations, therefore we cannot comment on these portions of the draft permit.

Response: EPA reviewed the IDAPA references in Table B-4 and found they are correct.

## **R. Miscellaneous Comments**

Comment #101 - Unauthorized discharge  
(commenter 27)

We are concerned about unknown mine or storm water releases to the South Fork. There is an undisclosed release from a building on the Hecla mine site, near the confluence of Mill Creek and the South Fork. An unknown source of water was observed flowing from under a door, into a concrete runway, then into a gravel channel that flowed into the South Fork. This apparently happened at least in part to a debris flow blocking Mill Creek. Our concern is that the source of this outfall may not be exclusively the creek, and that it may have contaminants in it.

Response: The release near Mill Creek was investigated by EPA’s NPDES Compliance Unit. It appeared that the release was due to beaver dams blocking Mill Creek. EPA did not have enough information to determine that the release contained process water from the tailings pond. Hecla, in a letter dated February 1, 2002, explained the situation and how they remedied the situation (by ensuring removal of beaver dams and removal of the pumphouse and reconfiguration of piping). The new permit does not address this specific situation. However, the new permit does address unpermitted releases in general by not allowing any discharges except those authorized through outfalls 001, 002, and 003. In addition, the new permit requires preparation and implementation of a Best Management Practices (BMP)

Plan. Under the BMP Plan, Hecla must ensure proper operation and maintenance of water management and wastewater treatment systems and each facility component must be examined for its potential for causing a release of significant amounts of pollutants to waters of the U.S. EPA will continue to perform inspections of the Lucky Friday Mine for permit compliance.

Comment #102 - Bonding  
(commenter 27)

Bonding should be required to the amount needed to mitigate a reasonable occurrence of non-permitted incidents. Since closure of the mines is always a possibility sufficient bonding must be made available to ensure mine wastewater and tailings pond water does not leave the site at non-permitted levels.

Response: EPA agrees that bonding for closure or non-permitted incidents is important. However, bonding is not regulated by the NPDES permit. Performance bonds are administered by the State for mines on state land. The State of Idaho has authority for requiring bonds for surface mines under the Surface Mine Reclamation Act. However, the State has never passed legislation to address bonding of underground mines. The Idaho Department of Water Resources does administer a small bond for tailings ponds no. 2 and 3 to be used in the event of a problem with the tailings ponds.

Comment #103 - Availability of administrative record  
(commenter 36)

The administrative record for the draft NPDES permit was not available as required by federal regulations at 40 CFR 124.9. The regulations at 124.9(a) state: “The provisions of a draft permit prepared by EPA under 124.6 shall be based on the administrative record defined in this section.”

When Hecla first requested the administrative record for the Lucky Friday permit, EPA Region 10 informed us that the administrative record was not required for the draft permit. Shortly thereafter, EPA supplied to Hecla a “draft” administrative record index while indicating that documents may be either added to or deleted from this draft administrative record. Since the federal regulations require that the draft NPDES permit “shall be based on the administrative record”, and rightfully so, we are concerned about our APA rights to review all documents utilized in developing the draft NPDES permit during the comment period. We would like to point out that the EPA Region 10 personnel were extremely courteous and cooperative in both supplying the draft administrative record index and allowing our review of the draft



administrative record.

Response: Hecla is correct that the NPDES regulations require that a draft permit shall be based on the administrative record. The administrative record was available for the 2001 draft permit as acknowledged in the second paragraph of the comment (“EPA supplied Hecla a “draft” administrative record index..” and “...our review of the draft administrative record”). EPA referred to the administrative record as a “draft” since the administrative record is not “complete” until the final permit is issued (40 CFR 124.18(c)).

## **S. Comments on the TMDL**

Comment #104 - Authority for using TMDL and TMDL implementation (commenters 23, 28, 36)

Commenter 23: EPA should not enforce a TMDL that cannot adequately address non-point source loading while threatening through regulation of the permits to put these mining companies or other point sources like the municipal facilities either out of business or forced to pass the cost of compliance onto a tax base that may, in fact, already be overburdened.

Commenter 28: I do not believe there is justification nor authority to impose TMDL limitations, including load allocations in NPDES permits, until and after the Implementation Plan has been developed, reviewed, commented on, and accepted by EPA.

I believe that the State of Idaho has a great deal of discretion in how any TMDL Implementation Plan is structured. As such, the Implementation Plan should first deal with the non-point sources which contribute 95% of the load in the water of these stream segments. Only after and if we see a failure to meet designated use water quality following non-point source management actions, should the lesser point source contributors (5%) be compelled to accept more stringent TMDL driven NPDES permit limits.

Commenter 36: Page 7 of the Fact Sheet, second paragraph under IV. - our comments concerning the applicability of the TMDL to sources not located on 303(d) listed streams are found in Hecla's TMDL comments incorporated into these draft permit comments. Hecla's comments dispute any contention that a TMDL can affect sources not discharging to a listed stream segment. In addition, CWA Section 303(d) does not require either a “management plan” or any other type of “plan”. The plain language of CWA Section 303(d) only requires a “total maximum daily load” for the listed water and nothing else. The management of the water resources listed

pursuant to CWA Section 303(d) is reserved exclusively to the states by Congress at CWA Section 101(b).

Response: As discussed in Section II., above, the TMDL is not the basis for any of the effluent limits in the 2003 revised draft permit or the final permit. As discussed in comment #105, below, the TMDL was invalidated by Idaho District Court. Therefore, the above comments are not pertinent to issuing the revised permit.

Comment #105 - Effect of TMDL litigation  
(commenter 36)

The draft permit limits are partially based upon a TMDL that is subject to litigation in Idaho District Court, Case No. CV-00-5760. These permit limitations must be stayed pending resolution of the ongoing litigations.

Response: As discussed in Section II, the Idaho District Court declared the TMDL null and void on procedural grounds and therefore, EPA is not using the TMDL as a basis for the effluent limits. The State lost their appeal of the District Court's decision. Any new TMDL for the South Fork would have to be developed by the State through rulemaking, would have to incorporate the SSC, and would have to be approved by EPA before being utilized in a permit. The permit incorporating a new TMDL would be subject to public notice.

Comment #106 - Details of the TMDL  
(commenters 23, 28, 35, 36)

Commenter 23: EPA must rectify a permitting system and TMDL that can allow the agency, after some 200 million dollars have been spent on the Bunker Hill Superfund site box to remain the largest source of zinc in the South Fork that also threatens downstream areas, including Lake Coeur d'Alene.

Commenter 28: I believe that EPA errors when they refuse to split stream segment SF 271 in two sections. It is appropriate that the segment affecting the Coeur and Galena be split at Elizabeth Park. The gaging station at Elizabeth Park is long standing and well established. Historic flow measurements at Elizabeth Park are approximately 70% of that at Pinehurst. Point source dischargers above Elizabeth Park should receive 70% of the load allocated to point source dischargers rather than the 40% that is proposed. Failure by EPA to make this change in this stream segment will unfairly give point source dischargers down stream of Elizabeth Park an

unjustified larger load allocation.

46016 of the Federal Register/Vol. 64, No. 162/Monday, August 23, 1999/Proposed Rules states, “Current regulations require a waste load allocation for each existing or future point source.” 46030 states under 5 a., “The existing regulations define loading capacity as the greatest amount of loading that a water body can receive without exceeding water quality standards and a TMDL as the sum of the individual waste load allocations for existing and future point sources and the load allocation for existing and future non-point sources and for natural background. It is clear that the intent of the regulations is to provide a allocation of the load to future point sources. Since there is no provision for future point source allocations the entire TMDL logic is flawed.

Commenter 35: Section 319(1)(A) of the CWA requires states to identify waters “which without additional action to control non point sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards...” This provision shifts the focus on WQ improvements to non point BMPs rather than further point source control. The WLAs are minuscule compared to the LAs for the non point sources. The South Fork will still be far short of attaining the desired water quality.

Commenter 36: Hecla submitted their original comments on the TMDL with their comments on the 2001 draft permit (Attachment I of Hecla’s comments) in order to address any and all TMDL issues as well as any applicable technical comments related to the Lucky Friday NPDES Permit No. ID-000017-5. In addition, in the main text of their comments on the permit Hecla expressed concern with the technological feasibility and economics of the effluent limitations based upon the TMDL; discussed and criticized the report prepared for EPA titled “Technical Feasibility of Reducing Zinc, Lead, and Cadmium To Microgram per Liter Levels in Mining Wastewaters” (EPA Contract No. 68-C4-0072; work Assignments EC-3-4 and EC-4-4; See Attachment 11 of the incorporated TMDL comments); discussed the report prepared for EPA regarding the CTP, titled “Bunker Hill Mine Water Presumptive Remedy”; and also discussed EPA’s 1997 economic analysis & accompanying technical support document (Economic Analysis For the Final Water Quality Standards for Idaho - July 21, 1997) as providing some form of cost-effectiveness guidelines for a given technology and pointed out incorrect assumptions and procedures used in the Economic Analysis. Hecla concluded that: Since Congress did not intend for CWA Sec. 303(d) to negate all other provisions of the CWA, including technological and economic considerations, we believe the effluent limits based upon the TMDL are illegal and must be set aside pending resolution of issues raised in these comments.

Response: See response to comment #104, above.

## **T. Comments related to Superfund**

### Comment #107 - Superfund Issues

(commenters 6, 25, 33, 36)

Commenter 6: The EPA says they need to clean up this “Superfund” site so they can bring in industries. The industries are not coming in which means no jobs. New industries are scared to come here for fear the EPA will start fining them for the clean up.

Commenter 25: Has your “clean up” act taken into account that for decades the State used slag from the Bunker Hill on all state and local roads? The slag is in all our creeks from run off. Who OK’d the use of the mining waste by product roads in the first place?

Commenter 33: The money that is going to have to be spent upgrading the CTP to achieve these extremely aggressive limits would be better spent on cleaning up the real problem, the “hot spots”. Although we agree that the CTP is a source of contamination to the South Fork it is still, by your own admission, less than ten percent of the overall loading to the river. It seems unwise to spend this king of taxpayers money to eliminate this small piece of the pie. Wouldn’t it be more effective to clean up 90% of the problem and then move forward from there.

Commenter 36: Hecla included a summary of their comments on the Bunker Hill Central Treatment Plant (CTP).

Response: EPA acknowledges the concerns raised in these comments. The community’s ongoing concerns about Superfund cleanup have been forwarded to EPA’s Superfund Office for incorporation into future actions. The appropriate EPA contact regarding the Superfund work is Sheila Eckman at (206) 553-0455.

Decisions regarding the Bunker Hill CTP and Superfund work “outside the CTP box” are made following public comment periods. The appropriate time to comment on the CTP and other Superfund work is during the comment periods applicable to that work since changes to Superfund decisions cannot be made in the context of an NPDES permit. Therefore, EPA will not respond to specific comments related to Superfund actions in this Response to Comments document. EPA directs the commenters to the administrative record for the Superfund decisions and to Sheila Eckman at the number given above. EPA already addressed Hecla’s comments on the CTP in the Response to Comments document that was issued with the final Record of Decision.

Comment #108 - Consistency with Central Treatment Plant  
(commenters 16, 21)

Commenter 16: The commenter would like to know if the system owned and operated by EPA will be required to meet the same specifics and standards as the mines and municipal sewer systems.

Commenter 21: The commenter requested an explanation as to why the CTP will be able to discharge water with a lead concentration ten times higher than the Lucky Friday permit.

Response: Discharges from a Superfund cleanup have to comply with the substantive requirements of the NPDES regulations. Under CERCLA, permits are not required for cleanup actions conducted within a Superfund site. Because the discharge from the CTP occurs as part of a Superfund cleanup, an NPDES permit is not required. However, the limits for the CTP were developed following the same procedures used to develop limits for NPDES permits. The State water quality standards applicable to the CTP discharge and the mine discharges are the same. The standards are translated into effluent limits based on factors including river flow, hardness, background concentrations, and effluent flows. Some of the CTP limits may be higher than the Lucky Friday permit limits since the hardness of the CTP discharge is higher and the effluent flow in comparison to the receiving water flow is lower. EPA directs the commenters to the administrative record for the CTP Record of Decision.

#### **IV. COMMENTS RECEIVED ON THE 2003 REVISED DRAFT PERMIT**

Following are the comments received on the 2003 revised 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 Appendix A (Table A-2).

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. The Administrative Record files contain complete copies of each comment letter and the public hearing testimony and are available for review at EPA's Seattle office.

## **A. General Comments**

### Comment #1 - Make permits reasonable for operating mines

(commenters 1, 3, 14)

Commenter 1: We will always remain committed to reasonable regulations; however, I think the EPA has to be extremely careful that they're not imposing their likes ahead of what is absolutely necessary.

Commenter 3: For well over 100 years the Silver Valley has been home to a mining district unlike any other on earth. We are very much aware that environmental irresponsibility, although completely legal at the time, did significant damage to our valley. However, to further deny reasonable operating parameters to the only two metal mining operations left standing and in the process provide no measurable improvement to the environment does nothing to erase the errors of the past. It only serves to punish and burden the few of us that are left and very possibly to the extent that we, too, may vanish.

Commenter 14: We would urge the new permits be constructed in cooperation with the Lucky Friday, Coeur, and Galena Mines to remove unnecessary expenses and produce real and significant benefits to the overall water quality of the South Fork.

Response: The revised NPDES permits are not meant to punish the existing mining operations. Rather they are meant to ensure that limits on the discharges are stringent enough to maintain water quality standards (as required by the CWA), which is what is required for all facilities that are issued NPDES permits. The mining permits are long overdue for reissuance. The permit for the Lucky Friday Mine was last issued in 1977. Since that time, water quality standards have changed and NPDES permit requirements have been established and revised in federal regulations. A new permit needs to be issued to ensure that the discharge requirements are consistent with federal regulations and state water quality standards. Since it has been so long since the last permit was issued, many of the new conditions are more stringent than those found in the past permit. However, where allowed, EPA has also included flexibility in the permit via the use of mixing zones, compliance schedules, and flow-tiered effluent limits. EPA believes that while the final permits are compliant with the CWA, NPDES regulations, and state water quality standards, they will also allow the mines to continue to operate. See also response to comment #6, above, on the 2001 draft permit (section III.B. of the Response to Comments).

Comment #2 - Oppose permitting the mines  
(commenter 11)

I oppose the continued permitting of the North Idaho Mining district to dump, allow re-release and to poison the waters to any degree effecting those downstream. I believe the safety of waterways and the health of all exposed is in serious jeopardy. EPA has an obligation to protect this waterway and human health.

Response: The new permit for the Lucky Friday mine contains limits on the discharges that are protective of water quality standards of the South Fork. The permit requires monitoring of the discharges and the South Fork to ensure compliance with the permit limits and protection of aquatic life in the South Fork. See also response to comment #2 on the 2001 draft permit (section III.A. of the Response to Comments).

**B. Economic Considerations**

Comment #3 - Concern with cost of permit requirements  
(commenters 1, 2, 3, 4, 6, 10, 14)

These commenters expressed concern with the potentially severe economic impact of the permit on the mining industry and the community. It is unreasonable to expect that large increases in compliance costs added to current strained operating expenses will not possibly result in as dire an outcome as closures. A cessation of mining operations would have a severe financial hardship on the community. Some commenters provided details on the extent to which the mines and community would be impacted.

Response: EPA recognizes that the new permit will cost Hecla more to comply with than their current permit and that this impacts the company and concerns the community. In response, EPA has incorporated flexibility into the permit, where allowed under the CWA and NPDES regulations. For example, effluent hardness, site-specific translators, and site-specific criteria were used to calculate effluent limits for cadmium, lead, and zinc. Mixing zones and receiving water flow-based limits were allowed for copper, mercury, and silver. Five year compliance schedules were included to allow Hecla the time to come into compliance with the limits that they cannot currently meet. EPA reviewed the monitoring requirements to ensure that the type and frequency of monitoring was necessary to monitor compliance with the permit, determine the need for changes to the

limits in the next permit, and for consistency with the State's 401 certification. As discussed in response to comment #6 on the 2001 draft permit (see section III.B. of this Response to Comments), EPA is reviewing Hecla's recent modified request for a variance from the cadmium, lead, mercury, and zinc water quality standards. If EPA agrees that implementation of the limits based on these standards would result in widespread economic and social impact, then EPA will approve the variance and the Lucky Friday permit will be modified to incorporate a variance from these limits. See also response to comment #6, above, on the 2001 draft permit (section III.B. of this Response to Comments).

Comment #4 - EPA should pay for costs  
(commenter 6)

If there is a question regarding whether the NPDES permits are valid in the Superfund site, then I think the EPA can use Superfund dollars to make sure that any costs that are going to have to be attributed to compliance with regulations for wastewater or the mining industry shouldn't put the economy at further risk, but EPA should pay for it all.

Response: Discharges from the Lucky Friday Mine are due to the mining and milling activities conducted at the facility, not to a Superfund cleanup action, therefore, the discharges require an NPDES permit. The Lucky Friday discharges are a result of mining activities at the location and therefore the cost of compliance with the permit limits must be borne by the permittee, not EPA.



### **C. Health of the South Fork and Permit Impacts**

Comment #5 - The South Fork is healthy above Canyon Creek

(commenters 3, 4)

The CWA goal, fishable and swimmable waters is currently being met in the South Fork above Canyon Creek. The current discharge from the Lucky Friday Mine is protective of a healthy fishery and macroinvertebrate community, as demonstrated by numerous studies.

Response: See response to comment #7 on the 2001 draft permit (section III.C. of this Response to Comments).

Comment #6 - The permitted mine discharges have little effect on water quality

(commenters 2, 3, 4, 5, 6, 10, 14)

Commenters 2, 3, 4, 6, 14: These commenters state that the impact of the mine operations on the South Fork at the confluence of the South Fork with the North Fork is very small. Current mining operations do not compromise the goal of the CWA. Current mining operation discharges a fraction of 1 percent of the total TMDL levels contained in the South Fork at the confluence with the North Fork.

Commenter 4: EPA's own studies and admissions as summarized in EPA's Record of Decision (ROD) for the CdA Basin disclosed that the South Fork will not achieve federal cold water standards for hundreds of years under the best of circumstances. This fact does not change if the Lucky Friday and Galena Mines discharges are zero.

Commenter 5: The major source of metals pollution to the South Fork is contaminated groundwater.

Commenter 10: This commenter provided a table comparing cadmium, lead, and zinc loading from Canyon Creek, Government Gulch, the CIA seeps, Pine Creek, the Lucky Friday mine discharges, and the Coeur/Galena mine discharges. The loads from the first four sources are tremendous in comparison to the mines.

Response: EPA agrees that the contribution of metals from the Lucky Friday, Coeur, and Galena discharges is very small at the point where the South Fork meets the North Fork. This is because of the large amounts of metals that currently exist in the bed and banks of the river and the large amounts of metals entering the river from other sources. However, though their contribution is small, this does not alleviate the

mines from meeting requirements under the CWA and NPDES regulations that limits on discharges must be stringent enough to maintain water quality standards. In addition, when looking at discrete segments of the South Fork, individual sources of metals become significant; i.e., the Lucky Friday Mine may be a small source of metals in the Main Stem, but it is a significant source in the South Fork above Mullan. See also response to comment #8 on the 2001 draft permit (section III.C. of this Response to Comments).

Comment #7 - Permit should reflect benefits to the river  
(commenters 4, 14)

Commenter 4: The State of Idaho and the EPA should insist that the burden of additional measures be directly reflected in benefits to the river, and if those benefits are barely measurable on the South Fork system then the increase and control measures should reflect that reality.

Commenter 14: The present quality of water in the South Fork is predominately determined by the effectiveness of the EPA's ongoing treatments in the box. Even if the mine discharges exceeded the most stringent water quality requirements, the overall quality of the river would be only slightly improved. We do support even small gains in water quality, if the cost of the improvement is proportionate to the overall benefits.

Response: The effluent limits were developed based upon the Idaho water quality standards that are protective of aquatic life in the South Fork, including the SSC. Therefore, the limits will result in benefits to the river. The permit includes bioassessment monitoring downstream of the discharges that will be used to help determine any impacts of the permitted discharges on the South Fork.

#### **D. Water Quality Criteria Comments**

Comment #8 - Difficult to comment on two sets of limits  
(commenters 1, 2)

The revised draft permit has two sets of limits; one based on the State water quality criteria and one based on the SSC. The commenters expressed concern that it is very time consuming and difficult to analyze and prepare comments addressing the various limited scenarios that could exist in the final product. It is especially difficult to comment since the options are different by numbers of magnitude. It is not desirable to offer hypothetical comments based upon unknown effluent limits, and it should likewise be a desire for the EPA to respond to hypothetical comment. The commenters requested that the comment period be extend until 60 days after

official EPA notification of their decision on the SSC

Response: The original comment period for the 2003 revised draft permit was 50 days long. EPA recognized that it takes more time to comment on the two sets of limits in the proposed in the 2003 revised draft permit. Therefore, EPA extended the comment period by 45 days to end on April 11, 2003. EPA approved the SSC on February 28, 2003 and notified the mining companies of the approval shortly thereafter. Therefore, approximately 40 days of the comment period remained following our notification to the mining companies that the SSC was approved. EPA believes that this amount of time was sufficient to provide comments.

