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N60211_000390
CROWS LANDING
SSIC NO. 5090.3.A

25 September 1998

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DRAFT FINAL FEASIBILITY STUDY REPORT FOR INSTALLATION RESTORATION PROGRAM SITES 11 AND 17, NAVAL AUXILIARY LAND FIELD (NALF), CROWS LANDING, STANISLAUS COUNTY

We have reviewed the Draft Final Feasibility Study Report and have reviewed the response to comments on the Draft Feasibility Study (Draft FS) Report for Installation Restoration Program (IRP) Sites 11 and 17, submitted 1 July 1998. These documents do not satisfactorily address comments provided in our letter of 8 April 1998, specifically our comments on IRP Site 17. The Navy has not agreed that soil remediation at IRP Site 17 is necessary. Further, the Navy's response to our concern that additional groundwater characterization is necessary at IRP Site 17 is confusing and suggests that the Navy may not perform characterization before the remedial system has been designed and constructed. The Navy must perform additional pilot testing and provide better groundwater characterization before selecting remedial alternatives at IRP Site 17. We are also concerned with the Navy's presentation of our requirements in the ARARs table for soil (for IRP Site 11) and groundwater remediation (for IRP Site 17). In addition, we find the detailed analysis of remediation alternatives is inadequate and we have comments on the proposed discharge of treated groundwater.

IRP Site 17 Soil Cleanup

The Draft Final Feasibility Study Report does not include soil cleanup levels or soil remediation alternatives for IRP Site 17. Groundwater monitoring data, soil gas data and SVE pilot test data for this site show that this area is a continuing source of VOCs to groundwater. Soil cleanup activities are, therefore, warranted for this site.

1. Groundwater monitoring data for IRP Site 17 indicate concentrations of carbon tetrachloride ranging from 260 $\mu\text{g/l}$ to 580 $\mu\text{g/l}$ [between December 1995 and March 1998 (monitoring well 17-MW-03)]. Soil gas data indicate concentrations of carbon tetrachloride ranging from 85 ppbv (parts per billion by volume) to 18750 ppbv and far above the cleanup level of 94 ppbv for carbon tetrachloride (see comment on narrative cleanup levels in Draft FS Report).

California Environmental Protection Agency

2. IRP Site 17 SVE pilot test data, presented in the Remedial Investigation (RI) Report reported carbon tetrachloride concentrations of 4000 ppbv (sampling with summa canister) and concentrations corresponding to 28000 to 120000 ppbv (concentrations based on flame ionization detector and assuming all volatiles in the extracted vapor are carbon tetrachloride) during this test. These concentrations indicate that carbon tetrachloride and potentially other volatiles (i.e. benzene) are present at significant concentrations. These constituents could be effectively removed by SVE.
3. Soil gas cleanup levels should be established and presented in the Final Feasibility Study and Record of Decision for IRP Site 17. These soil cleanup levels should include a numerical level for VOCs and criteria for ceasing operation of SVE, as presented in our letter of 8 April 1998.

Groundwater Remedy at IRP Site 17

4. We are concerned with the Navy's response to comments (General Comment 3): "In accordance with previous agreements with state agencies, any further characterization of the plume will be coordinated with optimizing the design, construction, and performance of the remedial system." This response seems to suggest that the Navy intends to design and construct a remedial system prior to providing adequate characterization of the VOC plume at IRP Site 17. We would find such an approach unacceptable because providing adequate characterization of the contaminant plume is necessary before the Navy could demonstrate adequate performance of any remedial system. Especially if the Navy selects air sparging and SVE to remediate groundwater at IRP Site 17, the Navy would first have to provide an adequate groundwater and soil gas monitoring network to assure that VOCs are not spreading (in response to channeling of air) beyond the zone of influence of the remedial system. To resolve this concern, the Final FS Report should clearly state that the Navy will further define the CT plume (i.e., in a pre-design investigation) before the groundwater remediation system is designed for IRP Site 17.
5. The FS should state that additional pilot testing will be conducted to evaluate the technical feasibility of air sparging to meet aquifer cleanup levels (and not allow spreading of the CT plume). The FS should also state that the Navy will evaluate the pump and treat alternative and a combination of alternatives (i.e. air sparging and pump/treat) before a final groundwater remediation system is designed.

ARARs and Soil Cleanup Alternatives for IRP Site 17

6. The Navy has not provided ARARs for soil remediation at IRP Site 17. ARARs presented for remediation of soil and groundwater at IRP Site 11 and 17 included the Navy's evaluation (in the tables- Appendix C). This evaluation concludes that many ARARs identified by the State for IRP Site 11 and 17 are not applicable to the soil and groundwater remediation activities for these sites. We do not agree with this evaluation. The FS Report should present the ARARs provided in our letter of 8 April 1998, without modification as potential requirements, and indicate that the a final determination on which ARARs apply to site cleanup activities, will be presented in the ROD/RAP for IRP Sites 11 and 17.

Discharge of Treated Groundwater

The Navy proposes to discharge treated water by re-injection, percolation or surface water discharge for several groundwater remediation alternatives (i.e. Alternatives 2, 3A, 3B and 4). The Board may issue Waste Discharge Requirements (WDRs), if it determines that this discharge could affect the quality of the waters of the state. The Navy would be required to file a Report of Waste Discharge (ROWD), which would be reviewed to determine if WDRs or an NPDES permit is required.

The Final FS Report should be revised and include in the detailed analyses for alternatives 2, 3A, 3B and 4 (which evaluate remediation of groundwater for IRP Site 17) that an NPDES permit or WDRs would have to be obtained by the Navy for discharge of treated groundwater.

If you have any questions in this matter, please call me at (916) 255-3050.



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Transmittal

Date: 1 Apr 2002

From: Lynn Marie Hornecker *LMA*
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Subj: **CERCLA ADMINISTRATIVE RECORD MATERIALS**
NALF Crows Landing

Installation: NALF Crows Landing

UIC Number: N60211

Document Title: Draft Final Feasibility Study Report for IRP
Sites 11 and 17

Author: Robert Reeves

Recipient: Hubert Chan

Record Date: 25 September 1998

Approximate Number of Pages: 3

Sites: Sites 11 + 17

Key Words: Feasibility Study

Contract:

CTO Number: