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NAS WHITING FIELD
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MONTHLY PROGRESS REPORT FOR PHASE 2A REMEDIAL INVESTIGATIONS DURING
MARCH 1993 WITH TRANSMITTAL NAS WHITING FIELD FL
4/5/1993
ABB ENVIRONMENTAL



03.04.00.0013

1D-00193

April 5, 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
March 1993

A. TECHNICAL DESCRIPTION OF TASKS CONDUCTED DURING THIS REPORTING PERIOD

I. 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 was submitted on 10 March 1993.

II. 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 revised draft document was submitted to SDIV on March 18, 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 samples 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. 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. Attachment A includes draft boring logs for all the soil borings completed during the Phase IIA program.

VI. 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 pads,

protective posts are being completed at the end of each shift. Attachment B presents the shift reports submitted by the FOL for the shifts completed in March 1993.

VII. 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) in February 1993. A copy of the audit report will be submitted as soon as it is received from the auditors.

VIII. Water Elevation Survey: To assist the field geologists in locating the monitoring wells, a preliminary water elevation survey was completed at the Southfield Maintenance Hangar area.

IX. Photography and Video Documentation: Mr. Keith Peterson participated in documenting the monitoring well installation protocol being followed at NAS Whiting Field.

B. STATUS OF WORK TO DATE

- 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 draft Technical Memorandum was submitted on March 18, 1993.
- 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 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

- 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. The technical integrity of the monitoring well will not be affected due to this field change.
- At monitoring well WHF-16-2D, clay was encountered at a depth of 144 feet bls. The proposed well depth was 170 feet bls. The borehole was abandoned at a depth of 270 feet because the clay layer extended to depths beyond the available literature depths.
- The use of the wash rack continues to be a problem. After not using the wash rack for two months, the drilling subcontractors used it to clean some equipment and left mud and soil in the wash rack because the drain was plugged. After discussion with Mr. Jim Holland, it was determined that

we will not use the wash rack unless all the soil has been removed from the equipment that is to be decontaminated. ABB-ES will prepare a form that is to be signed by the ABB-ES lead geologist prior to using the wash rack indicating that the equipment has no soil on it and the condition of the wash rack prior to and after use.

D. ACTIVITIES PLANNED FOR NEXT MONTH

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

E. SCHEDULED DELIVERABLES FOR APRIL 1993

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

F. CORRESPONDENCE AND DOCUMENTS RECEIVED

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

G. COST IMPACTS

- 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.
- A scope change notification 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 program at these sites will be completed.

H. SAMPLING AND ANALYSIS RESULTS

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

I. LABORATORY MONTHLY PROGRESS REPORTS

- Received on March 29, 1993.

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

K. PERCENT COMPLETION

Task	Title	% Complete
1	Project Management	25
2	Field Preparation	40
3	Geophysical Survey	100
4	Soil Gas Survey	100
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	43
10	Groundwater Sampling	0
11	Water Level Measurement	0
12	Elevation and Location Survey	48
13	Ecological Survey	50
14	Data Validation	30
15	Photography Support	39
16	Technical Memoranda Preparation	12
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:
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. Tasks 3 and 4 identify a change in completion dates because the preparation of technical reports has been added to these tasks.

ATTACHMENT A

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-03-SB-01
CLIENT: SOUTHNAVYFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/20/93	COMPLTD: 01/20/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 27FT.	DPTH TO ∇ N/A FT.
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/A		SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')		< 1	CLAYEY SAND: Orange brown, some organics and fine gravel, well rounded.		SC		Hand Auger
5	(5-7')	24/24	0	Same as above, more clay.		SC	1,1,2,3	
10		20/24	0	Same as above, very moist.		SC	1,2,2,3	
15	(15-17')	20/24	0	SANDY CLAY: Orange to white, medium plasticity.		CL	4,5,9,8	
20		20/24	0	CLAY: Orange to white, some silt and sand, medium plasticity, moist.		CL	3,4,5,7	
25	(25-27')	24/24	0	Same as above top 6", bottom 18" SAND, fine, dark purple, to greyish white, well rounded.		CL SP	10,21,25,9	
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-03-SB-02
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/09/93	COMPLTD: 01/09/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 03 - Waste Solvent Storage

DEPTH F.T.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(1-2)		0	SILTY SAND: Brown, fine to very fine, with some clay.		SM		Hand Auger
5	(5-7')	14/24	0	Same as above, red, medium sand, tan clay mottled.		SM		3,8,11,14
10	(10-12')	15/24	0	Same as above, with trace silt.		SM		4,13,19,21
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-03-SB-03
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/10/93	COMPLTD: 01/10/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(0-2')		< 1	SAND: Fine to medium, moderate brown, trace silt, poorly sorted, moist, little gravel.		SM		Hand Auger
5	(5-7')		18/24	0	SAND: Very fine to medium, moderate reddish orange, trace gravel, poorly sorted, dry.		SP	7,8,3,7
10	(10-12')		18/24	0	Same As Above.		SM	7,7,8,9
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-03-SB-04	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/10/93		COMPLTD: 01/10/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.	
LOGGED BY: G. Walker		WELL DEVELOPMENT DATE: N/A			SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0-2'			0	SAND: Fine to medium, moderate yellow brown, well sorted, moist.		SW	Hand Auger	
5-7'		18/24	0	SAND: Very fine to medium, moderate yellow brown, trace silt.		SW	2,2,2,4	
10-12'		20/24	0	SAND: Medium to coarse, moderate red brown, trace clay, moist.		SC	8,8,10,10	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-03-SB-05
CLIENT: SOUTHNAVFACENCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(1-2)		0	SILTY SAND: Brown, fine, well sorted.		SM		Hand Auger
5	(5-7')	20/24	0	Same as above, red, brown mottled.		SM		2,2,1,2
10	(10-12')	19/24	0	Same as above, with trace clay.		SM		3,7,11,12
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-03-SB-08	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/18/93		COMPLTD: 01/18/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 102FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: R. Nelson		WELL DEVELOPMENT DATE: N/A		SITE: 03 - Waste Solvent Storage	

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(1-2')		0	SAND: Fine, light brown, poorly sorted, subrounded, slightly moist.		SP		Hand Auger
5	(5-7')	18/24	0	SAND: Fine, reddish brown, little clay, poorly sorted, slightly moist.		SC	9,8,12,14	
10	(10-12')	18/24	0	SAND: Fine, with reddish clay, poorly sorted, slightly moist.		SC	5,8,8,10	
15	(15-17')	20/24	0	SAND CLAY MIXTURE: Reddish, fine to medium, poorly sorted, moist, mottled with white sandy clay.		SC	7,7,10,12	
20		18/24	0	SAND: Fine, white with pink mottling, poorly sorted, sub angular.		SP	11,11,10,14	
25	(25-27')	18/24	0	SAND: Fine, whitish pink, poorly sorted, sub angular, slightly moist, 1" pink stratified sand at 28'9".		SP	10,14,14,18	
30		14/24	0	SAND: Fine, pinkish white, poorly sorted, sub rounded, moist.		SP	5,5,4,8	
35		18/24	0	SAND: Fine, with trace coarse, white, poorly sorted, sub rounded, slightly moist.		SP	4,5,8,8	
40		15/24	0	Same as Above.		SP	5,5,7,11	
45		14/24	0	Same as above.		SP	8,5,7,8	
50		15/24	0	SAND: Pinkish white, poorly graded, subrounded, 1" pink stratified silty sand at 51'2".		SP	5,8,5,8	
55						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-03-SB-08
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/18/93	COMPLTD: 01/18/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST: OVA	TOT DPTH: 102FT.	DPTH TO ∇ N/A FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE: N/A	SITE: 03 - Waste Solvent Storage	

DEPTH FT.	INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			Continued from PAGE 1				
		16/24	0	SAND: Fine, light tan to off white, poorly graded, sub rounded, moist.		SP	5,8,11,14
80		14/24	0	Same As Above, slightly moist.		SP	6,7,9,10
85		18/24	9	SAND: Fine, pink white, trace silt, poorly graded, slightly moist, subrounded.		SP	7,7,10,9
70	(70-72')	20/24	30	SAND: Fine, pink white, poorly graded, moist, subangular, trace sandy clay.		SP	20,18,24,40
75		18/24	30	Same as above, no trace sandy clay.		SP	12,14,14,15
80		18/24	10	SAND: Fine, off white, poorly graded, sub angular, slightly moist, 1/2" alternating pink and tan bands.		SP	10,10,12,14
85		18/24	4	Same as above, 2" band of purple and reddish brown fine sand at 85'2".		SP	10,11,7,7
90		16/24	18	SAND: Fine, tan brown, poorly graded, slightly moist, 2" purple to red striations.		SP	7,8,18,31
95		18/24	80	Same as above.		SP	18,10,9,8
100	(100-102')	24/24	0	CLAY: Light brown and tan, soft, low plasticity, moist.		CL	7,14,28,24
105							
110							

