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NAS WHITING FIELD
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MONTHLY PROGRESS REPORT FOR PHASE 2A REMEDIAL INVESTIGATIONS DURING
FEBRUARY 1993 WITH TRANSMITTAL NAS WHITING FIELD FL
3/6/1993
ABB ENVIRONMENTAL



03.04.00.0012

1D-00192

March 6, 1993

Commanding Officer
ATTN: Kim Queen, Code 1859
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Charleston SC 29411-0068

**SUBJECT: Monthly Progress Report
Remedial Investigation - Phase IIA
Naval Air Station Whiting Field
Milton, Florida
Contract N62467-89-D-0317**

Dear Kim:

Enclosed please find the monthly progress report for the Remedial Investigation (Phase IIA) work conducted at NAS Whiting Field during February 1993. An updated project schedule is also enclosed.

If you have any questions, please call me at 904-656-1293 (ext. 314). We look forward to working with you on the completion of this project.

Very truly yours,

ABB ENVIRONMENTAL SERVICES INC.


Rao V.R. Angara
Task Order Manager

cc: File: 7560-- (11.2.1)
Eric Blomberg, ABB-ES (w/o enclosure)
Jim Holland, NASWF
Robert Pope, USEPA
John Bleiler, ABB-ES (w/o enclosure)
Kathy St. Peter, ABB-ES (w/o enclosure)
Field Trailer (w/o enclosure)
Charlie Manos, ABB-ES (w/o enclosure)

ABB Environmental Services, Inc.

MONTHLY PROGRESS REPORT
Naval Air Station Whiting Field
February 1993

A. TECHNICAL DESCRIPTION OF TASKS CONDUCTED DURING THIS REPORTING PERIOD

I. Geophysical Survey: On 28 October 1992, ABB-ES received Contract Modification #2 to prepare a technical report describing the activities conducted and results obtained during this task. Per discussions between the EIC and the USEPA, the final report was submitted to the regulatory agencies on February 17, 1993. Attachment A includes ABB-ES review actions for the document review comments received from the EIC. The final draft reported was eliminated from the deliverable schedule. The final technical report was submitted two months ahead of schedule.

II. Soil Gas Survey: On 28 October 1992, ABB-ES received Contract Modification #2 to prepare a technical report describing the activities conducted and results obtained during this task. The draft soil gas survey technical report was submitted to the Navy and the activity on January 28, 1993. Review comments from the EIC and the activity were received during this reporting period. The final technical report will be submitted in March 1993. Attachment A includes ABB-ES review actions for the document review comments received from the EIC.

III. Surface Water and Sediment Sampling: Surface water and sediment field sampling task has been completed on schedule. All validated data, from the two sampling episodes, have been received from C.C. Johnson and Malhotra (validation subcontractor) during this reporting period. Due to the addition of the Soil Gas and Geophysical Survey reports the project schedule has been revised. The format and contents of the Technical memorandum were discussed with the EIC on February 25-26, 1993. The document will be submitted SDIV after incorporating the discussion comments. The deliverable date for the final draft will not be affected due to late submission of the draft technical memorandum.

IV. Data Validation: Analytical data was submitted to C.C. Johnson and Malhotra for NEESA Level C and Level D validation per USEPA and NEESA validation guidelines. Data validation for surface water and sediment samples has been completed. This will be included in Technical Memorandum No. 1 (Surface Water and Sediment Assessment). Macros for importing data from the Automated Compliance System to Wordperfect and LOTUS 1-2-3 have been completed.

V. Elevation and Location Survey: Northwest Florida Engineering is conducting the elevation and location survey at NAS Whiting Field. All sampling locations are being surveyed and included in the CAD file being created to accommodate the survey data. Future survey locations will be added to the CAD file as a separate layer. This will allow the production of separate drawings for each event and also provide a database for future work.

VI. Soil Boring Program: The soil program initiated on 30 November 1992 was completed during this reporting period (1/21/93). Two field crews were mobilized to complete the task in an efficient manner. The soil borings at Sites 2 and 12 will be initiated upon receipt of authorization from the EIC/SDIV.

