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LETTER REPORT REGARDING INSTALLATION OF LIGHT NONAQUEOUS PHASE LIQUID RECOVERY SYSTEM AT SOLID WASTE MANAGEMENT UNITS 6 AND 7 NS MAYPORT FL

8/6/1996

ABB ENVIRONMENTAL SERVICES

ABB

August 6, 1996

NAVSTA Mayport Administrative Record
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Commanding Officer
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Charleston, SC 29418

Attention: Mr. David Driggers (Code 1582)

SUBJECT: Installation of a Light Nonaqueous-Phase Liquid (LNAPL) Recovery System at Solid Waste Management Units (SWMUs) 6 and 7
Resource Conservation and Recovery Act (RCRA)
Corrective Action Program
U.S. Naval Station (NAVSTA), Mayport, Florida
Contract No. N62467-87-D-0317 CTO#028

Dear Mr. Driggers:

An interim measure for removal of LNAPL at SWMUs 6 and 7 has been initiated by the installation of an LNAPL recovery system. The presence of LNAPL at SWMUs 6 and 7 is documented in the RCRA Facility Investigation (RFI) report for Group II SWMUs at NAVSTA Mayport, Florida, dated January 1996 (ABB Environmental Services, Inc., [ABB-ES], 1996a). A recommendation for conducting the interim measure was presented in the RFI report. The report was prepared on the behalf of Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina, by ABB-ES.

Workplans prepared for SOUTHNAVFACENGCOM to guide the interim measure include the following:

- Interim Measure Workplan, SWMUs 6 and 7, Sludge Drying Bed Area, NAVSTA Mayport, Florida, by ABB-ES, May 1994; and
- Interim Measure Remediation Work Plan for SWMUs 6 and 7, NAVSTA Mayport, Florida, by Bechtel Environmental, Inc. (BEI), January 1995.

The State regulatory requirements contained in *Florida Petroleum Contaminated Site Cleanup Criteria* (Florida Administrative Code [FAC] 62-770), are applicable to LNAPL discovered in the vicinity of SWMUs 6 and 7. This statute indicates that "free-phase product," defined as petroleum or petroleum product in excess of 0.1-inch thickness floating on surface or groundwater, must be recovered. Therefore, the following corrective action objective was established in the Corrective Measure Study (CMS) Group II SWMUs, NAVSTA Mayport, Florida (ABB-ES, 1996b).

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- Remove LNAPL present on the water table in excess of 0.1 inch in the vicinity of the Oily Wastewater Treatment Plant area, as per State regulatory requirements (FAC 62-770) (ABB-ES, 1996b).

The interim measure at SWMUs 6 and 7 was in progress during the preparation of the RFI and CMS reports prepared in January 1996.

The Navy's Remedial Action Contractor (RAC), BEI, has provided documentation of the construction of the LNAPL recovery system at SWMUs 6 and 7 in a report (draft) entitled "Completion Report of Solid Waste Management Units 6 and 7, Naval Station Mayport, Florida," dated January 1996. BEI's report presents the following information:

- mobilizing to and demobilizing from the site,
- waste management,
- LNAPL recovery system installation,
- system startup and normal operations,
- sampling and analysis,
- data management,
- system turnover, and
- documenting of problems encountered and their solutions.

Appendices to BEI's report contain photographs documenting their work activities, as-built construction drawings, system test data, and analytical data from sampling of fluid in the recovery tanks.

Technical oversight of the RAC activities during the interim measure was conducted by ABB-ES. The oversight activities were conducted under the supervision of a professional engineer registered in the State of Florida. A field logbook was maintained during the oversight activities, and a photocopy of the field logbook is provided in Attachment A. Photographs were also taken during the interim measure. Photographs depicting various stages of interim measure construction activities are provided in Attachment B. Water-level and product-level measurements were made periodically from June 29, 1995 to May 23, 1996. Potentiometric maps of the water table zone of the surficial aquifer were prepared from the water-level data and apparent product thickness maps were prepared from the product-level measurements. The potentiometric and apparent product thickness maps are provided in Attachment C, and tables summarizing the water-level and product thickness measurements are provided in Attachment D.

Based on review of BEI's report and the technical oversight activities, the information contained in BEI's report appears to accurately portray the construction of the LNAPL recovery system. However, there were some problems associated with the installation and development of the recovery sumps and analysis of liquid contained in the recovery system's 20,000-gallon storage tanks.

Recovery sumps numbers 1 and 2 had breaches develop in the concrete seal at the bottom of the sumps (Figure C-1, Attachment C). The cause of the breaches is believed to be the development of the sumps prior to allowing the concrete to adequately harden. During development, the sumps were pumped dry. The resulting excessive hydrostatic pressure on the concrete is the probable cause of the loss of integrity (breach) in the concrete seal. Bechtel repaired the breaches by pumping neat cement grout through a tremie pipe below and above the breached concrete seals.

Recovery rates of less than 1 gallon per minute occurred at recovery sumps 3 and 5. The low-flow rates were attributed by BEI to the bentonite slurry used to stabilize the borehole side walls during drilling. The sumps were redeveloped by recirculating liquid in the sump and adding sodium hexametaphosphate to deflocculate (break down electrical attractive charge) the drilling mud. The sumps were then pumped dry to remove the liquids contained in the recovery sump.

BEI rejected analytical data for volatile organics, semivolatile organics, pesticides, polychlorinated biphenyls (PCBs) and herbicides for liquid samples collected on August 9, 1995, from the 20,000-gallon storage tanks (BEI, 1996). Analytical data from this sampling event for metals were determined by BEI to be acceptable. The analytical data were rejected by BEI because of low surrogate recoveries, poor matrix spike recoveries, and questionable determination of baselines (Bechtel, 1996). Bechtel resampled the two tanks on September 8, 1995, and had the samples analyzed for volatile organics, semivolatile organics, pesticides, PCBs, and herbicides (BEI, 1996).

Subsequent to the installation and startup of the LNAPL recovery system and after BEI turned the system over to the Navy, record low temperatures in February 1996 resulted in damage to several parts of the system. The LNAPL recovery system was repaired in May and June 1996 and currently is operational.

Currently, the Navy is evaluating another technology, bioslurping, as a means to meet the corrective action objective for the LNAPL interim measure and to meet the corrective action objective identified for the source of LNAPL, the sludge and soil at SWMUs 6 and 7. Below is the corrective action objective for the source removal:

- Eliminate petroleum-contaminated sludge and soil at SWMUs 6 and 7 that contribute to the presence of LNAPL and contamination of soil and groundwater.

A pilot test to evaluate whether or not the bioslurping technology can meet the two corrective action objectives for SWMUs 6 and 7 is being conducted in July 1996 by Battelle (Battelle, 1996; Quality Analytical Laboratories, Inc., 1996).

A monitoring program to assess the success of the LNAPL interim measure was included in Appendix D of the CMS (ABB-ES, 1996b). In order for the LNAPL interim measure to be considered effective, two objectives should be met.

(1) The interim measure must manage the lateral migration of the LNAPL.
(2) The interim measure must remove LNAPL to a thickness of less than 0.1 inch.

LNAPL thickness and groundwater-level measurements obtained during the proposed monitoring plan will be evaluated to assess the effectiveness of the interim measure with respect to the two objectives. Chemical analysis of groundwater samples will be used to assess (1) whether or not biodegradation is occurring and (2) the need for conducting human health and ecological risk assessments. Monitoring activities detailed in this plan include the following:

- defining LNAPL thickness and extent;

- obtaining regular measurements of water table elevations and LNAPL thickness in monitoring wells and piezometers throughout the LNAPL area (Figure C-1); and

- collecting groundwater samples from monitoring wells hydraulically upgradient and downgradient from the LNAPL area for biodegradation modeling, total petroleum hydrocarbons measurements, and analysis of volatile organic aromatics and polynuclear aromatic hydrocarbons.

The monitoring program should be adequate for both the current LNAPL recovery system and for the bioslurping technology as it pertains to meeting the corrective action objective for LNAPL recovery. Collecting soil samples from the vadose zone was not included in the monitoring plan; therefore, the monitoring plan would not be sufficient to evaluate bioslurping or bioventing as it pertains to the remediation of the source areas. In addition, it should be noted that the monitoring program has not yet been funded by the Navy.

If you have any questions, please call me at 904-656-1293.

Very truly yours,

ABB ENVIRONMENTAL SERVICES, INC.

Francis K. Lesesne, P.G.	Margaret E. Layne, P.E.
Principal Geologist	Principal Engineer

ATTACHMENTS

Attachment A Photocopy of Field Logbook
Attachment B Photographs
Attachment C Figures
Attachment D Tables
Attachment E References

cc: Ms. Cheryl Mitchell, NAVSTA Mayport
Ms. Martha Berry, U.S. Environmental Protection Agency
Mr. Jim Cason, Florida Department of Environmental Protection

MPTLNAPL.LTR
ASW.07.96

ATTACHMENT A

PHOTOCOPY OF FIELD LOG BOOK

Mayport Naval Station
Book 7 8533

Interim Measures
Studies

OWTP - SWMU
687

TELEDYNE
416
FIELD/TRANSIT BOOK

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94 MAY MAYPORT
4/13/93 IM SITE VISIT

③

PURPOSE: TO WALKOVER PROPOSED INTERIM
/OBJECTIVE MEASURES (IM) SWMUs 2, 6+7,
AND 19 AND DOCUMENT
CURRENT CONDITIONS.

WEATHER: STEADY RAIN, LOW 70s

1200 MIKE JAYNES, GREG BROWN, AND
GOPI KANCHIBHATLA (ABB-ES) ARRIVE
AT NAVSTA MAYPORT AND OBTAIN
VEHICLE PASS.

1230 AFTER QUICK STOP AT TRAILER ARRIVE
AT SWMU 2-PCB AREA. M. JAYNES
+ G. BROWN NOTICE DEBRIS IN THE
PATCH OFF TREES LOCATED AT THE
CENTER OF THE SITE. ALSO SOME
TAMPERING WITH THE PROTECTIVE
FENCE HAS OCCURRED.

1250 FRANK LESESNE, PEGGY LAYNE, AND
CHARLIE DONAHUE (ABB-ES) ON-SITE.

1300 A BRIEF CHECK OF UTILITIES NEAR
THE AREA SEEMS TO CONFIRM
THEY HAVE BEEN ABANDONED AS
PREVIOUSLY THOUGHT.

1330 EVERYONE OFF-SITE AND HEADING
TO SECURITY OFFICE TO OBTAIN
CURRENT I.D. BADGES

④

4/13/94 IM SITE VISIT

1345 M. JAYNES + G. BROWN OBTAIN I.D. (ACTIVITY) BADGES.

1350 M. JAYNES, G. BROWN, + G. KANCHISHA ARRIVE AT THE UNIDENTIFIED BOTTOM "BLACK BEAUTY" AREA. AFTER A SITE WALKOVER IT IS G. BROWN'S DETERMINATION THAT THE MAJORITY OF THE MATERIAL IS WEATHERED ASPHALT. THERE ARE ONLY SMALL AMOUNTS OF ACTUAL "BLACK BEAUTY" PRESENT. THERE IS A CONSENSUS THAT SCRAPING UP THIS MINIMAL, SPREAD OUT AMOUNT OF MATERIAL MAY NOT BE THE BEST APPROACH. SAMPLING SHOULD BE DONE INITIALLY TO DETERMINE IF IT IS HAZARDOUS AND IF ANY RELEASE HAS OCCURRED.

- THIS AREA IS LOCATED APPROX 200 YARDS SOUTHEAST OF SUMMIT 10 (HAZ WASTE STORAGE) AND 100 YARDS SOUTH OF SUMMIT 16.

1415 OFF-SITE

1420 STOP BY OILY WASTE TREATMENT PLANT (OWTP) TO CHECK OUT EXPANSION CONSTRUCTION ACTIVITIES. ALL SEEMS TO BE PROGRESSING WELL.

⑤

4/13/94 IM SITE VISIT

1445 ARRIVE AT SUMMIT 19 - NEEDED "BLACK BEAUTY" QUESTING MEDIA AREA. A DETERMINATION OF THE SITE BOUNDARY WAS MADE WITH SHOVEL AND VISUAL INSPECTION. REFERENCE POINTS WERE LAID OUT W/ FLAG AND THE FOLLOWING TABLE COMPILED WITH MEASUREMENTS:

POINT	BENCHMARK	DIST. (FT)	COMMENTS
E. TREE	NE/WB	60	
"	NW/EB	44	
NW TREE	NW/EB	118	
"	NE/WB	88	
#1	NW TREE	28	
2	"	14	
3	"	18	RIVER EDGE
4	"	24	MIDDLE OF PILE
5	"	43	
6	"	52	
7	"	52	EAST TREE
8	"	40	
9	"	48	
1	E. TREE	58	
2	"	66	
3	"	59	
4	"	44	MIDDLE OF PILE 12 FT. DIA x 3 FT. H.

4/13/94 IM SITE VISIT

POINT	BENCHMARK	DISTANCE (FT)	COMMENTS
5	E TREE	26	
6	"	19	
7	"	NA	TO EAST TREE
8	"	39	
9	"	17	
10	"	26	TEST HOLE B.S. VISIBLE TO 14" BLS MQ
10	NW TREE	27	

NW/EB MQ - NW CORNER OF EAST BLDG. (1470)
NE/WB - NE CORNER OF WEST BLDG. (1471)
(SEE SITE MAP FOR DETAILED SKETCH)

1545 OFF-SITE

1550 MAKE A QUICK PASS BY SWMU 2-PCB AREA TO CHECK ON HERMIT 2000 CONNECTED TO MONITORING WELLS MPT-2-9S + MPT-2-9D. M. JAYNES VERIFYS HERMIT IS IN "READY-RUNNING" MODE AND APPROX. 1 MONTH OF DATA IS PRESENT FROM LAST START-UP DATE (3/15/94).

1555 RETURN TO TRAILER

1700 M. JAYNES, G. BROWN, + G. KANGHISGATE HEAD TO PUBLIC WORKS TO MEET W/ CHERYL MITCHELL (NAVSTA-PUBLIC WORKS)

4/13/94 IM SITE VISIT

1700 (CONT.) AND OTHER ABB-ES PERSONNEL ON-SITE: P. LAYNE, F. LESESNE, + C. BONAHUE.

1715 MEET TO DISCUSS IM SITES, REF GROUP III AREA, + OTHER NAVSTA NEWS.

1900 MEETING ADJOURNED, OFF-SITE. END OF DAY.

Michael O. Jaynes 4/13/94

(8) THUR.
6/9/94 CLEAR ≈ 85°F

PURPOSE/OBJECTIVE: TO INSTALL 8 TEMPORARY PIEZOMETERS AT SWMU 6+7 LNAPL AREA FOR LNAPL OBSERVATION

PERSONNEL: MIKE JAYNES + DAVE MUSTONEN (ABB-ES)

0900 LOADING UP + PREPING TO MOB TO OWTP.

0930 M. JAYNES + D. MUSTONEN MOB TO OWTP TO SURVEY TEMPORARY PIEZOMETER (TP) LOCATIONS.

1000 MOB TO TRAILER FOR ADDITIONAL EQUIPMENT AND SUPPLIES.

1230 BACK ONSITE AFTER TAKING CARE OTHER SITE ACTIVITIES + A QUICK LUNCH.

1430 LOCATIONS IN PLACE, WILL COMMENCE INSTALLATION AFTER GETTING AN UPDATE OF OTHER ACTIVITIES.

1540 D. MUSTONEN ONSITE SETTING UP ON TPW-1 (-3,-1) - GRID A (OLD GRID)

1635 M. JAYNES BACK ONSITE. D. MUSTONEN SET-UP ON TPW-1, READY TO TURN THE AUGER.

1645 COMMENCE INSTALLATION OF TPW-1 HAND AUGER BORING IN EFFECT.

THUR.
6/9/94 P. CLOUDY ≈ 85°F (9)

1700 0-5' - TAN TO LIGHT BROWN, (FID - 0 PPM) SILTY SAND W/ SOME SHELL FRAGMENTS.

1715 5-10' - GRAY, SILTY SAND (≈3') OVER CLAY, GRAY, HIGH PLASTICITY SATURATED AT 9 FEET.

1720 WILL ATTEMPT TO HAND AUGER 2 MORE EXTENSION LENGTH AND THEN POUND IT IN. P. CRAINE ONSITE W/ ADDITIONAL SUPPLIES.

1735 AFTER AUGERING TO APPROX. 10.5 FEET, WE ATTEMPTED TO POUND THE CASING TO 12 FEET, BUT WE WERE AT BIT TOO ZEALOUS AS THE CASING SNAPPED AT BOTH THE 5 AND 10 FOOT JUNCTIONS. WE WERE ABLE TO RECOVER ALL EXCEPT THE 5 FOOT SCREEN INTERVAL.

1800 AFTER DISCUSSION OF ALTERNATIVES WE ~~WILL MOVE~~ MG DECIDE TO ABANDONED FIRST HOLE + MOVE OVER AND TRY AGAIN. P. CRAINE OFFSITE TO RETRIEVE SOME FLUIDS.

1805 MOVE APPROX. 3 FEET NORTH OF GRID NODE (-3,-1) AND START TPW-1 AGAIN

(10) THUR. 6/9/94 OVERCAST, DARK ≈ 80°F

1830 P. CARNE BACK ONSITE, WE REACH APPROX. 10 FOOT BLS AGAIN EACH ATTEMPT TO GO DEEPER IS PRETTY MUCH FUTILE AS THE AUGER BECOMES HARDER AND HARDER TO RETRIEVE. WE SEEMED TO LOSE GROUND EACH TIME DUE TO INSTABILITY AND COLLAPSING OF THE SATURATED, SILTY, SHELLY, SAND FROM 9-10 FEET.

1845 WE DROVE THE CASING IN AS FAR AS WE COULD AND SET TPW-2 AT 10.4' BLS WITH WATER AT 8.6' AND RISING. LOW TIDE WAS AT 1440 SO WE SHOULD BE ALL RIGHT. NO PRODUCT PRESENT, FID READINGS APPROX. 200 PPM OVER THE HOLE, BUT WERE NO MORE THAN 2-3 PPM IN THE BREATHING ZONE.

1900 USED ONE BAG OF 20/30 SAND PACK. WE WILL ADD MORE IN THE AM AND ATTEMPT TO INSTALL PROBably 2 MORE POINTS.

1915 CLEAN-UP FOR THE DAY AS A NASTY LOOKING STORM APPROACHES.

1930 OFFSITE

Michael O. Joyner 6/9/94

FRIDAY 6.10.94 OVERCAST, WARM AND HUMID (11)

0800 MUSTONEN PREPARING TO INSTALL TEMPORARY PIEZOMETERS AT SWMU 6 AND SWMU 7 WHICH WILL BE USED TO MONITOR THE LNAPL WITHIN THE AREA.

