STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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Brad Little, Governor
John H. Tippets, Director

June 3, 2019

Ms. Susan Poulsom
U.S. EPA, Region 10
Office of Water and Watersheds
NPDES Permits Unit (OWW-191)
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

Subject: FINAL §401 Water Quality Certifications: Hecla Limited Lucky Friday Mine (NPDES Permit No. ID0000175) & U.S. Silver Coeur Galena Mines (Permit No. ID0000027)

Dear Ms. Poulsom:

The Idaho Department of Environmental Quality (DEQ) has reviewed the final permit and fact sheet for each of the above referenced U.S. EPA proposed final permits for mining facilities in Idaho. Section 401 of the Clean Water Act requires that states issue certifications for activities which are authorized by a federal permit and which may result in the discharge to surface waters. In Idaho, DEQ is responsible for reviewing permit activities and evaluating whether the activity will comply with Idaho's Water Quality Standards, including any applicable water quality management plans (e.g., total maximum daily loads). A federal discharge permit cannot be issued until DEQ has provided certification or waived certification either expressly, or by taking no action.

This letter is to inform you that DEQ is issuing the attached final §401 certifications subject to the terms and conditions contained therein.

If you have any questions or concerns, please feel free to contact Thomas Herron (208) 666-4631 or via email at Thomas.herron@deq.idaho.gov.

Sincerely,

Daniel Redline
Coeur d'Alene Regional Administrator

Cc: Cindi Godsey, U.S. EPA
Loren Moore, DEQ State Office

Idaho Department of Environmental Quality

Final §401 Water Quality Certification

June 3, 2019

NPDES Permit Number(s): ID0000027 U.S. Silver Coeur Galena Mines

Receiving Water Body: Lake Creek and 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 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 Galena Complex discharges the following pollutants of concern: copper, lead, zinc, cadmium, mercury, arsenic, antimony, pH, temperature, total suspended solids (TSS), *E. coli*, whole effluent toxicity, and chromium VI. Effluent limits have been developed for copper, lead, zinc, cadmium, mercury, arsenic, pH, TSS, *E. coli*, and whole effluent toxicity. No effluent limits are proposed for antimony, chromium VI, and temperature.

Discharge Information

U.S. Silver Corporation owns and operates the Galena and Coeur underground mines and mills (Galena Complex) for the production of copper, silver, and lead concentrates. The Galena Complex is approximately 1.5 miles south of Silverton located in the Lake Creek watershed. Three settling ponds located adjacent to Lake Creek receive industrial and domestic wastewater from the Galena mill, stormwater, and the Callahan adit water. These ponds discharge through Outfall 001 into Lake Creek.

Tailings from the Galena Complex along with mine drainage from the Rainbow adit (approximately 0.011cfs) are piped to the Osburn Tailings Ponds. The Osburn Tailings Ponds treatment system consists of one active pond and a decant pond located in the South Fork Coeur d'Alene River valley adjacent to the river at the eastern edge of the City of Osburn. This system discharges through Outfall 002 into the South Fork Coeur d'Alene River.

Flow Tier Effluent Limits

The NPDES permit allows for different discharge rates of pollutants from each outfall based on the flows in the respective receiving waters as allowed by the WQS (IDAPA 58.01.02.400.05). Both Lake Creek and the South Fork Coeur d'Alene River have five flow tiers for mercury. Lake Creek has two flow tiers identified for arsenic. The flow tiers allow limits to be calculated based on actual in-stream conditions for flow and hardness (the mercury standard is not based on hardness).

Changes from Previous Permit

This facility has increased its effluent flow from the previous permit cycle by 1.15 cfs for Outfall 001 (Lake Creek) and 0.61 cfs for Outfall 002 (South Fork Coeur d'Alene River). Previous effluent limits were calculated using effluent flows of 3.44 cfs for Outfall 001 and 1.27cfs for Outfall 002. Effluent limits for the new permit are based on effluent flows of 4.59 cfs for Outfall 001 and 1.88 cfs for Outfall 002.

Receiving water body flows also differ from those used to develop the 2007 permit. The 2007 in-stream critical flow for Lake Creek was estimated. This information is now replaced by actual in-stream monitoring from the last ten years of flow. Although not a complete dataset, it shows that critical flows in Lake Creek were overestimated in the 2007 permit. This means that limits in the new permit will be calculated using less dilution for the 001 discharge for those pollutants receiving a mixing zone. Conversely, the 2007 permit used flows for the South Fork Coeur d'Alene River that were lower than the current data set indicates. Therefore, the 002 discharge will have more dilution available for calculating effluent limits for the new permit for pollutants that have an authorized mixing zone.

The next variable that has changed since the 2007 permit is the coefficient of variation (CV). The EPA uses a statistical approach to better characterize the effects of effluent variability when calculating effluent limits. The approach uses a CV for each pollutant that reflects the uncertainty inherent in a limited data set. The less dispersion around the mean, the smaller the CV will be. This coefficient is used to calculate the maximum projected effluent concentration. As datasets change from permit cycle to permit cycle, the CVs change also.

