



California Regional Water Quality Control Board

Central Valley Region

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SOIL VAPOR EXTRACTION OPTIMIZATION FOR THE REMEDIATION OF UST CLUSTER 1 AND SITE VERIFICATION ACTIVITIES AT VARIOUS SITES WORK PLANS, REVISION 1, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA), CROWS LANDING FLIGHT FACILITY, CROWS LANDING, CALIFORNIA

We have reviewed *Soil Vapor Extraction Optimization for the Remediation of UST Cluster 1 and Site Verification Activities at Various Sites Work Plans, Revision 1, NASA Crows Landing Flight Facility* (Rev 1), received 10 October 2000. Rev 1 includes, in addition to the previously reviewed *Soil Vapor Extraction Optimization for the Remediation of UST Cluster 1 and Site Verification Activities at Various Sites Work Plans* (Rev 0), the new Appendix H, which contains attachments numbered from one to seven for the seven work plans proposed for the site verification activities.

Attachments include the following:

1. Abandonment and Closure of Wells;
2. Site 11 Geophysical Survey (landfill);
3. Underground Storage Tank Cluster 1 Aquifer Testing (CL1);
4. Sewer Line Survey;
5. UST Cluster 2 Soil Vapor Extraction Testing (CL2);
6. Baseline Groundwater Verification Sampling and Analysis Work Plan; and
7. Underground Storage Tank 109 Active Biovent Treatment Method Testing.

The Navy has expanded on previous work conducted at the facility in order to fully characterize contamination at six sites by filling data gaps. The new Rev 1 work for the seventh site (Attachment 1) consists of decommissioning four wells: an agricultural and a water supply well, each of which might provide a conduit for contaminants from the shallow aquifer to the deeper aquifer by grouting; and two previously abandoned (grouted) but not decommissioned monitoring wells (surface completions to be removed) at the landfill.

General Comments

1. We commented on certain aspects related to Attachments 3 and 6 during our review of the three informational documents that preceded this work plan (Rev 1). Please refer to the Regional Water Quality Control Board (RWQCB) letter dated 10 October 2000, which commented on the *Memorandum dated 11 August 2000; Interim Status Report dated 17 August 2000; and Technical Information Package dated 27 September 2000*, and provide changes to Rev 1 in response to these RWQCB prior comments.

If the Navy decides to expand the groundwater removal action and seek disposal of groundwater to land or surface water, then addressing the RWQCB permitting comment in a timely fashion will become essential to avoid delays due to the permitting process.

2. Several new Contaminants of Concern (COCs) have been detected in groundwater at the site. Action levels have not been determined for the new COCs in Rev 1. Since several of the new COCs have extremely low Water Quality Goals in relationship to their concentrations in groundwater, cleanup levels will need to be established for the new COCs as well as in the Feasibility Study (FS) and Record of Decision (ROD).

Specific Comments

Attachment 3 Underground Storage Tank Cluster 1 Aquifer Testing:

1. Section 2.5 Well Installation states that the extraction well "...will be installed at the location thought most productive and most impacted by petroleum hydrocarbons." Since the Navy has recently discovered the following additional solvents and components of petroleum hydrocarbons at CL1, specifically:

- Acetone to 68,400 ug/L;
- Benzene to 70,400 ug/L;
- Ethylene Dibromide (EDB) to 5080 ug/L;
- Methyl Ethyl Ketone (MEK) to 75,400 ug/L; and
- Methyl Isobutyl Ketone (MIBK, reported as 4-Methyl-2-pentanone) to 3560 ug/L,

the Navy should consider the monitoring well locations of the highest sample concentrations of these previously unknown COCs in groundwater when locating the extraction well(s).

2. Sections 2.5 - 2.7 describes the design and installation of the extraction well. Section 1.2 states that the goal is to remediate the uppermost portion ("groundwater interface") of the aquifer near the water table for petroleum hydrocarbons, or Light Non-aqueous Phase Liquids (LNAPLs). Again, we suggest that the Navy also consider all of the new COCs, which also include Dense Non-aqueous Phase Liquids (DNAPLs), when designing and installing the extraction well.

3. Section 3.0 Waste Management states "The remaining waste streams (including the untreated, extracted groundwater) will be characterized and disposed of as described in Section 3.0 of Work Plan." This is confusing, since this reference to the "Work Plan" appears to describe the previously reviewed (and included within Rev 1) Rev 0, Section 3.0, which does not contain text related to containerizing a large volume of untreated groundwater into Baker tanks. The Rev 1, Appendix H, Attachment 3, Section 2.7 describes this activity, specifically that the untreated, extracted groundwater will be stored in

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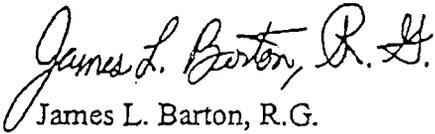
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Baker tanks until the water is transferred into, and transported by, a tanker truck to a waste facility. Reference Rev 1, Appendix H, Attachment 3, Section 2.7 for this activity in the same attachment's Section 3.0 text, not Rev 0, Section 3.0.

Attachment 6 Basewide Groundwater Verification Sampling and Analysis Work Plan:

4. Section 1.0, the Introduction and following text state that the Navy will conduct semi-annual groundwater sampling at Crows Landing. We feel that quarterly groundwater sampling is more appropriate to characterize the lateral extent and concentrations of the COCs, considering the large list of new COCs found recently in groundwater from a limited number of monitoring wells. The Navy should change this work plan to reflect quarterly groundwater monitoring for all COCs until adequate data is collected to warrant the Navy requesting a revision to the sampling frequency.

If you have any questions please contact me at (916) 255-3050 or bartonj@rb5s.swrcb.ca.gov.



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