Comment #9 - Request approval of the site-specific criteria (SSC)  
(commenters 1, 10)

The commenters requested that EPA approve the SSC.

Response: As discussed in Section II.A., on February 28, 2003 EPA approved the SSC. The SSC are the basis for the cadmium, lead, and zinc limits in Tables 1 through 4 of the final permit.

Comment #10 - The SSC are not appropriate for the South Fork  
(commenters 8, 13)

The SSC may be the basis for the water quality standards in the permit. The commenters are concerned about this and that the SSC is not appropriate for the South Fork. The validity and protectiveness of the recently promulgated SSC requires further evaluation.

Response: EPA approved the SSC for the South Fork in February 2003. EPA believes that the SSC and effluent limits based on the SSC are protective of the uses of the South Fork, including aquatic life. See also response to comment #12 on the 2001 draft permit (section III.D., of this Response to Comments).

Comment #11 - Implement interim water quality standards based on technology  
(commenters 5, 9)

The cost of water treatment approaches infinity as the discharge limits approach zero. The maximum improvements attainable in river water quality while using finite funds requires application of the most cost-effective technology. The CWA allows for implementation of

interim water quality standards. Adoption of a technology-based interim water quality standard would relieve the burden upon the mines of these permit requirements that provide no benefits to society.

Response: A temporary or interim water quality standard can be developed if it is allowed under the state water quality standards. The State of Idaho does not have a provision in its water quality standards to allow for temporary water quality standards. Therefore, temporary water quality standards cannot be used by EPA for the South Fork.

In accordance with the State's 401 certification, EPA did incorporate interim effluent limits for cadmium, lead, zinc, and mercury that are in effect during the five year compliance schedule (note that these are interim "limits" not "standards"). These interim limits are based on the current performance of the facility (current discharge levels). See section II.B. of this Response to Comments.

Comment #12 - Specific comments related to development of the SSC (commenters 8, 13)

Commenter 8: The Idaho Conservation League (ICL) has made its concerns regarding the SSC known to the EPA via other forums and we understand that the NPDES process is not the venue that will decide to either accept or reject the SSC. However, because there is a potential that the SSC will be the basis for the water quality standards, we feel that it is important that we reiterate our concerns in these comments. ICL summarized their concerns in their comments on the permit and attached a letter that was previously sent to EPA with specific comments on the SSC.

Commenter 13: The U.S. Fish and Wildlife Service (FWS) submitted numerous comments specific to the development of the SSC and EPA approval of the SSC.

Response: Commenter 8 is correct that the NPDES process is not the process where decisions are made regarding the SSC. See response to comment #12 on the 2001 draft permit (section III.D. of the Response to Comments).

## **E. Variance Comments**

Comment #13 - Implement variance guidance

(commenter 4)

The commenter quoted extensively from the “Interim Economic Guidance for Water Quality Standards” published by EPA in 1995. The commenter stated that the State of Idaho should exercise its rights and responsibilities under this EPA policy.

Response: The Interim Economic Guidance is used by states and EPA in considering economics at various points in the process of setting or revising water quality standards. EPA is following the Interim Economic Guidance in its ongoing review of Hecla’s request for a variance from the water quality standards that are the basis for the cadmium, lead, zinc, and mercury limits in the permit. See also, response to comment #14, below.

Comment #14 - Allow for variance as previously requested

(commenter 12)

Hecla intends to keep its February 2001 variance request active. Pursuant to EPA’s February 3, 2003 letter to Hecla’s Mike Dexter, attached are several of the requested worksheets specific to the Lucky Friday Unit (Exhibit A of Hecla’s comments). In light of EPA’s approval of SSC for the South Fork and DEQ designation of the South Fork for cold water, it is not clear whether EPA or DEQ or both agencies are authorized to grant a variance and whether a longer compliance schedule will be authorized by DEQ. The factual and legal bases asserted in Hecla’s 2001 variance request are still applicable to the alternative effluent limits based on the recently approved SSC. That is, the cost of compliance may still be prohibitive and the SSC in the South Fork downstream of the discharges will not be achieved in the permit term.

In addition, Hecla lacks any level of certainty as to the ultimate effluent limits and the time to comply with those limits that will be imposed in the Lucky Friday permit. Hecla believes the possibility of Gold Book end-of-pipe limits or economically prohibitive TMDL allocations could still materialize even though EPA has approved the use of SSC. Accordingly, the permit should not be finalized until EPA and/or DEQ acts upon Hecla’s variance request.

The CWA allows for the consideration of economic impacts to the regulated community. Idaho regulations at IDAPA 58.01.02.401.05 specifically allow for exceptions to treatment requirements due to economic considerations. Costs associated with the current draft permit could increase costs associated with permit administration (monitoring, sampling, sample analysis, records) from 5 to 6 times current costs (costs were submitted as Exhibit B to Hecla’s comments). The current draft permit limits for metals, absent relief from the permit limit derivation process, could impose treatment costs as high as \$5 million for capital expenditures

(higher costs associated with a TMDL permit and less with site-specific criteria and realistic derivation of permit limits). Annual operation and maintenance costs, without considering labor, are generally 4% of the capital expenditures. At this point, only rough estimates of treatment costs can be made. Once permit limits are finalized, water management and treatment studies will be conducted. The Lucky Friday Unit realizes that even under the most optimistic permit scenario, both aggressive water management and additional treatment costs will be incurred – we merely expect such costs be reasonable and based upon realistic case-specific considerations.

EPA appears to be taking a very unreasonable look at the economics by equating the Lucky Friday Unit with Hecla Mining Company. The attached economic worksheets, requested by EPA to supplement the variance request, only address the economic situation of the Lucky Friday Unit because the economic impacts of the ultimate permit limits and conditions will be borne by the Lucky Friday Unit. These increased costs will be used to evaluate the continued operation of the Lucky Friday Unit. This is a primary reason why a variance request was initially made to EPA. A final decision to proceed with a variance from instream water quality standards cannot be made until permit limits and conditions are final, and resultant water management and treatment studies made.

The Lucky Friday Unit must be economically viable as a stand-alone operation in order to continue to operate. The increased costs due to a permit, which includes costly and unnecessary conditions given the case-specific factors, could effectively cause the cessation of operations at the Lucky Friday Unit unless reasonable relief from excessive requirements, as allowed in the permitting and regulatory process, is granted.

Response: In response to this comment, EPA sent a letter to Hecla (June 9, 2003 letter from Randall Smith, EPA, to Mike Dexter, Hecla) requesting that Hecla formally renew their request for a variance. A renewed variance request was needed since the previous request was for a variance from the lead and zinc water quality criteria that were the basis for the water quality-based limits in the 2001 draft permit and those criteria are no longer the effective criteria. The SSC for lead and zinc are currently the effective criteria. In addition, Hecla's previous correspondence and public hearing testimony stated that a variance was only needed until the SSC were approved and the SSC were approved in February 2003 (see comment #14 and response on the 2001 draft permit, Section III.E. of the Response to Comments). Hecla has since renewed their variance request. In a letter dated July 11, 2003, Hecla is now requesting a variance from the SSC for cadmium, lead, and zinc and the mercury water quality standards that are the basis for the cadmium, lead, mercury, and zinc limits in the permit. EPA is reviewing this new variance

request, including supporting information submitted by Hecla in their July 11, 2003 letter and a June 9, 2003 letter. If EPA approves the variance, then the permit will be modified to incorporate the variance. A proposed variance and modified permit would be subject to public notice prior to finalization.

The comment questioned whether EPA or IDEQ is authorized to grant a variance. The variance would be from the cold water biota use in the South Fork promulgated by EPA in a federal rule in 1997. Therefore, EPA is currently the authorizing agency for the variance until the federal rule is withdrawn. Although IDEQ adopted the cold water biota use and submitted this use to EPA for approval, EPA has yet to approve this. After EPA approves the use and withdraws the federal rule, then IDEQ will be the authorizing agency for the variance. EPA would still have to approve any variance adopted by IDEQ. In either case, EPA and IDEQ will be working closely together to review the variance request.

## **F. Compliance Schedule**

Comment #15 - Allow for 10 year compliance schedule  
(commenter 12)

A compliance schedule should address both effluent limits and monitoring (to the extent that ultimate monitoring may require researching, purchasing, installing, implementing/de-bugging newly installed monitoring equipment). It is not clear how DEQ concluded in its preliminary certification that the Lucky Friday Unit could reasonably comply with the effluent limits within three years. As noted in Hecla's variance request of 2001, Hecla can implement water recycling and water reuse programs within three years. As noted in comments 14 and 20, the Lucky Friday Unit has insufficient information to conclude when or if it can comply with the proposed effluent limits. Accordingly, the three-year compliance schedule is not appropriate as it relates to compliance with effluent limits. Since it is not known how or when the Lucky Friday Unit can reasonably comply with the proposed effluent limits, and since DEQ can authorize a compliance schedule beyond five years, pursuant to IDAPA 58.01.02.400.03., Hecla requests a ten-year compliance schedule, which could be re-evaluated when the proposed permit is renewed in five years. In addition, the compliance schedule should include the potential that DEQ authorizes a variance if the variance is not granted prior to final certification. The commitments made by Hecla in its February 2001 variance request demonstrates reasonable further progress toward reducing metals discharges to the South Fork consistent with state rule requirements and consistent with the variance granted by DEQ to other municipalities discharging to the South

Fork. See IDAPA 58.01.02.260. Given the fact that the stream is healthy at current discharge levels, and discharge levels will be reduced, we can see no reason why a ten-year compliance schedule is not appropriate. The Lucky Friday Unit will need these same time frames for studies and successful implementation of selected remedies.

Compliance schedules must also be granted in light of the economics involved in the variance request discussed above. Hecla quoted portions of the introduction of EPA's Interim Economic Guidance.

Further, the basis for EPA's 40 CFR NPDES rules, concerning compliance schedules, addressed such concerns in EPA's response to comments (45 FR 33310, c.2, May 19, 1980) as follows: "Likewise, a commenter suggested that it is unfair to require compliance as soon as possible, because this favors the company whose resources or wherewithal make it impossible to comply as soon as some other company with superior capabilities. It is important to write a compliance schedule with consideration for the type of requirement at issue and the seriousness to the environment of delay in meeting it. Again, the permitting process is the proper forum for consideration of these issues, rather than, for example, eliminating all distinctions by allowing all NPDES schedules to require compliance merely by the statutory deadline."

In conclusion, compliance schedules should address all circumstances related to the case at hand. Given the receiving water health and economic factors applicable to the Lucky Friday Unit, coupled with the time lines associated with preliminary studies through final implementation of ultimately selected water management and treatment options, a ten-year compliance schedule is warranted.

Response: The State is responsible for authorizing a compliance schedule. As discussed in Section II.B., above, IDEQ authorized a five year compliance schedule for cadmium (outfall 001 only), lead, mercury, and zinc in their final CWA Section 401 certification. The compliance schedule requirements in the certification were included in Part I.A.4. of the final permit. See also, response to comment #17 on the 2001 draft permit (section III.F. of the Response to Comments).



## **G. General Comments on Permit Limits**

Comment #16 - The current discharge is protective  
(commenter 3)

It is the intent of the Lucky Friday Mine to protect water quality. Our current operations demonstrate this fact. The current discharge is protective of a healthy fishery as demonstrated by numerous studies.

Response: After many years of work, the State adopted and EPA approved criteria that protect species that are specific to the South Fork (the SSC). Therefore, discharges that are at or below the SSC are protective of water quality and aquatic life in the South Fork. Current discharges from the Lucky Friday mine exceed the SSC, therefore effluent limits based on the SSC are necessary and included in the final permit to ensure protection of water quality in the South Fork. See also response to comment #27 on the 2001 draft permit (Section III.I. of the Response to Comments).

## **H. Specific Comments on the Permit Limits and Data used to Calculate Limits**

Comment # 17 - Use of effluent hardness is not protective  
(commenters 8, 13)

In instances where no mixing zone is proposed (lead, zinc, cadmium), EPA is utilizing the hardness values of the effluent rather than the hardness of the receiving water to calculate the effluent limits. This is inappropriate and needs to be changed. In all instances covered under the permit, the hardness of the receiving water is significantly less than the hardness of the effluent. Metals are more toxic in water with lower hardness and less toxic in water with higher hardness. EPA's inappropriate use of the high hardness effluent skews the results from the equations used to determine limits in a manner that allows for greater metals discharge. This level of metals is toxic to organisms present in the lower hardness receiving water.

Discharge limits should be based on the hardness of the receiving waters. Failure to do so creates a zone of toxicity starting at the outflow and continuing downstream until sufficient dilution has occurred. In essence this is an illegal mixing zone.

Response: Since the TMDL was no longer in effect, in the 2003 revised draft permit, EPA calculated effluent limits for cadmium, lead, and zinc based on meeting the water

quality criteria at the end-of-pipe (i.e., no mixing zone was allowed). The hardness values used to calculate the criteria is the hardness of the effluent. The hardness levels of the effluent are higher than those of the river under most river flow conditions. The 5<sup>th</sup> percentile effluent hardness is 74 mg/l CaCO<sub>3</sub> for outfall 001 and 114 mg/l CaCO<sub>3</sub> for outfall 003. The 5<sup>th</sup> percentile hardness of the South Fork varies from 22 ug/l at low flow to 74 ug/l at high flow. See Tables A-3 through A-6 of the Fact Sheet for the 2003 revised draft permit for the hardness values.

In simple terms, applying the effluent hardness-based criteria is analogous to treating the effluent discharge as if it were a tributary that has higher hardness levels than the mainstem river. Metals toxicity decreases with increased hardness. The tributary would be allowed to achieve less stringent (i.e., higher) metals criteria by virtue of its elevated hardness levels. In some situations it can be shown that as the tributary (e.g., effluent discharge) meets and mixes with the mainstem waters (e.g., South Fork) there would not be any local criteria exceedences.

While using receiving water hardness to calculate criteria end-of-pipe effluent limits, as suggested in the comment, is certainly protective, in some situations the use of effluent hardness can also be protective. That is because as the effluent mixes with the receiving water two things happen: the hardness of the receiving water in the area of mixing increases (and therefore the hardness-based water quality criteria increases) and, the concentration of the mixture decreases from the effluent concentration to the point where it is fully mixed at the receiving water concentration. In some situations, the decrease in the mixed effluent and receiving water concentration occurs at a faster rate than the decrease in hardness (and therefore the decrease in the criteria) such that the concentration in the receiving water never exceeds the criteria. The figures in Appendix C demonstrates that this is the case for cadmium, lead, and zinc in the Lucky Friday discharges.

End-of-pipe limits were also developed for copper and silver for outfall 003 and outfall 002 when the discharge is from outfall 003 for the reasons discussed in Section IV.A. of Appendix A of the 2003 Fact Sheet. Therefore, Appendix C also includes figures for copper and silver to determine if the change in criteria and hardness is matched by decreasing mixed effluent concentrations as it mixes with the softer receiving waters. The figures demonstrate that using effluent hardness for end-of-pipe criteria results in criteria being met throughout the receiving water

for copper, but not for silver.

The above discussion and figures in Appendix C demonstrate that using the effluent hardness to calculate criteria end-of-pipe limits for cadmium, lead, zinc and copper do not result in exceedences of the water quality criteria in the receiving water. This approach, therefore, is stringent enough to meet water quality standards as required by the CWA and NPDES regulations. Since there is no exceedence of the water quality criteria in the receiving waters, the use of effluent hardness is not an illegal mixing zone. In addition, IDEQ, in their final CWA 401 certification verified that the effluent hardness approach is consistent with their water quality standards (see Section II.B. of the Response to Comments). Therefore, the use of effluent hardness to calculate end-of-pipe effluent limits in the final permit for cadmium, lead, zinc, and copper (outfall 003 and outfall 002 when the discharge is from outfall 003) was retained.

The end-of-pipe effluent limits for silver for outfall 003 and outfall 002 when the discharge is from outfall 003 were not included in the final permit, since the silver figure in Appendix C showed that using the effluent hardness approach for silver could result in criteria exceedences. Therefore, the effluent limits for silver in the final permit were those calculated based upon the 25% mixing zone and hardness at the edge of that mixing zone. These limits are shown in Tables A-18 and A-19 of the Fact Sheet for the 2003 revised draft permit.

Comment #18 - Hardness values for outfall 002 where a mixing zone is proposed (commenter 8)

At various times, outfall 002 will discharge effluent from 001 or 003. When calculating limits for those metals that have proposed mixing zones (copper and silver), EPA needs to use the hardness values that are present in the receiving water at outfall 002. Currently, it appears that EPA is not using hardness values specific to 002. This needs to be changed.

Example of misuse of hardness values:

Fact Sheet Table A-4 contains limits for outfall 002 when discharging effluent from 001. For copper, when the river is at < 8.6 cfs, a hardness value of 63 is used.

Fact Sheet Table A-5 contains limits for outfall 002 when discharging effluent from 003. For copper, when the river is at < 8.6 cfs, a hardness values of 73 is used.

This lack of consistency is evident for all flow levels for both copper and silver. EPA needs to insure that the final permit utilizes 002 specific hardness values.

Response: As described in the 2003 Fact Sheet, where a mixing zone is proposed, the hardness that is used to calculate the criteria is the mixed hardness; i.e., the hardness at the edge of the mixing zone (see also the section II.B. of the Response to Comments - the CWA 401 certification addresses this issue). Since there is currently no discharge from outfall 002 and no hardness monitoring in the South Fork at the edge of the outfall 002 mixing zone, EPA had to calculate what the hardness at the edge of the mixing zone might be. The calculation was performed using an equation that accounts for the mixture of the effluent hardness and upstream South Fork hardness (see Footnote 2 of Tables A-3, A-4, and A-5). Since the hardness of the effluent from outfall 001 is different from the hardness of the outfall 003 effluent, it make sense that mixed receiving water hardness values are different depending upon which waste stream is discharged through outfall 002. The effluent limits for these two scenarios are, therefore, also different.

The permit requires monitoring of the receiving water downstream of the outfall so that actual mixed hardness values can be obtained for use in calculating criteria and limits in future permits.

Comment #19 - South Fork flow used to calculate limits for outfall 001 (commenter 12)

Pages A-14 & A-15 of the fact sheet discusses the flow analysis prepared by Brown and Caldwell for the South Fork upstream of outfall 003. The fact sheet states “Hecla did not provide a revised analysis for outfall 001, therefore the outfall 001 upstream flows are the same as used in the 2001 draft permit.” These 001 upstream flows were 7.3 cfs for the 1Q10 and 8.4 cfs for the 7Q10. The information request by EPA of 18 December 1998, replied to by Hecla on 2 August 1999 included instream flow measurements made both upstream of outfall 003 and outfall 001. Five of the ten flow measurements occurred within proposed flow tier “ $\geq 8$  to  $< 18$  cfs” applicable to outfall 003. For these actual instream flow measurements, flow upstream of outfall 001 was higher than the flow above outfall 003 by a factor of 1.7. This is understandable because five perennial tributaries enter the South Fork downstream of outfall 003 and upstream of outfall 001. These perennial tributaries include: Deadman Creek, Willow Creek (fed by Long Lake and Upper & Lower Stevens Lakes), Gold Hunter Creek, Boulder Creek (fed by an unnamed mountain lake), and Mill Creek. The flows upstream of outfall 001 should be increased

to 12.4 cfs for the 1Q10 and 14.3 cfs for the 7Q10.

Response: EPA evaluated the data submitted by Hecla referred to in the comment (August 2, 1999 letter from Hecla). Hecla monitored flow in the South Fork upstream of outfall 001 (location AB#1) and upstream of outfall 003 (location AB#3) ten times from January 1999 through May 1999. The ratio of flow upstream of outfall 001 to upstream of outfall 003 averaged 1.8. This is similar to the value of 1.7 stated in the comment. The flow ratio of 1.8 that was collected over 10 sampling events is likely more accurate than the flow ratio collected during the one sampling event that was used to calculate flow upstream of outfall 001 in the 2001 draft permit (which was carried over to the 2003 revised draft permit). Therefore, the critical flows upstream of outfall 003 were multiplied 1.8 to obtain new flows upstream of outfall 001. These calculations are shown in the following table.

