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NAS WHITING FIELD
5090.3a

MONTHLY PROGRESS REPORT FOR PHASE 2A REMEDIAL INVESTIGATIONS DURING
SEPTEMBER 1993 WITH TRANSMITTAL NAS WHITING FIELD FL
10/9/1993
ABB ENVIRONMENTAL



03.04.00.0019

1D-00199

October 9, 1993

Commanding Officer
ATTN: Jeff Adams, Code 18510
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 Task Order 050
Contract N62467-89-D-0317**

Dear Mr. Adams:

Enclosed please find the monthly progress report for the Remedial Investigation (Phase IIA) work conducted at NAS Whiting Field during September 1993.

If you have any questions, please call me at 904-656-1293 (ext. 314).

Very truly yours,

ABB ENVIRONMENTAL SERVICES INC.

Rao V.R. Angara
Task Order Manager

cc: File: 7560-- (11.2.1)
Eric Blomberg, ABB-ES (w/o attachments)
Jim Holland, NASWF (w/o attachments)
John Bleiler, ABB-ES (w/o attachments)
Field Trailer (w/o attachments)
Charlie Manos, ABB-ES (w/o attachments)

ABB Environmental Services Inc.

MONTHLY PROGRESS REPORT
Naval Air Station Whiting Field
September 1993

A. TECHNICAL DESCRIPTION OF TASKS CONDUCTED DURING THIS REPORTING PERIOD

I. Data Validation: All analytical data submitted to C.C. Johnson and Malhotra, for NEESA Level C and Level D validation per USEPA and NEESA validation guidelines, has been received. Data is being added to the NAS Whiting Field database and sorted to prepare data releases for assessment of PARCC parameters for the various sampling events.

II. Elevation and Location Survey: Northwest Florida Engineering has been subcontracted to conduct the elevation and location survey at NAS Whiting Field. The subcontractor is currently surveying all monitoring well locations. The survey data is expected to be received in October 1993.

III. Monitoring Well Installation: The monitoring well installation program was initiated in January/February 1993. The installation of all monitoring wells has been completed. All other miscellaneous tasks (protective posts, pads, developing wells) have also been completed. Attachment A presents the shift reports submitted by the FOL for work completed during this reporting period.

IV. Record Search: The record search (part 2) was conducted in August 1993. The objective of this task was to obtain information on additional areas identified by the NAS Whiting Field personnel and obtain aerial photographs requested by the regulatory agencies. A report summarizing the findings of this effort was submitted to the Navy during this reporting period.

V. Water Level Measurement: Preliminary water level measurements were recorded at all monitoring well locations during this reporting period. This data will be used to estimate the quantity of IDW which will be generated during the groundwater sampling event.

VI. Review Comments: FDEP review comments for Technical Memorandum No. 1 were received during this reporting period. USEPA review comments have not been received to date.

VII. Data Releases: Preliminary surface soil data assessments for Sites 17 and 18 have been submitted to the Navy. This information will be incorporated into the appropriate technical memorandum for agency review.

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. Response to comments were prepared and presented to the TRC members on 20 May 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 No. 1 (Surface Water and Sediment Assessment) was submitted to SDIV on 18 March 1993, the Final Draft Technical Memorandum was submitted to the regulatory agencies on 14 April 1993, and the Final document was submitted to all TRC members on 30 July 1993.
- The final record search (part 1) document was submitted to SDIV in September 1992.
- Test pitting operations (field work), as proposed in RI Phase I Technical Memorandum No. 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. A data release presenting the PCPT/BAT analytical data was submitted to the Navy on June 26, 1993. The data release presents a summary of the findings of this task.
- Data validation for surface soil, subsurface soil, surface water, and sediment sample data has been completed by C.C. Johnson and Malhotra.
- Elevation and location survey of geophysical survey, soil gas survey, soil sampling locations, test pit locations, PCPT/BAT locations, and soil boring locations has been completed.

- 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 January/February 1993.
- The second TRC meeting was held on 20 May 1993 at NAS Whiting Field. The purpose of the meeting was to discuss the status of the field program and discuss the results and findings presented in the Technical Reports and the Technical Memorandum No. 1. The status of the Clear Creek Floodplain investigation was also discussed during this meeting.
- As requested by the USEPA and FDER, soil samples were collected from the Site 12 (Tetraethyl Lead Site) in August 1993. The samples were submitted to the laboratory (CH2MHILL) for analysis. The data obtained from this sampling episode will assist the 'No Further Action' proposed for Site 12.

