

ITEM: 29

SUBJECT: State of California Department of Parks and Recreation, Empire Mine State Historic Park, Nevada County

BOARD ACTION: *Consideration of Waste Discharge Requirements (NPDES No. CA0085171) and Time Schedule Order*

BACKGROUND: The State of California Department of Parks and Recreation (Discharger) owns and operates Empire Mine State Historic Park which includes a historic gold mine. The mine's untreated drainage contains high concentrations of arsenic, iron, and manganese, and lower concentrations of many other metals. The Discharger installed a passive treatment system for the mine drainage in November 2011. The treatment system consists of a pump station, conveyance piping, a lined settling pond, and two lined wetlands. The treatment system is designed to remove arsenic, iron and manganese, and other suspended materials. The treatment system is also expected to remove turbidity and other metals. The treated mine drainage flows by gravity to Magenta Drain Channel, which is tributary to South Fork Wolf Creek.

Existing Order R5-2006-0058 contains effluent limits for aluminum, antimony, barium, cadmium, chromium III, cobalt, copper, lead, nickel, settleable solids, thallium, total suspended solids, vanadium, and zinc. The Discharger's past three years of monitoring data did not indicate concentrations of these constituents in the effluent discharge at concentrations above water quality criteria or objectives; therefore the proposed NPDES Permit renewal does not include effluent limitations for these constituents. USEPA developed effluent limitations guidelines for operating gold mines, but since the mine is no longer active, the limitations in Existing Order R5-2006-0058 that resulted from implementation of these guidelines are not included in the proposed NPDES Permit either. However, the proposed NPDES Permit requires the Discharger to monitor for these constituents, at minimum, on a quarterly basis.

Construction of the new treatment system was completed and operational in November 2011. However, the constructed treatment wetlands will not be fully operational until the vegetation has become established. Therefore, a separate Time Schedule Order is proposed to provide interim effluent limits and a time schedule for the Discharger to comply with the final effluent limitations for arsenic, iron, and manganese.

ISSUES: Public comments were received from the California Sportfishing Protection Alliance (CSPA), and San Francisco Baykeeper. The following is a summary of the comments on the major permitting issues and Central Valley Water Board staff responses. Detailed comments and responses are included in the Staff Response to Comments document included in this agenda item.

**Incomplete Data Set Used.** CSPA comments that conditions at the mine have not changed since the previous permit, therefore, Board staff should have used all available data in the reasonable potential analysis, which would have resulted in additional effluent limits. Staff responds that, in general, the most recent three years of data (36 sample events) were used,

representing the current discharge conditions at Empire Mine. In this case, staff believes that three years of data are sufficient to evaluate reasonable potential. For some constituents of concern, staff evaluated all data obtained since adoption of existing Order R5-2006-0058. The Discharger changed labs after adoption of existing Order R5-2006-0058; the monitoring results were then conducted by the new lab at lower detection levels, which improved analytical quality and demonstrated lower concentrations in the effluent in the newer data. Effluent limits are not contained in the proposed Order when concentrations of constituents are either not detected in the effluent or are detected below water quality standards. With the construction of the new treatment system, mine discharge is only expected to improve in quality. Therefore the use of older data to establish permitting requirements is not practical, and maintaining existing effluent limitations based on older data is not necessary.

CSPA also comments that the proposed Order does not contain effluent limits for total suspended solids (TSS) or settleable solids. Staff responds that USEPA developed technology-based effluent limits, including limits for TSS, for *operating* gold mines. TSS effluent limits per these federal regulations are no longer necessary because Empire Mine is no longer an operating gold mine.

There are no water quality criteria for settleable solids. Limitations for settleable solids are typically established as an operational parameter for treatment facilities that use secondary clarifiers. Out of 34 water quality samples, settleable solids were detected twice in the discharge at concentrations of 1.65 ml/L and 7.48 ml/L, which is above the effluent limitations contained in Existing Order R5-2006-0058. All other 32 samples were non-detect. Taking into account that the new passive treatment system is expected to further reduce settleable solids in the effluent, it is concluded that there is not a reasonable potential for the effluent to cause nuisance or adversely affect the beneficial uses of Magenta Drain Channel or South Fork Wolf Creek. Therefore effluent limits are not included in the proposed Order.

**Title 22 Secondary Maximum Contaminant Levels.** CSPA comments that the proposed Order greatly relaxed effluent limits for color, iron, manganese, and turbidity from weekly and monthly averages, to an annual average. Board staff responds that the effluent limitations for these constituents are based on the Secondary Maximum Contaminant Levels (MCLs), contained in Title 22 of the California Code of Regulations that requires compliance with these standards on an annual average basis. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to require compliance average weekly and average monthly effluent limitations to protect the MUN beneficial use of the receiving water. The effluent limits for the secondary MCL constituents are the same, only the average period is changed. The limitations are not “greatly relaxed” as the loading of these constituents in the receiving water, over one year of time, has not changed.

**Antibacksliding Requirements and Antidegradation Analysis.** CSPA comments that the proposed Order contains an inadequate antidegradation analysis and that effluent limits are less stringent than those in the existing Order contrary to antibacksliding requirements. Baykeeper concurs with

CSPA's comments and states that the proposed Order is illegal because it backslides on effluent limits without legal or technical justification and that the reasonable potential analysis and antidegradation analysis are inadequate. Baykeeper further states that the Magenta Drain discharge is variable and the pollutant concentrations fluctuate dramatically; therefore, a larger data set should have been used for the reasonable potential analysis. Board staff responds that the proposed Order is consistent with anti-backsliding and antidegradation requirements. The proposed Order is based on new monitoring data and new information. Based on 36 effluent sampling events conducted within a three year period, the proposed Order appropriately contains effluent limitations for those constituents that demonstrated a reasonable potential for the effluent to cause or contribute to an excursion above applicable water quality standards. Board staff believes that using the most recent three years of monitoring data is representative of the discharge conditions. Generally, the use of more recent monitoring data is preferred as it is more representative of current discharge conditions and because data quality assurance/quality control improves with time. The Fact Sheet of the proposed Order contains a thorough discussion, and Board staff believes that the antidegradation analysis contained in the proposed NPDES Permit is adequate and complies with both the state and federal antidegradation policies.

**Flow and Mass Limitations.** CSPA comments that the proposed Order fails to include mass limits and flow limits. Staff responds that mass limits are not required when applicable standards are expressed in terms of other units of measurement rather than mass. Additionally, it is not practical to limit flow to be treated from this abandoned mine. Technology-based flow limits are not based on protection of water quality or beneficial uses of the receiving water, but rather the type of facility and associated technology. A flow limit is not applicable to this discharge; therefore the proposed Order does not contain a flow limit.

**Additive Toxicity.** CSPA comments that the proposed Order fails to include requirements of the Basin Plan regarding additive toxicity. Staff acknowledges the potential impact to aquatic life and human health as a result of additive toxicity. Therefore, the proposed Order contains water quality-based effluent limitations using conservative assumptions (e.g., use of critical low flows) designed to be protective of receiving water quality (based on applicable water quality objectives established to protect against acute and chronic toxicity and human health carcinogenicity). The proposed Order also contains receiving water limitations prohibiting toxic substances and contains acute and chronic whole effluent toxicity limits, testing, and follow-up toxicity reduction requirements if necessary.

RECOMMENDATION: Staff recommends Board adoption of the proposed NPDES Permit Renewal and Time Schedule Order.

Mgmt. Review \_\_\_\_\_

Legal Review \_\_\_\_\_

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11020 Sun Center Dr. #200

Rancho Cordova, CA 95670