

Hornecker, Lynn M (EFDSW)

From: Hornecker, Lynn M (EFDSW)
Sent: Wednesday, August 14, 2002 8:09 AM
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'fdonofr@dtsc.ca.gov'
Cc: 'dchuck@mail.arc.nasa.gov'; 'msonke@envres.org'
Subject: Navy Responses to RWQCB Comments on Quarterly Basewide Groundwater
Report, Winter 2002, NASA Crows Landing Flight Facility

Hello All,

I have attached the Navy's responses to comments on the report for the February 2002 groundwater sampling activities at NASA Crows Landing Flight Facility.

Please do not hesitate to contact me if you have questions pertaining to the groundwater monitoring program.

Thank you very much.



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CBqtr61.pdf

V/R
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14 August 2002

RESPONSE TO COMMENTS FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION
Subject: Quarterly Basewide Groundwater Report, Verification Sampling and Analysis – Winter 2002, Sixth Quarter,
NASA Crows Landing Flight Facility, Crows Landing, California (IT Corporation, June 2002)

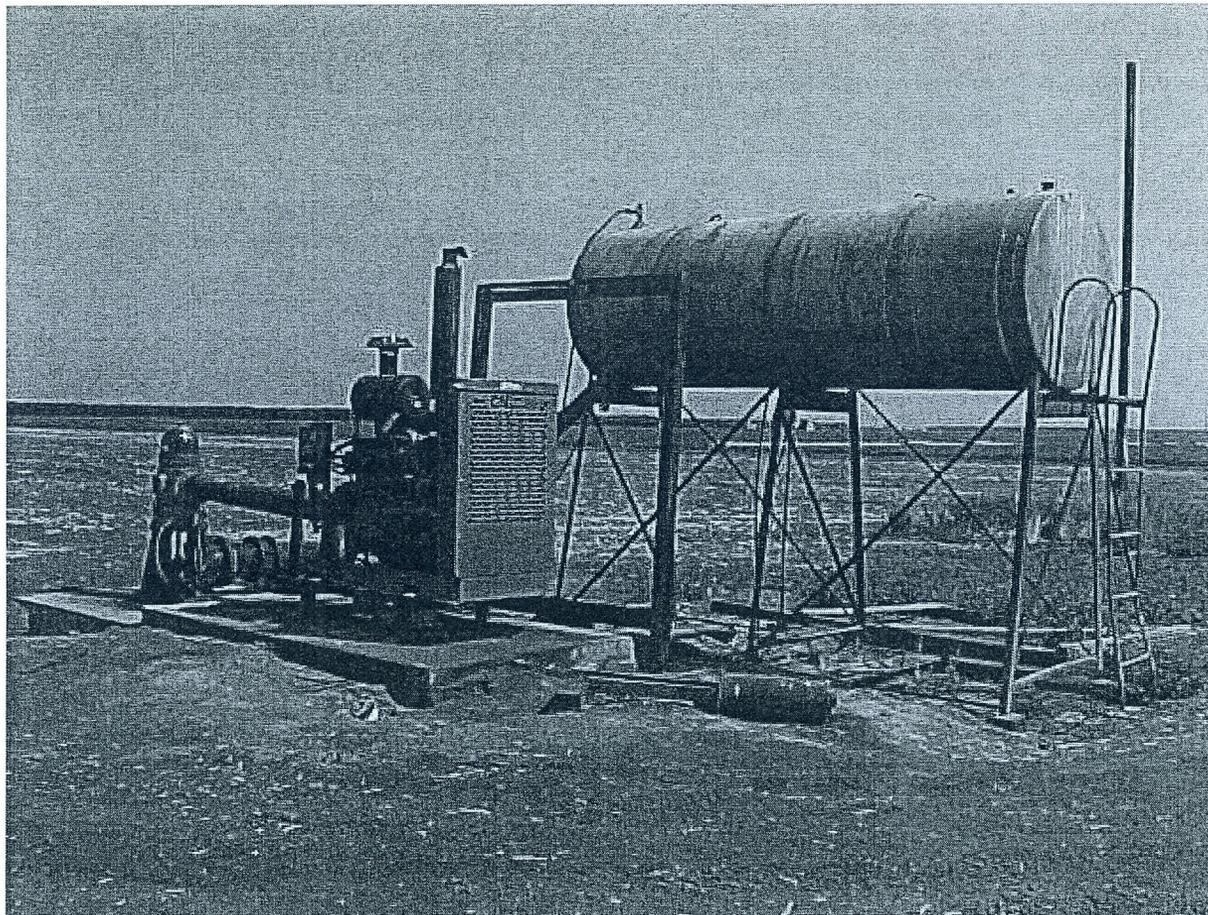
Comment	Response
<p>Comments prepared by James L. Barton, R. G., Associate Engineering Geologist, California Regional Water Quality Control Board, Central Valley Region, Sacramento, California, dated 25 July 2002.</p> <p>Subject: <u>Quarterly Basewide Groundwater Report, Verification Sampling and Analysis – Winter 2002, Sixth Quarter, NASA Crows Landing Flight Facility, Crows Landing California.</u></p> <p>Addressee: Ms. Marianna Potacka, BRAC Environmental Coordinator</p>	
<p>General Comments</p>	
<p>1. We concur with the scope of work for the proposed groundwater investigation to better delineate the upgradient Administration Area plume boundary at UST Cluster 1. Please provide 72 hour notice before commencing fieldwork.</p>	<p>Groundwater samples were collected in the area to the southwest of the Administration Area Plume (west of UST Cluster 1) by Hydropunch[®] and were analyzed by an off-site laboratory on May 22, 23, and 29, 2002. The results will be presented in the Spring 2002 Quarterly Monitoring Report. Advanced notification and detailed information regarding the sampling rationale, location, depth, and analysis are included in email distributed to the BCT members on May 1, 2002.</p>
<p>2. February is typically a wet month, with no irrigation pumping from the aquifer(s). Therefore there should not be any depressions of the water table or piezometric surface that can be attributed to pumping from well 6S/8E-16M1. Additionally, other wells [17-MW-24(S) and 17-MW-24(MS)] screened in the same aquifer zones, and located at the same distance from 6S/8E-16M1, do not show similar effects. Further, a nearby automated groundwater datalogger in monitoring well 109-MW-01(S), does not show pumping effects from 6S/8E-16M1. Other factors discussed below may be causing the observed local groundwater depression in the vicinity of monitoring wells 17-MW-25(S) and 17-MW-25(MS).</p>	<p>As stated in the report, a local depression in the groundwater surface and in the mid-shallow zone is evident from the data collected on February 6, 2002. The depression was also noted in the groundwater surface in water level monitoring events conducted on August 9, 2001 (Summer 2001) and November 8, 2001 (Fall 2001). The local depression was evident from data collected in wells other than 17-MW-24(S), 17-MW-24(MS), 17-MW-25(S), and 17-MW-25(MS). The depression is potentially a result of groundwater extraction from an off-site well (6S/8E-16M1). The statement in the report does not exclude other potential causes of the localized depression, and other causes including local hydrogeological conditions are being evaluated.</p>