<b>Calculation of New Flows for Outfall 001</b>			
Flow Parameter	Flow upstream of Outfall 003 used in the 2003 revised draft permit <sup>1</sup>	Flow upstream of Outfall 001 used in the 2003 revised draft permit <sup>1</sup>	New Flow upstream of Outfall 001 used in the final permit
1Q10, cfs	4.5	7.3	8.1
7Q10, cfs	5.2	8.4	9.4
30Q5, cfs	7.0	11	13
10 <sup>th</sup> percentile, cfs	8.0	13	14
50 <sup>th</sup> percentile, cfs	18	30	32
90 <sup>th</sup> percentile, cfs	108	176	194
<b>footnotes:</b> 1 - From Table A-10 of Fact Sheet for 2003 revised draft permit 2 - 1.8 times the flow upstream of outfall 003			

Hecla requested that the flows upstream of outfall 001 should be increased to 12.4 cfs for the 1Q10 and 14.3 cfs for the 7Q10. It is not clear how these flows were determined. Multiplying the 1Q10 and 7Q10 values above outfall 003 by 1.8 results in the flows of 8.1 cfs and 9.4 cfs as shown in the above table.

The recalculated flows upstream of outfall 001 resulted in a new set of flow tiers for outfall 001 and new upstream receiving water flows (Qu) used to calculate the effluent limits for copper, mercury, and silver. The new flow tiers and Qus are (see Table A-11 of the Fact Sheet for the 2003 revised draft permit for comparison to the previous outfall 001 flow tiers and Qus):

<b>Flow Tiers and Upstream Flows Used to Calculate Effluent Limits for Outfall 001 in the Final Permit</b>		
Flow Tier (percentile of upstream flow)	new outfall 001 flow tier, cfs	new Qu, cfs
< 10 <sup>th</sup>	< 14	8.1 (acute) 9.4 (chronic) 13 (HH criteria)

≥ 10 <sup>th</sup> to < 50 <sup>th</sup>	≥ 14 to < 32	14
≥ 50 <sup>th</sup> to < half way between the 50 <sup>th</sup> and 90 <sup>th</sup> percentiles	≥ 32 to < 113	32
≥ half way between the 50 <sup>th</sup> and 90 <sup>th</sup> percentiles to < 90 <sup>th</sup>	≥ 113 to < 194	113
≥ 90 <sup>th</sup>	≥ 194	194

The new Qus were used to recalculate the outfall 001 effluent limits for copper, mercury, and silver and the toxicity triggers in the final permit. Appendix D of this Response to Comments shows these calculations. The effluent limits for cadmium, lead, and zinc do not depend upon receiving water flow since no mixing zone was authorized for these parameters.

Comment # 20 - Effluent limit formula  
(commenter 12)

Permit changes applicable to instream flows, pursuant to comments #19 and #27, involve an integral component of the permit limit derivation process. In addition to instream flows, the effluent flow, instream concentrations, effluent concentrations, hardness, and mixing zones are all inputs into a formula to develop permit limits. Further, as indicated above, until ultimate permit limits are determined and studies conducted with plans implemented, it is unknown what these very factors, upon which limits are based, will actually be. For example, water management will reduce fresh water consumption/discharge rates, which in turn leaves more water in the stream for mixing. Lower metals in the discharge allow more allocation for downstream discharge points. Treatment, via lime addition, will increase hardness - also affecting what permit limits should be.

Permit limits simply cannot be developed now to determine future unknowns. It simply is not reasonable to subject any permittee to alleged permit violations when, using actual monitoring data, an exceedence of limits did not occur. For example, at any given flow tier in the draft permit, the limits are based upon the lowest instream flow applicable to the tier. Thus, there are virtually hundreds if not thousands of potential data sets within a tier where instream criteria are not exceeded when strict application of permit limits would indicate an exceedence and a violation of the permit. Permit limits should either be expressed as a formula (that is hardness dependent and flow weighted) or, at a minimum, allow a showing by the permittee that actual conditions do not show an exceedence even though permit limits indicate an exceedence (this could be accomplished by a simple footnote to the effluent limitation tables). Attached to the comments is an example of an EPA-approved NPDES permit where a formula is used as the permit effluent

limit (Hecla attached a copy of a permit written by the State of South Dakota that included some limits expressed as formulas).

Response: This comment requested that permit limits should either be expressed as a formula or, at a minimum, allow a showing by the permittee that actual conditions do not show an exceedence even though permit limits indicate an exceedence. In regards to the request that permit limits be expressed as a formula, see response to comment #37 on the 2001 draft permit (Section III.J. of the Response to Comments). The example of the South Dakota permit submitted by the permittee did not convince EPA to establish limits expressed as a formula. The South Dakota permit had numerical limits for three outfalls and formula limits for one storm water outfall. No rationale was provided for establishing the formula limits. For the reasons discussed in comment #37 on the 2001 draft permit, EPA did not establish formula limits in the final permit.

Changes to wastewater management may reduce the flow of the outfalls, increase or decrease South Fork flows, and change effluent hardness. As discussed in response to previous comments (for example, comment #41 on the 2001 draft permit, see section III.J.), specific information regarding any such changes is needed in order to calculate effluent limits. After Hecla has obtained such specific information, the information can be provided to EPA in an application to modify the permit. That would provide a basis for EPA to revise the effluent limits.

EPA also does not agree with Hecla's request that the permit allow a showing by the permittee that actual conditions do not show an exceedence even though permit limits indicate an exceedence. The permittee can always collect the necessary samples to make such a showing at the time that a permit limit exceedence occurs and this information can be submitted to EPA upon notification of an exceedence. EPA would use this information in their "enforcement discretion" to determine what enforcement action is warranted. However, this will not be included in the permit since the permit and regulations require that the permittee must comply with all conditions of the permit (Part IV.A. of the permit and 40 CFR 122.41(a)). If the permit includes a numerical effluent limit, then that effluent limit must be complied with.

Comment # 21 - Use of technology-based effluent limits in reasonable potential analysis (RPA) and monitoring waiver for copper and mercury (commenter 12)



The fact sheet notes that effluent limits were developed consistent with the Technical Support Document (TSD). See Fact Sheet at page 7. EPA relied upon the technology-based effluent limits (TBELs) at 40 CFR Part 440 in determining the need for copper and mercury limits. The TSD does not support the use of TBELs for projected effluent quality (PEQ) when determining reasonable potential to exceed. The TSD promotes the use of actual data to generate PEQ. If the reasonable potential evaluation shows a WQBEL is necessary, then the WQBELs are compared to TBELs. Hecla has submitted extensive data to demonstrate PEQ for mercury and copper are orders of magnitude lower than TBELs. EPA's reliance upon TBELs in this instance is therefore arbitrary. EPA should re-evaluate the RPA for copper and mercury based on actual PEQ. We are not aware of any scenario where technology-based effluent limitation guideline numbers can be used in a RPA while actual monitoring data is ignored.

Further, to the extent copper or mercury are ultimately shown not to require limits, and the conditions for the monitoring waiver contained in 40 CFR 122.44(a) are applicable, the permit should allow for the monitoring waiver of these or any other such monitored parameter. This regulatory provision was not available at the time permit applications were submitted.

Response: See response to comment #45 on the 2001 draft permit (Section III.J. of the Response to Comments) for the reasons as to why the maximum daily technology-based effluent limit was used in the reasonable potential evaluation.

The following responds to the comment that the permit should allow for the monitoring waiver for copper and mercury under 40 CFR 122.44(a). The regulations at 40 CFR 122.44(a)(2) allow the Director to authorize a discharger subject to technology-based effluent limitation guidelines in an NPDES permit to forego sampling of a pollutant with technology-based limits if the discharger has demonstrated through sampling and other technical factors that the pollutant is not present in the discharge or is present only at background levels from intake water and without any increase in the pollutant due to activities of the discharges. This provision does not apply to copper and mercury since the limits in the permit are water quality-based and not technology-based. In addition, Hecla did not provide the demonstration required in the regulations that copper and mercury are not present in the discharge or are present only at background levels from intake water. Should Hecla provide such an acceptable demonstration in a request for a permit modification or in their next permit application, then EPA will consider a monitoring waiver (but only if water quality-based limits are not needed, i.e., the limits are technology-based) at that time.

Comment #22 - TMDL for TSS

(commenter 12)

Hecla does not believe the TMDL for TSS developed for the South Fork has either a technical or legal basis. Attached to these comments and incorporated by reference are Hecla's comments to DEQ on the subject TMDL. The commenter attached comments submitted to DEQ on the TMDL (Exhibit D of comments).

Response: As discussed in the Section II.B. of the Response to Comments, the suspended solids TMDL has not been submitted to EPA or approved. Therefore, the effluent limits for TSS that were based on the suspended solids TMDL in the 2003 revised draft permit were not included in the final permit. The appropriate time to comment on the suspended solids TMDL was during the TMDL comment period. Changes to a TMDL cannot be made in the context of an NPDES permit, therefore EPA is not responding to the detailed comments on the suspended solids TMDL that were submitted as Exhibit D to Hecla's comments.

Comment #23 - Calculate site-specific translators based on RI/FS data

(commenter 12)

After comments were submitted by Hecla to EPA on the draft 2001 permit, EPA released the "Remedial Investigation Report - Coeur d'Alene Basin Remedial Investigation/Feasibility Study" (RI/FS). This RI/FS contains a compilation of extensive instream monitoring for the entire basin, with analysis of both total and dissolved metals, including the South Fork above Wallace. This EPA database should be used to calculate site-specific translators for lead, cadmium, and zinc.

Response: Initially, the translators for cadmium, lead, and zinc used in the 2003 revised draft permit were based on the translators in the TMDL for the South Fork at Wallace. These translators were used as requested by Hecla in their comments on the 2001 draft permit (see response to comment #43 on the 2001 draft permit in Section III.J., above). The TMDL translators for the South Fork at Wallace were based on data collected from the South Fork at Superfund monitoring location SF-233 which is downstream of Canyon Creek.

In response to the above comment, EPA reviewed the metals data in the RI/FS and decided that translators specific to the Lucky Friday discharge should be calculated based on data collected from monitoring station SF-220 which is located just downstream of Mullan. This location is much closer to the Lucky Friday

discharges than SF-233, that was used to calculate the TMDL translators, and is more representative of the area of impact of the discharges.

Approximately 35 total and dissolved paired samples were available for SF-220. EPA calculated a translator for each paired sample and, from this group of values, the data was normalized in order to calculate a 5<sup>th</sup> percentile value. The 5<sup>th</sup> percentile value was used in order to assure compliance with water quality standards. The translators were calculated using the same procedures as in the TMDL which is consistent with EPA's national guidance for calculating translators (EPA 1996). The new translators are: Cadmium - 1.2; Lead - 1.6; Zinc 1.2.

These translators were used to recalculate the water quality-based effluent limits for cadmium, lead, and zinc in the final permit. These effluent limit calculations are shown in Appendix D.

Comment #24 - pH Upper Limit  
(commenter 12)

The proposed pH upper limit of 9.0 s.u. is technology-based and should be water quality-based. In accordance with 40 CFR 125, subpart D, an exception to the pH limit should be authorized by EPA because it will not affect water quality and, as noted below, will result in a net improvement to water quality. *Id.* The precipitation of dissolved metals requires a pH above 9.0 s.u. With an upper permit limit of 9.0 s.u., and optimum precipitation of dissolved metals above this level, it would be necessary to add acid to reduce the pH prior to discharge. The handling of acids, both in transportation and within the operation, is not warranted when pH is rapidly dissipated instream after mixing. In fact, this effluent limitations technology-based limit, for those subcategories with dissolved metals in untreated effluent, is often above 9.0 s.u. with certain categories having pH upper limits at 10.0 s.u. (e.g. 40 CFR Part 461 for battery manufacturing has distinct subparts for lead, cadmium, and zinc with an upper pH limit of 10.0 s.u. – these categories would be treating to remove dissolved lead, zinc, and cadmium also). An upper pH of 10.0 s.u. is justified to meet water quality-based limits where metal precipitation is involved and will result in improved water quality conditions. Accordingly, EPA should authorize a pH limit of 10. s.u. (A similar request has been made to IDEQ in connection with their 401 certification.)

Response: Hecla provided a similar comment on the 2001 draft permit. See response to comment #40 on the 2001 draft permit (Section III.J. of the Response to Comments) regarding why the upper pH limit of 9.0 is retained in the final

permit.

In this comment, Hecla states that an exception to the technology-based limit of 9.0 should be made based on 40 CFR 125, subpart D. 40 CFR 125 subpart D establishes criteria and standards to be used in determining whether effluent limitations alternative to those required by effluent limitation guidelines should be imposed on a discharger because factors relating to the dischargers facilities, equipment, processes or other factors related to the discharger are fundamentally different from the factors considered by EPA in development of the effluent limitation guidelines. Changes to the effluent limitation guidelines will only be made if data specific to that discharger indicates it presents factors fundamentally different from those considered by EPA in developing the limit at issue. Any person may request a fundamentally different factors variance under 40 CFR 122.21(m)(1). 40 CFR 122.21(m)(1)(ii) requires that requests for a fundamentally different factors variance shall explain how the requirements of the applicable regulatory and /or statutory criteria have been met. In other words, Hecla must demonstrate that factors relating to the dischargers facilities, equipment, processes or other factors related to the discharger are fundamentally different from the factors considered by EPA in development of the effluent limitation guidelines for pH. Hecla has not provided such a demonstration. Therefore, the technology-based upper pH limit is retained in the final permit.

#### Comment #25 - Intake Credits

(commenter 12)

EPA contacted Hecla and informed us that certain historic records relating to the Lucky Friday Unit permit have been in the possession of the Department of Justice (DOJ) for quite some time, due to Superfund activities, and that these files had not been returned. Past information from Hecla that is now unaccounted for included monitoring for credit pollutants in the intake water. Subsequent discussions with Patricia McGrath, EPA permit writer, resulted in a mutual agreement that this issue is best left to the future, after ultimate permit limits are developed and water management and treatment are implemented. If intake credits are warranted at that time, the regulatory provisions of 40 CFR 122.62(a)(8) will be applied.

Response: See response to comment #34 on the 2001 draft permit (Section III.J. of the Response to Comments). Intake credits are not incorporated into the effluent limits in the final permit. Hecla may request a modification of the permit under 40 CFR 122.62(a)(8) for consideration of effluent limitations on a net basis under

122.45(g). If such a modification request is received, EPA will review the information in the request to determine if intake credits are warranted pursuant to 40 CFR 122.45(g).

Comment #26 - Mixing Zones should not be used  
(commenter 8)

The EPA should not grant the use of mixing zones to dilute waste. IDEQ may authorize the use of a mixing zone. The EPA does not need to approve of the use of a mixing zone should the IDEQ recommend or authorize them. We believe that the use of mixing zones causes harm by facilitating the release of additional pollutants and creating a potential barrier to fish movement.

Response: As discussed in Section II.B., IDEQ has the authority to authorize mixing zones and in their CWA Section 401 certification, IDEQ authorized mixing zones for copper, mercury, silver, and the whole effluent toxicity triggers. The state certified that the conditions in the 401 certification provide reasonable assurance that the discharges will comply with the CWA and Idaho water quality standards. Therefore, the final permit limits for copper, mercury, and silver incorporate the state-authorized mixing zones. Since the mixing zones were limited to 25% of the low flow of the South Fork, EPA does not believe that the mixing zones will create a barrier to fish movement.

Comment # 27 - Conduct reasonable potential analysis with actual monitoring data  
(commenter 12)

A mixing zone of 25% has been applied to limits for silver, copper, and mercury. The mixing zone issue is being addressed by DEQ. Per any subsequently approved mixing zone by DEQ and the comment concerning instream flows (comment #19), flows applicable to above outfall 001 should be adjusted and Hecla would again request that the RPA be conducted with actual monitoring data.

Response: The reasonable potential analysis (RPA) was based on the 25% mixing zone authorized by the state (see Section II.B.) and revised instream flows for outfall 001 (see response to comment #19 on the 2003 revised draft permit). However, the RPA utilized the maximum technology-based effluent limits for copper and mercury as discussed in response to comment #45 on the 2001 draft permit (Section III.J. of the Response to Comments).

Comment #28 - Entire South Fork being used to dilute mine effluents; a model of metal

concentrations needed  
(commenter 13)

The influence of the SSC on the South Fork metal concentrations has not been adequately evaluated or presented. The proposed discharge permits identify that no mixing zone is allowed for cadmium, lead, or zinc in effluent discharge. However, the EPA informed the USFWS (January 29, 2003) that the original SSC from Daisy Gulch to Canyon Creek did not provide for adequate dilution of effluent, and that the SSC was extended to the confluence with the North Fork to provide this adequate dilution. This suggests that the entire South Fork Basin will be used as a dilution source for the mine effluents. These conflicting statements need to be addressed and clarified. At a minimum, EPA should provide a model of metal concentrations throughout the South Fork that clearly shows the aqueous and sediment metal concentrations resulting from each effluent discharge.

Response: As discussed in Section II.A., the effluent limits for cadmium, lead, and zinc are based on the SSC. The draft and final permits do not incorporate mixing zones for cadmium, lead, and zinc. Since the SSC will be met at the end-of-the-pipe and the SSC are the effective criteria under the CWA for the South Fork, EPA does not agree that the entire South Fork is being used as a dilution source for the Lucky Friday effluent. No dilution is being allowed for cadmium, lead, and zinc.

The RI/FS for the Coeur d'Alene Basin (EPA 2001) provided extensive modeling of metals concentrations throughout the South Fork and described sources of the metals (including the effluent from the Lucky Friday Mine). It is unclear what additional modeling is requested in the comment. EPA does not believe that any additional modeling is needed, particularly since no mixing zone is being allowed for the water quality-limited parameters (cadmium, lead, and zinc). That is, it does not matter how these pollutants are diluted or partition to sediment since they meet the applicable criteria at the point of discharge and the applicable criteria are protective of uses of the South Fork.

In regards to the comment that the influence of the SSC on the South Fork metal concentrations has not been adequately evaluated or presented, see response to comment #12, above (Section IV.D. of the Response to Comments).

## **I. Monitoring**

Comment #29 - Include ambient water monitoring for cadmium, lead, and zinc

(commenter 8)

The draft permit directs that water quality monitoring samples must be analyzed for copper, mercury, silver, TSS, pH, temperature, and hardness. EPA needs to direct the permittees to analyze for cadmium, lead, and zinc too.

Response: In the past, the U.S. Geological Survey (USGS) and EPA's Superfund program monitored the South Fork in the vicinity of the Lucky Friday discharges for cadmium, lead, and zinc. The draft permits did not include receiving water monitoring for cadmium, lead, and zinc since it was assumed that this monitoring would continue. However, the USGS indicated that it is no longer monitoring this stretch of the South Fork. EPA is also no longer monitoring this area. Since information on the upstream concentrations of cadmium, lead, and zinc will be needed to potentially revise effluent limits the next time that the permit is reissued, cadmium, lead, and zinc has been added to the list receiving water monitoring parameters in Table 7 of the final permit. Table 7 also specifies method detection limits (MDLs). MDLs for cadmium, lead, and zinc are 0.1 ug/l, 5 ug/l, and 5 ug/l, respectively. These MDLs are low enough to allow detection of upstream concentrations and are less than the chronic aquatic life criteria (based on the low receiving water hardness of 25 ug/l).

#### Comment #30 - Mercury Monitoring

(commenter 12)

Throughout the entire history of EPA's superfund activities in the basin, mercury has not been identified as a concern. After tens of millions of dollars of study in the basin, particulate lead and dissolved zinc and cadmium have been the only metals of concern identified as witnessed by additional efforts on the proposed TMDL. We must point out that these tens of millions of dollars in studies were directed at trying to justify natural resource damages, and no problem relative to mercury was identified. Indeed, the mercury criteria are developed to address human health via fish consumption and any fish tissue analysis presented in the superfund studies show total mercury in fish an order of magnitude below the 0.3 mg/kg cutoff for methylmercury. Further, this superfund fish tissue data includes analysis of single target organs and whole fish, whereas the 0.3 mg/kg applies to fish tissue fillets only. A realistic reasonable potential analysis (RPA) should be conducted consistent with comments below with mercury being deleted if justified. The 1600 series mercury sampling and analysis should be waived as inapplicable in this situation due to the extensive studies already undertaken regarding natural resource damages.

Due to instream flow changes and the use of technology-based effluent limitations as projected

effluent concentrations, the RPA for mercury must be reevaluated. In addition, mercury analysis concerns appear to be at the forefront of a recent proposed rule by EPA (68 FR 11770, March 12, 2003). Time constraints do not allow a thorough investigation of this proposed rule and possible impacts to Hecla, but potentially affected members of the regulated community include industry categories that monitor for mercury to comply with NPDES permits. A majority of the additional costs associated with the administration of the proposed draft permit are due to the monitoring and analysis for mercury using the 1600 series sampling and analysis procedures. Such additional unwarranted expenses negatively affect the economic viability of the Lucky Friday Unit.