The last variable affecting the new effluent limits is the method used to calculate the water quality criteria (standard) for hardness dependent metals. The previous permit used effluent hardness to calculate criteria. The WQS at IDAPA 58.01.02.210.03.c.ii require that ambient hardness of the receiving water be used to calculate criteria. Hardness data collected during the 2007 permit cycle provides the in-stream hardness data for the new permit. This probable error in the method used to calculate effluent limits is sufficient justification for a compliance schedule to allow the permittee time to develop treatment technologies to comply with their new limits. This error only affected effluent limitations for cadmium, lead, and zinc for Outfall 002. Using the correct hardness to calculate metals criteria for Outfall 001 increased effluent limits because Lake Creek is an effluent dominated stream during critical low flow timeframes. As a result there was no decrease in effluent limits for cadmium, lead, and zinc due to a change in hardness for Outfall 001.

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 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 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.

Site-specific aquatic life 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 site-specific criteria were used to calculate limits in the 2007 permit also.

The mixing zone policy in the current WQS has not yet been approved by EPA. As noted in the current WQS (IDAPA 58.01.02.060), the mixing zone rules in the 2014 WQS are approved and must be used for all Clean Water Act purposes. However, the new mixing zone policy

provisions, while not effective for CWA purposes, assist in DEQ's interpretation and application of the mixing zone provisions that have been approved by EPA.

Receiving Water Body Level of Protection

The Galena Complex discharges to the Lake Creek and South Fork Coeur d'Alene River within the South Fork Coeur d'Alene Subbasin. The South Fork Coeur d'Alene River assessment unit (AU) ID17010302PN001_03 (South Fork Coeur d'Alene River between Placer Creek and Big Creek) 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 in DEQ's *Summary of U.S. Silver Bioassessment Salmonids Data (2007-2018).* Temperature monitoring has been added to the permit for both outfalls to assess compliance for the salmonid spawning beneficial use. The Lake Creek AU ID17010302PN009b_02 (Lake Creek from mining impact area to South Fork Coeur d'Alene River) has the following designated beneficial uses: cold water aquatic life, salmonid spawning and secondary contact recreation. Salmonid spawning is an existing use in Lake Creek as documented by DEQ's Beneficial Use Reconnaissance Monitoring in 2014. 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). The South Fork Coeur d'Alene Subbasin, which includes Lake Creek, has site specific water quality criteria for cadmium, lead and zinc (IDAPA 58.01.02.284). EPA used these site-specific criteria to develop effluent limits for those metals.

According to DEQ's 2014 Integrated Report, both the South Fork Coeur d'Alene River and Lake Creek AUs are not fully supporting their aquatic life use. Causes of impairment for Lake Creek are unknown and the causes for the South Fork Coeur d'Alene River impairments include cadmium, lead, zinc, and sediment/siltation. As such, DEQ will provide Tier I protection (IDAPA 58.01.02.051.01) for the aquatic life uses in both water bodies.

For both water bodies, the secondary contact recreation beneficial use is unassessed. DEQ must provide an appropriate level of protection for the secondary contact recreation use using information available at this time (IDAPA 58.01.02.052.05.b). Based on *E. coli* data collected in 2017 by DEQ and instream metals monitoring (metals significant to human health, IDAPA 58.01.02.210.01.b) conducted by the permittee, the recreational use for both Lake Creek and South Fork Coeur d'Alene River is determined to be fully supported for the purposes of this certification. DEQ will therefore provide Tier I and Tier II protection for the recreation use in both water bodies.

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 which are set at levels that ensure protection of existing and designated beneficial uses. Other provisions of the WQS such as Section 055, addresses water quality limited waters.

In general, Section 055 prohibits further impairment of waters by point sources prior to development of a total maximum daily load (IDAPA 58.01.02.055.04). The South Fork Coeur d'Alene River is impaired due to excess cadmium, lead, and zinc. Lake Creek is a tributary to the South Fork Coeur d'Alene River and the Outfall 001 discharge is located approximately 0.3 miles upstream from the confluence. Any increase of metals from Outfall 001 is likely to reach the river for the following reasons: Lake Creek at critical flows is an effluent dominated stream so dilution is not available; metals are not pollutants that dissipate; nor are metals assimilated into other processes that render them less harmful; and, because Lake Creek is a steep gradient stream with a pronounced seasonal high flow, settling of particulate bound metals and retention in the stream is unlikely. Therefore, no mixing zone is allowed for cadmium, lead, and zinc in either Outfall 001 or Outfall 002.

