



January 6, 1995

Mr. Hubert Chan
Department of the Navy
Engineering Field Activity West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 94066-2402

**Subject: Responses to Comments, Naval Auxiliary Landing Field Crows Landing;
CLEAN Contract N62474-88-D-5086; Contract Task Order 0247**

Dear Mr. Chan:

Attached to this letter are responses to review comments on the draft final site investigation (SI) addendum and draft final first quarterly groundwater monitoring reports for Naval Auxiliary Landing Field (NALF) Crows Landing. The comments were submitted by the California Department of Toxic Substances Control (DTSC), Central Valley Regional Water Quality Control Board (RWQCB), National Aeronautics and Space Administration (NASA), and Stanislaus County Department of Environmental Resources (DER).

The comment responses are keyed to the specific review comments. For completeness, the original review comments are also attached.

Please call me at 303-295-1101 if you have any questions regarding the comment responses.

Sincerely,

Neil J. Bingert
PRC Installation Coordinator

cc: Kent Strong, California Department of Toxic Substances Control
Karen Bessette, Central Valley Regional Water Quality Control Board
Robert Fourt, Stanislaus County Department of Environmental Resources
Sandy Olliges, National Aeronautics and Space Administration
Don Chuck, Moffett Federal Airfield
NALF Crows Landing Information Repository, 2 copies
Admin. Record

**RESPONSES TO REGULATORY AGENCY COMMENTS
DRAFT SITE INVESTIGATION REPORT
DRAFT FIRST QUARTERLY GROUNDWATER MONITORING REPORT
NAVAL AUXILIARY LANDING FIELD (NALF) CROWS LANDING**

Responses to Department of Toxic Substances Control (DTSC) Comments, December 2, 1994

1. Both the site investigation (SI) and the first quarterly groundwater monitoring field activities and reports were completed under the direct supervision of Neil Bingert, California registered geologist license number 5896. A signature page with Mr. Bingert's signature has been added to both reports.

2. All laboratory analytical data generated as part of the SI and first quarterly groundwater monitoring activities have now been validated. A section addressing data quality assessment has been added to both reports. In general, validation of the laboratory data has not affected conclusions of the investigation results.

- 3a. The recommendations for Site 18 in the SI report suggest that additional background data and potential health risks associated with the metal concentrations detected should be evaluated to determine if additional investigation is warranted. Potential health risks were evaluated in completing the draft remedial investigation (RI) work plan for the Installation Restoration Program (IRP) sites (PRC 1994c). The lack of potential health risks associated with metal concentrations at Site 18 suggest that continued investigation is not warranted. Further discussion with all regulatory agencies involved at NALF Crows Landing is requested regarding this issue. Other options, such as additional evaluation of potential health risks using procedures acceptable to the regulatory agencies, should be discussed prior to collecting additional background or site data. In addition, a common understanding of the proper use and evaluation of background data needs to be established prior to collecting additional background data. Continued discussion regarding this issue should be addressed in the context of the RI work plan.

- 3b. To date, the background groundwater samples have not been analyzed for organic parameters. Background groundwater samples will be analyzed for volatile organic compounds (VOCs), and purgeable and extractable total petroleum hydrocarbons (TPH-P and TPH-E) as part of the fourth quarterly groundwater monitoring event scheduled for March 1995.

- 3c. Agricultural activities at NALF Crows Landing were conducted independent of the Navy's activities. No evidence suggests that agricultural impacts on the base differ from regional agricultural impacts throughout the San Joaquin Valley. An evaluation of potential non-point source contamination due to agricultural activities at the base is not warranted.
4. Monthly groundwater elevation surveys are warranted and monthly groundwater elevation contour maps will be added to the quarterly groundwater monitoring reports once the monthly surveys are initiated. However, interpretations of periodic groundwater flow deviations at the base are currently limited by a lack of sufficient data points (well locations) more so than the frequency of groundwater elevation measurements. Monthly groundwater elevation surveys will be more productive once additional groundwater monitoring wells are installed as part of the upcoming RI activities. Monthly groundwater elevation surveys will be initiated once additional wells are installed (approximately June 1995) and will be continued for one year.
5. The "99.0" designation in the field duplicate sample identification number is an internal code used to identify the sample as a field duplicate. The number does not imply the approximate depth of the screened interval midpoint for the field duplicate samples. An explanation has been added to Table 2 to clarify this issue. However, beginning with the second quarterly monitoring report, the screened interval midpoint designation has been dropped from the sample identification numbers. The sample identification numbers are now the same as the monitoring well numbers. The number "9" has been added to the end of the monitoring well number to identify the field duplicate samples.
6. The groundwater mounding conclusion has been re-evaluated with recent groundwater elevation information from the second and third quarterly groundwater monitoring efforts. The recent groundwater elevation information, incorporating elevation data from the background monitoring wells, suggests that a water table depression caused by the operation of irrigation wells in the southwestern part of the base may account for deviations in the shape of the water table near underground storage tank (UST) Sites 109 and 117. The water table elevation map has not been changed; however, the groundwater elevation discussion has been changed to eliminate the mounding discussion.

