

TRANSMITTAL

Date: 2 November 2000

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Subj: Final Work Plan, Revision No. 1 (IT Corporation, Revised November 2000)
National Aeronautics and Space Administration (NASA)
Crows Landing Flight Facility

Transmitted are the responses to agency comments and the final work plan for the additional field activities at NASA Crows Landing Flight Facility.

We appreciate the prompt review of the plan and the submittal of the review comments.

Please do not hesitate to call me at (619) 532-0783 if you have questions pertaining to the planned fieldwork.

Thank you very much.

Attachments:

Responses to Comments from the California Regional Water Quality Control Board
Final Work Plan, Revision No. 1 (IT, November 2000)

CF:

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Project File (Crows Landing)

RESPONSES TO COMMENTS FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY
REGION DATED 10 OCTOBER 2000 AND 19 OCTOBER 2000
Subject: NASA CROWS LANDING FLIGHT FACILITY

Comment	Response
<p>Comments prepared by James Barton, California Regional Water Quality Control Board, Central Valley Region dated 19 October 2000</p> <p>Subject: Soil Vapor Extraction Optimization For The Remediation of UST Cluster 1 and Site Verification Activities At Various Sites</p> <p>Addressee: Marianna Potacka, Base Realignment and Closure (BRAC) Environmental Coordinator</p>	
<p>We have reviewed <i>Soil Vapor Extraction Optimization for Remediation of UST Cluster 1 and Site Verification Activities at Various Sites Work Plans, Revision 1, NASA Crows Landing Flight Facility (Rev 1)</i>, received on 10 October 2000. Rev 1 includes, in addition to the previously reviewed <i>Soil Vapor Extraction Optimization for Remediation of UST Cluster 1 and Site Verification Activities at Various Sites Work Plans (Rev 0)</i>, the new Appendix H, which contains attachments numbered from one to seven for the seven work plans proposed for site verification activities.</p> <p>Attachments include the following:</p> <ol style="list-style-type: none">1) Abandonment and Closure of Wells;2) Site 11 Geophysical Survey (landfill);3) Underground Storage Tank Cluster 1 Aquifer Testing (CL1);4) Sewer Line Survey;5) UST Cluster 2 Soil Vapor Extraction Testing (CL2);6) Baseline Groundwater Verification Sampling and Analysis Work Plan;7) Underground Storage Tank 109 Active Biovent Treatment Method Testing.	<p>The Navy appreciates the participation of the RWQCB in the expedited review of this planning document. Additionally, the Navy appreciates the information provided during the development of the planning document by the RWQCB during conference calls and at project managers' meetings.</p>

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<p>The Navy has expanded on previous work conducted at the facility in order to fully characterize contamination at six sites by filling data gaps. The new Rev 1 work plan for the seventh site (attachment 1) consists of decommissioning four wells: an agricultural and a water supply well, each of which might provide a conduit for contaminants from the shallow aquifer to the deeper aquifer by grouting; and two previously abandoned (grouted) but not decommissioned water wells (surface completions to be removed) at the landfill.</p>	
<p>General Comments:</p> <p>1. We commented on certain aspects related to Attachments 3 and 6 during our review of the three informational documents that preceded this work plan (Rev 1). Please refer to Regional Water Quality Control Board (RWQCB) letter dated 10 October 2000, which commented on the Memorandum dated 11 August 2000; Interim Status Report dated 17 August 2000; and Technical Information Package dated 27 September 2000, and provide changes to Rev 1 in response to these RWQCB prior comments. If the Navy decides to expand the groundwater removal action and seek disposal of groundwater to land or surface water, then addressing the RWQCB permitting comment in a timely fashion will become essential to avoid delays due to the permitting process.</p>	<p>The Navy has prepared responses to the RWQCB letter dated October 10, 2000. The responses to those comments are included with these. The response to Specific Comment 4 of the RWQCB letter dated October 10, 2000 addresses management of extracted groundwater.</p>
<p>2. Several new Contaminants of Concern (COCs) have been detected in groundwater at the site. Action levels have not been determined for the new COCs in Rev 1. Since several of the COCs have extremely low Water Quality Goals in relationship to their concentrations in groundwater, cleanup levels will need to be established for the new COCs as well as in the Feasibility Study (FS) and Record of Decision (ROD).</p>	<p>The Navy is preparing to revise the Revised Draft Final Feasibility Study (FS) Report for Site 17 in order to discuss the recently identified chemicals of concern, to identify proposed cleanup levels, to discuss potential and/or planned interim response actions, and to present potential remedial alternatives for the commingled plume that includes the releases from Site 17, Underground Storage Tank (UST) Cluster 1, and UST 117.</p>

