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

February 12, 2020

NPDES Permit Number(s): ID0000175 Hecla Limited Lucky Friday Unit

Receiving Water Body: South Fork Coeur d'Alene River

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 our 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 modified 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.

Antidegradation Review

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

- Tier I 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 I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II 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 III 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 I protection for that use, unless specific circumstances warranting Tier II 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 Lucky Friday Unit discharges the following pollutants of concern: cadmium, lead, silver, zinc, copper, mercury, total suspended solids (TSS), pH, temperature, and whole effluent toxicity (WET). Effluent limits have been developed for cadmium, lead, zinc, copper, mercury, TSS, and pH. No effluent limits are proposed for temperature, silver, or WET.

Permit History

The prior NPDES permit for the Lucky Friday Unit was first issued in 2003 but was modified twice, once in 2006 and again in 2008. This permit will be referenced in this certification as the 2003 permit to reflect the start date of the permit cycle but reviewers should be sure they look at the 2006 and 2008 modifications also.

Discharge Information

Lucky Friday Unit has a surface mill, two water treatment facilities, four tailings impoundments, and three outfalls. Currently, Tailings Impoundment Nos. 1 and 2 are closed, and a third, Tailings Impoundment No. 3, is in the process of closure. A fourth tailings impoundment, Tailings Impoundment No. 4, has been constructed and has operated since the fourth quarter of 2010. Tailings Impoundment No. 3 is only used for storm surge storage and storage of water treatment residuals from water treatment plant 3 (WTP3).

Although two of the impoundments are closed, outfalls associated with those impoundments are still active. Water treatment plant 2 (WTP2) primarily discharges through Outfall 002 but can also be diverted to Outfall 001. WTP2 collects and treats mine water, mill water, ground water and captured storm water. WTP3 discharges through Outfall 003 and also collects and treats mine water, mill water, ground water and captured storm water.

Since the last permit was issued, Hecla's construction of the two water treatment facilities has resulted in dramatic improvements to discharge water (effluent) quality. To achieve this high level of metals removal, pH must be elevated. DEQ modeled a proposed effluent discharge at pH10 and determined that a mixing zone of 25% of the critical low flow for Outfall 001/002 will provide for safe fish passage but that Outfall 003 must be limited to a maximum pH of 9.9 to provide for safe fish passage (see 'Mixing Zones' pg. 13 and EPA Fact Sheet V.C). Acidification of the discharge is not required, which has the added benefits of avoiding hazards associated with the transport, handling, mixing, and discharge of an acid.

Improvements will continue with the proposal to relocate Outfall 003 to the north side of the South Fork Coeur d'Alene River which will result in improved mixing. Associated with the relocation, all equipment will be moved to the north side of the river and the foot bridge will be

removed. The closure of TP3 will also allow removal of the vehicle bridge that crosses the river along with the associated tailings pipeline and restoration of the riverbank. An alternative access road to TP3 for closure maintenance is being constructed that uses improved public roads to cross the river. Closure plans also include riparian vegetation planting to provide shade along the river and a culvert removal in Harris Creek. Flow from the Lindroos Draw will be day-lighted (removed from its pipe) and will continue to flow into Harris Creek. The Lucky Friday Unit also redirected their domestic wastewater to the South Fork Sewer District rather than through their treatment process. These improvements all benefit water quality of the South Fork Coeur d'Alene River by reducing nutrients, reducing sedimentation, improving shade, and stabilizing banks.

Since the 2003 permit, critical low flow of the South Fork Coeur d'Alene River has increased from 7.3 cfs to 12.1 cfs at Outfall 002 and from 1.4 cfs to 6.2 cfs at Outfall 003. Additional data collected during the 2003 permit cycle indicates that effluent flow from Outfall 003 has also increased from 0.56 cfs to 1.66 cfs.

Water treatment plant improvements have resulted in a consistent treated effluent, irrespective of season or variability in influent wastewater quality. These improvements prompted the decision to exclude seasonal dilution for copper, mercury, and silver in the proposed permit, which simplified effluent limits for the three mine outfalls, from three sets of limits in the previous permit to two sets in the proposed permit. Lucky Friday has the ability to direct effluent from WTP2 to either Outfall 002 or Outfall 001.