General Comment (continued)	Response
<p>a. Agricultural supply well 6S/8E-16M1 is listed as both active (in tabular summary) and stamped destroyed (DWR well data sheet) in the <i>Draft Findings from Record Search Activities and Visual Inspection of Active and Inactive or Destroyed Water Supply Wells, Former NALF Crows Landing</i>, dated 13 December 2001. The Department of Water resources (DWR) well data sheet may not be correct. The Navy should verify the status of well 6S/8E-16M1.</p> <p>b. In a 22 July 2002 phone conversation, the Navy stated that there is a "day tank" next to 6S/8E-16M1 well house, and that a new well may have been drilled at that location. The Navy should verify whether a new well has been installed at that location.</p> <p>c. The groundwater depression may not be the result of a local effect around monitoring wells 17-MW-25(S) and 17-MW-25(MS), but a trend in the hydrogeology. An incorrect water level (see specific comment 3) was used to generate Figure 3 (Potentiometric Surface Map). Correcting the error creates a sharper "S" curve in the potentiometric surface contour line representing 84 feet of elevation, which better correlates to the "S" curves in upgradient MS zone potentiometric surface contour lines (85 feet and 86 feet).</p> <p>d. An error of one foot (too low) in the top of casing elevation for monitoring wells 17-MW-25(S) and 17-MW-25(MS) might account for the observed local groundwater depression. The Navy should verify the top of casing elevations for the following monitoring wells: 17-MW-24(S), 17-MW-24(MS), 17-MW-25(S), 17-MW-25(MS), and 109-MW-01(S).</p> <p>The Navy needs to evaluate all possible causes for the groundwater depression prior to conducting an off-site investigation.</p>	<p>a. The Navy has verified that a well does exist at the location of 6S/8E-16M1 (see attached photo). A pump with motor and diesel day tank is installed at the well and is believed to be operational. The operating time and capacity of the pump has not been confirmed with the property/well owner.</p> <p>b. The accuracy of the DWR well data sheet (stamped destroyed) and the possibility that a new well was installed at the location cannot be confirmed from the county records. There are no county records that indicate that a new well was installed at the location. It is likely that the original well was never destroyed and the stamp on the DWR well data sheet is inaccurate.</p> <p>c. It is possible that the local depression is a trend in hydrogeology and is not due to pumping from 6S/8E-16M1, or is enhanced by pumping from 6S/8E-16M1. The trend was first noted in the summer of 2001 (before 17-MW-25(S) was installed) and pumping from the agricultural well was believed to be the most likely cause. Additional data from the fall 2001 and winter 2002 (after 17-MW-25(S) was installed as an additional data point) indicate that the depression is still evident, even when agricultural pumping is minimal. This indicates that the gradient may be a hydrogeologic trend. As stated in the report, additional data is required to confirm the cause of the depression and evaluate the long-term groundwater gradient. Cross sections are being developed from recent soil borings and well installation activities to evaluate subsurface geology/hydrogeology.</p> <p>d. The elevations of the top of casing for all wells in the area were confirmed when the local depression was first noted. The elevations of wells used to evaluate water table elevation and potentiometric surface elevation in the mid-shallow zone are accurate.</p> <p>No off-site investigation is currently planned. The Navy will continue to collect water level and chemical data from wells along Bell Road to evaluate the groundwater gradient and potential factors that influence the gradient and to develop and refine a conceptual model of the Administration Area Plume.</p>