VII. Monitoring Well Installation Program: The monitoring well program was initiated during the previous reporting period. Similar to the soil boring program, two field crews were mobilized during this reporting period. To date, a total of 22 monitoring wells have been installed. The protective casing, concrete pad, protective posts are being completed at the end of each shift. Attachment B presents the shift report submitted by the FOL for the shift completed on 25 February 1993.

VIII. QA/QC Audit: A QA/QC audit was conducted by the ABB-ES corporate Quality Assurance Officer (QAO) and the NAVY CLEAN QA Manager (QAM). A copy of the audit report will be submitted to the EIC as soon as it is received from the auditors.

B. STATUS OF WORK TO DATE

- Geophysical survey field program has been completed. The A final report was submitted to the regulatory agencies on February 17, 1993.
- The field program for soil gas survey has also been completed. NERI submitted the final report to ABB-ES in September 1992. Based on the Contract Modification, a draft technical report was submitted to the EIC and the activity on 27 January 1993. Review comments from the EIC were received in February 1993.
- The surface water and sediment sampling task has been completed. A Technical Memorandum is being prepared to present the assessment of surface water and sediment contamination at NAS Whiting Field.
- The final record search document was submitted to SDIV in September 1992.
- ABB-ES and SDIV met with the U.S. Environmental Protection Agency (USEPA), National Oceanic and Atmospheric Administration (NOAA), and Florida Department of Environmental Regulation (FDER) on 13 November 1993 to discuss Navy response to agency comments for the Phase I Final Technical Memoranda. Several items involving project scope change were recommended by the agencies. These were presented in a scope change

memorandum to SDIV.

- Test pitting operations (field work), as proposed in RI Phase I Technical Memorandum 6, have been completed.
- PCPT/BAT activities were started on October 12, 1992 and completed on November 4, 1992. Seven PCPT soundings and 14 BAT samples were collected as planned. The Level E data was presented in the January 1993 monthly progress report.
- Data packages (surface soil, subsurface soil, surface water, and sediment sampling) were submitted to C.C. Johnson and Malhotra for validation.
- Elevation and location survey of geophysical survey, soil gas survey, soil sampling locations, test pit locations, PCPT/BAT locations has been completed. A draft report for the soil gas survey and geophysical survey was received from the subcontractor.
- The soil boring program as proposed in Technical Memorandum No. 6 (Phase I) was completed on 27 January 1993.
- The monitoring well installation program as proposed in Technical Memorandum No. 6 (Phase I) was initiated in February 1993.

C. PROBLEMS ENCOUNTERED DURING REPORTING PERIOD

- Under certain field conditions it is difficult to tremie bentonite chips to seal the annular space between the borehole and the well riser. The technical leader has authorized the use of bentonite slurry for use as an annular seal.
- At monitoring well WHF-16-2D, clay was encountered at a depth of 144 feet bls. The proposed well depth was 170 feet bls. Currently, the clay thickness has exceeded a depth of 220 feet bls. The drilling will continue until a layer that is capable of producing groundwater is encountered. Based on the available literature, this is expected to occur before the 300 feet bls mark.

D. ACTIVITIES PLANNED FOR NEXT MONTH

- TFMR and Monthly Progress Report.
- Preparation of Draft and Final Draft Technical Memorandum #1 and Final Soil Gas Survey Technical Report.
- Continue the monitoring well installation program.
- Data Management and evaluation.
- Photography/video documentation.
- Preliminary water elevation survey.

E. SCHEDULED DELIVERABLES FOR MARCH 1993

- TFMR
- Monthly Progress Report.
- Final Soil Gas Survey Technical Report.
- Draft and Draft Final Technical Memorandum #1 (Surface Water and Sediment Assessment).

F. CORRESPONDENCE AND DOCUMENTS RECEIVED

- Acknowledgement of receipt of subsurface soil samples from CH2MHILL.
- Data packages for subsurface soil samples.
- CCJM data validation reports.
- EIC review comments for Draft Soil Gas Survey Report.

G. COST IMPACTS

- As discussed in the previous reports, the change in the test pitting subcontractors has resulted in an increase in the subcontractor costs. A scope change memorandum was submitted to SDIV during this reporting period.
- A contract modification to CTO-050, for conducting the wash rack investigation, was received in February 1993. A draft POA was submitted to SDIV on February 26, 1993.