Water quality-based effluent limits are calculated based on the water quality criteria, receiving water flow and concentration, and effluent flow and concentration. Incoming tributaries increase river flow downstream of Outfall 002 at Outfall 001; therefore, water quality-based effluent limits derived from river conditions at Outfall 002 are based on lower flow rates and effluent limits at Outfall 001 potentially could be made less stringent. See pages 9 through 11 of this certification for a discussion of effluent limits in the permit that could be made less stringent.

The 2003 permit used effluent hardness to calculate criteria (standards) for cadmium, lead and zinc. Those criteria were then used to calculate effluent limits for these three metals. Effluent limits for other hardness based metals in the 2003 permit were calculated using the hardness of the river below the outfall (mixed hardness). The WQS at IDAPA 58.01.02.210.03.c.ii require that ambient hardness of the receiving water be used to calculate the criteria. Hardness data collected during the 2003 permit cycle provides the in-stream hardness data for calculating all hardness-based criteria and subsequent use of those criteria in developing effluent limits. Consequently, all effluent limits for hardness based metals in the proposed permit are calculated using the ambient hardness of the river below the outfall consistent with the WQS.

EPA recently approved DEQ's Mixing Zone Policy, which was adopted into the state WQS at IDAPA 58.01.02.060. The proposed permit restricts mixing to 25% of the critical low flow for mercury. See page 13 of this certification for more discussion on mixing zones. There are no effluent limits for silver in the proposed permit.

Site-specific criteria have been developed for the South Fork Coeur d'Alene Subbasin for cadmium, lead, and zinc (IDAPA 58.01.02.284). These site-specific criteria were used to calculate effluent limits for cadmium, lead, and zinc and the assimilative capacity analyses for both outfalls. The location specific criteria also were used to calculate limits in the 2003 permit.

DEQ has adopted a new method for calculating copper criteria using the biotic ligand model (BLM). EPA approved the BLM-based method on May 2, 2019. Therefore, the new method is applicable for Clean Water Act purposes and is used as the basis for copper effluent limitations in the permit. The new method derives copper criteria based on 11 different in-river water quality parameters and the collection of 24 consecutive monthly river samples to populate the BLM. Monitoring for these parameters has been added to the permit along with copper BLM-based effluent limits that were developed using conservative estimates as a substitute for measured in-stream parameters. The new copper BLM-based effluent limits also have a compliance schedule to allow time to meet these new effluent limits.

The BLM-based effluent limits were derived using conservative estimates of BLM parameters. However, DEQ's *Implementation Guidance for the Idaho Copper Criteria for Aquatic Life* (BLM Guidance) allows for other potential means of estimating conservative BLM parameters in the absence of site-specific data. Because adequately protective copper criteria could be derived using different estimates, the copper effluent limits could be made less stringent in this permit, as discussed later in this certification (see 'Conditions in the Permit that Can Be Made Less Stringent' pg. 9). Future data collection is expected to provide site-specific inputs to the BLM, which would require different copper criteria under IDAPA 58.01.02.210.03.c.v.(4).

Receiving Water Body Level of Protection

The Lucky Friday Unit discharges to the South Fork Coeur d'Alene River within the South Fork Coeur d'Alene Subbasin assessment unit (AU) 17010302PN011_03 (South Fork Coeur d'Alene River between Daisy Gulch and Canyon Creek). This AU has the following designated beneficial uses: cold water aquatic life and secondary contact recreation. Salmonid spawning is an existing use as documented by DEQ's Beneficial Use Reconnaissance Monitoring in 2014 and DEQ's Summary of Hecla Lucky Friday Bioassessment Salmonids Data (2007-2018). Temperature monitoring has been added to the permit for all outfalls to assess compliance with this beneficial use. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

According to DEQ's 2016 Integrated Report, this AU is not fully supporting its aquatic life use. Causes of impairment include combined biota/habitat bioassessments, which indicate a biological impairment for the water body. Metals are suspected as the cause of impairment; future stressor identifications and other evaluations will be performed on this AU. As such, DEQ will provide Tier I protection (IDAPA 58.01.02.051.01) for the aquatic life use. The contact recreation beneficial use is unassessed. DEQ must provide an appropriate level of protection for the contact recreation use using information available at this time (IDAPA 58.01.02.052.05.b). Based on *E. coli* data collected in 2017 and instream metals monitoring (metals significant to human health IDAPA 58.01.02.210.01.b) conducted by the permittee, the recreational use for South Fork Coeur d'Alene River is determined to be fully supported for the purposes of this certification. Tier I and Tier II protection will be provided for the recreation use.

Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I 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 and designated uses and the level of water quality necessary to protect existing and designated uses

shall be maintained and protected. In order to protect and maintain existing and designated 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 existing and designated beneficial uses.

During the 2003 permit cycle, the permittee increased their effluent flow from Outfall 003. To prevent further degradation of downstream cadmium, lead and zinc impairment of South Fork Coeur d'Alene River, these metals were not allowed to increase beyond the limits in the 2003 permit. Unlike nutrients, metals are not pollutants that dissipate; nor are metals assimilated into other processes that render them less harmful; and, because the South Fork Coeur d'Alene River has a pronounced seasonal high flow, settling of particulate bound metals and retention at the point of outfall is unlikely.

The proposed permit includes new copper and mercury effluent limits that ensure WQS will not be exceeded due to the increased effluent flow. The 2003 permit included effluent limits for silver. However, due to improved water treatment, the proposed permit does not include effluent limitations for silver, as it no longer has reasonable potential to exceed the silver aquatic life criterion. Because there is no reasonable potential to exceed the criterion, removal of the silver limits is consistent with the Tier I provisions of the antidegradation policy. Additional temperature monitoring has been added to the permit for all outfalls. DEQ will use this data to assess compliance with temperature criteria. The resulting effluent limitations and associated requirements contained in the Lucky Friday Unit permit are set at levels that ensure compliance with narrative and numeric criteria in the WQS.

The 2003 permit required yearly bioassessment monitoring below Outfalls 001/002 and 003. Data collected can assist with future development of TMDLs. DEQ has determined that an adequate amount of bioassessment data has been collected and there is no need for continuing this requirement in the proposed permit. Other instream monitoring requirements have been added to the proposed permit for use in determining location specific inputs for the copper BLM. Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limitations that are consistent with wasteload allocations in the approved TMDL.

Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04). Currently, there has not been a comprehensive subbasin assessment and TMDL developed for the South Fork Coeur d'Alene watershed for metals pollutants.

The EPA-approved *South Fork Coeur d'Alene River Sediment Subbasin Assessment and Total Maximum Daily Load* (May 17, 2002) establishes wasteload allocations for sediment. Sediment wasteload allocations in the TMDL for Outfall 001 are 45.1 tons/year and for Outfall 003 is 34.4 tons/year. These values translate into 247 lbs/day for Outfall 001(when Outfall 002 is diverted to Outfall 001) or 002, and 188.5 lbs/day for Outfall 003. These wasteload allocations are designed to ensure the South Fork Coeur d'Alene River will achieve the water quality necessary to support its existing and designated aquatic life beneficial uses and comply with the applicable numeric

and narrative criteria. The effluent limitations and associated requirements contained in the Lucky Friday Unit permit for sediment are set at levels that comply with these wasteload allocations.

In summary, the effluent limitations and associated requirements contained in the Lucky Friday Unit permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS and the wasteload allocations established in the *South Fork Coeur d'Alene River Sediment Subbasin Assessment and Total Maximum Daily Load.* Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the South Fork Coeur d'Alene River in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

High-Quality Waters (Tier II Protection)

The South Fork Coeur d'Alene River is considered high quality for secondary contact recreation. As such, the water quality relevant to secondary contact recreation uses of the South Fork Coeur d'Alene River 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 secondary contact recreation uses of the South Fork Coeur d'Alene River (IDAPA 58.01.02.052.05). These include the following: cadmium, lead, zinc, copper, and mercury. Effluent limits are set in the proposed permit for these pollutants.

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).

Pollutants with Limits in the Current and Proposed Permit - Cadmium, Copper, Lead, Mercury, and Zinc

For pollutants significant to secondary contact recreation 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), and the future discharge quality is based on the proposed permit limits (IDAPA 58.01.02.052.06.a.ii). For the Lucky Friday Unit permit, this means determining the permit's effect on water quality, based upon the limits for mercury in the current and proposed permits. Tables 3 and 4 provide a summary of the current permit limits and the proposed or reissued permit limits.

