

Regional Water Quality Control Board  
Central Valley Region  
Board Meeting – 26/27/28 May 2010  
Response to Comments for Shasta Gold Corporation, French Gulch (Nevada)  
Mining Corporation, and U.S. Department of the Interior, Bureau of Land  
Management, Washington Mine  
Tentative Waste Discharge Requirements

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The following are responses to written comments received from interested parties in response to the Tentative Waste Discharge Requirements (NPDES permit) for Shasta Gold Corporation (formerly known as Bullion River Gold Corporation), French Gulch (Nevada) Mining corporation, and U.S. Department of the Interior, Bureau of Land Management (Discharger), Washington Mine issued on 12 January 2010. Written comments from interested parties on the tentative NPDES permit were originally required to be received by the Regional Water Quality Control Board (Regional Water Board) by 15 February 2010 in order to receive full consideration. February 15 was a State holiday and comments were allowed to be received by the close of business on 16 February 2010. Comments were received from the following parties:

1. French Gulch-Upper Clear Creek Resource Management Group (RMG)
2. National Park Service, Whiskeytown National Recreation Area (NPS)

Written comments from the above interested parties are summarized below, followed by the response of the Regional Water Board staff.

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**FRENCH GULCH-UPPER CLEAR CREEK RESOURCE MANAGEMENT GROUP (RMG) COMMENTS**

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**RMG-COMMENT #1:** The proposed average monthly effluent limitation for arsenic is inconsistent with the basin plan’s water quality objective for arsenic and not supported by the weight of the evidence.

**RESPONSE:**

The Basin Plan’s water quality objective for arsenic (Table III-1, Trace Element Water Quality Objectives) lists the Maximum Concentration for arsenic as 0.01 mg/l (10 ppb). As noted in the adjoining column of Table III-1 headed “*Applicable Water Bodies*”, this objective applies only to “Sacramento River from Keswick Dam to the I Street Bridge and City of Sacramento...”. This objective does not apply to the tributaries. There is significant dilution of the water in Scorpion Gulch, via French Gulch, Clear Creek, Whiskeyton Lake (fed primarily by water from Trinity Lake) and Keswick Reservoir (which is feed from Shasta Dam) to assure this concentration in the effluent will not result in an exceedance in the Sacramento River. Therefore, the effluent limitation was correctly based on the MCL of 10 ppb, which is a long term average based on a individual drinking 2 liters of water per day for 70 years. Further, the 10 ppb is less than the California

Toxics Rule objectives of 340 ppb and 150 ppb for acute and chronic toxicity to aquatic life, respectively. The methodology described in the SIP is not required and using the MCL as a monthly average is appropriate.

**RMG-Comment #2.** The proposed average monthly effluent limitations for cobalt, molybdenum, and vanadium are inconsistent with the guidance cited in the fact sheet. The commenter suggests the cited effluent limits are maximum limits and should be adjusted to lower concentrations consistent with the SIP for California Toxic Rule pollutants.

**RESPONSE:**

The effluent limits for cobalt, molybdenum and vanadium are based on the use of the water for agriculture. The document entitled *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985), Table 21, contains a Recommended Maximum Concentration for cobalt, molybdenum, and vanadium as 50, 10, and 100 ppb, respectively. The accompanying text states “It is recommended that the values be considered as the maximum long-term average concentration...” (Section 5.5.3, Evaluation Criteria, page 97). These values are established because of concern for long-term build-up of these elements in the soil. Further, there is no agriculture use of the water in Scorpion Gulch nor is it required to apply the methodology contained in the SIP apply to these non-CTR constituents. The monthly average proposed for these constituents is appropriate.

**RMG-Comment #3**

The commenter believes the time schedule proposed in the cease and desist order does not assure the earliest possible attainment of effluent limitations and suggests the discharges from all the mine portals could be contained and treated within two years.