During the 2007 permit cycle, the permittee increased their effluent flow to both outfalls. As discussed above, to prevent further degradation of an already impaired water body, the causative pollutants, cadmium, lead, and zinc cannot increase beyond the limits in the 2007 permit (IDAPA 58.01.02.052.07). Effluent limits for cadmium, lead, and zinc were retained from the previous permit for Outfall 001 since the in-stream hardness data did not lower the criteria for Lake Creek (an effluent dominated stream at low flow conditions). However, due to the in-stream hardness data collected during the 2007 permit cycle, the critical flow water quality criteria were lower in the South Fork Coeur d'Alene River than criteria used to calculate effluent limits in the 2007 permit. This lowered effluent limits for cadmium, lead, and zinc for Outfall 002. The result is that effluent limitations and associated requirements contained in the Galena Complex permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Lake Creek and the South Fork Coeur d'Alene River have had yearly bioassessment monitoring conducted above and below the Coeur Galena Outfalls since 2007. Data collected will assist with future development of total maximum daily loads (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. Downstream monitoring for metals, pH, flow and hardness have been added to the permit requirements to ensure that WQS are being met downstream of each outfall. Other instream monitoring requirements have been added to the proposed permit for use in determining location specific inputs for the copper BLM. Additional temperature monitoring has been added to the permit for both outfalls. DEQ will use this data to assess compliance with temperature criteria.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a 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. Currently, there has not been a comprehensive subbasin assessment and TMDLs developed for the South Fork Coeur d'Alene watershed for metal pollutants. Prior to the development of a TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04). The effluent limitations and associated requirements contained in the Galena Complex permit are set to not violate water quality standards below any applicable mixing zone.

The EPA-approved *South Fork Coeur d'Alene River Sediment Subbasin Assessment and Total Maximum Daily Load* (May 17, 2002) establishes wasteload allocations for Outfalls 001 and 002 for sediment. These wasteload allocations (see effluent limits for TSS in Tables 3 and 4) 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 Galena Complex permit are set at levels that comply with these wasteload allocations. All other effluent limits are set to not violate water quality standards below any applicable mixing zone.

In summary, the effluent limitations and associated requirements contained in the Galena Complex 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 Lake Creek and 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)

Lake Creek and South Fork Coeur d'Alene River are considered high quality for secondary contact recreational uses. As such, the water quality significant to secondary contact recreational uses of Lake Creek and 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 significant to secondary contact recreational uses of Lake Creek and South Fork Coeur d'Alene River (IDAPA 58.01.02.052.05). These include the following: antimony, arsenic, copper, cadmium, lead, mercury, zinc, chromium VI, and *E. coli.* Effluent limits are set in the proposed permit for all these pollutants except antimony and chromium VI.

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 Galena Complex permit, this means determining the permit's effect on water quality based upon the limits for cadmium,

copper, lead, mercury and zinc 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 effluent flow over the last permit cycle, DEQ conducted an assimilative capacity analysis to determine if the increase would result in significant degradation of water quality for purposes of secondary contact recreation in Lake Creek or the South Fork Coeur d'Alene River. Direct comparison of effluent limits between the current and proposed permits is complicated by several factors, including a reduced flow in Lake Creek, an increased flow in South Fork Coeur d'Alene River, different flow tiers between the permits, the use of receiving water hardness instead of effluent hardness, and changed coefficients of variation. However, for both outfalls, cadmium, lead, and zinc do not require assimilative capacity analysis because the discharge of those pollutants will not be allowed to increase under the proposed permit due to the existing water quality impairment of the South Fork Coeur d'Alene River. Effluent limits for copper are significantly lower than those in the current permit due to the revised copper criteria. Therefore, there will be no degradation due to the discharge of cadmium, lead, zinc, and copper under the proposed permit.

The discharge of mercury is expected to increase at both outfalls. DEQ must therefore determine if the increase 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. However, mercury 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 goals (MCLGs) as the basis for evaluating the assimilative capacity of mercury in both Lake Creek and 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 for both outfalls.

Assimilative Capacity Analysis for Mercury Outfall 001 (Lake Creek)

Using the monitoring data from the 2007 permit cycle, DEQ can determine if the increase in effluent flow from Outfall 001 significantly degraded water quality. Table 1 contains the data used in the analysis. Negative values indicate an increase in assimilative capacity and positive values indicate a decrease. The assimilative capacity analyses for pollutants that did not result in water quality degradation are also presented in Table 1 to give the reader an understanding of the analysis. There are many variables that changed from the last permit cycle to this one so a simple comparison of effluent limits from one permit to the other is not a reliable determination of degradation.