Due to an increase in the proposed permit limit at Outfall 001/002 (Table 3) and an increase in effluent flow from Outfall 003 over the last permit cycle, DEQ must determine if these increases will result in significant degradation. Significant degradation occurs when the discharge of the pollutant will cumulatively decrease the remaining assimilative capacity by more than 10% percent or, if less than 10%, when determined by the Department to be significant (IDAPA

58.01.02.052.08.a). Generally, this analysis entails a comparison of the pollutant concentration in the discharge against the concentration in the receiving water relative to the applicable numeric water quality criterion for the pollutant under analysis. The Idaho WQS include numeric "fish only" criteria that are designed to be protective of recreational uses (IDAPA 58.01.02.210.b). Mercury, however, does not have numeric "fish only" criteria in the Idaho WQS. To conduct an assimilative capacity analysis, DEQ must therefore, determine appropriate values to use in place of numeric criteria for mercury.

DEQ has determined it is reasonable and appropriate to use the Safe Drinking Water Act maximum contaminant level goal (MCLG) as the basis for evaluating the assimilative capacity of mercury in the South Fork Coeur d'Alene River. MCLGs represent the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, allowing for an adequate margin of safety. They differ from the more commonly known Maximum Contaminant Levels (MCLs) because the MCLGs do not take into consideration treatment limitations or other implementation factors that modify MCLs. MCLGs are always either equal to or more conservative than MCLs. By contrast, Idaho's secondary contact recreation use is intended to protect activities in and on the water where ingestion of raw water is unlikely to occur (IDAPA 58.01.02.100.02.b). Using MCLGs to evaluate pollutants significant to secondary contact recreation is thus a conservative and protective approach.

DEQ compared the MCLG for mercury with the 2004 Idaho WQS numeric "fish only" criteria for mercury. The 2004 WQS mercury criteria were removed from the rules not because they were flawed but rather Idaho DEQ was moving towards adopting fish tissue based criteria. After comparing the two criteria, we found that the 2004 WQS criterion was more protective than the MCLG and selected it for use in the mercury assimilative capacity analyses in Table 1 and 2 below.

Table 1. Assimilative Capacity Analysis for Outfall 001/002[1].

Pollutant	Units	2003 Permit	Current Permit	% Change in Assimilative Capacity[1]	Human Health Criteria/MCLG [2]
Mercury AML	µg/L	0.026	0.036	0.5	0.15
Mercury MDL	µg/L	0.052	0.099	2.2	0.15

[1] Upstream critical flow is 12.1 cfs; Upstream pollutant concentration was the 95th percentile of quarterly instream monitoring; Mercury mixing zones used to calculate the proposed effluent limits were 25% of the critical low flow; the proposed permit effluent flow rate is 0.87 cfs.
[2] See discussion under *Pollutants with Limits in the Current and Proposed Permit - Cadmium, Copper, Lead, Mercury, and Zinc.*

Table 2. Assimilative Capacity Analysis for Outfall 003[1].

Pollutant	Units	2003 Permit	Current Permit	% Change in Assimilative Capacity[1]	Human Health Criteria/MCLG [2]
Mercury AML	µg/L	0.021	0.0135	0.6	0.15
Mercury MDL	µg/L	0.042	0.041	3.4	0.15

[1] Upstream critical flow is 6.2 cfs; Upstream pollutant concentration was the 95th percentile of quarterly instream monitoring; Mercury mixing zones used to calculate the proposed effluent limits were 25% of the critical low flow; 2003 effluent flow rate was 0.56 cfs and the proposed permit effluent flow rate is 1.66 cfs.
[2] See discussion under *Pollutants with Limits in the Current and Proposed Permit - Cadmium, Copper, Lead, Mercury, and Zinc.*

The results of the assimilative capacity analysis for mercury for each outfall demonstrate less than 10% reduction in assimilative capacity and DEQ has determined that the calculated increases are insignificant. Therefore, no further Tier II analysis is required for this pollutant.

The discharge of cadmium, lead, copper and zinc will not result in degradation because the proposed permit decreases both the concentration and mass effluent limitations for these pollutants.