C. PROBLEMS ENCOUNTERED DURING REPORTING PERIOD

- None

D. ACTIVITIES PLANNED FOR NEXT MONTH

- TFMR and Monthly Progress Report.
- Groundwater Sampling.
- Complete Monitoring Well Installation Program.
- Data Management and Evaluation.
- Photography/Video Documentation.
- Elevation Location Survey.
- Prepare Data Releases.
- Water Level Measurement.
- Ecological Survey adjacent to Site 16.

E. SCHEDULED DELIVERABLES FOR OCTOBER 1993

- TFMR
- Monthly Progress Report.

F. CORRESPONDENCE AND DOCUMENTS RECEIVED

- None

G. COST IMPACTS

- None

H. SAMPLING AND ANALYSIS RESULTS

- None

I. LABORATORY MONTHLY PROGRESS REPORTS

- None

J. PLANNED CHANGES IN PERSONNEL AND THEIR QUALIFICATIONS

- The project team comprises of the following personnel.

Rao Angara, Task Order Manager
Dr. Willard Murray, Technical Director
Kathleen Hodak, Project Assistant
John Bleiler, Senior Scientist (Ecologist)
David Daniel, Public Health Specialist
Felix Rizk, Geologist

Eric Blomberg, Technical Leader
Salvatore Consalvi, Field Operations Leader
Gopi Kanchibhatla, Associate Engineer
Keith Peterson, Graphics and Photography
Roger Protzman, Associate Engineer
Dr. Marland Dulaney (Senior Toxicologist)

K. PERCENT COMPLETION

Task	Title	% Complete
1	Project Management	48
2	Field Preparation	60
3	Geophysical Survey	100
4	Soil Gas Survey	100
5	Surface Water and Sediment Sampling	100
6	Test Pitting	100
7	Soil Sampling	80 (Subsurface & Surface Soil Sampling Completed, Data Assessment is ongoing)
8	PCPT/BAT	100
9	Soil Boring and Monitoring Well Installation	85
10	Groundwater Sampling	2
11	Water Level Measurement	5
12	Elevation and Location Survey	70
13	Ecological Survey	58
14	Data Validation	70
15	Photography Support	70
16	Technical Memoranda Preparation	14
17	Contamination Assessment Report	0
18	Groundwater Modeling	0

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

L. TARGET/ACTUAL COMPLETION DATES (by task)

Task	Title	Scheduled	Actual
1	Project Management	3-30-92 to 4-30-94	Started 3-30-92
2	Field Preparation	4-23-92 to 4-30-94	Started 4-23-92
3	Geophysical Survey	5-28-92 to 5-31-93	5-28-92 to 2-26-93
4	Soil Gas Survey	6-26-92 to 6-30-93	6-26-92 to 3-10-93
5	Surface Water and Sediment Sampling	7-6-92 to 8-1-92	7-6-92 to 8-1-92
6	Test Pitting	9-14-92 to 10-9-92	9-14-92 to 10-9-92
7	Surface Soil Sampling	8-3-92 to 11-10-92	8-3-92 to 10-31-92
8	PCPT/BAT	11-5-92 to 12-28-92	10-12-92 to 11-4-92
9	Soil Boring & Well Installation	1-4-93 to 2-4-94	Started 12-1-92 (Field program completed on 9-30-93)
10	Groundwater Sampling	2-7-94 to 6-30-94	Started 9-20-93
11	Water Level Measurement	5-2-94 to 5-13-94	Started 9-27-93
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	-----	-----

ATTACHMENT A



Inter-Office Correspondence

TO: Rao Angara
cc. Eric Blomberg

FROM: Salvatore Consalvi (FOL)

DATE: 09/07/93

SUBJECT: Monitoring Well Installation Shift XVII Report

DURATION: 08/30/93 - 09/03/93

WEATHER: Sunny and hot, 80-90 degrees, at times, overcast and rainy.

ABB-ES Personnel:

Salvatore Consalvi (FOL): 08/30/93 - 09/03/93
Gopi Kanchibhatla (Team Member): 08/30/93 - 09/03/93

Groundwater Protection, Inc. (GPI) Personnel:

Craig Labrosse (Lead Helper): 08/30/93 - 09/02/93
Eric J. Hull (Helper): 08/30/93 - 09/03/93
Eugene Patterson (Runner/Developer): 08/30/93 - 08/31/93
Mike Anderson (Helper): 08/30/93 - 09/03/93
Butch Diamond (Driller): 08/30/93 - 08/31/93
Otis Johnson (Helper): 08/30/93 - 08/31/93

PURPOSE: To develop Phase II-A RI monitoring wells, to install posts around wells located outside the industrial area, to re-install well WHF-3-3 S and to complete north notch installation on remaining wells.