TIDAL INFORMATION FOR 6/10/94 AT THE MOUTH OF THE ST. JOHNS RIVER IS BELOW:

HIGH	LOW
0935	0333
2155	1520

0900 THE GROUNDWATER TABLE ELEVATION WAS MEASURED TO BE 8.37' BLS (DTW BTOC) AT TPW-2. I ANTICIPATE AUGERING WILL BECOME VERY DIFFICULT AT DEPTHS BELOW THE GWT BECAUSE OF THE OCCURENCE OF QUICK CONDITIONS RESULTING IN (DTW) SLOPE UNSTABLE SOIL CONDITIONS AT THE BOTTOM OF HOLE.

0910 BEGIN AUGERING

(0-0.5') BLACK ORGANIC TOP SOIL

(0.5'-2.0') TAN SILTY SAND WITH COARSE SHELLS AT A DEPTH OF 2.0' A CLAY LENSE OF GRAY HIGH PLASTIC MATERIAL OF 4" THICK WAS ENCOUNTERED.

(2.0-4.0) TAN WELL GRADED SAND WITH GRAVEL SIZED BROKEN SHELLS.

0950 AT 7' BLS OVA/FID READING AT THE TOP OF THE AUGER HOLE WAS MEASURED TO BE 1500 ppm. BREATHING ZONE STILL MAINTAINED AT 0-2 ppm.

(4.0-6.0) GRAY SILTY SAND WITH COARSE SAND SIZED BROKEN SHELLS.

(6.0-8.0) GRAY SILTY SAND, WITH SOME BROWN STAINED SOILS WHICH REGISTERED HITS ON THE OVA/FID ON THE ORDER 1500 ppm. MOIST SOIL WAS ENCOUNTERED AT 7' BLS.

(8.0-10.0) GRAY SILTY SAND WITH COARSE SAND SIZED BROKEN SHELLS. GWT ENCOUNTED AT ~~9.5' BLS~~ DTM 10.0 BLS. UNSTABLE HOLE CONDITIONS EXISTED BELOW GWT INDICATING QUICK CONDITIONS.

10:00 MIKE JAYNES ARRIVES ONSITE.

(8.0-10.0) CONT: SOILS WERE ~~ODO~~ ODOROUS AT TIMES WITH PETROLEUM SMELLS.

10:15 GWT AT TPW-1 WAS MEASURED TO BE 8.36' ~~BLS~~ BTOC. TPW-2 WAS CONSTRUCTED AND PREPARED FOR INSTALLATION.

10:20 INSTALLED TPW-2 WITH BOTTOM OF WELL POINT AT 10.6' BLS. GWT WAS AT A DEPTH OF 8.90 BLS. CONSIDERING THE DIFFICULTIES PRESENTED WITH ADVANCING THE WELL PT IN THE UNSTABLE SOIL CONDITIONS THE SCREEN INTERVAL WILL ~~p~~ BE PLACED FROM 10.6 - 5.6 BLS. ASSUMING TIDAL FLUCTUATIONS WITHIN THE WELL PT WILL BE ~~BE~~ APPROXIMATELY 1 FOOT, THE WELL POINT SHOULD ALLOW ANY LNAPH WHICH IS WITHIN THE AQUIFER TO ENTER THE WELL SCREEN. THE ~~WTE~~ DTM ~~GTW~~ DTM GWT ELEVATION WILL BE MEASURED AT LOW TIDE TO ENSURE SCREEN PLACEMENT WILL ~~be satisfactorily~~ DTM SUFFICE.

10:30 BACKFILLED THE HOLE WITH 1 BAG OF (50#) 20/30 SAND THEN BACKFILLED WITH THE SANDY AUGER CUTTINGS. FINALLY 6" OF BENTONITE ENVIROPLUG MEDIUM SIZE WAS PLACED AND HYDRATED WITH TAP H_2O.

DAVID T MIS 6/10/94

11:00 MUSTONEN AND JAYNES PREPARE FOR THE INSTALLATION OF TPW-4

11:10 BEGIN AUGERING

11:15 AT A DEPTH OF 1.5' A VERY HARD MATERIAL IS ENCOUNTERED AND IS NEARLY IMPOSSIBLE TO AUGER THRU. WE DECIDED TO ABANDON HOLE AND ATTEMPT TO AUGER APPROXIMATELY 3' SOUTH OF ORIGINAL HOLE

0-0.5' BLACK FERTILE TOP SOIL.

0.5'-2.0' ENCOUNTER A HIGH ORGANIC CONTENT BLACK SAND WITH LARGE GRAVEL SIZED BROKEN SHELLS, RESULTING IN VERY DIFFICULT AUGERING CONDITIONS.

12:00 GEOLOGIC FORMATION IS EXTREMELY DIFFICULT FOR HAND AUGER, WE DECIDED TO TERMINATE HAND AUGER OPERATION, DUE TO FORMATION DIFFICULTIES.

~~12:15~~ DJM

12:15 SECURE AREA AND DECON EQUIPMENT WITH 3 ALCONOX, TAP H_2O, IPA AND ORGANIC FREE H_2O. ALLOW EQUIPMENT TO AIR DRY THEN TRANSPORTED EQUIPMENT BACK TO TRAILER.

THE AUGER BUCKETS WHICH WERE USED TO ~~PROTRUDE THRU~~ DJM BORE THROUGH THE FREE PRODUCT HAVE BEEN SEPARATED AND LABELED AS ~~BEING~~ DJM

[signature] 6/10/94

(16)

80° 10mph Wind Cloudy No Rain

6/15/94 Product Sampling SWMU 7

4:10 Departed to SWMU 6 + 7 to

Purpose + Objective: sample Monitoring wells MPT-8-MW2, MPT-8-MW3 and MPT-8-MW7 for Floating Product. Additional Trips maybe required to obtain sufficient Volumes for Lab Analysis, for various parameters. The samples will be collected via peristaltic pump.

Personnel: L. Smith, M. Liberman and S. Bostian

4:30 Began sampling of MPT-8-MW7 approximately 1 liter of product was collected along with 2 liters of water in 3 sample Jars

4:55 Amber 1 l wide mouth jars

4:55 move to MPT-8-MW3 repeat of process except that the well is an above ground

5:20 completion - collected 3 l water 1.5 l oil

5:22 move to MPT-8-MW2 repeat of process

5:55 collect approximately 0.2 l of product from MPT-8-MW2

6:00 Returned to trailer with all bottles to be used again in consolidation product where needed - returned to trailer placed samples in locked storage sled.

Larry W Smith 6/15/94

80°F P. Cloudy (17)

Product Sampling SWMU7 6/18/94

12:00 Purpose and Objective: same as 6/15/94

Personnel: L. Smith, M. Lieberman, Dan Jarvis observed

12:20 Began pumping MPT-8-MW2, minimal product recovery total product approximately 0.4 liters in 4 liter amber Jars.

12:35 Began pumping MPT-8-MW7, recovered approximately 0.75 liters of product with minimal water for a total of approximately 1.75 liters in 3 liter jars.

12:45 Began pumping MPT-8-MW-3 minimal product recovery into 5 liter Jars, likely less than 0.1 liter of product was recovered

13:00 Departed site turned samples over to the custody of Dan Jarvis who left the site @ approximately 14:30 after packing samples for shipment in his vehicle - Mr. Jarvis forgot the COC which will be Fed Exed to him on Monday the 20th (6/20/94)

Larry W Smith 6/18/94

(18)

FRI. 7/1/94 CLEAR, HOT HUMID ≈ 85°F

PURPOSE/OBJECTIVE: INSTALL TEMP. PIEZO. WELLS AT SWMU 6+7 OWTP AREA. WE WILL USE A DRILL RIG FOR QUICK INSTALLATION DUE TO PREVIOUS HAND AUGER DIFFICULTY.

PERSONNEL: RBB-ES
MIKE JAYNES
PAT CRAINE
LAYNE
CHARLIE WEAVER
EARL ELLWOOD
RON GREENE

0800 RELOCATING WELL POINTS. PIN FLAGS STILL IN PLACE FOR OWTP WELLS (TPW-3, 4, 7, 8). FUEL FARM WELLS (TPW-5 + 6) WILL NEED TO BE RELOCATED.

WELL I.D.	NEAREST GRID POINT	
TPW-1	(-3, -1)	INSTALLED 6/7
TPW-2	(3, 0)	INSTALLED 6/10
TPW-3	(7, -3)	INSTALLED 7/1
TPW-4	(11, -3)	"
TPW-5	FUEL FARM	"
TPW-6	"	"
TPW-7	(15, -6)	"
TPW-8	(19, -9)	"

(19)

7/1/94 OWTP TEMP. PIEZOS

0830 ATTEMPT TO RELOCATE TPW-5 + TPW-6 IN FUEL FARM. USE VISUAL RECALL AND THE MAP AS A GUIDE. THIS AREA USED A DIFFERENT GRID SYSTEM (P. MUSTONEN) WHICH I'M NOT FAMILIAR WITH SO NO GRID POINTS WILL BE USED.

0845 LAYNE SETS-UP ON TPW-3 TO BEGIN INSTALLATION. P. CRAINE CRAINE OVERSEES, OPERATIONS WILL BE IN LEVEL C PPE AS A PRECAUTION. P. CRAINE WILL MONITOR BREATHING ZONE W/ OVA.

0900 CHECKING FUEL FARM LOCATIONS W/ TOM BANNAM, HE APPROVES, BUT WILL CHECK DUE PRINTS FOR PIPE LINES.

0925 TPW-3 (7, -3) IS SET AT 12 FT. W/ 3 FT. RISER. WATER AT ≈12 FT (TOC) OR 9 FT. BLS (GTW - 12.16 FT. TOC)
SCREENED FROM 7-12'
8 BAGS OF SAND USED
OVA (SOILS/AIR) - ≈1000 ppm / AVG. 20 ppm
FINE GREY SANDS W/ SHELL FRAGS.
MOST OF THE WAY 0-12 FT.
FELIX AIZK (RBB-ES) ON-SITE.

7/1/94

0930 LAYNE SETTING-UP ON TPW-4 (11,-5)
POST-HOLED TO 4 FT. - GREY TO TAN FINE SANDS w/ LARGE SHELL FRAGS.

0940 5-10 FT. - TAN GREY FINE SANDS TURNING GREY TAN, LESS SHELLS - FINE SANDS

0950 8-10 FT. - DARK GREY, APPROX. SATURATED ZONE.

1000 TPW-4 SET AT 11.9' w/ 3.1 FT RISER
DTW - 13.8 FT. (TOC) AND RISING
SCREENED 6.9 - 11.7'
8 BAGS OF SAND USED

1016: Drilling Crew setting up on TPW-7 at grid node (15, -6). Post-hole was 0-4 feet bls: Humic (black) soil over shelly medium sands.
4-9 feet: shelly sand overlying dark grey clayey sand. 9-11 ft. was dark grey clayey sand. 8 bags.

1044: TPW-7 is set at 12.5 feet bls. Riser above grade = 2.4 feet. Screen was from 7.0 - 12.0 (bls) ft. 8 bags of 20/30 sand + ½ bag bentonite pellets. Depth to water = 13.30 and rising (bTOC)

1049: Drillers set up on TPW-8 at grid node (19, -9). Post-hole was 0-4 feet bls: Shelly sands overlying humic soil.

7-1-94

4-10 ft bls was tan colored shelly sand.
10-12.5 ft bls was dark grey clayey sand.

1115: TPW-8 is set at 12.0 ft bls. Riser is 3.0 ft above grade. Screen was set at 10-12 ft.
Depth to water (bTOC) = 12.5 feet.

1134: Drillers set up on TPW-5 at grid node (Fuel Farm - Building 242).
0-4 ft bls: light gray silty + shelly sands.
4-12 ft bls: light gray silty sands.

1155: TPW-5 was set at 12.3 feet bls. Riser was 2.7 ft above grade. Screen was set at 7.3-12.3 ft bls.
Depth to water (bTOC) = 13.20 feet.
9 bags of sand and ¼ bag bentonite.

1200: Drillers set up on TPW-6 at the Fuel Farm.

NOTE: AFTER CHECKING OVER THE BLUE PRINTS TOM BRANNEN + RANDY McCORMICK DECIDE THE STAKED LOCATION FOR TPW-6 IS AS GOOD AS ANY. IT IS CLOSE TO 2 PREVIOUS TERRA-PROBE LOCATIONS WHERE THEY DID NOT HIT ANYTHING. THEY HAVE GIVEN US APPROVAL TO DRILL w/ CAUTION.
C. WEAVER OF LAYNE INDICATES THAT

7/1/94

NOTE: (CONT.) HE IS NOT COMFORTABLE DRILLING THIS HOLE. HE HANDS OFF HIS LOG BOOK AND CLARIFIES THAT LAYNE IS NOT RESPONSIBLE IF ANYTHING HAPPENS.

1215 POST-HOLE TO 4 FT. HIT NOTHING, GREY SHELLY SANDS.
HAND AUGER TO 7 FT. ALSO OK. GREY SHELLY SANDS.

1220 TURNING AUGERS SLOWLY TO 6 FT. BLS.

1230 OK SO FAR, 5-10' - TAN TO GREY FINE SANDS AS BEFORE.

1235 NO PROBLEM, CLEAN SHOT
TPW-6 SET AT 12.5' BLS
W/3 FT. RISER
SCREENED ~~AT~~ my FROM 7.5-12.5'
DTW - 14.5' BTOC ?
8 BAGS OF SANDS USED.

1245 LEAVING 100 DRUMS AT EACH TPW LOCATION.

1305 M. JAYNES + F. RIZK OFFSITE TO TRAILER.

Michael O. Jaynes
7/1/94

7/8/94 CLEAR, HOT ≈ 95°F

PURPOSE/OBJECTIVE: SOIL SAMPLING IN THE SAME 2-MCB FEET FROM APPENDIX IX AS DIRECTED BY FRANK LESESNE.

PERSONNEL: MIKE JAYNES + LARRY SMITH

1000 BECON REQUIRED SAMPLING EQUIPMENT FOR 2 SURFACE SOIL SAMPLES (OS, J5). THESE TWO LOCATIONS HAVE THE HIGHEST LABORATORY PCB HITS TO DATE (120 ppm + 170 ppm, RESPECTIVELY).

1100 RELOCATE PREVIOUS LOCATIONS USING EXISTING GRID PIN FLAGS ARE STILL PRESENT, WILL USE FOR TODAY'S SAMPLES.

1120 BEGIN COLLECTION OF 0255D403 FROM 0-1' USING S.S. HAND AUGER, PYREX BOWL, AND S.S. SPOON.

1130 0255D403 SAMPLE TIME.

1145 0255J503 SAMPLE TIME. COLLECTED AS ABOVE BY SAMPLE (SEE SITE MAP FOR APPROXIMATE LOCATIONS.)

1200 MISSION ACCOMPLISHED, OFFSITE.

(24) 7/8/94 SWMU 19

1330 MOB TO SWMU 19 TO LOCATE AND STAKE SOIL SAMPLE LOCATIONS FROM 6/30/94 (LOG BOOK #11)

1400 STAKE + MARK SAMPLE LOCATIONS 19SS/BS 001 THROUGH 19SS/BS 006 W/ PHOTO LOG AS FOLLOWS:

ROLL # PHOTO #1 - 19SS/BS 001
#2 - 19SS/BS 002
#3 - 19SS/BS 003
#4 - 19SS/BS 004
#5 - 19SS/BS 005
#6 - 19SS/BS 006

1445 OFFSITE TO TRAILER.

Michael O. Jaynes
7/8/94

(25) 7/14/94 SWMU 2-PCB

PURPOSE/OBJECTIVE: RESAMPLING OF THE 7/8/94 SOIL SAMPLE LOCATIONS DUE TO FAILED FED-EX SHIPMENT.

PERSONNEL: MIKE JAYNES + MARK DIBLIN (ABB-ES)

1000 GATHERING EQUIPMENT REQUIRED FOR COLLECTION OF 2 SURFACE SOIL SAMPLES (0-1')

1110 ENTER PCB AREA AND SET-UP AT D4, ALREADY STAKED

1120 BEGIN COLLECTION OF SAMPLE 02SSD403
TAN, FINE SANDS (0-1'), MOIST

1130 SET-UP AT J5 IN THE TREES.

1140 BEGIN COLLECTION OF SAMPLE 02SSJ503
TAN TO GRAY, FINE SANDS (0-1')

1150 SAMPLES COLLECTED, CLEAN-UP AND DEPART SITE.

Michael O. Jaynes
7/14/94

Time	Location	Depth from TOC	Condition

4/24/95 OWTP
RAINY, 65°F

PURPOSE/OBJECTIVE: DISPOSAL OF DRUMS AND BECHTEL'S WORK SUPERVISION AT THE OWTP.

PERSONNEL: MIKE JAYNES AND SAN KUCHIBOTLA

1400 BECHTEL WAS MOBILIZING ON SITE. HAD CONTRACTOR'S ON-SITE TO DETERMINE PLAN OF ACTION. ~~STEVE~~ BECHTEL MENTIONED THAT HE HAD SET UP MEETINGS WITH RO/CC ON TUESDAY'S. MIKE LOOKED AT THE DRUMS LOCATED AT THE OWTP. DEPART SITE

Kuchibotla
Srinivas
4/24/95

Srinivas Kuchibotla

4/25/95 OWTP

SUNNY 65°F

PURPOSE/OBJECTIVE: OBSERVE INTERIM MEASURES STUDIES BEING CONDUCTED AT THE OILY WASTE TREATMENT PLANT.

PERSONNEL: Srin Kuchibotla, ABB-ES

0900 Groundwater protection was digging around Sump 4 ~~to install~~ with shovels for utility locations. Installation of sumps not anticipated for the next two weeks. They anticipate digging trench lines for the pipes to be installed in the next two weeks prior to installation of sumps.

