



California Regional Water Quality Control Board

Central Valley Region

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4 November 2002

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QUARTERLY BASEWIDE GROUNDWATER REPORT, VERIFICATION SAMPLING AND ANALYSIS – SPRING 2002 – SEVENTH QUARTER, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) CROWS LANDING FLIGHT FACILITY, STANISLAUS COUNTY

We have reviewed the *Quarterly Basewide Groundwater Report, Verification Sampling and Analysis – Spring 2002 – Seventh Quarter, NASA Crows Landing Flight Facility, Stanislaus County* (Report), dated 4 September 2002. The Report provides the quarterly groundwater analytical results from the May 2002 sampling event. The Report provides monitoring data from selected basewide groundwater monitoring wells at the Underground Storage Tanks (USTs) Cluster 2, Installation Restoration Program (IRP) Site 11, and the Administration Area, which includes the IRP Site 17, UST Cluster 1, and UST 117.

Groundwater was analyzed for the following constituents:

- VOCs (EPA Method 8260), including methyl-tert-butyl-ether (MtBE) and ethylene dibromide (EDB);
- Total Petroleum Hydrocarbons (TPH) as gasoline (-g), JP-4 jet fuel (-j), diesel (-d) and motor oil (-mo) by EPA Method 8015B;
- Alkalinity (EPA Method 310.1)
- Anions (EPA Method 9056 for chloride, nitrate, nitrite, sulfate, and phosphate), and
- Total Dissolved Solids (EPA Method 160.1).

A silica gel cleanup for TPH-d and TPH-mo analyses was performed on all groundwater samples.

The Report concludes that:

- The analytical results are fairly consistent with the previous quarter (Winter 2002) groundwater sampling event, and do not indicate recent significant changes in the nature or extent of impacted groundwater,
- Site 11 groundwater is not impacted by contaminants,
- Data from the local groundwater depression at the Bell Road (eastern site boundary) monitoring wells 17-MW-25(S) and 17-MW-25 (MS) will be analyzed to determine if groundwater pumping from off-site agricultural supply well 6S/8E-16M1 affects the Administration Area groundwater plume.

California Environmental Protection Agency

General Comments:

1) The data show increasing evidence (Figure 3 Water Table Elevation Map) that agricultural supply well 6S/8E-16M1 is affecting the observed local groundwater depression in the vicinity of Bell Road site boundary monitoring wells 17-MW-25(S) and 17-MW-25(MS). The local groundwater depression is more pronounced (steeper) this quarter in the water table contour line near 17-MW-25(S), possibly due to the start of the agricultural groundwater-pumping season. The Navy should consider installing automated water level dataloggers in 17-MW-25(S) and 17-MW-25(MS), to help determine the cause and effect relationship of agricultural pumping to the groundwater depression.

2) We are concerned that the analytical results from three rounds of groundwater sampling of monitoring well 17-MW-25(MS) show detectable but stable benzene and VOCs concentrations exceeding applicable water quality objectives in the mid-shallow aquifer zone. There is a strong possibility that the groundwater plume is moving offsite towards the agricultural supply well 6S/8E-16M1. The extent of the plume has not been defined east of Bell Road.

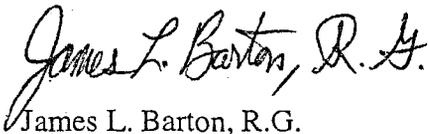
3) There is also evidence (Table 1, Plate 1, and Plate 2) that the groundwater plume is diving between 17-MW-25(S) and 17-MW-25(MS), from the shallow zone to the mid-shallow zone. VOCs and benzene were detected in the mid-shallow zone, while only chloroform was detected in the shallow zone. The water level in the mid-shallow zone is lower by 0.16 feet than the water level in the shallow zone in these adjacent wells, denoting a downward vertical gradient.

Specific Comment:

1) Section 2.2.4 Supplemental Information, Field Observations: The text states that one monitoring well was not sampled due to running dry during purging. Neither the text nor the field notes specify which well went dry. In the future, please include the well identification designations for all wells described in the text.

Please provide a workplan by **1 January 2003**, to address hydraulic control of the groundwater plume at the site boundary, and characterize the lateral and vertical extent of the offsite portion of the groundwater plume.

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



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