1.0 Executive Summary

The seventeenth shift of the boring and monitoring well installation portion of the Phase II-A RI was conducted between 08/31/93 and 09/03/93. A total of 18 monitoring wells remained to be developed during this shift. The field crews completed development of 2 monitoring wells and partially completed 3 others during the shift (see Table 1-1). GPI did not have the protective posts necessary to begin installation. Arrangements were made to supply the posts for the next shift.

The well WHF-3-3S was to be replaced due to a portion of the Watera pump and a metal spear being lost in the well. The new well proved to be unnecessary when the drill crew retrieved the material from the well and initial development and Ph readings indicated that the well was not permanently damaged.

2.0 Site Reconnaissance/Utility Clearance

As of 05/13/93, GPI has provided copies of permits for 32 monitoring wells installed in the North Field and the Midfield Areas and the remote area sites. The remainder of the permits have not been received.

3.0 Health and Safety

An initial health and safety meeting was conducted by Gopi Kanchibhatla prior to the commencement of development. Among the topics presented were emergency procedures, locations of the base and local hospitals. H&S meetings were conducted periodically throughout the shift.

**Table 1-2
Monitoring Wells Developed**

Well Number	Time (hours)
WHF-3-3S	3.25
WHF-29-1	(partial)
WHF-29-2	1.5 (partial)
WHF-29-3	2 (partial)
WHF-29-4	(partial)
WHF-29-5	7
WHF-32-2	5
WHF-32-4	5
WHF-13-1S	1 (Bailed)
WHF-11-1S	1 (Bailed)

4.0 Surveying

The FOL contacted Bill Stiffy (Northwest Florida Engineering) to coordinate the continuation of the final survey. Ron Rubin conducted a portion of the work during the shift. Mr. Rubin worked on the horizontal portion of the project periodically during the shift. The crew will complete the vertical portion after the horizontal is complete. ABB was not able to closely observe the practices.

5.0 Procedural Difficulties

The following procedural difficulties were encountered during the Shift XVII.

5.1 Monitoring Well Development

1. The grundfos pump could not produce efficiently and would shutdown when the voltage dropped below 115 V. It was determined during shift XIV that a generator with a voltage regulator was necessary to maintain constant power when pumping deep or silty wells. GPI did not supply the proper generator.
2. The crew attempted using the grundfos and encountered additional problems to those attributable to the generator. the housing of the pump had ruts worn into it and was cracked.
3. The Watera pump produced enough water to replace the grundfos and to complete development of three wells. However the additional time in the well caused a metal hose clamp to come in contact with the well and to abrade. It is likely that the well screen was also damaged, however, it is believed that the integrity of the well screen was maintained. PVC shavings were recovered during development, however, it is possible that shards of the stainless steel hose clamp and PVC may remain in the wells after development. The problem will be avoided next shift.

5.2 Weather Delays

Four hours rain delay was reported during the shift.

8.0 Deviation from Shift Plan

Pin holes in well casings were canceled due to difficulty and the fear of damaging the well.



Inter-Office Correspondence

TO: Rao Angara
cc. Eric Blomberg

FROM: Gopi Kanchibhatla (FOL)

DATE: 09/16/93

SUBJECT: Well Completion - Shift XVIII Report

DURATION: 09/07/93 - 09/16/93

WEATHER: Sunny and hot, 80-90 degrees, at times, overcast and rainy.

ABB-ES Personnel:

Gopi Kanchibhatla (FOL): 09/07/93 - 09/16/93
Roger S Protzman (H&S Officer): 09/07/93 - 09/16/93
Felix Rizk (Team Member): 09/07/93 - 09/16/93
Eric Blomberg (Technical Leader): 09/10/93

Groundwater Protection, Inc. (GPI) Personnel:

Craig Labrosse (Lead Helper): 09/07/93 - 09/16/93
Eric J. Hull (Helper): 09/07/93 - 09/16/93
Darryl E. Robinson (Helper): 09/07/93 - 09/16/93
Mike Anderson (Helper): 09/07/93 - 09/16/93

PURPOSE: To develop Phase II-A RI monitoring wells, to install posts around wells located outside the industrial area, and drill holes for mounting the permanent well designation signs on the pads.

1.0 Executive Summary

The eighteenth shift of the boring and monitoring well installation portion of the Phase II-A RI was conducted between 09/07/93 and 09/16/93. The following well completion tasks were executed during this shift.

- A total of 16 monitoring wells were projected to be developed during this shift. The field crew completed development of 15 monitoring wells during the shift (see table 1-1). Monitoring well WHF-11-1S does not recharge fast enough to perform a complete development.
- The crew also installed bumper posts for 26 monitoring wells.
- The crew drilled holes in the concrete pads for 96 of the 100 monitoring wells for the installation of the permanent well designation signs.
- ABB-ES crew sampled the purge and development water from the water tanker and shipped (Fed-Ex) the samples for analysis to the CH2MHILL laboratory located in Alachua, Florida (see Table 1-2).