**RESPONSE:**

Regional Board staff requested the Discharger submit a report and time schedule describing how they would address on-going discharges from mine adits on land they either own or have under claim. The Discharger responded with a letter describing a five year schedule to address discharges from the I-Level, Robillard, Government, and O’Neil Adits. The Discharger proposed the following schedule and justification:

I-Level Adit – three years are needed to construct a new power line and pipeline from the adit to the treatment plant, obtain a right of way from the BLM and a private property owner, and comply with the requirements of the Federal Mining Safety and Health Administration and State Occupational Safety and Health Administration.

Robillard Adit – two years are estimated to allow for hookup of electrical power, installation of pump, tank, and pipeline.

Government Adit – four years to construct a gravity pipeline to the treatment plant. There is currently no discharge.

O’Neil Adit – five years to construct pipeline, obtain county Encroachment Permit, and perhaps obtain right of way from private property owner.

Shasta Gold Corp has further stated these portal discharges are on-going historic discharges that have occurred prior to the current ownership, and they are not working in any of the adits. Required power and pipeline routes will be over steep rocky ground and will require significant engineering, adding to the costs and time required for completion.

Shasta Gold Corp has explained they are attempting to emerge from bankruptcy and while they have stated they will attempt to expedite the tasks, unforeseen delays, including obtaining adequate funding and the necessary right of ways, may occur. Shasta Gold Corp has estimated the total cost of construction of the water treatment plant and routing the historic portal flows to the system at \$1,000,000. This is a significant commitment from a company that is attempting to emerge from bankruptcy and does not believe the mine will generate a positive cash flow for 24 months from the startup date. Having a viable mining company present that is responsible for capturing and treating these historic discharges is a much more favorable position for water quality than attempting to pursue compliance at an abandoned mine site which can take years.

Further support for the proposed schedule is that two of the adits, the Government and Robillard, have discharged little, if any, drainage during the past three years and therefore have little impact on water quality.

**RMG-Comment #4** The permit and fact sheet do not indicate the location from where the samples analyzed for hardness were taken and may be contrary to the State Implementation Policy.

**RESPONSE:**

Receiving water samples for hardness were obtained in Scorpion Gulch above the confluence with French Gulch and downstream of the majority of the mine property due to physical access limitations. Since the treatment plant and discharge structure have not yet been constructed, this point was deemed suitable for initial sampling. Further, water from the Main Adit, which will comprise a significant majority of the proposed discharge, was not being discharged to surface waters, and only minor discharges, if any, were occurring from the other adits in the Scorpion Gulch drainage. Based on the site specific conditions, the location for the initial sampling is appropriate.

However Regional Board staff recognizes the lack of data for the discharge, especially since the proposed treatment plant has not yet been designed and constructed and therefore no effluent and/or discharge data is available. For this reason, the proposed permit includes several provisions for additional studies including a Constituent Study (Section C.1.g.) and Chronic Whole Effluent Toxicity Study (Section C.2.a.) which will allow for reopening and modification of the permit if necessary. Further, if the discharge exceeds the toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation as explained in Section C.2.a. The proposed Monitoring and Reporting Program also includes extensive monitoring of the discharge and receiving waters. The data generated from these studies will be evaluated to assure the proposed effluent limits are fully protective of the beneficial uses of the receiving waters.

**RMG-Comment #5.** The permit fails to comply with the basin plan's provisions addressing additive toxicity. The commenter states the metals to be regulated by the proposed permit have the potential for exhibiting additive toxic effects and claims the Regional Board is required to evaluate the potential effect.

**RESPONSE.**

The proposed permit includes survival rate requirements for acute whole effluent toxicity testing (Section IV.A.1.b.) and requires chronic whole effluent toxicity testing (Section C.2.a.) at frequencies described in the Monitoring and Reporting Program (Section V.). If toxicity is identified, the Discharger is required to initiate a Toxicity Reduction Evaluation as described in Section C.2.a. These studies are designed to address the Basin Plan narrative toxicity objective as described on page F-38 of the fact sheet and by their nature of using the whole effluent, include any additive toxicity that may be present.