1145 Personnel gone for lunch. Trench is currently being dug from Sump 4 to Sump 5 along the berm. The soil being removed is being piled beside the open trench. Sump 5 is also being dug. The Groundwater Protection trucks are parked near the sludge bed area (SWMU 7)

1500 Bechtel and Groundwater Protection personnel still working on the trench from Sump 4 to Sump 5. Photographs were taken by Srin (Roll Roll Number 1). List of photographs on next page. Spoke with

Photographs

Roll 1

1 View from Sump 4 to Sump 5
2 View (Closer) of pipe being laid from Sump 4 to Sump 5
3 View from Sump 5 to Sump 4
4 View (Closer) from Sump 5 to Sump 4
5 View of general construction area of 4/25.
6 View of area west of tanks
7 View of area west of Bldg 262 toward Sludge drying beds.
8 View of area from parking lot to Sludge drying beds
9 View from Bldg 262 to Bldg 1460
10 View from Bldg 262 to Groundwater Protection trailers located north of Bldg 262
11 Trench being dug near Waste Oil Treatment Facility
12 "
13 Trench upto transformer from where electricity will be taken
14 " "

SK

John Mill of Groundwater Protection. He said that his subcontractor was beginning work starting May 9 or 10th.
John also mentioned that they would using some of the soil that was dug up as backfill. The soil upto 4 inches above the piping was sand and native soil would be used on top of the sand.
1530 Work also being performed at Wastewater Treatment plant area, mainly trenching.
John mentioned that they were taking electricity from the transformer at Bldg 1346 Waste Oil Treatment Facility. He mentioned that they will be trenching until May 2nd week.
Clean-up and deport site.

Srinivas Kuchibotla
4/25/95

(32)

Srinivas Kuchibotla

(33)

4/26/95 OWTP

SUNNY 70°F

PURPOSE/OBJECTIVE: observe Interim Measures being conducted at the OWTP

Personnel: Srin Kuchibotla, ABB-ES

1500 Electrical Conduiting near the Waste Oil Treatment Facility (Bldg 1346) has been completed. Native Soil provided by Duran, Inc. (Trucking Company). Trench currently being dug from Sump 4 to Sump 3.

1700 Back to take pictures of construction area. Also took pictures of electrical wiring that was laid out. The soil that was removed from the trench ~~[illegible]~~ do not know where it was disposed. Will check w/ Groundwater Protection when I come back on next visit. ~~Report file~~

Srinivas Kuchibotla
4/26/95

Photographs

Roll 1

15	View of construction area on 4/26.
16	View of transformer area on 4/26 from road
17	View of lift station and electric wiring ending from road (4/26)
18	Area of soil placed in trench & tamped from road (4/26)

Srinivas Kuchibotla
4/26/95

4/27/95 OWTP

SUNNY, 80°F

Purpose/objective: Observe Interim Measures being conducted at the plant.

Personnel: Srin Kuchibotla, ABB-ES

1000 Arrived at site. Trenching from Sump 4 to Sump 3 currently in progress. Soil is being checked with an OVA and did not have any hits above 0.5 ppm as yet. Kevin from Groundwater Technology, Orlando handed me the Health & Safety Plan to read. Soil dug around trenches is currently being placed around piping and tamped. Taken pictures of work being performed at the site.

1530 Site has been secured by persons from Groundwater Protection. The trench from Sump 4 to Sump 3 is partially tamped. Area near sludge beds has also been secured. Return to site is anticipated on 5/2.

Srinivas Kuchibotla
4/27/95

(36)

Photographs 4/27/95

Roll 1

19 Photos of work between Sump B, 4 & 5.
20 "
21 "
22 "
23 "
24 "
25 Electrical work from transformer at Bldg 1346 to sump
26 Conduit locations near transformer
27 "
28 Native soil stockpiled near sludge drying beds
29 Area of work from sludge drying bed berm. Area near Bldgs 1460 & 1341

Srinivas Kuchibotla
4/27/95

(37)

5/3/95 OWTP

Purpose/Objective: Meeting at the office by Bechtel's trailer and observe Interim Measures at the site.

Personnel: Srin Kuchibotla, ABB-ES

Meeting Personnel: Lt Hurst, ROICC
Steve Santamaria, Bechtel
Steve Cheryl Mitchell, Staff Civil Engineer
Srin K, ABB-ES

Mtg
1343 Drilling scheduled for next week. Peggy to call Steve Santamaria and inform him about using ADS Plastic instead of stainless steel for sumps (SK). Two issues (Lt. Hurst)
(1) Stainless enclosures to be (SK) for electrical work.
(2) Air Compressor to be covered by enclosure (SK).
Lt. Hurst feels that no shelter is needed over drums
20,000 tanks (SK) and air compressor. Hurricane forced winds design will not be designed around compressor. Rubbermaid shed from Builders Square is okay (around compressor only)
→ Flow meter totalizing (SK) is a issue. Before CTTS a flowmeter is required. Currently there is one on each tank (before flow into tank). One for each sump. Cheryl to look into flowmeter issue.

Roll 1 Photographs 5/3/95

30 Trench from Sump 1 to OWTP
31 "
32 "
33 Area near Sump 3
34 "
35 Area near Sump 4
36 Hermit Data logger installation at SWMU 2
37 "

Srinivas Kuchibotla
5/3/95

Soil in roll-off bins will be dumped into lagoons. Berm will be lowered for this purpose.

→ Collect 2 samples from the 20,000 gallons tanks for Appendix IX. From next sample analyze sample for analytes that do not meet criteria.

→ ~~Should we~~ Could Bechtel use our data for soil and groundwater for disposing the ~~stuff~~ soil into the sludge lagoon. Mentioned to Cheryl that time may be a concern for the data. Cheryl to check with EPA.

→ Next (5/11/1500) Mtg

1500 Arrival at the site. Trenching between Sumps 4 and 5 ~~seems to be~~ completed (84)
Trenching between Sumps 3 and 4 also completed. Currently working on digging trench from Sump 1 to the OWTP.
Provided ~~Attach~~ Addendum 10 - Site Safety and Health Plan by John of GPI. Need to read and follow procedures for next visit.

1530 Site Visit Completed Depart site

Srinivas Kuchibotla
5/3/95

Srinivas Kuchibotla
5/8/95

5/8/95 OWTP

Sunny 70°F

Purpose/Objectives: Supervision of horizontal drilling underneath the road for laying pipe at the OWTP, Interim Measures

Personnel: Srin Kuchibotla, ABB-ES

0830 Arrived at site. Groundwater Protection and Bechtel personnel to arrive at site later

0845 Trenches to lay pipe across the road ~~are~~ have been being created on both sides of the road. The piping from Sumps 2 and 3 will be laid underneath the road to connect with the piping that goes to the wastewater treatment plant. Piping to be laid in trenches to go ~~across~~ underneath the road. Utility lines were observed in two of the trenches for Sump 3. A disconnected wire was observed in the trench for Sump 2. Sump areas have been prepared for drilling sumps next week.

0915 Drillers and Steve Bontemorio, Bechtel arrive on site.

1200 Drillers leave site. Rod laid from Sump pads toward Sump 3 across the ~~the~~ road.

SK

Photographs

Roll 2

1 Site prior to beginning of horizontal drilling (Sump 2)
2 Disconnected wiring in one of the pits at Sump 2
3 Site prior to beginning of work at Sump 3
4 "
5 ~~Pipe~~ Utility lines observed at bottom of trenches in Sump 3 trenches
6 → View from Sump 4 to 3
7 Line across road near Sump 3 area
8 "
9 "
10 "
11 "
12 Site after work is completed (Sump 3)
13 "
14 "
15 "

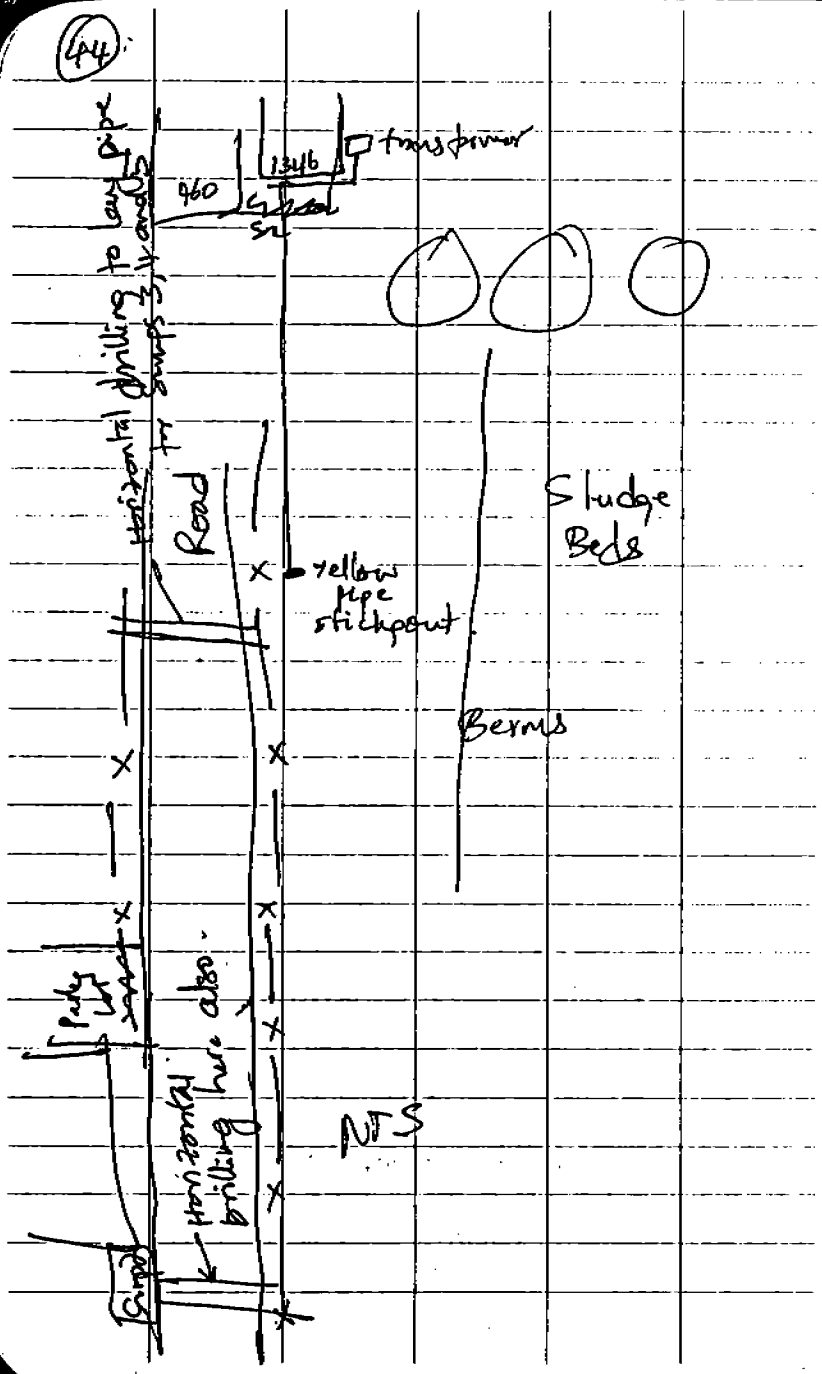
Srinivas Kuchibotla
5/8/95

1515 John briefed me on events that have occured to date at site.
(1) 3-inch PVC pipes between all sumps have been laid.
(2) 2-inch pipes (~~[illegible]~~ air supply and product lines) will be laid across the road instead of 3-inch.

1530 ~~Pipe~~ 8-inch HDPE pipe will be laid across the road and the 2 inch lines will be placed in the 8 inch line. 3 - 2 inch lines for the three sumps ~~3~~, 4 and 5 across from the sludge ponds. A similar 8-inch HDPE pipe with 2-inch pipe will be laid for Sump 2.

1545 Electrical wiring from transformer to air compressor ~~[illegible]~~ control panel and transfer pump area (SK) has been laid. See figure (1) next page. 4-inch PVC pipe has been laid for the electrical wiring. The 3-inch pipes laid between sumps (SK) will carry one product line and one air line each to the sumps. The 3 inch lines have to been reduced

(44)



(45)

to 2-inch across the street.

1545 Site secured. Work to continue tommorow and drill bits left at site. Site work to begin at 7AM tommorow.

Srinivas Kulkarni
5/8/95

Srinivas Kuchibotla
5/9/95

5/9/95 OWTP

Purpose/Objective: Supervision of horizontal drilling underneath the road for laying pipe across the road at the OWTP

Personnel: Srin Kuchibotla, ABB-ES

Weather: Sunny 75°F

0710 Arrived at site. GPI personnel arrived at site. Anticipated start of field work and Health and Safety meeting

0740 GPI personnel working at Sump 3 location. Horizontal drilling being performed by Pledge. Anticipated arrival later this morning

0815 Steve Santamaria arrives on-site.

0950 Pledger Personnel arrive on-site. GPI working at sump areas, removing ~~soil~~ (sx) vegetation and digging upto 2 feet for next weeks sump drilling.

1030 GPI and Pledger personnel waiting for well materials. Left to help with Hermit Datalogger

1130 Still awaiting materials.

1200 Lunch

1300 GPI recieved construction material. Setting rig for horizontal drilling. Left to help Mike with Hermit datalogger.

1430 GPI beginning drawing 8 inch HDPE plastic

Photographs

Roll 2 — **Detail**

16 Pipe being drawn into ground (underneath road)
17 "
18 3 inch piping being laid near sludge ponds. Will be connected to 2 inch piping and then placed in 8 inch HDPE piping
19 Pipe drawn underneath the road
20 "
21 Disconnecting pipe from the drill rig.
22 Drill bit being driven underneath the road
23 "
24 "
25 Piping attachment to drill bit
26 "
27 Piping drawn across street
28 "

Srinivas Kuchibotla
5/9/95

pipe underneath the road. Informed that a 4 inch pipe will be drawn underneath the road at Sump 2 location. Trench with 3 inch piping from Sump 3, 4 and 5 set up. The 3 inch piping was laid near the sludge lagoons.

1445 A 12-inch bit was used for pulling the 8 inch HDPE Plastic pipe underneath the road. The 2 inch piping for each sump will be put inside the 8 inch HDPE Plastic piping. Drawing the piping underneath the ground is complete.

1500 Drilling machine being moved to location no. 2 near Sump 2. The drill rig has been bolted into the ground. John mentioned that they did not have any high OVA readings at any of the locations during trenching. Smell of petroleum was detected at one location near fuel farm (on berm) and one near sludge ponds close to wastewater treatment plant, however no OVA readings could be obtained

1530 Drill bit being driven underneath the road. Subsite 8 ORP is being used

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5/9/95

to locate drill bit underneath the road.
Bechtel using Gastech GT 402 to detect
H_2S, LEL, CO and % Oxy during drilling
% Oxy approx 20-21 (s.t). OVD detected
no levels during drilling at Sump location 2.
Area designated as working area along road,
prior to beginning work.

1600 Drill bit reached sump 2 location end.
1615 The 4 inch HDPE piping is scheduled to
be pulled underneath the ground. The
horizontal drill rig is being reared up
to perform the operation.
1630 Pipe drawn underneath the road
Drill bit being seperated from pipe.
Pledger to disassemble drill bit from
piping, secure equipment and leave.
1645 ~~Left Site~~ Pledger loading equipment
End of Day

Srinivas Kuchibotla
5/9/95

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Srinivas Kuchibotla
5/11/95

(53)

5/1/95 OWTP

Purpose/Objective: Meeting on Status of Interim Measures

Personnel: Srin Kuchibotla, ABB-ES

Meeting Details

1515 Status of Consumptive use permit currently not known. Cheryl to discuss issues in the meeting minutes at the Partnering Meeting at Atlanta Ga next week. The berm around the sludge ponds will be partially removed and a ramp will be constructed to take the drill cuttings into the sludge ponds. Meeting minutes for previous meeting has been provided.

1545 Next meeting scheduled for 5/25 at 15:00

Srinivas Kuchibotla
5/11/95

5/15/95 OWTP

Purpose/Objective: Possible drilling of sumps at the OWTP.

Personnel: Srin Kuchibotla, ABB-ES

0830 Personnel yet to arrive at site.

0930 Bechtel supervisor on-site. Awaiting arrival of GPI ~~crew~~ crew.

1000 GPI personnel arrive on-site. Informed by Bechtel that they may start drilling on 5/16 AM. Construction of concrete pad and laying of piping to continue today. ~~The~~ A 20' sump casing is on-site and the covers for the sump are located on-site. ~~A~~ Air, supply and product pipes have arrived and are located on site. The roll off bins for the drill cuttings are located behind Building 262

1130 Construction of pad in progress. Anticipated usage of steel tanks instead of plastic (20000 gallons). Drilling of sumps anticipated to begin around 9:00 AM on 5/16. End of day

Srinivas Kuchibotla
5/15/95

Photographs

Roll 2	Detail
29	Sump outer casings on-site
30	Roll off Bins located behind Building 262
31	Section of Berm removed for access to Sump Pond
32	Trench for piping from Sump 2
33	PVC piping leasing for sumps
34	Concrete pad construction area

Srinivas Kuchibotla
5/15/95

5/16/95 OWTP

SUNNY, 70°F

OBJECTIVE: OBSERVE SUMP INSTALLATION AT FACILITY

PERSONNEL: BOB LUNARDINI, ABB-ES
SRIN KUCHIBOTLA, ABB-ES

10:30 Arrival on-site. John Miller, GPI with three personnel located at the site. Personnel working on the concrete pad for the 20,000 gallon storage tanks.

1100 Drillers arrive on site. Steve Sankamaria arrives at site to speak to drillers and then leaves. Drillers scheduled for site orientation. Anticipate drilling in the afternoon

1105 Bob and Srin speak with Mike Merit of Cole Jon about the OWTP operations. Project Manager for OWTP: Bruce Johnson 272-2248, Pager 464-9089
Utility Manager for OWTP: Bob Lacey 778-3868, Pager 949-1646

1130 Brief tour of the OWTP and brief descriptions of the process and operations provided by Mike Merit. Drilling and GPI personnel leave for lunch.

1200 Bob and Srin leave for lunch

1300 Bob and Srin arrive at site. GPI personnel (John Miller and two personnel) still working on the concrete pad. Drilling crew not available at the site.

1330 John Miller informs Bob and Srin that drilling is not anticipated today. Bob and Srin leave for trailer.

1335 Bob leaves trailer. Srin to visit site sometime in the afternoon.

1435 Returned to site. Drill rig has been prepared for drilling next ~~week~~ day. GPI personnel working on concrete pad. Rebar being placed for the concrete pad. One more roll off bin beside SDBs.

Photographs	Roll 2	Detail
	35	Drilling equipment set for drilling
	36	Rebar placement for concrete

1500 Obtained PID drawing for OWTP from Mike Merit. Drilling at site being performed by Reliable Construction, Inc. Return to trailer. End of day

Srinivas Kuchibotla
5/16/95

5/17/95 OWTP

SUNNY 70°F

OBJECTIVE: Observe drilling of sumps at OWTP

Personnel: Srini Kuchibotla, ABB-ES

0830 Arrival on site. Bechtel and GPI personnel on-site. Sump drilling by Reliable Construction, Inc in progress. Sump being drilled using a 4 ft bit and mud rotary drilling

0835 ~~Rick Azik~~ (SK) replacing Steve Santamaria at the site. Three Reliable Technology personnel and ~~Four~~ (SK) GPI personnel (including John Miller) on-site. GPI personnel working on reinforcing the concrete pad.