EPA-1631 requires the EPA-1669 method for sample collection to minimize contamination during the sampling process. EPA-1669 is an extremely complex, regimented and intimidating document to follow and understand. Two sampling people are required (clean hands and dirty hands) and a third person is recommended for documentation during the sampling procedure, therefore several staff members will necessarily require training for the sampling procedure. Each individual of this team will require the full set of necessary equipment. Labor and 'outfitting' costs will be significantly higher than current sampling requirements.

Numerous routes by which samples may be contaminated are documented in EPA-1669 and EPA-1631 including, metallic or metal containing sampling equipment, containers, lab ware, reagents, deionized water, and improperly stored and/or cleaned equipment. Atmospheric contamination is documented to include dirt and dust from automobile exhaust, cigarette smoke, nearby roads, bridges, wires, and poles. Lucky Friday Unit outfalls are adjacent to Interstate 90 and subject to all of these possible sample contaminants during sampling. The Lucky Friday Unit, in order to prevent potential sample contamination utilizing this method, may be required to request road closures in the area, including I-90, for several hours per sample event to minimize potential contamination of samples.

There is limited laboratory availability for mercury analysis by EPA-1631. SVL is the current laboratory used by Lucky Friday for outfall water quality analysis but they are not capable of mercury determinations by EPA-1631. Laboratories capable of mercury determinations by EPA-1631 are located in Seattle, WA and Steamboat Springs, CO. Significant cost, time and coordination by Lucky Friday staff will be required to obtain supplies, prepare sampling equipment, and ship samples to the laboratory.

To effectively monitor discharge from Outfalls 001 and 003 and to meet reporting requirements, it will be necessary for Hecla to request the fastest possible turn-around-time (TAT) from the laboratory. This fastest TAT is typically subject to a surcharge from 100 to 200% of the quoted



sample cost, therefore the \$75.00 sample will cost \$150.00 to \$225.00 per sample to meet reporting requirements.

Section 9 (Quality Assurance/Quality Control) of EPA-1669 documents minimum requirements of the QA/QC program. Minimum requirements include field sample, field blank and field replicate (or duplicate). Equipment blanks, blind QC samples, matrix spike samples and matrix spike duplicates are periodically necessary to complete the comprehensive QA/QC program. Two field samples (Outfall 001 and Outfall 003), two field blanks (Outfall 001 and Outfall 003), and one field replicate is the minimum requirement to monitor two outfalls. Using the above-determined costs (with 100% surcharge for fast TAT), analytical costs for sampling two outfalls are \$750.00 per sampling event and are significantly excessive where mercury has not been identified as a concern.

Response: As discussed in response to comment #54 on the 2001 draft permit (Section III.K. of the Response to Comments), the method detection limits (MDLs) reported by Hecla in past mercury monitoring are greater than the chronic aquatic life water quality criterion for mercury, therefore, there is no proof that mercury in the discharges do not exceed the chronic water quality criterion.

In regards to the concern about sample contamination, according to EPA guidance on the use of method 1631 for low level mercury analysis (EPA 2001), sufficient data has not been collected to demonstrate that composite sampling can collect mercury samples that are free of contamination and that do not lose mercury via volatilization. Therefore, EPA has replaced the requirement for 24-hour composite sampling for mercury with grab sampling.

Response to comment #54 on the 2001 draft permit responds to the other concerns about the justification for low level mercury analysis and the cost and availability of mercury sample analysis. Response to comment #54 discusses the ability of permittees to apply for alternative test procedures or discharge-specific MDLs. Alternative test procedures may be appropriate for the Lucky Friday discharge if Hecla documents that the problems with using the mercury test method mentioned in the comment actually occur. However, Hecla needs to submit a formal request for an alternative test method following EPA guidelines for such a request (again, see response to comment #54).

As discussed in response to comment #54, the DMR due date has been changed from the 15<sup>th</sup> of the month to the 20<sup>th</sup> of the month (see Part III.B. of the final

permit). Due to the cost of mercury sampling and analysis as provided in the above comment, the sampling frequency for mercury was reduced from weekly to twice per month (see Tables 1 through 4 of the final permit).

In addition, a compliance schedule of 5 years for mercury was authorized by IDEQ in their CWA 401 certification and included in the permit. This will allow Hecla time to determine whether or not to apply for and, if needed, gather the information to apply for an alternative mercury test procedure.

Comment #31 - Need for composite sampling  
(commenter 12)

We are still at a loss as to why composite sampling is being proposed and we still believe this is not justified. The only additional insight to this issue is at 40 CFR 122.21(g)(7). While this section specifically addresses sampling for permit application purposes, composites are required unless impoundments have a retention time in excess of 24 hours. Hecla's tailings impoundment for outfall 001 is smaller than the tailings impoundment for outfall 003 by a factor of approximately three. Pond water volume for pond 1 (outfall 001) is conservatively estimated at 3,100,000 gallons with an average discharge rate in 2002 of approximately 614,000 gpd. Therefore, it would take over 120 hours to totally drain the pond if inflows were shut off. It should be noted that future water management will result in decreased flows, resulting in even greater pond retention. Grab samples are justified for the Lucky Friday Unit permit.

Response: See response to comment #56 on the 2001 draft permit (section III.K. of the Response to Comments) for the rationale as to why composite sampling is being required. The above comment provided pond water volumes and discharge rates from pond no. 1, however, this information does not prove that the retention time of the pond is greater than 24 hours. It is possible that the pond is not fully mixed, such that plug flow could occur at high or low flows or pond volumes. If, in an application for a permit modification, Hecla provides a technical analysis of mixing in the pond and/or sampling over a sufficient number of 24 hour periods to demonstrate that the retention times are greater than 24 hours under all flow and discharge conditions, then EPA could consider modifying the permit to replace composite sampling with grab sampling.

**J. Whole Effluent Toxicity (WET) Testing Conditions**

Comment #32 - Species subject to WET testing  
(commenters 8, 13)

The commenters were concerned that WET testing was not being conducted using native fish. The draft permit requires the permittee to conduct tests with the water flea (a planktonic crustacean) and the fathead minnow, both of which are not native to the South Fork. The SSC dismissed the applicability of planktonic crustaceans and non-native fish species. WET testing should be conducted with salmonids, since native fish are what the SSC was designed to protect, and cutthroat trout were designated as the most sensitive species.

Response: The permit does not require WET testing with native fish, such as trout, since there are no EPA-approved methods (40 CFR 136) for chronic WET testing of trout. Permittees cannot use WET testing of non-EPA approved species for permit compliance. See response to comment #61 on the 2001 draft permit (section III.L. of the Response to Comments) which discussed the basis for using standard laboratory species as surrogates. Permittees may request the use of alternate species following procedures in 40 CFR 136.4.

Comment #33 - Definition of most sensitive species  
(commenter 8)

The statement “after this screening period, monitoring shall be conducted using the most sensitive species” needs to be clarified so that it is clear whether EPA means the more sensitive of the water fleas vs. fathead minnow or (and more appropriately) the most sensitive species found in the river which I think would appropriately be the sculpin.

Response: The statement regarding the most sensitive species, means the most sensitive species of those used in the WET testing; i.e., the most sensitive of the fathead minnow or the water flea. EPA believes that the permit is clear in this respect since the permit requires WET testing of only those two species.

Comment #34 - Test dilutions should be the same as those that occur at the time of sampling  
(commenter 12)

Pursuant to the instream flow comments above, if WET testing is ultimately justified (which we believe it is not as set forth below, in comments 35-37 and in Hecla’s 2001 draft permit comments), dilutions must be adjusted to reflect actual conditions at the time of sampling.

Response: The permit requires that WET tests be conducted at five dilutions that bracket the

dilution corresponding to the WET toxicity trigger. One of the test dilutions may be the dilution reflective of conditions at the actual time of sampling, however, one of the test dilutions must also be the dilution corresponding to the toxicity trigger. This dilution associated with the toxicity trigger is called the receiving water concentration (RWC). It is the results of the RWC test dilution corresponding to the toxicity trigger that must be compared to the trigger to determine whether or not the trigger is exceeded. The toxicity triggers were calculated based on the critical receiving water and effluent flow conditions and the state authorized mixing zone (see Section II.B. of the Response to Comments). WET monitoring results must be compared to these triggers to ensure that water quality is protected during critical conditions, even if the sample that is tested is not collected during a critical flow condition. Since WET monitoring occurs only quarterly, use of the actual dilution may not be representative of critical low flow conditions and the critical dilution. Therefore, the RWCs (the dilutions associated with the chronic toxicity triggers) and toxicity triggers were not revised to allow them to reflect actual conditions. However, the permittee can report the actual dilution for comparison. See also response to comment #35, below.

Comment #35 - Make permit consistent with the recent WET testing rule (commenter 12)

A final rule on WET testing was published on 19 November 2002 (67 FR 69952). This final rule supercedes both guidance applied to the draft permit and guidance potentially applicable to the draft permit. For example, the draft permit requires specific dilution series, but these are not required in the final rule. In addition, the final rule has revised sample collection and holding times.

Response: The final rule mentioned in the comment ratified several test procedures for WET and revised some portions of some of the WET test methods. The changes to the chronic WET test methods are incorporated into the fourth edition of the chronic WET testing manual, *Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA 821-R-02-013, October 2002 (“the chronic methods manual”). The WET testing requirements in the 2003 revised draft permit referred to the earlier (July 1994) edition of the chronic methods manual. The permit references to the third edition of the manual have been replaced with references to the fourth edition (see Parts I.B.1.d., I.B.3.b., and I.B.6.c. of the final permit).

EPA reviewed other parts of the WET testing permit requirements and found that they are not inconsistent with the new chronic methods manual or the November 2002 rule. The example provided in the comment is that the draft permit requires a specific dilution series, but these are not required in the final rule. The chronic methods manual requires that tests consist of a control and a minimum of five effluent concentrations. The permit requires five test dilutions and a control (see permit Part I.B.3.a.). The chronic methods manual recommends the use of a particular dilution series, then goes on to state that test concentrations should be selected independently for each test based on the objective of the study, the expected range of toxicity, the receiving water concentration, and any available historical testing information on the effluent. The chronic methods manual then refers to *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)*, EPA 821-B-00-004, July 2000, for guidance on choosing appropriate test concentrations. This guidance recommends that the dilution series include the receiving water concentration (RWC) and bracket the RWC. The 2003 revised draft permit required that the dilution series include the RWC; two dilutions above the RWC; and two dilutions below the RWC. The use of the RWC as a test concentration is important since the RWC is the concentration associated with the chronic toxicity trigger. Use of the RWC and bracketing the RWC is important to allow the most precise determination of effect concentrations around the RWC and will aid in the determination of a valid concentration-response relationship.

Therefore, even though the November 2002 final rule and chronic WET methods manual does not require a specific dilution series, we believe that it is appropriate for the dilution series to include the RWC and that the other test concentrations bracket the RWC as recommended in EPA guidance (EPA 2000). However, it is not necessary to specify that the bracketing consist of two dilutions above the RWC and two dilutions below the RWC as stated in the 2003 revised draft permit. If the RWC is very low, for example, only one dilution between the RWC and the control may be appropriate. Therefore, this sentence was revised in the final permit to read “The series must include the receiving water concentration (RWC), which is the dilution associated with the chronic toxicity trigger, and test dilutions which bracket the RWC.” (see Part I.B.3.a. of the final permit).

Comment #36 - WET testing not justified  
(commenter 12)

Hecla expressed the following concerns related to the need for WET testing:

(1) We still have serious concerns regarding the blanket approach EPA appears to be taking in applying the requirements of 40 CFR 122.44(d)(1). The intent of this regulation, as clarified in the 2 June 1989 Federal Register (54 FR 23871-72) is limited to situations where “controls on individual pollutants do not adequately protect water quality”. The tens of millions of dollars of studies on the basin have clearly identified lead, zinc, and cadmium as the limiting pollutants and EPA’s recent approval of site-specific criteria for these constituents reaffirms that the criteria is protective. In so far as EPA is requiring compliance with the site-specific criteria at the point of discharge, there is no justification for WET testing.

(2) Further, the intent of this regulation is to implement EPA’s National Policy on Water Quality-Based Permit Limitations for Toxic Pollutants (49 FR 9016-9019, 9 March 1984). This policy indicates anything but an all-inclusive applicability. The policy states the following: “Where there is a significant likelihood of toxic effects to biota in the receiving water, EPA and the States may impose permit limits on effluent toxicity and may require an NPDES permittee to conduct a toxicity reduction evaluation.” (49 FR 9017, c.2, emphasis added). EPA is not adhering to this policy in their interpretation of this regulatory provision. In situations where additional treatment will be added to a facility, the policy further indicates that testing will be required after the treatment upgrades have been met (49 FR 9018, c.2) yet the draft permit imposes biomonitoring immediately.

(3) Once again, we must turn to the existing health of the receiving water at current levels of discharge and seriously question the permit conditions of both WET testing and macroinvertebrate surveys – these conditions simply are not justified on either a scientific or legal basis. Neither the state nor federal regulations have a translator for a state’s narrative criteria to be expressed as WET limits – only guidance is available. Fact sheets for both the 2001 and 2003 draft permits only mention EPA guidance documents as the basis for the WET testing. The Federal Register notice explaining the intent of 40 CFR 122.44(d)(1), specifically addresses the use of guidance documents in the very definition of WET as follows: “Although EPA has developed protocols and guidance documents for performing toxicity tests, it would be inappropriate to incorporate these documents into the definition because these protocols are recommended procedures, not mandatory procedures. (54 FR 23871, c.2)” Until narrative criteria translators have been subjected to valid administrative act procedure requirements, WET testing cannot be mandated as a permit condition.

Response: response to (1): WET testing is still required even though the effluent limits are based on meeting the cadmium, lead, and zinc water SSC at the end-of-pipe. See response to comments #57 and #63 on the 2001 draft permit for the rationale

behind the need for WET testing and why WET testing is needed even though a SSC is available (Section III.L. of this Response to Comments).

The regulations do allow for not including WET limits and testing “where the permitting authority demonstrates in the fact sheet or statement of basis of the NPDES permit...that chemical-specific limits for the effluent are sufficient to attain and maintain applicable numeric and narrative State water quality standards.” (See 40 CFR 122.44(d)(1)(v)). Neither the fact sheets for the 2001 draft permit or the 2003 revised draft permit contained such a demonstration. To make this determination, the TSD (Section 3.3.7) recommends that the discharger conduct a toxicity identification evaluation (TIE) to identify the causative agent(s) in the effluent. Hecla has not submitted a TIE to support this comment. Because the specific toxicants that would contribute to the WET of the discharge have not been identified, it is unknown if the chemical-specific limits themselves will control WET. For example, reagents used in the flotation process are not subject to chemical-specific limits and may contribute to WET.

response to (2): EPA agrees with the policy citation in quotation, i.e., where there is a significant likelihood of toxic effects to biota in the receiving water, EPA and the States may impose permit limits on effluent toxicity and may require an NPDES permittee to conduct a toxicity reduction evaluation. As discussed in the Fact Sheet supporting the 2001 draft permit, adequate WET testing data did not exist in order to determine if effluent limits are needed. At this point, EPA does not know if there is a significant likelihood of toxic effects and therefore whether or not permit limits on effluent toxicity are needed. WET testing is required in the permit in order to make this determination. The permit did include toxicity triggers that if exceeded could result in conduct of a TRE.

The comment quotes a portion of the FR stating that testing will be required after treatment upgrades have been met. Hecla has submitted to EPA no information regarding when treatment upgrades will occur. Even if upgrades do occur, WET testing is required in the interim to determine if the effluent may be causing toxicity.

response to (3): See response to comments #63 and #64 on the 2001 draft permit (Section III.L. of this Response to Comments) in response to the concern for the need for WET testing and bioassessment monitoring given the existing health of the receiving water. See response to comment #58 on the 2001 draft permit in

response to the concern with how the state's narrative criteria was used as a basis for WET testing in the permit.

Comment #37 - Acute vs. chronic WET testing and mixing zones  
(commenter 12)

Even if we were to agree to limited WET testing, chronic testing, as proposed in the draft permit, would not be agreeable. The chronic testing is extremely subjective, measuring growth and reproduction of non-resident organisms – this is not reasonable in this situation.

By the very nature of a WET test, it is measuring conditions within a mixing zone. A “mixing zone” is defined in Idaho regulations at IDAPA 58.01.02.002.60 as follows: “A defined area or volume of the receiving water surrounding or adjacent to a wastewater discharge where the receiving water, as a result of the discharge, may not meet all applicable water quality criteria or standards.”

The mixing zone, therefore, does not have to meet either chronic or acute criteria and yet the most restrictive and subjective WET testing (i.e. chronic) is being proposed! EPA's Water Quality Standards Handbook (Second Edition, August 1994), which is guidance only, indicates that a mixing zone is approvable provided freedom from “materials in concentrations that will cause acutely toxic conditions to aquatic life” (page 5-5, emphasis added).

Acute testing, after implementation of ultimate water management and treatment, expressed via true discharge volumes and receiving water flows, would be more valid, although not indicative of real world conditions instream. Since macroinvertebrate surveys do show real world conditions, a limited number of sample events, such as once/year for defined period of years after implementation of water management and treatment implementation, would be valid from a scientific basis, if justified. Idaho regulations at IDAPA 58.01.02.210.04 allow for the use of WET **or** instream benthic assessments, not both. We are further concerned that there still may be unresolved litigation issues surrounding the use of WET testing. WET testing should be dropped and a defined number of macroinvertebrate tests used once justification is established.

Response: This comment suggests using acute WET testing instead of chronic testing. EPA included chronic WET testing in the permit since the TSD recommends that chronic toxicity tests be conducted if the dilution of the effluent falls below 100:1 at the edge of the mixing zone (EPA 1991a). The rationale for this recommendation is that chronic toxicity has been observed in some effluents down to the 1 percent effect concentration. There is a potential for acute toxicity within



this dilution range, although this is less likely. Since the dilution of the Lucky Friday effluents falls below 100:1 at the edge of the mixing zone (see Table 6 of the final permit), chronic toxicity testing was retained in the permit.

The comment cites IDAPA 58.01.02.210.04 as allowing for the use of WET **or** instream benthic assessments, but not both. This part of the Idaho water quality standards refers to the development of toxic substance criteria. The regulations use the term “or”, but do not specifically prohibit that both bioassessment and toxicity tests could be used to develop criteria. Regardless, the WET testing and bioassessment monitoring in this permit is not being used to develop toxic substance criteria so these regulations are not applicable. In their 401 certification, the state required bioassessment monitoring and authorized a 25% mixing zone for calculating toxicity triggers for WET testing. Response to comments on the 2001 draft permit responded to the concern regarding requiring both WET testing and bioassessment monitoring (see section III.L. of the Response to Comments).

In regards to the concern that criteria do not have to be met within a mixing zone, EPA agrees. The state authorized a 25% mixing zone for calculating the toxicity triggers. Therefore, higher amounts of toxicity may be discharged before triggering additional toxicity testing or a toxicity reduction evaluation, than would be allowed with no mixing zone.

See response to WET comments on the 2001 draft permit (section III.L. of the Response to Comments) in response to the concerns about the variability of WET tests and the use of non-native organisms. See response to the previous comment regarding delaying WET tests until after implementation of ultimate wastewater management and treatment.

## **K. Seepage Study Requirements**

Comment #38 - Seepage study requirements are not legally or technically justified (commenter 12)

In September 2002, EPA released a Record of Decision (ROD) addressing the Coeur d’Alene River Basin. Significant studies within the South Fork in the area of the Lucky Friday demonstrate that water quality is protected. EPA’s contractor, URS Greiner, extensively studied the Coeur d’Alene Basin, including the upper reaches of the South Fork, under the Superfund program. See Record of Decision for the Bunker Hill Mining and Metallurgical Complex

Operable Unit 3, September 2002 and supporting studies hereby incorporated by reference. The surface water quality data reviewed and gathered by URS Greiner during this study show that the applicable water quality standards are being met in the vicinity of the tailings impoundments at the Lucky Friday Unit. The ROD does not mention any aspect of operations at the Lucky Friday Unit that requires any action whatsoever.

The stated justification for the seepage study is “to determine if there is unmonitored discharges” to the South Fork. The EPA rules do not authorize this type of study. It is clear under the Clean Water Act that EPA may only regulate point sources, which discharge to waters of the United States. There is insufficient evidence in the record to support a finding that the tailings ponds are discharging to the South Fork, except at permitted outfalls. See *American Iron & Steel Institute v. EPA*, 115 F.3d 979,996 (D.C. Cir. 1997)(Effluent limits set on internal waste streams are not justified and the CWA “does not permit this sort of meddling inside a facility”). Internal waste stream monitoring is authorized under EPA rules only when “effluent limitations or standards imposed at the point of discharge are impractical or infeasible.” (40 CFR 122.45(i)). There is no showing that the limits imposed in the permit to protect water quality in the South Fork are impractical or infeasible to protect water quality.

