

Document Title:

Field Change Justification No. 7 (draft), IRP Site 1 – Aquifer Tests 3 and 4, Former Marine Corps Air Station, El Toro, CA, prepared by Enviro Compliance Solutions, Inc., Tustin, CA, September 2005

Reviewer: Frank Cheng, Reviewer, Department of toxic Substances Control, Pasadena, CA, Dated: October 20, 2005

Comment No.	Section/ Page No.	Comment	Response
1.	Objective/ Page 1	What are the results from Aquifer Tests 1 and 2 to support the rationale for this Aquifer Tests 3 and 4? Are there cross sections in zones 1 and 2 to show the geologic formations of the bedrock and aquifer thickness at each extraction location?	Comment acknowledged. As stated in the referenced justification memo, monitoring, testing and sampling results from Aquifer Tests 1 and 2 were presented to the Base Closure Team (BCT) in June 2005. Based on the findings, one area with elevated perchlorate concentrations occurs within the center portion of IRP-1 in the vicinity of the Borrego Wash tributary (Zone 1), and a second area with elevated perchlorate concentrations occurs upslope within the southeast-central portion of IRP-1 (Zone 2). Perchlorate in groundwater from Zones 1 and 2 appears to migrate downgradient through an estimated 150-foot wide area in the vicinity of the Borrego Wash tributary. Cross-sections showing bedrock and aquifer thickness throughout areas of perchlorate impact were prepared previously and prior to Aquifer Tests 1 and 2. These cross sections were used to determine extraction well design. Based on interpretations of geologic cross-sections constructed prior to Aquifer Tests 1 and 2, contaminant distribution in Zone 1 may be controlled by hydraulic discontinuities at the boundaries of Zone 1. The previous 72-hour test results were not sufficient to identify the hydraulic characteristics of these suspected boundaries, if any. For this reason, a long-term test is needed.
2.	Figure 1/Attachment	The figure does not show 01-MW-213	Comment acknowledged. Well 01-MW-213 occurs approximately 2,000 to 3,000 feet downgradient of Aquifer Tests 2 and 3 in an area with elevated perchlorate concentrations. Well location is provided in Exhibit A (attached). Wells 01-MW-213, 01-EW-07 and 01-EW-8) and piezometers 01-PZ-22 and PZ-23 are not needed, used or monitored during the Aquifer Tests 3 and 4 (see response to comment 3 below).
3.	Task 3/Page 3	What is the rationale to install two additional extraction wells (01-EW-07 and 01-EW-8) and two piezometers (01-PZ-22 and PZ-23) after task 8? Should the new pump test results be sufficient to support the potential deign criteria in that area and if not, then this phase of pump test should include that area.	Comment acknowledged. These wells will be installed in the vicinity of well 01-MW-213 approximately 2,000 to 3,000 feet downgradient of Aquifer Tests 2 and 3 (in the flat area surrounded by bunkers). Aquifer testing for these wells will be the subject of a separate Field Justification Change Order that will be prepared prior to testing.

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4.	Task 6/Page 4	Task 6: What is the rationale for the long-term pump test when hydraulic information could be obtained from a 72-hour pump test, such as the one described in task 5?	<p>Comment acknowledged. The long-term pumping test described in Task 6 will be used to assess the operational ROI as a function of time when three extraction wells are operating simultaneously during the sixty to ninety days of pumping within Zone 2. Based on interpretations of geologic cross-sections constructed prior to Aquifer Tests 1 and 2, contaminant distribution in Zone 1 may be controlled by hydraulic discontinuities at the boundaries of Zone 1. The previous 72-hour test results were not sufficient to identify the hydraulic characteristics of these suspected boundaries, if any. For this reason, a long-term test is needed.</p> <p>An added benefit will be the removal of perchlorate from the aquifer. Notably, any extraction of perchlorate at this time will pay dividends with regard to addressing the perchlorate plume in the future, should remediation occur.</p>
5.	IDW/Page 4	The change order does not address the long term pump test waste disposal issue. How is the extracted groundwater treated, stored, and disposed.	Comment acknowledged. Extracted groundwater will be treated, stored and disposed according to protocols contained in the approved workplan. No changes are proposed.
Microcosm Study 1.	Task 1/Page 2	The test should screen the soil and groundwater sample separately for bacterial count to confirm the high bacterial count in the groundwater slurry.	Comment acknowledged. Only groundwater/soil slurry samples were tested for bacteria as part of the pre-approved protocol because perchlorate in groundwater occurs in this environment. Distribution of bacteria between soil and groundwater would not appear to change the bench-scale experiments or results, and were not included in the pre-approved testing protocol. However, we will pass this comment on to the testing laboratory so that the concern can be addressed in the final report.
Microcosm Study 2.	Task 1/Page 2	Soil and groundwater should be analyzed for total organic carbon to confirm the suggestion of high dissolved organics.	Comment acknowledged. Analysis for total organic carbon was not included in the pre-approved testing protocol. We will pass this comment on to the testing laboratory so that the concern can be addressed in the final report.
Microcosm Study 3.	Task 1/Page 2	The statement that statistically significant decrease in perchlorate due to biological degradation may not be conclusive, since both tests conditions A (MNA only) and E (Negative Control) showed ND after 3 weeks.	Comment acknowledged. We will pass this comment on to the testing laboratory so that the concern can be addressed in the final report.

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Microcosm Study 4.	Task 1/Page 2	Re-spike the sample for future test is acceptable. However, more stringent QA/QC and confirmation analysis should be performed e.g. analyses of general minerals (Chloride and Chlorate mass balance), Total Organic Carbons, etc.	Comment acknowledged. Analysis for general minerals was not included in the pre-approved testing protocol. We will pass this comment on to the testing laboratory so that the concern can be addressed in the final report.