General Comments (continued)	Response
<p>3. The Report was not signed by a California Registered Geologist or Professional Engineer, as required by the California Business Code. Please ensure that future reports are signed by a California Registered Geologist or Professional Engineer.</p>	<p>Future Quarterly and Annual Groundwater Monitoring Reports will be signed and stamped by a registered Geologist.</p>
Specific Comments	Response
<p>1. Section 2.2.3 Groundwater Sampling: The text states that two monitoring wells [117-MW-06(MD) and 17-MW-10(MS)] were not sampled due to obstructions in the well casings. By 15 September 2002, please provide a letter Work Plan with the options to rehabilitate, or abandon and replace, the wells.</p>	<p>The wells that had obstructions in the well casings that affected sampling [117-MW-06(MD) and 17-MS-10(MS)] are only scheduled for sampling during the winter quarterly events. The next winter sampling event is scheduled for February 2003. Prior to that time, the cause of the obstructions will be evaluated. The usability of the data from the two wells will also be evaluated. If it is determined that it is necessary to abandon and replace either or both of the wells, the BCT members will be notified. Specific details for well installation and abandonment are included in the <i>Soil Vapor Extraction Optimization for the Remediation of UST Cluster 1 and Site Verification Activities at various Sites Work Plan (IT, 2001)</i>.</p>
<p>2. Section 3.2 Groundwater Analytical Results: The text states that general chemistry results presented in the Report will be interpreted in another report. Please provide the name and proposed release date for the other report, so that we may schedule our review.</p>	<p>An evaluation of the natural attenuation of chlorinated solvents and petroleum hydrocarbons is being completed using the chemical and geochemical results from previous groundwater monitoring events. The results of the evaluation will be included in a natural attenuation report. The details of the report title, specific content, and distribution date have not been determined. A draft of the report will likely be available for review within the next few months.</p>
<p>3. Figure 3: The potentiometric surface (MS groundwater elevation) value shown for 17-MW-24(MS) (83.34) is incorrect. The correct value for 17-MW-24(MS) from Table 1 is 84.40 feet above mean sea level. Please correct the figure, and issue a replacement page for the Report with the next quarterly report.</p>	<p>The attached replacement figure includes the corrected potentiometric surface elevation for well 17-MW-24(MS). This corrected figure will also be included in the Annual Report.</p>
<p>4. Figure 6: The Extent of Benzene Impact contour on Figure 6 does not fully represent the extent of petroleum hydrocarbon contamination in groundwater at UST Cluster 2. Contouring TPH-g and TPH-d with benzene would increase the overall petroleum hydrocarbon impacted area to nearly double the area of the benzene plume alone. Please also include TPH impact contours for TPH-g, TPH-d, and TPH-j, and TPH-mo detected above water quality objectives (WQOs) for petroleum hydrocarbons in future reports. Please see the attachment for applicable WQOs.</p>	<p>The benzene plume boundary shown on Figure 6 represents the approximate extent of benzene impact based upon recent historical groundwater measurements. Benzene was not detected at or above laboratory reporting limits in samples collected during the February 2002 sampling event. Purgeable petroleum hydrocarbons were detected above laboratory reporting limits in one well during the February 2002 sampling event as shown on Figure 6.</p>

