

N60508.AR.000659
NAS WHITING FIELD
5090.3a

MONTHLY PROGRESS REPORT FOR PHASE 2A REMEDIAL INVESTIGATIONS DURING
APRIL 1993 WITH TRANSMITTAL NAS WHITING FIELD FL
5/7/1993
ABB ENVIRONMENTAL



03.04.00.0014

1D-00194

May 7, 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 attachments)
Jim Holland, NASWF (w/o attachments)
Robert Pope, USEPA (w/o attachments)
John Bleiler, ABB-ES (w/o attachments)
Kathy St. Peter, ABB-ES (w/o attachments)
Field Trailer (w/o attachments)
Charlie Manos, ABB-ES (w/o attachments)

ABB Environmental Services, Inc.

MONTHLY PROGRESS REPORT
Naval Air Station Whiting Field
April 1993

A. TECHNICAL DESCRIPTION OF TASKS CONDUCTED DURING THIS REPORTING PERIOD

I. Geophysical Survey: Review comments for the Final Geophysical Survey Technical Report were received from the Florida Department of Environmental Regulation and the U.S. Environmental Protection Agency. These comments will be discussed during the TRC meeting scheduled in May 1993.

II. Technical Memorandum Preparation: The Final Draft Technical Memorandum No. 1 (Surface Water and Sediment Assessment) was submitted on April 14, 1993. The contents of the technical memorandum will be discussed, with the regulatory agencies, during the TRC meeting in May 1993.

III. 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 reports for samples collected during surface soil and subsurface soil sampling and test pitting are being received on a regular basis.

IV. 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.

V. Monitoring Well Installation Program: The monitoring well installation program was initiated during the previous reporting period. To date, 33 monitoring wells have been installed. The protective casing, concrete pads, and protective posts are being completed at the end of each shift. Attachment A presents the shift reports submitted by the FOL for the shifts completed in April 1993.

VI. QA/QC Audit: A copy of the ABB-ES quality audit report was submitted to SDIV on April 14, 1993. The report identified corrective actions and the date of completion for each of the listed findings.

VII. Photography and Video Documentation: Mr. Keith Peterson is preparing a video and slide presentation for the TRC meeting to be held in May 1993.

B. STATUS OF WORK TO DATE

- 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.
- Geophysical survey field program has been completed. The final technical report was submitted to the regulatory agencies on February 17, 1993.
- The soil gas survey field program has also been completed. The final technical report was submitted to the regulatory agencies on 10 March 1993.
- The surface water and sediment sampling task has been completed. The Phase II-A draft Technical Memorandum No. 1 was submitted to Southern Division on 18 March 1993. The Phase II-A Final Draft Technical Memorandum was submitted to the regulatory agencies on 14 April 1993.
- Test pitting operations (field work), as proposed in RI Phase I Technical Memorandum 6, have been completed.
- PCPT/BAT activities were 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) are being 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

- None

D. ACTIVITIES PLANNED FOR NEXT MONTH

- TFMR and Monthly Progress Report.
- Prepare Phase II-A Final Technical Memorandum No. 1.
- Continue the monitoring well installation program.
- Data management and evaluation.
- Photography/video documentation.
- Preliminary water elevation survey.
- Participate in the TRC meeting.

E. SCHEDULED DELIVERABLES FOR APRIL 1993

- TFMR
- Monthly Progress Report.

F. CORRESPONDENCE AND DOCUMENTS RECEIVED

- Data packages for subsurface soil samples.
- CCJM data validation reports.

G. COST IMPACTS

- A scope change memorandum was submitted to SDIV to include explorations at Site 2 and 12 in the Phase II investigation. Upon approval of the scope change, the proposed programs at these sites will be completed.
- Based on the modification to CTO-050 received on 12 February 1993, a draft plan of action and cost estimate was submitted to SDIV on 25 February 1993. Upon negotiation and award of the additional funding, the scope of this modification will be implemented during the Phase II-A field program.