- 7a. Groundwater sampling procedures have been standardized in subsequent quarterly monitoring efforts to include filtering and preserving groundwater samples for dissolved metals analysis in the field.
- 7b. As described in the response to DTSC comment 3b, the background groundwater samples to date have not been analyzed for organic parameters. Background groundwater samples will be analyzed for VOCs, TPH-P, and TPH-E as part of the fourth quarterly groundwater monitoring activities scheduled for March 1995.
- 7c. Subsequent quarterly monitoring efforts have included the analysis of groundwater samples from available wells at UST Site 117 for organic lead.

**Responses to Central Valley Regional Water Quality Control Board
(RWQCB) Comments, November 18, 1994**

Quarterly Report

1. Guidance documents including the Long-Term Ground Water Monitoring Program Guidance (California Base Closure Environmental Committee [CBCEC] 1994) and Recommended Content and Presentation for Reporting Hydrogeologic Data During Site Investigations (CBCEC 1993) were carefully reviewed and considered extensively in determining the groundwater monitoring and reporting requirements for NALF Crows Landing. To date, quarterly groundwater monitoring activities have followed procedures outlined in the SI work plan addendum (PRC 1994a) and base-wide quality assurance project plan (QAPjP) (PRC 1994b). These documents constitute the current monitoring plan. Completion of a long-term monitoring plan following the first four quarterly monitoring events in effect constitutes an annual update of the existing plan. The Navy prefers to use data generated during the first four quarterly monitoring efforts to complete a long-term monitoring plan consistent with CBCEC guidance.
2. Replacement wells will be installed at sites where contaminants have been previously detected to further investigate and monitor the lateral and vertical extent of groundwater contamination. Procedures for determining the appropriate number and locations for the replacement wells will be specified in the IRP and UST site RI work plans. However, the quarterly

groundwater monitoring reports do not have to include a historical data summary for all dry wells, a discussion of the resulting data gaps, or recommendations for installing replacement wells. As stated in the response to RWQCB comment 1, the Navy has reviewed and intends to follow CBCEC groundwater monitoring and reporting guidance. The CBCEC long-term groundwater monitoring program guidance states, "The Quarterly Report is a written data presentation including a brief discussion and interpretation of the last quarter's sampling results" (CBCEC 1994, page 6, emphasis added). Consistent with CBCEC guidance, the annual groundwater monitoring report will present a detailed evaluation and discussion of analytical data and results of the past four quarters, and any previous historical monitoring data.

3. Quarterly groundwater sampling and analysis will continue until an adequate water quality database is developed. The annual groundwater monitoring report and long-term groundwater monitoring plan will be used to evaluate the first four quarters of monitoring data, and any historical data, and to establish methods and procedures for continued quarterly groundwater monitoring. Also, consistent with RWQCB guidance (RWQCB 1992), all quarterly groundwater samples from the background monitoring wells have been analyzed for dissolved metals, general minerals, and general water quality parameters.
4. As stated in the response to DTSC comment 4, Monthly groundwater elevation surveys are warranted. However, information from monthly water level elevation surveys will be limited until additional monitoring wells are installed as part of the upcoming RI activities.
5. The locations of active irrigation supply wells have been added to Figure 1 in the first quarterly groundwater monitoring report and will be included in all subsequent quarterly monitoring reports. In addition, all historical water level information will be used to prepare a detailed discussion of the effects of irrigation practices on groundwater flow in the annual groundwater monitoring report.
6. The second quarterly groundwater monitoring analytical results showed much lower and more consistent dissolved metals concentrations in samples from the background monitoring wells relative to the first quarterly results. Quarterly results were probably anomalous due to sample collection or laboratory analytical problems, or both. Samples from the background monitoring wells will be collected and analyzed in subsequent quarterly monitoring rounds to continue to evaluate background groundwater quality.

7. All test methods have analytical limits of measurement. The most frequently used limits of measurement are the detection and quantitation limits. The detection limit is the lowest concentration that can be reliably differentiated from zero, but cannot be quantified with acceptable precision. Detection limits are method, matrix, and laboratory specific. The quantitation limit is the lowest concentration that can be detected and quantified with a specific degree of precision. The quantitation limit is the detection limit corrected for sample dilution and other sample-specific adjustments, such as percent moisture. The quantitation limit is always greater than the detection limit, usually by a factor of about three. The contract required quantitation limit (CRQL) and the contract required detection limit (CRDL) are the quantitation limits for organic and inorganic analytes, respectively, that the laboratories are required to report.