Rick Azik

0845 John Miller using OVA to measure levels in the work area. ~~Diesel fuel~~ (SK) Petroleum odor in the vicinity of work area has been detected.

0900 Bechtel and GPI personnel measuring levels using OVA in the sump hole area. 0-5 ppm in soil detected. No elevated levels in work area.

0930 Drilling of sump temporarily stopped.

1030 Drilling still halted. Awaiting concrete mixer.

1130 Sand settled at the bottom of sump after drilling is complete, is being removed. Hole drilled upto required depth.

Photographs (Sump 1)

Roll 3

1	Sump installation area (Sump 1)
2	"
3	"
4	Soil being placed in lagoon
5	Reinforced concrete pad.
6	Quik Gel mix being poured and sump hole.
7	Concrete being poured into hole
8	Hopper used to pour concrete into hole
9	Mesh around PVC casing ~~Pouring concrete into hole~~ (SK)
10	" ~~Concrete mix on grade~~ (SK)
11	"
12	Concrete being poured into sump.
13	End of day 5/17/95 Sump 1 area.

Srinivas Kuchibotla 5/17/95

1200 Split for lunch. Casing and Concrete to be placed after lunch. Concrete to be put at bottom of casing and casing (ABS Plastic-HDPE) to be placed above concrete.

1300 HDPE Plastic casing placed in hole. Concrete poured prior to placing the casing at the bottom

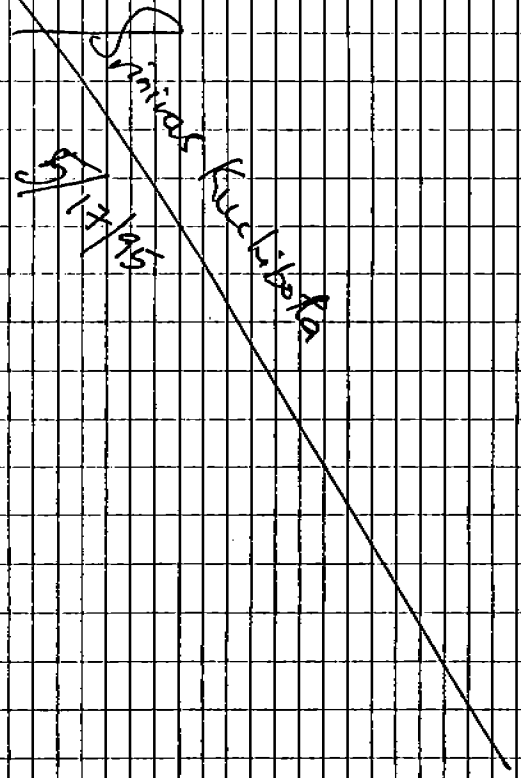
1315 Concrete mixer arrives. Water around HDPE casing to be pumped and pea gravel to be place between casing and formation. Pumping to be performed after concrete hardens.

1400 Peagravel being poured around PVC casing and formation. Concrete mix got stuck in the hopper and was poured on ground. Mix being carried to flowmeter area. Concrete mixer being cleaned into sludge bed. Sludge bed being used is the bed to the ~~most~~ ~~extreme~~ farthest (SE) west of the LETs

1445 Sump complete. Plywood cover placed on Sump. Sump cover to be placed later. Sump cover placed over flowmeter area. Concrete partially poured around the Sump cover. Bentonite pellets poured above the pea gravel.

1500 Sump 2 to be installed on 5/18. Mesh placed around HDPE PVC ~~piping~~ casing for sump. End of day

1520 Left site.



5/18/95 OWTP

SUNNY, 80°F

OBJECTIVE: OBSERVE SUMP INSTALLATION AT OWTP.

Personnel: Srin Kuchibotla, ABB-ES

0720 Arrival on-site. John Miler of GPI and three other GPI personnel on-site. Four Reliable Construction, Inc. on-site. Drill rig being set up at sump location number 2. Bechtel's site supervisor on site.

0745 Left for trailer.

0820 Arrival on-site. Installation of Sump 2 in progress. Rick A. of Bechtel arrives on-site.

1000 Left site to take readings at SWMU12. Sump 2 still being installed.

1045 Return to site. Concrete being poured for concrete pad. Sump 4 being installed. Polyethylene sheet being used to place soil being removed from sump installation. Sump 2 drilled upto required depth and soil being allowed to settle.

1100 Cable detected during installation of Sump 3. Cable wire slightly marked, however, no electricity detected in the line. Detecto-Pak OVD being used to detect levels of petroleum vapors in soil and breathing zone.

Photographs

Roll 3	Detail
14	Sump 2 drilling
15	Concrete being poured for pad.
16	Sump 3 installation
17	Sump 2 area after drilling (no casing placed)
18	Drilling at Sump 3 Location
19	
20	Drilling fluids being pumped into sump. Quick Gel addition to drilling fluids.
21	Pea gravel being used around casing
22	Casing being placed in hole at Sump 2.
23	"
24	Concrete pad on 5/18/95 day end.
25	Completed Sump 2 location on 5/18/95. End of Roll

Srin. Kuchibotla
5/18/95

Elevated levels not detected today. Soils from Sump installation at Sump 2 and 3 being placed in the roll-off bins. Lt. Hurst arrives on site.

1130 Quik Gel being pumped into the sump hole to prevent caving in. Lt. Hurst inspects site at Sump 3 and leaves for concrete pad.

1145 Lt. Hurst inspecting the Concrete pad area. Concrete mix prepared and brought in by Rinker. Concrete Slump tests being performed by Consulting Engineering & Testing Services Inc. Slump approx. 3½ - 4 inches per Rick, Bechtel. Paul Weatherford, Bechtel, is Health and Safety Officer for Bechtel and John Miller, GPI Health and Safety Officer for Drillers and GPI personnel.

1150 Lt. Hurst departs. Installation at Sump 3 temporarily halted. Concrete pad work in progress. CST, Services also collecting samples for compression tests of concrete. Drill rig at Sump 2 area. Removal of soil settled at the bottom of hole completed. Pull Boxes provided near Sump 2 and 3. Pull Boxes noted as flowmeter boxes on 5/17/95 notes.

1210 Casing being installed into hole at

Sump 2. Casing has a mesh around it to prevent formation from entering ~~into~~ (se) within the casing area.

1230 Concrete mix for Sump 2 arrives on-site. Concrete being poured using hopper into bottom of hole at Sump location 2.

1330 Sump 2 installed including casing and pouring of concrete. Water being pumped from sump into lagoons. Back to trailer for drinks.

1420 Back at site. Lt. Hurst at site. Sump 3 to be completed on 5/19/95. Sump 3 drilled upto 12 feet. Concrete pad almost (for 20 months) complete. Concrete for the sumps being provided by Florida Mining Corporation. This concrete is poured below the casing at each Sump location. Concrete for the concrete pad being provided by Rinker Corporation.

1445 Depart from site. Concrete on the pad being tamped and leveled by GPI personnel.

Srinivas Kuchibatla
5/18/95

5/19/95 OWTP

SUNNY, 70°F

OBJECTIVE: Observe installation of sumps

Personnel: Srin Kuchibotla, ABB-ES

0730 Arrival on-site. Drilling at Sump 4 in progress. John Miller, GPI and two GPI personnel on-site. GPI personnel working on concrete pad and casings for sumps. Four Reliable Construction, Inc personnel on-site. Paul Weatherford of Bechtel on-site.

0800 Rick A arrives on-site. Concrete pad complete. Concrete being cured prior to placement of tanks. Sump 2 casing installed. concrete poured and pea gravel placed between casing and formation. Sump cover to be placed later. Electrical contractor arrives on-site.

0815 Sump 4 was drilled upto 12 feet on 5/18/95. Drilling of Sump 4 upto 20 feet complete. Drilling stopped.

0830 Drilling settled sands in the hole. Placing casing into hole after mixer arrived.

0845 Drilling at Sump 3 location begins. Awaiting concrete mixer for Sump 4 completion.

0915 Sump 3 close to complete. Drilling stopped. Awaiting concrete mixer. Left for trailer

Photographs

Roll 4	Detail
1	Concrete pad area
2	Sump 4 area
3	Sump 3 area
4	Setting up concrete electrical panel
5	Pouring concrete at Sump 3 area
6	Putting soil (drill cuttings) and water into sludge be
7	"
9	Sump 3 area at end of 5/19/95
8	Sump 4 area at end of 5/19/95

Srinivas Kuchibotla
5/19/95

0945 Arrived on site. Awaiting concrete mixer. Sump 3 drilled upto approx. 10 feet. Awaiting arrival of water at site for further drilling. Quick-Gel being poured into sump hole to prevent caving in. Depart from site to do work at SWMU 12

1045 Arrived on site. Electrical panel being set up near concrete pad. Awaiting concrete mixer prior to placing casing into Sump Hole 4. Sump 3 drilled to reqd. depth.

1110 GPI personnel depart from site. Drillers working around Sump 2 area. Spoils being placed in roll-off bins.

1130 Split for lunch

1245 Arrived on site. Concrete mixer from Florida Mining on-site. Concrete being poured underneath casing at Sump 3 location. Rick Akers, Paul Weatherford & Bechtel, John Miller and two GPI personnel, and ~~four~~ Reliable Const. Pub. personnel on site

1330 Concrete pouring at Sump 3 location complete. Drill cuttings from Sump locations being placed in the sludge drying beds. Sludge drying bed being used is ~~extreme~~ the last bed west of the LETs.

1345 Removing settled soil from the bottom of the hole at Sump 4 location.

1400 Concrete being poured into the bottom of Sump 4. Drilling fluids within sump area being pumped into roll-off bin beside Bldg 262 near Sump 4.

1415 Pea gravel being poured around Sump 4 casing. Electric panel set up near concrete pad. Pea gravel also being poured around Sump 3 casing. GPI personnel curing concrete pad. Roll off bin also setup near Sump 5 beside tanks. Remaining concrete being poured into pit across the road from Sump 3 and near Sump 3. Trenches into which concrete is being poured are the trenches dug for piping from the sumps to go across the road.

1430 Water from Sump 4 location being pumped into roll-off bin. Soil at sump locations being placed on polyethylene sheets.

1445 Roll off bin beside Sump 5 moved to Sump 3 location. Pumping drilling fluids from Sump 3 location into roll-off bin.

1500 Dumping soils and fluids from Sump 5 roll off bin into sludge beds. Cleaning rolloff bin into pad.

1515 Cleaning up area and securing site for weekend.

1530 Site secured and area cleared for weekend. Left site

Srinivas Kuchibatla
5/19/95

5/22/95 OWTP

Objective: Observe installation of sumps at the OWTP.

Personnel: Srin Kuchibotla, ABB-ES

0815 Arrival on-site. Paul Weatherford of Bechtel on-site. Awaiting arrival of GPI personnel. Rick A of Bechtel ~~[illegible]~~ at site and left.

0900 Left for ABB trailer for drinks.

0930 Arrival on-site. Still awaiting GPI personnel. Reliable Construction, Inc personnel on-site. Three RCI personnel on site. Left for SWMU 12. Person for ES for roll off bins on-site.

1030 Arrival on-site. GPI personnel (two) on-site. Electrical wire located near Sump 5. Source of line or wire not known. Awaiting arrival of Electrical Contractor, to determine safety of drilling in the area.

1050 Left for trailer. ~~for~~

1115 Arrival on-site. Awaiting drilling to start. GPI personnel digging in trench and exposing wire for electrical Contractor.

1145 Depart site for lunch.

1345 Arrive on site - two GPI personnel and four RCI personnel on-site. Rick A on site.

1415 Rick A explained that there was a cluster of wiring observed in the pit for Sump 5. The wiring was along the trench from Sump 5. Rick A. mentioned that they may not perform any drilling today and drilling will resume on 5/23/95

1430 Depart site. GPI personnel working near concrete pad. RCI and Bechtel personnel awaiting arrival of Electrical Contractor.

1530 Arrive on site. Personnel departed site. End of Day. Drilling to resume after electrical issue is resolved.

SRINIVAS KUCHIBOTLA
5/22/95

5/23/95 OWTP Rainy, 70°F.

Objective: Observe Sump installation at the OWTP

Personnel: Srin Kuchibotla, ABB-ES

0830 Arrival on-site. Awaiting arrival of electrical Contractor to resolve wiring issue near Sump 5. Three GPI personnel, Paul Weatherford, Bechtel and three RCI personnel on-site

0915 Electrical Contractors arrive on-site. Electrical wiring verified. Drilling begins at Sump 5 location. Electrical Contractor ~~hired by~~ Contracted to GPI.

0930 Slight rain. Drilling in progress. Rick A. arrives on site

1100 Installing PVC casing into hole at Sump 5. Concrete expected to arrive around noon. Depart for SWMU 12 to check parameters. Hole at Sump 5 drilled upto required depth.

1145 Rick A. departs site.

1200 Florida Mining concrete truck arrives on-site. Removing settled soils at bottom of the hole.

1230 Concrete poured into casing at Sump 5 location. Drilling cuttings from Sump 5 location being pumped into roll-off bin beside Building 262.

1255 GPI personnel to work around concrete pad.

13 June 96

Photographs

Roll 3 & 4	Detail
9	Sump 5 area.
10	Sump 5 area
11	"
12	Casing being placed into Sump 5 hole.
13	Pouring concrete below casing in hole at Sump 5
14	

1330 Depart site. Personnel on-site completed Sump 5. Cleanup of equipment and emptying roll-off bins into sludge beds ~~need~~ anticipated till end of day.

1530 Arrival on site. RCI personnel cleaning drill rig and other equipment into sludge bed. Personnel cleaning up and getting ready to depart site. End of day. Will install Sump covers on 5/24/95

Srinivas Kuchibotla

5/23/95

(74)

5/24/95 OWTP Sunny 70°F

Objective: Observe Interim Measures at OWTP

Personnel: Srin Kuchibotla, ABB-ES

0830 Arrival on site. Three GPI personnel (including John Miller) and four Reliable Construction, Inc. personnel on-site.

0845 Paul Weatherford, Bechtel arrives on-site. John briefes on work for day. Mostly cleanup, ~~and~~ sump development and soil (in roll off bins) disposal into sludge beds. Cleaning of drilling equipment (down) into sludge bed in progress. GPI personnel working around concrete pad. Paul mentioned that concrete to install sump boxes should come in tommorro. The sump boxes will be placed at each sump today. Dates on arrival of pumps, ~~and~~ air compressor and tanks (20,000 gallons) currently not known.

0900 Depart site.

1030 GPI personnel working on putting sump covers. Working near Sump 1 location and concrete pad. RCI personnel cleaning drilling equipment. End of Day

Srinivas Kuchibotla 5/24/95

(75)

5/25/95 OWTP Sunny 70°F

Objective: Observe Interim Measures at OWTP

Personnel: Srin Kuchibotla, ABB-ES

0845 Arrival on site. Paul Weatherford, Bechtel, one GPI and two Reliable Construction, Inc. personnel on site. RCI personnel working around Sump 1. Informed Paul that we had a filming crew on-site for filming various activities on-site. Paul mentioned that it was alright to film events at the OWTP. Anticipate performing sump cover preparing today. Concrete for sump covers expected on-site on 5/26/95.

1115 Paul Weatherford informed me on my way to SWMU12 that the sump 1 had sunk at its location. Arrived at site to view sump. Area (approx 1-2') around the PVC casing had caved in.

1130 Speak with Paul. Also observed that pump was pumping sand. The development water was being pumped into the sludge bed. Pumping was being conducted by

Reliable Construction, Inc. Depart site to speak with Frank and Peggy from Paul. Took well detail

1245 Arrived on-site. ~~Two~~ Reliable ~~Contractors~~ Construction, Inc. personnel on-site. RCI personnel informed me that water was being pumped using a submersible pump from John E. McCausland, Inc. (Ph. No. 904-358-1975). The pump had a 4 inch discharge line. Water from the tanker was being used for pumping from the sump. The water from tank was being used for circulation. A steel rod was used to feel the bottom of the ~~pump~~ sump and they felt concrete at the bottom.

1300 Depart site for trailer. RCI personnel that development water was being pumped directly to sludge beds.

1430 RCI personnel informed me that when they pumped the sumps, they observed the concrete at bottom of sump. Pump had a 4" discharge line that was reduced to a 2" discharge line that pumped water into sludge beds. Pump used was a diesel driven pump and based on information provided by

Photographs

Roll 4	Detail
14	Sump location after soil laying
15	"
16	Development water in sludge bed
17	Sump 2 area on 5/25/95
18	Sump 4 area on 5/25/95
19	Sump 3 area on 5/25/95
20	Sump 5 area on 5/25/95
21	

John E. McCausland, Inc. pump could pump upto 800 gallons per minute. Construction details of sump indicated 4-inch ~~outside~~ hole with 3-inch PVC casing inside hole. Approximately 19 inches of concrete at bottom for seal. PVC had 1/4-inch perforations and a 1/16-inch square openings mesh was screwed on the outside of the PVC casing. Pea Gravel was placed upto four feet below ground surface leaving remaining space for bentonite pellets and cement grout. Construction detail provided by Paul Bechtel.

1515 Checked along with John Miller of GPI the depths of each well from

top of casing. Depth information provided below:

Sump 1 — 13'
Sump 2 - 18'
Sump 3 - 12'6"
Sump 4 - 15'4"
Sump 5 - 10'

This is depth from top of casing to top of sand in the sumps.

1520 Depart site for trailer. End of day informed by RCI personnel that ~~pump~~ sump went dry very quickly after pumping with submersible pump

Srinivas Kuchibotla
5/24/95

5/31/95 OWTP Sunny 70°F

Objective: Check integrity of bottom of the sump.

Personnel: Srin Kuchibotla, ABB-ES; Mike Jaynes, ABB-ES; Hank Howard, GPI — ABB Personnel

0800 Arrival on-site. Steve Santamaria and Paul Weatherford of Bechtel on-site. Keith & John Miller of GPI also on-site. ~~File~~ GPI personnel working at Sump 3 location.

0830 Hank of GPI conducting jet trimming at Sump 1 location. 20 foot pipe (hollow) 3/4" dia used for jet trimming and water being used from drill rig. Steve taking information on integrity of concrete at bottom.