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<p>Specific Comments</p> <p>Attachment 3 Underground Storage Tank Cluster 1 Aquifer Testing:</p> <p>1. Section 2.5 Well Installation states that the extraction well ".....will be installed at the location thought most productive and most impacted by petroleum hydrocarbons." Since the Navy has recently discovered the following additional solvents and components of petroleum hydrocarbons at CL1, specifically:</p> <ul style="list-style-type: none"> • Acetone to 68,400 ug/L; • Benzene to 70,400 ug/L; • Ethylene Dibromide to 5080 ug/L; • Methyl Ethyl Ketone (MEK) to 75,400 ug/L; and • Methyl Isobutyl Ketone (MIBK, reported as 4-methyl-2-pentanone) to 3560 ug/L, <p>The Navy should consider the monitoring well locations of the highest sample concentrations of these previously unknown COCs in groundwater when locating the extraction well(s).</p>	<p>The Navy will conduct aquifer tests at existing wells prior to siting and installing the extraction well(s), and the Navy will consider the concentrations of the recently identified chemicals of concern prior to siting and installing the extraction well(s). The text was modified to indicate that concentrations of petroleum hydrocarbons and volatile organic compounds would be considered in siting the extraction well(s).</p>
<p>2. Sections 2.5-2.7 describes the design and installation of the extraction well. Section 1.2 states that the goal is to remediate the uppermost portion ("groundwater interface") of the aquifer near the water table for petroleum hydrocarbons, or Light Non-aqueous Phase Liquids (LNAPLs). Again, we suggest that the Navy also consider all of the new COCs, which also include Dense Non-aqueous Phase Liquids (DNAPLs), when designing and installing the extraction well.</p>	<p>The Navy will evaluate the data collected during the July 2000 sampling event, data generated during aquifer testing at existing wells, as well as previously collected data, and the Navy will consider the recently identified chemicals of concern prior to siting and installing the extraction well(s). The text was modified to indicate that concentrations of petroleum hydrocarbons and volatile organic compounds would be considered in siting and designing the extraction well(s).</p>
<p>3. Section 3 Waste Management states "The remaining waste streams (including untreated, extracted groundwater) will be characterized and disposed of as described in Section 3.0 of Work Plan." This is confusing, since this reference to the "Work Plan" appears to describe the previously reviewed (and included within Rev 1) Rev 0, Section 3.0 which does not contain text related to containerizing a large volume of untreated groundwater into Baker tanks. The Rev 1, Appendix H, Attachment 3, Section 2.7 describes this activity, specifically that the</p>	<p>This response is intended to provide an expanded explanation of planned waste management activities associated with the extraction of groundwater as described in Attachment 3.</p> <p>The last sentence in Section 3.0 of Attachment 3 does refers to Section 3.0 of the Work Plan. Section 3.0 of the Work Plan identifies the procedures and requirements for characterizing and disposing of wastes. Section 3.0 of the Work Plan refers to the Sampling and</p>

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<p>untreated, extracted groundwater will be stored in Baker tanks until the water is transferred into, and transported by, a tanker truck to a waste facility. Reference Rev 1, Appendix H, Attachment 3, Section 2.7 for this activity in the same attachment's 3.0 text, not Rev 0, Section 3.0.</p>	<p>Analysis Plan for the specific field sampling and analytical testing procedures. The procedures identified in Section 3.0 of the Work Plan will be used to characterize the waste stream and to determine the appropriate disposal strategy for the containerized groundwater generated from the aquifer testing described in Section 2.7 of Attachment 3.</p> <p>Section 2.7 of the attachment discusses the storage and management of storage units for extracted groundwater generated during the aquifer testing activities.</p>
<p>Attachment 6 Basewide Groundwater Verification Sampling and Analysis Work Plan:</p> <p>4. Section 1.0, the Introduction and following text state that the Navy will conduct semi-annual groundwater sampling at Crows Landing. We feel that quarterly sampling is more appropriate to characterize the lateral extent and concentrations of COCs, considering the large list of new COCs found recently in groundwater from a limited number of monitoring wells. The Navy should change this work plan to reflect quarterly groundwater monitoring for all COCs until adequate data is collected to warrant the Navy requesting a revision to the sampling frequency.</p>	<p>The work plan was modified to indicate that quarterly monitoring activities will be conducted for four consecutive quarters. During the fourth quarterly sampling period, the Navy proposes to evaluate the adequacy of the groundwater data and to revisit the sampling frequency with the RWQCB with the goal of optimizing the sampling frequency.</p>