H. SAMPLING AND ANALYSIS RESULTS

- Subsurface soil sample results (for some sites) were received from CH2M HILL. The data was submitted to the data validators for validation.

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
Dr. Willard Murray, Technical Director
Kathleen Hodak, Project Assistant
Gopi Kanchibhatla, Associate Engineer
Keith Peterson, Graphics and Photography

Eric Blomberg, Technical Leader
Salvatore Consalvi, Field Operations Leader
Matt Alvarez, Associate Engineer
John Bleiler, Senior Scientist (Ecologist)
David Daniel, Public Health Specialist

K. PERCENT COMPLETION

Task	Title	% Complete
1	Project Management	30
2	Field Preparation	45
3	Geophysical Survey	100
4	Soil Gas Survey	100
5	Surface Water and Sediment Sampling	100
6	Test Pitting	90
7	Soil Sampling	65 (Subsurface & Surface Soil Sampling Completed, Data Assessment is Ongoing)
8	PCPT/BAT	95
9	Soil Boring and Monitoring Well Installation	40
10	Groundwater Sampling	0
11	Water Level Measurement	0
12	Elevation and Location Survey	48
13	Ecological Survey	50
14	Data Validation	40
15	Photography Support	45
16	Technical Memoranda Preparation	14
17	Contamination Assessment Report	0
18	Groundwater Modeling	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	6-26-92 to 3-10-93
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 9-15-92
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: The Final Draft Technical Memorandum No. 1 was submitted to the agencies on 14 April 1993.

ATTACHMENT A



Inter-Office Correspondence

TO: Rao Angara
cc. Eric Blomberg
FROM: Salvatore Consalvi
DATE: 04/16/93
SUBJECT: Monitoring Well Installation Shift VIII Report
DURATION: 04/06/93 - 04/15/93
WEATHER: Cloudy and rainy, 45-60 degrees changing to sunny and cool 55-70 degrees.

ABB-ES Personnel:

Salvatore Consalvi (FOL): 04/06/93 - 04/15/93
Matt Alvarez (Team Member and HSO): 04/06/93 - 04/15/93
Gopi Kanchibhatla (Team Member): 04/06/93 - 04/15/93
Rao Angara (Task Order Manager): 04/08/93 - 04/09/93
Eric Blomberg (Technical Leader): 04/08/93 - 04/09/93

Groundwater Protection, Inc. (GPI) Personnel:

Team 1:

Charles Weaver (Driller): 04/06/93 - 04/11/93
Jay Frishkorn (Helper): 04/06/93 - 04/11/93
Kevin Veillon (Helper): 04/06/93 - 04/11/93
Michael Anderson (Helper): 04/06/93 - 04/11/93

Replacement Team:

Rich "Frenchy" Bryan (Drilling Operations Manager): 04/11/93 - 04/12/93
Donald H. Stevison (Driller): 04/11/93 - 04/15/93
Butch Diamond (Helper): 04/11/93 - 04/15/93
George Leeper (Helper): 04/13/93 - 04/15/93

Southern Division:

Kim Queen (EIC); 04/08/93

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

1.0 Executive Summary

The eighth shift of the soil boring and monitoring well installation portion of the Phase II-A RI was conducted between 04/06/93 and 04/15/93. The field crew installed a total of one (1) monitoring well during the shift and developed 3 wells (see attached tables). GPI set 1 surface casing and drilled to the depth of the surface casing at monitoring well WHF-5-10S.

WELLS INSTALLED	TOTAL DEPTH (FEET BLS)	WELLS DEVELOPED	TIME (Hrs)
WHF-5-10D	180	WHF-18-2S	1.5
WHF-5-9D	Surface Casing	WHF-16-2S	1.25
WHF-5-10S	Incomplete	WHF-16-2I	2.0

2.0 Site Reconnaissance/Utility Clearance

Utility clearance for all borings completed during Shift VIII was completed during Shifts VI and VII of the soil boring program. Additional utility clearances were obtained on 04/08/93 and 04/09/93 for the excavation of mud pits.

During Shift V, the FOL instructed Rick Bryan (GPI) to obtain the monitoring well permits for all the remote sites and for sites 5, 6, and 33 (required by the Northwest Florida Water Commission). The FOL faxed well numbers and maps to GPI for all well locations excluding the background. As of 03/03/93, GPI had provided 10 permits for the 22 wells currently installed. Mr. Bryan reported that the remainder had been obtained but not forwarded to ABB. The ABB-ES trailer obtained the majority of the permits and the remaining material specifications during Shift VIII, however, the list is not complete.

3.0 Health and Safety

An initial health and safety meeting was conducted by Matt Alvarez (H&S Officer) prior to the commencement of drilling. Among the topics presented were emergency procedures, locations of the base and local hospitals, avoidance of accidents around the drill rigs and H&S equipment use. Daily H&S meetings were conducted each morning prior to drilling. The meetings covered various subjects including the previous days compliance with H&S procedures and first aid reviews (heat stress, symptoms of contaminants of concern, use of safety belt, proper exclusion zones and PPE etc.). The entire list of subjects covered throughout the project along with signatures of attendees is located in the H&S field book.

The H&S officer did not record any significant or willful violations of H&S protocol. However, during a H&S meeting, it was revealed that the GPI crews were supplied with safety belts to climb the masts but were not instructed on their proper use. Also, the use of the belt as a hoist contradicted the warning labels on the belt.

4.0 Audit

Audits were not conducted during Shift VIII.

5.0 Surveying

Elevation and location surveying was conducted during this shift. Surveying of all the wells will be completed

at the end of the installation phase of the program.

6.0 Procedural Difficulties

The productivity of GPI has decreased drastically during the last three shifts. The number of wells installed is fewer than expected during a ten day shift. Instances of mechanical difficulties continue to be a significant cause for delays. It also appears that the GPI crew morale has adversely effected the field program at NASWF. It is unlikely that reasonable productivity will resume if this problem is not addressed.

On 04/11/93 with the entire rig crew was dismissed by GPI. Although swift, the dismissals were carried out without notice. This may have served as a cause for low morale of the GPI crew.

6.1 Health and Safety

It has occurred to ABB-ES that, for GPI management, the safety of the drill crew is secondary to productivity. The re-injury of Mr. Stevison, who may have been placed on light duty too early after an injury, placed ABB-ES in an awkward position in the case of serious injury.

The proper use of a safety harness to climb the mast has been a constant source of confusion and it appears that the GPI crews are not instructed about the proper use of this equipment. When questioned about the necessity to purchase an appropriate riding belt, the GPI Drilling Operations Manager stated that the belt on-site could be used as a riding belt.

6.2 Mechanical Delays

Drill Rig-1 was down for one day due to mechanical problems. Rig-1 was replaced by Rig-2 which also required repair. Monitoring well installation was postponed until the fourth day of the shift due to mechanical delays. GPI responded to the continual delays by replacing the drill crew on 04/12/93. Productivity increased until health problems interfered.

The GPI management response is to assume that the difficulties are the result of operator error. It was evident that a significant source of delays results from confusing instructions.

6.3 Well Installation

Abandonment and re-installation of WHF-15-4S was planned for during the shift but was not completed due to excessive delays.

6.4 Well Completions

Matt Alvarez completed an in-depth inspection of the well completions during the shift. Some inadequacies exist including protective casing stick-up, thickness and shape of pads (see well development log book). These will be addressed with the drill crew during the next shift.

6.5 NASWF/Base Issues

The FOL accompanied Mr. Jim Holland (NASWF) on a tour of all the monitoring well locations and wash rack. Mr. Holland felt the areas were adequately cleaned prior to ABB-ES leaving the base.

Mr. Frank Hatcher (Tumpane) refused to inspect the wash rack upon completion of equipment decontamination in order to clear up misunderstandings.

