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CROWS LANDING
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Hornecker, Lynn M (EFDSW)

From: Hornecker, Lynn M (EFDSW)
Sent: Monday, May 20, 2002 1:18 PM
To: 'bartonj@rb5s.swrcb.ca.gov'
Cc: 'laudonl@rb5s.swrcb.ca.gov'; Potacka, Marianna K (EFDSW); 'fdonofri@dtsc.ca.gov'; 'msonke@envres.org'; 'aberry@ciwmb.ca.gov'; 'dchuck@mail.arc.nasa.gov'; 'jimsimpson@envres.org'; 'dward@dtsc.ca.gov'; Klimek, Ann (EFDSW)
Subject: Response to RWQCB Comments dated 6 May 2002

Hello Jim,

I have attached our response to RWQCB comments dated 6 May 2002 on the annual groundwater report for NASA Crows Landing Flight Facility.

Please do not hesitate to contact me if you have questions pertaining to the attachment. We look forward to future technical discussions pertaining to water level measurements and the use of dataloggers.

Thank you for reviewing the annual report and for providing comments.

CLRTCAnnualGWRpt RWQCB6May2002....

V/R
Lynn Marie Hornecker
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20 May 2002

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File: CLRTCAnnualGWRptRWQCB6May2002.doc

Date: 20 May 2002

RESPONSE TO COMMENTS FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION
Subject: Annual Basewide Groundwater Verification Sampling and Analysis Report – Fall 2000 through Summer 2001, NASA Crows Landing Flight Facility, Crows Landing, California (IT Corporation, April 2002)

Comment	Response
Comments dated 6 May 2002 prepared by James L. Barton, R. G., Associate Engineering Geologist, California Regional Water Quality Control Board, Central Valley Region, Sacramento Main Office, California. Subject: *FALL 2000 THROUGH SUMMER 2001, ANNUAL BASEWIDE GROUNDWATER VERIFICATION SAMPLING AND ANALYSIS REPORT, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) CROWS LANDING FLIGHT FACILITY, STANISLAUS COUNTY* Addressee: Marianna Potacka, BRAC Environmental Coordinator BRAC Environmental Coordinator BRAC Operations, SWESTNAVFACENGCOM	
General Comments	
Our 23 April 2002 letter stated that we would evaluate the recommended changes to the monitoring program contained in the Fall 2001 quarterly report, after reviewing this Report. The Fall 2001 quarterly report stated that an analysis of all data, historical trends, and current trends would be included in the Report. This analysis is necessary to provide the rationale for the changes to the monitoring recommended in the Fall 2001 quarterly report. However, neither report provides the rationale for the recommended changes. Please provide the rationale for the recommended changes, supported by the data, and obtain regulatory concurrence prior to implementing the changes.	The Annual Report includes an analysis of all groundwater data related to the compounds of concern (petroleum hydrocarbons and volatile organic compounds [VOCs]) at the facility. Historical data is summarized in Appendix A and an evaluation of the data is included in Appendix D. Current data is also included in Appendix A and evaluated in Section 4.0. A full evaluation of metals in groundwater at the facility is included in the Remedial Investigation Report. As stated in the Fall 2001 Quarterly Report, there are no trends in the distribution of metals in groundwater at the facility that would indicate impact from historical industrial activities. Recent quarterly sampling confirmed previous results for metals. As stated in the Annual Report, an evaluation of natural attenuation, include a statistical evaluation of the distribution of general chemical parameters relating to compounds of concern will be provided as a separate transmittal.

General Comments (Continued)	**Response (Continued)**
	The rationale for changes in the monitoring program is included in Section 5.0 of the Annual Report. Quarterly sampling will continue to provide petroleum hydrocarbon and VOC data to monitor the current condition and migration of the plumes at the facility. Annual sampling of the majority of the wells on the facility for petroleum hydrocarbons, VOCs, and general chemistry parameters will provide regular, periodic data to evaluate natural attenuation. The Navy plans to continue to provide advance notification to the BCT pertaining to planned changes in the monitoring program in order to address any regulatory concerns prior to implementation of planned changes.