Table 1-1. Monitoring Wells Developed

Well Number	Number of Hours for Development			Completed (YES / NO)
	Hand Bailing	Watera Actuator	Grundfos Submersible	
WHF-3-3S		2.75		YES
WHF-3-4		1.5	0.75	YES
WHF-32-3			0.5	YES
WHF-29-1			0.5	YES
WHF-29-2			1	YES
WHF-29-3			0.75	YES
WHF-33-1		2	0.5	YES
WHF-33-2		2.25	1	YES
WHF-33-3		3.5	0.5	YES
WHF-33-4		2.25	1	YES
WHF-30-3	0.5	3.5	0.5	YES
WHF-30-4	0.5	2	0.5	YES
WHF-15-2D		4.75		YES
WHF-16-4D		1		YES
WHF-11-1S	2.75			NO
WHF-13-1S	1.5	3.75		YES

Notes: Completed = the well has been developed through either or all of the following means depending on the depth and the recharge.

1. Use the hand bailer for the initial development (for about 5 gallons).
2. Use the Watera pump for the gross development (for about 100 to 150 gallons).
3. Use the Grundfos pump for the final development (for about 50 gallons). If there are lot of fines and the Grundfos does not work, continue using Watera.

Table 1-2. Sampling of Purge Water (09/15/93)

Compartment ID of the purge water tank	Sample ID	Analysis (Level E)
A	WHF-2A-TANK-1 A	TCL VOCs, TCL SVOCs, Pest/PCBs, TAL Metals, Total Cyanides
B	WHF-2A-TANK-1 B	same as above
C	WHF-2A-TANK-1 C	same as above
D	WHF-2A-TANK-1 D	same as above
F	WHF-2A-TANK-2 F	same as above
G	WHF-2A-TANK-1 G	same as above

Notes:

1. Samples collected from the compartments A, B, C, D, and G were requested to be composited in the laboratory and analyzed as a single sample.
2. Sample collected from the compartment F was requested to be analyzed separately.

2.0 Site Reconnaissance/Utility Clearance

As of 05/13/93, GPI has provided copies of permits for 32 monitoring wells installed in the Field and the Midfield areas and the remote area sites. The remainder of the permits have not been received.

3.0 Health and safety

An initial health and safety was conducted by Roger Protzman, and he presented the topics including first aid for heat stress, wearing proper PPE during well development and the maintenance of the work area.

4.0 Procedural Difficulties

The following procedural difficulties were encountered during the Shift XVIII.

4.1 Monitoring Well Development

1. The Grundfos pump was not available for the first two days of the shift because GPI had to get the pump repaired. After the pump started working on the third day, GPI crew had to replace the existing generator with a variable voltage generator.
2. The crew attempted using the Grundfos and encountered additional problems attributable to the pump housing and the voltage controller. They were able to use the Grundfos pump for nine of the sixteen wells proposed for development through grundfos.
3. Monitoring wells WHF-3-3S, WHF-11-1S and WHF-13-1S did not have sufficient recharge, so a Grundfos pump cannot be used. Development at WHF-11-1S is incomplete because the recharge rate is very slow (2 feet column of water will take 15 to 30 minutes to recharge).
4. Use of the Watera pump by GPI with metal clamp on the valve had resulted in leaving PVC shavings in the purge water at WHF-30-3 and WHF-30-4. It has also been noticed by the

ABB-ES crew that the metal clamp was worn out simultaneously. ABB-ES crew informed GPI to stop using the metal clamp.

4.2 Equipment/Material Delays

The work delay has been caused due to the following equipment\material not being made available by GPI.

1. Proper generator for the Grundfos pump.
2. Spare parts for the Watera pump.
3. Tools to setup the Watera pump.
4. Backhoe was not in working condition for one day.
5. Proper paint not available for the bumper posts.

4.3 NASWF/Base Issues

The ODO at the North Field Maintenance Hangar had informed the FOL that one of the earlier investigation locations (may be the soil gas sampling point) on the aircraft parking area near building 2805 had caved in (1-inch diameter and 10 inch deep) and it needed to be fixed. The FOL had the GPI crew use some concrete to fix that problem.



