



## Idaho Department of Environmental Quality Draft §401 Water Quality Certification

November 9, 2015

**NPDES Permit Number(s):** ID-002646-8 Hecla Mining Company, Grouse Creek Unit

**Receiving Water Body:** Yankee Fork Salmon River and Jordan Creek (T13N, R15E, Sec. 2)

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Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended; 33 U.S.C. Section 1341(a)(1); and Idaho Code §§ 39-101 et seq. and 39-3601 et seq., the Idaho Department of Environmental Quality (DEQ) has authority to review National Pollutant Discharge Elimination System (NPDES) permits and issue water quality certification decisions.

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

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

### **NPDES Permitted Discharge Rates**

A significant change from the previous NPDES permit is the use of flow tier effluent limits rather than effluent limits based on calendar dates. The NPDES permit allows for different discharge rates of pollutants from each outfall based on the flows in the respective receiving waters. For the Jordan Creek outfall (Outfall 002), two flow tiers are identified, based on historic flow data: 1) Jordan Creek flows less than 30 cubic feet per second (cfs); and, 2) Jordan Creek flows greater than or equal to 30 cfs. Both flow tiers were evaluated at an 8:1 dilution ratio of Jordan Creek to effluent flow. For the Yankee Fork discharge, three flow tiers are authorized: 1) Yankee Fork flows less than 15 cfs; 2) Yankee Fork flows greater than 15 cfs but less than 45 cfs; and, 3) Yankee Fork flows equal to or greater than 45 cfs. These flow tiers allow the facility greater control over water treatment and discharges based on actual in-stream flow conditions, reducing the opportunity of upset or overflow conditions inside the water treatment facility.

### **Antidegradation Review**

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier 1 Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier 1 review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier 2 Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier 3 Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

### ***Pollutants of Concern***

The Hecla Grouse Creek Unit discharges the following pollutants of concern, which have proposed effluent limits in the permit, from two unique outfalls located on two different water bodies and assessment units (AU):

**Jordan Creek:** cadmium, copper, cyanide, lead, mercury, selenium, silver, total suspended solids, zinc and Whole Effluent Toxicity (WET) (chronic).

**Yankee Fork:** cadmium, copper, cyanide, lead, mercury, selenium, total suspended solids, zinc, and WET (chronic).

In addition to the pollutants with effluent limits, additional pollutants of concern require monitoring and reporting as part of the permit conditions:

**Jordan Creek:** total ammonia, arsenic, nitrate + nitrite, temperature, and WET (acute).

**Yankee Fork:** total ammonia, arsenic, nitrate + nitrite, silver, temperature.

### ***Receiving Water Body Level of Protection***

The Hecla Grouse Creek Unit discharges to two waterbodies, Jordan Creek, a tributary of the Yankee Fork and the Yankee Fork Salmon River. Each stream and its level of protection are discussed below.

#### **Jordan Creek**

When the Grouse Creek Project was approved via a US Forest Service Record of Decision (ROD) in 1992, the diversion of streams found within the project area where the tailings impoundment would be constructed was authorized. This included streams in the Pinyon Basin, including Pinyon Creek. Pinyon Creek was the natural stream flowing out of Pinyon Basin for surface water, including Pinyon Lake. This approval and subsequent construction permanently dewatered Pinyon Lake and Pinyon Creek. With the construction and operation of the water treatment plant and the use Outfall 002 in May 1994, Jordan Creek became the receiving water because it was the first stream encountered by the treated water that ran a short distance down a modified version of the old Pinyon Creek channel. DEQ considers the outfall 002 is into Jordan Creek, rather than Pinyon Creek because of this previously approved construction activities early in the mine life. Outfall 002 therefore is approved to discharge via a concrete and boulder channel, within the Upper Salmon Subbasin assessment unit (AU) ID17060201SL042\_03 (Jordan Creek – source to Unnamed Tributary).