The more stringent effluent limits imposed in the draft permit will only further improve water quality. Further, even if Hecla were to undertake the proposed seepage study the results of any such analysis would not in any way quantify alleged “unmonitored discharges” to the South Fork.

For the above reasons the proposed permit condition that requires a seepage study is not legally or technically justified. Therefore, including this condition in the final permit would constitute arbitrary and capricious agency action.

Response: See response to comment #75 on the 2001 draft permit (section III.N. of the Response to Comments).

## **L. Best Management Practices Plan**

Comment #39 - EPA did not justify need for BMP Plan (commenter 12)

Since Hecla filed comments on the 2001 draft permit, and research was conducted for comments on the current 2003 draft permit, the regulatory basis for numerous newly proposed permit conditions were evaluated. We believe these reviews of past federal register notices, which provide the intent of the regulations, only strengthen our position that EPA has failed to justify

new conditions as required by the regulations. For example, the original intent for the best management practices (BMP) plan was for situations where such a plan "...may be required in permits where numeric effluent limitations are infeasible, or where reasonably necessary to achieve effluent limitations and standards." (44 FR 32864, c.1)

As expressed in earlier comments, the millions of dollars in studies in the basin clearly show that dissolved zinc, particulate lead, and dissolved cadmium are the pollutants of concern. These parameters are limited in the Lucky Friday Unit NPDES permit with numeric limitations. These metals are contained in the ore we mine and mill, with the objective of mining being to locate, mine, and mill the highest concentrations of metals in the ore (products of silver, lead, and zinc). The very nature of mining is in direct opposition to the intent of a BMP plan and is not applicable to the Lucky Friday Unit. Such permit additions that are not justified in this situation serve to dilute valuable personnel resources. It appears that EPA now approaches all permits in a manner that all newly proposed conditions apply to all permits and justification is not required. Such an interpretation changes the regulatory meaning, thus violates the APA.

Response: As discussed in response to comment #78 on the 2001 draft permit, EPA determined that BMPs are appropriate since the practices are reasonably necessary to achieve the effluent limitations and standards or to carry out the purposes and intent of the CWA (40 CFR 122.44(k)(4)). See comment #78 on the 2001 draft permit (section III.O. of the Response to Comments) for a detailed response.

## **M. Comments on Specific Permit Language**

Comment #40 - Permit Cover Sheet  
(commenter 12)

The cover sheet of the revised draft permit should clarify that the mailing address in Mullan is not for Hecla Mining Company. This is the mailing address for the Lucky Friday Unit.

Response: The correction to the cover page is made in the final permit.

## **N. 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 (as well as the Fact Sheet for the 2003 revised draft permit) provides a record for the basis for changes to the draft permit to finalize the permit. EPA, has, however provided a response to specific comments on the Fact Sheet language, as follows.

Comment #41 - Table 2 (page 12) and Table 3 (page 13) typographical errors  
(commenter 8)

These tables have incorrect units in the Cadmium “maximum daily limit” cell under “Revised Draft Permit Loads - based on Site-specific Criteria.” I believe that the ug/l should be in lbs/day.

Response: The commenter is correct, some of the cadmium limits were expressed as ug/l, instead of lbs/day in the 2003 Fact Sheet. The effluent limit tables in the 2003 revised draft permit contained the correct units.

Comment #42 - Table A-7 error  
(commenter 8)

Table A-7 has an error in the footnote numbering. There is a number 5 footnote in the table, but there is no #5 in the footnote section.

Response: Footnote 5 was inadvertently left out of Table A-7. Footnote 5 should read “For parameters with technology-based effluent limitation guidelines (cadmium, copper, lead, mercury, and zinc), the RPM is not needed since the maximum daily technology-based effluent limit is used as the maximum projected effluent concentration. For silver, the RPM is based on the CV and the number of samples.”

## **O. Miscellaneous Comments**

Comment #43 - State should be more involved in the permitting process

(commenter 3, 4, 6)

We request that the State of Idaho insert themselves into the process and come to the aid of their constituents here in Shoshone County. Our plea to the State is to help us because it's the right thing to do. The State of Idaho and those elected to represent us have the ability and the responsibility to bring considerable change and reasonableness to the NPDES permitting process, and they can exercise this ability without compromising our environment. It's time they did so.

Response: The State of Idaho has had ample opportunity to comment on the permits. The state IDEQ submitted comments on the 2001 draft permit and the 2003 revised draft permit. As discussed in Section II.B., the State provided EPA with a final 401 certification of the permit; the conditions of which were incorporated into the permit.

Comment #44 - No permit may be issued that covers all three outfalls

(commenter 8)

40 CFR 122.4(i) states in part: "No permit may be issued to a new source or new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards." Hecla is currently operating without a valid permit for at least one of its three outfalls. Thus, pursuant to 40 CFR 122.4(i), EPA cannot grant an NPDES permit that covers all three of the outfalls at the Lucky Friday Mine/Mill. The South Fork is not currently in compliance with water quality standards (i.e., WQS are currently being violated) and no antidegradation review has been completed to determine whether the new discharge will contribute to the violation of WQSs. As a result, no permit may be issued if it covers all three outfalls.

It is also arguable that, because Hecla is currently operating without a valid NPDES permit for any of its three outfalls, no permit whatsoever can be granted. EPA needs to investigate this matter and determine if Hecla actually has a valid NPDES permit. If Hecla does not have a permit then EPA needs to order that Hecla stop all releases.

Response: The Lucky Friday Mine is not a new source since the construction of the facility occurred before promulgation of applicable standards of performance under section 306 of the CWA (see the definition of new source in 40 CFR 122.2). The Lucky Friday Mine is also not a new discharger since they did commence

discharges at the site before August 13, 1979 (see the definition of new discharger and site in 40 CFR 122.2). Therefore, the cited portion of 40 CFR 122.4(i) does not apply to the facility. Furthermore, the permit as written requires compliance with state water quality standards, therefore, the discharge will not “cause or contribute to the violation of water quality standards.”

In regards to the comment that no antidegradation review has been completed to determine whether the new discharge will contribute to a violation of water quality standards, both the Fact Sheet for the 2001 draft permit (Section VIII.D.) and the Fact Sheet for the 2003 revised draft permit (Section VI.) discussed antidegradation. The 2003 Fact Sheet concluded that the discharges will not result in degradation of the receiving water since the water quality-based effluent limits are based on compliance with state water quality standards and the water quality-based effluent limits are more stringent than those in Hecla’s previous permit. The effluent limits for the three outfalls (two existing outfalls and one new outfall) were developed to ensure that the discharges will not contribute to violation of water quality standards. This is documented in the Fact Sheet discussions of the development of the water quality-based limits. The development of water quality-based limits took into consideration background receiving water conditions.

The commenter is also concerned that Hecla is currently operating without a valid NPDES permit and therefore, no permit whatsoever can be granted. Issues associated with Hecla’s past permit, might be an issue for an enforcement action, but are not pertinent to issuance of this permit. The final permit meets the requirements of the CWA and NPDES regulations and is stringent as necessary to meet water quality standards, therefore, it is appropriate to issue a permit to the Lucky Friday facility.

Comment #45 - Availability of the Administrative Record  
(commenter 12)

The administrative record for the draft NPDES permit was not available as required by the federal regulations at 40 CFR 124.9. These regulations state:

“The provisions of a draft permit prepared by EPA under 124.6 shall be based on the administrative record defined in this section.” We are concerned that certain items for the 2001 draft permit are no longer in the administrative record and that the administrative record for the 2003 permit is a “draft”.

Response: Hecla did not state which specific items for the 2001 draft permit are no longer in the record for the 2003 permit. We cannot respond to this comment without more information regarding which items the commenter is concerned about. The administrative records for the 2001 draft permit and the 2003 revised draft permit are referred to as “draft” only because the administrative record is not “complete” until the final permit is issued (40 CFR 124.18(c)). See also response to comment #103 on the 2001 draft permit (section III.R. of the Response to Comments).

Comment #46 - Model sediment loading  
(commenter 13)

Lead loading into sediment has not been adequately evaluated. Lead loading and contaminated sediment transport is a primary concern identified in the CdA Basin ROD. The discharge permit and supporting documentation (Fact Sheet) identifies that the mines would be allowed to discharge pounds of lead per day. EPA has told the Service that most of the lead discharged by the mines would partition to the sediment, and that EPA has assumed that the sediment (i.e., lead in sediment) would not be transported downstream. The discharge permit proposals should include a model of sediment loading and transport throughout the CdA Basin.

Response: The effluent limits for lead in the permit are based upon meeting the applicable water quality criteria for lead at the end of the pipe. The water quality criteria for lead are expressed as dissolved. The lead criteria were converted to total using translators developed based upon the ratio of dissolved to total lead downstream of the discharge (see response to comment #23 on the 2003 revised draft permit, section IV.H. of this Response to Comments). Since the lead effluent limits are based upon meeting criteria at the end of the pipe and the criteria are protective of aquatic life in the South Fork, EPA sees no reason to require the permittee to model sediment loading due to the Lucky Friday discharge.

As discussed in response to comment #28 on the 2003 revised draft permit (see Section IV.H.), extensive modeling of sediment loading and transport throughout the CWA Basin has already been conducted in the RI/FS. Modeling sediment loading and transport throughout the CdA Basin is beyond the scope of the Lucky Friday permit.

In addition, we do not recall telling the Service that sediment would not be transported downstream.

Comment #47 - ESA issues  
(commenter 13)

The proposed discharge limits from the Lucky Friday, Coeur, and Galena Mines, under the SSC limits, would allow much higher lead and zinc to be discharged compared to what would be allowable under statewide WQS. The allowable discharge under SSC will likely result in adverse effects to, and impair the ecological recovery of, the South Fork with respect to native species including sculpin, cutthroat trout, and bull trout. As a federal agency responsible for approving/regulating water quality standards, EPA has a responsibility under section 7(a)(2) of



the Endangered Species Act (ESA) to ensure that such standards do not jeopardize listed species or result in the destruction or adverse modification of critical habitat. In addition, under section 7(a)(1) of the ESA, EPA also has the responsibility to ensure that such standards provide for the conservation of listed species, such as bull trout.

Response: Per the ESA, EPA is consulting with the U.S. Fish and Wildlife Service (FWS) on our approval of the SSC for the South Fork. EPA prepared a draft Biological Assessment (BA) which was sent to the FWS. In the draft BA, EPA determined that approval of the SSC would not likely result in an adverse effect to bull trout. EPA did not evaluate the potential for impacts to sculpin or cutthroat trout since these are not listed threatened or endangered species. However, we approved the SSC because we felt that it was protective of the species in the South Fork, including sculpin and trout.

EPA made a separate determination under the ESA that issuance of the Lucky Friday Mine permit will have no effect on the bull trout. This determination was based on the following factors:

- Bull trout do not exist in the South Fork.
- The Lucky Friday Mine discharges are located 25 miles above the confluence with the Main Stem where bull trout may occur.
- The contribution of the Lucky Friday Mine discharges are insignificant (less than 1% of the metals load) compared to other sources at the point of confluence with the Main Stem such that their contribution to any adverse effect to bull trout that may be occurring at the confluence is negligible and would be immeasurable.

## **P. Comments on the TMDL**

Comment #48 - Status of the TMDL is unknown  
(commenter 6)

There is an unknown factor here for the mining industry having to meet the requirements in both the NPDES and the TMDL, and I think that the State of Idaho should help resolve that.

Response: The mining industry does not have to meet the requirements in the TMDL. This was made clear in the Fact Sheet for the 2003 revised draft permit. The effluent limits in the final permit are based upon the SSC not the TMDL. See also response to comment #105 on the 2001 draft permit (section III.S.).

## **Q. Superfund Issues**

Comment #49 - Equity between Superfund Requirements and NPDES requirements (commenters 2, 5, 6, 9, 10)

The commenters expressed concern that EPA's actions and requirements under Superfund are different than those under NPDES permitting (including different cleanup goals) and that this is unfair. The commenters brought up the following examples/issues:

Commenter 2: If you use the EPA's requirements for Lucky Friday and back those into the water in the South Fork and North Fork where it mixes you'll find that around a tenth of 1% for lead and around 23/100ths of 1 percent is what they are allowed to put out. And then you look at what the EPA allows, to come out of the seeps at the Bunker Hill site. And we're talking two different EPAs.

Commenter 5: I believe that conflicts between the Superfund cleanup process and the water quality enforcement process is the major impediment to real improvement of water quality in the South Fork. The EPA is planning to do an evaluation of water treatment alternatives. I recommend the EPA Water Quality Division contact the people that are doing this water quality alternative and discuss what can be done if you change standards (by adopting an interim technology-based water quality standards - see comment #11 on the 2003 revised draft permit ) and look at more reasonable ways to reduce the metal in the river.

Commenter 6: Superfund does not require the need for permitted discharges. If this whole region is a Superfund site, then why should the mining industry have to put up with some questionable NPDES permit at the same time that the TMDL is unresolved? It is questionable whether the NPDES permits are valid in a Superfund site.

A letter from EPA's Superfund office indicates that EPA hopes to complete the CTP upgrade over the next few years. Meanwhile people hope that NPDES permits won't put them out of business.

Commenter 9: Your imposing these strict limits on the mines while ignoring the transgression of the Superfund Section of EPA is an abdication of your duty to protect water quality and a gross injustice to the people of the Silver Valley. The commenter attached documents related to the CIA seeps. The commenter expressed concern that EPA is managing the CIA seeps differently from what is required of the NPDES permitted discharges.

I believe because of the Federal Facilities Section of the CWA (Section 1323), the Superfund managers of the CTP should be submitting NPDES reports to the Water Quality Division. Have they been doing that? Has the CTP discharge been meeting the discharge limits? If not, will the Water Quality Division fine them \$25,000 per day for violations? If the CTP were the responsibility of Hecla or Coeur Silver Valley, what would be the action of EPA Region 10 Water Quality Division?

Superfund is violating the substantive requirements of the CWA, probably because of lack of funding. The money spent last summer for additional monitoring wells could have constructed the interception wells and the pipeline to capture the seep for treatment. High level EPA Superfund policy restricts funding for water treatment to the point they are skimping on lime and having additional water to treat just makes the problem worse. EPA Superfund needs to relax the prohibition on water treatment funding.

Adoption of an Interim water quality standard allowing for discharge from a simple lime precipitation water treatment plan during the time the groundwater must be pumped and treated, would allow EPA Superfund to legally do this.

Commenter 10: The loading from the Bunker Seeps and Canyon Creek are tremendous in comparison to the mines. One gets more bang for the buck in attempting to remediate the seeps and Canyon Creek, than the mines.

Response: EPA agrees that it is important for there to be equity between the Superfund cleanup actions and the NPDES actions. Discharges from Superfund cleanup actions are required to meet the substantive requirements of the CWA and NPDES regulations. The NPDES program reviews the Superfund decisions to ensure that this occurs. For example, the NPDES program assisted the Superfund program in developing discharge limits for the CTP following the same procedures used to develop effluent limits for NPDES permits (see comment #108 on the 2001 draft permit, Section III.T. of the Response to Comments). A difference between an NPDES permit and the Superfund actions, is that an NPDES permit requires compliance with effluent limits based on water quality standards immediately or within the term of a compliance schedule included in a permit (e.g., within five years), whereas Superfund actions may take more time to implement and discharges from cleanup actions may take more time to meet water quality standards. This is because Superfund actions generally cover a widespread area, range of pollution sources, and more complicated cleanup efforts which means that the cleanup actions are prioritized and cleanup goals (e.g. water quality

standards) might not be met within the near term. This is true in the Coeur d'Alene Basin where EPA's Superfund program first focused on the greatest sources of risk to human health (by doing yard cleanups) and discrete sources of high levels of pollutants to the South Fork (the Bunker Hill CTP and the CIA). At the same time the NPDES program is meeting its obligations under the CWA to issue NPDES permits.

The communities ongoing concerns about Superfund cleanup have been forwarded to EPA's Superfund program for their consideration in future cleanup actions. Commenters should contact Sheila Eckman at (206) 553-0455 regarding Superfund issues. See also response to comment #107 on the 2001 draft permit (see section III.T. of the Response to Comments).

In regards to the concern that the permitted mine discharges are a small source compared to the other sources of contamination in the entire South Fork, EPA agrees. However, the mines are significant sources in the area where they discharge and they contribute to the exceedences of water quality standards in the South Fork. The CWA does not allow for not requiring a discharge to meet water quality standards due to the discharge's significance. See also response to comment #8 on the 2001 draft permit (section III.C. of the Response to Comments) and comment #6 on the 2003 revised draft permit (section IV.C. of the Response to Comments).

In regards to the questions about the CTP. The Superfund program does not send monitoring reports to the Office of Water nor would the CTP be fined for violations, since the CTP is not covered by an NPDES permit (see response to comment #108 on the 2001 draft permit, section III.T. of the Response to Comments). However, the Superfund program is obligated to take actions (such as the planned upgrade to the CTP) to investigate the cause of exceedences and fix the problem.

Comment #50 - Specific questions related to the CIA Seep  
(commenters 7, 9)

Commenter 7: The mining companies are a private enterprise that are regulated by EPA on some of the discharges. I understand that the CIA is probably not going to meet the current standards or future standards. They're (EPA) in the process right now of deeding this property over to a private enterprise. Is this a ploy by the EPA and the State to pass this responsibility on to

another private enterprise and force them to come up with the cost to clean up this water?

Commenter 9: The commenter submitted numerous documents regarding the CIA seeps. The commenter then asked the following specific questions:

Is EPA Superfund monitoring the seep? If they are does the data show a flow reduction comparable to that shown by the drain down model shown on the page flagged in the March 20, 1996 Bunker Hill Seepage Collection Memorandum by CH2M Hill? If not, how many years do they intend to continue discharging before they abate the pollution?

Response: EPA Superfund is monitoring the CIA seep. The data is showing reduced levels of flow and concentration. Because of these reduced levels, EPA Superfund has not yet decided whether or not to treat the seep or wait to see if the recently completed cap will result in a complete reduction of the seeps flow. Detailed comments and questions regarding the CIA seep should be addressed to Sheila Eckman of EPA's Superfund program at the phone number in the previous response.

Comment #51 - Analytical procedures for measuring soil concentrations  
(commenter 11)

The commenter had concerns with the analytical procedures used to measure concentrations of lead, arsenic, cadmium, etc. in the soil. If they used standard EPA analytical procedures, I suspect that they are substantially underestimating the actual concentrations. Normal background lead concentrations are 20 to 50 mg/kg. I find the 1000 mg/kg or even the 500 mg/kg levels disturbing. One heavy flood is all that it will take to wash away much of the clean soil that has been used to replace contaminated surface material.

Response: This comment apparently refers to Superfund actions or proposed Superfund actions on the Coeur d'Alene River and Spokane River. These actions are not the subject of the comment period on the revised draft mine permits. This comment has been forwarded to EPA's Superfund program. EPA directs the commenters to the administrative record for the Superfund decisions and to Sheila Eckman at the above phone number.