Inter-Office Correspondence

TO: Rao Angara
cc. Eric Blomberg

FROM: Felix Rizk, Geologist
Roger Protzman, Environmental Engineer

DATE: 10/4/93

SUBJECT: Monitoring Well Water Elevation Measurements and Surface Completion

DURATION: 09/28/93 - 10/01/93

WEATHER: Sunny and warm 80-90°F, no rain, constant breeze (5-15 mph)

ABB-ES Personnel:

Roger Protzman (Engineer): 09/28/93 - 10/01/93
Felix Rizk (Geologist): 09/28/93 - 10/01/93

Groundwater Protection, Inc. (GPI) Personnel:

Mike Anderson (Helper): 09/28/93 - 09/29/93

PURPOSE: To complete a site survey of Phase II-A RI monitoring wells with GPI personnel to determine final status of all well sites. Also to complete water level, well depth, and tanker compartment measurements in preparation for groundwater sampling.

1.0 Executive Summary

The nineteenth shift of the boring and monitoring well installation portion of the Phase II-A RI was conducted between 09/28/93 and 10/01/93. All wells at NAS Whiting field were visited by ABB-ES and GPI personnel. Deficiencies in dress and well completion were noted. GPI personnel worked two days to try and correct any well installation deficiencies, but not all work items have been completed. Many flush mount wells need drain holes installed and/or cleared. Also forms remain around several of the wells in the industrial area.

ABB-ES Personnel also completed a round of water level and well depth measurements to determine approximate volumes to be purged during groundwater sampling (See attached table). All compartments of the tanker were measured to determine its status for use in containing purge water collected during ground water sampling.

TANKER MEASUREMENTS

<u>CHAMBER ID.</u>	<u>DEPTH TO WATER</u>	<u>TOTAL DEPTH OF CHAMBER</u>
A	3.28	5.70
B	3.46	5.70
C	1.74	5.70
D	1.45	5.70
E	1.50	5.70
F	0.30	5.70
G	3.90	5.70

2.0 Health and Safety

An initial health and safety meeting was conducted by Roger Protzman prior to the commencement of field work. Among the topics presented were snake bites, lyme disease, and heat conditions. Meetings were conducted periodically throughout the shift.

3.0 Procedural Difficulties

The following procedural difficulties were encountered during the Shift XIX.

3.1 Preparedness for Shift

1. GPI personnel did not anticipate the nature of work to be done. GPI management had advised visiting personnel that this would be a site survey for dress and construction completion. When work was discovered, GPI had to rent the proper equipment to complete the work the following day. GPI personnel was only scheduled for a couple of days which was an insufficient duration to complete all task.

3.2 Mechanical Delays

There were no mechanical failure during the shift.

3.3 Weather Delays

Zero hours rain delay was reported during the shift.

3.4 NASWF/Base Issues

No relevant difficulties arose during Shift XIX. Pat Durbin, PWEP, did indicate that on 9/30/93 there might be a RCRA/FDEP inspection. ABB-ES personnel did not participate in the inspection.

4.0 Deviation from Shift Plan

There were no deviations from the Shift Plan.