Table 1. Assimilative Capacity Analysis for Outfall 001 (Lake Creek)[1]

Pollutant	Units	2007 Permit Limit	Draft Permit Limit	% Change in Assimilative Capacity[1]	Human Health Criteria/ MCLG [2]
Flow Tier 1					
Mercury AML	µg/L	0.011	0.010	-0.6	0.15
Mercury MDL	µg/L	0.022	0.020	-1.1	0.15
Flow Tier 2					
Mercury AML	µg/L	0.012	0.010	-1.0	0.15
Mercury MDL	µg/L	0.023	0.020	-1.4	0.15
Flow Tier 3					
Mercury AML	µg/L	0.014	0.011	-0.8	0.15
Mercury MDL	µg/L	0.027	0.022	-1.2	0.15

[1] This analysis was done using the following inputs: Upstream critical flow for mercury was the lowest flow in the draft permit's flow tier ranges and 0.15 for flow Tier 1; Upstream critical low flow is 0.15 cfs; Upstream pollutant concentration is the 90th percentile of quarterly instream monitoring; Results of mercury instream monitoring above the Outfall were all non-detects (<0.001); Mercury mixing zones used to calculate proposed effluent limits were 25% of the low flow for each Tier (see Permit Table 2); 2007 permit effluent flow rate was 3.44 cfs and the proposed permit effluent flow rate is 4.59 cfs. See *Discharge Information* section for discussion.

[2] See discussion under *Pollutants with Limits in the Current and Proposed Permit- Cadmium, Copper, Lead, Mercury, and Zinc.*

Assimilative Capacity Analysis for Mercury Outfall 002 (South Fork Coeur d'Alene River)

Using the monitoring data from the 2007 permit cycle, DEQ can determine if the increase in effluent flow from Outfall 002 significantly degraded water quality. Table 2 contains the data used in this analysis. 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).

Table 2. Assimilative Capacity Analysis for Outfall 002 (South Fork Coeur d'Alene River)[1]

Pollutant	Units	2007 Permit	Draft Permit	% Change in Assimilative Capacity[1]	Human Health Criteria/MCLG [2]
Flow Tier 5					
Mercury AML	µg/L	1.0	1.0	0.4	0.15
Mercury MDL	µg/L	2.0	2.0	0.7	0.15

[1] This analysis was done using the following inputs: Upstream critical flow for mercury is the lowest flow in the draft permit's flow tier ranges and 60.4 cfs for flow Tier 1; Upstream critical low flow is 60.4 cfs; Upstream pollutant concentration is the 90th percentile of quarterly instream monitoring; Results of mercury instream monitoring above the Outfall were all non-detects (<0.001); Mercury mixing zones used

to calculate the proposed effluent limits were 25% of the low flow for each Tier (see Permit Table 3); 2007 effluent flow rate was 1.27 cfs and the proposed permit effluent flow rate is 1.88cfs. See *Discharge Information* section for discussion.

[2] See discussion under *Pollutants with Limits in the Current and Proposed Permit- Cadmium, Copper, Lead, Mercury, and Zinc.*

Assimilative Capacity Conclusion Outfalls 001 and 002 - Mercury

The results of the assimilative capacity analyses of mercury for Outfalls 001 and 002 show less than a 10% reduction in assimilative capacity and DEQ has determined that the calculated increases are insignificant (IDAPA 58.01.02.052.08). Therefore, no further Tier II analysis is required for this pollutant.

New Permit Limits for Pollutants Currently Discharged- Arsenic and *E. coli*

When 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 Galena Complex includes new limits for arsenic at Outfall 001 and *E. coli* at both outfalls (Tables 3 and 4). These limits were included in the permit because a reasonable potential analysis determined they could cause or contribute to an exceedance of water quality standards. To determine if there was water quality degradation due to the effluent flow increase seen during the 2007 permit cycle, a mass balance equation was used due to a lack of water quality data.

Results of the evaluation for arsenic in Lake Creek indicated that the assimilative capacity for arsenic was reduced by 0.7 % as a result of the increased effluent flow. For this calculation, upstream concentrations of arsenic were assumed to be zero due to a lack of instream data. Instream monitoring for arsenic was added as a certification condition for the proposed permit. Arsenic is not a pollutant of concern for Outfall 002 with no monitoring requirement and no effluent limits. Therefore, no arsenic assimilative capacity analysis was performed for Outfall 002.

Arsenic calculation values for Outfall 001: 7ug/L (max effluent concentration); upstream flow 0.15 cfs; effluent flow from 3.44 cfs to 4.59 cfs;

The increase in *E. coli* was similarly evaluated in Lake Creek using an average effluent value of 92 organisms/100mL, secondary contact recreation criteria of 126 organisms/100mL, and a background of 31 organisms/100 mL upstream of the outfall (DEQ data collected in 2017). Results were 0.7% decrease in assimilative capacity.

The increase in *E. coli* was evaluated in South Fork Coeur d'Alene River using an average effluent value of 34 organisms/100 mL, secondary contact recreation criteria of 126 organisms/100 mL, and a background of 20 organisms/100mL upstream of the outfall (DEQ data collected in 2017). Results were 0.1% decrease in assimilative capacity.

