Review of the Spring 2017 Basewide Groundwater Sampling Event Memorandum, Former George Air Force Base, San Bernardino County, California, May 2017

GENERAL COMMENT

1. The 2004 *Performance Monitoring of MNA Remedies for VOCs in Ground Water* guidance (the Guidance) Section 2.5, Monitoring Network Design, Page 17, suggests that an MNA groundwater network should be able to monitor a groundwater plume both horizontally and vertically using transects of tightly clustered wells with comparable screen intervals at various depths in a line perpendicular to groundwater flow. However, Site OT069 monitoring network does not appear completely meet the criteria suggested in the Guidance. Please consider horizontal MNA for Site OT069 in future monitoring events.

SPECIFIC COMMENTS

1. **The First Paragraph of the Memo, Page 1, and Conclusion, Page 5:** The Memo references the Draft Uniform Policy Quality Assurance Project Plan (UFP QAPP) (Shaw, 2012a). Please revise the Memo to reference the Final UFP QAPP.

2. **Spring 2016 Variations, Page 4:** No rationale is provided for the schedule change for six of the sixteen monitoring wells. Monitoring wells MW-33, MW-38, MW-39, MW-148, MW-149, and MW-153 do not provide enough information for their removal from the Spring 2017 Monitoring Event while the remaining ten wells provide an explanation for the altered schedule. Please provide rational for the removal of all wells variating from the Spring 2016 Monitoring Event.

3. **Table 1, Monitoring Well Summary, Page 7:** It is unclear why ADELANTO-4 is included in the list of wells in Table 1 and in Wells to be Sampled in Figure 2. ADELANTO-4 is a Water Supply well located outside of the Lower Aquifer Dieldrin plume. Please include a discussion for including ADELANTO-4 in the Memo and please provide additional information for ADELANTO-4 in Table 1, including well location, screen depth, and associated sites.

4. **Table 1, Monitoring Well Summary, Page 7-8:** The inclusion of Site LF012 as an Associated Site in Table 1 is misleading if monitoring of Site LF012 will not be conducted until Spring 2021. Please remove LF012 as a category under Associated Site(s) for Table 1 at this time if sampling will not be conducted for an additional five years.

5. The low-flow pumping procedure described in the QAPP document should be modified to require measurement of the drawdown that occurs during sample collection. (ASTM D 6771-02, 8.4.3: Standard practice for Low-flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations) The procedure in the draft

QAPP (Shaw, Aug. 2012) only requires adjusting the sampling flow rate "to remain in a range of 0.1 Liters per minute (L/min) to 0.5L/min without exceeding the well discharge rate." Please modify the draft QAPP to include measurement of the drawdown that occur during sample collection.

6. The sampling procedure in the draft QAPP (Shaw, 2012a) contains no indication as to how the samplers should proceed if the indicator parameters do no stabilize to within 10% during purging. Please revise the draft QAPP to provide enough information on sampling procedure for wells that do not stabilize.

MINOR COMMENTS

1. **Table 1, Monitoring Well Summary, Page 7-8:** Site LF007 is included in Table 1 as an associated site(s) but does not have wells associated with it. Please consider removing LF007 from the list of Associated Site(s) in Table 1.

2. **Table 1, Monitoring Well summary, Page 7-8:** CO2 is included in Table 1 as a Field Analysis while no well is designated to run CO2 as a field analysis. Please consider removing the unused Field Analysis CO2 from Table 1.