**RMG-Comment #6**

The permit should reference any groundwater limitations included in the existing WDRs and, if appropriate, update the discharge requirements.

**RESPONSE.**

The existing waste discharge requirements (Order No 96-289) are not an NPDES permit and will not be rescinded as they also contain requirements for tailings disposal. These existing WDRs allowed for the land disposal of tailings supernatant via infiltration into the subsurface but did not address mine adit discharges. No specific Groundwater Limitations are present in Order No. 96-289 beyond the general requirements that the discharge shall not cause a condition of pollution, contamination or nuisance as defined by Section 13050 of the California Water Code (Discharge Specification B.1.)

The proposed permit includes requirements for the land application of treated effluent from the mill and mine adits. The effluent limits for land application are

identical to those for discharge to surface waters and are much lower than the constituents contained in the untreated mine adit discharges (Section VI. B.). If land application of the treated effluent is conducted, residual effluent which may infiltrate into the subsurface and enter the underground mine workings would contain significantly lower concentrations of metals and other mine drainage constituents than what the mine adits currently discharge. If this residual did mix with the adit drainage, it would dilute the mine drainage and would again be collected and passed through the treatment plant.

Order No. 96-289 is not consistent with current Regional Board policies and regulations, or with the proposed site operations. Therefore, Regional Board staff has requested the Discharger submit a new Report of Waste Discharge (ROD) addressing the tailings and waste rock disposal areas. The ROD has been received and staff is currently reviewing it prior to drafting new WDRs

**RMG-Comment #7.** The permit must include an effluent limitation for chronic toxicity.

**RESPONSE.**

Order WQ 2008-0008 (*City of Davis*) concluded that a narrative effluent limitation for *chronic toxicity* is necessary when a discharge has reasonable potential to cause or contribute to an exceedance of the narrative toxicity objective. The City of Davis Order also concluded that a narrative receiving water limitation did not satisfy this requirement. However, the discharge in the City of Davis Order exhibited reasonable potential to cause or contribute to an exceedance of the applicable narrative toxicity objective, as did the discharge in the prior Los Coyotes Order( Order WQ 2003-0012).

The Los Coyotes and Davis orders only require an effluent limitation when there is reasonable potential for toxicity.<sup>1</sup> The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP) includes toxicity testing and toxicity reduction requirements that apply to all permits. The proposed order includes these provisions. However, like the City of Davis and Los Coyotes orders, the SIP only requires an effluent limitation for toxicity if the discharge exhibits reasonable potential.<sup>2</sup> Similarly, EPA's NPDES regulations require toxicity effluent limitations only where there is reasonable potential and pollutant-specific effluent limitations are insufficient to meet applicable water quality standards.<sup>3</sup>

For the Washington Mine, a treatment system has yet to be constructed so adequate data is not available to determine if a reasonable potential for toxicity

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<sup>1</sup> WQ 2003-0012, p. 10; WQ 2008-0008, pp. 5-6.

<sup>2</sup> SIP, § 4, p. 30.

<sup>3</sup> 40 CFR § 122.44(d)(v).

exists. The proposed Order requires toxicity studies, a constituent study, and extensive monitoring of the effluent from the yet-to-be constructed treatment system. This data obtained by these studies and monitoring will be evaluated to determine if a reasonable potential for chronic toxicity exists. It is inappropriate to include a chronic toxicity limitation unless it can be demonstrated that a reasonable potential exists.

**RMG-Comment #8.** The permit fails to comply with the state and federal anti-degradation policies because no anti-degradation analyses was prepared despite the CDO's proposed five-year compliance schedule for numerous discharges from the mine.

**RESPONSE:**

Section IV.D.4. of the Fact Sheet addresses the anti-degradation policy. Discharges from the O-Neal, Government, Robillard, and I-Level Adits are historic on-going discharges which have been occurring for decades, which enter or have the potential to enter surface waters and are currently unregulated. These historic discharges contain significant concentrations of natural mineral constituents that the Reasonable Potential Analysis (Attachment G) has shown may exceed water quality objectives. These natural constituents include antimony, arsenic, cadmium, chromium, cobalt, copper, lead, mercury molybdenum, nickel, silver, sulfate, vanadium, and zinc.