NAVAL AIR STATION WHITING FIELD - WELL CONSTRUCTION

No.	Monitoring Well Number	Date Installed	Well Depth (FEET)	Well Depth BTOC	Water Level BTOC (Feet)	Riser Height (FEET)	P. Casing Height (FEET)	Pad Size (LXW)	P. Casing Center (Y/N)	Bumper Post	P. Casing Weep Hol (Y/N)	North Notch (Y/N)	Comments & Condition
1	WHF-BKG-1	5-9-93	118	121.60	108.46	2.90	3.10	4x3	Y	Y	Y	Y	
2	WHF-BKG-1	4-27-93	107	109.22	96.82	2.80	3.00	4x3	Y	Y	Y	Y	Casing Inclined
3	WHF-BKG-1	4-26-93	79	80.50	72.90	2.70	2.90	4x3	N	Y	Y	Y	
NORTH PERIMETER ROAD SITES													
SITES 1 & 2													
4	WHF-1-1	G&M	122.5	123.00	64.70	2.60	2.70	4x3	Y	Y	N	N	
5	WHF-1-1S	6-28-93	72	75.40	64.40	2.60	3.05	4x3	Y	Y	Y	N	RISER TOP IS BROKEN
6	WHF-1-2	2-21-93	75	78.80	66.13	2.95	3.05	4x3	Y	Y	Y	Y	
7	WHF-1-3	6-29-93	85	87.48	76.68	2.50	3.00	4x3	Y	Y	Y	Y	
8	WHF-2-1	7-17-93	85	87.42	77.96	2.80	2.85	4x3	Y	Y	Y	Y	
SITE 7													
9	WHF-17-1	G&M	152.5	159.00	111.10	2.40	2.50	4x3	Y	Y	N	N	
10	WHF-17-1S	7-27-93	113.5	115.50	111.29	2.50	3.00	4x3	Y	Y	Y	Y	LRG. AMNT. OF C-CRETE ON P. CASING
11	WHF-17-2S	3-07-93	118.5	121.90	114.05	3.00	3.10	4x3	Y	Y	Y	Y	
12	WHF-17-3	7-16-93	124	126.50	117.82	2.35	2.80	4x3	Y	Y	Y	Y	LRG. AMNT. OF C-CRETE ON P. CASING
SITE 18													
13	WHF-18-1	G&M	122.5	120.20	93.29	2.60	2.70	4x3	Y	Y	N	N	
14	WHF-18-2S	2-22-93	105	107.86	95.82	2.60	2.70	4x3	Y	Y	Y	Y	
15	WHF-18-3	6-27-93	110	112.90	104.30	2.80	3.50	4x3	Y	Y	Y	N	
SOUTH PERIMETER ROAD SITES													
SITE 9													
16	WHF-9-1	G&M	117.5	118.40	86.72	2.20	2.40	4x3	Y	Y	N	N	LID LATCH DAMAGED - BENT
17	WHF-9-2	PHASE I	120	124.35	100.03	3.62	3.72	4x3	Y	Y	N	Y	
18	WHF-9-3S	2-25-93	105	108.24	90.78	2.97	3.07	4x3	Y	Y	Y	Y	1 HOLLOW POST - 6IN - N
SITE 10													
19	WHF-10-1	G&M	117.5	118.20	88.12	2.80	3.00	4x3	Y	Y	N	N	POLES UNEVEN
20	WHF-10-2	3-23-93	112	113.14	92.04	2.95	3.00	4x3	Y	Y	Y	Y	
SITE 11													
21	WHF-11-1	G&M	127.5	128.40	51.08	2.20	2.25	4x3	Y	Y	N	N	
22	WHF-11-2	PHASE I	125	125.84	93.50	3.35	3.35	4x3	Y	Y	N	N	
23	WHF-11-1S	7-21-93	51	54.40	45.50	2.43	2.75	4x3	Y	Y	Y	Y	
24	WHF-11-3	3-09-93	70	73.16	61.91	2.93	2.98	4x3	Y	Y	Y	Y	
SITE 12													
25	WHF-12-1	G&M	112.5	113.40	80.20	2.65	2.70	4x3	Y	Y	N	N	
SITE 13													
26	WHF-13-1	G&M	112.5	122.90	50.62	2.47	3.12	4x3	Y	Y	N	N	
27	WHF-13-1S	7-20-93	58	61.30	55.25	2.40	2.90	4x3	Y	Y	Y	Y	
28	WHF-13-2S	3-18-93	69	72.41	51.61	2.95	3.00	4x3	Y	Y	Y	Y	
SITE 14													
29	WHF-14-1	G&M	152.5	153.20	88.49	2.20	2.30	4x3	Y	Y	N	Y	
30	WHF-14-2	3-22-93	115	118.30	95.15	2.65	3.05	4x3	Y	Y	Y	Y	
SITE 15													
31	WHF-15-1	G&M	72.5	73.20	26.38	2.50	3.00	4x3	Y	Y	Y	N	PAIN ON CONCRETE
32	WHF-15-2I	2-04-93	60	63.20	19.80	2.85	2.90	4x3	Y	Y	Y	Y	
33	WHF-15-2S	2-04-93	30	32.90	19.00	2.40	3.00	4x3	Y	Y	Y	Y	
34	WHF-15-2D	7-18-93	109.6	112.44	19.06	2.45	3.05	4x3	Y	Y	Y	Y	
35	WHF-15-3D	1-26-93	119	119.48	25.89	1.55	1.75	4x3	Y	Y	Y	Y	