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-03-SB-08
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			0	SAND: Fine, brown, well sorted.		SP		Hand Auger
5		12/24	0	SILTY SAND: red brown, and tan mottled.		SM	3,7,8,10	
10	(10-12')	19/24	0	Same as above, trace clay.		SM	5,12,17,22	
15	(15-17')	20/24	0	CLAYEY SAND: Pink to red with tan mottling, trace silt with occasional pebbles.		SC	9,12,13,18	
20		18/24	0	SILTY SAND: Pink and tan mottled, with trace clay.		SM	6,7,13,19	
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-03-SB-09	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/08/93		COMPLTD: 01/08/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 32FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: D. Lonergan		WELL DEVELOPMENT DATE: N/A			SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(1-2')		0	SAND: Fine, brown, well sorted, whole bl-valve shells.		SP		Hand Auger
5	(5-7')	18/24	0	SILTY SAND: Tan brown, red mottled, fine.		SM		5,10,12,14
10		10/24	0	Same as above, red with some tan mottling.		SM		8,11,18,20
15	(15-17')	18/24	0	CLAYEY SAND: red to pink, tan mottling, slighty moist.		SC		9,7,14,21
20		21/24	0	Same as above, red, brown tan mottling, with litho change at 21' to fine white pink sand.	 	SC SP		12,12,17,32
25		17/24	0	SAND: fine, pink, loose, with litho change at 28' to clayey sand red pink, grey mottled, trace pebbles.	 	SP SC		13,18,22,27
30	(30-32')	21/24	0	SAND: Fine, white to pink, well sorted.		SP		12,12,14,22
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-03-SB-10	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/08/93		COMPLTD: 01/08/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: D. Lonergan		WELL DEVELOPMENT DATE: N/A			SITE: 03 - Waste Solvent Storage

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			0	SAND: Fine, brown.		SP		Hand Auger
5		18/24	0	SAND: Fine, red brown, with silt.		SM	7,9,17,18	
10	(10-12')	20/24	0	CLAYEY SILT: Red and tan mottled, with some sand and pebbles.		ML	4,10,11,14	
15	(15-17')	16/24	0	Same as above, red to pink, moist.		ML	8,8,12,13	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-8-SB-1	
CLIENT: SOUTHNAVFACEGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 12/04/92		COMPLTD: 12/04/92
METHOD: HSA		CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: S. Consalvi			WELL DEVELOPMENT DATE: N/A		SITE: 8 - Trans. Oil Disposal Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
				SANDY SILT: Moderate reddish brown, fine grained.		ML		POSTHOLE
5	(5-7')	12/24		SANDY CLAY: Moderate reddish brown, fine grained, 1/2" lens of clayey sand pale reddish orange fine to medium grained.		CL	3,1,2,1	
10		24/24		CLAYEY SAND: Moderate reddish brown, fine grained, with vertical dark yellow orange streak.		SC	2,2,3,4	
15	(15-17')	20/24		Same As Above with 1/8" dark yellow orange sand lens.		SC	3,4,4,9	
20		18/24		Same As Above, color change to greyish yellow at 20.5 ft., dark reddish brown mottling.		SC	5,7,9,8	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-8-SB-2
CLIENT: SOUTHNAVFACEGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/04/92	COMPLTD: 12/04/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇: N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 8 - Trans. Oil Disposal Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')	22/24	0	SANDY CLAY: Moderate reddish brown, fine grained, well sorted, no odor.		CL	-----	
5	(5-7')	20/24	0	Same as above with a litho change at 5.5' to clayey sand greyish yellow and fine grained.		CL SC	-----	
10		18/24	0	SILTY SAND: Moderate reddish brown, fine grained, with greyish yellow clay mottling.		SM	-----	
15	(15-17')	16/24	8.5	Same As Above, moderate reddish orange above greyish orange pink fine to medium sand.		SM	-----	
20	(20-22')	16/24	0	Same As Above, red silty sand over 8" very light grey fine sand well sorted over 4" moderate orange pink fine sand.		SM	-----	
25								
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-8-SB-3
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/05/92	COMPLTD: 12/05/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 119FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 08 - Trans. Oil Disposal Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')	20/24	0	Sandy silt grey red, well sorted, some roots over sandy clay moderate red fine grained and moist.		ML	2,3,4,3	
						CL		
5	(5-7')	14/24	0	Same As Above, dry with higher concentrations of sand.		CL	3,4,4,4	
10	(10-12')	14/24	0	Same As Above		CL	5,5,7,5	
15	(15-17')	18/24	0	SILTY SAND: Fine Grained, moderate reddish orange with pockets of white sand.		SM	9,7,8,8	
20		18/24	0	Same As Above, with moderate reddish white clay nodules.		SM	8,9,8,8	
25	(25-27')	--/24	-	SAND: Fine grained, moderate orange pink over white fine sand.		SP	14,24,39,42	
30		18/24	0	SAND: Fine grained, white above very pale orange white sand with light red lenses.		SP	8,19,21,19	
35		14/24	0	Same As Above, greyish pink orange over pale yellow orange.		SP	8,15,21,32	
40		18/24	0	SAND: Very fine, greyish pink with 1/4" layer of dusky brown sand.		SM	13,15,27,25	
45		12/24	0	Same As Above, no brown layer, with light red streaks.		SM	13,17,19,18	
50	(50-52')	18/24	< 1	Same As Above.		SM	8,14,18,17	
55		18/24	0	SAND: Greyish pink, fine grained, with moderate reddish orange lenses.		SP	9,15,22,24	
60						SW		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-6-SB-3
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/05/92	COMPLTD: 12/05/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 119FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A	SITE: 08 - Trans. Oil Disposal Area	

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(80-82')	22/24	0	SAND: With silt, very poorly sorted, fine to coarse, grayish pink to pale yellowish orange.		SW	5,5,19,18	
85		16/24	0	SAND: Fine, greyish pink above pale yellowish orange fine sand.		SP	7,13,14,18	
70		20/24	< 1	SAND: Grayish pink, fine to coarse with little coarse above sand pale yellowish orange fine to coarse.		SP	17,16,23,22	
75		18/24	< 1	SAND: Same As Above, greyish pink, no color change.		SP	15,24,22,27	
80		16/24	0	SAND: Same As Above, white with traces of gravel.		SW	18,25,31,42	
85		20/24	0	SAND: White, fine, poorly graded, slight pink hue.		SP	39,33,52,55	
90		10/24	0	Same As Above, no pink hue with moderate orange pink striations.		SP	28,34,37,35	
95		20/24	-	SAND: Fine, white to dark yellowish orange, very moist.		SP	28,31,30,28	
100		22/24	-	Same As Above, poorly graded.		SP	23,21,28,40	
105		23/24	-	CLAY: Very dark red with yellowish grey mottling.		CH	8,4,9,17	
110		--/24	-	CLAY: Dark grey.		CH	2,4,7,14	
115		24/24	-	CLAY: Very dark red with light grey mottling and very thin silt lenses.		CH	29,8,24,44	
120		24/24	-	Same As Above.		CH	21,27,45,24	