6.6 Drilling Sub-contractor

The material specifications is a Southern Division requirement and was listed as a deficiency during the Field Program Quality Audit. Several members of the Baton Rouge management staff were contacted and only a partially complete package was received. A more complete file was received during Shift VIII.

7.0 **Deviation from Workplan**

7.1 Monitoring Well Location

Monitoring wells were located using information gathered thus far during Phase II-A. Locations may differ from the maps in the workplan and/or Tech Memo 6. 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 discrepancies are recorded in field log books and drilling summaries.

Naval Air Station Whiting Field Well Installation Program

Shift: III through VIII
Dates: 01/18/93 - 04/15/93

Boring Number	Completion Date	Prop. Depth (feet)	Actual Depth (feet)	Diff. (feet)	Screen Length (feet)	Surface Casing (feet)	Footage Grouted (feet)	Footage Backfilled (feet)	Decon Time (hours)	Protection Level (H & S)	Blacktop Patch (bags)	Concrete Cutting (hours)	Well Develop (hours)	Down Time (hours)	Stand By (hours)
WHF-16-3D	01-24-93	120	115	-5	10	0	99	0	2	D	0	0	36	1	0
WHF-16-3II	01-25-93	80	80	0	5	0	68	0	0.75	D	0	0	7	2	2
WHF-16-3I	01-26-93	50	50	0	5	0	37	0	0.5	D	0	0	6	0	0
WHF-16-3S	01-22-93	23	20	3	15	0	2	0	3.5	D	0	0	1.5	0	0
WHF-15-3D	01-26-93	120	118	-2	10	0	100	0	0	D	0	0	6.75	0	0
WHF-32-5D	01-22-93	120	100	-20	5	0	91	0	1.5	C & B	0	0.5	0	0	0
WHF-15-3S	02-01-93	50	35	-15	15	0	16	0	0	D	0	0	0.75	0.75	0
WHF-15-3I	02-02-93	80	85	5	10	0	70	0	0	D	0	0	4.5	0	0
WHF-16-4S	02-04-93	40	19	-21	15	0	1	0	1	D	0	0	2.5	0	0
WHF-16-4II	02-05-93	95	60	-35	10	0	38	0	0.75	D	0	0	2.5	0	0
WHF-15-6D	02-08-93	120	120	0	10	0	102	0	2	Mod D	0	0	4.5	1.5	0.75
WHF-15-2I	02-04-93	60	60	0	10	0	45	0	2	D	0	0	2.5	0	0
WHF-15-2S	02-04-93	30	30	0	15	0	10	0	0	D	0	0	0.5	0	0
WHF-15-5S	02-08-93	50	66	16	10	0	51	0	3.50	Mod D	0	0	3	5	0
WHF-15-6S	02-08-93	40	41	1	15	0	21.5	0	0	Mod D	0	0	1.5	0	0.5
WHF-16-4D	02/18/93	120	119	-1	10	65	98	0	5.25	Mod D	0	0	0	1	0
WHF-15-4S	02/19/93	90	111	21	15	0	84	0	1.5	Mod D	0	0	0	0	0
WHF-16-2I	02/18/93	140	117	-23	10	0	109.5	0	1.5	Mod D	0	0	2.0	0	0
WHF-16-2D	N/A	170	0	-170	0	143	270	0	2.5	Mod D	0	0	N/A	1	0
WHF-1-2S	02/21/93	75	75	0	15	0	56	0	3.0	Mod D	0	0	2.0	3	0
WHF-16-2S	02/21/93	0	46	46	15	0	27	0	1.5	Mod D	0	0	1.25	0	0
WHF-9-3S	02/25/93	105	105	0	15	77	77	0	2.5	Mod D	0	0	0	0	0
WHF-17-2S	03/07/93	120	118.5	-1.5	15	43	99	0	2.00	Mod D	0	0	0	5.0	0.5
WHF-18-2S	02/22/93	101	105	4	15	0	83.5	0	1.25	Mod D	0	0	1.5	0	0
WHF-11-3S	03/09/93	70	70	0.0	15	46	45.5	46	3.5	Mod D	0	0	0	1.5	2.5
WHF-10-2S*	03/23/93	95	112	17	15	85	93	0	2.5	Mod D	0	0	0	55.0	0
WHF-5-8S	03/23/93	130	125	-5	15	0	106	0	3.5	Mod D	0	0	0	0	0
WHF-13-2S	03/18/93	59	69	10	15	42	50	0	3.0	Mod D	0	0	0	6.0	0
WHF-14-2S	03/22/93	95	115	20	15	94	98	0	2.75	Mod D	0	0	0	1	0
SHIFT VIII															
WHF-5-9D	S.Casing	180					107	83.5	2.00	Mod D	0	0	0.75	5.0	0.5
WHF-5-10S	Incomplete	101							1.25	Mod D	0	0	0	0	0
WHF-5-10D	03/07/93	180	180.0	0.5	10	117	99	0	2.00	Mod D	0	0	19.5	5.0	0.5



