WQ-30.10.00 D#: WQ-96-99

Mining Remedial Recovery Company

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MRRC

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November 27, 1996

Rick Woodard
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Dear Rick:

On behalf of Mining Remedial Recovery Company (MRRC), I would like to thank the Water Quality Work Group for inviting representatives from mining interests to participate in the CALFED process.

Please accept the following comments related to documents distributed at the November 20 meeting. My comments are limited to parameters and actions related to inactive mines.

CALFED WATER QUALITY ACCEPTABLE RANGES FOR PARAMETERS OF CONCERN

Copper, cadmium and zinc concentrations:

The Central Valley Regional Water Quality Control Plan (CVRWQCP) and General EPA 304(a) guidelines each provide valuable goal setting criteria. However, to develop a more realistic set of water quality objectives, some of the EPA and CVRWQCP standards may require adjustments. In the draft proposal, the EPA guidelines for these metals are applied to the delta, San Joaquin River, and Sacramento River downstream of Hamilton City, while CVRWQCP limits are applied upstream of Hamilton City. As a result, acceptable cadmium concentrations are an order of magnitude higher downstream of the Highway 32 bridge than upstream of the bridge. Similar discontinuities exist for copper, zinc, and other constituents of concern. I recommend a less arbitrary and digital application of these standards to better reflect the beneficial uses of the bay-delta system.
I look forward to learning more about the chosen concentrations for these metals at our next meeting.

Footnote c is incorrect.

For copper, cadmium, zinc and hardness concentrations expressed in mg/L, the correct formulas are:

$Cu = e^{(0.905)(\ln \text{hardness}) - 1.62} \times 10^{-3}$

$Zn = e^{(0.830)(\ln \text{hardness}) - 0.289} \times 10^{-3}$

$Cd = e^{(1.160)(\ln \text{hardness}) - 5.777} \times 10^{-3}$

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Plan for Analysis of Proposed Water Quality Actions
Mine Drainage Remediation

Study Steps:

1. I recommend contacting additional representatives from active and inactive mining interests. The CALFED process could benefit significantly from additional expertise.

2. Consider expanding the review process to include additional mine remediation projects. Mining Remedial Recovery Company (MRRC) owns several inactive copper and zinc mines in the West Shasta Mining District. Currently, MRRC is consolidating a waste rock area and constructing a lined surface water channel at the Balaklala Mine in the West Squaw Creek drainage. Plans for control measures at other mines are also being developed. In general, MRRC is focused on low maintenance remedial actions that generate high benefit to cost ratios. Additional remediation projects may also be recommended for study by the EPA and Control Board.

3.b. This study step is not clearly written.

3.c. To effectively design and implement remediation measures, it is necessary to identify and quantify sources acid mine drainage (AMD). However, data and models alone will not improve the health of the Bay-Delta system. Perform mathematical modeling **only** as necessary or feasible. Moderate control measures including surface water diversions, waste rock covers, and anoxic limestone can be constructed without extensive modeling.

4. Consider funding pilot studies to evaluate new technologies

General recommendation: Supplement this study plan with a timeline and budget.

I look forward to working with you. Please contact me if I can be of further assistance.

Sincerely,

Linda Mercurio