Continued from PAGE 1

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO.: WHF-8-SB-4
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO.: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/04/92	COMPLTD: 12/04/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇: N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 8 - Trans. Oil Disposal Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0-2'		18/24	250	SILTY SAND: Dark yellowish brown, fine grained, well sorted over CLAYEY SAND, moderate red brown, fine grained, well sorted.		SM	2,5,5,5	
						SC		
5	(5-7')	12/24	0	SILTY SAND: Moderate reddish brown, fine grained.		SM	4,4,3,4	
10	(10-12')	18/24	0	Same As Above.		SM	4,7,7,12	
15		14/24	0	SILTY CLAY: Moderate reddish brown, dusky yellow with pale grey mottling.		CL	-----	
20		14/24	0	SAND: white with moderate orange pink mottling.		SM	-----	
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-17-SB-01	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/19/93		COMPLTD: 01/19/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 17FT.	DPTH TO ∇: N/A FT.
LOGGED BY: B. Colby			WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	(5-7')	15/24	20	CLAYEY SAND: reddish brown, fine, some gravel.		SC	2,7,11,13	POSTHOLE
10		24/24	< 1	SILTY SAND: reddish brown, well sorted, fine grained.		SM	3,9,8,9	
15	(15-17')	18/24	< 1	Same As Above.		SM	6,13,13,12	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-17-SB-02	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/19/93		COMPLTD: 01/19/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: B. Colby		WELL DEVELOPMENT DATE: N/A			SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5	(5-7')	20/24	< 1	CLAYEY SAND: Fine with some small gravel, reddish brown.		SC	2,8,15,14	
10	(10-12')	20/24	< 1	SILTY SAND: reddish brown, well rounded, fine grained.		SM	6,13,19,26	
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-17-SB-03
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/07/93	COMPLTD: 01/07/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: □
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPH TO ∇: N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		0	SILTY SAND: Red, fine grained, trace clay.		SM	POSTHOLE	
5		05/24	CLAYEY SILT: Red, dense.		ML	PUSHED	
10	(10-12')	24/24	SILTY SAND: Red with trace clay.		SM	PUSHED	
15							
20							
25							
30							
35							

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-17-SB-04
CLIENT: SOUTHNAVAFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/07/93	COMPLTD: 01/07/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5	(5-7')	24/24	0	CLAYEY SILT: Red, dense.		ML		PUSHED
10	(10-12')	24/24	0	SILTY SAND: Red with trace clay.		SM		PUSHED
30			30	SILTY SAND: Red, fine grained, trace clay.		SM		POSTHOLE

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-17-SB-05
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/19/93	COMPLTD: 01/19/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇: N/A FT.
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5	(5-7')	24/24	80	SANDY CLAY: Brown, medlun plasticity, with grey streaks, slight odor.		CL	3,2,3,7	POSTHOLE
10	(10-12')	24/24	82	Same As Above.		CL	1,3,8,10	
15		24/24	2	Same as above with a lltho change at 15.5' to sand, fine, reddish brown and white interbeded, well rounded.		CL SP	8,8,14,15	
20	(20-22')	24/24	0	SAND: Fine, reddish brown and white interbeded, well rounded.		SP	9,14,17,21	
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-17-SB-06	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/07/93		COMPLTD: 01/07/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: D. Lonergan		WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area	

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	(5-7')	19/24	20	CLAYEY SILT: Red and tan, black mottled.		ML	5,7,14,15	
10	(10-12')	18/24	0	SILTY SAND: Orange red, fine.		SM	9,13,12,15	
15		18/24	0	Same as above, orange pink, with some coarse intervals.		SM	18,18,25,25	
500				SILTY SAND: Brown, grey stained, heavy odor.		SM	POSTHOLE	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-17-SB-07	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/18/93		COMPLTD: 01/18/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: B. Colby		WELL DEVELOPMENT DATE: N/A			SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			3.5					
5	(5-7')	16/24	2	SANDY CLAY: Olive to reddish brown, medium plasticity.		CL	2,5,8,12	POSTHOLE
10		18/24	0	SAND: Fine, reddish brown, well sorted.		SP	2,8,8,8	
15	(15-17')	15/24	0	SAND: Fine to medium, white with red interbeds, well sorted, well rounded.		SP	3,8,11,17	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-17-SB-08
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/18/93	COMPLTD: 01/18/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5	(5-7')	24/24	3.5	CLAY: Brown, medium plasticity.		CL	2,5,8,12	
10	(10-12')	12/24	0	SAND: Fine, reddish brown, well sorted.		SP	8,7,7,8	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-17-SB-09	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/08/93		COMPLTD: 01/08/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: D. Lonergan			WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
0-2'			0	SILTY SAND: Brown, fine grained.		SM		POSTHOLE
5		23/24	0	CLAYEY SILT: Red and tan mottled, trace clay, well sorted, tight.		ML	9,12,15,20	
10-12'		22/24	0	Same as above, no mottling.		ML	8,11,13,17	
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-17-SB-10
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/18/93	COMPLTD: 01/18/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇: N/A FT.
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/A		SITE: 17 - Crash Training Area

DEPTH F.T.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5		24/24	0	CLAYEY SAND: fine, reddish brown to reddish white.		SC	8,10,13,7	
10		15/24	0	SILTY SAND: fine, reddish brown, well sorted, reddish white interbeded.		SM	8,10,13,18	
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-01
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0			0	SAND: Fine, with silt, red brown.		SM	POSTHOLE	
5	(5-7')		19/24	0 Same as above.		SM	2,3,2,3	
10	(10-12')		20/24	0 Same as above, tan to brown.		SM	2,3,4,4	
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-02
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇: N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				SILTY SAND: Fine, red brown, with silt.		SM		POSTHOLE
5	(5-7')		17/24	SAND: Fine, light brown, with silt.		SM	2,3,3,5	
10	(10-12')		18/24	SAND: Fine to medium, pink to red, with silt, slight odor.		SM	3,5,5,7	
15	(15-17')		19/24	SAND: Medium, red to red brown, with trace silt.		SP	7,8,13,17	
20	(20-22')		17/24	SAND: Medium to coarse, white with red striations.		SP	8,8,8,7	
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-04
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 42FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SM		
		12	SAND: Fine, brown, with silt.				POSTHOLE
5	(5-7')	19/24	35 Same As Above.		SM		3,6,8,9
10	(10-12')	22/24	8 SILTY SAND: Fine, pink to white.		SC		9,17,20,22
15	(15-17')	19/24	25 Same As Above.		SM		11,18,25,29
20		20/24	10 CLAYEY SAND: Pink and brown striated with trace clay.		SC		14,14,12,13
25	(25-27')	19/24	4 CLAYEY SILT: Red brown, well sorted.		ML		6,11,15,14
30		22/24	0 Same as above, pink to grey.		ML		3,4,5,9
35					ML		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-18-SB-04	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/08/93		COMPLTD: 01/08/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 42FT.	DPTH TO ∇: N/A FT.
LOGGED BY: D. Lonergan			WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	Continued from PAGE 1							
	(35-37')	23/24	0	Same as above with litho change at 38' to fine to medlum sand, orange white with trace gravel.		ML	12,19,30,33	
40	(40-42')	22/24	0	CLAYEY SILT: Red to pink, slightly moist.		ML	2,2,3,5	
45								
50								
55								
80								
85								
70								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-08
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 27FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH F.T.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			150	SILTY SAND: Grey to black, stained.		SM		POSTHOLE
5	(5-7')	17/24	70	SAND: Fine to medium, grey to tan, trace silt.		SP	5,4,4,7	
10	(10-12')	18/24	830	SILTY SAND: Fine, grey to white, pink hue, stained.		SM	8,11,18,21	
15	(15-17')	19/24	300	SAND: Fine to medium, white to pink, trace silt.		SP	13,17,21,20	
20	(20-22')	19/24	0	SAND: Medium, orange white, pink striated, trace silt, slightly moist.		SP	23,30,32,42	
25		17/24	0	SAND: Fine, with silt, white to grey, no odor.		SM	28,25,27,33	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-18-SB-07	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/05/93		COMPLTD: 01/05/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.	
LOGGED BY: D. Lonergan		WELL DEVELOPMENT DATE: N/A			SITE: 18 - Fire Training