## APPENDIX A - LISTS OF COMMENTERS

<b>Table A-1: List of Commenters on the 2001 Draft NPDES Permit for the Lucky Friday Mine</b>			
<b>Commenter #</b>	<b>Name/Org.</b>	<b>Date Comments Received</b>	<b>See Response to Comments 2001 Draft Permit Comment No. (section III.)</b>
1	Daniel A. Rix, letter dated 4/2/01	4/4/01	1
2	James C. Berry, letter dated 4/11/01	4/16/01	10
3	Michael Oberndorf, chairman, Coalition for Land Use and the Environment, undated letter	4/20/02	6, 26
4	Edward A. Peterson, undated letter	5/2/01	6
5	Wendy M. Lamphere, undated letter	5/8/01	4, 6, 7, 26
6	Judy Ludwick, letter dated 5/6/01	5/9/01	6, 19, 26, 107
7	D.F. Zabel, CLU, Phoenix Home Life Mutual Insurance Company, letter dated 5/7/01	5/10/01	6, 26
8	Rose Zeija, letter dated 5/8/01	5/14/01	26
9	Ray Yount, letter dated, 5/10/01	5/15/01	4, 6, 7
10	Kathy Zanetti, Facilitator, Shoshone Natural Resources Coalition (SNRC), letter dated 5/14/01	5/17/01	6, 18
11	Ken Bright, undated letter	5/23/01	6
12	Jon Cantamessa, Shoshone County Commissioner, oral testimony at public hearing	6/5/01	3, 6, 11, 14, 17, 22, 23
13	Bill Booth, Hecla Mining Company (Hecla), oral and written testimony at public hearing	6/5/01	3, 4, 7, 11, 14
14	Tim Arnold, Hecla, oral and written testimony at public hearing	6/5/01	3, 7, 11, 14, 17, 23
15	Rex Hendrickson, Hecla, oral testimony at public hearing	6/5/01	11, 21, 29

**Table A-1: List of Commenters on the 2001 Draft NPDES Permit for the Lucky Friday Mine**

Commenter #	Name/Org.	Date Comments Received	See Response to Comments 2001 Draft Permit Comment No. (section III.)
16	Joe Peat, oral testimony at public hearing	6/5/01	4, 18, 108
17	Robin Stanley, Mullan School District #352, oral testimony at public hearing	6/5/01	6
18	Connie Fudge, oral and written testimony at public hearing	6/5/01	3, 6, 11, 20
19	Randy Anderson, Hecla, oral testimony at public hearing	6/5/01	11, 14, 24, 29
20	Earl Castleberry, oral testimony at public hearing	6/5/01	11, 14
21	Tom Fudge, oral testimony at public hearing	6/5/01	31, 108
22	Ken Chambers, oral testimony at public hearing	6/5/01	6, 7, 11, 24
23	Bret Bowers, Community Leaders for EPA Accountability Now (CLEAN), oral testimony at public hearing	6/5/01	7, 7, 11, 14, 22, 104, 106
24	Kathy Zanetti, facilitator, SNRC, oral testimony at public hearing	6/5/01	11
25	Joan Herrick, written comment at public hearing	6/5/01	30, 107
26	Berniece Rife, letter dated 6/5/01	6/5/01	6
27	Mike Peterson, The Lands Council, letter dated 6/5/2801	7/9/01	5, 9, 10, 12, 13, 23, 24, 25, 50, 51, 72, 74, 76, 101, 102
28	John L. Allen, letter dated 6/29/01	7/9/01	69, 104, 106
29	Warren S. Peterson and Ruby S. Peterson, letter dated 7/9/01	7/12/01	2
30	Lisa D. Millard, letter dated 7/12/01	7/13/01	6, 8, 11, 14, 17
31	Janet G. Voltolini, letter dated 7/12/01	7/13/01	6, 8, 11, 14, 17

**Table A-1: List of Commenters on the 2001 Draft NPDES Permit for the Lucky Friday Mine**

Commenter #	Name/Org.	Date Comments Received	See Response to Comments 2001 Draft Permit Comment No. (section III.)
32	Harry D. Voltolini, letter dated 7/12/01	7/13/01	6, 8, 11, 14, 17
33	Kathy Zanetti, facilitator, SNRC, letter dated 7/24/01	8/3/01	11, 14, 17, 47, 52, 57, 107
34	Betty deSimas, letter dated 7/31/01	8/3/01	3, 6, 7, 26
35	Ross Stout, District Manager, South Fork Coeur d'Alene River Sewer District, letter dated 8/1/01	8/3/01	6, 8, 11, 106
36	Tim Arnold, Lucky Friday Unit Manager and Dave Holland, Environmental Engineer, Hecla, letter dated 8/2/01	8/6/01	11, 14, 16, 27, 28, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 53, 54, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 75, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 103, 104, 105, 106, 107
37	Phillip Cernera, Coeur d'Alene Tribe, letter dated 8/8/01	8/16/01	10, 15, 17, 32, 49, 70, 71, 73, 74, 77

**Table A-2: List of Commenters on the 2003 Revised Draft NPDES Permit for the Lucky Friday Mine**

Commenter #	Name/Org.	Date Comments Received	See Response to Comments 2003 Revised Draft Permit Comment No. (section IV.)
1	Harry Cougher, Coeur Silver Valley, Inc., oral testimony at public hearing	2/6/03	1, 3, 8, 9
2	Bill Calhoun, oral testimony at public hearing	2/6/03	3, 6, 8, 49



**Table A-2: List of Commenters on the 2003 Revised Draft NPDES Permit for the Lucky Friday Mine**

Commenter #	Name/Org.	Date Comments Received	See Response to Comments 2003 Revised Draft Permit Comment No. (section IV.)
3	Mike Dexter, Hecla Mining Company , oral and written testimony at public hearing	2/6/03	1, 3, 5, 6, 8, 16, 43
4	Connie Fudge, oral and written testimony at public hearing	2/6/03	3, 5, 6, 7, 13, 43
5	W.C. Rust, oral testimony at public hearing	2/6/03	6, 11, 49
6	Bret Bowers, oral testimony at public hearing	2/6/03	3, 4, 6, 43, 48, 50
7	unidentified speaker, oral testimony at public hearing	2/6/03	50
8	Justin Hayes, Idaho Conservation League, letter dated 2/11/03	2/13/03	10, 12, 17, 18, 26, 29, 32, 33, 41, 42, 44
9	W.C. Rust, letter dated 2/16/03	2/20/03	49, 50
10	Noel D. Logar, letter dated 4/7/03	4/10/03	3, 6, 9, 49, 50
11	Tina Paddock, email dated 4/11/03 and undated letter received 4/14/03	4/11/03	2, 51
12	Mike Dexter, Lucky Friday Unit Manager, and Tom Fudge, Hecla Mining Company , faxed letter dated 4/11/03 and letter received via mail on 4/14/03	4/11/03	14, 15, 19, 20, 21, 22, 23, 24, 25, 27, 30, 31, 34, 35, 36, 37, 38, 39, 40, 45
13	Susan B. Martin, Supervisor, U.S. Fish and Wildlife Service, Upper Columbia Fish and Wildlife Office, faxed letter dated 4/11/03	4/11/03	10, 12, 17, 28, 32, 46, 47
14	Jon Cantamessa, Chairman, Jim Vergobbi, Commissioner, and Sherry Krulitz, Commissioner, letter dated 4/8/03	4/14/03	1, 3, 6, 7

**APPENDIX B**  
**SUMMARY OF CHANGES FROM THE 2001 DRAFT PERMIT**  
**TO THE FINAL PERMIT**

The following tables summarize the changes between the 2001 draft permit to the 2003 revised draft permit (Table B-1) and from the 2003 revised draft permit to the final permit (Table B-2).

<b>Table B-1: Changes From the 2001 Draft Permit to the 2003 Revised Draft Permit</b>		
Cause for Change in the Permit	2003 Revised Draft Permit Part	Summary of Change from the 2001 Draft Permit to the 2003 Revised Draft Permit <sup>1</sup>
State court invalidation of the TMDL; State adoption of the SSC; Comment #11 on the 2001 draft permit	I.A., Tables 1 through 4	Effluent limits for Cd, Pb, and Zn are no longer based on the TMDL. Instead, two sets of effluent limits for were developed. One set was based on the SSC and the other set was based on the current Idaho water quality criteria.
Comment #31 on the 2001 draft permit	I.A., Tables 1 through 4	The criteria end-of-pipe effluent limits for cadmium, lead, and zinc were calculated using the effluent hardness.
Comment #32 on the 2001 draft permit	I.A.	The restriction on the use of outfall 001 and 003 when either is diverted through outfall 002 (that outfall 001 cannot be used at the same time as outfall 002 if the outfall 001 discharge is diverted to outfall 002; and same for diversion and restriction on outfall 003) was removed from the permit.
Comment #33 on the 2001 draft permit	I.A., Tables 2 and 3 I.B., Table 5	Two new sets of effluent limits were developed for outfall 002 reflective of the receiving water flow upstream of outfall 002. Chronic toxicity triggers and WET test receiving water concentrations were developed specifically for outfall 002.
Comment #35 on the 2001 draft permit	I.A., Tables 1 through 4	Site-specific CVs were used to calculate the effluent limits for cadmium, lead, zinc, copper, and silver.

<b>Table B-1: Changes From the 2001 Draft Permit to the 2003 Revised Draft Permit</b>		
Cause for Change in the Permit	2003 Revised Draft Permit Part	Summary of Change from the 2001 Draft Permit to the 2003 Revised Draft Permit <sup>1</sup>
Comment #42 on the 2001 draft permit	I.A., Tables 1 and 4	New upstream data for copper and silver were used to calculate the effluent limits.
Comment #43 on the 2001 draft permit	I.A., Tables 1 through 4	The translators for cadmium, lead, and zinc developed in the TMDL were used to calculate the effluent limits.
Comment #46 on the 2001 draft permit	I.A. Table 4 I.B. Table 5	Revised receiving water flow upstream of outfall 003 was used to calculate the effluent limits, chronic toxicity triggers, and WET test receiving water concentrations for outfall 003.
New effluent data collected since development of the 2001 draft permit	I.A., Tables 1 through 4 I.B. Table 5	Revised effluent flow data for outfall 001, revised CVs, and reasonable potential multipliers were used to calculate the effluent limits and chronic toxicity triggers.
IDEQ pre-certification of the 2003 revised draft permit	I.A.4.	Interim compliance schedule requirements for cadmium, lead, mercury, and zinc were added. A compliance schedule end date of three years from permit issuance date was added.
IDEQ pre-certification of the 2003 revised draft permit	I.A., Tables 1 through 4	Effluent limits were calculated for an additional flow tier halfway between the 50 <sup>th</sup> and 90 <sup>th</sup> percentile flow tiers.
IDEQ pre-certification of the 2003 revised draft permit	I.D.3.	Annual instream bioassessment monitoring requirements were included in the permit.
Draft suspended solids TMDL prepared by IDEQ	I.A., Tables 1 through 4	Loading limits for TSS were added for each outfall based upon the suspended solids TMDL.
footnote 1: The Fact Sheet accompanying the 2003 Revised Draft Permit describes the changes from the 2001 draft permit to the 2003 revised draft permit in detail.		

<b>Table B-2: Changes From the 2003 Revised Draft Permit to the Final Permit</b>		
Cause for Change in the Permit	Final Permit Part	Summary of Change from the 2003 Revised Draft Permit to the Final Permit <sup>1</sup>
Comment #40 on the 2003 revised draft permit	Cover Page	Lucky Friday Mine was added to the address on the cover page.
EPA approval of the SSC; Comment #9 on the 2003 revised draft permit; Comment #11 on the 2001 draft permit	I.A., Tables 1 through 4	The effluent limits for cadmium, lead, and zinc are based on the SSC.
Comment #17 on the 2003 revised draft permit	I.A., Tables 3 and 4	The effluent limits for silver are based on a 25% mixing zone and hardness at the edge of that mixing zone.
Comment #19 on the 2003 revised draft permit	I.A., Table 1	The effluent limits for outfall 001 for copper, mercury, and silver were recalculated for revised receiving water flow tiers.
EPA has not received the suspended solids TMDL for review and approval; Comment #22 on the 2003 revised draft permit	I.A. Tables 1 through 4	The loading limits for TSS based upon the suspended solids TMDL were removed from the permit
Comment #23 on the 2003 revised draft permit	I.A. Tables 1 through 4	The effluent limits for cadmium, lead, and zinc were calculated based on new translators developed from RI/FS data.
Comment #30 on the 2003 revised draft permit; Comment #54 on the 2001 draft permit	I.A. Tables 1 through 4	Effluent mercury monitoring was changed from weekly to twice per month and the requirement to collect 24-hour composite samples was replaced with grab samples.

<b>Table B-2: Changes From the 2003 Revised Draft Permit to the Final Permit</b>		
Cause for Change in the Permit	Final Permit Part	Summary of Change from the 2003 Revised Draft Permit to the Final Permit <sup>1</sup>
IDEQ 401 certification; Comment #17 on the 2001 draft permit; Comment #15 on the 2003 revised draft permit	I.A.4.a. through e.	The compliance schedule end date was changed from 3 years following permit issuance to 5 years from the effective date of the permit. Some of the specific wording of the compliance schedule requirements were revised to be consistent with the 401 certification. Interim effluent limits were added at Part I.A.4.e.
Comment #19 on the 2003 revised draft permit	I.B. Table 6	The chronic toxicity triggers and receiving water concentrations for outfall 001 were recalculated for the revised receiving water flow tiers.
Comment #35 on the 2003 revised draft permit	I.B.1.d. I.B.3.b. I.B.6.c.	The reference to the chronic toxicity testing manual has been changed from the third edition to the fourth edition.
Comment #35 on the 2003 revised draft permit	I.B.3.a.	The dilution series was revised to no longer require that two dilutions above the RWC and two dilutions below the RWC be tested, but simply that test concentrations include and bracket the RWC.
Comment #72 on the 2001 draft permit	I.C.	Added requirements to perform a hydrological analysis to the original seepage study requirements. Changed report due date from 18 months of the effective date of the permit to 3 years from the effective date of the permit.
Comment #29 on the 2003 revised draft permit	I.D.2., Table 7	Receiving water monitoring for cadmium, lead, and zinc and associated method detection limits have been added to Table 7.
IDEQ 401 certification	I.D.3. and 5.	Some of the wording for the bioassessment monitoring requirements was revised to be consistent with the 401 certification. Additional items related to the bioassessment monitoring were added to the list of what the annual ambient monitoring report must include.
Clarify permit language and delete duplicative permit requirements.	I.E.2. and I.E.3.	Permit language at I.E.2. was clarified to require the most recent editions of EPA's QA guidance and provide the Internet locations of the guidance. Part I.E.3. was removed since part I.E.2. already requires that the QAP be prepared as specified in the guidance documents and the guidance documents specify the information contained in part I.E.3.

<b>Table B-2: Changes From the 2003 Revised Draft Permit to the Final Permit</b>		
Cause for Change in the Permit	Final Permit Part	Summary of Change from the 2003 Revised Draft Permit to the Final Permit <sup>1</sup>
Comment #78 on the 2001 draft permit	II.D.	The permit no longer requires that the BMP Plan must be consistent with the BMP Guidance, rather, the BMP Plan should be consistent with the Guidance.
Comment #80 on the 2001 draft permit	III.A.	The first paragraph of the permit language was revised to be verbatim from the regulatory language.
Comment #30 on the 2003 revised draft permit Comment #54 on the 2001 draft permit	III.B.	Changed DMR due date from the 15 <sup>th</sup> of the month to the 20 <sup>th</sup> of the month.
Comment #83 on the 2001 draft permit	III.G.1.d. I.A. Tables 1 through 5	The permit language was revised to consistent with the intent of the regulatory language. The permit language was revised to list (via reference to Tables 1 through 5) the pollutants which require 24-hour reporting of maximum daily discharge limit violations. Footnotes were added to Tables 1 through 5 for limits where violations require 24-hour reporting.
Comment #85 on the 2001 draft permit	III.I.1. and III.I.2.	The permit language was revised to be verbatim from the regulatory language.
Comment #86 on the 2001 draft permit	IV.C.	The permit language was revised to be verbatim from the regulatory language.
Comment #88 on the 2001 draft permit	V.C.	The permit language was revised to be verbatim from the regulatory language.
Comment #93 on the 2001 draft permit	VI. Definition #20	The first and second sentences of the definition of "24-hour composite" were revised to be consistent with the definition in EPA Application Form 3510-2C.
footnote 1: This Response to Comments document describes the changes from the 2003 revised draft permit to the final permit in detail.		

## APPENDIX C

## RESPONSE TO COMMENT #17 ON THE 2003 REVISED DRAFT PERMIT

The following supports EPA's response to comment #17 on the 2003 revised draft permit. Comment #17 was that the use of effluent hardness in calculating criteria end-of-pipe effluent limits is not protective of water quality criteria. See section IV.H. of the Response to Comments.

This appendix presents five figures (one for each, cadmium, lead, zinc, copper, and silver) that plot the dissolved pollutant concentration versus hardness. Each of the figures includes a curve and a straight line. The solid curve on the figures represents how the pollutant criterion that was used to develop the effluent limit varies with hardness. The straight (dashed) line shows the change in the hardness and the change in the pollutant concentration in the receiving water as an effluent with a hardness of 120 mg/l  $\text{CaCO}_3$  (which is greater than the hardnesses of outfall 001 and 003) mixes with a receiving water at a 25 mg/l  $\text{CaCO}_3$  hardness (e.g., the South Fork at high flow). As long as the straight line representing the mixed effluent/receiving water concentrations lies below the criteria curve (i.e., receiving water concentrations are always below criteria), then we can say that as the effluent discharges to and mixes with the South Fork there is never an exceedence of the criteria. If this is the case, then the use of effluent hardness to calculate the effluent limit is protective. If the straight line representing the mixed effluent/receiving water concentrations is above the criteria curve, then the use of effluent hardness is not protective since there could be exceedences of the criteria as the effluent mixes with the receiving water.

Following is a summary of the results of each figure.

Cadmium: The effluent limits for cadmium are based on the chronic site-specific criterion (SSC) for cadmium. Figure C-1, below, shows two curves. The solid curve represents how the chronic cadmium SSC varies with hardness. The straight (dashed) line shows the change in the hardness and cadmium concentration in the receiving water as the effluent mixes with the receiving water. The straight line representing the mixed cadmium concentration is always below (less than) the chronic criteria, therefore, as the effluent discharges to and mixes with the receiving water there is never an exceedence of the criteria. Therefore, the use of effluent hardness to calculate the cadmium limits is protective of the cadmium water quality criteria.

Lead: The effluent limits for lead are based on the chronic SSC for lead. Figure C-2, below, shows two curves. The solid curve represents how the chronic lead SSC varies with hardness. The straight (dashed) line shows the change in the hardness and lead concentration in the receiving water as the effluent mixes with the receiving water. The straight line representing the mixed lead concentration is always just below (less than) the chronic criteria, therefore, as the effluent discharges to and mixes with the receiving water there is never an exceedence of the criteria.

Therefore, the use of effluent hardness to calculate the lead limits is protective of the lead water quality criteria.

Zinc: The effluent limits for zinc are based on the acute SSC for zinc (both the acute and chronic SSC are the same). Figure C-3, below, shows two curves. The solid curve represents how the acute and chronic zinc SSC varies with hardness. The straight (dashed) line shows the change in the hardness and zinc concentration in the receiving water as the effluent mixes with the receiving water. The straight line representing the mixed zinc concentration is always below (less than) the acute and chronic criteria, therefore, as the effluent discharges to and mixes with the receiving water there is never an exceedence of the criteria. Therefore, the use of effluent hardness to calculate the zinc limits is protective of the zinc water quality criteria.

Copper: Effluent limits for copper were initially calculated for two scenarios. First the limits were calculated assuming a 25% mixing zone; in this situation the hardness at the edge of the mixing zone was used to calculate the criteria. Second, the limits were calculated assuming no mixing zone; in this situation the effluent hardness was used to calculate the criteria. Since both sets of limits should be protective of water quality criteria, the permit included the higher of the two sets of limits. For outfall 001 and outfall 002 (when outfall 001 is discharging through outfall 002), the effluent limits based on the 25% mixing zone were higher, therefore these limits were included in the 2003 revised draft permit. For outfall 003 and outfall 002 (when outfall 003 is discharging through outfall 002), the effluent limits based upon no mixing zone were higher than the effluent limits based on the 25% mixing zone for the first two flow tiers. Therefore, the 2003 revised draft permit included the limits based on no mixing zone for the two lowest flow tiers and a 25% mixing zone for the three higher flow tiers.

Since some of the copper effluent limits are based on criteria end-of-pipe calculated using effluent hardness, EPA evaluated the protectiveness of this approach for copper (even though comment #17 only commented specifically on cadmium, lead, and zinc). The criteria end-of-pipe effluent limits for copper are based on the acute water quality criterion for copper (see Tables A-17 and A-18 of the 2003 Fact Sheet). Figure C-4, below, shows two curves. The solid curve represents how the acute copper criteria varies with hardness. The straight (dashed) line shows the change in the hardness and copper concentration as the effluent mixes with the receiving water. The straight line representing the mixed copper concentration is always just below (less than) the acute criteria, therefore, as the effluent discharges to and mixes with the receiving water there is never an exceedence of the criteria. Therefore, the use of effluent hardness to calculate the copper limits for the first two flow tiers for outfall 003 and outfall 002 (when discharging the outfall 002 waste stream) is protective of the copper water quality criteria.



Silver: As was done for copper, effluent limits for silver were initially calculated for two scenarios. First the limits were calculated assuming a 25% mixing zone; in this situation the hardness at the edge of the mixing zone was used to calculate the criteria. Second, the limits were calculated assuming no mixing zone; in this situation the effluent hardness was used to calculate the criteria. Since both sets of limits should be protective of water quality criteria, the permit included the higher of the two sets of limits. For outfall 001 and outfall 002 (when outfall 001 is discharging through outfall 002), the effluent limits based on the 25% mixing zone were higher, therefore these limits were included in the 2003 revised draft permit. For outfall 003 and outfall 002 (when outfall 003 is discharging through outfall 002), the effluent limits based upon no mixing zone were higher than the effluent limits based on the 25% mixing zone. Therefore, the 2003 revised draft permit included the limits based on no mixing zone for outfall 003 and outfall 002 (when outfall 003 is discharging through outfall 002).