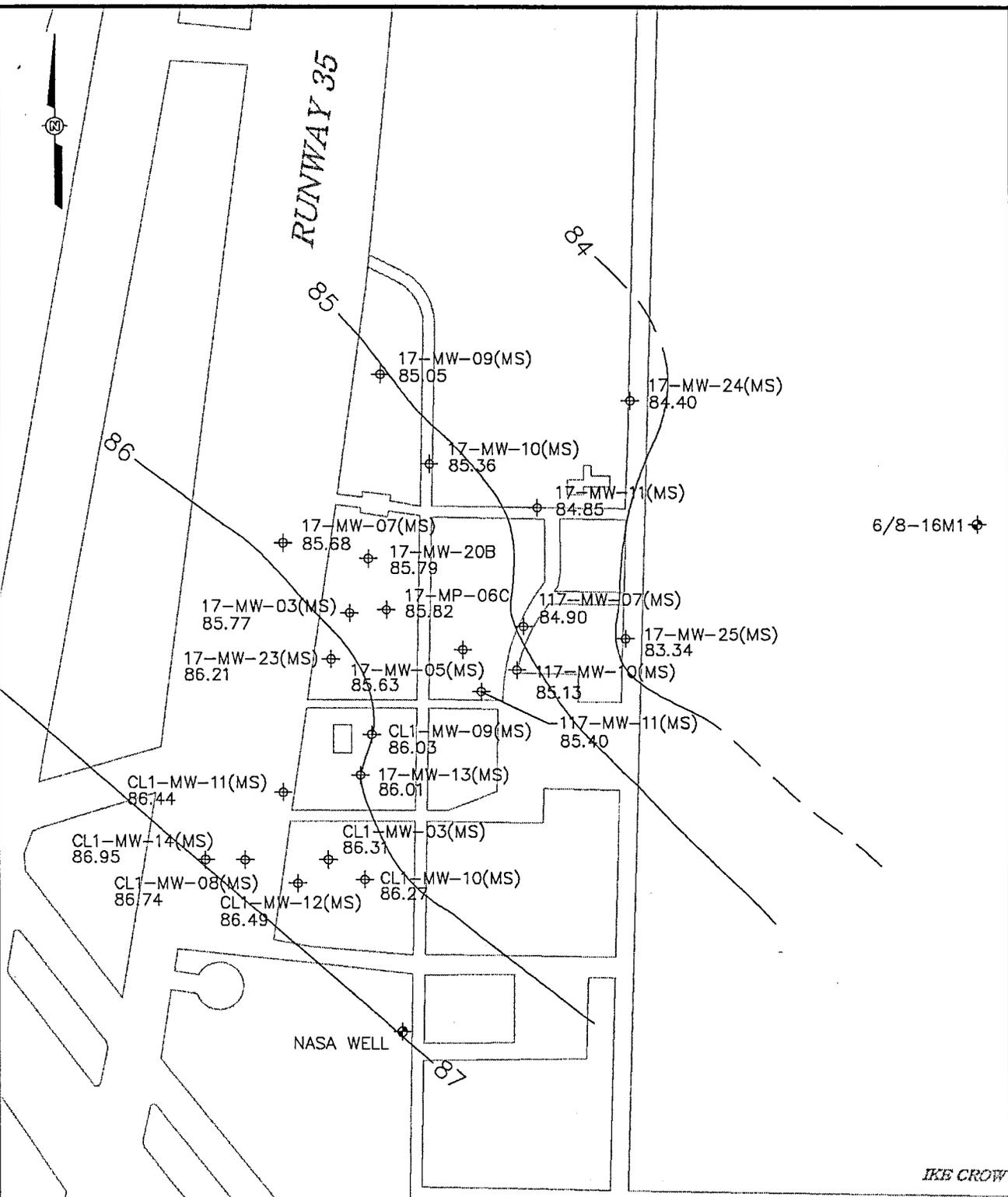
Specific Comments (continued)	Response
	<p>Cleanup levels were developed in the Corrective Action Plan for purgeable and extractable petroleum hydrocarbons, not for gasoline, jet fuel, diesel, or motor oil. Although purgeable and extractable hydrocarbons were detected during the winter quarterly sampling event, the rate of detection, accuracy of the method of detecting only petroleum hydrocarbons, and relative concentrations found were not determined to be significant enough to contour.</p> <p>Gasoline range petroleum hydrocarbons were only detected in the sample collected from well CL2-MP-05B during the winter sampling event. As noted in the laboratory report, the chromatogram representing the sample was not consistent with a gasoline standard. Although this sample point is outside the benzene plume boundary, the single point does not represent a significant plume of gasoline. The only detection of diesel range petroleum hydrocarbons during the winter sampling event was in the sample collected from CL2-MP-02B which is within the benzene plume boundary (i.e. would not increase the overall impacted area). As noted in the laboratory report, the detections of diesel were a result of isolated, unknown peaks in the diesel range. These detections are discussed in Section 3.3.10 of the Report.</p> <p>The winter quarterly sampling results are consistent with other recent results for UST Cluster 2 and do not indicate a significant purgeable or extractable petroleum hydrocarbon plume at UST Cluster 2. If subsequent monitoring events indicate that a significant plume is present, the contour lines will be added. The Navy will evaluate the information presented in the attached WQOs.</p>
<p>5. Figure 6: While the duplicate sample benzene result for groundwater at monitoring well CL2-MP-02B(S) was higher than the primary sample, only the primary sample was listed in the data box on Figure 6. Also, two UST Cluster 2 detections of TPH-d (510 ug/L and 570 ug/L) were not shown on Figure 6. Please include all TPH (-g, -d, -f, -mo) results and duplicate sample results above WQOs, in the data boxes of similar figure for future reports. If there are no detections of a specific TPH analyte, provide a footnote stating that the specific TPH analyte(s) was not detected at the method detection limit or reporting limit specified in the footnote.</p>	<p>Duplicate samples are collected only to verify the quality of the sample collection and analysis procedure. There is no reason to believe that the result for the duplicate is more accurate than the result for the primary sample. To minimize bias, only data from the primary samples are used in the figures to determine the extent of impact. As stated in the response to comment 4, cleanup levels have been developed in the Corrective Action Plan for purgeable and extractable petroleum hydrocarbons. Purgeable results are presented in Figure 6. The results from the analysis of extractable hydrocarbons are questionable because of interference with naturally occurring organics in the groundwater at the facility and the</p>