Table 3. Comparison of current and proposed permit limits at Outfall 001 or 002. [bc]

Parameter	Units	2003 Permit			Proposed Permit			Change[a]
		Flow Tier (cfs)	Average Monthly Limit	Maximum Daily	Flow Tier (cfs)	Average Monthly Limit	Maximum Daily	
Pollutants with limits in both the current and proposed permit								
Cadmium	µg/L	n/a	0.70	1.8	n/a	0.5	1.4	D
	lb/day	n/a	0.0098	0.025	n/a	0.002	0.006	
Lead	µg/L	n/a	30	50	n/a	12.8	34.4	D
	lb/day	n/a	0.42	0.70	n/a	0.060	0.162	
Zinc	µg/L	n/a	71	190	n/a	57.6	145.5	D
	lb/day	n/a	0.99	2.66	n/a	0.271	0.686	
Copper BLM	µg/L	-	-	-	n/a	0.4	1.0	D
	lb/day	-	-	-	n/a	0.002	0.005	D
Mercury	µg/L	<8.6 cfs	0.026	0.052	n/a	0.036	0.099	I
	lb/day	<8.6 cfs	0.00036	0.00072	n/a	0.0002	0.0005	D
Silver	µg/L	<8.6 cfs	1.6	2.7	-	-	-	D
	lbs/day	<8.6cfs	0.022	0.38	-	-	-	D
TSS	mg/L	-	20	30	-	20	30	NC
	lbs/day	annual average not to exceed 247 lbs/day			annual average not to exceed 247 lbs/day			NC
pH	s.u.	6.5–10.0 all times			6.5–10.0 all times			NC
E. coli	no./100 mL	-	report	-	-	-	-	D
Pollutants with first time limits in the proposed permit - none								
Pollutants with no limits in either the current and proposed permit								
Temperature	°C	—	—	Report	—	—	Report	NC
Whole Effluent Toxicity	TUc	-	-	Report	-	-	Report	NC

[a] NC = no change in effluent limit from current permit; I = increased effluent limit from current permit; D = decreased effluent limit from current permit

[b] When comparing current permit limits to proposed permit limits please read the *Discharge Information* section of this certification to learn about variables that affect effluent limits.

[c] This Table is for comparative purposes only.

Table 4. Comparison of current and proposed permit limits at Outfall 003.[bc]

Parameter	Units	2003 Permit			Proposed Permit			Change[a]
		Flow Tier (cfs)	Average Monthly Limit	Maximum Daily	Flow Tier (cfs)	Average Monthly Limit	Maximum Daily	
Pollutants with limits in both the current and proposed permit								
Cadmium	µg/L	n/a	1.1	2.1	n/a	0.8	1.5	D
	lb/day	n/a	0.21	0.040	n/a	0.007	0.013	
Lead	µg/L	n/a	45	75	n/a	18.6	24.9	D
	lb/day	n/a	0.85	1.4	n/a	0.17	0.22	
Zinc	µg/L	n/a	150	260	n/a	52.9	164.6	D
	lb/day	n/a	2.8	4.9	n/a	0.47	1.47	
Copper BLM	µg/L	-	-	-	n/a	0.5	0.9	D
	lb/day	-	-	-	n/a	0.005	0.008	D
Mercury	µg/L	<8.0 cfs	0.021	0.042	n/a	0.01	0.04	D
	lb/day	<8.0 cfs	0.00040	0.00079	n/a	0.0001	0.0004	D
Silver	µg/L	<8.0 cfs	1.9	3.2	-	-	-	D
	lbs/day	<8.0cfs	0.036	0.060	-	-	-	D
TSS	mg/L	-	20	30	-	20	30	NC
	lbs/day	annual average not to exceed 188 lbs/day			annual average not to exceed 188.5 lbs/day			NC
pH	s.u.	6.5–10.0 all times			6.0–9.9 all times			NC
E. coli	no./100 mL	-	report	-	-	-	-	NC
Pollutants with first time limits in the proposed permit - none								
Pollutants with no limits in either the current and proposed permit								
Temperature	°C	—	—	Report	—	—	Report	NC
Whole Effluent Toxicity	TUc	-	-	Report	-	-	Report	NC

[a] NC = no change in effluent limit from current permit; I = increased effluent limit from current permit; D = decreased effluent limit from current permit

[b] When comparing current permit limits to proposed permit limits please read the *Discharge Information* section of this certification to learn about variables that affect effluent limits.