Detections above the CRQL or CRDL are reported without qualification. Detections below the CRQL or CRDL but above the detection limit are reported as estimated and given a "J" qualifier. Concentrations below the detection limit (nondetect) are given a "U" qualifier and are reported with the CRQL or CRDL. For example, if an analysis has a detection limit of 3 and a quantitation limit (CRQL or CRDL) of 10, a concentration of 12 would be reported as 12, a concentration of 7 would be reported as 7J, and a concentration less than 3 would be reported as 10U.

Laboratory analyses for the Comprehensive Long-term Environmental Action Navy (CLEAN) contract are completed under a basic ordering agreement (BOA) established with several different laboratories. By contract, the BOA laboratories are required to report analytical data as described above. In response to this comment, definitions of all data qualifiers used in reporting laboratory analytical results have been added to Appendix C in the SI report and Appendix B in the first quarterly groundwater monitoring report.

SI Report

1. As described in the draft SI report, three surface soil samples were collected from the background locations for pesticide analyses, but an analysis request for two of the samples was inadvertently omitted from the chain-of-custody record (page 13). Further discussion with RWQCB is requested regarding the need for developing a database for background pesticide concentrations. Continued discussion regarding this issue should be addressed in the context of the RI work plan.

2. The soil gas sample analytical results have been added to Appendix C in the SI report.
3. As stated in the response to DTSC comment 3a, the lack of potential health risks associated with metal concentrations at Site 18 suggest that continued investigation as part of the RI activities is not warranted. Regarding antimony, barium, and lead concentrations, the antimony analyses have been qualified as not detected or unusable in all background and Site 18 soil samples. The maximum barium and lead concentrations in the Site 18 soil samples (311 milligrams per kilogram [mg/kg] barium and 17.4 mg/kg lead) are below U.S. Environmental Protection Agency (EPA) Region 9 residential soil preliminary remediation goals (PRGs) of 5,300 mg/kg for barium and 400 mg/kg for lead (EPA 1994). Further discussion with all regulatory agencies involved at NALF Crows Landing is requested regarding this issue. Continued discussion regarding this issue should be addressed in the context of the RI work plan.
4. The title of the SI report has been changed to the SI addendum report.

**Responses to National Aeronautics and Space Administration (NASA)
Comments, November 8, 1994**

1. The Navy has contacted the Soil Conservation Service (SCS), Patterson Field Office, on several occasions and will continue contact with the SCS in the future. Current SCS activities in western Stanislaus County, including the NALF Crows Landing area, include efforts to monitor and reduce sediment concentrations in irrigation water runoff. Organochlorine pesticides tend to concentrate in the fine-grained sediments. Ultimately, the efforts are designed to reduce pesticide contamination to the San Joaquin River. The Navy will continue to evaluate and use any information obtained from the SCS, as appropriate, while completing RI activities at NALF Crows Landing.
2. The former laundry described in the Baseline Environmental Report (BER) (TetraTech 1994) is located adjacent to IRP Site 17. The former laundry represents a possible source for carbon tetrachloride groundwater contamination detected at Site 17. The former laundry will be investigated as part of Site 17. RI activities planned for Site 17 include HydroPunch groundwater sampling and possible soil sampling and monitoring well installation at the former laundry location (PRC 1994c).

The Navy is aware of errors in the description and location of several structures described in the BER. The main fuel storage area, referred to as UST Cluster 1, has been incorrectly described as a gasoline storage building in the BER. In addition, the BER incorrectly describes a nose hangar building, removed by the late-1950s, as the former oil drum storage building. The former oil drum storage building, also removed by the late-1950s, was a small structure located adjacent (north) of the UST Cluster 1 area. All USTs at Cluster 1 were removed in October 1994. Investigations to assess the extent of soil and groundwater contamination detected at UST Cluster 1 are planned for Summer 1995 and will encompass the area containing the former oil drum storage building.

3. Parcel 9, the aircraft machine gun testing area, described in the BER is the same area as Site 18, the firing range, described in the SI report. Parcel 8, Building 102, described in the BER is not the same as Site 18, the live ammunition area, described in the SI report. Parcel 10, the pistol range, described in the BER is incorrectly located. The pistol range is correctly located adjacent (southeast) of IRP Site 11, the disposal pits area. Investigations of the pistol range are being conducted under the compliance program at NALF Crows Landing.
4. As discussed with NASA during the remedial project managers meeting on December 14, 1994, the locations of the structures described in the comment have not been identified. No investigations of the structures will be attempted unless the locations can be verified.
5. Initially, the background soil metal concentration study was intended to include only surface and near-surface soil samples. At the request of RWQCB, the background soil study was changed to include soil samples collected from throughout the unsaturated zone. It was recognized that this approach would probably be appropriate for comparing background metal concentrations to sites with primarily subsurface soil samples, such as Sites 11 and 17, but that problems could arise when comparing background metal concentrations to sites with only surface and near-surface soil samples (Site 18). In general, however, the background soil study was never intended to be comprehensive or exhaustive. Additional background data may need to be collected during future investigations. However, as implied in the responses to DTSC comment 3a and RWQCB comment 3, the need for continuing background concentration studies is questionable when metal concentrations at specific sites do not represent potential health hazards, regardless of how the site concentrations compare to background. In response to this comment, a discussion of the use and limitations of the background study has been added to Section 3.1 of the SI report.