Formula used to calculate mixed concentrations:

$Cm = [(Ce * Qe) + (Cu * Qu)] / (Qe+Qu)$

Where:

Cm = Mixed Concentration (µg/L)
Ce = Effluent Concentration (µg/L)
Qe = Effluent Volume (liters, calculated as flow rate in cfs * constant 28.316)
Cu = Upstream concentration (µg/L)
Qu = Upstream Volume (liters, calculated as flow rate in cfs * constant 28.316)

Proposed mixed concentration – current mixed concentration ÷ (criterion – upstream concentration) X 100 = % reduction in assimilative capacity

The results of the assimilative capacity analyses for arsenic and *E. coli* were less than a 10% reduction in assimilative capacity and DEQ has determined that the calculated decrease is insignificant (IDAPA 58.01.02.052.08). Therefore, no adverse change in water quality and no degradation will occur with respect to these pollutants from either Outfall 001 or 002.

Pollutant with No Limit- Chromium VI and Antimony

Antimony and chromium VI are significant to Tier II protection of secondary contact recreation in Lake Creek and South Fork Coeur d'Alene River. They are not currently limited in the permit and the proposed permit also contains no limits (Tables 3 and 4). For such pollutants, a change in water quality is determined by reviewing whether changes in production, treatment, or operation that will increase the discharge of these pollutants are likely (IDAPA 58.01.02.052.06.a.ii).

The discharge of antimony and chromium VI are likely to increase due to the increase effluent flow during the 2007 permit cycle. DEQ must determine if this increase is a significant degradation of water quality. The Idaho WQS provides a "fish only" human health criterion for antimony of 190µg/L. The WQS does not provide a "fish only" human health criterion for chromium VI. Thus, similar to the analysis for mercury and copper, DEQ must determine an appropriate value to use in place of a numeric criterion for chromium VI. Unlike copper and mercury, there is no Safe Drinking Water Act MCLG for chromium VI. In the absence of an MCLG, DEQ consulted the EPA's *Quality Criteria for Water 1986* (the "Gold Book"), which recommends a criterion of 50µg/L for the protection of human health against ingestion of both contaminated water and contaminated aquatic organisms. Considering that Idaho's secondary contact recreation use is designed to protect activities where ingestion of raw water is unlikely (IDAPA 58.01.02.100.02.b), using a value intended to protect against ingestion of chromium VI in both water and aquatic organisms is conservative and protective of the secondary contact recreation use. Therefore, DEQ has determined that 50µg/L is a reasonable and appropriate value for this purpose.

For the assimilative capacity analysis, DEQ used the above mass balance equation, assumed Lake Creek and South Fork Coeur d'Alene River instream concentrations upstream of the outfalls to be zero, a chromium VI effluent concentration of 14µg/L (max effluent concentration) for Outfall 001, and an antimony effluent concentration of 30µg/L (max effluent concentration) for Outfalls 001 and 002. An antimony concentration of 190µg/L and a chromium VI concentration of 50µg/L represent the levels of water quality protective of secondary contact recreation for these pollutants. The result was that due to the increased effluent flow, assimilative

capacity for antimony for Outfall 001 is decreased by 0.2% and Outfall 002 is decreased by 0.2%. Chromium VI assimilative capacity for Outfall 001 is decreased by 0.4%.

Chromium VI is not a pollutant of concern for Outfall 002 with no monitoring requirement and no effluent limits. Therefore, no chromium VI assimilative capacity analysis was performed for Outfall 002.

The results of the assimilative capacity analyses for antimony and chromium VI was less than a 10% reduction in assimilative capacity and DEQ has determined that the calculated increases are insignificant (IDAPA 58.01.02.052.08). Therefore, no adverse change in water quality and no degradation will occur with respect to antimony and chromium VI in Lake Creek or South Fork Coeur d'Alene River.

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

Parameter	Units	2007 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	0.87	1.9	n/a	0.87	1.6	D
	lb/day	n/a	0.012	0.027	n/a	0.012	0.027	NC
Lead	µg/L	n/a	27	58	n/a	24.1	58	D
	lb/day	n/a	0.39	0.81	n/a	0.39	0.81	NC
Zinc	µg/L	n/a	87	195	n/a	87	195	NC
	lb/day	n/a	1.2	2.7	n/a	1.2	2.7	
Copper (BLM)	µg/L	-	-	-	n/a	0.4	1.0	D
	lb/day	-	-	-		0.009	0.025	
Mercury (flow Tier 1)	µg/L	<1.7	0.011	0.022	<0.51	0.010	0.020	D
	lb/day		0.00015	0.00030		0.0003	0.0005	I
Mercury (flow Tier 2)	µg/L	1.7 to <3.8	0.012	0.023	0.51 to <1.9	0.010	0.020	D
	lb/day		0.00017	0.00032		0.0003	0.0005	I
Mercury (flow Tier 3)	µg/L	3.8 to <13.4	0.014	0.027	1.9 to <6.0	0.011	0.022	D
	lb/day		0.00019	0.00037		0.0003	0.0005	I
Mercury (flow Tier 4)	µg/L	13.4 to <23	0.035	0.071	6.0 to <21.3	0.013	0.026	D
	lb/day		0.00048	0.00098		0.0003	0.0007	D
Mercury (flow Tier 5)	µg/L	≥23	0.054	0.11	≥21.3	0.021	0.043	D
	lb/day		0.00075	0.0015		0.0005	0.0011	D
TSS	mg/L	n/a	20	30	n/a	20	30	NC
	lb/day		202	560		≤202 lbs/day		D
pH	s.u.	6.5–9.0 all times			6.5–9.0 all times			NC
Pollutants with new limits in the proposed permit								
Arsenic (flow Tier 1)	µg/L	n/a	-	-	<0.51	6.6	13.2	D
	lb/day		-	-		0.16	0.33	
Arsenic (flow Tier 2)	µg/L	n/a	-	-	0.51 to <1.9	6.6	13.2	D
	lb/day		-	-		0.16	0.33	
E. coli	colonies/100mL	n/a	—	Report	n/a	126	576	D
Pollutants with no limits in either the current and proposed permit								
Chromium VI	µg/L	-	-	Report	-	-	Report	NC
Temperature	°C	—	—	Report	—	—	Report	NC
Hardness	mg/L as $CaCO_3$	—	—	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 002 South Fork Coeur d'Alene River [bc]