H. SAMPLING AND ANALYSIS RESULTS

- Subsurface soil sample results (for some sites) were received from CH2M HILL.

I. LABORATORY MONTHLY PROGRESS REPORTS

- None

J. PLANNED CHANGES IN PERSONNEL AND THEIR QUALIFICATIONS

- The project team comprises of the following personnel.

Rao Angara, Task Order Manager
Eric Blomberg, Technical Leader
Dr. Willard Murray, Technical Director
Salvatore Consalvi, Field Operations Leader
Kathleen Hodak, Project Assistant
Matt Alvarez, Associate Engineer
Gopi Kanchibhatla, Associate Engineer
John Bleiler, Senior Scientist (Ecologist)
Keith Peterson, Graphics and Photography
David Daniel, Public Health Specialist
Richard Nelson, Scientist
Lauren Foster, Geologist

K. PERCENT COMPLETION

Task	Title	% Complete
1	Project Management	25
2	Field Preparation	35
3	Geophysical Survey	100
4	Soil Gas Survey	90 (Field Program Completed)
5	Surface water and Sediment Sampling	95 (Sampling Completed)
6	Test Pitting	90
7	Soil Sampling	85 (Subsurface & Surface Soil Sampling Completed)
8	PCPT/BAT	99
9	Soil Boring and Monitoring Well Installation	40
10	Groundwater Sampling	0
11	Water Level Measurement	0
12	Elevation and Location Survey	40
13	Ecological Survey	50
14	Data Validation	25
15	Photography Support	34
16	Technical Memoranda Preparation	10
17	Contamination Assessment Report	0
18	Groundwater Modelling	0

Note: Photography support effort includes videotaping and photographing geophysical survey, soil gas survey, and surface water and sediment sampling events.

L. TARGET/ACTUAL COMPLETION DATES (by task)

Task	Title	Scheduled	Actual
1	Project Management	3-30-92 to 4-30-94	Started 3-30-92
2	Field Preparation	4-23-92 to 4-30-94	Started 4-23-92
3	Geophysical Survey	5-28-92 to 5-31-93	5-28-92 to 2-26-93
4	Soil Gas Survey	6-26-92 to 6-30-93	Started 6-26-92
5	Surface Water and Sediment Sampling	7-6-92 to 8-1-92	7-6-92 to 8-1-92
6	Test Pitting	9-14-92 to 10-9-92	9-14-92 to 10-9-92
7	Surface Soil Sampling	8-3-92 to 11-10-92	8-3-92 to 10-31-92
8	PCPT/BAT	11-5-92 to 12-28-92	10-12-92 to 11-4-92
9	Soil Boring & Well Installation	1-4-93 to 2-4-94	Started 12-1-92
10	Groundwater Sampling	2-7-94 to 6-30-94	Not Started
11	Water Level Measurement	5-2-94 to 5-13-94	Not Started
12	Locational Survey	2-7-94 to 3-30-94	Started 6-30-92
13	Ecological Survey	2-5-94 to 3-13-94	Started 12-1-92
14	Data Validation	6-15-94 to 10-16-94	Started 6-15-94
15	Photography Support	5-4-92 to 6-30-94	Started 5-4-92
16	Technical Memoranda Preparation	9-1-94 to 4-4-95	Started 12-1-92
17	CA Reports	11-16-94 to 11-29-94	Not Started
18	Groundwater Modelling	-----	-----

- Notes:
1. Task 1 includes project management tasks. Therefore it is for the duration of the project.
 2. Task 2 includes the FOL effort for the complete project.
 3. Shaded area indicate modifications to schedule.
 4. The soil boring program was initiated ahead of schedule because the PCPT/BAT operations were completed ahead of schedule.
 5. The PCPT/BAT operations were completed ahead of schedule because the cone soundings could not be conducted to the proposed depths. Also the drill rig and the cone truck were operated simultaneously.
 6. Based on the revised schedule, the Technical Memorandum #1 preparation was started during this reporting period.
 7. Tasks 3 and 4 identify a change in the actual completion dates because the preparation of technical reports has been added to these tasks.