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
0				SILTY SAND: Light brown, no smell, staining.		SM		POSTHOLE
5	(5-7')	18/24	0	SAND: Medium, red brown, with trace silt.		SP	2,3,2,4	
10		18/24	0	SAND: Medium to coarse, reddish brown.		SP	3,6,7,8	
15	(15-17')	20/24	0	SAND: Fine, red brown to white striated, with silt.		SM	• 8,10,13,15	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-08
CLIENT: SOUTHNAVYFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/04/93	COMPLTD: 01/04/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 27FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			400	SAND: Fine, light to dark brown, with silt, poorly graded, heavy diesel odor.		SM		
5	(5-7')	18/24	9	Same As Above, reddish brown, trace clay.				Hand Auger 4,5,4,5
10	(10-12')	20/24	35	SAND: Medium to coarse, light brown, heavy diesel odor, wet, litho change at 11 ft. to tan mottled silty clay graded to clay.	 	SP CL		12,14,18,18
15	(15-17')	18/24	40	SAND: Medium to coarse, white, with a 1" stained layer at top with a diesel odor.		SP		17,18,21,24
20		19/24	0	SAND: Medium, orange and white striations, with trace silt, no odor.		SP		7,11,18,23
25		14/24	0	SAND: Medium to coarse, orange and white striations, no odor.		SP		5,9,16,20
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-09
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan.	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SAND: Fine, with silt, tan to brown.		SM		POSTHOLE
5	(5-7')		18/24	0 Same as above, red brown.		SM		3,4,3,5
10			20/24	0 SAND: Medium to fine, red to pink and white striated.		SM		5,8,9,10
15	(15-17')		18/24	0 Same As Above.		SM		5,9,14,18
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-18-SB-10
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/04/93	COMPLTD: 01/04/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SAND: Fine, light brown.		SP		POSTHOLE
5	(5-7')	18/24	0	SAND: Fine with some silt or clay, light brown to brownish orange.		SC	2,5,9,14	
10		14/24	0	SAND: Fine, white to orange, slightly moist.		SP	5,10,15,18	
15		14/24	0	SAND: Fine to medium, white to reddish orange.		SP	4,7,12,17	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-29-SB-1	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/07/93		COMPLTD: 01/09/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 137FT.	DPTH TO ∇: 137 FT.
LOGGED BY: G. Walker			WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN .	WELL DATA
	(0-2')		0	SAND: Fine to medium, moderate brown, trace silt, poorly sorted, moist.		SP	Hand Auger	
5	(5-7')	22/24	0	SAND: Fine to medium, grey orange, well sorted, moist.		SW	Push	
10		08/24	0	CLAY: Pale orange, dry, tight.		CL	Push	
15		08/24	0	SAND: Medium grained, moderate red orange to pale orange, well sorted, moist.		SW	Push	
20		08/24	0	SAND: Fine to medium, pale yellow orange, well sorted, dry.		SW	Spin	
25		08/24	0	Same as Above, moderate orange pink.		SW	Spin	
30		04/24	2	Same As Above, very pale orange.		SW	Spin	
35		10/24	< 1	Same As Above.		SW	Spin	
40		09/24	0	Same as Above.		SW	Spin	
45		08/24	< 1	Same as above, 4" lens of sandy clay.		SW	Spin	
50		22/24	0	Same As Above, pale yellow orange.		SW	20,23,34,37	
55		18/24	0	Same As Above, very pale orange.		SW	10,10,14,17	
80	(80-82')	18/24	0	Same As Above, 3" clayey sand lens.		SW	20,27,22,22	
65		24/24	< 1	SAND: Fine to medium ,pale orange, trace silt, poorly sorted, moist.		SP	28,26,29,28	
70						SW		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-29-SB-1
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/07/93	COMPLTD: 01/09/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 137FT.	DPTH TO ∇ 137 FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		24/24	0	Same As Above, sharp contact to fine clayey sand.	•••	SW	17,24,42,58	
75		24/24	1.5	SAND: Medium to very coarse, very pale orange, poorly sorted, dry.	•••	SP	17,19,24,31	
80		22/24	0	Same As Above.	•••	SP	15,22,25,35	
85		22/24	< 1	SAND: Fine to medium, very pale orange, well sorted, dry.	•••	SW	9,12,21,24	
90		18/24	2	Same As Above, 4" lens of fine to medium sand, abrupt contact to very, pale orange coarse sand.	•••	SW	5,14,26,29	
95		18/24	0	SAND: Medium to coarse, very pale orange, well sorted, dry.	•••	SW	7,14,27,30	
100		24/24	0	Same As Above.	•••	SW	18,33,43,80	
105		24/24	0	Same As Above, mottled moderate red orange.	•••	SW	-----	
110		24/24	0	Same As Above, very pale orange.	•••	SW	-----	
115		22/24	0	Same as Above.	•••	SW	-----	
120		24/24	0	Same as Above.	•••	SW	-----	
125	(125-127'	24/24	0	Same As Above.	•••	SW	-----	
130		23/24	0	SAND: Medium to coarse, very pale orange, well sorted, wet.	•••	SW	21,26,33,36	
135		24/24	0	Same As Above, saturated.	•••	SW	8,12,14,14	
140								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-29-SB-2
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 14FT.	DPTH TO ∇: N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
	(0-2')		< 1	SAND: Fine to medium, dark yellowish orange, well sorted, sub angular, moist.		SW		Hand Auger
5		14/24	0	Same As Above.		SW		
10		2/24	0	CLAY: Dark yellowish orange, hard, very fine trace sand, mottled very pale orange, dry.		CL	12,14,21,45	
	(12-14')	22/24	0	Same As Above.			15,22,35,35	
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-29-SB-3
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TQC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
0-2	(0-2')		0	SAND: Fine to medium, well sorted, sub angular, moist.		SW		Hand Auger
5		20/24	0	SAND: Fine to medium, greyish orange, little clay, poorly sorted, sub angular, moist.		SC		
10	(10-12')	18/24	0	Same As Above.		SC		
15								
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-29-SB-4
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(0-2')		< 1	SAND: Fine to medium, moderate brown, well sorted, sub rounded, moist, petroleum odor.		SW		Hand Auger
5	(5-7')	18/24	220	SAND: Very fine to medium, dark yellowish brown to moderate yellowish brown, poorly sorted, trace clay, moist.		SP	4,4,3,3	
10		17/24	.1	CLAY: Greyish orange, trace fine sand, tight and moist, litho change at 10.5' to very pale orange tight clay.		CL	4,18,15,20	
15	(15-17')	22/24	1.5	Same As Above with litho change at 16' to very fine to medium sand, sub angular, moist.		SP	7,12,14,10	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-29-SB-5
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/08/93	COMPLTD: 01/08/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop

DEPTH F.T.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
0	(0-2')		0	SAND: Very fine to medium, little silt, reddish brown to pale olive, well sorted, sub angular.		SW		Hand Auger
5	(5-7')	22/24	22	SAND: Fine to medium, pale yellow brown, little clay, poorly sorted, moist.		SP	2,3,3,5	
10	(10-12')	20/24	20	CLAY: Light brown, mottled very pale orange, no fine sand, dry.		CL	8,20,42,42	
15	(15-17')	22/24	22	Same As Above.		CL	9,12,15,18	
20								
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-30-SB-1
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/08/92	COMPLTD: 12/08/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		8	SANDY SILT: Reddish brown, petroleum odor.		ML		POSTHOLE
5	(2-4)	19/24			CL	2,2,2,8	
	(5-7')	20/24	SILTY CLAY: Greyish red with traces of sand and gravel, could be fill.		CL	3,2,2,3	
			Same As Above, with moderate red brown mottling.				
10	(10-12')	--/24	SAND: Fine, light brown to pale yellow orange and moderate orange pink stripes, strong musty odor.		SP	8,8,8,10	
15	(15-17')	18/24	SAND: Moderate red over pale yellow orange over grayish pink, strong musty odor.		SP	8,13,18,24	
20		16/24	SAND: Moderate red over grayish pink, strong musty odor, upgraded protection necessary.		SP	8,10,12,18	
25		18/24	SAND: Fine grained, pale yellow orange with very pale yellow orange striping.		SP	14,11,9,11	
30		16/24	Same As Above, color change to very pale yellow orange with yellow orange streaking.		SP	10,12,14,12	
35	(35-37')	14/24	Same As Above, color change last four inches to white.		SP	12,20,24,26	
40		11/24	Same As Above, pink over pale yellowish orange.		SP	29,12,8,8	
45		18/24	CLAYEY SAND: Pink with moderate red mottling.		SC	10,9,7,9	
50		18/24	SAND: Fine, pale pinkish white over SANDY CLAY.		SC		
					CL	8,8,8,8	
55		16/24	SAND: Greyish pink, fine grained.		SP	18,30,38,28	
60	(60-62')	20/24	Same As Above.		SP	16,22,26,16	
65					SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-30-SB-1
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/08/92	COMPLTD: 12/08/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
				Continued from PAGE 1				
		19/24	2.5	Same As Above, white, moderate red stripes in first 4".		SP	18,18,21,22	
70		18/24	5	Same As Above.		SP	14,18,25,28	
75		14/24	7.5	Same As Above.		SP	14,18,25,48	
80		18/24	1.8	SAND: Same As Above, with trace black grains.		SP	27,24,27,24	
85		18/24	10	Same As Above.		SP	14,18,29,24	
90		18/24	< 1	SAND: Fine with some medium sand and trace clay, dark red to yellow orange, moist.		SP	13,15,19,22	
95		18/24	0	SAND: Fine to medium, white to yellow orange.		SP	13,17,14,18	
100		10/24	1.2	Same As Above.		SP	29,13,13,12	
105		18/24	0	SAND: Fine, very pale orange to light brown stripped, one moderate red clay nodule.		SP	-----	
110		17/24	1	Same as Above, greyish orange pink with very thin lenses of sand mixed with black grains.		SP	-----	
115		14/24	1	Same As Above, very light grey, trace black specs throughout, moist.		SP	-----	
120		18/24	2.5	CLAYEY SILT: dark yellow orange with grey clay mottling and streaking, dry.		ML	-----	
125								
130								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-30-SB-2				
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA				
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/04/93	COMPLTD: 01/04/93				
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0				
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇ N/A FT.				
LOGGED BY: G. Walker		WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar				
DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(0-2')		30	SAND: Medium grained, moderate reddish brown, well sorted subrounded, with litho change at 8" to fine sand, yellow brown, trace clay, petroleum stained.		SP		Hand Auger
5		03/24	32	SAND: Fine to medium, light brown, trace clay, subangular.		SP		2,2,2,1
10	(10-12')	18/24	8.8	SAND: Fine to medium, light brown, subrounded, well sorted.		SW		5,8,9,8
15		24/24	4.8	Same As Above.		SW		7,13,22,27
20	(20-22)	24/24	3	Same As Above.		SW		-,22,42,45
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-30-SB-3	
CLIENT: SOUTHNAVFACENGC0M				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/04/93		COMPLTD: 01/04/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT: N/A	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 17FT.	
LOGGED BY: G. Walker		WELL DEVELOPMENT DATE: N/A			SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
0-2'			40	SAND: Very fine to medium grained, light brown, trace silt, poorly sorted.		SP		Hand Auger
5		20/24	0	Same As Above.		SP	4,3,5,8	
10-12'		14/24	< 1	SAND: Fine to medium, light brown, subrounded, well sorted, moist.		SW	4,8,7,7	
15		24/24	0	SAND: Medium to coarse grained, light brown, well sorted, sub rounded, moist.		SW	7,10,15,19	
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-30-SB-4	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/04/93		COMPLTD: 01/04/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 7FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker		WELL DEVELOPMENT DATE: N/A			SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0-2'			82	SAND: Fine to medium, pale yellowish brown, trace clay, petroleum odor.	---	SC		Hand Auger
5-7'		24/24	200	SAND: Fine to medium, light brown, trace clay, sub rounded, poorly sorted, petroleum odor, ltho change at 8.5' to fine to medium sand, reddish brown, trace clay, non-plastic.	---	SC	1,1,2,2	
10				NOTE: AUGER REFUSAL AT 8.5 FT, BORING LOCATION WAS MOVED 1.5 FT. EAST OF THE TANK. FUTHER SOIL DESCRIPTIONS ARE DETAILED IN SOIL BORING WHF-SB-04 A.				
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-30-SB-4 A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 27FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5				NOTE: BORING LOCATION WAS MOVED 1.5 FT. EAST OF THE TANK DUE TO AUGER REFUSAL AT 8.5 FT. ON LOCATION WHF-SB-04. SAND: Medium to coarse, moderate reddish brown, well sorted, sub rounded.		SW		Rig Auger
10	(10-12')	24/24	10	Same As Above.			8,12,12,15	Rig Auger
15	(15-17')	24/24	40	SAND: Fine to coarse, greyish orange, sub rounded, no fines, musty odor, dry.		SP	7,17,24,30	
20		22/24	5	Same As Above, no odor.		SP	15,22,25,30	
25	(25-27')	18/24	0	SAND: Coarse, greyish orange pink, subrounded, dry, no odor.		SP	7,17,15,17	
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-30-SB-5
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')		0	SAND: Fine to medium, moderate brown, little clay or silt.		SW		Hand Auger
5		14/24	0	SAND: Very fine to medium, moderate red, trace clay, moist.		SW	3,4,8,9	
10		4/24	2.5	SAND: Very fine to fine, moderate red, little clay or silt, moist.		SW	5,10,14,14	
15	(15-17)	23/24	0	Same As Above.		SW	10,15,18,18	
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-30-SB-8
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(0-2')		< 1	SAND: Fine to medium, moderate brown, little clay or silt, poorly sorted.		SC		Hand Auger
5		14/24	< 1	SAND: Very fine to medium, moderate red, trace clay, poorly sorted, moist.		SC	3,3,4,4	
10	(10-12')	18/24	0	SAND: Very fine to fine, moderate red, little clay or silt, dry.		SC	4,8,7,7	
15		22/24	< 1	Same As Above.		SC	5,15,17,14	
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-30-SB-7
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A	SITE: 30 - Southfield Hangar	

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')		0	SAND: Very fine to fine, with little clay or silt, light brown, poorly sorted, moist.		SC		Hand Auger
5			18/24	SAND: Very fine to medium, moderate reddish brown, little clay, poorly sorted, moist.		SC	3,6,7,7	
10	(10-12')		24/24	Same As Above.		SC	4,5,7,9	
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-32-SB-01
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/09/93	COMPLTD: 01/09/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 52FT.	DPTH TO ∇ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(1-2')		0	SAND: Brown, fine, with silt.		SP		Hand Auger
5	(5-7')	17/24	0	CLAYEY SAND: Red to brown with clay mottling, slightly moist.		SC	3,12,18,22	
10	(10-12')	24/24	0	CLAYEY SILT: Red to pink with grey mottling, trace sand.		ML	7,17,18,27	
15	(15-17')	24/24	0	Same As Above		ML	8,11,18,18	
20	(20-22)	12/24	10	SAND: Fine to very fine, reddish pink, with trace tan silt.		SP	7,10,7,10	
25		19/24	19	SAND: Medium, tan with trace silt.		SP	4,4,5,10	
30		--/24		Same As Above.		SP		
35	(35-37')	22/24	22	Same As Above, white to pink, with pebbles.		SP	5,9,13,18	
40		--/24		Same as Above, dry with some pebbles.		SP		
45		--/24		Same as above, increasing coarse material.		SP		
50	(50-52')	23/24	23	SAND: Fine, white to pink, well sorted.		SP	11,15,23,30	
55								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-32-SB-2
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/09/93	COMPLTD: 01/09/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Waker	WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')		0	SAND: Fine to medium, moderate brown, trace silt, moist.		SM	Hand Auger	
5	(5-7')	18/24	0	Same As Above, dark, yellowish orange.		SM	2,3,3,3	
10		05/24	0	Same As Above, 1/2" lens of angular gravel.		SM	4,7,9,11	
15	(12-14')	24/24	0	SAND: Very fine to fine, sand and clay, poorly sorted, dry.		SC	7,12,20,27	
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30								
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TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-32-SB-3	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/09/93		COMPLTD: 01/10/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 32FT.	DPTH TO ∇ N/A FT.	
LOGGED BY: G. Walker		WELL DEVELOPMENT DATE: N/A			SITE: 32 - Northfield Hangar