[c] This Table is for comparative purposes only.

The 2003 permit included effluent limits for silver. However, due to improved water treatment, the proposed permit does not include effluent limitations for silver, as it no longer has reasonable potential to exceed the silver aquatic life criterion. This reduction in the discharge of silver has improved water quality and is consistent with the Tier II provisions of the antidegradation policy.

In summary, DEQ concludes that this discharge permit complies with the Tier II provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).

Permit Conditions That Can Be Made Less Stringent

Pursuant to 40 C.F.R. § 124.53(e)(3), DEQ notes that the following permit conditions can be made less stringent without violating Idaho's water quality standards or other appropriate water quality requirements of Idaho law.

Water Quality-Based Effluent Limitations for Outfall 001

Permit Part I.B.1, Table 2 sets forth effluent limitations and monitoring requirements for a discharge from either Outfall 001 or 002. Both outfalls discharge to the South Fork Coeur d'Alene River, but Outfall 001 is located approximately 5,400 feet downstream of Outfall 002. There are two tributaries that contribute additional flow to the river between the two outfalls. Available data indicate that the critical low flow in the South Fork Coeur d'Alene River is greater at Outfall 001 than at Outfall 002. Therefore, the water quality-based effluent limitations for pH, copper, cadmium, lead, zinc, and mercury in Permit Part I.B.1, Table 2 can be made less stringent for Outfall 001 by accounting for the additional flow at Outfall 001.

Copper Effluent Limitations for All Outfalls

Permit Part I.B.1, Tables 2 and 3 set forth water quality-based effluent limitations for copper at Outfalls 001, 002, and 003. These copper effluent limitations were developed to meet Idaho's copper BLM criteria, which became effective for Clean Water Act purposes with EPA's approval on May 2, 2019. IDAPA 58.01.02.210.03.c.v sets forth the copper BLM criteria. Under that rule, copper criteria may be derived using either of the following methods: (1) the output of BLM software in accordance with IDAPA 58.01.02.210.03.c.v.(1)(a), or (2) an estimate derived from BLM outputs in accordance with IDAPA 58.01.02.210.03.c.v.(1)(b). A suite of site-specific data is necessary to use the first method, and the second method allows for criteria to be derived when site-specific data is not available. Since there is insufficient site-specific data for the Lucky Friday Unit discharges, EPA used the second method and developed the copper effluent limitations based on DEQ's BLM Guidance. Once site-specific data is collected as specified in the permit, water quality-based effluent limits for copper may be made less stringent consistent with federal law or IDAPA 58.01.25, as applicable. Also, use of site-specific data to derive a dissolved metals translator for copper may result in less stringent water quality-based effluent limits for copper.

The BLM Guidance recommends a variety of approaches to estimating protective copper BLM criteria when data are absent. As discussed in the Fact Sheet, EPA consulted Table 2 of the BLM Guidance and selected the corresponding criteria estimate according to the guidance methodology. This choice, although consistent with the copper BLM criteria and the BLM Guidance, is not the only option for estimating protective criteria for the receiving water body. In the absence of site-specific data, any estimate that is derived from BLM outputs and is scientifically sound and protective of the aquatic life use in the receiving water body is allowed under the copper BLM criteria (IDAPA 58.01.02.210.03.c.v.(1)(b)).

When no data are available, DOC or pH data are absent, or available data are determined not to adequately characterize critical conditions, conservative criteria estimates should be used to estimate critical conditions of a water body or AU and ensure estimated criteria are protective of aquatic life. The BLM Guidance recommends that the lowest of the conservative estimates provided be used. However, alternatives such as evaluating a paired watershed with a full dataset or providing a justifiable rationale for use of a different conservative estimate of the copper BLM criterion from the conservative estimates table that would demonstrate selecting a different value still protects the beneficial uses of the water body.