ATTACHMENT A

COMMENTS BY Kim Quier CODE 1859 PHONE 743-0341 DATE 10 Feb 93

PROJECT TITLE AND LOCATION
Soil Gas Survey - Draft Technical Report
Naval Air Station Whiting Field, Milton, Florida

TYPE OF REVIEW
 30%
 100%
 FINAL
 OTHER

DWG. NO. OR PAR. NO.	COMMENTS (Make general comments after specific comments)	REVIEW ACTION (& reasons where significant)
—	Add an executive summary in front of document	Executive summary has been added.
pg. 1-1	1 st para.: 1 st sentence → add <u>the</u> after <u>Department of</u>	Changed
pg. 1-4	2 nd para.: 1 st sentence → capitalize <u>C</u> in <u>chapter 7.0</u>	Changed to "Section" with capital "S"
pg. 1-5	2 nd para. under 1.2.2 → delete comma after <u>the potential sources</u> ,...	Deleted comma
pg. 2-3	1 st para.: 1 st complete sentence → <u>looses</u> should be <u>loses</u>	Changed
	2 nd para. under 2.2.2 → revised last sentence under <u>Mapping Ion Counts</u> .	Sentence reworded.
pg. 2-4	1 st para. under 2.3 → last sentence → add at <u>NAS Whiting Field</u> after <u>located</u> and <u>before</u> in <u>Milton, Florida</u> .	Added Added NAS Whiting Field.
pg. 2-5	3 rd para. under Method Blank → <u>spectrography</u> should be <u>spectrometry</u> .	Changed
pg. 3-9	1 st para. → delete <u>the</u> before <u>Building 2941</u>	Deleted
	1 st para. under 3.1.3 → 2 nd sentence → delete <u>of before greater than 100,000</u> .	Deleted

Changes to Fred
 Submitted 2-11-93
 @ 1042

[Signature]

JOB ORDER NUMBER

COMMENTS BY

Kim Queen

CODE

1859

PHONE

X-0341

DATE

1/27/93

PROJECT TITLE AND LOCATION

Draft Geophysical Survey Technical Report
 Review - NAS Whiting Field

TYPE OF REVIEW

30%

100%

FINAL

OTHER

DWG. NO. OR PAR. NO.	COMMENTS (Make general comments after specific comments)	REVIEW ACTION (& reasons where significant)
pg. ii	- Under Sites 14 and 15 on Table ES-1, E-W and SW-NE should be spelled out.	Changed
pg. iv	- TOC, under 3.2.1, move Northwest Disposal Area over to line up w/ other lines.	Changed
pg. vi	- list of Tables - Delete last 4-1 Summary of Geophysical Survey (not needed)	Changed
pg. 1-1 1st para.	- should be: is conducting the Phase II-A.	Changed
pg. 1-1 3rd para.	- put comma before along and after memoranda.	Changed
4th sent.	- add for Phase II-B after data gaps	Changed
pg. 1-4	- list under 1.1.2 → move ecological and public health surveys to new line (delete the and after GW sampling) - Para. after list, last sentence add RI/FS before Phase I Workplan	Changed
pg. 1-5	move (BGE) directly after Blackhawk Resources, Inc.	Changed
pg. 2-2	Reword 2nd complete sentence from bottom - word needs to be added before edge (?)	Added the word "their" before edge and put a comma after edge to make read better.

JOB ORDER NUMBER
DATE 11/27/93
TYPE OF REVIEW
30%
100%
FINAL
OTHER

COMMENTS BY Kim Queen	CODE 1859	PHONE 1859 X-0241
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PROJECT TITLE AND LOCATION Geophysical Survey Technical Report NAS Whiting Field
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DWG. NO. OR PAR. NO.	COMMENTS (Make general comments after specific comments)	REVIEW ACTION (& reasons where significant)
pg. 2-6	Under 2.3.1 Theory → 1 st sentence, add <u>the</u> before earth's magnetic field. - also put an apostrophe in <u>earth's</u> .	Changed
pg. 2-6	2 nd para. under 2.3.1 → 2 nd sentence, add <u>A</u> before Fluxgate. (Fluxgate should begin w/ lower case f).	Changed
pg. 2-7	- 1 st para. under 2.3.2 → data <u>were</u> and data <u>was</u> are both used. - please be consistent	Changed
	- also in 1 st para under 2.3.2 → 3 rd sentence, add <u>the</u> before EM and change EM to EM-31.	Changed
	- 2 nd para. under 2.3.2 → last sentence, add <u>the</u> before earth's	Changed
pg. 3-1	1 st para. → 3 rd sentence, make area plural → <u>areas</u> - Same in 1 st sentence of 2 nd para → make area → <u>areas</u> .	Changed
pg. 3-5	D.C. in 1 st sentence on pg. and last sentence on pg. should be written DC.	Changed
pg. 3-6	3 rd para. → 1 st sentence, make site plural → <u>sites</u> .	Changed