0835 Holes observed at bottom of Sump 1.

0845 Checking Sump 2 location. Pat Craine arrives on-site. Holes not observed at Sump 2 location

0900 Arrived at Sump 4 location. John from GPI observed at hole at Sump 2 when they were driving with a rebar and hammer. Pump used for developing

13 Jan 96

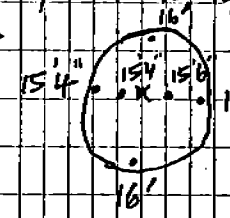
Photographs No.	Roll # 4 Detail	
22	Jet Trimming	at Sump 1
23	"	
24	Jet Trimming	at Sump 2
25	"	at Sump 4
26	"	at Sump 5
27	"	at Sump 5
28	"	
29	"	at Sump 3

SK

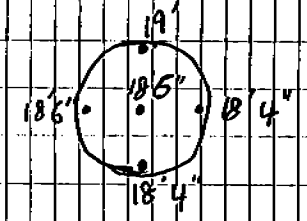
on 5/24/95 was 1 foot radius (SK) Submersible with 4" discharge line. Measurements taken by Sim and John Miller, GPI seemed to be inaccurate based on sand information at bottom on 5/31/95. Tape measure was used when readings were taken on 5/25/95. Jet Trimming is being used on 5/31/95. Hank mentioned approximately 4 foot sand at bottom at Sump 1, 2 foot at Sump 2 and 1 foot at Sump 4.

0930 Mike and Pat depart site. Pat arrives at site with slug to measure depth to top of sand at each location. Sump 1, 2 and 4 jet trimmed prior to depth information

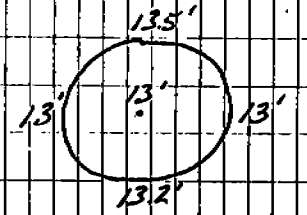
Sump 4 – 15' 4" (center), 15' 6"



Sump 2

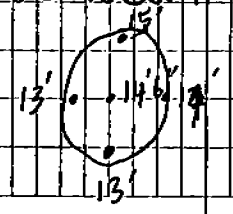


Sump 1



Sump 5 – No depths taken since drill fluids have not been removed from well and well has not been developed. Quick Gel used sitting at the bottom of the well.

Sump 3



(B2)

1000 Sump 4 did not have holes in it. 1" bit used instead of a 1½" bit at Sump 4 location. Hank arrives with 1" bit.

1015 Sump 5 does not have any holes at the bottom

1115 Jet Trimming at Sump 3 location. Holes not observed at bottom at Sump 3 location.

1130 Jet Trimming at Sump 2 location again with 1-inch bit. Observed 6 to 10 inch hole with 1-inch bit.

1200 Split for lunch.

1400 Arrive at ROICC office for Construction Meeting. Construction Meeting has been postponed. Date unknown.

1500 Had a meeting at Bechtel's trailer.
Mtg people: Steve Santamaria, Bechtel
David Driggers, South Div
Fred Seale, Bechtel and
Frank Lesesne, ABB-ES.

→ Drilling operations for removing sand at Sumps 3, 4 and 5 anticipated on 6/1/95.

→ Pumps expected to be 3-4 feet long

→ For Sump 1 and 2 clean bottom with bailer and put concrete to 4-6" above

(B3)

current (SK)

seal at the bottom (jet pump).

→ Completing the aboveground concrete completions at Sumps 3, 4 and 5. Bail out 3, 4 and 5 also

→ Anticipate conducting removal of sand this week and pumping of grout this or next week

SRINIVAS KUCHIBOTLA
5/31/95

6/1/95 OWTP Sunny, 85°F

Objective: Observe removal of sand at bottom of sumps.

Personnel: Srin Kuchibotla, ABB-ES

1100 Arrival on-site. Steve Santamaria and Paul Weatherford of Bechtel on-site. John Miller and five GPI personnel on-site. Three RCI personnel on-site operating the ~~bed~~ fly (SK) auger and bailer. Bailer equipment being set up at sump 1 location.

1110 Depart site to bring equipment.

1120 Arrival on-site. RCI personnel using bailer to remove sand at bottom of Sump 1.

1130 Bottom sand well packed, therefore, fly auger being used to loosen up sand at the bottom of the sump. The rod ~~at~~ to which the fly auger is attached has been calibrated (5' increments) to ensure that the bottom of sump (concrete at bottom) will not be broken. Sand being removed is being placed on plastic sheets.

1145 At high tide water is almost 2 feet below top of perforated area (location where perforations begin). Sand removed is being taken into the sludge bed. The sludge

FB 13 Jun 95

Photographs Roll 3 4

30 Removal of sand at bottom of Sump 1

31 "

32 Removal of sand at bottom of Sump 2 and pouring of concrete near Sump 2 pull box.

33 "

(SK)

bed being used is the one farthest from the LETs. Pump used for developing Sumps 1 - 4 were ~~all~~ the same. This pumping was conducted on week of (SK) 5/25/95. Hank and Bob arrive on-site. Hank and Bob of GPI to fix monitoring well behind tanks at Building 262.

1330 Removal of sand at Sump 1 halted. Awaiting arrival of concrete and backhoe to be used by GPI ~~[illegible]~~ for pouring concrete.

1345 Concrete on-site. Pouring concrete at pull boxes. Pull boxes to be used for access for piping to be believed. Concrete being poured into and around pull box. Hank and Bob leave after fixing monitoring well beside concrete road behind fence.

1400 GPI personnel working around pull boxes.

1415 ~~Hand~~ (SK) Bailer to remove sand at Sump 2 location. Bailer moved to Sump 2 location.

1430 Cut PVC casing pieces used on top of PVC

Casing at Sump 2 before bailing Sump 2.

1445 GPI personnel pouring concrete into pull box near Sump 2 location. Steve Santamario, Bechtel departs site to bring Lt. Hurst to site.

1450 Pouring concrete at pull box near Sump 1. Removal of sand at Sump 2 location complete.

1500 Pouring concrete into pull box ~~west~~ (SW) of southwest of the concrete pad.

1510 Bailing equipment moved to Sump 3 location. Steve to provide me with jet trimming information collected on May 31, 1995. End of day

Srinivas Kuchibotla
6/1/95

6/2/95 OWTP Sunny 75°F

Objective: Observe removal of sand at bottom of sumps at OWTP

Personnel: Srin Kuchibotla, ABB-ES

0830 Arrival on site. Paul Weatherford, Bechtel and three RCI personnel on-site. John Miller and five GPI personnel on-site. GPI personnel working at Sump 3 location

0845 Bailing of Sump 5 in progress. Bailing at Sump 5 location involves both drilling mud and sand removal.

0900 Sump 4 and 3 have been cleaned at the bottom. Approximately two buckets from Sump 4 and four from Sump 3. Anticipated verificat of bottom of these three sumps using 3-inch rebar.

0915 Sump 5 still in progress. Cut PVC pieces used above sump 5 location as cap.

0930 Bailing at Sump 5 stopped to allow water to settle.

0945 ~~Pumping at~~ (SK) Bailing at Sump 5 begins. Drill mud and sand from Sump 5 being taken to sludge bed farthest from the LETs.

Photographs Roll 3

33 Removal of drilling fluids and sand at Sump 5
34 "
35 PVC (cut) pieces used above Sump 5
36 Setup for pumping concrete to bottom of sump (Sump 1)
37 " (Sump 2)

- End of Roll 3 -

1000 Cleaning of sump 5 using bailer complete. Depth = 19.5' approximately 13 buckets removed. Steve Santamaria arrives on-site. Provided me with the sump concrete checking information of 5/31/95.

1015 Went to ~~other sump locations with~~ (SK) Sump 3, 4 and 5 with Paul Weatherford to check bottom with 2 inch rebar. No openings, holes or racks observed at the bottom of these sumps with the 2-inch rebar.

1030 Complete checking Sumps 3, 4 and 5 and awaiting arrival of concrete to the site. Concrete to be used for patching Sumps 1 and 2. Sump 1 has 30 to 40% voids and Sump 2 has 6-10 inch hole. While checking the bottom of the sumps

at Sumps 3, 4 and 5, sand and silt was observed at the bottom of these sumps. However sand and silt at the bottom were minimal.

1045 Awaiting arrival of concrete on-site.

1100 Concrete arrives on-site. Schwing BPA 450 being used to pump concrete into Sump 1. Concrete provided by Florida Mining & Minerals. Concrete being pumped through the Schwing BPA 450. Depth into on sumps given below.

Sump	Final Depth *	Buckets (Approx)
SM1	19.6" (SK)	Not Available ~~[illegible]~~ (Available w/Bechtel) (SK)
SM2	19.0	4
SM3	19.0	4
SM4	18.0	2
SM5	19.5	13

* Final Depth from top of Casing to top of Concrete.

1115 Pumping of concrete using the Schwing BPA 450 currently in progress. Concrete being pumped into hole at the bottom of the sump. Concrete to plug the hole at the bottom and 6 ft above the existing. Depth from top of casing to top of concrete is 18'6". Pipe used to pump concrete approximately 6" - 8" (SK)

1130 Moving to grout Sump 2 location.
1145 Loading concrete to grout Sump 2 location begins. Pumping grout to patch hole and 6 inches above existing surface. Depth to bottom of Sump 2 before grouting is 19 feet. Top of Casing to top of Concrete 18 feet 4 inches.
1200 Grouting of holes in concrete at Sump and 2 complete. Also, removal of Sand (bailing) at bottom of sumps 1, 2, 3, 4 and 5 also complete. Anticipated finishing of surface of sumps next week. Arrival date for pumps and tanks (20000 gal) currently not known. Left for trailer.
1215 End of day

SRINIVAS KUCHIBOTLA
6/2/95

6/7/95 OWTP Sunny, 70°F

Objective: Observe operations at OWTP

Personnel: Srin Kuchibotla, ABB-ES

0900 Arrival on-site. Paul Weatherford, Bechtel and four GPI personnel on-site. GPI working near sumps 1 and 3 laying tubing for sumps. Two lines, one air line and one product line being laid for each sump location.
0915 John Miller and Keith, GPI arrive on-site
0925 Depart site for SWMU 12

SRINIVAS KUCHIBOTLA
6/7/95

6/8/95 OWTP

Objective: Observe pump installation at the OWTP.

Personnel: Srin Kuchibotla ABB-ES

1415 Paul Weatherford, Bechtel, John Miller, GPI and five GPI personnel on-site. The Concrete has been poured at each sump location. GPI personnel working on placing guard posts at Sump 4.

1430 Each sump location has a PVC ~~pipe~~ casing (SK) sticking out. PVC casing attached using screws. Cap (Plastic) placed ~~on~~ each sump. Pumps have already been placed into four sumps, Sumps 1, 3, 4 and 5.

1315 The control boxes for the sumps expected to arrive next week. Control boxes to be placed on the post. Piping to the pump has been placed temporarily for the ~~three sumps~~ (SK) four pumps installed. Pump has a air inlet line, discharge line and bleed or exhaust (SK) line. A outside air line is present to prevent the sump from clogging. The outside air line is the Brain exhaust fitting. They will work on connecting all lines to LET tanks on 6/9/95.

1330 Depart site. End of day

SRINIVAS KUCHIBOTLA
6/8/95

6/9/95 OWTP

Objective: Observe installation of pump and welding of piping from concrete pad to LET tanks.

Personnel: Srin Kuchibotla, ABB-ES

1130 Arrival on site. One GPI personnel on site. Covering of trench for laying piping from the Concrete pad to the LETs in progress. Informed that the pumps have been placed in sumps and piping has been welded to the LETs.

1200 Depart site as other personnel expected to return after lunch.

1245 Arrival on-site. Keith GPI and five GPI personnel departing site. Pump at Sump 2 was installed and posts placed. Posts are temporary.

1315 All sumps have pumps placed in them. Pump placed approximately 2 feet below water surface. Holes have been dug around each sump for placing posts. (SK) The control boxes will be placed on one ~~each~~ post at each location.

1330 Keith GPI informs that tanks expected to arrive on July 10th. Also, GPI

(94)

13 Jun 94

Photographs

Roll 5

1 Area of Sump 1
2 Area near piping connection to ~~sump~~ LETs (SL)
3 Hot rod piping to LET piping area
4 Pipe that was located near concrete pad.
5 Sump 1 piping in pull box.
6 Pump placed in Sump 1
7 Sump 4 location on 6/9/95
8 Sump 3 "
9 Sump 5 "

SK

personnel to return to site on Wednesday 6/14/95 to place posts and install control boxes.

1330 Depart Site. Will check on Wednesday

SRINIVAS KUCHIBOTLA
6/9/95

(95)

6/14/95 OWTP

Objective: Observe status at OWTP and attend meeting at ROICC

Personnel: Srin Kuchibotla, ABB-ES

1330 Arrival on-site. John Miller and four GPI personnel working around concrete pad near sludge beds. Paul Weatherford, Bechtel on-site supervising the GPI personnel.

1345 The posts around each sump have been placed and the concrete around the posts has been poured. Paul informed me that the Bechtel personnel would request GPI to perform the piping tests to check integrity of the piping starting 6/15/95 AM. Pipe check expected to last 24 hours. Depart site for meeting.

1400 Meeting Personnel: Lt. Scott Hurst, Navy ROICC
Cheryl Mitchell, Staff Civil Eng.
Steve Santa Maria, Bechtel
Srin K, ABB-ES.

→ The holes in concrete at the bottom patched at Sump 1 and 2

→ Tanks (20,000 gallons) expected to

arrive on July 10th, 1995. The originally submitted tanks were not double-walled according to specifications and were therefore returned. Anticipated size of tanks 12' diameter and 6 feet high. Tanks expected to be vertical cylindrical tanks.

→ Cheryl Mitchell to check on the status of the consumptive use permit.

→ Brief discussion on PCB area. PCB area work expected to start toward end of July.

1415 Steve Santamaria provided me a copy of sump depth data as recorded the last few days.

1445 Depart from meeting

SANIVAS KUCHIBOTLA
6/14/95

6/28/95 OWTP Sunny, 75°F

Objective: To obtain water level measurements and determine free product in wells near OWTP

Personnel: Srin Kuchibotla, ABB-ES
Mike Joynes, ABB-ES

0830 Loading van to depart for measuring free product at OWTP wells and piezometers

1330 Free product measuring in progress

1400 Depart site for trailer. Probes decontaminated between locations. End of day.

SANIVAS KUCHIBOTLA
6/28/95

98 6/29/95

TIME	WELL ID	FEET. DEPTH TO WATER TABLE	FEET. DEPTH TO FREE PRODUCT	FEET FREE PRODUCT THICKNESS	REMARKS
1126	MPT-8-MW1S	8.21	None	None	—
1122	MPT-8-MW2S	11.38	11.19	0.19	Petroleum odor
1220	MPT-8-MW3S	11.35	11.24	0.11	Petroleum odor
1110	MPT-8-MW4S	9.48	None	None	—
~~1250~~ — (SK)	MPT-8-MW5S	~~8.95~~ —	~~None~~ —	~~None~~ —	—
—	MPT-8-MW5I	—	—	—	—
—	MPT-8-MW5D	—	—	—	—
1335	MPT-8-MW6S	6.76	None	None	—
1250	MPT-8-MW7S	9.51	8.68	0.83	—
1230	MPT-8-MW8S	8.95	None	None	—
1247	MPT-8-MW9S	9.16	None	None	—
1300	MPT-8-MW10S	5.00	None	None	—
1325	MPT-8-MW11S	9.82	~~None~~ (SK) 9.05	~~None~~ (SK) 0.78	Petroleum Odor
1008	MPT-8-MW12S	10.66	None	None	—
1017	MPT-8-MW13S	9.03	None	None	—
—	MPT-8-MW13I	—	—	—	—

6/29/95 99

TIME	WELL ID	FEET. DEPTH TO WATER TABLE	FEET DEPTH TO FREE PRODUCT	FEET FREE PRODUCT THICKNESS	REMARKS
1025	MPT-8-MW14S	8.55	None	None	Petroleum odor from well
1033	MPT-8-MW15S	7.89	None	None	
—	MPT-8-MW15I	—	—	—	—
1050	MPT-8-MW16S	7.99	None	None	—
1115	MPT-8-MW17S	8.43	None	None	—
1240	MPT-8-MW18S	6.2	None	None	
—	MPT-5-MW2S	—	—	—	—
1019	MPT-5-MW3S	9.90	None	None	—
1105	MPT-9-MW1S	12.00	None	None	—
1005	MPT-9-MW2S	11.21	None	None	—
1000	MPT-9-MW3S	9.49	None	None	—
1120	MPT-8-TPW1	7.11	None	None	
1140	MPT-8-TPW2	7.92	7.90	0.02	Petroleum odor from well
1225	MPT-8-TPW3	10.55	10.49	0.06	Petroleum odor
1235	MPT-8-TPW4	12.80	12.36	0.44	"
1050	MPT-8-TPW5	12.60	12.40	0.2	Petroleum odor from well
1042	MPT-8-TPW6	13.75	13.15	0.6	Petroleum odor from well
1242	MPT-8-TPW7	9.85	9.33	0.52	2/62 Riser Removed Petroleum odor
1300	MPT-8-TPW8	10.955	10.945	0.01	Petroleum odor

SRINIVAS KULAIBATAN
6/28/95

7/28/95 Interim Measures - OWTP Sunny 90°F

Objective: Observe possible startup of system at OWTP.

Personnel: Srin Kuchibotla, ABB-ES

1300 Arrival on-site. John Miller and two GPI personnel on-site. ~~Three~~ One (1) electrical Contractor personnel and ~~one~~ three (3) Ingersoll Rand personnel on-site.

1330 Chris, Bechtel arrives on-site.

GPI Personnel discussing pumping of 19,500 gallons of fresh water in 20,000 gallon tanks to set high level switch and also set low level switch in the process when draining. Electrical personnel working on electric system.

1345 Depart site for trailer.

1420 Arrive on site. Personnel working on tanks and electrical lines. John, GPI informs that the system is anticipated to start on Monday morng. May start tommorow, however, doubtful.

1545 End of day.

SRINIVAS KUCHIBOTLA

7/24/95 Interim Measures-OWTP Sunny 90°F

Objective: Observe startup of system and final installation details.

Personnel: Srin Kuchibotla, ABB-ES

0715 Arrival on site. John Miller and one GPI personnel on-site. GPI personnel working on final connection details for the piping from the 20000 gallon tanks to the LET's. Flow lines and air lines have been installed.

0800 Depart site for trailer

0845 Arrival on-site, Three Inger-sol personnel arrive on site. Working on electrical details.

0930 Depart site.

1000 Arrival on-site. GPI personnel arrive on site with required parts. GPI personnel to setup regulators at each location (temp). Electrical contractors working on electrical details. Keith GPI mentioned that they would set the high level and low level switches on the tanks using clean water today. Electrical contractor needs to set electrical lines and power to the tanks prior to start of system

Photographs

Roll 5

Roll 4 misplaced.