Parameter	Units	2007 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	0.91	2.6	n/a	0.8	1.3	D
	lb/day	n/a	0.007	0.019	n/a	0.007	0.013	
Lead	µg/L	n/a	32	88	n/a	16.0	40.0	D
	lb/day	n/a	0.24	0.66	n/a	0.163	0.406	
Zinc	µg/L	n/a	85	237	n/a	85	163.5	D
	lb/day	n/a	0.63	1.8	n/a	0.63	1.66	
Copper (BLM)	µg/L	-	-	-	n/a	0.4	1.0	D
	lb/day	-	-	-		0.004	0.01	
Mercury (flow Tier 1)	µg/L	<48	0.12	0.24	<63	0.089	0.178	D
	lb/day		0.00090	0.0018		0.0009	0.0018	NC
Mercury (flow Tier 2)	µg/L	48 to 109	0.18	0.35	63 to 87	0.092	0.185	D
	lb/day		0.0013	0.0026		0.0009	0.0019	D
Mercury (flow Tier 3)	µg/L	109 to 379	0.20	0.41	87 to 135	0.0123	0.248	D
	lb/day		0.0015	0.0031		0.0013	0.0025	D
Mercury (flow Tier 4)	µg/L	379 to 649	0.68	1.4	135 to 1135	0.186	0.373	D
	lb/day		0.0051	0.011		0.0019	0.0038	D
Mercury (flow Tier 5)	µg/L	≥649	1.0	2.0	≥1135	1.0	2.0	NC
	lb/day		0.0075	0.014		0.0101	0.0203	I
TSS	mg/L	n/a	20	30	n/a	20	30	NC
	lb/day		80	248		≤80 lbs/day		D
pH	s.u.	6.5–9.0 all times			6.5–9.0 all times			NC
Pollutants with new limits in the proposed permit								
E. coli	colonies/100mL	n/a	—	Report	n/a	126	576	D
Pollutants with no limits in either the current and proposed permit								
Temperature	°C	—	—	Report	—	—	Report	NC
Hardness	mg/L as $CaCO_3$	—	—	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.

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).

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

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.

Compliance Schedule for Copper BLM Based Effluent Limits

Galena Complex 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 will be used to calculate future copper effluent limits, 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.

Table 5. Interim Limits Outfall 001 (Lake Creek) Copper BLM

Parameter	Units	Outfall 001		
		Flow Tier (cfs)	Average Monthly Limit	Maximum Daily
Copper (flow Tier 1)	µg/L	<1.7	7.7	21
	lb/day		0.11	0.29
Copper (flow Tier 2)	µg/L	1.7 to <13.8	5.7	15
	lb/day		0.079	0.21
Copper (flow Tier 3)	µg/L	3.8 to <13.4	3.8	10
	lb/day		0.053	0.14
Copper (flow Tier 4)	µg/L	13.4 to <23	4.4	12
	lb/day		0.061	0.17
Copper (flow Tier 5)	µg/L	≥23	8.2	23
	lb/day		0.11	0.32

Table 6. Interim Limits Outfall 002 (South Fork Coeur d'Alene River) Copper BLM

Parameter	Units	Outfall 002		
		Flow Tier (cfs)	Average Monthly Limit	Maximum Daily
Copper (flow Tier 1)	µg/L	<48	56	120
	lb/day		0.42	0.90
Copper (flow Tier 2)	µg/L	48 to 109	64	130
	lb/day		0.48	0.97
Copper (flow Tier 3)	µg/L	109 to 379	110	230
	lb/day		0.82	1.7
Copper (flow Tier 4)	µg/L	379 to 649	150	300
	lb/day		1.1	2.2
Copper (flow Tier 5)	µg/L	≥649	150	300
	lb/day		1.1	2.2

The Galena Complex relies on settlement of solids in tailings impoundments as their only means of water treatment. This method cannot reliably reduce metals concentrations to meet the copper BLM effluent limits. This compliance schedule will be used to ensure that the facility has the time to construct a water treatment plant capable of copper removal. Due to the large capital investment needed to construct a water treatment plant and capture and treat effluent from both outfalls, DEQ authorizes a period of twelve (12) years from the effective date of the final permit to meet final effluent limits for copper. The compliance schedule and interim requirements provides the permittee a reasonable amount of time to achieve the final effluent limits as specified in the proposed permit. At the same time, the schedule ensures that compliance with final effluent limits is accomplished as soon as possible.