Jordan Creek is undesignated in Idaho's WQS. Jordan Creek is identified in Category 2 of Idaho's 2012 Integrated Report as fully supporting cold water aquatic life and salmonid spawning uses. The recreational use for Jordan Creek is unassessed.

Jordan Creek will receive Tier 2 antidegradation protection for cold water aquatic life, salmonid spawning. Although the recreational use for Jordan Creek is unassessed, the level of protection assigned to this use does not affect the tier 2 analysis. This is because there are no pollutants of concern in the effluent that are relevant to recreational uses that are not also relevant to aquatic life uses. Therefore, even if the unassessed recreational use was determined to be fully supported, the tier 2 analysis would not change.

### **Yankee Fork**

The Grouse Creek Unit also discharges into the Yankee Fork of the Salmon River through outfall 003, AU ID17060201SL032\_04 (Yankee Fork – source to Jordan Creek) via a multi-port diffuser. Yankee Fork is designated for cold water aquatic life, salmonid spawning, primary contact recreation, and domestic water supply. The Yankee Fork is identified in Category 2 of DEQ's 2012 integrated Report; cold water aquatic life, salmonid spawning, primary recreation and domestic water supply uses are fully supported.

The Yankee Fork will receive Tier 2 antidegradation protection for cold water aquatic life, salmonid spawning, primary contact recreation and domestic water supply.

### ***Protection and Maintenance of Existing Uses (Tier 1 Protection)***

As noted above, a Tier 1 review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters. The numeric and narrative criteria in the WQS are set at levels that ensure protection of designated beneficial uses. The effluent limitations and associated requirements contained in the Grouse Creek Unit permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

## High-Quality Waters (Tier 2 Protection)

Both Jordan Creek and the Yankee Fork are considered high quality waters. As such, the water quality relevant to those uses for which the water is considered high quality must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.06.a). For a new permit or license, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the current permit or license (IDAPA 58.01.02.052.06.a.i), while future discharge quality will be based on the proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

### Jordan Creek

Outfall 002 discharges to Jordan Creek. Jordan Creek is considered high quality water for cold water aquatic life. Therefore, to determine whether degradation will occur, DEQ must evaluate how the permit issuance will affect water quality for each pollutant that is relevant to cold water aquatic life uses of Jordan Creek. (IDAPA 58.01.02.052.05) For the aquatic life and salmonid spawning uses the following pollutants are evaluated: cadmium, copper, cyanide, lead, mercury, selenium, silver, total suspended solids, zinc and chronic WET.

The proposed permit for the discharge to Jordan Creek is a reissued permit. This means to determine the permit's effect on water quality, comparison is made between the limits proposed and the limits identified in the current permit. Table 1 and Table 2 provide a summary of the current permit limits, the proposed or reissued permit limits, and whether the proposed limits are increased, decreased or will not change from the current permit.

**Table 1. Effluent Limits for Outfall 002; Jordan Creek Flows less than 30 cfs and Dilution Ratio Greater than or Equal to 8:1**

<b>Table 1: Effluent Limits for Outfall 002; Jordan Creek Flows Less than 30 cfs and Dilution Ratio Greater than or Equal to 8:1</b>							
		<b>Draft Permit</b>		<b>2002 Permit (Current)</b>		<b>Change<sup>1</sup></b>	
<b>Parameters</b>	<b>Units</b>	<b>AML<sup>2</sup></b>	<b>MDL<sup>3</sup></b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>
<b>Pollutants with limits in both the current and proposed permit</b>							
Cadmium, total recoverable (TR),	µg/L	1.44	2.72	3.7	7.5	D	D
Copper, TR,	µg/L	18.6	41.9	14	35	I	I
Cyanide, weak acid	µg/L	7.47	21.3	21	47	D	D