36 Setup on concrete pad with tanks.
35 "
34 "
33 "
32 Flow meters and pipelines.
31 Electrical area setup.
30 "
29 Connection to fire hydrant

1115 Depart site. Personnel still working on ~~removal of~~ installation of wiring and regulator boxes at each sump

1215 Arrival on-site. GPI crew (except Keith, Supdt.) out for lunch. Electrical crew working on wiring.

1245 Wiring almost complete and electrical crew leave site for lunch.

1330 Keith suspects start of water into tanks approximately 1500 hrs. Water to be pumped from a fire hydrant to the 20,000 gallon tanks.

1340 Depart site.

1410 Arrival on site. GPI crew at site working on setting high level and low level switch on 20,000 gallon tanks. GPI personnel working near fire hydrant. Obtaining connections to connect to the tanks (20,000). Electrical crew needed prior to pumping into tank. Wiring for tanks has been placed, therefore, pumping of water and setting level switches is possibility.

1530 Depart for trailer. Electrical troubleshooting still in progress

1600 Arrival on site. Personnel still working on troubleshooting in electrical work and piping to the tanks.

1630 Depart site. GPI personnel indicate pumping fresh water into ~~wells to~~ tanks to begin approximately 1800 hrs.

1815 Arrival on site. Steve Santamaria on site. Indicated that ~~start~~ filling tanks might begin tommorow approximately between 1000 - 1100 hrs.

1830 Depart site. End of day. Return next day approx 1000 hrs.

SINIVAS RUCHIBOTLA
7/24/95

7/25/95 Interim Measures - OWTP Sunny 90°F

Objective: Observe setting of low level and high level switches on tanks at OWTP

Personnel: Srin Kuchibotla, DBB-ES

1030 Arrival on-site. Bechtel (Steve) and John Miller GPI with three Electrical (Automation Specialties Enterprises Inc) ~~(Ingersoll Road)~~ personnel on-site.

1100 Troubleshooting on electrical system in progress. Expected to last for next two-three hours

1115 John Miller, GPI turns water from fire hydrant on to fill one of the tanks. The tank toward Bldg 460 is being filled to set low level switch. Water being pumped at 71 gpm from hydrant

1130 Water stopped as Electrical contacts need to be verified. Water being pumped from fire hydrant to one of the tanks.

1200 Electrical Contractor setting low-level switch on tank close to Bldg 460.

1215 Depart site. Anticipated filling of tanks this afternoon.

1330 Arrival on-site. Personnel still working

Photographs

Roll 5

28 Connection to fire hydrant

27 System setup connection to tank

SK

on pumping water to the tanks to set level switches.

1400 Depart site for trailer.

1600 Arrival on site. John Miller, GPI informed me that 64-hr test might begin on Monday 7/31/95. Anticipated checking of equipment and electrical wiring on Thursday 7/27/95.

SRINIVAS KUCHIBOTLA 7/25/95

7/26/95 OWTP

Objective: Observe startup of system

Personnel: Srin Kuchibotla, ABB-ES

0900 Arrival on-site. John Miller GPI on-site. John dismantling the fire hydrant connections. He informs me that they will be working on minor details thi afternoon and do not anticipate startup for 64-hour test till Monday next week.

~~1600 Personnel still working on the system. John just arrived (SK)~~

1600 John working on cleanup around pad. System to be tested on Thursday

SRINIVAS KUCHIBOTLA
7/26/95

7/31/95 OWTP

Objective: Observe 64-hour pump test

Personnel: Srin K, ABB-ES

900 Arrival on-site. No personnel on-site

1000 GPI personnel arrive on-site. Two GPI personnel Gale and John Miller on-site. (leave site)

1015 Electrical contractor Jeff arrives on-site. Kevin (GPI) arrives on-site.

1030 System temporarily started. However actual startup expected after Steve's arrival. Air compressor being checked by John Miller, GPI.

1130 Checking ~~Control boxes~~ (SK) regulator boxes at each sump location and setting up dataloggers to collect groundwater data during operations of pumps.

1230 ~~Air~~ (SK) Air Compressor being checked. Pump at Sump 1 is being repaired for the air compressor. Depart for lunch

1300 Arrival on-site. Kevin from GPI is working on setting up groundwater probes at each sump location.

1330 Depart site. Expected start of system after groundwater probes are set at each sump location.

1400 Kevin mentions that they wanted to

Photographs

Roll 5

26 System setup prior to start of test
25 "
24 Air Compressor ~~regu~~ lines box (near pad)
(SK)
(SK)

Collect water level data manually for the 64 hours.

1430 Discussion with Steve Santamania, Bechtel on Datalogger type to be used. Steve mentioned Hermit. Kevin to obtain Hermit from his company.

1500 Hermit expected to arrive on 8/1/95. Kevin to call back at trailer with status on hermit.

1515 Departed site. Anticipated start of system on 8/1/95 Afternoon. Heavy thunderstorms arrive on-site.

Steve Santamania, Bechtel arrived at trailer

1630 Steve mentioned that the datalogger and software issues have been resolved and that the system would be operating on 8/1/95 8:00 AM approximately. (SK)

End of day

SRINIVAS KUCHIBHOTLA
7/31/95

8/1/95 OUTP

Objective: Observe 64-hour pump test

Personnel: Srin Kuchibhotla, HBK-ES

0800 Arrival on-site. Three GRI personnel, Kevin, Gale and John Miller at site. Kevin working on datalogging and other GRI personnel working on control boxes at every sump location.

0830 Pumps 4 and 5 are being tested. Kevin setting up probes at each location to record data.

0900 Fine tuning of air compressor and pumps in progress.

0915 Effluent centrifugal pump being checked. Flow meters and pressure gauges attached to all product lines and pressure gauges attached to each air line. Total flow meter attached to effluent line with pressure gauge. ~~Cont~~ (SK) Regulator boxes located at each sump location and pressure gauges located on air line for air control

0930 Paul Weatherford & one other Bechtel person arrive on-site. System expected to start at 1000

0945 Steve Santamania arrives on-site.

Photographs

Roll 5

23 System at start

22 "

21 Water in Sump 1 during discharge of water

1000 System started. Steve leaves site to return with table. GPI and Steve to provide data collected during run. Data collected may includes pressure, flow rate and flow for each sump, air pressure at each regulator at concrete pad and finally total amount of water in the 20,000 gallon tanks.

1015 Data also being recorded on water levels in each sump at the sump locations. Probes put in by Kevin GPI.

1030 All sumps discharging at 2gpm or close to 2gpm (below 2gpm) except Sump 5. Sump 5 regulator being verified.

1050 John Miller briefs me on control panel at the pad, ~~and~~ air compressor and tanks. Test still in progress.

1100 Steve Santamaria arrives on-site. Data to be recorded at ~~Sum~~ (SC) Concrete pad

(1) Air pressure to each sump

(2) Water pressure from each sump

(3) Flow meter readings from each sump

Photographs

Roll 5

20 Water in Sump 1 during drawdown. (SC)

This data would be recorded every hour on Tuesday 8/1/95, but less (SC) at larger intervals later.

Data to be collected at each sump location:

(1) Air Pressure at each sump location

(2) Check for leaks

(3) Water level (not data) – whether water level is below pump.

All pumps regulated at 80 psi at regulator box.

1115 Steve and Srin walk to each sump to observe water levels and check air pressure gauges. Water levels at Sump 2 and 5 drop below the water table.

1130 Gale leaves for sumps to put pumps into water again.

1145 Depart site. Test to continue until Friday afternoon (72 hrs) when Kevin GPI will check water levels. Based on current

flow rate Tank 1 is expected fill up approx 4.5 hours. Total test is expected to last 90 hours. Data will be collected all night every hour today. Total Flow rate approximately between 7 and 7.5gpm.

1400 Gale, GPI at site. Bechtel and GPI personnel pickup debris beside sludge ponds for disposal. The pump at Sump 3 is not pumping as water level is below the pump. However rest of the pumps are performing properly. Pumps at sumps not lowered because weather indicates surge in water in the River, high tides, therefore, water in sumps may come up due to tidal influence.

1410 Depart site.

1705 Arrival on-site. Gale, GPI mentioned that silt was depositing in Sump 3 and that they would have drums out on-site tommorow to remove or filter the silt from the bottom of the Sump. Also, the pump at Sump 3 was pumping at approximately 0.3 gallons per minute. The regulator guage at the Sump indicated a pressure of 80psi from the

air compressor to the sump. However the pressure dropped to 30-40psi when discharging air to the pump in the sump. This may indicate leak between regulator and the pump as per GPI. ~~However~~, GPI & Bechtel personnel decided they would investigate it by swaping pumps between sumps i.e. moving the pump at Sump 5 to another sump location and moving another pump to Sump 5. Free product observed in Sump 1.

1730 Met Steve Santamaria, Bechtel on ~~the way out~~ near Turning Basin. He mentioned that they may drop the pumps to the bottom of each sump for draining water as the pumps are getting exposed (above water) during pumping. However, he brought to his attention that no free product would come into the 20,000 gallon tanks and the sampling from these tanks may show different results. Steve to discuss with Fred Seale. Also mentioned to him the Sump 5 situation. The pumps may be swapped tommorow. The sand at the bottom of Sump 3 will be removed

using two drums on 8/2/95. The drums will be placed in series. The first drum will remove the sand (or precipitate the sand) and the second drum will collect the excesswater and send it back into the sump. This system may remove all silt at bottom of sump and help understand where silt is coming from.

1800 Depart site. End of day

SKINIVAS KUCHIBOTLA
8/1/95

8/2/95 OWTP Breezy, Rainy, 70°F

Objective: Observe the test run

Personnel: Srin Kuchibotla, ABB-ES

0900 Arrival on-site. Steve Santamaria departs site. Mentioned that removal of silt from Sump 3 may be done this afternoon.

0930 John Miller, GPI on-site. John requests walking to each sump (SK) location to collect data. ~~Bar~~ (SK) free Product observed in Sumps 1, 2 and 4. The pumps were raised to skim the free product at these sumps. Steve mentioned that the pumps would not be dropped to bottom of each sump. ~~The tanks~~ (SK) He also mentioned that the tank 1 which is being filled was showing varying levels of water in the tank. They were investigating the reason for the erraneous water level readings.

1000 Sumps 1, 2, 3, 4, 5 levels checked and pumps set. Water level in Tank (SK) 1 is stabilization (± 10% Vent) (SK)

1130 John and Steve working on drum for removal of sand. Anticipated start

Photographs

Roll 5

19 Drum for removal of silt at bottom of Sump 3.
18 Setup for pumping silt at bottom of Sump 3
17 Dismantled setup at Sump 3.
16 "

of removal of silt by afternoon. Storms since evening of 8/1/95 and tides high in the river and ocean. ~~Data (G~~ (SV) Groundwater elevations may vary to a large degree in well due to tidal fluctuations in the river and ocean. Groundwater probe in Sump 5 slightly above water level.

1200 Setup for removal of bottom of Sump 3 in place. Setup involves one drum and a ~~centrifugal~~ (SV) centrifugal pump. The centrifugal pump is being used to churn sand at the bottom of Sump 3 and then pump into a drum for settlement of sand prior to discharge back to sump. ~~System did not~~ (SV) Setup did not do the job. GPI to generate actual fittings and use smaller hose and lower flow rate.

1245 Depart site.

1400 Steve calls from site for silt removal at

Sump 3. Depart for site.

1415 Heavy rain. GPI personnel setup equipment waiting for rain to ~~leave~~ (SV) stop.

1440 Rain stops. Equipment setup involves centrifugal pump, inlet pipe 2 inches, and 4 inch outlet pipe, 55-gallon drum and 2 inch discharge line from the drum.

1445 Pumping stopped because pea gravel blocked flow in pump.

1500 Pumping begins. Pea gravel cleared from pump. Some fine sand settling in the 55 gallon drum. Sump 3 has not been operating since 8/1/95 noon. Approximately 380 gallons removed from Sump 3. Sump 3 worked on and off through the duration of the test.

1515 Pumping still in progress. Flow rate from centrifugal pump varying between 5 to 25 gallon per minute (visual observation). Level measuring device in 20,000 gallon tank is diaphragm type that measures pressure head above it. Water level on control panel settled down. Currently shown 10200 gallons

1600 Steve and John to do more dredging the next day. The sand in drum being allowed to settle. End of day

Srinivas Kr[illegible]
8/2/95

Photographs

1415

15 Setup at Sump 3 at ~~2~~ (SW) 1415 for silt removal.

14 "

13 "

12 Water inside Sump 3 during silt removal

11 Regravel blocking

SRINIVAS KUCHIBOTLA
8/2/95

8/3/95 OWTP Sunny 65°F

Objective: Observe the test run at the OWTP

Personnel: Srin Kuchibotla, ABB-ES

0845 Arrival on-site. John Miller, GPI and Paul Weatherford, Bechtel on-site. System still in operation. Tank 1 showing approx. 16500 gallons in it. Expected to fill by this afternoon and automatically switch to Tank 2.

0900 Depart site for arrival in the afternoon. Currently no work being performed at Sump 3

1300 Gale GPI on-site. Taking readings at each sump location and the concrete pad. The total from the flow meters and the tank showing a volume difference of 510 gallons. Free product observed in ~~wells~~ (SI) Sumps 1, 2 and 4. Sump 5 showing some free product. Sump 3 still pumping slowly, approximately 520 gallons removed so far.

1330 Finish looking at sumps with Gale.

1345 Recording data from Concrete pad.

~~Sump 1 - 520 gallons~~

~~Sump 2 - 940 gallons~~ (SI)

~~Sump 3 - 520 gallons~~

Data not matched with sumps will recorder again this evening.

1400 Steve called trailer. Mentioned that Sump 3 has been cleared of silt. Also mentioned that ~~the~~ (SK) Tank 1 will be full by midnight today and water will pour into Tank 2. Steve may watch the water levels in Sumps all night today to get a feel for the tidal influence now that the storm has passed away. Sump 5 still pumping slowly and approximately 940 gallons removed since start of system.

1630 Arrival on site. Taking readings from flowmeter and tanks.

Sump 1 – 4430
Sump 2 – 6080
Sump 3 – 560
Sump 4 – 990
Sump 5 – 5930
17990

Reading on tanks (SK) guage 17490. Difference of 500 gallons. Gale GPI at site.

1650 Depart site. End of day

SRINIVAS KUCHIBOTLA
8/3/95

8/4/95 OWTP

Objective: Observe the test run and collect water levels at ABB-ES monitoring wells at OWTP.

Personnel: Srin K, ABB-ES
Pat Craine, ABB-ES

0930 Arrival on-site. Setting up equipment. Newspaper (Florida Times Union) indicated low tide from 8:34 AM to 3:18 PM ~~Peak time the approx 12:00~~ (SK)

1206 Readings at system taken. Tank 2 currently getting filled. Approximately 3700 gallons in Tank 2. Tank 1 level 19380 on guage at control panel. Flow meter data

Sump 3 – 690 gals – Sump 1 – 5810 gals
Sump 5 – 1260 gals Sump 4 – 7620 gals
Sump 2 – 7690 gals

GPI personnel, Gale and John Miller working on system on-site

1300 Depart site. ~~Bechtel~~ GPI (SK) personnel working around sumps and control panel.

1430 Arrival on-site. GPI personnel working around Sump 3. Sump 3 has bentonite at the bottom. Steve (SK) said this bentonite is clogging the sump and preventing water from coming into sump.

(122)

PEAK HIGH TIDE: 1518
PEAK LOW TIDE: 0834

TIME	WELL ID NO.	DEPTH TO WATER TABLE	DEPTH OF FREE PRODUCT ~~THICKNESS~~	REMARKS
12:33	MPT-B-MW1S	9.15	—	—
1232	MPT-B-MW2S	11.71	—	—
12:25	MPT-B-MW3S	12.99	11.88	Free Product = 1.11
11:52	MPT-B-MW4S	10.24	—	—
1138	MPT-B-MW6S	7.50	—	—
1214	MPT-B-MW7S	~~[illegible]~~ (EW)	—	Physical Obst. in well
1201	MPT-B-MW8S	9.1	—	—
12.02	MPT-B-MW9S	9.61	—	—
1158	MPT-B-MW10S	5.98	—	—
1040	MPT-B-MW11S	10.72	9.55	Free Product thickness = 1.17
1008	MPT-B-MW12S	11.07	—	—
0958	MPT-B-MW13S	9.72	—	—
0954	MPT-B-MW13I	10.12	—	—
1018	MPT-B-MW14S	9.14	—	—
1028	MPT-B-MW15S	5.42 (EW)	—	—
1027	MPT-B-MW5I	8.57	—	Labeled Wrong
1100	MPT-B-MW16S	8.73	—	—
1152	MPT-B-MW17S	(EW) ~~9.73~~ 9.37	—	—
1142	MPT-B-MW18S	6.72	—	—
1011	MPT-S-MW3S	10.25	—	—
1157	MPT-9-MW1S	12.36	—	—
1001	MPT-9-MW2S	12.04	—	—
1003	MPT-9-MW3S	10.38	—	—
1234	MPT-B-TPW1	7.70	—	—

(123)

TIME	WELL ID NO.	DEPTH TO WATER TABLE	DEPTH OF FREE PRODUCT ~~THICKNESS~~	REMARKS
1231	MPT-B-TPW2	8.74	— (EW)	Probe hit sand ~~[illegible]~~ FROM GL
1221	MPT-B-TPW3	11.23	11.21	Free Product = 0.02
1211	MPT-B-TPW4	13.56	12.82	Free Product = 0.74
1045	MPT-B-TPW5	13.27	13.15	~~[illegible]~~ Free Product = 0.12
1050	MPT-B-TPW6	14.00	~~13.67~~ 13.73 (EW)	TOTAL DEPTH = 13.7 PRODUCT = 0.27
1210	MPT-B-TPW7	10.27	9.90	2.62 Risers removed Free Product = 0.37
1204	MPT-B-TPW8	12.01	—	Free Product tough observed on probe
0707	SUMP 1	—	12.11	—
0740	SUMP 2	13.11	—	—
1045	SUMP 3	—	14.91	Cannot measure water because product & water mixed Total Depth = 13.7
1041	SUMP 4	—	11.38	
1015	SUMP 5	15.04	—	From North Edge 14.80

* Sump Data not taken as free product is mixed with water and cannot read properly ~~[illegible]~~ (EW) Water levels taken from Beutler (EW) personnel on Sumps 1 and 2. Free Product observed (visual) in Sumps 1, 2 and 4.

1445 Depart site for camera. Met Steve Santamaria at his trailer. He mentioned that the second tank was expected to fill up on Sunday night, therefore, the system would be shut down Saturday 6:00PM (1800 hrs). System will be turned on again by GPI personnel on Monday morning.