- The permittee must comply with all effluent limitations and monitoring requirements in Part I of the final permit beginning on the effective date of the 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. (Tables 3 and 4) of the final permit, not later than twelve (12) years after the effective date of the final permit.

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

- All other provisions of the permit, except the final effluent limits for copper as described in Tables 3 and 4 of this certification, must be met after the effective date of the final permit.

Interim Requirements for Copper BLM Compliance Schedule

1. By one (1) year from the effective date of the final 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.
2. By two (2) years from the effective date of the final 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.
3. By three (3) years after the effective date of the final permit, the permittee must provide a preliminary engineering report to EPA and DEQ outlining estimated costs and schedules for completing implementation of technologies to achieve final effluent limitations. This schedule must include a timeline for pilot testing and results of any testing conducted to date.
4. By five (5) years after the effective date of the final 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.
5. By seven (7) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that design has been completed and bids have been awarded to begin construction to achieve final effluent limitations.
6. By ten (10) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that construction has been completed on the facilities to achieve final effluent limitations.

7. By twelve (12) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a written report providing details of a completed start up and optimization phase of the new treatment system and must achieve compliance with the final effluent limitations of Part I.B. The report shall include two years of effluent data demonstrating that final effluent limits can be achieved by year twelve (12).

8. By years four (4), six (6), eight (8), nine (9), and eleven (11), after the effective date of the final permit, the permittee must submit to EPA and DEQ progress reports, which outline the progress made toward achieving compliance with the copper effluent limitations. At a minimum, the reports must include:
   a) An assessment of the previous year of effluent data and comparison to the interim effluent limitations.
   b) A report on progress made toward meeting the final effluent limits.
   c) Further actions and milestones targeted for the upcoming year.

Compliance Schedule for Other Metals

The Galena Complex cannot immediately achieve compliance at Outfall 001 with the cadmium, lead, and mercury effluent limitations and at Outfall 002 with the lead and zinc effluent limitations; therefore, DEQ authorizes a compliance schedule and interim requirements as set forth below. Similar to the copper BLM discussion above, the Galena Complex relies on settlement of solids in tailings impoundments as their only means of water treatment. This method cannot reliably reduce metals concentrations to meet new cadmium, lead, zinc and mercury effluent limits. This compliance schedule allows twelve (12) years to meet final effluent limits.

Lower effluent limitations for cadmium, lead, zinc, and mercury are in the permit for the first time due to the following factors:

(1) Mixing zones authorized by this certification for mercury for some flow tiers at both Outfalls are smaller than those authorized for the current permit.

(2) The current permit used an estimated flow for Lake Creek. The proposed permit used actual flow data collected by the permittee which lowered effluent limits for mercury at Outfall 001. There is less water available for dilution than previously estimated.

(3) A different CV was used in the statistical analysis for all metals to develop effluent limits for both Outfalls. In the case of cadmium and lead at Outfall 001 the new CVs decreased effluent limits.

(4) An increase in effluent flow from the last permit cycle increased loading for all pollutants at both outfalls.

(5) The correction of an error discovered in the previous permit resulted in decreased limitations for cadmium, lead, and zinc for Outfall 002. The compliance schedule allows the permittee time to develop treatment technologies to comply with their new limits. This error only affected effluent limitations for cadmium, lead, and zinc for Outfall 002. Outfall 001 was unaffected because Lake Creek is an effluent dominated stream during critical low flow timeframes. As a result there was little change in hardness used to calculate criteria for Outfall 001.

To give the permittee time to meet their final effluent limits, a 12 year compliance schedule is authorized. This schedule, by necessity, tracks with the copper BLM schedule since the same planning, design, and construction will be required to meet final effluent limitations for cadmium, lead, zinc and mercury.

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

- The permittee must achieve compliance with the final effluent limitations for cadmium, lead, zinc, and mercury as set forth in Part I.B. (Tables 2 and 3) of the final permit, not later than twelve (12) years after the effective date of the final permit.

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

- All other provisions of the permit, except the final effluent limits for cadmium, lead, zinc, and mercury as described in Tables 7 and 8 of this certification, must be met after the effective date of the final permit.