Inter-Office Correspondence

TO: Rao Angara
cc. Eric Blomberg

FROM: Gopi Kanchibhatla (FOL)

DATE: 29 April 1993

SUBJECT: Monitoring Well Installation Shift IX Report

DURATION: 04/20/93 - 04/29/93

WEATHER: Sunny and cool 55-70 degrees.

ABB Personnel:

Salvatore Consalvi (FOL): 04/20/93 - 04/29/93
Donald Wong (Team Member): 04/20/93 - 04/29/93
Gopi Kanchibhatla (HSO, FOL): 04/20/93 - 04/29/93
Rao Angara (Task Order Manager):
Eric Blomberg (Technical Leader):

Groundwater Protection, Inc. (GPI) Personnel:

Drill Team:

Rich Bryan (Drilling Ops. Mgr.): 04/21/93 - 04/12/93
Donald H. Steverson (Driller): 04/20/93 - 04/29/93
Creig Labrosse (Helper): 04/20/93 - 04/29/93
Darryl Robinson (Helper): 04/20/93 - 04/29/93
Mike Anderson (Helper): 04/20/93 - 04/29/93

SOUTHDIV Personnel:

Kim Queen (Engineer In Charge):

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

1.0 Executive Summary

Shift IX of the soil boring and monitoring well installation portion of the Phase II-A RI was conducted between 04/20/93 and 04/29/93. The field crew installed a total of seven monitoring wells (see Table 1-1), including two surface casings, during this shift.

Table 1-1.
Monitoring Wells Installed During Shift IX

WELLS INSTALLED	TOTAL DEPTH (FEET BLS)	SURFACE CASING (FEET BLS)
WHF-5-10S	140	119
WHF-5-9D	180	existing at 107
WHF-5-9S	128	108
WHF-5-8D	180	none
WHF-15-4S	107	none
WHF-BKG-2	106	none
WHF-BKG-3	79	none

2.0 Site Reconnaissance/Utility Clearance

Utility clearance for all borings completed at the Midfield Area (Sites 5, 6 and 33) during Shift IX was conducted during Shifts VII and VIII.

Mr. Kanchibhatla contacted the Tumpane Trouble Desk (ext. 7307) to request a utility clearance for monitoring well locations and the mud pits at the North Field and the Midfield areas. Utility clearance for these locations includes clearance from two different sources: Tumpane Trouble Desk: which will provide clearance for the underground utilities related to public works; Hangar maintenance and utility personnel: who will provide clearance for the underground utilities near the taxiway or a runway.

Clearance for the locations of the monitoring wells in the Midfield area is complete. Clearance for the remaining locations is expected to be complete by the beginning of Shift X. Also each of the Officers On Duty (ODO ext. 7597) at the North Field and the Midfield area control towers was informed regarding the projected drilling operations in the respective areas for Shift X. This allows the ease of operation and preplanning to determine the locations where the drilling operations need to be performed on the week ends.

