

**RESPONSE TO SOPER COMPANY COMMENTS
TENTATIVE WASTE DISCHARGE REQUIREMENTS
FOR SPANISH MINE**

Comments submitted on behalf of Soper in 1 May 2017 VESTRA letter.

SOPER COMMENT 1:

FINDINGS SECTION, PASSIVE TREATMENT SYSTEM DESIGN AND PERFORMANCE

Soper recommends including the following information on the design and operation of passive treatment systems in the Passive Treatment System Design and Performance section of the Findings.

Experience with numerous abandoned mines discharging acid mine drainage (AMD) has shown that significant reductions in AMD can be achieved by implementing best management practices (BMPs). This approach is consistent with Resolution 79-149 (Amendment to the Water Quality Control Plan and Action Plan for Mining) and Resolution 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California). The PTS systems installed at Spanish Mine were identified as the most appropriate treatment BMPs to address AMD from the A-001 and A-003 mine portals based on these resolutions.

The size and hydraulic capacity of PTS systems are generally limited by available space, elevation, topography, precipitation, and the flow rates necessary to facilitate the microbial reduction of target metals. For this reason, the systems are not designed to store or treat the high volumes of water generated by extreme precipitation events and the corresponding increase in portal discharge rates. Rather, the systems are typically designed to bypass flows in excess of the design flow to protect the overall integrity of the systems.

Based on flow data collected between 2003 and 2012, the Spanish Mine treatment systems are capable of treating the discharge from the A-001 and A-003 portals 80 percent of the time. The systems are designed to bypass higher flows to secondary infiltration or spray fields. During emergency or extreme flow conditions, excess discharge may be routed away from the treatment systems to protect the integrity of the systems via an emergency overflow or spillway.

The A-001 and A-003 mine portals existed prior to the adoption of Resolution 68-16, and the results of a baseline study conducted prior to the construction of the PTS systems determined that the water quality in Poorman Creek downstream from the discharge locations was protective of existing and potential beneficial uses. The operation of the PTS systems has further improved the water quality in Poorman Creek.

RESPONSE: Finding 23 shown below has been added to the Passive Treatment System Design and Performance section of the Waste Discharge Requirements.

23. The Discharger submitted a number of technical reports since 2009 regarding the effectiveness and appropriateness of utilizing passive treatment technology to reduce the amount of metals entering surface and groundwater at the Spanish Mine site. The Dischargers consultant, Vestra Resources, Inc., has designed and constructed multiple PTS to treat AMD and dissolved metals discharging from mine sites, and provides the following design consideration information:

Experience with numerous abandoned mines discharging acid mine drainage (AMD) has shown that significant reductions in AMD can be achieved by implementing best management practices (BMPs). This approach is consistent with Resolution 79-149 (Amendment to the Water Quality Control Plan and Action Plan for Mining) and Resolution 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California). The PTS systems installed at Spanish Mine were identified as the most appropriate treatment BMPs to address AMD from the A-001 and A-003 mine portals based on these resolutions.

The size and hydraulic capacity of PTS systems are generally limited by available space, elevation, topography, precipitation, and the flow rates necessary to facilitate the microbial reduction of target metals. For this reason, the systems are not designed to store or treat the high volumes of water generated by extreme precipitation events and the corresponding increase in portal discharge rates. Rather, the systems are typically designed to bypass flows in excess of the design flow to protect the overall integrity of the systems.

Based on flow data collected between 2003 and 2012, the Spanish Mine treatment systems are capable of treating the discharge from the A-001 and A-003 portals 80 percent of the time [equivalent to flow rates up to 30 gallons per minute]. The systems are designed to bypass higher flows to secondary infiltration or spray fields. During emergency or extreme flow conditions, excess discharge may be routed away from the treatment systems to protect the integrity of the systems via an emergency overflow or spillway.

The A-001 and A-003 mine portals existed prior to the adoption of Resolution 68-16, and the results of a baseline study conducted prior to the construction of the PTS systems determined that the water quality in Poorman Creek downstream from the discharge locations was protective of existing and potential beneficial uses. The operation of the PTS systems has further improved the water quality in Poorman Creek.

SOPER COMMENT 2:

DISCHARGE PROHIBITION, A.4, page 15

Soper Recommended Change to Discharge Prohibition A.4, page 15

Bypass around, or overflow from, the PTS systems and primary and secondary infiltration fields and/or spray fields is prohibited.

RESPONSE: Clarification accepted. Discharge Prohibition A.4 has been revised as follows:

This Order does not authorize bypass around, or overflow from, the PTS systems and primary and secondary infiltration fields and/or spray fields.

SOPER COMMENT 3:

DISCHARGE SPECIFICATION B.7, PAGE 15

The A-003 PTS system was designed to protect the integrity of the system and prevent overtopping and/or structural failure. However, due to limited space and steep slopes, the system was also designed to operate with less than one foot of freeboard. This design was approved by the RWQCB and the system has been operational for several years.

Soper Recommended Change to Discharge Specification B.7, page 15

The Discharger shall operate and maintain all treatment, storage, and disposal systems sufficiently to protect the integrity of systems and prevent overtopping and/or structural failure. ~~Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in the PTS shall never be less than one foot (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.~~

RESPONSE: Staff acknowledges that the PTS design was previously approved by Board staff to operate with less than one foot of freeboard. Therefore the revision to Discharge Specification B.7 as indicated above is accepted.

SOPER COMMENT 4:

DISCHARGE SPECIFICATION B.8, PAGE 16

The systems are operational and were constructed in accordance with Cease and Desist Order R5-2008-0105 issued in conjunction with WDR Order R5-2008-0104 (NPDES Permit No. CA0085286). The original design did not include this 100-year monthly allocated design criterion.

Soper Recommended Change to Discharge Specification B.8, page 16

Wastewater treatment, storage, and disposal systems or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with the Order. ~~Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.~~

RESPONSE: Staff acknowledges that the PTS design was previously approved by Board staff and that the design did not include total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Therefore, Discharge Specification B.6 has been removed and the revision to Discharge Specification B.8 as indicated above is accepted.

SOPER COMMENT 5:

DISCHARGE SPECIFICATION B.9, Page 16

On or about **1 October** of each year, available capacity shall at least be equal the volume necessary to comply with Discharge Specifications B.7 and B.8.

Soper Recommended Change to Discharge Specification B.9, page 16

No change is necessary if the recommended changes to Discharge Specifications B.7 and B.8 are accepted.

Soper Rational: See the Rationale for Discharge Specifications B.7 and B.8.

RESPONSE: Comments B.7 and B.8 were accepted. Therefore no change will be made to Discharge Specification B.9.

SOPER COMMENT 6:

PASSIVE TREATMENT SYSTEM MONITING REQUIREMENT NO. 1

Passive Treatment Monitoring Requirement: Conduct and report freeboard measurements quarterly as outlined in Table 2.

Soper Recommended Change: Conduct and report freeboard measurements quarterly as outlined in Table 2.

Rationale: This monitoring requirement is not necessary if the recommended change to Discharge Specification B.7 is accepted.

RESPONSE: This comment refers to Monitoring and Reporting Program Requirement 1. The requirement to monitor and report freeboard shall be removed.