JOB ORDER NUMBER	
DATE	1/27/93
TYPE OF REVIEW	
30%	
100%	
FINAL	
OTHER	

COMMENTS BY Kimi Queen CODE 1859 PHONE X-0341

PROJECT TITLE AND LOCATION
Geophysical Survey Technical Report
NAS Whiting Field

DWG. NO. OR PAR. NO.	COMMENTS (Make general comments after specific comments)	REVIEW ACTION (& reasons where significant)
pg. 3-9	- 1 st para. → 2 nd sentence, add <u>the</u> before northeast corner	Changed
	- 3 rd para. → last sentence, yielding should be <u>yielded</u>	Changed
pg. 3-15	3 rd para → last sentence, delete the word in before ().	Changed
pg. 3-22	- 2 nd para. → 1 st sentence, add <u>the</u> before south field and spell N-S out.	Changed
	- 3rd para. → add <u>and</u> after 200 W to 400 W, 3rd	Changed
	- 4 th para. → spell out N-S	Changed
	- 5 th para. → last sentence, and should be <u>an</u>	Changed
pg. 3-26	(1 st under 3.2.5) - 3 rd complete para. → add <u>the</u> before southeastern in 1 st sentence.	Changed
	- delete the word <u>on</u> before () in last sentence of 1 st para. under 3.2.5.	Changed
pg. 3-32	- 1 st para. under 3.2.6 → Station at end of 1 st sentence should be lower case	Changed
	- 2 nd para. under 3.2.6 → 2 nd sentence, <u>magnitudes</u> should be singular → <u>magnitude</u> .	Changed

JOB ORDER NUMBER	
DATE	1/27/93
/TYPE OF REVIEW	
30%	
100%	
FINAL	
OTHER	

COMMENTS BY	CODE	PHONE
Kerr Queen	1859	X-0341

PROJECT TITLE AND LOCATION
Geophysical Survey Tech. Report NAS Whiting Field

DWG. NO. OR PAR. NO.	COMMENTS (Make general comments after specific comments)	REVIEW ACTION (& reasons where significant)
pg. 3-32	3 rd para. under 3.2.6 → last sentence, add comma after sets and before which.	Changed
pg. 3-31	- 1 st para. under 3.2.7 → last sentence, say EM-31 instead of EM	Changed
	- 3 rd para. under 3.2.7 → 2 nd sentence, D.C. should be written <u>DC</u>	Changed
	- 3 rd para. → last sentence, say EM-31 instead of just EM.	Changed
pg. 4-2	Table 4-1 → sites 14 + 15, spell out E-W and SW-NE.	Changed
<u>Axonal Comments</u>		
	- Maybe explain what the different colors (total field colors on the figures represent	colors (total field gammas) are indicated on the color bar on each figure.
	- The colored maps look great!	
Good job!		

ATTACHMENT B

TO: Rao Angara
cc. Eric Blomberg
FROM: Salvatore Consalvi sc
DATE: 02/26/93
SUBJECT: Monitoring Well Installation Shift V Report
DURATION: 02/16/93 - 02/25/93

WEATHER: Sunny and Cool, 45-60 degrees.