Current receiving waters in Scorpion Gulch exceed water quality objectives for arsenic and lead, therefore no dilution credits were applied. The collection and treatment of the current, unregulated discharges from mine adits and the proposed discharge from the New Adit will reduce the concentrations of the existing constituents in Scorpion Gulch and French Gulch. It is possible that pumping water from the New Adit will dewater the subsurface fractures in the area sufficiently to reduce or even stop the discharge from other mine adits and/or reduce the base flow of water and its mineral constituents entering the streams, therefore reducing the background concentrations of the mineral constituents. For example, mine drainage from the I-level Adit includes concentrations of arsenic up to 275 ug/l. Upon collection and treatment of this discharge, the concentration will be reduced to a maximum of 10 ug/l prior to discharge.

The permitted discharge and associated effluent limits will reduce the concentrations of constituents in the current mine adit discharges, and may result in the receiving waters meeting water quality objectives for arsenic and lead, and the overall water quality is expected to be improved by the inclusion of the existing mine adit flows to the proposed treatment system at the Mill. For these reasons, the Regional Water Board has determined that an anti-degradation analyses is not required to consider the possible impacts resulting from the proposed discharge following the RPA.

Also, as described in Section IV.B.2. of the Fact Sheet, 40 CFR 440, Subpart J contains effluent limitations for the metals copper, zinc, and lead that represent the degree of effluent reduction attainable by the application of the best practicable control technology (BPT) applicable to discharges from gold mines. The effluent limits in the proposed permit are significantly lower than the effluent limits contained within 40 CFR 440.

No additional discharges to surface waters, beyond those on-going historic discharges from mine portals drained by gravity and the New Adit, will occur at the site, therefore, water quality will not be degraded by the proposed activities. As described above, the dewatering of the mine workings and discharge of the treated mine water may, in it self, improve water quality in Scorpion Gulch and French Gulch. This treatment plant and dewatering of the mine workings is scheduled to begin as soon as possible as no mining activity can take place until the working are dewatered. The time schedule contained within the proposed CDO accompanying the NPDES permit will address the on-going historic discharges and may also significantly improve water quality in Scorpion Gulch and French Gulch.

Staff is also working with the Department of Interior, Bureau of Land Management who administers the majority of land in the watershed, to identify other potential sources of mine drainage that may contribute metals to these water bodies with the goal of reducing overall metal loading to the streams.

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**UNITED STATES DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE, WHISKEYTOWN NATIONAL RECREATION AREA (NPS) COMMENTS**

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**NPS-COMMENT #1:** The NPS requests the NPDES permit not be issued unless proper mitigation measures and necessary environmental analyses (CEQA and NEPA) are completed.

**RESPONSE**

Shasta County completed an environmental review of the Washington Mine and issued a Mitigated Negative Declaration in 1996. The BLM participated in this review so it was able to meet the requirements of the Federal National Environmental Protection Act (NEPA). It is the responsibility of the County and BLM, as the lead agencies for this mining operation, to again pursue a second environmental review and EIR/EIS of the mining operation if deemed appropriate.

However, legal counsel has reviewed the issue and concluded that the construction of the water treatment system and the discharge of the treated effluent to Scorpion Gulch, a water of the United States, constitutes a “new source” discharge under the Federal Clean Water Act (CWA) and an environmental review under the California Environmental Quality Act (CEQA) is required.

The federal regulations at 40 CFR 122.2, defines a “new source” as “any building, structure, facility, or installation from which there is or may be a ‘discharge of pollutants,’ the construction of which commenced: (a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or (b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.”

Standards of performance under Section 306 of the CWA have been promulgated for mining operations; they can be found at 40 CFR 440. Subpart J of Section 440 is applicable to discharges from, among others, “Mines that produce copper, lead, zinc, gold, silver or molybdenum bearing ores, or any combination of these ores from open-pit or underground operations other than placer deposits...”