NAVAL AIR STATION WHITING FIELD - WELL CONSTRUCTION

No.	Monitoring Well Number	Date Installed	Well Depth (FEET)	Well Depth BTOC	Water Level BTOC (Feet)	Riser Height (FEET)	P. Casing Height (FEET)	Pad Size (LXW)	P. Casing Center (Y/N)	Bumper Post	P. Casing Weep Hol (Y/N)	North Notch (Y/N)	Comments & Condition
36	WHF-15-3I	2-02-93	85	87.83	26.59	2.40	2.45	4x3	Y	Y	Y	Y	
37	WHF-15-3S	2-01-93	35	37.94	25.93	2.05	2.55	4x3	Y	Y	Y	Y	
38	WHF-15-4S	4-28-93	107	109.15	98.41	2.65	2.90	4x3	Y	Y	Y	Y	
39	WHF-15-5S	2-08-93	66	68.18	64.33	2.45	2.60	4x3	Y	Y	Y	Y	P. CASING INCLINED
40	WHF-15-6D	2-08-93	120	123.36	35.40	2.40	2.60	4x3	Y	Y	Y	Y	
41	WHF-15-6S	2-08-93	41	43.73	34.40	2.48	2.50	4x3	Y	Y	Y	Y	
SITE 15													
42	WHF-16-1	G&M	42.5	43.00	11.35	2.95	3.00	4x3	Y	Y	N	N	
43	WHF-16-2	PHASE I	70	74.20	37.52	3.10	3.40	4x3	Y	Y	N	N	
44	WHF-16-2I	2-18-93	127	130.14	36.19	2.80	2.90	4x3	Y	Y	Y	Y	
45	WHF-16-2S	2-21-93	46	49.80	38.91	3.00	3.10	4x3	Y	Y	Y	Y	
46	WHF-16-3D	1-24-93	115	118.08	10.16	2.80	2.85	4x3	Y	Y	Y	N	
47	WHF-16-3I	1-26-93	50	52.87	13.25	2.65	2.85	4x3	Y	Y	Y	N	
48	WHF-16-3II	1-25-93	80	78.91	12.69	2.63	2.70	4x3	Y	Y	Y	N	
49	WHF-16-3S	1-22-93	20	23.25	13.48	2.85	2.90	4x3	Y	Y	Y	N	
50	WHF-16-4D	2-18-93	119	122.54	14.00	3.05	3.15	4x3	Y	Y	Y	N	
51	WHF-16-4II	2-05-93	60	64.80	14.00	2.40	2.50	4x3	Y	Y	Y	N	
52	WHF-16-4S	2-04-93	19	22.38	15.49	2.70	2.80	4x3	Y	Y	Y	N	
53	WHF-16-5	7-27-93	10										FLOOD PLAIN
MIDFIELD HANGAR SITES													
SITE 6													
54	WHF-5-OW-1	PHASE I	175	177.81	123.42	0.80	3.40	4x3	Y	Y	N	N	
55	WHF-5-OW-2	PHASE I	123	116.40	115.67	1.20	3.40	4x3	Y	Y	N	N	
56	WHF-5-3	G&M		150.81	120.01			2x2	Y	N	Y	Y	
57	WHF-5-4	G&M						2x2	Y	N			
58	WHF-5-5	G&M						2x2	Y	N			
59	WHF-5-6	NOT INSTALLED											
60	WHF-5-7	NOT INSTALLED											
61	WHF-5-8D	4-24-93	179.5	174.18	111.99	2.90	3.20	4x3	Y	Y	Y	Y	
62	WHF-5-8S	3-23-93	125	128.15	110.91	2.93	3.05	4x3	Y	N	Y	Y	
63	WHF-5-9D	4-22-93	180	180.12	111.47			2x2	Y	N	N	Y	NEED WEEP HOLE INSTALLED
64	WHF-5-9S	4-25-93	128	128.74	111.02			2x2	Y	N	N	Y	NEED WEEP HOLE INSTALLED
65	WHF-5-10D	3-07-93	180	183.32	120.72	2.80	3.00	4x3	Y	N	Y	Y	
66	WHF-5-10S	4-24-93	140	144.71	120.28	3.05	3.15	4x3	Y	N	Y	Y	
67	WHF-5-PZ1	PHASE I		136.78	123.62	1.20	3.40	4x3	Y	Y	N	N	
68	WHF-5-PZ2	PHASE I		151.94	122.79	1.40	3.40	4x3	Y	Y	N	N	
SITE 6													
69	WHF-6-1D	5-19-93	180	180.47	115.81			2x2	Y	N	N	Y	NEEDS WEEP HOLE INSTALLED
70	WHF-6-1S	5-20-93	133	134.33	115.93			2x2	Y	N	Y	Y	GROUT AROUND RISER COLLAPSING
71	WHF-6-2	NOT INSTALLED											
72	WHF-6-3	5-9-93	124	123.45	113.27			2x2	Y	N	Y	Y	
SITE 7													
73	WHF-7-1	G&M	142.5	143.38	129.96	3.00	3.10	4x3	Y	N	N	N	
SITE 28													
74	WHF-29-1	6-08-93	140	139.48	127.06			2x2	Y	N	Y	Y	
75	WHF-29-2	6-13-93	137	136.90	126.09			2x2	Y	N	Y	Y	
76	WHF-29	6-11-93	139	139.64	128.24			2x2	Y	N	Y	Y	