dissociable (WAD),							
Dilution Ratio		8:1 minimum		8:1 minimum		NC	
Lead, TR,	µg/L	1.8	4.84	9.5	19	D	D
Mercury, Total,	µg/L	0.022	0.057	0.088	0.18	D	D
Total Suspended Solids	mg/L	20	30	20	30	NC	NC
Zinc, TR,	µg/L	141	304	110	250	I	I
WET, chronic	TUc	3.3	9.2	9.8	16	D	D
<b>Pollutants with no limits in both the current and proposed permit</b>							
Selenium,	µg/L	No Limits. Monitor and report only		No limits. Monitor and report only		NC	
<b>Pollutants with no RPTE<sup>4</sup> in proposed permit and limits previous permit</b>							
Silver, TR	µg/L	See below		1.8	3.6	See below	

<sup>1</sup> Change defined as: I-increased limit, D-decreased limit, NC-no change from current permit

<sup>2</sup> AML is Average Monthly Limit

<sup>3</sup> MDL is Maximum Daily Limit

<sup>4</sup> RPTE is Reasonable Potential to Exceed

**Table 2. Effluent Limits for Outfall 002; Jordan Creek Flows Greater than or Equal to 30 cfs and Dilution Ratio Greater than 8:1**

<b>Table 2: Effluent Limits for Outfall 002; Jordan Creek Flows Greater than or Equal 30 cfs and Dilution Ration Greater than or Equal to 8:1</b>							
		Draft Permit		2002 Permit (Current)		Change	
Parameters	Units	AML	MDL	AML	MDL	AML	MDL
<b>Pollutants with limits in both the current and proposed permit</b>							
Cadmium, total recoverable (TR),	µg/L	1.32	2.5	2.2	4.4	D	D
Copper, TR,	µg/L	14.9	33.5	5.6	14	I	I
Cyanide, weak acid dissociable (WAD)	µg/L	7.47	21.3	21	47	D	D
Dilution Ratio		8:1 minimum		8:1 minimum		NC	
Lead, TR,	µg/L	0.84	2.28	4.0	8.1	D	D
Mercury, Total,	µg/L	0.022	0.057	0.088	0.18	D	D
Zinc, TR,	µg/L	107	230	50	110	I	I
WET, chronic	TUc	3.3	9.2	9.8	16	D	D

<b>Pollutants with no limits in both the current and proposed permit</b>					
Selenium,	µg/L	No Limits. Monitor and report only	No limits. Monitor and report only		NC
<b>Pollutants with no RPTE in proposed permit and limits previous permit</b>					
Silver, TR	µg/L	See below	1.8	3.6	See below

All the permitted pollutants for the Jordan Creek outfall (outfall 002) had effluent limits in the previous permit that was administratively extended in 2006. Copper and zinc limits were increased from the previous permit for both the Average Monthly Limit (AML) and Maximum Daily Limits (MDL) for both flow tiers.

### **Pollutants Removed from proposed permit**

The effluent limit for silver was removed from both flow tiers compared to the previous permit because it did not demonstrate a Reasonable Potential to Exceed (RPTE) aquatic criteria. According to EPA's RPTE calculation, silver does not require effluent limits because after dilution the maximum concentrations at the edge of the 25% mixing zone are less than criteria, both the acute criterion at the edge of the zone of initial dilution (acute mixing zone) and the chronic criterion at the edge of the chronic mixing zone. Silver not having a RPTE does not exclude it from antidegradation review. A determination of degradation for pollutants without limits is determined by reviewing whether there are any changes in production, treatment or operation that would cause an increase in the level discharged. After review of Discharge Monitoring Reports (DMRs) for the last permit cycle, silver was detected only once at a concentration of 0.08 µg/L. This single value represents 0.22% (1/448) of the samples analyzed at both flow tiers. There are no changes in operation at the Grouse Creek Unit that would suggest there will be an increase in the levels of silver. Silver will continue to be monitored and reported monthly (see **Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law**). Therefore, the removal of the silver limit will not result in degradation.