1515 Arrival on-site. Steve Santamaria and two GPI personnel on-site. GPI personnel working at Sump 5. Adding ~~Sodium metasticatypha~~ (SK) a chemical to the bentonite at the bottom of the sump. Steve mentioned they were planning on pumping Sumps 3 and ~~Sump~~ (SK) 5 on Monday 8/7/95. They will pump the bentonite at bottom on Monday.

1545 Depart site. End of day.

Photographs

Roll 5

10 Exposed

9 Pumping ~~Bentonite~~ Chemical (SK) into Sump 5

8 "

7 "

6 "

SRINIVAS KUCHIBOTLA
8/4/95

8/7/95 OWTP Sunny 80°F

Objective: Observe the test run at the OWTP

Personnel: Srin Kuchibotla, ABB-ES

0900 Arrival on-site. Personnel not at site. Awaiting arrival of Bechtel and GPI personnel.

0930 Bechtel (Paul W.) and ~~John~~ GPI (John Miller) arrive on-site. Paul informs me that the system was operating through the weekend and tank 2 is approximately 2000 gallons away from being ~~full~~ high (19000 gallons) (SK). Bechtel and GPI personnel to work on removal of bentonite from the bottom of Sumps 3 and 5.

1000 Setup for removal of bentonite at Sump 5 in progress.

1030 Setup still in progress. Depart site.

1100 Arrival on-site. Bechtel and GPI personnel not at site. Setup ~~place~~ (SK) for removal of bentonite at Sump 5 installed.

1130 Readings from flow meters and levels in tank noted.

Sump 1 - 10040 gallons
Sump 2 - 12570 gallons
Sump 3 - 700 gallons
Sump 4 - 12540 gallons
Sump 5 - 1280 gallons

Tank 1 - 19230 - 19240 gallons (SR) Tank 2 - 17650 - 17660 gal.

1130 Free product observed in Sumps 1, 2 and 4. Free product seems thicker (visual) in Sumps 1 and 2. Pumps are skimming free product at Sumps 1, 2 and 4 ~~and are a top~~ (SR) ~~of water table at other sump locations.~~ Pumps at Sump 3 and 5 have been stopped since Friday afternoon. Pumps stopped when chemical was pumped into sumps to disintegrate bentonite (SR) ~~pellets~~ at the bottom of the sump. Bentonite and other drilling materials at bottom of ~~the~~ (SR) Sumps 3 and 5 to be removed by afternoon today.

1145 Sum of water in tanks and pump flow meters reading within 200 - 250 gallons. Difference Possibly due to intial readings on the pump flowmeters.

1215 Depart site.

1400 Arrival on-site. Personnel from Omron adjusting control panel. System will shut down when personnel were working on control panel - Sump 5 has been cleaned. Pump at Sump 5 expected to provide good flow starting

this afternoon.

1430 Omron personnel program control panel. Setting High level Switch in Tanks to 19000 gallons. Might require more work and new equipment. Equipment (Meter) currently in place may be faulty. Tank 1 reads 19230 - 19240 gallons.

1500 Omron mentioned that meter on control panel may be faulty. Transducer in tank 1 doing alright. John mentioned that Sump 5 has been cleaned of drilling muds. ~~Flow~~

1515 Flow from Sump 5 only being Conducted. Flow rate is approximately 1.3 - 1.4 gpm in Sump 5. Sodium Metallexa phosphate was the chemical added to breakup the bentonite in the sumps 3 and 5. John, GPI currently working on cleaning Sump 3.
Tank 2 Level - 17880 gallons.

1530 Paul mentioned that transducers in ~~Sump~~ Tank 1 will be ~~better checked~~ evaluated or checked (SR) when tanks are discharged to LETs. Omron to check meter on control panel ~~by the date of~~ before (SR) discharge of tanks.

1545 John still working at Sump 3. Water generated from the sump being discharged into Sludge

beds beside ~~tank~~ converted pad. Sludge bed being used is the one furthest from the LETs (ie west of LETs). Cleanup being conducted by putting water into sump and then pumping ~~discharging~~ more water then placed into ~~wet~~ sump and removing sand and drilling fluids in that process.

1550 Cleanup of Sump 3 complete. John to ~~pump~~ start pump at Sump 3. Pumping from Sump 3 not expected to start for more than an hour. The water level in Sump 3 is ~~very low~~ relatively low approximately 2-5 feet below pump. Sand observed and other materials were observed ~~on side of the sump (ie sump walls)~~ along the sump walls at Sump 3. At Sump 5 pump is below water level and not skimming the water table. Sump 5 discharging at approximately 1.75-2 gpm.

1600 Paul mentioned that they may just have Sumps 3 and 5 on tonight. The complete system may be started tomorrow.

1700 Depot site Arrival on-site. Sump 5 rating 1340 gallons. Tank 2 level 19790. Sump 5 pumping on and off. Sump 3 and 5 are the two sumps functioning. No personnel on-site. Photographs

5 Setup for removal of sand and bentonite at Sump 5
4 "
3 "
1735 Depot site "

8/8/95 OWTP Sunny 70°F

Objective: Observe test run at OWTP & take water levels

Personnel: Sun K., ABB-ES
Pat Crane, ABB-ES

0700 Arrival on-site. Paul W. Bechtel on-site observing operation of system. Sump 3 and 5 are on, other sumps off. Tank level approximately 18140 gallons. Sump 3 is not functioning as water level is below pump. Sump 5 approx 1540 gallon reading on flowmeter at pad.

0730 Water levels in wells away from sumps taken. Awaiting start of pumps at other sumps prior to completing readings on all wells

0815 All pumps at Sumps 1, 2, 3, 4 and 5 are on. Water levels in monitoring wells around other sumps continuing.

1030 Sump flowmeter readings
Sump 1 - 10330 gallons Sump 2 - 12870 gallons
Sump 4 - 12820 gallons Sump 3 - 700 gallons
Sump 5 - 1630 gallons
Tank 1 Level - 19230 - 19240
Tank 2 Level - 18880 - 18890

1030 Paul W., Bechtel, mentioned that he had collected samples from Tank 1 and will collect samples from Tank 2 after it is full this afternoon. Paul to ice samples, leaves site.

1030 Begin getting levels in Sumps

Sump 1 – Visible free product on top. Thickness could not be determined as it is mixed with water.

Sump 2 – Visible free product on top. Thickness could not be determined

Sump 3 – Pump not working. Water table below the pump.

Sump 4 – ~~Pump~~ (SK) Visible free product on top. Thickness could not be determined.

Sump 5 – Free product slowly coming into Sump. ~~Sump 5~~ (SK) In Sump 5 the pump is ~~starting to~~ (SK) skimming the water table.

1115 Depart site. Tank suspected to be full ~~by~~ after lunch.

1230 Arrival on-site. System has shut down. Tank 2 full level 19080–19090. Flowmeter readings on concrete pad

Sump 1 – 10380 gallons Sump 4 – 12890 gallons
Sump 2 – 12940 gallons Sump 5 – 1650 gallons
Sump 3 – 700 gallons

Difference in tank total and sump flow meter totals 230–250 gallons. Difference possibly due to initial values on the flowmeters. Paul called ~~and indicated that Tank 2~~ (SK) and mentioned that Tank 1 was sampled. Tank 2 would be sampled on 8/9/95. Tank 2 filled up at 1200 on 8/8/95. The tank (Tank 2) (SK) automatically shut off at 19080–19090 gallons. System was shut down and area has been secured.

1400 Arrived on-site. Placed a 5 foot riser on temporary well TPW-2. Water levels to be taken from 8/8 1400 to include a 5' riser or a five foot increase.

1430 Depart site. Florida Times Union indicates

High Tide	704a	742p
Low Tide	1251p	141a

for 8/8/95.

SRINIVAS KUCHIBOTLA
8/8/95

(132) 8/8/95 PEAK HIGH TIDE = 7:04

TIME	WELL ID#	DEPTH TO WATER TABLE	DEPTH TO FREE PRODUCT	FREE PRODUCT THICKNESS	REMARKS
0750	MPT-8-MW15	9.24	—	—	—
1002	MPT-8-MW25	—	11.77	—	—
1009	MPT-8-MW35	—	11.81	—	—
0755	MPT-8-MW45	9.78	—	—	—
0730	MPT-8-MW65	7.80	—	—	—
—	MPT-8-MW75	—	—	—	well obstruction
0739	MPT-8-MW85	9.34	—	—	—
0740	MPT-8-MW95	9.84	—	—	—
0742	MPT-8-MW105	6.12	—	—	—
0952	MPT-8-MW115	—	9.41	—	—
0817	MPT-8-MW125	11.08	—	—	—
0915	MPT-8-MW135	9.36	—	—	—
0917	MPT-8-MW131	9.51	—	—	—
0924	MPT-8-MW145	8.88	—	—	—
0929	MPT-8-MW155	8.25	—	—	—
0927	MPT-8-MW151	8.10	—	—	—
0931	MPT-8-MW165	8.38	—	—	—
0754	MPT-8-MW175	8.60	—	—	—
0732	MPT-8-MW185	6.73	—	—	—
0919	MPT-S-MW35	10.15	—	—	—
0746	MPT-9-MW15	12.50	—	—	—
0813	MPT-9-MW25	11.32	—	—	—
1001	MPT-8-TPM	7.95	—	—	—
1006	MPT-8-TPW2	—	8.65	—	Data collected from ground surface

8/8/95 (133)

WELL ID#	TIME	DEPTH TO WATER TABLE	DEPTH TO ~~FREE PRODUCT~~ FREE PRODUCT THICKNESS	REMARKS
MPT-8-TPW3	1012	11.37	11.27	FREE PRODUCT ≥0.10
MPT-8-TPW4	1018	—	12.85	—
MPT-8-TPW5	0940	—	12.87	—
MPT-8-TPW6	0946	—	13.63	—
MPT-8-TPW7	1022	—	9.80	2.62' Riser remov. Data collected from g.s.
MPT-8-TPW8	1030	—	12.00	—
SUMP1	1036	—	12.94	Visible amount of free product
SUMP2	1041	—	14.04	— "
SUMP3	1042	—	16.11	Water below pump level
SUMP4	1044	—	11.39	Visible amount of free product
SUMP5	1047	—	14.79	Free product coming in.
MPT-9-MW35	~~0815~~ 0811	9.58	—	—

⇒ SUMPS 3 AND 5 WERE WORKING TILL 0815

⇒ ALL SUMPS 1, 2, 3, 4 AND 5 WERE TURNED ON AT 0815 AND WORKING

⇒ FREE PRODUCT (OIL/WATER) PROBE NOT WORKING. DOES NOT READ WATER AND FREE PRODUCT SEPERATELY. DATA FOR WELLS IS ~~MADE FOR~~ TOP OF WATER OR FREE PRODUCT (WHERE FREE PRODUCT IS PRESENT). OIL/WATER PROBE WORKED AT FEW LOCATIONS & ~~THERE~~ FREE PRODUCT THICKNESS COULD BE MEASURED.

SRINIVAS KUCHIBORA
8/8/95

(134)

9/26/95 OWTP Sunny 65°F

Objective: Status of system

Personnel: Srin Kuchibotla, ABB-ES

1000 Arrival on-site. A shed has been placed on the air compressor at the pad. Readings from the flowmeters and levels in tanks noted below

Sump 1 - 10380 Sump 4 - 12890
Sump 2 - 12940 Sump 5 - 1650
Sump 3 - 700 Tank 1 - 19280
Tank 2 - 19830

1030 Verified that MPT-8-MW10S and MPT-8-MW09S are interchanged on map available with me.

1100 Depart site. End of day

SRINIVAS KUCHIBOTLA
9/26/95

(135)

10/10/95 OWTP Cloudy Sunny 70°F

Objective: Obtain data of sampling of tanks @ OWTP

Personnel: Srin Kuchibotla, ABB-ES

1600 Visited the Staff Civil's Office (Cheryl Mitchell) to discuss the data she obtained from Bechtel from the tanks at OWTP. She informed me that one of tanks had been discharged to the OWTP. Analytical results of the sampling without the QA/QC have been provided during this visit.

1630 Visited the site. Readings at the pad and on the control panel noted

Sump 1 - 10920 Sump 3 - 1100
Sump 2 - 13510 Sump 4 - 13460
Sump 5 - 2070
Tank 1 - 2070 Tank 2 - Not Functioning

Water level in Tank 2 could not be determined because the level indicator at the control panel is not functioning properly.

The Discharge flowmeter reading is 55500.

1650 Depart site. End of day

SRINIVAS KUCHIBOTLA

(136)

10/11/95 OWTP Rainy 70°F

Objective: None

0830 Recieved phone call from Steve Santamaria Bechtel. He informed me that Tank 1 had been emptied and Tank 2 would be emptied either today or tommorow. Tank 2 control panel guage is not functioning properly and therefore would be replaced in the next day or so.

End of day

10/11/95

(137)

11/15/95 OWTP Sunny 40°F

Objective: Observe groundwater elevations at SWMUs 6 and 7

Personnel: Srin Kuchibotla, ABB-ES
Mike Jaynes, ABB-ES

1400 Arrive on-site to collect water levels at site.

1645 Depart site. Will collect water levels ~~after~~ (BK) of monitoring wells MPT-8-MW11S and MPT-8-MW01S on 11/16/95 at high tide. Access not available to wells MPT-8-MW131 and MPT-8-MW151 therefore data could not be collected. Peak High tide on 11/16/95 expected to be at 14:50

1700 End of day. Depart site.

SRINIVAS KUCHIBOTLA
11/15/95

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11/15/95 PEAK HIGH TIDE: 12:56

TIME	WELL ID #	DEPTH TO WATER TABLE	DEPTH TO FREE PRODUCT	FREE PRODUCT THICKNESS	REMARKS
16:30	MPT-8-MW1S	8.40			
16:17	MPT-8-MW2S	11.84	11.27	0.57	
16:15	MPT-8-MW3S	11.61	11.26	0.35	
14:06	MPT-8-MW4S	9.61			
14:01	MPT-8-MW6S	7.44			
15:40	MPT-8-MW7S	12.71	8.46	4.25	
15:22	MPT-8-MW8S	8.41			
15:20	MPT-8-MW9S	8.96			
15:30	MPT-8-MW10S	4.75			
16:45	MPT-8-MW11S	10.01	9.1	0.91	Collected at High Tide on 11/16/95
14:30	MPT-8-MW12S	10.62			
14:27	MPT-8-MW13S	9.07			
	MPT-8-MW13I	Accen	not Available		
14:36	MPT-8-MW14S	8.58			
14:45	MPT-8-MW15S	7.94			
	MPT-8-MW15I	Access	not Available		
15:00	MPT-8-MW16S	8.03			
14:04	MPT-8-MW17S	8.57			
13:57	MPT-8-MW18S	6.41			
14:30	MPT-8-MW19S	9.98			
16:40	MPT-9-MW1S	12.04			Collected at High Tide on 11/16/95
14:25	MPT-9-MW2S	11.29			
16:35	MPT-8-TPW1	7.61			
13:05	MPT-8-TPW2	8.12	7.95	0.17	

139

11/15/95

TIME	WELL ID #	DEPTH TO WATER TABLE	DEPTH TO FREE PRODUCT	FREE PRODUCT THICKNESS	REMARKS
16:04	MPT-8-TPW3	11.07	10.57	0.5	
16:05	MPT-8-TPW4	12.92	12.38	0.54	
15:01	MPT-8-TPW5	12.49	12.45	0.04	
15:00	MPT-8-TPW6	13.87	13.16	0.71	
16:00	MPT-8-TPW7	10.85	–	–	No Water in the well
15:45	MPT-8-TPW8	10.76	10.43	0.33	
16:08	SUMP1	10.71	10.69	0.02	
15:10	SUMP2	12.06	12.02	0.04	
14:55	SUMP3	12.82			Thin Sheen of Product Observed
14:50	SUMP4	9.82			Thin Sheen of Product Observed
15:15	SUMP5	11.42			
14:20	MPT-9-MW3S	9.59			

SRINIVAS KUCHIBOTLA
11/15/95

(140)

11/16/95 OWTP Sunny 50°F

Objective: Observe groundwater elevations at SWMUs 6 and 7.

Personnel: Srin Kuchibotla, ABB-ES
Mike Jaynes, ABB-ES

0800 Arrival on-site. Water elevation survey begins

1100 Depart site. Elevation complete.

16:30 Arrive on-site to collect groundwater elevations of wells MPT-9-MW01S and MPT-8-MW11S. Data collected at high tide. ~~high~~ Sw High Tide was at 14:50

1700 Depart site. End of day

SRINIVAS KUCHIBOTLA
11/16/95

11/16/95 PEAK LOW TIDE : 08:22

(141)

TIME	WELL ID #	DEPTH TO WATER TABLE	DEPTH TO FREE PRODUCT	FREE PRODUCT THICKNESS	REMARKS
10:25	MPT-8-MW1S	8.48			
10:35	MPT-8-MW2S	12.37	11.57	0.80	
10:23	MPT-8-MW3S	12.88	11.55	1.33	
08:40	MPT-8-MW4S	10.20			
08:35	MPT-8-MW6S	7.57			
10:02	MPT-8-MW7S	12.97	8.83	4.14	
09:50	MPT-8-MW8S	8.46			
09:50	MPT-8-MW9S	9.15			
09:55	MPT-8-MW10S	4.82			
08:50	MPT-8-MW11S	10.75	9.39	1.36	
09:05	MPT-8-MW12S	10.97			
09:00	MPT-8-MW13S	9.68			
09:02	MPT-8-MW13I	9.94			
09:12	MPT-8-MW14S	9.11			
09:20	MPT-8-MW15S	8.40			Thin Sheen of Product Observed
09:20	MPT-8-MW15I	8.48			
09:30	MPT-8-MW16S	8.68			
08:37	MPT-8-MW17S	9.44			
08:48	MPT-8-MW18S	6.65			
09:10	MPT-8-MW3S	10.36			
10:40	MPT-9-MW1S	12.19			
09:05	MPT-9-MW2S	12.06			
09:00	MPT-9-MW3S	10.40			
10:20	MPT-8-TPW1	7.68			

TIME	WELL ID #	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICKNESS	REMARKS
10:28	MPT-8-TPW2	8.56	8.34	0.22	
10:20	MPT-8-TPW3	11.55	10.89	0.66	
10:15	MPT-8-TPW4	13.69	12.63	1.06	
09:45	MPT-8-TPW5	12.99	12.97	0.02	
09:32	MPT-8-TPW6	14.11	13.53	0.58	
10:05	MPT-8-TPW7	10.80	–	–	No Water in Well
09:55	MPT-8-TPW8	10.95	10.69	0.26	
10:22	SUMP 1	10.80	10.71	0.09	
09:40	SUMP 2	12.36	12.30	0.06	
09:30	SUMP 3	12.92			
09:25	SUMP 4	10.20			
09:15	SUMP 5	11.61			

SRINIVAS KUCHIBOTLA
11/16/95

11/28/95 OWTP

Objective: Obtained call with information on tank levels and of concrete pad at OWTP

10:30 Larry Smith called with information about data from concrete pad and data from tanks at OWTP.

