

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: John Broderick, SLIC/DoD Section, Santa Ana Regional Water Quality Control Board, 3737 Main Street, Riverside, CA, Dated: October 20, 2005

Comment No.	Section/ Page No.	Comment	Response
1.	Task 6: Table 1-Proposed Well Completion Table (Draft)	The extraction wells are proposed to be constructed utilizing four-inch casing, 0.02-inch slot screen size, and screen length of 30 to 40 feet. The proposed design is similar to that most commonly used for groundwater monitoring wells throughout the Region, not extraction wells. The extraction well design is likely to bias aquifer test results. The selected well diameter and screen slot size are too small to maximize flow efficiency and are not adequate to demonstrate whether pump and treat is a viable option. We recommend that, at minimum, groundwater extraction wells be constructed in a 13-inch diameter boring with six-inch casing diameter, a filter pack with its grain size midway between a monitoring well filter pack and maximum extraction efficiency, and a screen with an appropriate slot size and that does not exceed 30 feet in length.	Comment acknowledged. This comment raises the legitimate concern of potential effects of well design on aquifer test data quality. Based on our previous site-specific experience during Aquifer Test 1 and 2 conducted at the site according to the approved work plan, wells yields during Aquifer Tests 3 and 4 are expected to be less than two gallons per minute. Due to these low well yields, well storage effects will be significant at large diameter wells. This limitation will bias early time drawdown data, and preclude the use of the Theis (and similar) Method for data analysis. We experienced this limitation for Aquifer Tests 1 and 2 where six-inch diameter wells were used. Use of four-inch diameter wells will minimize well storage effects, and expected low flow rates (less than 2 gpm) would obviate significant well efficiency effects. The well slotted intervals will extend approximately 10 feet above the groundwater table to account for fluctuations in historic groundwater levels experienced at this site. The slotted intervals for each test well will extend approximately 30 feet into groundwater. The bedrock aquifer is semi-consolidated, and the proposed well design, based on our previous experience, will allow for rapid "clean up" during development. Use of four-inch wells will provide the Navy with an opportunity to satisfy waste minimization requirements by generating a small volume of borehole cuttings. Given the expected site-specific field conditions, the Navy intends use four-inch diameter wells to rely on as much aquifer test data as feasible including early time data, and minimize waste produced during well construction.