Since some of the silver effluent limits are based on criteria end-of-pipe calculated using effluent hardness, EPA evaluated the protectiveness of this approach for silver (even though comment #17 only commented specifically on cadmium, lead, and zinc). The criteria end-of-pipe effluent limits for silver are based on the acute water quality criterion for silver. Figure C-5, below, shows two curves. The solid curve represents how the acute silver criteria varies with hardness. The straight (dashed) line shows the change in the hardness and silver concentration as the effluent mixes with the receiving water. Unlike the other curves, for silver, the straight line representing the mixed silver concentration is above (greater than) the acute criteria, therefore, as the effluent discharges to and mixes with the receiving water there could be exceedences of the criteria. Due to the concave shape of the criteria curve, the use of effluent hardness to calculate the criteria end-of-pipe effluent limits is not protective of the silver water quality criteria.

Figure C-1: Comparison of Cd Chronic SSC to Cd Conc. Upon Mixing

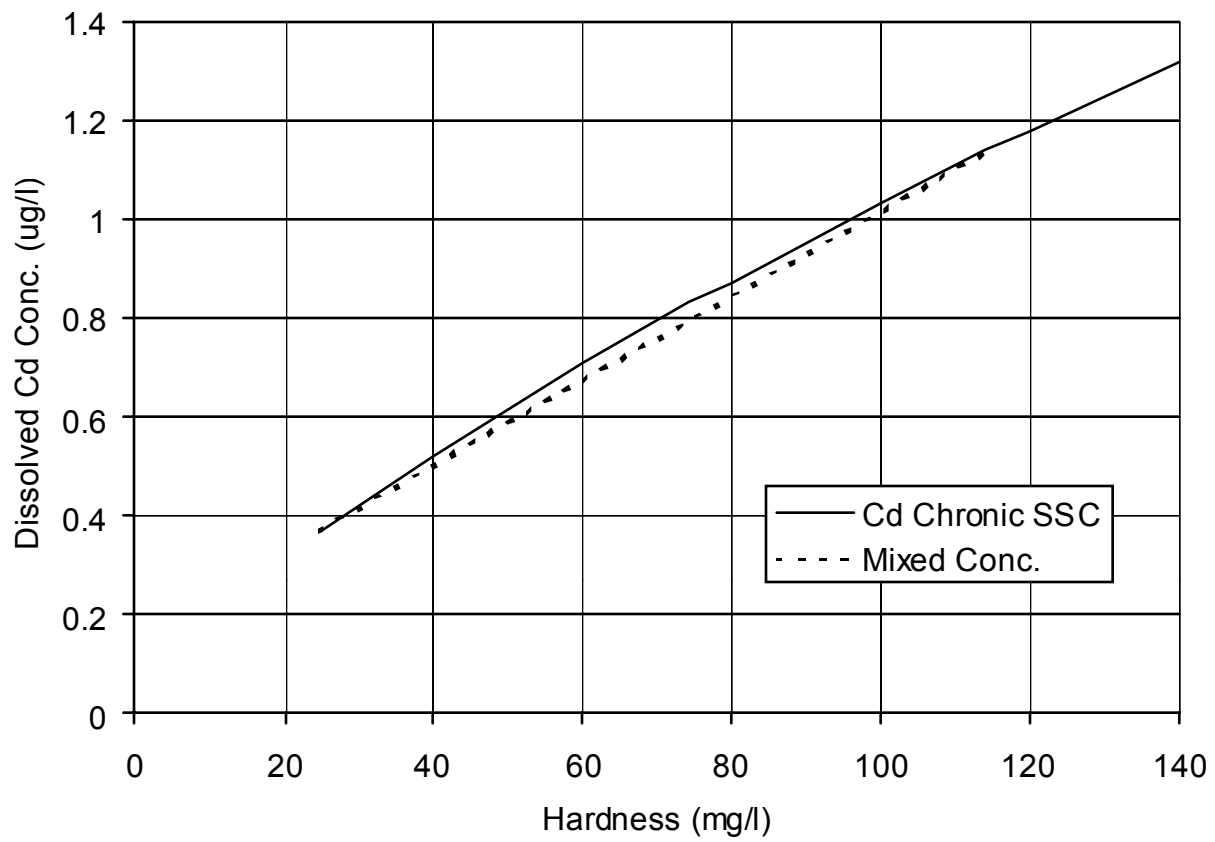


Figure C-2: Comparison of Pb Chronic SSC to Pb Conc. Upon Mixing

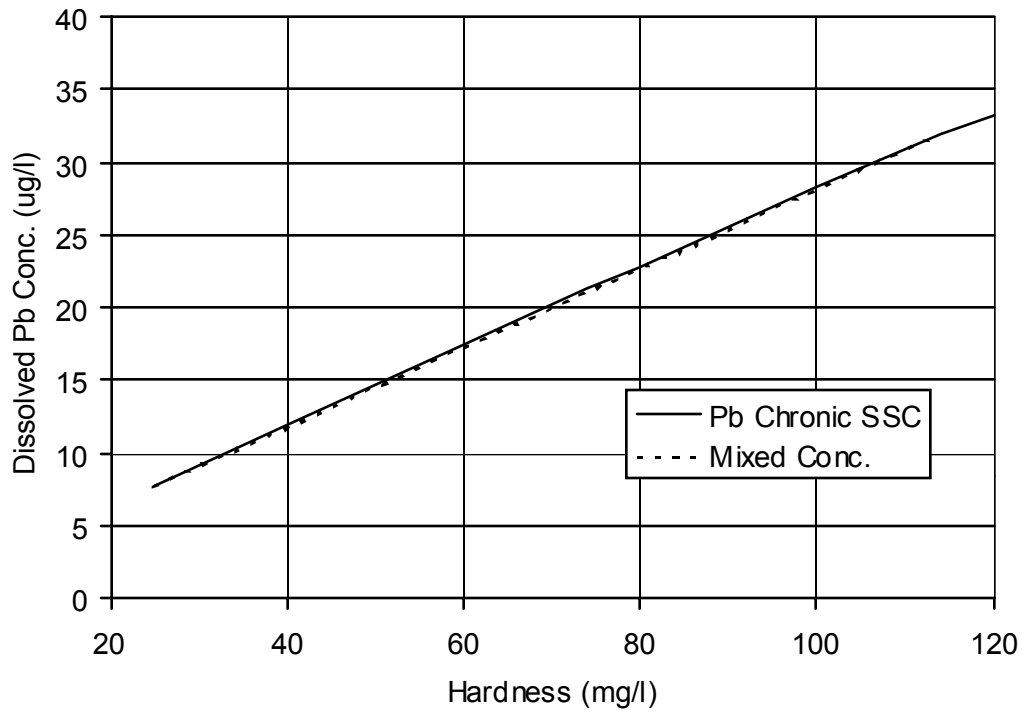


Figure C-3: Comparison of Zn Chronic/Acute SSC to Zn Conc. Upon Mixing

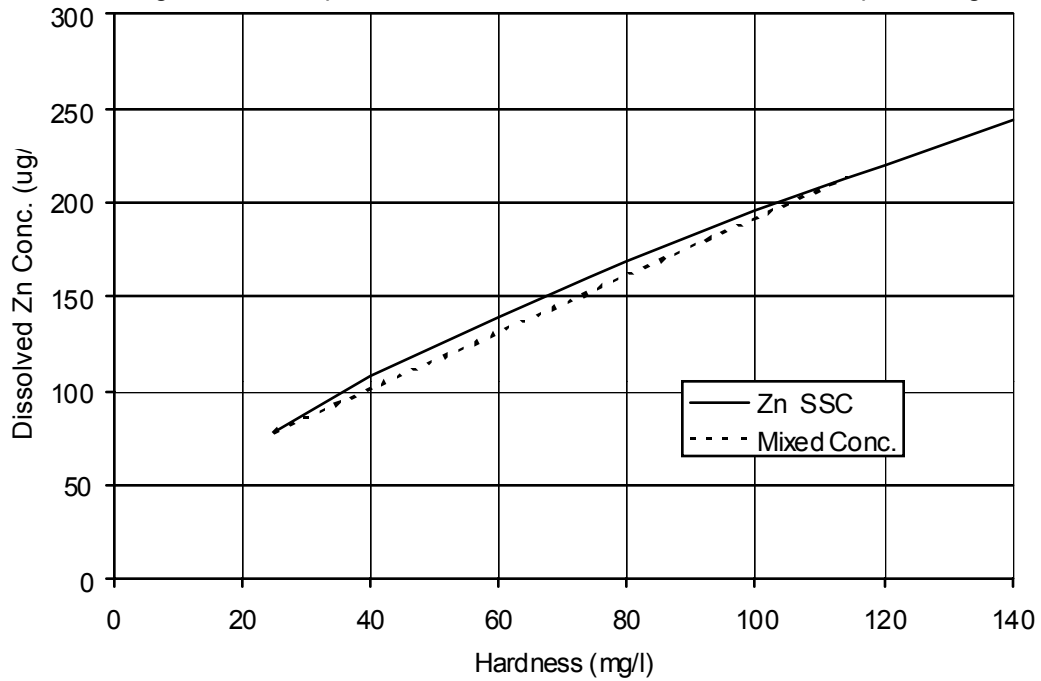


Figure C-4: Comparison of Cu Acute Criteria to Cu Conc. Upon Mixing

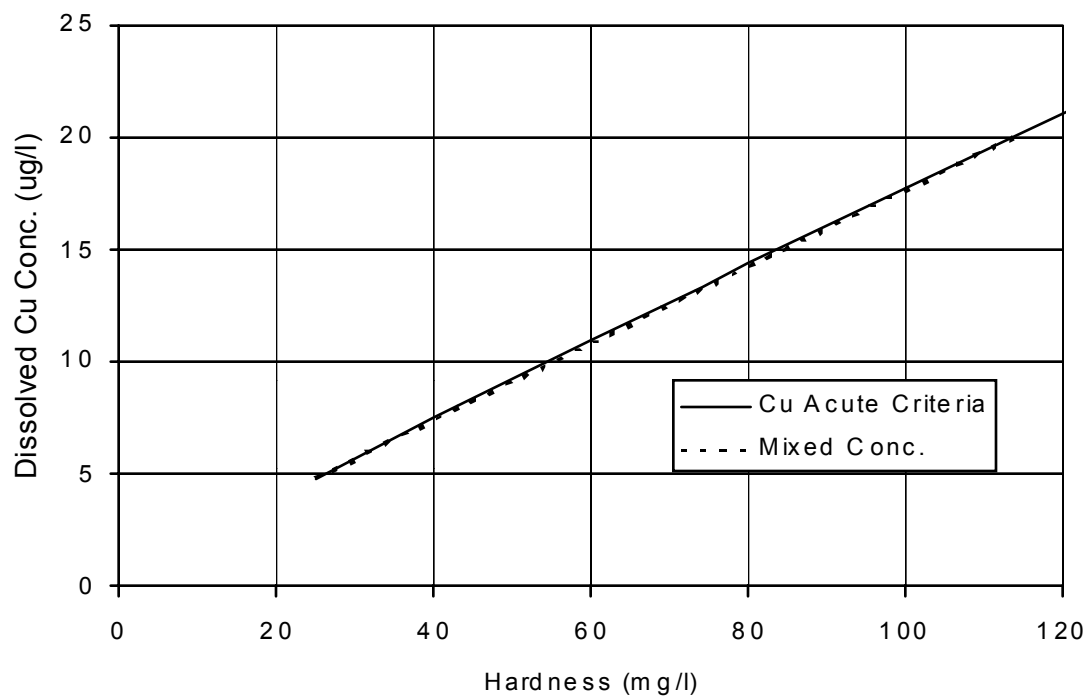
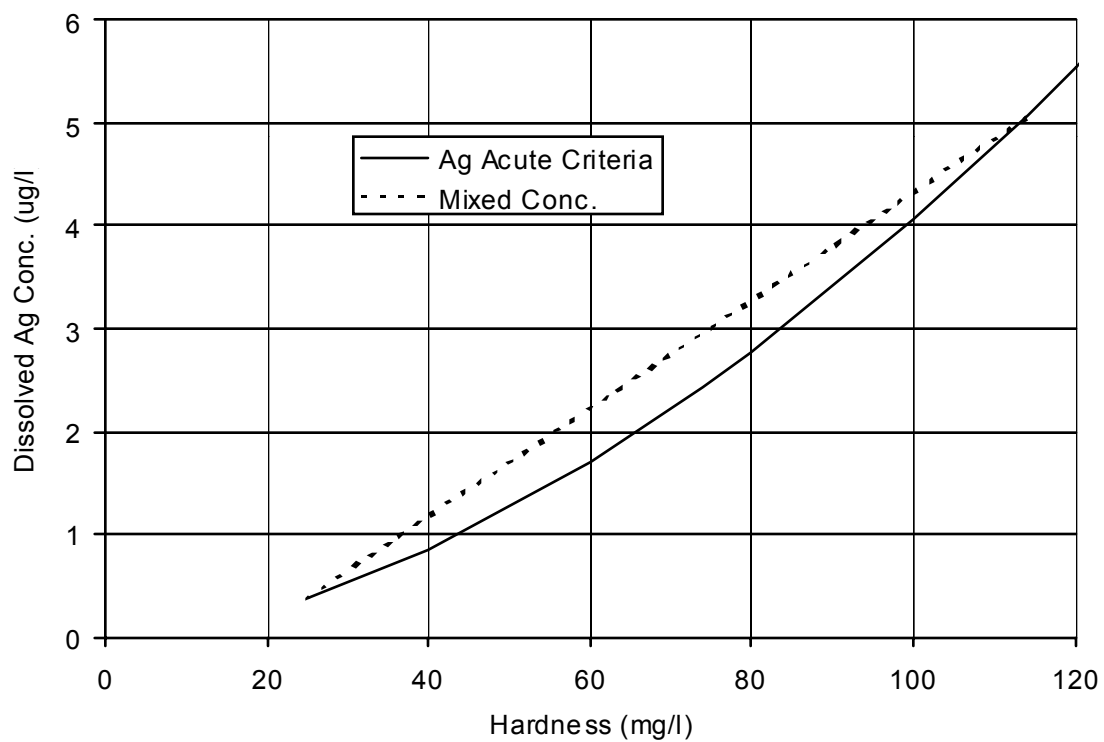


Figure C-5: Comparison of Ag Acute Criteria to Ag Conc. Upon Mixing



**APPENDIX D**  
**WATER QUALITY-BASED EFFLUENT LIMIT AND WHOLE EFFLUENT TOXICITY**  
**TRIGGER CALCULATIONS FOR THE FINAL PERMIT**

**I. Introduction**

The Fact Sheet for the 2003 revised draft permit explained how some of the effluent limits and whole effluent toxicity (WET) triggers were revised from those included in the 2001 draft permit. Some of the water quality-based effluent limits (WQBELs) and WET triggers in the 2003 revised draft permit have been further revised in the final permit based upon comments received on the 2003 revised draft permit. Section II. of this appendix shows how the WQBELs were recalculated from those in the 2003 revised draft permit. Section III. of this appendix shows how the WET triggers were recalculated.

**II. Calculation of WQBELs for the Final Permit**

WQBELs for cadmium, lead, zinc, copper, mercury, and silver in outfall 001 and for cadmium, lead, and zinc in outfalls 002 and 003 were revised from those included in the 2003 draft permit as a result of the following changes:

- New translators were developed for cadmium, lead, and zinc (see response to comment #23 on the 2003 revised draft permit, section IV.H. of the Response to Comments), therefore, the reasonable potential analysis and WQBELs for cadmium, lead, and zinc for all outfalls were recalculated.
- Revised receiving water flows were developed for the South Fork upstream of outfall 001 (see response to comment #19 on the 2003 revised draft permit, section IV.H. of the Response to Comments), therefore the reasonable potential analysis and WQBELs for copper, mercury, and silver were recalculated for outfall 001.

The WQBELs were recalculated following the same procedures as outlined in the Fact Sheet for the 2003 revised draft permit. The development of WQBELs consists of four steps:

1. Determine the appropriate water quality criteria
2. Determine if there is “reasonable potential” for the discharge to exceed the criteria in the receiving water
3. If there is “reasonable potential”, develop a wasteload allocation (WLA).

#### 4. Develop effluent limitations based on the WLA

Sections A. through D., below provide a brief discussion of each of the above steps. See Appendix A of the 2003 Fact Sheet for details regarding the procedures.

#### A. Water Quality Criteria

The first step in developing water quality-based limits is to determine the applicable water quality criteria. The applicable water quality criteria are the same as those identified in the 2003 Fact Sheet with the following exception. Both the SSC and ID CWA criteria that were effective at the time the permit was public noticed were included in the 2003 Fact Sheet. Since the SSC have been approved by EPA, they are now the applicable criteria. The following tables provide the criteria that were used to calculate effluent limits that were revised in the final permit.

<b>Table D-1: Criteria Applicable to Outfall 001</b>				
Parameter	Flow Tier <sup>1</sup>	Hardness, mg/l CaCO <sub>3</sub> <sup>2</sup>	Water Quality Criteria <sup>3</sup>	
			acute	chronic
Dissolved Cadmium, ug/l	not applicable	74	1.5	0.83
Dissolved Lead, ug/l	not applicable	74	190	21
Dissolved Zinc, ug/l	not applicable	74	160	160
Total Mercury, ug/l	flow tiers are applicable to mercury, but the criteria is not dependent upon hardness	not applicable	2.1	0.012
Dissolved Copper, ug/l	< 14 cfs	68	12	8.2
	≥ 14 to < 32 cfs	67	12	8.1
	≥ 32 to < 113 cfs	59	10	7.2
	≥ 113 to < 194 cfs	42	7.5	5.4
	≥ 194 cfs	26	4.8	3.6
	no mixing zone	74	13	8.8
Dissolved Silver, ug/l	< 14 cfs	68	1.8	na
	≥ 14 to < 32 cfs	67	1.7	na

Table D-1: Criteria Applicable to Outfall 001				
	≥ 32 to < 113 cfs	59	1.4	na
	≥ 113 to < 194 cfs	42	0.78	na
	≥ 194 cfs	26	0.34	na
<b>Footnotes:</b> 1 - See response to comment #19 on the 2003 revised draft permit (Section IV.H. of the Response to Comments) for a discussion on how the flow tiers for outfall 001 were revised. 2 - The hardness values are the same as those used to develop limits for the 2003 revised draft permit. See Table A-3 of the 2003 Fact Sheet. 3 - The criteria are the same as those used to develop limits for the 2003 revised draft permit. See Tables A-2 and A-3 of the 2003 Fact Sheet. The site-specific criteria are the applicable criteria for cadmium, lead, and zinc.				

Table D-2: Criteria Applicable to Outfall 002 When Outfall 001 is Discharging from Outfall 002				
Parameter <sup>1</sup>	Flow Tier	Hardness, mg/l CaCO <sub>3</sub> <sup>2</sup>	Water Quality Criteria <sup>3</sup>	
			acute	chronic
Dissolved Cadmium, ug/l	not applicable	74	1.5	0.83
Dissolved Lead, ug/l	not applicable	74	190	21
Dissolved Zinc, ug/l	not applicable	74	160	160
<b>Footnotes:</b> 1 - The effluent limits for copper, mercury, and silver for outfall 002 have not been revised from those in the 2003 Fact Sheet, therefore copper, mercury, and silver is not included in this table. 2 - The hardness values are the same as those used to develop limits for the 2003 revised draft permit. See Table A-4 of the 2003 Fact Sheet. 3 - The criteria are the same as those used to develop the SSC limits for the 2003 revised draft permit. See Tables A-2 and A-4 of the 2003 Fact Sheet. The SSC are the applicable criteria for cadmium, lead, and zinc.				

Table D-3: Criteria Applicable to Outfall 003 and to Outfall 002 When Outfall 003 is Discharging from Outfall 002				
Parameter <sup>1</sup>	Flow Tier	Hardness, mg/l CaCO <sub>3</sub> <sup>2</sup>	Water Quality Criteria <sup>3</sup>	
			acute	chronic

Table D-3: Criteria Applicable to Outfall 003 and to Outfall 002 When Outfall 003 is Discharging from Outfall 002				
Dissolved Cadmium, ug/l	not applicable	114	2.4	1.1
Dissolved Lead, ug/l	not applicable	114	280	32
Dissolved Zinc, ug/l	not applicable	114	210	210
<u>Footnotes:</u> 1 - The effluent limits for copper, mercury, and silver for outfall 002 and outfall 003 have not been revised from those in the 2003 Fact Sheet, therefore copper, mercury, and silver are not included in this table. 2 - The hardness values are the same as those used to develop limits for the 2003 revised draft permit. See Tables A-5 and A-6 of the 2003 Fact Sheet. 3 - The criteria are the same as those used to develop the SSC limits for the 2003 revised draft permit. See Tables A-2, A-5, and A-6 of the 2003 Fact Sheet. The SSC are the applicable criteria for cadmium, lead, and zinc.				