6. As discussed in the responses to DTSC comment 3a and RWQCB comment 3, the maximum lead level detected in soil at Site 18 (17.4 mg/kg) does not constitute a potential health threat. Consequently, continued investigation of Site 18 is not warranted regardless of possible reasons why the average lead concentration (14.08 mg/kg) is greater than the average background lead concentration (9.43 mg/kg). No hot spots of metals contamination were detected in individual soil samples at Site 18. In addition, no hot spots, other than contaminated material in the floor drain sump and groundwater contamination, were detected at Site 17.
7. Historical agricultural uses may have negatively affected areas on the base, primarily due to pesticide and soil amendment applications. However, as discussed in the response to DTSC comment 3c, no evidence suggests that agricultural impacts on the base differ from regional agricultural impacts throughout the San Joaquin Valley. An evaluation of potential non-point source contamination due to agricultural activities at the base is not warranted.
8. Carbon tetrachloride may have been used in historical Navy operations at NALF Crows Landing. Investigating the extent and potential sources of the carbon tetrachloride groundwater contamination will continue as part of the RI activities proposed at Site 17 (PRC 1994c).

**Responses to Stanislaus County Department of Environmental Resources
(DER) Comments, December 15, 1994**

1. The reported screened intervals of dry wells were compared to measured total depths and the current assumed groundwater elevations. As calculated, none of the dry wells would contain more than approximately one foot of water if redeveloped to the reported screened interval depth, except well MW117-7. Well MW117-7 would contain approximately 1.6 feet of water. Redevelopment of the dry wells is not warranted. In addition, water levels base-wide have been measured periodically since April 1993 and at no time has a regional increase in water level elevations been observed. In general, water levels have continued to decrease. The Navy will propose that all dry monitoring wells be abandoned according to Stanislaus County guidelines (Stanislaus County 1989) if a regional increase in water level elevations is not observed by the fourth quarterly groundwater monitoring event (March 1995).

2. Concentrations of acetone, methylene chloride, and all phthalates have been qualified as not detected following validation of the SI and first quarterly groundwater monitoring report data, primarily because the compounds were detected in method or trip blanks. The presence of these compounds will continue to be evaluated in subsequent sampling rounds.
3. The statement in this comment regarding shallow contamination by petroleum hydrocarbons being detected at the former hangar locations should be presented in the proper context. High concentrations of petroleum hydrocarbons were detected only in the waste sample collected from the floor drain sump. Toluene was the only petroleum hydrocarbon detected in shallow soil samples outside the floor drain sump. The maximum concentration of toluene detected was 11 micrograms per kilogram ($\mu\text{g}/\text{kg}$). This compares to the EPA Region 9 PRG for toluene of 870,000 $\mu\text{g}/\text{kg}$ for residential soil (EPA 1994).
4. Carbon tetrachloride detected in groundwater samples from well 17-MW-01 may be associated with carbon tetrachloride detected in groundwater samples from well MW117-6. However, this conclusion is not stated in the SI report. Subsequent groundwater monitoring results have confirmed the occurrence of carbon tetrachloride in groundwater at Site 17. As discussed with the county during the remedial project managers meeting on December 14, 1994, HydroPunch groundwater samples should be collected from locations between wells 17-MW-01 and MW117-6 as part of the RI activities planned for Site 17. Continued discussion regarding this issue should be addressed in the context of the RI work plan.

REFERENCES

- California Base Closure Environmental Committee (CBCEC). 1993. Recommended Content and Presentation for Reporting Hydrogeologic Data During Site Investigations. August 5.
- CBCEC. 1994. Long-Term Ground Water Monitoring Program Guidance. March.
- Central Valley Regional Water Quality Control Board (RWQCB). 1992. Water Quality Assessment for Soils and Ground Water. November 5.
- PRC Environmental Management, Inc. (PRC). 1994a. Naval Auxiliary Landing Field Crows Landing Field Work Plan Addendum, Contract Task Order 0247. May 27.
- PRC. 1994b. Naval Auxiliary Field Crows Landing Quality Assurance Project Plan. May 27.

PRC. 1994c. Naval Auxiliary Field Crows Landing Draft Remedial Investigation Work Plan, Installation Restoration Program Sites. November 18.

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