### **Pollutants with increased limits at outfall 002**

To analyze any potential impacts of the increased limits on water quality, DEQ conducted a degradation calculation on those increased limits. This is accomplished by calculating the reduction in assimilative capacity from the old limits to the proposed increased limits. The same flow calculations were used in this review as were used to calculate the dilution ratio for the effluent limits. Flows of 16 and 30 cfs and effluent rates which comply with an 8:1 Jordan Creek to Effluent dilution ratio were used to calculate the assimilative capacity loss estimations. Any outcome from this calculation which demonstrates a 10% or greater decrease in assimilative capacity indicates significant degradation (IDAPA 58.01.02.052.a.i). Table 3 displays the reduction in percent assimilative capacity of Jordan Creek for copper and zinc, and WET (only at the higher flow tier). No significant degradation occurs in Jordan Creek for any increased limit at either flow tier at the assigned mixing zone sizes. Because the permitted outfall is the only point source in the Jordan Creek watershed, DEQ believes assigning essentially all the assimilative

capacity below 10% for copper and zinc in Jordan Creek ensures consistent permit compliance and is protective of Jordan Creek. Special conditions to ensure the aquatic life uses are protected in Jordan Creek are described in the section title, “**Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law**”.

Table 3. Jordan Creek Reduction in Assimilative Capacity for Copper and Zinc

<b>Table 3: Jordan Creek Reduction in Assimilative Capacity for Copper and Zinc</b>								
<b>Jordan Creek Flow less than 30 cfs</b>								
		<b>Draft Permit</b>		<b>2002 Permit (Current)</b>		<b>% reduction in Assimilative Capacity</b>		<b>Mixing Zone</b>
<b>Parameters</b>	<b>Units</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>	<b>Assigned</b>
<b>Copper</b>	µg/L	18.6	41.9	14	35	-5.3	-14.2	<b>25%</b>
<b>Zinc</b>	µg/L	141	304	110	250	-4.7	-13.4	<b>25%</b>
<b>Jordan Creek Flow greater than or equal to 30 cfs</b>								
<b>Copper</b>	µg/L	14.9	33.5	5.6	14	7.9	10	<b>5%</b>
<b>Zinc</b>	µg/L	107	230	50	110	4.7	10	<b>8%</b>
<b>WET</b>	TUc	3.3	9.2	9.8	16	-72.2	-75.6	<b>50%</b>
<b>Negative % reduction = gain in assimilative capacity, Positive % Change = loss of assimilative capacity</b>								

## Yankee Fork

The Yankee Fork is considered high quality for cold water aquatic life, and primary contact recreation, domestic water supply and salmonid spawning. As such, the water quality relevant to those uses for which the water is considered high quality of the Yankee Fork must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

To determine whether degradation will occur, DEQ must evaluate how the permit issuance will affect water quality for each pollutant that is relevant to those uses for which the water is considered high quality (IDAPA 58.01.02.052.05).

As noted above, a reissued permit for an existing discharge is treated differently under the antidegradation policy and implementation provisions in the WQS than a permit for a new discharge. DEQ determined that, while the outfall 003 discharge to Yankee fork is not currently under a NPDES permit, it is an existing, rather than a new, discharge.

The WQS define existing and new activity or discharge for antidegradation purposes as follows:

**Existing Activity or Discharge.** An activity or discharge that has been previously authorized or did not previously require authorization.

**New Activity or Discharge.** An activity or discharge that has not been previously authorized. Existing activities or discharges not currently permitted or licensed will be presumed to be new unless the Director determines to the contrary based on review of available evidence. An activity or discharge that has

previously taken place without need for a license or permit is not a new activity or discharge when first licensed or permitted.