Specific Comments (continued)	Response
	<p>results are not included in the figures. Space on the figures is limited so only compounds of specific interest are plotted. Results for all detected compounds are included in Table 3 with the detection limits.</p>
<p>6. Appendix A: Appendix A contains all of the field notes on the Groundwater Monitoring Data Forms. On 12 of the individual well forms over a period of several days, the samplers noted that the “well (was) surging while sampling”. Another form states that the well was sampled before purging stability was reached, due to unspecified pump problems. Please explain what the sampler meant by “surging while sampling”, what pump problem(s) necessitated sampling before water quality parameters had stabilized in the well, and the effect on the data. For example, was surging the result of air being entrained into the groundwater discharge (bubbles); was the pump controller defective, or was the pump internally malfunctioning over several days, creating turbulence (uneven discharge) in the groundwater sample discharge? All of these problems can volatilize VOCs, which could effect the data quality of the groundwater analysis.</p>	<p>As noted in previous quarterly groundwater monitoring reports, several wells cannot sustain a high enough flow of groundwater to meet even the low pumping rates for the micropurge pumps, and the water level in these wells drops to below the pump intake. At this point the pump surges (cavitates). This is noted as “well surging while sampling” in the field logs. Purged water in the tubing is held from returning to the well by a check valve. As described in previous reports the well is then allowed to recharge before the sample is collected. The particulate material observed in the groundwater from well 17-MW-15(D) (noted in Section 2.2.4) tends to clog the pump intake during well purging activities. The samplers were instructed to collect the sample even if the water quality parameters did not stabilize because of the potential to significantly disturb the water column (i.e. affect VOC results) by continuously raising and lowering the pump to clean the intake.</p>



Well 6S/8E-16M1 from the Southwest

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	CONCORD	SCHAEFFER	DSK	BH	800063-A49
			8/6/02	6/27/02	6/27/02	



LEGEND

- ⊕ MONITORING WELL LOCATIONS
- ⊕ DEEP IRRIGATION/WATER SUPPLY WELL
- 86 POTENTIOMETRIC SURFACE CONTOUR

86.14 GROUNDWATER ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL



NASA
CROWS LANDING FLIGHT FACILITY
CROWS LANDING, CALIFORNIA

FIGURE 3

POTENTIOMETRIC SURFACE MAP
BASED ON MID-SHALLOW WELLS
FEBRUARY 6, 2002

IKE CROW

Transmittal

Date: 14 Aug 2002

From: Lynn Marie Hornecker
Code 06CC.LMH

LMH

To: Diane Silva
Code ~~01LS.DS~~ 05G.DS
Administrative Record Manager

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NALF Crows Landing

Installation: NALF Crows Landing

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