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Searles Valley Minerals

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December 21, 2007

Mr. Omar Pacheco
California Regional Water Quality Control Board
Lahontan Region
14440 Civic Drive, Suite 200
Victorville, CA 92392

Subj: Wemco Collection Tank

Dear Mr. Pacheco:

Pursuant to the requirements of Item 3F of Administrative Civil Liability Order No. R6V-2002-0025 issued by the Lahontan Regional Water Quality Control Board, Searles Valley Minerals submits the enclosed report on the effect of the Wemco Collection Tank project in the Trona Plant.

Please contact me if you need additional information. I can be reached at 760-372-2118 or by e-mail at kirchner@svminerals.com.

Sincerely,

Denise Kirchner

Enclosure

Searles Valley Minerals Trona Plant
Wemco Froth Tank Project
Report on Effect as of December 2007

Item 3.F. of Administrative Civil Liability Order No. R6V-2002-0025 required Searles Valley Minerals (SVM) to decide whether to install collection tanks at the Trona Plant, complete an alternative supplemental environmental project, or to pay $300,000 to the California Regional Water Quality Control Board (Regional Board). SVM installed a froth tank system at the LLX Plant in Trona, which was put in service on November 17, 2006. The system consists of a froth tank, and it includes two low shear pumps, piping, electrical, and instrumentation needed for its operation.

SVM is a mining facility in Trona, California that utilizes highly saline brine pumped from beneath Searles Dry Lake. In the Trona Plant, boron is extracted from the brine using solvent extraction technology. A proprietary organic based extractant produced by SVM is used to extract the boron. The process leaves the brine partially depleted of boron. The boron-depleted brine, or "spent brine", contains traces of hydrocarbons from its contact with the extractant. The spent brine is sent to an API settler where most of the visible hydrocarbons are removed. From the API settler, the brine goes to a set of induced air flotation cells (Wemcos). The Wemcos generate a froth containing hydrocarbons, which flows by gravity to the froth tank and separates. The hydrocarbons are removed from the surface of the froth tank by a vacuum truck on a daily basis and are disposed of according to the environmental guidelines. The spent brine is returned to the Wemcos. The clean spent brine from the Wemcos, after recovering a portion of its heat, is sent to the Trona in-plant skimmer.

Optimal operation of the system was achieved seven months after the initial installation of the froth tank, when the spent brine return from the froth tank was rerouted to the header of the Wemco inlet. This improved distribution of the flows in each Wemco unit and therefore better Wemco performance.

As demonstrated in values reported in the daily effluent analytical data, the Trona effluent hydrocarbon discharge frequently had non-detectable values before and after the installation of the froth tank system. The fact that hydrocarbons are removed from the top of the froth tank provides evidence that the froth tank is serving its purpose. The froth tank provides froth with approximately the same separation time as the API settler did. By removing the froth previously returned to the API settler, the API settler operates cleaner. It should be noted that previously the froth was pumped to the API with a centrifugal pump, which severely agitated the hydrocarbons and the spent brine. The froth tank discharge pumps are low shear pumps and do not entrain air in the pumped fluid. Furthermore, by returning the spent brine to the inlet of Wemcos as opposed to the API settler, the settler is not re-contaminated with hydrocarbons. An upset in the Wemco system no longer affects the process in the API settler. Any upsets in the API settler are not as severe because they are not magnified by the froth returning from the Wemcos.

The Froth tank project is a success in that it improves reliability of the overall system to maintain a clean effluent.