The starting point in interpreting these definitions is the language in the definition of existing activity or discharge and the first sentence in the definition of new activity or discharge. This language explains that in order to be existing, the activity or discharge must have been previously authorized or not need authorization. The second sentence of the definition of new activity or discharge further explains what is meant by a previous authorization and the process DEQ will use to make a determination regarding the status of the activity or discharge. The second sentence explains that an existing activity or discharge that is not currently permitted or licensed will be presumed to NOT be previously authorized and therefore presumed to be a new activity or discharge. The second sentence then allows the DEQ Director to overcome the presumption and treat an activity or discharge without a current permit or license as an existing activity or discharge. The authority provided the Director, however, must be read in conjunction with the first sentence and the definition of existing activity or discharge which requires an authorization for an activity or discharge to be treated as an existing discharge or activity. Therefore, the Director of DEQ can only determine that an existing unpermitted activity or discharge is an existing activity or discharge if there is some other current authorization for that discharge or activity which serves the same purpose as the permit or license.

The outfall 003 discharge to Yankee Fork is currently authorized by EPA under CERCLA authorities. Although no NPDES permit is required, CERCLA requires remedial actions attain compliance with applicable or relevant and appropriate standards, including water quality criteria established under the CWA, 42 USC 9621(d). The discharge via Outfall 003 is required to meet effluent limitations in order to comply with criteria developed under section 304 of the CWA, Idaho WQS and EPA NPDES permit guidelines. In addition, GCU is required to conduct effluent and ambient water quality monitoring and submit discharge monitoring reports. See October 24, 2000 Administrative Order on Consent and Scope of Work attached thereto as Appendix 2; 2003 Removal Action Memorandum Grouse Creek Mine Tailings Impoundment Dewatering and Appendix B to the Memorandum. Because the CERCLA authorization for Outfall 003 required compliance with the substantive requirements of the CWA and state WQS and had prescribed effluent limits for the discharge to meet, DEQ believes the authorization serves essentially the same purpose as a NPDES permit, and therefore, is an existing rather than a new discharge.

As an existing discharge, DEQ will determine whether degradation will occur by calculating the difference in water quality that would result from the discharge as authorized under CERCLA and the water quality that would result from the discharge as proposed in the NPDES permit. Table 4, Table 5, and Table 6 compare the current effective limits, the proposed limits and indicate changes in each limit for each flow tier.

**Table 4. Effluent Limits for Outfall 003; Yankee Fork Flows Less than 15 cfs**

<b>Table 4: Effluent Limits for Outfall 003; Yankee Fork Flows Less than 15 cfs</b>							
		<b>Draft NPDES Permit</b>		<b>CERCLA Limits (Current)</b>		<b>Change</b>	
<b>Parameters</b>	<b>Units</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>
<b>Pollutants with limits in the proposed permit</b>							

Cadmium, total recoverable (TR),	µg/L	2.22	4.08	0.7	1.4	I	I
Copper, TR,	µg/L	21.6	29.8	10.4	20.8	I	I
Lead, TR,	µg/L	1.40	4.84	No Limits. Monitor and report only	7.6	D	D
Mercury, Total,	µg/L	0.026	0.053	0.08	0.17	D	D
Total Suspended Solids	mg/L	20	30	20	30	NC	NC
Zinc, TR,	µg/L	158	344	114	229	I	I
WET, chronic	TUc	10	20	No Limits. Monitor and report only			
<b>Pollutants with limits in previous permit, but no RPTE in proposed permit</b>							
		<b>Draft NPDES Permit</b>		<b>CERCLA Limits (Current)</b>		<b>Change</b>	
<b>Parameters</b>	<b>units</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>
Cyanide, weak acid dissociable (WAD),	µg/L	See below		36	72	See below	
Selenium,	µg/L	See below		35	70	See below	

Table 5. Effluent Limits for Outfall 003; Yankee Fork Flows less than 15 to less than 45 cfs