ABB Personnel:

Salvatore Consalvi (FOL): 02/16/93 - 02/25/93
Lauren Foster (Geologist): 02/16/93 - 02/25/93
Richard Nelson (Geologist): 02/16/93 - 02/25/93
Matt Alvarez (Team Member and HSO): 02/16/93 - 02/25/93
Eric Blomberg (Technical Leader): 02/19/93 - 02/20/93
Gopi Kanchibhatla: 02/16/93 - 02/25/93
Rao Angara (Task Order Manager): 02/19/93

Groundwater Protection, Inc. (GPI) Personnel:

Donald H. Steverson (Drilling Supervisor): 02/16/93 - 02/25/93
David Weigle (VP): 02/16/93 - 02/17/93
Richard Wallace (Branch Manager): 02/16/93 - 02/17/93

Team 1:

Charles Weaver (Driller): 02/16/93 - 02/25/93
Jay Frishkorn (Helper): 02/16/93 - 02/25/93
Craig Labrosse (Helper): 02/16/93 - 02/25/93

Team 2:

John Ward (Driller): 02/16/93 - 02/25/93
Kevin Veillon (Helper): 02/16/93 - 02/25/93
Miles "Butch" Diamond (Helper): 02/16/93 - 02/25/93

PURPOSE: To continue the installation and development of monitoring wells for the Phase II-A RI.

1.0 Executive Summary

The fifth shift for the soil boring and monitoring well installation portion of the RI Phase II-A was conducted between 02/16/93 and 02/25/93. The field crew installed a total of seven (7)

monitoring wells. No wells were developed during this shift (see attached tables). GPI set two (2) surface casings and drilled further into the clay layer (to 220 feet) at well location WHF-16-2D.

WELLS INSTALLED	TOTAL DEPTH (FEET BLS)	WELLS DEVELOPED	TIME (Hrs)
WHF-16-4D	119		
WHF-16-2D	Surface Casing		
WHF-16-2S	46		
WHF-16-2I	127		
WHF-15-4S	111		
WHF-1-2S	75		
WHF-18-2S	105		
WHF-17-2	Surface Casing		
WHF-11-3	Surface Casing		
WHF-9-3	105		

2.0 Site Reconnaissance/Utility Clearance

Utility clearance for all monitoring wells completed during Shift V was conducted during Shifts I and II of the soil boring program.

The well permits required by the Northwest Florida Water Commission were obtained by Rick Bryan (GPI) prior to the shift (see Section 8.2 for details). Don Stevison (GPI) submitted permit requests for the remaining remote sites (Sites 1, 10, 12, 13, 14, 17, and 18).

The FOL informed the drilling supervisor that permits for the wells in the industrial area will be necessary for the next shift. The FOL faxed well numbers and maps to GPI for all well locations excluding the background.

3.0 Health and Safety

An initial health and safety meeting was conducted by Matt Alvarez (HAS Officer) prior to the commencement of drilling activities. Among the topics presented were emergency procedures, locations of the base and local hospitals, avoidance of accidents around the drill rigs, and health effects of the contaminants of concern. Daily HAS meetings were conducted each morning prior to field activities. The meetings covered various subjects including the previous days compliance with HAS procedures and first aid reviews (shock, bleeding, emergency carries, eye injuries

etc.).

Currently, back supports are being worn by GPI personnel.

The HAS officer did not record any significant or willful violations of HAS protocol.

4.0 Audit

Field audits were not conducted during this shift (Shift V).

5.0 Surveying

Surveying activities were not completed during the shift. Surveying of all monitoring wells will be completed at the end of the installation phase of the program.

6.0 Procedural Difficulties

In general, the shift proceeded efficiently resulting in the completion of seven monitoring wells. However, mechanical difficulties continue to cause delays. In general, the drill crews were moved to necessary tasks which minimized delays, however, in these cases, the most efficient use of time was not attained. Significant delays are also caused when drill crews arrive at the site with insufficient amounts of materials.

7.0 Well Development

Monitoring wells were not developed during Shift V. Well development will be emphasized during the next shift.

8.0 Well Installation

The FOL and Drilling Supervisor reviewed the specifications for the installation of the protective casing, pads, and bumper posts during Shift IV. The posts were measured to be 5 feet in length. The posts were not set and GPI was instructed to obtain the proper posts by next shift. The proper length post were not obtained during Shift V.

The FOL supplied Rick Bryan (GPI) with information necessary to obtain the permits required by the North Florida Water Management District during Shift IV. When asked if the permits were obtained, Donnie Stevison indicated that Rick Bryan had obtained the permits and that copies were available. On 02/23/93, the FOL was informed that the permit requests had not been filed and that the wells installed during the shift were completed before the permits were obtained.