DEPTH F.T.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(0-2')		100	SAND: Fine to medium, moderate brown, well sorted, petroleum odor, moist.		SW		Hand Auger
5	(5-7')	16/24	8	SAND: Fine to medium, pale yellow orange, trace silt, moist.		SM	2,2,2,2	
10	(10-12')	18/24	188	SAND: Very fine to fine, pale yellow green, trace silt, moist.		SM	3,8,8,11	
15		08/24	98	CLAY: Moderate red orange, mottled very pale orange, with very fine to fine sand, moist.		CL	3,3,8,8	
20	(20-22)	14/24	80	SAND: Fine to medium, moderate red orange, trace silt, moist, musty odor.		SC	8,8,10,14	
25		19/24	0	SAND: Medium to coarse, very pale orange, trace silt, poorly sorted, dry.		SM	3,5,5,7	
30	(30-32')	18/24	0	Same As Above.		SM	4,4,8,8	
35						SM		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-32-SB-04
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/10/93	COMPLTD: 01/10/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 47FT.	DPTH TO ∇ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')		0	SAND: Fine to medium, yellow orange, well sorted, moist.		SP		Hand Auger
5		16/24	0	SAND: Fine grained with clay, light brown, poorly sorted, moist.		SC	3,6,7,8	
10		06/24	0	Same As Above, grade very fine to fine.		SC	5,8,8,8	
15	(15-17')	20/24	29	Same As Above, mottled red brown after 10".		SC	7,8,10,10	
20	(20-22)	20/24	40	Top 4" same as above ,litho change to fine to medium sand, moderate red orange, well sorted, dry.		SW	4,8,7,9	
25	(25-27')	22/24	20	SAND: Medium to coarse, very pale orange, well sorted, dry.		SW	6,7,8,9	
30		18/24	< 1	Same As Above.		SW	3,3,4,8	
35	(35-37')	16/24	3	Same As Above.		SW	4,5,5,7	
40		18/24	0	Same as Above.		SW	7,10,10,9	
45	(45-47')	18/24	0	Same as above.		SW	4,6,6,9	
50								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-32-SB-05
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/19/93	COMPLTD: 01/21/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: B & C
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.	DPTH TO ∇ 100 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	(1-2')		0	SAND: Dark brown, moist, some silty clay.		SC	Hand Auger	
5	(5-7')	20/24	0	SAND: Fine, light brown, with clay, poorly graded, moist to wet.		SC	1,1,1	
10	(10-12')	8/24	95	Same as above, with red soft clay.		SC	2,3,4,4	
15		1/24	95	SAND: Light brown with pink clay, moist, low plasticity, soft.		SC	7,4,4,8	
		8/24	7	Same as above.			8,8,7,9	
20	(20-22')	24/24	9	SAND: Fine, reddish brown, medium stiff, slightly moist.		SC	7,9,9,10	
25		20/24	10	SAND: Fine, alternating bands of pink, white, and tan, slightly moist, sub-rounded, poorly graded.		SP	3,5,4,4	
30		20/24	80	Same as above.		SP	5,5,8,8	
35		12/24	5	SAND: Fine, with trace coarse and silt, poorly graded and slightly moist.		SP	5,9,8,11	
40		20/24	50	SAND: Fine, white, poorly graded, slightly moist.		SP	10,7,8,10	
45	(45-47')	24/24	180	Same as above with trace silt and coarse sand.		SP	12,9,9,8	
50		20/24	< 1	SAND: Fine, white, poorly graded, sub-rounded, slightly moist, trace coarse sand.		SP	Pushed	
55		20/24	80	Same as above with some pink silty sand at 58.5 ft, no coarse sand.		SP	Pushed	
80								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-32-SB-05
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/19/93	COMPLTD: 01/21/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: B & C
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.	DPTH TO ∇ 100 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
	(81-83')	20/24	7	SAND: Fine, white, poorly graded, subrounded, slightly moist.	[Symbol]	SP	12,14,20,28	
85		18/24	8	Same as above with trace silt at 88 ft.	[Symbol]	SP	5,8,14,18	
70		18/24	8	SAND: Medium, white, poorly graded, trace coarse, slightly moist, sub-angular.	[Symbol]	SP	5,8,12,14	
75		18/24	8	SAND: Fine to medium, tan, poorly graded, trace coarse sand and silt.	[Symbol]	SP	6,6,7,21	
80		20/24	1	SAND: Medium, tan, poorly graded, sub-angular, trace coarse sand.	[Symbol]	SP	7,11,14,14	
85		18/24	5	SAND: Very fine, white and yellowish orange alternating 1/2" to 1" laminae, poorly graded, slightly moist, little silt.	[Symbol]	SP	5,7,9,9	
90		18/24	5	SAND: Very fine, white, poorly graded, slightly moist, sub-rounded.	[Symbol]	SP	5,7,8,9	
95	(95-97')	20/24	3	Same as above, greyish white.	[Symbol]	SP	5,8,10,11	
100		18/24	1500	SAND: Medium to fine grained, greyish white, poorly graded, subrounded, saturated.	[Symbol]	SP	6,8,14,17	
105		24/24	350	Same as above with trace silt.	[Symbol]	SP	2,1,3,12	
110		24/24	500	Same as above.	[Symbol]	SP	---	
115								
120								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-32-SB-08	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/11/93		COMPLTD: 01/11/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 52FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: G. Walker		WELL DEVELOPMENT DATE: N/A			SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')		320	SAND: Fine to medium, greyish red, well sorted, moist, petroleum stains.		SW	Hand Auger	
5	(5-7')	24/24	100	SAND: Fine to medium, pale yellowish brown, trace silt, poorly sorted, moist.		SM	3,2,4,5	
10	(10-12')	14/24	12	SAND: yellow orange, very fine to fine, poorly sorted, moist.		SC	8,9,9,10	
15		0/24	--	NO RECOVERY IN THE 15-17 FT SPOON.			4,6,7,9	
20	(20-22')	22/24	85	SAND: Very fine to fine, very pale orange, well sorted, dry.		SW	6,14,14,17	
25		20/24	3	SAND: Medium to fine, very pale orange, well sorted, dry.		SW	3,2,5,5	
30	(30-32')	17/24	7	Same As Above.		SW	3,4,5,5	
35		16/24	17	Same As Above.		SW	4,4,8,5	
40		18/24	1.5	Same as Above.		SW	7,8,9,11	
45	(45-47')	20/24	0	Same as above, 3 mm gravel layer.		SW	14,16,17,19	
50		21/24	0	Same As Above.		SW		
55								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO.: WHF-32-SB-07	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO.: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 01/20/93		COMPLTD: 01/21/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: B & C	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 32FT.	DPTH TO ∇: N/A FT.	
LOGGED BY: B. Colby		WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar	

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			5					Hand Auger
5		24/24	70	CLAYEY SAND: Fine grained, stained olive, high odor.		SC	2,2,2,3	
10		12/24	2800	SILTY CLAY: Orange and grey, some olive streaks, medium plasticity, strong sweet odor.		CL	6,7,12,24	
15		24/24	500	Same as above.		CL	11,12,9,18	
20		10/24	2000	Same as above.		CL	4,4,5,7	
25		--/24	700	SAND: Medium, grey, poorly sorted.		SP	11,14,18,23	
30	(30-32')	20/24	200	Same as above.		SP	3,9,12,8	
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-32-SB-08
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/21/93	COMPLTD: 01/21/93
METHOD: Hand Auger	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 15FT.	DPTH TO ∇ N/A FT.
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/A		SITE: 32 - Northfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	CLAYEY SAND: Fine, reddish brown to light brown.		SC		Hand Auger
5	(5-7')	Full	0	SILTY SAND: Fine, yellowish brown, very moist.		SM		Hand Auger
10		Full	3	CLAYEY SAND: Same as above, some purple clay lenses.		SC		Hand Auger
15	(13-15')	Full	0	SANDY CLAY: Orange to purple, medium plasticity.		CL		Hand Auger

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-33-SB-1	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 12/03/92		COMPLTD: 12/03/92
METHOD: HSA		CASE SIZE: N/A		SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 27FT.	DPTH TO ∇: N/A FT.
LOGGED BY: S. Consalvi			WELL DEVELOPMENT DATE: N/A		SITE: 33 - Midfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SANDY SILT: Reddish brown, moderate reddish brown mottling.		ML	POSTHOLE	
	(3-5')	22/24	0	SILTY SAND: Fine grained, moderate reddish brown, well sorted.		SM	3,3,3,4	
5		20/24	0	SANDY CLAY: Fine grained, moderate reddish brown, slightly moist, well sorted.		CL	3,3,5,4	
10	(10-12')	20/24	0	CLAYEY SAND: Moderate reddish brown, fine grained, well sorted.		SC	3,3,3,3	
15		2/24	0	Same As Above.		SC	5,6,6,7	
		4/24	0	Same as Above.			4,5,7,7	
25	(25-27')	22/24	0	SILTY SAND: Fine grained, moderate reddish orange, very pale orange mottling (trace).		SM	7,7,9,11	
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-33-SB-2	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 12/01/92		COMPLTD: 12/03/92
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 122FT.	DPTH TO ∇ 120 FT.
LOGGED BY: S. Consalvi			WELL DEVELOPMENT DATE: N/A		SITE: 33 - Midfield Hangar

