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PRC

March 29, 1996

Messrs. Hubert Chan and Terry Lau
Engineering Field Activity West
Naval Facilities Engineering Command
900 Commodore Drive, Building 208
San Bruno, California 94066-5006

CLEAN Contract N62474-88-D-5086
Contract Task Order 0247

Subject: Final First Annual Groundwater Monitoring Report
Naval Auxiliary Landing Field Crows Landing

Dear Messrs. Chan and Lau:

Enclosed with this letter is the Final First Annual Groundwater Monitoring Report (June 1994 through March 1995) for Naval Auxiliary Landing Field (NALF) Crows Landing. Also attached are responses to review comments generated by the California Department of Toxic Substances Control (DTSC) and Central Valley Regional Water Quality Control Board (RWQCB) on the draft annual monitoring report. All changes to the draft annual monitoring report based on the DTSC and RWQCB review comments have been incorporated into the final annual monitoring report.

Please call me at (303) 312-8877 if you have any questions regarding the final annual monitoring report.

Sincerely,

Neil J. Bingert
PRC Installation Coordinator

NJB:cmg

Enclosures

cc: Kent Strong, DTSC
Philip Isorena, RWQCB
Jim Simpson, Stanislaus County Department of Environmental Resources
Sandy Olliges, National Aeronautics and Space Administration
Don Chuck, EFA-WEST
NALF Crows Landing Administrative Record, 2 copies

ENCLOSURE

FINAL
FIRST ANNUAL GROUNDWATER MONITORING REPORT
(JUNE 1994 THROUGH MARCH 1995)

DATED 29 MARCH 1996

THIS RECORD IS ENTERED IN THE DATABASE AND FILED AS

RECORD NO. N60211_000098

EXHIBIT 1
RESPONSE TO COMMENTS

RESPONSE TO COMMENTS ON THE DRAFT ANNUAL GROUNDWATER MONITORING REPORT NAVAL AUXILIARY LANDING FIELD CROWS LANDING

This document presents the Navy's responses to comments from regulatory agencies on the draft annual groundwater monitoring report for Naval Auxiliary Landing Field (NALF) Crows Landing, California. The report was dated June 2, 1995. The comments addressed below were received from the California Department of Toxic Substances Control (DTSC) and the Central Valley Regional Water Quality Control Board (RWQCB) in a letter dated January 25, 1996.

RESPONSES TO COMMENTS FROM DTSC

1. Comment: **It has recently been determined that, upon combustion, aliphatic chlorinated hydrocarbons and pesticides can form dioxins and dibenzofurans. Since these materials, in addition to polychlorinated biphenyl, were potentially used at Site 14, a former fire training area, and were not included in Site 14 characterization, we request that the Navy prepare a sampling and analysis plan to alleviate this data gap.**

   Response: This issue was discussed during the Remedial Project Managers (RPM) meeting for NALF Crows Landing on February 15, 1996. It was agreed by the RPM meeting participants that DTSC's concerns could be addressed by sampling and analyzing composited soil samples from the treated soil stockpiles remaining at the site. The Navy committed to preparing a sampling and analysis plan (SAP) specifying the number of samples, sampling procedures, and analytical methods for DTSC and RWQCB review. The draft SAP will be submitted within the next 3 months. No changes were made in the final annual groundwater monitoring report in response to this comment.

RESPONSES TO COMMENTS FROM RWQCB

1. Comment: **Page 2-1, Section 2.2, Hydrogeologic Setting**

   The report should include a map depicting the hydrogeologic units in the NALF Crows Landing area.

   Response: A regional cross section depicting the major hydrogeologic units beneath the base has been added to Section 2.2 in the final annual groundwater monitoring report.

2. Comment: **Page 2-3, Section 2.2, Hydrogeologic Setting**

   The report states that the hydraulic properties of the upper water-bearing zone beneath NALF Crows Landing have not been evaluated extensively, two multiple-well aquifer pumping tests yielded no data, and slug tests provided hydraulic conductivities of 0.11 to 3.54 feet per day which

correspond to values expected in silt and fine-grained sand. The report should clarify if additional pumping tests are going to be performed and provide a schedule for conducting the tests. If no additional pumping test will be performed, the report should justify the use of slug test hydraulic conductivities which are highly localized. However, if a pump-and-treat system will be proposed as a remedial alternative to cleanup ground water, a pumping test must be performed to obtain more accurate estimates of the hydraulic conductivities which are more representative of the average conductivities of the area to be remediated.

Response: Slug tests will be completed during spring 1996 on all new monitoring wells at both the Installation Restoration Program (IRP) and underground storage tank (UST) sites to enhance characterization of the uppermost water-bearing zone beneath NALF Crows Landing. Results from the slug test efforts will be included in the remedial investigation (RI) reports to be prepared for the IRP and UST sites. Multiple-well aquifer pumping tests may be completed in the future as part of the remedial design phase at specific IRP or UST sites, if warranted. This explanation has been added to Section 2.2 in the final annual groundwater monitoring report.