During Shift V, the FOL instructed Rick Bryan (GPI) to obtain the monitoring well permits for all the remote sites (sites 1, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18) and for sites 5, 6, and 33 (required by the Northwest Florida Water Commission). The FOL faxed well numbers and maps to GPI for all well locations excluding the background. As of 03/03/93, GPI had provided 10 permits for the 22 wells currently installed. Mr. Bryan reported that the remainder had been obtained but not forwarded to ABB-ES. The ABB-ES trailer obtained the majority of the permits and the remaining material specifications during the shift, however, the list is not complete. Kanchibhatla requested Richard "Frenchie" (GPI) to submit the material specifications in a more complete form and explained the deficiencies in the earlier submission. Frenchie informs Kanchibhatla that GPI is currently working on obtaining all the material specifications from individual suppliers to make the earlier package more complete. Expected time of delivery is not definite to this date.

3.0 Health and Safety

An initial health and safety meeting was conducted by Gopi Kanchibhatla (H&S Officer) prior to the commencement of drilling. Daily H&S meetings were conducted each morning prior to drilling. The entire list of subjects covered throughout the project along with signatures of attendees is located in the H&S field book.

The H&S officer did not record any significant or willful violations of H&S protocol other than occasional oversight regarding the maintenance of exclusion zone integrity during the material supply in and out of the zone.

4.0 Audit

Audits were not conducted during Shift IX.

5.0 Surveying

No surveying was completed during the shift. Surveying of all the wells will be completed at the end of the installation phase of the program.

6.0 Procedural Difficulties

6.1 Monitoring Well Installation

The following procedural difficulties were encountered during the Shift IX.

1. During tremie grouting of the annular space between the surface casing and the riser pipe at WHF-5-9S, the tremie pipe got stuck in the grout and as a result about 100 feet of 1-inch ID tremie was left unretrieved. However, this will compromise the quality of the annular seal as the tremie is also sealed with the grout.
2. During the construction of monitoring wells at WHF-5-9D and WHF-5-10S the final joint of the PVC riser pipe was either at the surface or above the surface. Presence of the final joint at or above the surface could potentially lead to a pathway for surface water to leak in to the well, also the final joint could potentially be unthreaded during the future use of the monitoring well.

In order to avoid the accidental unthreading of the final joint, during future use of the monitoring well, it has been suggested to grout the annular space between the steel protective casing and the stickup above grade. It has been advised that the drill crew be prepared with sufficient and proper material in the future.

6.2 NASWF/Base Issues

The FOL accompanied Jim Holland (NASWF) on a tour of all monitoring well locations and wash rack. Mr. Holland felt the areas were adequately cleaned prior to ABB-ES leaving the base.

However Jim Holland (NASWF) has expressed concern regarding the method of well completion for the well cluster located near the softball field area (i.e., monitoring wells WHF-5-9S and WHF-5-9D). Mr. Holland suggested that these wells may be installed flush with the ground instead of above ground (note that the SOUTH DIV guidelines require the method to be above ground) in order to avoid potential complaints from the people using the softball field. Eric Blomberg, the Technical Lead suggested to suspend the construction of pad at this cluster till the issue is resolved. Also, Mr. Jim Holland (NASWF) has advised the field crew not to install any bumper posts for the monitoring wells located in the industrial area.

Mr. Frank Hatcher (Tumpane) when requested to visit the wash rack area in order to clear up the misunderstandings, has essentially refused to inspect the area.

7.0 Field Observations

In general the work during the shift progressed at a good pace. The drill crew has adopted efficient ways of performing certain tasks such as equipment decontamination, mobilization of equipment to the proposed soil boring location in advance, and general cleaning of the site after demobilization of equipment. These tasks were performed while the well construction was in progress there by eliminating the lag time between two soil borings. No gross failures of the equipment were reported during this shift.

8.0 Deviation from Workplan

8.1 Monitoring Well Location

Monitoring wells were located using information gathered thus far during Phase II-A. Locations may differ from the maps in the workplan and/or Tech Memo 6. 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 discrepancies are recorded in field log books and drilling summaries.