DEPTH F.T.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			0					
	(2-4')	12/24	0	SILTY SAND: Moderate reddish brown, fine grained, well sorted, black petroleum staining.		SM	POSTHOLE	
5	(4-8')	17/24	800	SILTY SAND: Blackish red with black nodules and reddish brown mottling, strong petroleum odor.			2,1,1,2	
							8,2,2,3	
10	(10-12')	17/24	98	Same As Above with a litho change at 10.5' to moderate red clayey sand.		SM SC	9,8,8,5	
15	(15-17')	20/24	3.8	CLAYEY SAND: Moderate red, slightly moist at top 3".		SC	7,5,5,8	
20		20/24	0.5	Same As Above, fine grained well sorted.		SC	4,8,8,7	
25		20/24	22	Same as Above with a litho change at 28.5' to a greyish orange fine silty sand, very pale orange mottling.		SC SM	5,8,8,9	
30		18/24	82	SAND: Fine to very fine, white, well sorted, pesticide/musty odor.		SP	14,15,18,22	
35	(35-37')	22/24	2.0	SAND: Fine, white, poorly sorted, dry, subrounded.		SP	22,24,28,29	
40		14/24	12	Same as Above.		SP	13,12,18,22	
45		18/24	2.5	Same as above, color change to greyish pink.		SP	7,9,13,18	
50		14/24	18	Same As Above, color change to greyish orange pink over moderate orange pink.		SP	14,15,18,18	
55		18/24	< 1	Same As Above, moderate orange pink over greyish orange pink.		SP	8,11,13,21	
80	(80-82')	22/24	0	Same As Above, moderate orange over grey orange pink, grain size is larger with black vertical striations.		SP	51,24,22,28	
85						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-33-SB-2	
CLIENT: SOUTHNAVFACENCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 12/01/92		COMPLTD: 12/03/92
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 122FT.	DPTH TO √: 120 FT.
LOGGED BY: S. Consalvi			WELL DEVELOPMENT DATE: N/A		SITE: 33 - Midfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
				Continued from PAGE 1				
		14/24	3.2	SAND: Greyish pink, poorly sorted, fine sand to fine gravel, musty odor		SP	---	
70		14/24	22	Same As Above, white, solvent odor.		SP	8,7,5,8	
75	(75-77')	22/24	1.8	Same As Above, moderate red to greyish pink, with a 2" purple grey clay layer.		SP	8,12,15,14	
80	(80-82')	22/24	8.0	Same As Above, white to pale yellow, with a 2" grey pink clay layer.		SP	-8,4,27	
85		18/24	0	SAND: Fine to medium grained, moderate reddish orange to white, well sorted, dry, no odor.		SP	10,12,20,27	
90		12/24	0	Same As Above, very pale orange with grey yellow striping.		SP	15,18,25,32	
95	(95-97')	24/24	0	Same As Above, pale yellow orange to light red.		SP	23,32,42,--	
100		18/24	< 1	Same As Above, white and yellow orange mixed.		SP	25,25,28,--	
105		18/24	2	Same As Above, greyish orange pink to pale yellow orange over a greyish pink/moderate red soft clay.		SP CH	---	
110		24/24	2.8	Red orange moist fine sand over grey to moderate red clay over white sand fine to coarse and dry.		SP CL SP	38,47,41,48	
115		24/24	1.4	Clay moderate red to light grey with some fine to medium sand over fine white sand with clay lenses.		CL SP	24,31,38,40	
120	(120-122')	24/24	0	SAND: Fine grained, grey, saturated.		SP	32,38,48,82	
125								
130								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-33-SB-3
CLIENT: SOUTHNAVFACENCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/01/92	COMPLTD: 12/01/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: FID	TOT DPTH: 22FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 33 - Midfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			0					POSTHOLE
5	(4-8')	12/24	0	SILTY SAND: Moderate reddish brown, fine grained, well sorted.		SM	3,2,2,3	
10	(10-12')	14/24	0	Same As Above.		SM	4,4,3,4	
15	(15-17')	16/24	0	Same As Above.		SM	4,8,5,5	
20		12/24	0	Same As Above.		SM	4,5,5,8	
25								
30								
35								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-33-SB-4
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/02/92	COMPLTD: 12/02/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 24FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 33 - Midfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
			0 SILTY SAND: Fine grained.		SM		POSTHOLE
5	(3-5')	20/24	0 SILTY SAND: Fine grained, moderate reddish brown, well sorted.				2,2,2,3
	(5-7')	19/24	0 Same As Above, litho change at 8.5' to moderate reddish brown, fine grained sandy clay slightly moist.		CL		5,2,2,3
10		14/24	0 SANDY CLAY: Same as above.		CL		5,4,4,3
15	(15-17')	14/24	0 SILTY SAND: Fine grained, moderate reddish brown, dry.		SM		15,9,8,8
20		12/24	0 Same As Above.		SM		7,4,7,5
		20/24	0 Same As Above.		SM		7,5,5,5
25							
30							
35							

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-33-SB-5
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 12/08/92	COMPLTD: 12/08/92
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO ∇ N/A FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 33 - Midfield Hangar

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	(0-2')	20/24	120	SANDY SILT: Fine grained, dusky yellowish brown to dark yellowish orange, petroleum odor.		ML	4,5,3,8	
5	(5-7')	22/24	22	Same as above over silty clay, moderate red, no odor.		ML CL	5,5,8,7	
10	(10-12')	24/24	0	Same As Above.		CL	2,2,2,3	
15		12/24	0.8	Same As Above.		CL	8,8,8,10	
20	(20-22')	14/24	0	SILTY SAND: Moderate red, fine grained.		SM	---	
25								
30								
35								

ATTACHMENT B

TO: Rao Angara
cc. Eric Blomberg
FROM: Salvatore Consalvi
DATE: 03/12/93
SUBJECT: Monitoring Well Installation Shift VI Report
DURATION: 03/02/93 - 03/11/93

WEATHER: Cloudy and rainy, 45-60 degrees changing to sunny and cool 55-65 degrees.

ABB Personnel:

Salvatore Consalvi (FOL); 03/02/93 - 03/11/93
Lauren Foster (Geologist); 03/02/93 - 03/11/93
Richard Nelson (Geologist); 03/02/93 - 03/11/93
Matt Alvarez (Team Member and HSO); 03/02/93 - 03/11/93
Gopi Kanchibhatla; 03/02/93 - 03/11/93
Rao Angara (Task Order Manager); 03/02/93 - 03/03/93
Eric Blomberg (Technical Leader); 03/02/93 - 03/03/93
Kathy Hodak (Project Assistant); 03/02/93 - 03/03/93
Keith Peterson (Photographer); 03/08/93 - 03/09/93

Groundwater Protection, Inc. (GPI) Personnel:

Donald H. Stevison (Drilling Supervisor); 03/02/93 - 03/11/93

Team 1:

Charles Weaver (Driller); 03/02/93 - 03/11/93
Jay Frishkorn (Helper); 03/02/93 - 03/11/93
Craig Labrosse (Helper); 03/02/93 - 03/11/93

Team 2:

John Ward (Driller); 03/02/93 - 03/11/93
Kevin Veillon (Helper); 03/02/93 - 03/11/93
Michael Anderson; (Helper); 03/02/93 - 03/11/93

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

1.0 Executive Summary

Shift VI of the soil boring and monitoring well installation portion of the Phase II-A RI was conducted between 03/02/93 and 03/11/93. The field crew installed a two (2) monitoring wells and developed three (3) monitoring wells during this shift (see attached tables). GPI set two (2) surface casings and drilled further into the clay layer (to 220 feet) at WHF-16-2D.

WELLS INSTALLED	TOTAL DEPTH (FEET BLS)	WELLS DEVELOPED	TIME (Hrs)
WHF-16-2D	Backfilled	WHF-15-3D	3.0
WHF-17-2	118.5	WHF-15-6S	4.5
WHF-11-3	70	WHF-15-6D	INCOMPLETE
WHF-10-2	Surface Casing		
WHF-13-2	Surface Casing		

2.0 Site Reconnaissance/Utility Clearance

Utility clearance for all borings completed at remote sites during Shift VI was conducted during Shifts I and II of the soil boring program. Mr. Gopi Kanchibhatla contacted the Tumpane Trouble Desk (ext. 7307) to request a utility clearance for Sites 5, 6, and 33. On 03/10/93 Danny Glass (Tumpane) conducted the utility clearance at the sites. He informed the FOL of the necessity to move four (4) borings from the path of fiber optic cables and cleared the remainder of the well locations. Additionally, he indicated that Neil Baker reviewed the map and cleared all locations for plumbing.