Since this is an existing mining operation which began in 1854 and has continued intermittently since, the actual mining portion of the facility is considered a “vested” mining operation where Shasta County is the local lead agency for conducting an environmental review of any proposed expansion of the mining operations.

However, the current CEQA review for the proposed NPDES permit will be confined to the collection, treatment, and discharge of mine drainage to surface waters, with the Regional Water Board as the lead agency since it will issue the permit.

**NPS-COMMENT #2** With cleanup of the site, including a reduction of metal discharges, particular arsenic, from mine adits from current and past operations within French Gulch and Scorpion Gulch Creeks, we could envision a mining operation continuing.

## **RESPONSE**

The proposed NPDES permit and Cease and Desist Order address precisely the issue of reducing the discharges of metals to French Gulch and Scorpion Gulch. With the adoption of the proposed NPDES permit, the Discharger will be required to reduce the concentration of arsenic and other metals in the mine adit discharges to surface waters. This action may result in an overall decrease of metals in surface waters and improve surface water quality. However, without the ability to discharge treated water to Scorpion Gulch, reduction of the discharge of metals in the mine discharges is problematic. Simply plugging a mine portal is rarely successful, and the mine drainage seeks other avenues to enter surface waters, either via other, currently unknown portals, or through natural fractures in the native bedrock.

**NPS-COMMENT # 3**

The commenter cites actions by the past mine management that resulted in a significant discharge of arsenic containing tailings to surface waters and placement of arsenic containing waste rock on the access road, each of these actions have posed an environmentally hazardous situation to Whiskeytown National Recreational Area.

**RESPONSE:**

Regional Water Board staff shares the NPS concerns over discharges from the mine that have the potential to impact human health, water quality and the environment. The proposed NPDES permit includes requirements not only for discharges of treated waste water to surface waters which may occur in the future, but also addresses the on-going historic mine adit discharges that have been occurring over many years. Further, the Discharger has submitted a Report of Waste Discharge for construction of a upgraded containment facility for mine tailings and reactive waste rock.

Regional Board staff is committed to working with the Discharger regarding safe operation of the mine, and to prevent a recurrence of the tailings spill that occurred in 2006. The discharge of tailings that occurred in 2006 were a result of unpermitted disposal practices where the tailings were being piped underground without adequate permits, engineering controls, or inspections. Similarly, the use of arsenic containing waste rock on the access road was an unpermitted and unapproved action. These actions were the undertaken by past management at the mine and resulted in prompt enforcement actions by the Regional Board, including issuance of an Administrative Civil Liability and a Cleanup and Abatement Order.

**NPS-COMMENT #4**

If the NPDES permit is adopted, the NPS expects [Bullion River Gold] to provide Shasta County and the BLM with an updated, complete plan of operations.

**RESPONSE**

Shasta County and the BLM are the lead agencies and have regulatory responsibility over the mining operations at the site beyond the issuance of the NPDES permit. However, the Regional Water Board supports this request.

**NPS COMMENT #5**

The NPS believes potential significant impacts to the environment posed by operations at the Washington mine legally trigger the requirements of an environment impact report.

**RESPONSE**

Shasta County and the BLM have regulatory responsibility over the mining operations at the site beyond the issuance of the NPDES permit, including the

requirement for meeting CEQA and NEPA. If the proposed operations exceed those proposed in 1996 when the previous review was conducted, then another review would be appropriate.

**NPS COMMENT #6**

Shasta County should provide the NPS with a timeline of expected events or some clarification of the process anticipated for the plan of operation review and EIR process.

**RESPONSE**

Shasta County and the BLM are the lead agencies and have regulatory responsibility over the mining operations at the site beyond the issuance of the NPDES permit, including the requirement for submitting a Plan of Operations and the CEQA/NEPA process review. However, the Regional Water Board supports this request.