Methylmercury Fish Tissue Monitoring

DEQ has determined that methylmercury monitoring is not necessary to meet WQS because fish tissue sampling for methylmercury has already been completed. In 2016, fish in the South Fork Coeur d'Alene River were collected by DEQ at various locations including below the Lucky Friday Unit outfalls to determine concentrations of methylmercury in their tissue. The purpose of this monitoring was to determine if there are human health risks from the consumption of fish in the South Fork Coeur d'Alene River. Data indicated that methylmercury in the South Fork Coeur d'Alene River fish tissue does not result in elevated human health risks from consumption *Draft Letter Health Consultation Coeur d'Alene Basin Fish Tissue Analysis and Consumption Advisory, Coeur d'Alene Idaho* (November, 2018). Results of this monitoring effort will be reported by the Idaho Department of Health and Welfare in 2019. DEQ has determined that this monitoring data meets sufficient rigor, quality and relevance to determine if an impairment of a beneficial use exists, to update the Integrated Report, and inform future permits (IDAPA 58.01.02.054.05). No additional monitoring is required to accomplish these tasks. In addition, fish populations in the South Fork Coeur d'Alene River are depressed and additional lethal sampling of these populations is unwarranted.

Compliance Schedule

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for water quality–based effluent limits issued in a permit for the first time. The Lucky Friday Unit cannot immediately achieve compliance with the BLM-based effluent limits for copper; therefore, DEQ authorizes a compliance schedule and interim requirements as set forth below. The copper BLM effluent limits are based on conservative estimates of water quality, not actual water quality data. To obtain the actual copper criteria that future copper effluent limits will be based on, the first two years of this compliance schedule allows time for the permittee to collect in-stream monitoring data to determine their BLM based copper effluent limits. In this way, the mine can most effectively design a copper removal system that assures final limits can be met. Interim copper limits were derived from DEQ's hardness dependent metals criteria.

Table 5. Interim Limits Outfall 001 or 002.

Parameter	Units	Average Monthly Limit	Maximum Daily Limit
Copper	µg/L	17.5	48.7
	lb/day	0.08	0.23

Table 6. Interim Limits Outfall 003.

Parameter	Units	Average Monthly Limit	Maximum Daily Limit
Copper	µg/L	4.9	8.1
	lb/day	0.04	0.07

DEQ will grant a compliance schedule for Outfall 001/002 and Outfall 003 in order to allow the Lucky Friday Unit to meet the new copper BLM limits. The permittee requires time to evaluate engineering and non-engineering options for achieving compliance with copper BLM limits as well as to design, install, and test the equipment and process, if engineering solutions are chosen.

DEQ authorizes a period of five (5) years from the effective date of the final modified permit to meet final effluent limits as specified in the final modified permit. This compliance schedule provides the permittee a reasonable amount of time to achieve the final effluent limits as specified in the final modified permit. At the same time, the schedule ensures that compliance with the final effluent limits is accomplished as soon as possible.

Compliance Schedule Requirements

- The permittee must comply with all effluent limitations and monitoring requirements in Part I of the final modified permit beginning on the effective date of the final modified permit, except those for which a compliance schedule is specified.

- The permittee must achieve compliance with the final effluent limitations for copper as set forth in Part I.B.1 of the permit, not later than five (5) years after the effective date of the final modified permit.

- While the copper schedule of compliance specified in Permit Part II.A. are in effect, the permittee must complete interim requirements and meet interim effluent limits and monitoring requirements specified in Part II.A. of the permit.

- All other provisions of the permit, except the interim effluent limits for copper as described in Table 5 & 6 of this certification, must be met after the effective date of the final modified permit.

Interim Requirements

- By one year from the effective date of the final modified permit, the permittee must provide to EPA and DEQ a summary of the first year of copper BLM monitoring data as specified in Part I.D. of the permit.

- By two years from the effective date of the final modified permit, the permittee must provide to EPA and DEQ a summary of the second year of copper BLM monitoring data as specified in Part I.D. of the permit.

- By three years from the effective date of the final modified permit, the permittee must provide to EPA and DEQ a report outlining preliminary plans for compliance with final effluent limits, which may include engineering or non-engineering options. If treatment upgrades are chosen as the proposed method for achieving compliance with final effluent limits, the permittee is to provide a schedule for completing treatment upgrades and pilot testing.

- By four years from the effective date of the final modified permit, the permittee must provide written notice to EPA and DEQ that pilot testing of the technology that will be employed to achieve the final limits has been completed and must submit a summary report of results and plan for implementation. If pilot testing is determined to be unnecessary by the permittee, the summary report shall include the reasons for this decision. The written notice shall also include the selected upgrades and a construction schedule that ensures that final effluent limit can be achieved by year five (5).