<b>Table 5: Effluent Limits for Outfall 003; Yankee Fork Flows 15 to less than 45 cfs</b>							
		<b>Draft NPDES Permit</b>		<b>CERCLA Limits (Current)</b>		<b>Change</b>	
<b>Parameters</b>	<b>units</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>
<b>Pollutants with limits in the proposed permit</b>							
Cadmium, total recoverable (TR),	µg/L	2.5	4.59	1.36	4.28	I	I
Copper, TR,	µg/L	21.8	40.3	19	43	I	I
Lead, TR,	µg/L	0.75	2.60	No Limits. Monitor and report only	17	D	D
Mercury, Total	µg/L	0.025	0.050	0.12	0.38	D	D
Total Suspended Solids	mg/L	20	30	20	30	NC	NC
Zinc, TR,	µg/L	147	319	119	303	I	I
WET, chronic	TUc	9.1	18	No Limits. Monitor and report only		D	D
<b>Pollutants with limits in previous permit, but no RPTE in proposed permit</b>							
Cyanide, weak acid dissociable (WAD),	µg/L	See below		No Limits. Monitor and report only	166	See below	
Selenium	µg/L	See below		No Limits. Monitor and report only	160	See below	

Table 6. Effluent Limits for Outfall 003; Yankee Fork Flows Greater than or Equal to 45 cfs

<b>Table 6: Effluent Limits for Outfall 003; Yankee Fork Flows Greater than or Equal to 45 cfs</b>							
		<b>Draft NPDES Permit</b>		<b>CERCLA Limits (Current)</b>		<b>Change</b>	
<b>Parameters</b>	<b>units</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>	<b>AML</b>	<b>MDL</b>
<b>Pollutants with limits in the proposed permit</b>							
Cadmium, total recoverable (TR),	µg/L	2.96	5.42	3.2	3.1	I	I
Copper, TR,	µg/L	20.8	38.5	8.4	23	I	I
Lead, TR,	µg/L	0.96	3.32	No Limits. Monitor and report only	7.6	D	D
Mercury, Total,	µg/L	0.035	0.069	0.12	0.17	D	D
Total Suspended Solids	mg/L	20	30	20	30	NC	NC
Zinc, TR	µg/L	167	364	140	261	I	I
WET, chronic	TUc	15	29	No Limits. Monitor and report only		D	D
<b>Pollutants with limits in previous permit, but no RPTE in proposed permit</b>							
Cyanide, weak acid dissociable (WAD),	µg/L	36	72	No Limits. Monitor and report only	72	D	NC
Selenium	µg/L	19	49.8	No Limits. Monitor and report only	70	D	D

## **Pollutants Removed from Proposed Permit**

The CERCLA authorization effluent limits for WAD cyanide and selenium were removed from all three flow tiers of the proposed permit because they did not demonstrate a Reasonable Potential to Exceed (RPTE) aquatic criteria. Specifically, EPA's RPTE calculation of WAD cyanide and selenium demonstrates dilution of maximum concentrations at the edge of the 25% mixing zone are less than criteria for both the acute criterion at the edge of the zone of initial dilution (acute mixing zone) and the chronic criterion at the edge of the chronic mixing zone. A demonstrated RPTE, however, will not exclude WAD cyanide or selenium from the antidegradation review. A determination of degradation for pollutants without limits is determined by reviewing whether there are any changes in production, treatment or operation that would cause an increase in the level discharged. Levels of both pollutants will decrease from previous levels as a result of Hecla's reduction of design flow from 1683 gallons per minute (gpm) maximum to 900 gpm maximum and treatment plant upgrades (completed in 2012). These factors ensure in-stream concentrations will decrease. Both pollutants will continue to be monitored and reported monthly (**see Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law**).