NAVAL AIR STATION WHITING FIELD - WELL CONSTRUCTION

No.	Monitoring Well Number	Date Installed	Well Depth (FEET)	Well Depth BTOC	Water Level BTOC (Feet)	Riser Height (FEET)	P. Casing Height (FEET)	Pad Size (LXW)	P. Casing Center (Y/N)	Bumper Post	P. Casing Weep Hol (Y/N)	North Notch (Y/N)	Comments & Condition
77	WHF-29-4	6-10-93	139	139.10	129.53	FLUSH MOUNT		2x2	Y	N	Y	N	
78	WHF-29-5	6-09-93	132	132.14	123.48	FLUSH MOUNT		2x2	Y	N	Y	N	WEEP HOLE NEEDS CLEARED
SOUTHFIELD HANGAR SITES													
SITE 8													
79	WHF-8-1	G&M	180	180.70	117.20	1.20	1.30		Y	N	N	N	
SITE 30													
80	WHF-30-1	NOT INSTALLED											
81	WHF-30-2	TANKS											
82	WHF-30-3	6-16-93	135	134.60	121.17	FLUSH MOUNT		2x2	Y	N	Y	Y	WEEP HOLE NEEDS CLEARED
83	WHF-30-4	6-28-93	135	135.44	123.90	FLUSH MOUNT		2x2	Y	N	Y	Y	WEEP HOLE NEEDS CLEARED
84	WHF-30-5	6-25-93	159	157.53	123.72	FLUSH MOUNT		2x2	Y	N	Y	Y	WEEP HOLE NEEDS CLEARED
NORTHFIELD HANGAR SITES													
SITE 3													
85	WHF-3-1	G&M	152.5	153.17	105.62	2.45	2.45	2x2	Y	N	N	N	
86	WHF-3-1D	6-11-93	180	180.29	103.81	FLUSH MOUNT		2x2	Y	N	N	N	NEEDS WEEP HOLE FORM REMOVED
87	WHF-3-1S	6-12-93	123	123.22	103.63	FLUSH MOUNT		2x2	Y	N	N	N	NEEDS WEEP HOLE FORM REMOVED
88	WHF-3-2	G&M	152.5	153.20	106.08	2.37	2.57	2x2	Y	N	N	N	
89	WHF-3-2D	5-10-93	180	176.17	103.48	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS WEEP HOLE CLEARED
90	WHF-3-2S	5-08-93	115	114.12	101.37	FLUSH MOUNT		2x2	Y	N	Y	Y	
91	WHF-3-3D	5-12-93	180	180.57	106.89	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS WEEP HOLE CLEARED
92	WHF-3-3	PHASE I	151	154.22	109.29	3.45	3.75	2x2	Y	Y	N	N	
93	WHF-3-3S	5-06-93	110	110.80	103.06	FLUSH MOUNT		2x2	Y	N	Y	Y	
94	WHF-3-4	7-31-93	121	121.45	105.02	FLUSH MOUNT		2x2	Y	N	N	Y	NEEDS WEEP HOLE & FLUSH MOUNT PAINTED
95	WHF-3-5	NOT INSTALLED											
96	WHF-3-6	NOT INSTALLED											
97	WHF-3-7D	5-25-93	180	180.54	103.86	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS WEEP HOLE CLEARED
98	WHF-3-7I	5-26-93	140	139.92	103.77	FLUSH MOUNT		2x2	Y	N	N	Y	NEEDS WEEP HOLE
99	WHF-3-7S	6--93	123	123.80	103.80	FLUSH MOUNT		2x2	Y	N	N	Y	NEEDS WEEP HOLE
SITE 4													
100	WHF-4-1	G&M	152.5	153.07	101.72	2.35	2.55		Y	N	N	N	
SITE 32													
101	WHF-32-1	1-22-93	100	110.34	98.92	FLUSH MOUNT		3x3	Y	N	Y	Y	4 IN. - NEED TOOL TO OPEN
102	WHF-32-2	6-28-93	110	110.54	99.32	FLUSH MOUNT		2x2	Y	N	Y	Y	
103	WHF-32-3	6-26-93	110	110.02	99.74	FLUSH MOUNT		2x2	Y	N	Y	Y	PAD DAMAGED FROM CONSTRUCTION
104	WHF-32-4	6-29-93	110	110.25	99.45	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS WEEP HOLE CLEARED
105	WHF-32-5	5-24-93	109	109.61	98.60	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS PAINTED - NEED TOOL TO OPEN
SITE 33													
106	WHF-33-1	6-15-93	127	127.44	116.99	FLUSH MOUNT		2x2	Y	N	Y	Y	
107	WHF-33-2	6-25-93	128	128.40	117.96	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS FORM REMOVED
108	WHF-33-3	6-23-93	128	128.44	118.36	FLUSH MOUNT		2x2	Y	N	Y	Y	NEEDS WEEP HOLE CLEARED
109	WHF-33-4	6-16-93	128	127.94	116.91	FLUSH MOUNT		2x2	Y	N	Y	Y	
110	WHF-33-5	5-21-93	125	125.90	114.59	FLUSH MOUNT		2x2	Y	N	N	Y	NEEDS WEEP HOLE