## B. Reasonable Potential Evaluation

To determine if there is “reasonable potential” to cause or contribute to an exceedence of water quality criteria for a given pollutant (and therefore whether a water quality-based effluent limit is needed), for each pollutant present in a discharge, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is “reasonable potential”, and a limit must be included in the permit. The reasonable potential procedures, below, are a summary of the same procedures in Section III.A.2. of Appendix A of the 2003 Fact Sheet. See Section III.A.2. of Appendix A of the 2003 Fact Sheet for a detailed description of how reasonable potential is determined.

The maximum projected receiving water concentration ( $C_d$ ) is determined using the following mass balance equations.

where a mixing zone is allowed:

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

where no mixing zone is allowed:  $C_d = \text{translator} \times C_e$

where,  $C_d$  = receiving water concentration downstream of the discharge (at mixing zone edge)



$C_e$  = maximum projected effluent concentration  
 $C_u$  = receiving water upstream concentration of pollutant  
 $Q_e$  = effluent flow  
 $Q_u$  = receiving water upstream flow  
 $Q_d$  = receiving water flow downstream of the effluent discharge =  $(Q_e + Q_u)$   
MZ = the mixing zone fraction based on receiving water flow  
translator = value used to account for difference between total effluent concentrations and dissolved criteria

After  $C_d$  is determined, it is compared to the applicable water quality criterion. If it is greater than the criterion, a water quality-based effluent limit is developed for that parameter.

The following discusses the factors used in the mass balance equation to calculate  $C_d$  that have changed from those used in the 2003 revised draft permit.

Translator: The translators for cadmium, lead and zinc have been recalculated from those used in the 2003 revised draft permit (see response to comment #23 on the 2003 revised draft permit, Section IV.H. of the Response to Comments). The new translators, expressed as total/dissolved are:

cadmium - 1.2  
lead - 1.6  
zinc - 1.2

The translator in the mass balance equations are expressed as dissolved/total, therefore, the translators for cadmium, lead, and zinc used in the equations are the reciprocal of the above translators:

cadmium - 0.83  
lead - 0.625  
zinc - 0.83

Site-specific translators are not available for the other parameters (copper, mercury, and silver). Therefore, the water quality conversion factors were used as the default translators for these parameters. The water quality conversion factors are provided in italics in Table A-2 of the 2003 Fact Sheet.

$C_e$  (maximum projected effluent concentration): The maximum projected effluent concentrations have not changed from those calculated in the 2003 Fact Sheet. See Section III.A.2. of Appendix A of the 2003 Fact Sheet for a discussion of how  $C_e$  is calculated and Tables A-7 through A-9 for the effluent data used to determine  $C_e$ .

C<sub>u</sub> (upstream concentration of pollutant): The upstream concentration of pollutants has not changed from those used in the 2003 Fact Sheet. See Tables A-7 through A-9 for the upstream concentrations.

Q<sub>u</sub> (upstream flow): The upstream receiving water flows for outfall 001 used in the mass balance equations have been revised from those used to calculate limits in the 2003 revised draft permit. See response to comment #19 on the 2003 revised draft permit (Section IV.H. of the Response to Comments). The new upstream receiving water flows and flow tiers are:

<b>Table D-4: Flow Tiers and Upstream Flows for Outfall 001</b>		
Flow Tier (percentile of upstream flow)	Flow Tier, cfs	Q <sub>u</sub> , cfs
< 10th	< 14	8.1 cfs (acute) 9.4 cfs (chronic) 13 cfs (HH criteria)
≥ 10th to < 50th	≥ 14 to < 32	14 cfs
≥ 50th to < half-way between the 50 <sup>th</sup> and 90 <sup>th</sup> percentiles	≥ 32 to < 113	32 cfs
half way between the 50 <sup>th</sup> and 90 <sup>th</sup> percentiles	≥ 113 to < 194	113
≥ 90th	≥ 194	194

Q<sub>e</sub> (effluent flow): The effluent flow used in the mass balance equation is the same as used for the 2003 revised draft permit calculations. The effluent flow for outfall 001 is 2.6 cfs and the effluent flow for outfall 003 is 3.5 cfs (see Section III.A.2. of Appendix A of the 2003 Fact Sheet).

MZ (the percent mixing zone based on receiving water flow): The mixing zones were the same as those specified in the 2003 Fact Sheet. The State authorized mixing zones of 25% for copper, mercury, and silver.

Reasonable Potential Summary: Results of the reasonable potential analysis is provided in Tables D-5, D-6, and D-7. Based on the reasonable potential analysis, water quality-based effluent limits were developed for all the parameters. For outfall 001, the discharge of silver at flow tiers ≥ 14 cfs did not show a reasonable potential to cause or contribute to an exceedence of the silver water quality criterion. Therefore, effluent limits for silver at flow tiers ≥ 14 cfs were

not developed for outfall 001.

<b>Table D-5: Summary of Reasonable Potential Determination for Outfall 001</b>			
Parameter	Flow Tier, cfs	maximum projected receiving water concentration, $C_d$ , dissolved <sup>1</sup> , ug/l	Reasonable Potential <sup>2</sup> ?
Cadmium	not applicable	83	yes
Lead	not applicable	375	yes
Zinc	not applicable	1250	yes
Copper	< 14	163 (acute) and 152 (chronic)	yes
	≥ 14 to < 32	124	yes
	≥ 32 to < 113	72	yes
	≥ 113 to < 194	26	yes
	≥ 194	16	yes
Mercury	< 14	0.956 (acute) and 1.05 (chronic)	yes
	≥ 14 to < 32	0.725 (acute) and 0.852 (chronic)	yes
	≥ 32 to < 113	0.417 (acute) and 0.491 (chronic)	yes
	≥ 113 to < 194	0.143 (acute) and 0.169 (chronic)	yes
	≥ 194	0.0865 (acute) and 0.102 (chronic)	yes
Silver	< 14	2.1 (acute)	yes
	≥ 14 to < 32	1.59 (acute)	no
	≥ 32 to < 113	0.917	no
	≥ 113 to < 194	0.315	no
	≥ 194	0.19	no
<b>Footnotes:</b> 1 - See Section III.A.2 of Appendix A of the 2003 Fact Sheet for a discussion on how $C_d$ is calculated. The revised translators for cadmium, lead, and zinc were factored into the calculation of $C_d$ for the final permit. The revised upstream receiving water flows were factored into the calculation of $C_d$ for copper, mercury, and silver. 2 - Reasonable Potential exists if $C_d$ exceeds the applicable criterion (see Table D-1 for the criteria).			

<b>Table D-6: Summary of Reasonable Potential Determination for Outfall 002 when Outfall 001 is Discharging through Outfall 002</b>		
Parameter <sup>1</sup>	maximum projected receiving water concentration, C <sub>d</sub> dissolved <sup>2</sup> , ug/l	Reasonable Potential <sup>3</sup> ?
Cadmium	83	yes
Lead	375	yes
Zinc	1250	yes
<b>Footnotes:</b> 1 - The reasonable potential analysis for copper, mercury, and silver for outfall 002 has not been revised from the 2003 Fact Sheet. 2 - See Section III.A.2 of Appendix A of the 2003 Fact Sheet for a discussion on how C <sub>d</sub> is calculated. The revised translators were factored into the calculation of C <sub>d</sub> for the final permit. 3- Reasonable Potential exists if C <sub>d</sub> exceeds the applicable criterion (see Table D-2 for the criteria).		

<b>Table D-7: Summary of Reasonable Potential Determination for Outfall 003 and for Outfall 002 when Outfall 003 is Discharging through Outfall 002</b>		
Parameter <sup>1</sup>	maximum projected receiving water concentration, C <sub>d</sub> dissolved <sup>2</sup> , ug/l	Reasonable Potential <sup>3</sup> ?
Cadmium	83	yes
Lead	375	yes
Zinc	833	yes
<b>Footnotes:</b> 1 - The reasonable potential analysis for copper, mercury, and silver for outfall 002 and 003 has not been revised from the 2003 Fact Sheet. 2 - See Section III.A.2 of Appendix A of the 2003 Fact Sheet for a discussion on how C <sub>d</sub> is calculated. The revised translators were factored into the calculation of C <sub>d</sub> for the final permit. 3- Reasonable Potential exists if C <sub>d</sub> exceeds the applicable criterion (see Table D-3 for the criteria).		

### C. Water Quality-based Permit Limit Derivation

Once EPA has determined that a water quality-based limit is required for a pollutant, the first step in developing the permit limit is development of a wasteload allocation (WLA) for the pollutant.

A WLA is the concentration (or loading) of a pollutant that the permittee may discharge without causing or contributing to an exceedence of water quality standards in the receiving water. WLAs are developed for both the acute and chronic criteria. The acute and chronic WLAs are then converted to long-term average concentrations (LTAs) and compared. The most stringent LTA concentration for each parameter is converted to effluent limits. The procedures, below, are a summary of the procedures in Section III.A.3. of Appendix A of the 2003 Fact Sheet. See Section III.A.3. of Appendix A of the 2003 Fact Sheet for a detailed description of how effluent limits are derived.

Calculation of WLAs. Where the state authorizes a mixing zone for the discharge, the WLA is calculated as a mass balance, using the same mass balance equation used in the reasonable potential evaluation. However,  $C_d$  becomes the criterion and  $C_e$  the WLA.

$$WLA = \frac{\text{criterion} \times [Q_e + (Q_u \times MZ)] - (C_u \times Q_u \times MZ)}{Q_e \times \text{translator}}$$

Where no mixing zone is allowed, the criterion becomes the WLA.

$$WLA = \text{criterion/translator}$$

Calculation of Long-term Average Concentrations (LTAs): The following equation from Chapter 5 of the TSD is used to calculate the LTA concentrations (alternately, Table 5-1 of the TSD may be used):

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

where:

- $\sigma^2$  =  $\ln(CV^2 + 1)$  for acute aquatic life criteria  
           =  $\ln(CV^2/4 + 1)$  for chronic aquatic life criteria
- CV = coefficient of variation
- z = 2.326 for 99<sup>th</sup> percentile probability basis, per the TSD

The CV values have not changed from those in the 2003 Fact Sheet (see Tables A-7 through A-9 of the 2003 Fact Sheet for the CV values used to calculate the effluent limits).

Calculation of Effluent Limits: The LTA concentration is calculated for each criterion and compared. The most stringent LTA concentration is then used to develop the maximum daily (MDL) and average monthly (AML) permit limits. The MDL and AML are calculated using the

following equations from the TSD (alternately, Table 5-2 of the TSD may be used):

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

for the MDL:  $\sigma^2 = \ln(\text{CV}^2 + 1)$

$z = 2.326$  for 99<sup>th</sup> percentile probability basis, per the TSD

for the AML:  $\sigma^2 = \ln(\text{CV}^2/n + 1)$

$n = \text{number of sampling events required per month} = 4$

$z = 1.645$  for 95<sup>th</sup> percentile probability basis, per the TSD

For setting water quality-based limits for protection of human health uses, the TSD recommends setting the AML equal to the WLA, and then calculating the MDL (i.e., no calculation of LTAs). The human health MDL is calculated based on the ratio of the AML and MDL as expressed by the above equation. AML/MDL ratios are also provided in Table 5-3 of the TSD.

The WQBELs that were revised from those in the 2003 draft permit are shown in Tables D-8 through D-10. These limits were included in Tables 1 through 4 of the final permit. These tables also show intermediate calculations (i.e., WLAs, LTAs) used to derive the effluent limits.

<b>Table D-8: Summary of Water Quality-based Effluent Limit Derivation for Outfall 001</b>								
Parameter <sup>1</sup> ug/l	Flow Tier <sup>2</sup>	Aquatic Life Criteria WLAs		Aquatic Life Criteria LTA Concentrations		Water Quality-based Effluent Limits		
		acute WLA	chronic WLA	acute LTA	chronic LTA	Basis <sup>3</sup>	maximum daily limit	avg. monthly limit
cadmium	not applicable	1.83	0.99	0.342	0.342	acute/ chronic	1.8	0.70
lead	not applicable	299	34.1	132	21.9	chronic	50	30
zinc	not applicable	192	192	33.4	61.6	acute	190	71
copper	< 14 cfs	20.5	14.5	5.10	6.37	acute	21	8.9
	≥ 14 to < 32 cfs	26	17.2	6.48	7.55	acute	26	11
	≥ 32 to < 113 cfs	38	24	9.52	11.0	acute	38	17

**Table D-8: Summary of Water Quality-based Effluent Limit Derivation for Outfall 001**

	≥113 to <194 cfs	72	46.5	18.1	20.4	acute	73	32
	≥ 194 cfs	63	38.5	15.7	16.9	acute	63	28
	no mixing zone	13.3	9.14	3.33	4.02	acute	13	5.8
mercury <sup>4</sup>	< 14 cfs	4.27	0.0228	1.37	0.012	chronic	0.038	0.019
	≥ 14 to < 32 cfs	5.63	0.0282	1.81	0.0148	chronic	0.046	0.023
	≥ 32 to < 113 cfs	9.78	0.0489	3.14	0.0258	chronic	0.080	0.040
	≥113 to <194 cfs	28.5	0.142	9.14	0.0751	chronic	0.23	0.12
	≥ 194 cfs	47.2	0.236	15.1	0.124	chronic	0.39	0.19
silver	< 14 cfs	3.72	na	1.63	na	acute	3.7	2.2

WLA = wasteload allocation

LTA = long-term average

Footnotes:

1 - Parameters which exhibited reasonable potential (see Table D-5).

2- Flow tiers do not apply to cadmium, lead, and zinc.

3- Effluent limits are based on the most stringent criteria (lowest LTA).

4 - Effluent limits for mercury were also developed based upon the recreational use criterion. These limits were less stringent than the limits based on the aquatic life criteria.

**Table D-9: Summary of Water Quality-based Effluent Limit Derivation for Outfall 002 When Outfall 001 is Discharging Through Outfall 002**

Parameter <sup>1</sup> ug/l	Aquatic Life Criteria WLAs		Aquatic Life Criteria LTA Concentrations		Water Quality-based Effluent Limits		
	acute WLA	chronic WLA	acute LTA	chronic LTA	Basis <sup>2</sup>	maximum daily limit	avg. monthly limit
cadmium	1.83	0.99	0.342	0.342	acute/ chronic	1.8	0.70
lead	299	34.1	132	21.9	chronic	50	30
zinc	192	192	33.4	61.6	acute	190	71

**Table D-9: Summary of Water Quality-based Effluent Limit Derivation for Outfall 002 When Outfall 001 is Discharging Through Outfall 002**

WLA = wasteload allocation  
LTA = long-term average

Footnotes:

- 1- The effluent limits for copper, mercury, and silver have not changed from those in the 2003 Fact Sheet.
- 2 - Effluent limits are based on the most stringent criteria (lowest LTA).

**Table D-10: Summary of Water Quality-based Effluent Limit Derivation for Outfall 003 and Outfall 002 When Outfall 003 is Discharging Through Outfall 002**

Parameter <sup>1</sup> ug/l	Aquatic Life Criteria WLAs		Aquatic Life Criteria LTA Concentrations		Water Quality-based Effluent Limits		
	acute WLA	chronic WLA	acute LTA	chronic LTA	Basis <sup>2</sup>	maximum daily limit	avg. monthly limit
cadmium	2.85	1.36	1.06	0.79	chronic	2.1	1.1
lead	448	51.2	197	32.9	chronic	75	45
zinc	256	256	113	164	acute	260	150

WLA = wasteload allocation  
LTA = long-term average

Footnotes:

- 1- The effluent limits for copper, mercury, and silver have not changed from those in the 2003 Fact Sheet.
- 2 - Effluent limits are based on the most stringent criteria (lowest LTA).

## D. Mass-based Limits

As discussed in the 2003 Fact Sheet (Section IV.A. of Appendix A), the metals WQBELs are also expressed in terms of mass. The following equation was used to calculate the mass-based limits.

$$\text{mass limit (lb/day)} = \text{concentration limit (ug/l)} \times \text{effluent flow rate} \times \text{conversion factor}$$

where,

conversion factor = 0.005379 (to convert units on the right side of the equation to lb/day)

effluent flow rate = maximum discharge rate (cfs)



= 2.6 cfs for outfall 001 and 3.5 cfs for outfall 003 (see Appendix A of the 2003 Fact Sheet)

### III. Whole Effluent Toxicity (WET) Triggers

The 2003 revised draft permit included WET monitoring and established WET trigger levels for each outfall, that, if exceeded would trigger additional WET testing and, potentially, investigations to reduce toxicity. The WET trigger levels for outfall 001 were recalculated for the final permit since the upstream receiving water flows have been revised (see response to comment #19 on the 2003 revised draft permit, section IV.H. of the Response to Comments).

WET trigger levels are calculated using the following mass-balance equation:

$$\text{WET toxicity trigger} = \frac{\text{criterion} \times [Q_e + (Q_u \times MZ)] - (C_u \times Q_u \times MZ)}{Q_e}$$

where,

criterion = 1 TU<sub>c</sub> for compliance with the chronic criterion (see Table B-4 of the March 28, 2001 Fact Sheet)

Q<sub>e</sub> = effluent flow = 2.6 cfs (see page A-16 on the 2003 Fact Sheet)

Q<sub>u</sub> = upstream flow (see Table D-4, above)

C<sub>u</sub> = upstream concentration = 0 for WET (assuming no upstream toxicity)

MZ = mixing zone = 0.25 (based on State 401 certification)

Solving the above equation results in the chronic trigger values in Table D-11. These trigger values are included in Table 6 of the final permit.

Table D-11: WET Trigger Values For Outfall 001	
Flow Tier	WET Trigger Value, TU <sub>c</sub>
< 14 cfs	1.9
≥ 14 to < 32 cfs	2.3
≥ 32 to < 113 cfs	4.1
≥ 113 to < 194 cfs	12
≥ 194 cfs	20

## APPENDIX E - LIST OF REFERENCES

- EPA 1991a U.S. Environmental Protection Agency (EPA). Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. Washington, D.C. March 1991. EPA/505/2-90-001.
- EPA 1991b U.S. Environmental Protection Agency (EPA). Technical Support Document for Water Quality-based Toxics Control, Responsiveness Summary. EPA Office of Water
- EPA 1994 U.S. Environmental Protection Agency (EPA). Whole Effluent Toxicity (WET) Control Policy, Policy for the Development of Effluent Limitations in National Pollutant Discharge Elimination System Permits to Control Whole Effluent Toxicity for the Protection of Aquatic Life. EPA Office of Water. EPA 833-B-94-002. July 1994.
- EPA 1996 U.S. Environmental Protection Agency (EPA). The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion. EPA 823-B-96-007. EPA Office of Water. June 1996.
- EPA 1999. United States Environmental Protection Agency (EPA). A Review of Single Species Toxicity Tests: Are the Tests Reliable Predictors of Aquatic Ecosystem Community Responses? EPA Office of Research and Development. EPA/600/R-97/114. July 1999.
- EPA 2000 U.S. Environmental Protection Agency (EPA). Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination Program. EPA Office of Wastewater Management. EPA 833-R-00-003. June 2000.
- EPA 2001 U.S. Environmental Protection Agency (EPA). Guidance for Implementation and Use of EPA Method 1631 for the Determination of Low-Level Mercury (40 CFR part 136). Office of Water. EPA 821-R-01-023. March 2001.
- EPA Region 10 1996  
U.S. Environmental Protection Agency (EPA) Region 10. Guidance for WQBELs

Below Analytical Detection Quantization Level. Effective date March 22, 1996.

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U.S. Environmental Protection Agency (EPA) Region 10. Coeur d'Alene Basin Final Remedial Investigation/Feasability Study. EPA Region 10. September 2001.

Hecla 1999

Letter from William B. Booth, Hecla, to Randall F. Smith, EPA, Request for Information - Lucky Friday Mine and Mill NPDES Permit No. ID-000017-5, August 2, 1999.

IDEQ 2003

Idaho Department of Environmental Quality (IDEQ). Letter from Gwen P. Fransen, IDEQ, to Robert R. Robichaud, EPA, Section 401 Certification regarding NPDES Permit No. ID-000017-5 Hecla Mining Company - Lucky Friday Mine and Mill, Mullan, Idaho. June 17, 2003.

