



Department of Toxic Substances Control



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Winston H. Hickox
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July 6, 2000

Mr. Dean Gould
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COMMENTS ON THE PERMANGANATE DEMONSTRATION PROJECT REVISED SUMMARY TABLE AND BENCH-SCALE TEST RESULTS, INSTALLATION RESTORATION PROGRAM (IRP) SITE 24, MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Mr. Gould:

The Department of Toxic Substances Control (DTSC) reviewed the revised Summary Table 2-1 for the implementation strategy and the bench-scale test results transmitted on April 27, 2000. The test results are summarized in a memorandum prepared by Earth Tech, Inc., dated April 24, 2000. In general, the bench-scale test results are very abbreviated. After review of the results, DTSC has the following comments.

General Comments

1. Selenium and other metals have been observed in various studies to become soluble and mobile when oxidized. It is suggested that an evaluation be performed to determine other metals in soil that will oxidize into more soluble and mobile forms.
2. It may be useful to perform a mass balance on chromium by determining the existing total chromium (Cr) levels in soil (assume that 100% of it will be oxidized to Cr (VI)), injected Cr (VI) and model the fate and transport of Cr (VI) to estimate the rate of dilution, residual Cr (VI) concentration, etc.



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Specific Comments

1. Page 1, Results: The average concentration of Cr (VI) in the LIQUOX solution is not mentioned. In Table 2, Jar Test Results, the data for Set 2 appears to indicate that 300 to 400 micrograms per liter ($\mu\text{g/L}$) of Cr (VI) is present in a one percent LIQUOX solution. Please clarify.

Additionally, please clarify if the presence of Cr (VI) in the solution is specific to a vendor or associated with the chemical preparation of the solution. Please clarify if potassium permanganate (KMnO_4) would also contain Cr (VI).

2. Page 1, Background: The third paragraph states that United States Environmental Protection (EPA) Method 7196A for Cr (VI) is subject to significant interference in samples that contain permanganate. Further it is suggested that EPA Method 7195 be used as an alternative method. However, in revised Table 2-1, included in the transmittal, the method specified for Cr (VI) is EPA Method 7197. Please clarify.
3. Page 2, Table 1 - Initial Conditions: The total chromium value listed is 4.6 milligrams per kilogram (mg/kg). Is this based on a single sample result or an average of several results? Please clarify.

Thank you for the opportunity to comment on the bench-scale study. If you have any questions, please call me at (714) 484-5395.

Sincerely,



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