3. **Comment:** **Page 3-3, Ground Water Sampling and Analysis, IRP Site 14 (Fire Training Area)**

The report states that during a typical fire training exercise, a mixture of approximately 200 to 300 gallons of JP-5 jet fuel, crankcase oil, and cleaning solvents was poured over a mock airplane and ignited. The report also states that all contaminated soils were excavated, treated, and remain stockpiled next to Site 14. A March 1992 report by Battelle was the source of this information. My review of that report reveals that the soils were tested only for aromatic hydrocarbons and total petroleum hydrocarbons (TPH). Metals and chlorinated hydrocarbons were not included in the testing. The lone ground water testing included the aromatic and chlorinated hydrocarbons and TPH but not metals. My review of the July 1992 *Final Site Investigation Report* shows that Site 14 was not included in that investigation. Since waste oil was included in the mixture which was used as fuel during fire fighting training at IRP Site 14 and the site has not been investigated for metals, the site should be investigated to determine if metals are present at concentrations which could affect water quality.

Response: As stated in the response to DTSC Comment 1, this issue was discussed during the RPM meeting for NALF Crows Landing on February 15, 1996. It was agreed by the RPM meeting participants that RWQCB's concerns could be addressed by sampling and analyzing composited soil samples from the treated soil stockpiles remaining at the site. The Navy committed to preparing a SAP specifying the number of samples, sampling procedures, and analytical methods for DTSC and RWQCB review. The draft SAP will be submitted within the next 3 months. No changes were made in the final annual groundwater monitoring report in response to this comment.

4. Comment: **Page 3-8, Figure 3-1**

The north arrow should be pointing up, not down. Figure 3-1 shows that 6/8-20A1 is an active domestic well southeast of MW3 and north of ERM-3. The Navy should obtain the log for this well and sample the ground water to determine if it has been affected by UST Cluster 1 Site and IRP Site 14.

Response: The north arrow is correct in Figure 3-1. Figure 3-1 was originally completed as an oversized figure (11-inches by 17-inches) in landscape orientation. The figure was reduced and bound sideways in the draft annual groundwater monitoring report. To reduce confusion, the original oversized figure, in landscape orientation, is included in the final annual groundwater monitoring report.

The National Aeronautics and Space Administration (NASA) recently abandoned domestic use well 6/8-20A1 and constructed a new base water supply well. The new water supply well is located between monitoring wells 16-MW-01 and ERM-3. This well is 235 feet deep and is screened to produce water from the base of the upper water-bearing zone, just above the Corcoran Clay. Samples from the well collected in March 1995 were analyzed for volatile organic compounds (VOCs) and a variety of pesticides. Several pesticides were detected at low concentrations. No VOCs were detected. Information for the new base water supply well, including construction specifics (added to Appendix A) and sample analytical results (added to Appendix D), have been added to the final annual groundwater monitoring report. This well will be added to the NALF Crows Landing quarterly groundwater monitoring program.

5. Comment: **Page 4-3, Section 4.2, Sample Analytical Results**

a. **The report states that Table 4-1, which summarizes the organic analytes detected during previous ground water sampling efforts, does not include common laboratory contaminants but only those organic analytes that illustrate the principal ground water contamination problems. Common laboratory contaminants should be reported unless it is confirmed that the presence of the contaminants resulted from laboratory contamination.**

b. **The report should explain why only IRP Sites 11, 12, and 17 have dissolved metals data for ground water.**

Response: All analytical results, including any common laboratory contaminants detected, are shown in Appendix D in the annual groundwater monitoring report. Adding common laboratory contaminants to Table 4-1 would defeat the purpose of the table which is to summarize those organic analytes that illustrate the principal groundwater contamination problems (for example, fuel constituents or solvents). No changes have been made in the final annual groundwater monitoring report in response to this comment.

In addition to dissolved metals analyses at IRP Sites 11, 12, and 17, organic lead (tetraethyl lead) has also been analyzed for in samples collected from UST 117 monitoring wells. Historically, these were the only sites where dissolved metals were considered to be potential contaminants. This explanation has been added to Section 4.2 in the final annual groundwater monitoring report.

6. Comment: **Page 4-3, Section 4.2.1, Background Monitoring Wells**

a. **The report states that during the fourth quarter monitoring event, 1,1,1-trichloroethane (1,1,1-TCA) was detected in background ground water monitoring wells BG-MW-2 and BG-MW-3 at 2 and 4 micrograms per liter, respectively. The presence of 1,1,1-TCA should be confirmed in the background monitoring wells, and the report should specify a schedule for confirmation sampling.**

b. **To comply with the California Code of Regulations, Title 23, Division 3, Chapter 15, Section 2550(e)(8) through (e)(12), the Navy must propose a statistical approach to compare background data to site-related data.**

Response: The draft long-term groundwater monitoring plan, submitted for regulatory agency review on February 12, 1996, includes VOC analysis for background groundwater samples, a schedule for quarterly groundwater monitoring activities, and descriptions of statistical approaches to compare background data to site-related data. Section 1.0 (Introduction) in the final annual groundwater monitoring report has been revised to reference the long-term groundwater monitoring plan.

7. Comment: **Appendix B, Ground Water Elevation Contour Maps**

The north arrows on all the ground water contour maps should be pointing north instead of south.

Response: The north arrows are correct on all groundwater elevation contour maps shown in Appendix B. As described in the response to RWQCB Comment 4 regarding Figure 3-1, the groundwater elevation contour maps were also originally completed as oversized figures (11-inches by 17-inches) in landscape orientation. The figures were reduced and bound sideways in the draft annual groundwater monitoring report. To reduce confusion, the original oversized figures, in landscape orientation, are included in the final annual groundwater monitoring report.