The limited use of water to flush sand out of the augers was authorized by the FOL and Technical Leader. If more than 5 feet of sand enters the augers, GPI is instructed to pull the augers and use an auger plug to ream the hole before setting the well.

9.0 NASWF/Base Issues

The FOL continues receiving complaints through the Public Works Department from D.C. McCombs (Tumpane) concerning the upkeep of the wash rack (a pile of grout left overnight). The FOL suggested he contact the ABB trailer directly when situations arise. Soon after the pile of grout was removed he arrived at the trailer with another complaint. The FOL and Drilling Supervisor accompanied him to the rack to discover that GPI and ABB were not responsible for the problem. Mr. McCombs agreed to inform the trailer directly when problems arise instead of assuming ABB involvement.

10.0 Deviation from Workplan

10.1 Monitoring Well Location

Monitoring wells were located using information gathered during Phase II-A field activities. Locations may differ from the maps in the workplan and/or Technical Memorandum No. 6 (RI Phase I). The exact depths of wells and screen intervals are determined in the field based on site specific conditions and may differ from Tech Memo 6. Rationale for such changes are recorded in field log books and drilling summaries.

The location of WHF-15-4S as suggested in Figure 7-9, Technical Memorandum No. 6 would place the boring over 500 feet into the wooded area west of the access road. Conversations between the FOL and Technical Leader confirmed that the well was intended as a local upgradient well and its position was changed to the side of the road approximately 550 feet east of the landfill boundary.

The location of Well WHF-1-2 was changed from south of the site to the west side of the site which places it parallel to estimated groundwater flow. The change was made to better confirm flow direction. Currently, estimated groundwater flow is based on data obtained from three wells (WHF-17-1, WHF-18-1, and WHF-1-1). The potential for a westerly flow of groundwater towards clear creek exists. The placement of WHF-1-2 and the installation of WHF-17-2 and WHF-18-2 may assist in the accurate determination of groundwater flow. Additionally, the well was located within the berm of the pit. The geophysical survey report indicated that trenching and dumping did not occur at Site 1. Therefore, the boring would not advance through landfill material.

The FOL and Technical Leader discussed the placement of WHF-11-3S. Based upon the request of the Mr. Jorge Caspary (FDER) and local topographic features, its location was changed approximately 300 feet south and 100 feet east of its location in Tech. Memo. 6 (approx. one third the distance between WHF-11-1 and WHF-13-1).

The field crew determined during Shift IV that WHF-15-6I was scoped to be screened at the same depth as WHF-15-1 which was located in the vicinity of the WHF-15-6 well cluster. The crew, with confirmation from the Technical Leader omitted the well from the program. The Technical Leader shifted the well to the WHF-16-2 well cluster and GPI set WHF-16-2S.

10.2 Monitoring Well Construction

Donald Stevison reported that the riser pipe at WHF-15-3D was only 2 feet above grade instead of the required 3 feet and that it was the result of the driller setting the well at the very bottom of the borehole as opposed to 1-2 feet above the bottom of the sand pack. Additionally, the protective casing at WHF-16-3 is set 1 foot too far into the pad (2 feet). Both errors were discussed with the Technical Leader. The well completions were left as installed.

Under certain conditions, difficulty tremieing bentonite chips to the seal the annular space has resulted in low productivity. For this reason, the Technical Leader authorized the use of a bentonite slurry for use as an annular seal. This technique requires a foot of fine sand above the sand pack overlain by 5 feet of bentonite slurry. No hydration time will be necessary. Slurry was used at monitoring well WHF-9-3S only.

Clay was encountered at WHF-16-2D and surface casing was set at 144 feet BLS. GPI continued drilling 50 feet beyond the proposed depth of the well (170 feet). The FOL and Technical Leader discussed the merits of drilling further and agreed that a suitable sand layer may be encountered before 300 feet. The well installation will be resumed during Shift VI and a well set directly under the clay unit. The well will be considerably deeper than planned.

An ABB field crew measured the protective casing and pad dimensions at several locations. They learned that the pad dimensions are slightly smaller than specified due to the length of lumber used to construct the forms. The outside of the form is 4 X 3 feet inside is 1.5 inches smaller.