Table 7. Interim Limits Outfall 001 (Lake Creek) Other Metals

Parameter	Units	Outfall 001		
		Flow Tier (cfs)	Average Monthly Limit	Maximum Daily
Cadmium	µg/L	n/a	n/a	1.9
	lb/day	n/a	n/a	0.027
Lead	µg/L	n/a	27	58
	lb/day	n/a	0.39	0.81
Mercury (flow Tier 1)	µg/L	<1.7	0.011	0.022
	lb/day		0.00015	0.00030
Mercury (flow Tier 2)	µg/L	1.7 to <3.8	0.012	0.023
	lb/day		0.00017	0.00032
Mercury (flow Tier 3)	µg/L	3.8 to <13.4	0.014	0.027
	lb/day		0.00019	0.00037
Mercury (flow Tier 4)	µg/L	13.4 to <23	0.035	0.071
	lb/day		0.00048	0.00098
Mercury (flow Tier 5)	µg/L	≥23	0.054	0.11
	lb/day		0.00075	n/a

Table 8. Interim Limits Outfall 002 (South Fork Coeur d'Alene River) Other Metals

Parameter	Units	Outfall 002		
		Flow Tier (cfs)	Average Monthly Limit	Maximum Daily
Lead	µg/L	n/a	32	88
	lb/day	n/a	0.24	0.66
Zinc	µg/L	n/a	n/a	237
	lb/day	n/a	n/a	1.8

Interim Requirements for Other Metals Compliance Schedule

1. By three (3) years after the effective date of the final permit, the permittee must provide a preliminary engineering report to EPA and DEQ outlining estimated costs and schedules for completing implementation of technologies to achieve final effluent limitations. This schedule must include a timeline for pilot testing and results of any testing conducted to date.

2. By five (5) years after the effective date of the final 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.

3. By seven (7) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that design has been completed and bids have been awarded to begin construction to achieve final effluent limitations.

4. By ten (10) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that construction has been completed on the facilities to achieve final effluent limitations.

5. By twelve (12) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a written report providing details of a completed start up and optimization phase of the new treatment system and must achieve compliance with the final effluent limitations of Part I.B. The report shall include two years of effluent data demonstrating that final effluent limits can be achieved by year twelve (12).

6. By years four (4), six (6), eight (8), nine (9), and eleven (11) after the effective date of the final permit, the permittee must submit to EPA and DEQ progress reports, which outline the progress made toward achieving compliance with the cadmium, lead, zinc, and mercury effluent limitations. At a minimum, the reports must include:
   a) An assessment of the previous year of effluent data and comparison to the interim effluent limitations;
   b) A report on progress made toward meeting the final effluent limits; and
   c) Further actions and milestones targeted for the upcoming year.

Mixing Zones

Pursuant to the 2014 Idaho Water Quality Standards (IDAPA 58.01.02.060), DEQ authorizes a mixing zone that utilizes the following critical flow volumes of Lake Creek and South Fork Coeur d'Alene River for mercury, arsenic, and antimony for both outfalls. These mixing zones are also consistent with the current but yet unapproved mixing zone policy. No mixing zone is authorized for the copper BLM derived effluent limits. Using conservative BLM model inputs in lieu of in-stream data, there is no remaining assimilative capacity in either water body for dilution.

Table 9. Authorized mixing zones for Lake Creek and South Fork Coeur d'Alene River (Outfalls 001 and 002) by pollutant and flow tier

Pollutant/Flow Tier	Percent Mixing Zone
mercury Tier 1	25% of 7Q10 and 1Q10
mercury Tier 2	25% of 10th percentile flow
mercury Tier 3	25% of 50th percentile flow
mercury Tier 4	25% of 70th percentile flow
mercury Tier 5	25% of 90th percentile flow
arsenic Tier 1	25% of the harmonic mean
arsenic Tier 3	25 % of the 50th percentile flow
arsenic Tier 4	25% of the 70th percentile flow
arsenic Tier 5	25% of the 90th percentile flow
antimony Tier 1	25% of the 30Q5
antimony Tier 2	25% of the 10th percentile flow
antimony Tier 3	25% of the 50th percentile flow
antimony Tier 4	25% of the 70th percentile flow
antimony Tier 5	25% of the 90th percentile flow

Alternative Limitations

The following subsection(s) discuss how the permit can be made less stringent and still comply with Idaho WQS.

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 Outfall 002 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.

Other Conditions

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. Arsenic, chromium VI, and antimony monitoring for Lake Creek above the Outfall 001 shall be added as a requirement to the proposed Permit part I.D.
8. Chromium VI and antimony monitoring for South Fork Coeur d'Alene River above the outfall shall be added as a requirement to the proposed Permit part I.D.
9. 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 that 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 daily afternoon effluent temperature monitoring concurrent with the instream continuous temperature monitoring. DEQ Coeur d'Alene Regional Office shall be consulted prior to the development of the Monitoring Plan to obtain the frequency and location of instream temperature monitoring.

10. 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 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 Thomas Herron, Coeur d'Alene Regional Office (208) 666-4605 or email at Thomas.herron@deq.idaho.gov.

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office