During Shift V, the FOL instructed Mr. 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 has provided 10 permits for the 22 wells currently installed. Mr. Bryan reported that the remaining permits had been obtained but not forwarded to ABB-ES. But ABB-ES did not receive the permits or the remaining material specifications which were repeatedly requested by ABB-ES and the GPI Drilling Supervisor.

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 health effects of the contaminants of concern. 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, 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.

Back supports are currently being worn by GPI personnel.

The ABB-ES HSO did not record any significant or willful violations of H&S protocol.

4.0 Audit

Audits were not conducted during Shift VI.

5.0 Surveying

Elevation and location survey was not conducted during this shift. Surveying of all the monitoring wells will be completed at the end of the installation phase of the program.

6.0 Procedural Difficulties

Several incidents occurred during Shift VI which resulted in the installation of fewer wells than is typical during a ten day shift. Drill Rig-2 was down for four (4) days and rain delayed work for a full day. Additional mechanical difficulties occurred on Drill Rig-1 and the back-hoe. Monitoring well WHF-11-3 took additional time to set than expected (see section 7.0).

7.0 Well Installation

The FOL and the Drilling Supervisor reviewed the specifications for the installation of the protective casing, concrete pads, and protective 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 VI.

The FOL supplied Mr. 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, Mr. Stevison indicated that Mr. 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 ABB geologist responsible for the installation of the monitoring well at Site 11 encountered difficulty in determining the true depth to the water table. This resulted in the over-drilling of the bore-hole. Three factors influenced the incident: The Team-2 water level indicator used to

test local wells was not immediately available (in use at an alternate location), available well logs and water level information were not closely reviewed and the lithological unit appeared deceptively dry due to tight packing of the sand grains. The net result was an over drill and sand backfill of 59 feet, the loss of 15 feet of screen and 80 feet of riser pipe, and 2.5 hours of stand-by time.

Monitoring well WHF-15-4S, installed during Shift V, will potentially require abandonment and re-installation. While attempting to develop the monitoring well, ABB-ES and GPI experienced refusal of the pumping system at approximately 85 feet and reported that it appeared to be filled with grout. When questioned about possible causes, the crew recalled a loud cracking noise during installation. It is possible that the well was damaged and subsequently filled with grout.

8.0 Well Completions

Several inadequacies with well completions continue to occur. Several protective casings are set at improper heights (most less than three feet); at least 1 casing is visibly inclined; and 1 pad is not centered properly with respect to the protective casing. The Drilling Supervisor was advised and informed that several of these need to be replaced.

9.0 NASWF/Base Issues

The FOL accompanied Ms. Pat Durbin (NASWF) on a tour of all the monitoring well locations in response to complaints concerning the condition of the sites during well construction. Many of the complaints lodged occurred during construction when muddy conditions are unavoidable (prior to final well completion and Clean-up). Ms. Durbin had several comments and concerns that were addressed prior to leaving the facility. The FOL will better inform the base about the status of the sites in an attempt to reduce confusion and prepare the base for any complaints which result from persons who are unaware of the project and/or drilling procedures.

In addition to the site visits, the FOL and Ms. Durbin visited the Safety Office to inform them of the status of the sites. They expressed similar concerns about leaving the mud pits open over the weekend. As a result, physical barriers will be added to the visual barriers currently used to restrict entry into the pit area. The safety officer will notify NASWF security of the mud pits.

10.0 Deviation from Workplan

10.1 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 Technical Memorandum No. 6. The exact depths of wells and screen intervals are determined in the field based on site specific conditions and may differ from Technical Memorandum No. 6. Rationale for such discrepancies are recorded in field log books and drilling summaries.

10.2 Monitoring Well Construction: Clay was encountered at monitoring well WHF-16-2D and surface casing was set at 144 feet bls. GPI continued 100 feet beyond the proposed depth of the well (170 feet). The Technical Leader decided that the cost of drilling further was not warranted because the final depth of the well, once out of the clay, would place the screened interval too deep to be of use for testing water quality down-gradient of Production Well S-2. The borehole was abandoned and grouted to the surface.

10.3 Survey/Water Levels: ABB-ES conducted a survey of existing (UST) wells located in the south field.

TO: Rao Angara
FROM: Eric Blomberg
DATE: 03/29/93
SUBJECT: Monitoring Well Installation Shift VII Report
DURATION: 03/16/93 - 03/25/93

WEATHER: Partly cloudy to sunny, 65 to 75 degrees F.

ABB Personnel:

Eric Blomberg (FOL); 03/16/93 - 03/26/93
Binks Colby (Geologist); 03/16/93 - 03/25/93
Richard Nelson (Geologist); 03/16/93 - 03/25/93
Mark Lieberman (Team Member); 03/16/93 - 03/25/93
Gopi Kanchibhatla (HSO); 03/16/93 - 03/25/93

Groundwater Protection, Inc. (GPI) Personnel:

Donald H. Stevison (Drilling Supervisor); 03/16/93 - 03/25/93

Team 1:

Charles Weaver (Driller); 03/16/93 - 03/25/93
Jay Frishkorn (Helper); 03/16/93 - 03/25/93
Craig Labrosse (Helper); 03/16/93 - 03/25/93

Team 2:

John Ward (Driller); 03/16/93 - 03/25/93
Kevin Veillon (Helper); 03/16/93 - 03/25/93
Michael Anderson; (Helper); 03/16/93 - 03/25/93

PURPOSE: Continue installation of monitoring wells for the Phase II-A RI.

1.0 Executive Summary

The seventh shift of the soil boring and monitoring well installation portion of the Phase II-A RI was conducted between 03/16/93 and 03/25/93. The field crew installed a total of four (4) monitoring wells during this shift (see attached tables). GPI set three (3) surface casings associated with the installation of three monitoring wells where a clay layer was encountered.

TABLE 1.

WELLS INSTALLED	TOTAL DEPTH (FEET BLS)	SCREENED INTERVAL (FEET BLS)	SURFACE CASING (FEET BLS)
WHF-13-2	71	54-69	51
WHF-14-2	117	100-115	94
WHF-10-2	100	85-100	85
WHF-5-8S	125	108-123	NONE
WHF-5-9S	107	INCOMPLETE	INCOMPLETE
WHF-5-10S	117	INCOMPLETE	INCOMPLETE

2.0 Site Reconnaissance/Utility Clearance

Utility clearance was completed during an earlier shift.

3.0 Health and Safety

An initial health and safety meeting was conducted by Mr. Gopi Kanchibhatla (HSO) 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 health effects of the contaminants of concern. 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, proper exclusion zones and PPE etc.). The entire list of subjects covered throughout the project along with signatures of attendees is located in the Health and Safety field log book.

Back supports are currently being worn by GPI personnel. The HSO did not record any significant or willful violations of the Health and Safety protocol.

4.0 Audit

Audits were not conducted during Shift VII.

5.0 Surveying

The elevation and location survey was not conducted 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

Several incidents occurred during Shift VII which slowed the progress of the shift. Drill Rig-1 spent the first five (5) days of the shift trying to drill out the bottom of a surface casing that was set at WHF-10-2 (Site 10) during the previous shift. The surface casing was set crooked and after breaking and fishing a wrench out of the casing the driller was unable to get the drill bit past 55 feet bls in the 85 foot bls casing. After several unsuccessful methods to get past the 55 foot mark the surface casing was abandoned by grouting. After abandonment, another surface casing was installed approximately 20 feet east of the previous location.

Other delays included loss of circulation at WHF-10-2, electrical and mechanical failures on Drill Rig-2.

7.0 Well Installation

Table 1 presents the details of the four monitoring wells installed during Shift VII.

8.0 Well Completions

None.

9.0 NASWF/Base Issues

The use of the wash rack continues to be a problem. After not using the wash rack for two (2) months the drillers used it to clean some equipment and left mud and soil in the wash rack because the drain was plugged. After discussion with Jim Holland it was determined that we will not use the wash rack unless all the soil has been removed from the equipment that is to be decontaminated. ABB-ES will prepare a form that is to be signed by the ABB-ES lead geologist prior to using the wash rack indicating that the equipment has no soil on it and the condition of the wash rack prior to and after use.

10.0 Deviation from Workplan

Monitoring Well Location: Monitoring wells were located using information gathered thus far during the Phase II-A RI program. Locations may differ from the maps in the workplan and/or Technical Memorandum No. 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.