- By five years from the effective date of the final modified permit, the permittee must submit to EPA and DEQ a written report providing details of a completed start up and optimization phase of the upgrades and must achieve compliance with the final effluent limitations of Part I.B. of the final modified permit.

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes 25% of the critical low flow volumes of South Fork Coeur d'Alene River for mercury and WET. Additionally, DEQ authorizes a mixing zone that utilizes up to 25% of the critical low flow volumes of South Fork Coeur d'Alene River to accommodate an effluent pH of up to 10 s.u. for Outfall 001 or 002 and an effluent pH up to 9.9 s.u. for Outfall 003. This elevated pH is necessary to remove metals from the effluent and comply with limits (see Fact Sheet V.C. for details). Therefore, with a mixing zone, there is a reasonable assurance that a discharge of pH 10 s.u. for Outfall 002 and a pH of 9.9 s.u. for Outfall 003 will comply with the applicable provisions of the CWA and the WQS. No mixing zone is authorized for the copper BLM-based effluent limits. Using conservative BLM model inputs in lieu of in-stream data, there is no remaining assimilative capacity in this water body for dilution.

Pollutant Trading

Pursuant to IDAPA 58.01.02.055.06, DEQ authorizes pollutant trading for cadmium, lead, and zinc. Trading must be conducted in a manner that is consistent with the most recent version of DEQ's *Water Quality Pollutant Trading Guidance*, available at: http://www.deq.idaho.gov/water-quality/surface-water/pollutant-trading/

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

1. The permittee shall consult with and obtain approval from DEQ for all in-stream monitoring locations.
2. Water chemistry data collected for use in the biotic ligand model shall follow the *Implementation Guidance for the Idaho Copper Criteria for Aquatic Life* (August, 2017) to guide this sampling effort.
3. A Monitoring Plan and Quality Assurance Plan shall be developed for the BLM water chemistry data collection and submitted to DEQ for review and approval. The permittee shall consult with DEQ during the development of the Monitoring Plan for determination of the need for upstream monitoring in addition to the required downstream monitoring. Continuous pH monitoring shall be included in the Monitoring Plan. The Monitoring Plan shall include the collection of at least 24 consecutive monthly samples.
4. After 24 consecutive monthly samples for the copper BLM have been collected, DEQ shall review and provide approval for its use as the revised copper criteria if conditions of the Quality Assurance Plan have been met.

5. After DEQ approval of the 24 month BLM data collection, the permittee may request that BLM instream monitoring be decreased to quarterly.

6. Upon DEQ approval of the 24 consecutive monthly instream samples for the copper BLM criteria, the permittee may request reopening of the permit to recalculate the copper BLM effluent limits using the updated copper BLM criteria.

7. Part I.D. of the permit requires quarterly surface water temperature monitoring for Outfall 002 and Outfall 003. This monitoring requirement must be changed so that the data is useful to DEQ in determining compliance with temperature criteria. Temperature shall be sampled upstream and downstream of each Outfall for at least two consecutive years during the June through November timeframe. Temperature monitoring shall begin after the effective date of the permit on June 1 and ending November 30. After two consecutive years of data, no surface water temperature monitoring is required other than necessary for the copper BLM. The permittee shall prepare a Monitoring Plan and Quality Assurance Plan for the temperature monitoring for DEQ review and approval. The Monitoring Plan shall include effluent temperature monitoring concurrent with the instream continuous temperature monitoring. The permittee shall consult with DEQ Coeur d'Alene Regional Office prior to the development of the Monitoring Plan to obtain the frequency and location of instream temperature monitoring.

8. The permittee shall prepare a mixing zone analysis of their proposed location for Outfall 003. The analysis shall utilize Cormix modeling and provide a summary of the findings as they relate to the WQS. DEQ must review and approve of the Cormix analysis before the permittee can relocate Outfall 003.

9. 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.

Right to Appeal Final Modified Certification

The final modified 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 modified certification.

Questions or comments regarding the actions taken in this certification should be directed to Chantilly Higbee at (208) 769-1422 or by email: Chantilly.Higbee@deq.idaho.gov.

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office