## **Pollutants with increased limits at outfall 003**

To analyze any potential impacts of the increased limits on water quality, DEQ conducted a degradation calculation on those increased limits. This is accomplished by calculating the reduction in assimilative capacity from the old limits to the proposed increased limits. The same flow calculations were used in this review as were used to calculate the dilution ratio for the effluent limits. Flows of 10, 15 and 45 cfs and effluent rates of 300, 500 and 900 gpm were used to calculate the assimilative capacity loss estimations. Any outcome from this calculation which results in a more than 10% decrease in assimilative capacity will indicate significant degradation (IDAPA 58.01.02.052.a.i). Table 7 displays the change in each pollutant limitation and displays the reduction in percent assimilative capacity of Yankee Fork for cadmium, copper and zinc. No significant degradation occurs in the Yankee Fork for any increased limit at any flow tier at the assigned mixing zone sizes. The 003 outfall uses all the assimilative capacity under the 10% threshold for cadmium, copper and zinc. Similar to Jordan Creek's outfall, DEQ believes assigning all the usable assimilative capacity to the proposed limits is consistent with protecting the Yankee Fork and still assigning limits which ensure consistent compliance. Special conditions to ensure the aquatic life uses are protected in the Yankee Fork are described in the section title, "**Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law**".

Table 7. Yankee Fork Reduction in Assimilative Capacity for Cadmium, Copper and Zinc

<b>Table 7: Yankee Fork Reduction in Assimilative Capacity for Cadmium, Copper and Zinc</b>								
		Draft Permit		2002 Permit (Current)		% reduction in Assimilative Capacity		Mixing Zone
<b>Yankee Fork Flow less than 15 cfs</b>								
Parameters	units	AML	MDL	AML	MDL	AML	MDL	Assigned
Cadmium	µg/L	2.22	4.08	0.7	1.4	9.3	8.5	9%
Copper	µg/L	21.6	39.8	10.4	20.8	9.1	9.7	13%
Zinc	µg/L	158	344	114	229	3.7	9.6	23%
<b>Yankee Fork Flow greater than or equal to 15 and less than 45 cfs</b>								
Cadmium	µg/L	2.5	4.59	1.36	4.28	9.8	1.5	18%
Copper	µg/L	21.8	40.3	19	43	3.6	-2.2	25%
Zinc	µg/L	147	319	119	303	2.7	1.6	25%
<b>Yankee Fork Flow equal to or greater than 45 cfs</b>								
Cadmium	µg/L	2.96	5.42	3.2	3.1	-1.7	9.6	19%
Copper	µg/L	20.8	38.5	8.4	23	9.5	7.4	13%
Zinc	µg/L	167	364	140	261	2.2	8.3	25%

Negative % reduction = gain in assimilative capacity.

### New Permit Limits for Pollutants Currently Discharged at outfall 003

Where new limits are proposed in a reissued permit for pollutants in the existing discharge, the effect on water quality is based upon the current discharge quality and the proposed discharge quality resulting from the new limits. Current discharge quality for pollutants that are not currently limited is based upon available discharge quality data (IDAPA 58.01.02.052.06.a.i). Future discharge quality is based upon proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

The proposed permit for the Grouse Creek Unit includes new limits for lead in all flow tiers for the AML only. At each flow tier for the AML, "Monitor and Report" was replaced with a numeric limit. The lead limits in the proposed permit reflect a calculated RPTE based on the observed levels of lead in the ambient water quality samples and observed concentrations actually treated and discharged. This numeric limit ensures lead will be discharged into the Yankee Fork at levels which are less than the observed concentrations previously reported by the facility, resulting in a net increase in assimilative capacity for lead at outfall 003.

New WET (chronic) limits are proposed in the reissued permit as well. Since no limits on WET were previously required by permit, this constitutes an increased level of protection with regard to aquatic toxicity. Our conclusion regarding new WET limits is that they will provide for increased protection of aquatic life and therefore do not result in a loss of assimilative capacity.

## Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

### Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes the following mixing zones for Jordan Creek and the Yankee Fork, identified in Table 8. Because Hecla has long monitored the water chemistry, toxicity, fish communities and aquatic populations in Jordan Creek and the Yankee Fork, data exists which demonstrate mixing zones authorized are protective of aquatic life and salmonid spawning uses in Jordan Creek and the Yankee Fork. These data support the mixing zones authorized below. The Permit will contain effluent limits for several metals, each of which will have a mixing zone that is 25% of the low flow volume or less depending on the analysis. Thus, it is anticipated that the discharge plume will have a small region where standards for these metals can be exceeded while they are diluting.

The Whole Effluent Toxicity (WET) limit also has a mixing zone specification. A water quality based limit, WET limits are included to assure the receiving waters comply with IDAPA 58.01.02.200.02 requiring surface waters be free from toxic substances in concentrations which impair beneficial uses of the receiving water.

Historical bioassessment studies show a healthy aquatic and biological community in the receiving waters. These studies support the continued use of a 100% mixing zone. However, the WQS also provide that mixing zones should be no larger than is necessary, and DEQ has determined that WET limits resulting from smaller mixing zones are achievable and are therefore appropriate given the siting, technological and managerial options available to Hecla. Therefore, DEQ reduced the size of the previously authorized mixing zone to 50% at 002 and 75% at 003 in the proposed permit.

Table 8. Authorized mixing zones for Jordan Creek and Yankee Fork, by parameter and flow tier

<b>Table 8: Jordan Creek and Yankee Fork Authorized Mixing Zones</b>		
<b>Jordan Creek Authorized Mixing Zones</b>		
<b>Parameters</b>	<b>Jordan Creek Flow less than 30 cfs</b>	<b>Jordan Creek Flow greater than or equal to 30 cfs</b>
<b>Cadmium</b>	25%	25%
<b>Copper</b>	25%	5%
<b>Lead</b>	25%	25%
<b>Silver</b>	25%	25%
<b>Zinc</b>	25%	8%
<b>Ammonia</b>	25%	25%
<b>Arsenic</b>	25%	25%
<b>Cyanide</b>	25%	25%
<b>Mercury</b>	25%	25%
<b>Selenium</b>	25%	25%
<b>WET</b>	50%	50%

<b>Nitrate-Nitrite</b>	25%	25%	
<b>Yankee Fork Authorized Mixing Zones</b>			
<b>Parameters</b>	<b>Yankee Fork Flow less than 15 cfs</b>	<b>Yankee Fork Flow greater than or equal to 15 and less than 45 cfs</b>	<b>Yankee Fork Flow greater than 45 cfs</b>
<b>Cadmium</b>	9%	18%	19%
<b>Copper</b>	13%	25%	13%
<b>Lead</b>	25%	25%	25%
<b>Silver</b>	25%	25%	25%
<b>Zinc</b>	23%	25%	25%
<b>Ammonia</b>	25%	25%	25%
<b>Arsenic</b>	25%	25%	25%
<b>Cyanide</b>	25%	25%	25%
<b>Mercury</b>	25%	25%	25%
<b>Selenium</b>	25%	25%	25%
<b>WET</b>	75%	75%	75%

## Other Conditions

1. Silver, WAD cyanide and selenium shall continue to be monitored monthly, consistent with tables 1 and 2 of the NPDES permit.
2. This certification is conditioned upon the requirement that any material modification of the permit or the permitted activities—including without limitation, any modifications of the permit to reflect new or modified TMDLs, wasteload allocations, site-specific criteria, variances, or other new information—shall first be provided to DEQ for review to determine compliance with Idaho WQS and to provide additional certification pursuant to Section 401.
3. Jordan Creek and Yankee Fork shall have biologic monitoring conducted and completed annually consistent with or more rigorous than Idaho's Beneficial Use Reconnaissance Project protocols.

## Right to Appeal Final Certification

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

Questions or comments regarding the actions taken in this certification should be directed to Troy Saffle, Idaho Falls Regional Office, at 208.528.2650 or troy.saffle@deq.idaho.gov.

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Eric Neher

Regional Administrator

Idaho Falls Regional Office