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<p>Comments prepared by James Barton, California Regional Water Quality Control Board, Central Valley Region dated 10 October 2000</p> <p>Subject: Various Transmittals from Southwest Division, Naval Facilities Engineering Command that were issued during August and September 2000</p> <p>Addressee: Marianna Potacka, Base Realignment and Closure (BRAC) Environmental Coordinator</p>	
<p>We have reviewed the following three related documents presented by the U. S. Navy Southwest Division (Navy):</p> <p>Potential Revised Groundwater Remediation Strategy for the Administration Area Plume and Other Plumes, NASA Crows Landing Flight Facility (Memo), dated 11 August 2000; September 2000 Interim Status Report (Status Report), dated 17 August 2000; and Technical Information Package (Data Package), July 2000 Groundwater Sampling Activities, National Aeronautics and Space Administration (NASA), Crows Landing Flight Facility, Crows Landing, California, dated 27 September 2000.</p> <p>The Memo proposes strategies to continue investigation and conduct interim response actions, namely construct an extraction well/groundwater treatment system for the mixed hydrocarbon/solvent plume and decommission abandoned irrigation wells. The Status Report provides a chronology of past and proposed future (interim response actions) investigative activities for sites 11 (landfill), Underground Storage Tank (UST) 117, UST 109, UST Clusters 1 (CL1) and 2 (CL2), sewers, abandoned irrigation wells, and automated water</p>	<p>The Navy appreciates the review of the Memo, the Status Report, and the Data Package by the RWQCB.</p>

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<p>level measurement for one or two monitoring wells (datalogger). The Data Package provides provides a table of results and a raw data report of groundwater analyses from the July 2000 groundwater sampling event, which analyzed Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPH) and metals from monitoring wells at UST Sites 117 and CL1. The data package also includes a drawing with the proposed location of the extraction well, the two plumes (117 and CL1) that now appear to be commingled, and a table of well screen intervals. During a conference call on September 26, 2000, the Navy discussed the Memo, Status Report, and the Data Package that we received the following day. The Navy has discovered high levels of previously unknown contaminants of concern (COCs) in groundwater: Acetone to 68,400 ug/L, Benzene to 70,400 ug/L, Ethylene Dibromide (EDB) to 5080, Methyl Ethyl Ketone (MEK) to 75,400 ug/L, and Methyl Isobutyl Ketone (MIBK reported as 4-methyl-2-pentanone) to 3560 ug/L. Previously carbon tetrachloride (CT) was considered the primary COC at 131 ug/L. Methyl t-butyl ether (MTBE) was not detected in groundwater.</p>	
<p>Specific Comments. 1. The Data Package drawing (sketch) shows the extraction well located closer to monitoring well CL1-MW-03, which provided the highest CT concentration, than to CL1-MW-12S, which has higher concentrations of the new COCs. As stated in our introduction, CT was considered the primary COC before discovery of the additional COCs in July 2000. We suggest that a pump test be conducted using the existing monitoring wells, prior to placing the extraction well(s), in order to optimize placement of the extraction well(s).</p>	<p>The comment has been incorporated into the procedures presented in the <i>Soil Vapor Extraction Optimization for Remediation of UST Cluster 1 and Site Verification Activities at Various Sites Work Plans, Revision 1, NASA Crows Landing Flight Facility</i> dated October 2000. The work plans state that tests will be conducted at existing wells prior to siting and installing the extraction well(s).</p>
<p>2. We believe that the proposed interim response action is a removal action due to the scope of the project, and since installing a pump and treat system will remediate the hydrocarbon/solvent plume. A removal action requires a Workplan that contains the basic elements of an Environmental Evaluation/Cost Analysis (EE/CA) and an Action Memorandum for public comment.</p>	<p>The Navy concurs that the proposed interim response action could be considered a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action or a pilot testing activity for the evaluation of groundwater extraction as a remedial alternative. The Navy would comply with the applicable requirements of the National Contingency Plan (NCP) as described in Title 40, Code of Federal</p>

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	Regulations, Part 300.400 – Hazardous Substance Response – if a CERCLA removal action is implemented.
3. The CL1 plume can no longer be considered a petroleum-only groundwater plume, since high levels of solvents are commingled within the plume. All decision documents and remediation of the commingled plume must meet all CERCLA requirements.	The Navy concurs that the plume is commingled, containing petroleum hydrocarbons and solvents, and that CERCLA removal actions and the associated documentation should comply with the applicable sections of the NCP.
4. We encourage the Navy to submit a Report of Waste Discharge for our review as soon as practicable. This will allow us sufficient time to draft and adopt any necessary permits, so that the implementation of the project (specifically, operation of the treatment system) is not delayed while the necessary permits are being obtained. Depending upon the option that the Navy chooses, either an NPDES permit for discharge to surface water, or a Waste Discharge Requirement permit for discharge to land are necessary before treated groundwater may be discharged to water or land.	The Navy will work with the RWQCB in order to identify the most efficient and effective strategy for management of extracted groundwater that is treated on-site. The Navy will comply with the substantive requirements of applicable permits that pertain to the management, treatment, and/or disposal of groundwater that is extracted from the contaminant plume. The Navy does not plan to treat the extracted groundwater on-site during the implementation of the planned interim response action.

ATTACHMENT 2

FINAL WORK PLAN
REVISION 1

DATED 01 NOVEMBER 2000

THIS ATTACHMENT WAS NOT RECEIVED IN THE
RESTORATION RECORD FILE.

FOR ADDITIONAL INFORMATION, CONTACT:

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Date: 8 November 2000

From: Lynn Marie Hornecker

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NALF Crows Landing**

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dated 27 October 2000