Date: 20 May 2002

Specific Comments	Response
1. Section 3.2.1 Groundwater Elevation, page 3-2: The text states that several sharp peaks recorded in datalogger graphs in several monitoring wells, especially 109-MW-01(S) and CL2-MP-03B appear to be the result of rainwater infiltrating the wells or nearby wells. Please explain how the Navy arrived at this conclusion, and provide details how this can be prevented in the future, including an evaluation of the condition of the monitoring wells.	An evaluation of the data generated during the winter 2001 rainy season indicated several sharp peaks on specific hydrographs. Some of these peaks appeared to correspond to heavy rainfall events at the Facility, suggesting that rainwater had short-circuited into the well containing dataloggers. At the time, it was noted that the well caps had been left off because the datalogger cables extend out of the top of the wells. A cloth had been placed in the well to prevent dust and animals from entering the wells. To prevent the problem of rainwater getting into the wells the top of the well casings were covered and secured with oversized caps. The placement of the oversized caps should eliminate or significantly reduce future infiltration of rainwater into the wells.
2. Section 3.2.1 Groundwater Elevation, page 3-2: The text states that the water level decrease in the datalogger graph at CL1-MW-09(S) between March and April 2001 is probably due to the Time-Critical Removal Action groundwater extraction from extraction well CL1-EX-01. This statement is problematic, in that CL1-EX-01 is located over 300 feet from CL1-MW-09(S), and the CL1-EX-01 pumping rate (Section 2.4) was approximately 0.5 gallons per minute. Please explain how the Navy arrived at this conclusion.	The statement is in error because the datalogger graph for CL1-MW-09(S) actually shows an increase in the groundwater level in the well between March and April 2001. The hydrograph does indicate slightly lower water levels measured in CL1-MW-09(S) in early to mid-March 2001 but the lower water levels don't appear to correspond to site activities or agricultural well pumping activities. However, the statement does bring up an important point to consider in reviewing the hydrographs. On-going field activities, including groundwater extraction, groundwater sampling, downloading of data from dataloggers, and soil vapor extraction testing will likely impact water levels in the wells with dataloggers. Attempts will be made in the future to identify any distinct anomalous water level readings that may be due to field activities.

Specific Comments	Response
3. Section 4.2 Groundwater Plumes, page 4-2, with Section 5.0 Recommendations and Conclusions, page 5-2: The text states that the groundwater model overestimated the effectiveness of the pump and treat remedial alternative, by using an overestimation of the hydraulic conductivity (100 feet per day) and a specific yield (0.3), to determine that active remediation would be effective for the groundwater plume. The text states that the 2001 pump test recorded a lower hydraulic conductivity (0.2-0.3 feet per day), and specific yield (0.002), which are more representative of the fine-grained sediments in the aquifer. The wells used in the 2001 pump test were completed in fine-grained sediments, and had very low (0.5 or less gallons per minute) pumping rates. Section 5.0 states that a hydraulic conductivity of 20 feet per day is representative of the preferential pathways (coarser units) in the fine-grained sediments. Section 4.2 states that contaminant transport occurs mainly through these preferential pathways. Therefore, an active remediation system needs to target the preferential pathways to be effective and provide hydraulic containment of the plumes. Please continue to identify those preferential pathways in future borings and feasibility study analyses.	Previous modeling efforts at the Facility lacked a sufficient conceptual model of the site geology. Recently installed continuously cored sonic and hollow stem auger borings have shown that the subsurface is dominated by clay and silt from the ground surface to approximately 200 feet below ground surface. Thin units of sand, a few feet thick, appear to be present across the site at approximately 100 to 110 feet below ground surface. Sand and gravel is also present from approximately 200 to 220 feet below ground surface, immediately above the Corcoran Clay. Other thin units of sand are present, but are not believed to be continuous across the site. The detailed results of the recent borings will be included in a separate report and will be use to prepare a detailed site model. Efforts are also being made to install new wells screened in the coarser units to further evaluate the extent of groundwater impact and remedial alternatives.
4. Appendix B, Figure B-12: The figure shows a general downward trend of the water levels until 5 September 2001 for UST Cluster 2 monitoring well CL2-MP-03B. After 5 September 2001, the CL2-MP-03B water level graph shows a steady upward trend. The run time bar graph of agricultural well 6/8-8(New) continues until 23 September 2001. Therefore, there does not appear to be a strong correlation between water levels in CL2-MP-03B and pumping from 6/8-8(New). If new evidence collected after September 2001 shows otherwise, we will reevaluate whether 6/8-8(New) has the potential to affect the petroleum hydrocarbon plume at UST Cluster 2. Please continue to show the agricultural wells run time bar graphs below the corresponding datalogger graphs in future reports.	The hydrograph CL2-MP-03B appears to be consistent with the hydrographs from the other wells at the facility and, as a whole, appears to represent more of a regional trend in groundwater elevation than changes due to local pumping from nearby irrigation wells. Well logger data will continue to be presented in quarterly and annual reports with any available agricultural well pumping information.

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