Flowmeter readings:

Sump 1 – 19,686.4 gallons
Sump 2 – 23,375.0 gallons
Sump 3 – 2,629.6 gallons
Sump 4 – 23,277.3 gallons
Sump 5 – 7,774.1 gallons; and

Totalizing Flowmeter – 75,170.0 gallons

Volume of water in tanks:

Above Ground Storage Tank 1 – 19,200 gallons
Above Ground Storage Tank 2 – 19,090 gallons

Amount of free product in tanks:

Tank 1 – 0.0 inches
SK 11/28/95 Tank 2 – 0.0 inches.

10:40 End of conversation.

SRINIVAS KUCHIBOTLA
11/28/95

TIME 12/4/95 OWTP

10:2 Objective: Installation of well sentinals at
10:2 monitoring wells MPT-8-MW13S and
10:1 MPT-8-MW13I.

09: Personnel: Srin Kuchibotla, ABB-ES
09:

10:1 1230 Depart for SWMU 14. Removing
09:: Sentinals from wells, MPT-14-MW01S
10:2 and MPT-14-MW05S.

09:4 1300 Arrival on-site at SWMU 14 (Sa). Downloading
09: data from wells (Sa) MPT-14-MW01S.
09:: Data saved on hard drive of laptop.
09:1 File Name: C:\14MW01S.12 (Sa)
Converted file Name: C:\14MW01S.12A
Downloaded Data Includes:
Well: MPT-14-MW01S
Downloaded: 12/04/95
Unit ID No.: LK300575
Test Name: 14-MW01S
Linearity: 0.127
Scale Factor: 19.993
Offset: 0.055
Specific Gravity: 1.000
Data Type - Level
Units: English
Mode: Surface

Reference level Taken: 8/14/95 18:17
Test Begun: 8/14/95 0:00

1345 Arrive at well MPT-14-MW05S.
Well Sentinal removed at location
MPT-14-MW01S and placed in truck.
Downloading data at well MW05S
begins.
File Name: C:\14MW05S.12
Converted File Name: C:\14MW05S.12A
Downloaded Data Includes:
Well: MPT-14-MW05S
Downloaded: 12/04/95, 14:48
Unit ID No.: LK300577
Test Name: 14-MW05S
Linearity: 0.121
Scale Factor: 20.047
Offset: 0.029
Specific Gravity: 1.0000
Data Type: Level
Units: English
Mode: Surface
Reference Level: (Sa) 2.680
Reference Level Taken: 8/14/95, 16:43
Test Begun: 8/(Sa) 15/95, 0:00
(Sa)

1430 Data transfer complete. Removal of well sentinal at MW05S also complete. Well sentinals to be moved to new locations, MPT-8-MW13S and MPT-8-MW13I at SWMU 8.

1445 Arrival at SWMU 6 and 7. Begin installation of well sentinal at well MPT-8-MW13S.

1530 Water level in well = ~~9.39~~ 9.82 (SK) feet
Elevation of TOC (MSL) = 11.33 feet.
Relative fluid level (Elev.) = ~~1.94~~ 1.51 feet (SK)

Data input into well sentinal. Readings set for 60 minutes starting ~~[illegible]~~ (SK) ~~12/4/95~~ (SK) 12/4/95 18:00 hrs. Computer may needs to be corrected for daylight savings time.

1600 Installation of well sentinal on monitoring well MPT-8-MW13I begins.
Water level in well = 9.46 feet
Elevation of TOC (MSL) = 11.46 feet.

1630 Mr. Branaham arrives on-site and

requests that the well sentinal information should be continued into tommorow. Timings for work inside the fenced area at SWMUs 6 and 7 are 0700 to 1530.

1645 Depart for trailer.

1700 End of day

SRINIVAS KUCHIBOTLA
12/4/95

12/5/95 ONTP

Objective: Installation of well sentinal at monitoring well MPT-8-MW131.

Personnel: Srin Kuchibotla, ABB-ES

0900 Arrive at trailer. Depart for SWMUs 6 and 7.

0930 Arrival on-site. Begin installation of well sentinal at MW131.
Water level in well = 9.46 feet
Elevation of TOC (MSL) = 11.46 feet
Relative Fluid level (MSL) = ~~2.04 feet~~
Data input into sentinal.
Readings set for every 60 minutes beginning ~~to~~ 12/5/95 11:00 hrs.

0945 Downloaded data from well sentinal installed on well MW135.
Timing of sentinals corrected for Daylight Savings Time.
Water level in well = 9.39 feet
~~Water level in~~
Elevation at TOC (MSL) = 11.33 feet
Relative Fluid Level (MSL) = 1.94 feet.
Data input into sentinal at well MW135 and test re-run. Readings set for every 60 minutes beginning

12/5/95 1000 hrs

1130 Return to trailer. Larry informs that may need to rerun the tests on the well sentinals for 15 minute time intervals.

1330 Arrival on-site. Rerunning test at well MW135. Downloaded data into laptop
File name: C:\8MW135.05
Converted File Name: C:\8MW135.05a
Check water level in well.
Water level in well = 9.78 feet
Elevation at TOC (MSL) = 11.33 feet
Reference Elevation (MSL) = 1.55 feet.
Test run to begin at 1400 hrs. with time interval of 15 minutes.

1345 Rerunning test at well MW131.
Downloading previous data from yesterday into laptop
File Name: C:\8MW131.05
Converted File Name: C:\8MW131.05a.
Checking water level in well.
Water level in well = 10.20 feet
Elevation at TOC (MSL) = 11.46 feet

Reference Elevation (MSL) = 1.26 feet.
Test run to begin at 1400 hrs
with data to be collected ~~at~~ (KK)
every 15 minutes.
1445 Arrival at bailer. End of day

SRINIVAS KUCHIBOTLA
12/5/95

12/19/95 OWTP
Objective: Collection of data at the concrete pad
Personnel: Srin Kuchibotla, ABB-ES
Mike Jaynes, ABB-ES
1630 Arrival on-site. Sumps 2, 3 and 4 are turned on for pumping. Only Sump 2 was pumping
1645 Collecting data at the concrete pad
Sump 1 - 22,926.0
Sump 2 - 43,441.0
Sump 3 - 3,636.0
Sump 4 - 34,448.0
Sump 5 - 7,802.0
Tank 1 - 3,680.0
Tank 2 - 570
Air pressure in Sump 2, 3 and 4 = 90-100 psi
Water pressure in Sump 2, 3 and 4 = 4 - 16 psi
1700 Secure and depart site. End of day.

SRINIVAS KUCHIBOTLA
12/19/95

(152)

12/21/95 OWTP

Objective: Spoke to John Miller

Personnel: Srin Kuchibotla, ABB-ES

1330 12/21 Met John Miller at the SWMU 6 & 7 site. John mentioned that he had arrived at the site to fix some of the pumps at the site. Pumps at some of the locations (sumps) needed to be repaired and had been sent for fixing off-site. The Airborne package had not arrived on-site and the BoP1 person (John) was waiting at the site to finish the work.

~~1350~~ 12/21 ~~Depart site.~~ (SK) 12/21

1300 12/21 ~~1400~~ Depart site

SRINIVAS KUCHIBOTLA
12/21

(153)

12/27/95 OWTP Sunny 60°F

Objective: Collect data from well sentinals

Personnel: Srin Kuchibotla, ABB-ES

1000 Arrival on-site. Visiting well MPT-8-MW06S. Data downloaded from well MW06S.
Relative Fluid level -3.385 ft
Reference level changed along with date. Sentinal will start collecting data at 1030 hrs.

1015 Arrive at well MPT-8-MW13S
Data downloaded from well
Relative fluid level -1.512 ft.
Reference level changed to latest relative fluid level. Date changed and time data collection begins is 1045.

1040 Data downloaded from well MPT-8-MW13I
Relative Fluid Level -1.563 ft
Reference level changed to latest relative fluid level. Date changed and time data collection begins at 1045

1050 Arrive at well MPT-8-MW09S

Data downloaded from well
Relative fluid level - 2.819 ft.
Reference level changed to latest relative fluid level. Date changed and time data will be collected changed to 1100 hrs.

1100 Arrival at concrete pad. Data collected at pad. Tanks are full and none of pumps are pumping. Air compressor still working but air not being supplied to pumps because tanks are full.

Data:
Sump 1 - 23578 gallons
Sump 2 - 53,522 gallons
Sump 3 - 4,535 gallons
Sump 4 - 46,287 gallons
Sump 5 - 11,335 gallons
AST 1 - 19,230 gallons
AST 2 - 19,050 gallons
Totalizer reading - 148,718 gallons

SRINIVAS KUCHIBOTLA
12/27/95

4/3/96 MISSING INFORMATION

Objective: Include missing data in the log book.

Personnel: Srin Kuchibotla, ABB-ES

Groundwater monitoring data being included into the logbook. This data was collected on December 07, 1995 at peak high tide 0841.

Well ID #	TIME	Top of water Table (ft)	Top of Free Product (ft)	Product thickness (ft)	Remarks
MPT-B-MW07S	1130	12.51	9	3.51	
MPT-B-MW11S	1115	10.12	9.27	0.85	
MPT-B-TPW02	1155	8.27	8.25	0.02	
MPT-B-TPW03	1140	11.65	11.15	0.50	
MPT-B-TPW04	Well Sentinal no data collected				
MPT-B-TPW05	1120	12.80	12.79	0.01	
MPT-B-TPW06	1200	13.67	13.64	0.03	
MPT-B-TPW07	1136	10.85	-	-	
MPT-B-TPW08	1138	11.60	-	-	Petroleum jelly floats on water
MPT-B-TPW01	1150 ~~802~~	8.02	-	-	
MPT-B-MW16S	1030	8.22	-	-	
MPT-B-MW19S	1040	8.76	-	-	

Well Sentinals on wells MPT-B-MW15, MPT-B-MW13I, MPT-B-MW13S, MPT-B-MW
Data was collected at peak high tide at 0841. Sentinals also on wells MPT-B-MW02S and MPT-B-MW03S. Piezometers include MPT-B-TPW04. Sump 2 only operating.

Data was also collected at peak low tide on 12/7/96 at 14:42. Sump 2 only operating.

Well ID #	TIME	Top of Water Table (ft)	Top of Product (ft)	Product Thickness (ft)	Remarks
MPT-B-MW07S	1445	12.65 ~~8.85~~	9.3	3.35	
MPT-B-MW11S ~~MW03S~~	1535	11	9.62	1.38	
MPT-B-MW16S	1515	8.85	-	-	
MPT-B-MW17S	1510	9.42	-	-	
MPT-B-TPW01	1500	8.02	-	-	
MPT-B-TPW02	1505	8.5	-	-	
MPT-B-TPW03	1450	11.85	11.20	0.65	
MPT-B-TPW05	1525	13.25	-	-	
MPT-B-TPW06	1530	14.03	13.85	0.18	
MPT-B-TPW07	1448	10.88	-	-	
MPT-B-TPW08	1440	11.78	-	-	Petroleum junk in water.

End of data. End of day.

SRINIVAS KUCHIBOTLA
4/3/96

4/8/96 MISSING INFORMATION

Objective: Include missing data in the book.

Personnel: Srin Kuchibotla, ABB-ES

Missing data being ~~dat~~ (ex) 4/8 being included into the logbook. The data was collected by Patrick Craine on August 11, 1994. Data was collected at peak high tide which was at 09:48. Data presented on the next two pages. System was turned off.

SRINIVAS KUCHIBOTLA
4/8/96

Well ID #	Time	Top of Water Table (ft)	Top of Free Product (ft)	Product Thickness (ft)	Remarks
MPT-8-MW01S	11:43	9.02	–	–	
MPT-8-MW02S	11:39	11.02	–	–	
MPT-8-MW03S	11:34	11.02	–	–	
MPT-8-MW04S	09:46	9.14	–	–	
MPT-8-MW06S	09:36	7.16	–	–	
MPT-8-MW07S	–	–	–	–	Well Obstruction observed
MPT-8-MW08S	11:12	9.02	–	–	
MPT-8-MW09S	11:14	9.34	–	–	
MPT-8-MW10S	11:09	5.95	–	–	
MPT-8-MW11S	10:54	9.375	8.71	0.665	
MPT-8-MW12S	09:59	10.38	–	–	
MPT-8-MW13S	10:07	8.58	–	–	
MPT-8-MW13S	10:08	8.59	–	–	
MPT-8-MW14S	10:15	8.12	–	–	
MPT-8-MW15S	10:23	7.47	–	–	
MPT-8-MW15S	10:26	7.16	–	–	
MPT-8-MW16S	10:43	7.60	–	–	
MPT-8-MW17S	09:43	7.95	–	–	
MPT-8-MW18S	09:40	6.02	–	–	
9-MW01S MPT-8-MW19S	11:48	11.85	–	–	
MPT-9-MW02S	09:56	10.67	–	–	
MPT-9-MW03S	09:52	8.84	–	–	
MPT-S-MW03S	10:13	9.39	–	–	

WELL ID #	TIME	Top of Water Table (ft)	Top of Free Product (ft)	Free Product Thickness (ft)	Remarks
MPT-8-TPW01	11:41	7.50	–	–	
MPT-8-TPW02	11:35	12.69	–	–	
MPT-8-TPW03	11:38	10.41	10.40	0.01	
MPT-8-TPW04	11:37	12.25	–	–	
MPT-8-TPW05	10:48	12.14	12.1	0.04	
MPT-8-TPW06	10:38	13.19	12.87	0.32	
MPT-8-TPW07	–	–	–	–	No water in the piezometer
MPT-8-TPW08	11:17	11.295	11.275	0.02	
SUMP#1	11:33	10.44	–	–	
SUMP#2	10.47	11.75	–	–	
SUMP#3	10:35	12.83	–	–	
SUMP#4	10.32	9.47	–	–	
SUMP#5	10:17	11.07	–	–	

System Status: Off

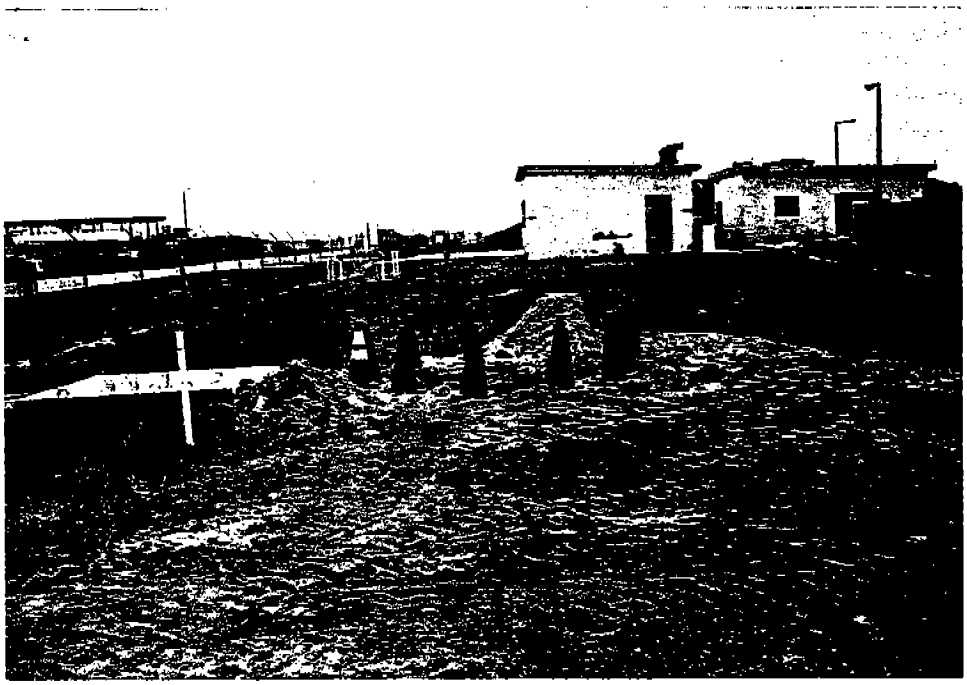
Data Collected by: Patrick Craine

Peak High Tide: 09:48

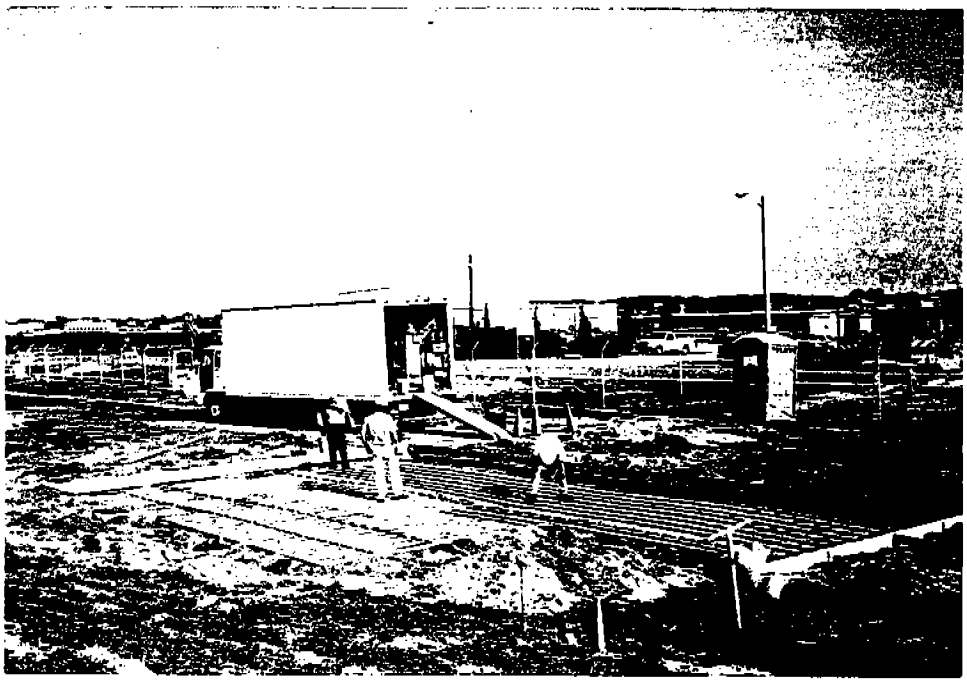
SRINIVAS KUCHIBOTLA
4/8/96

ATTACHMENT B

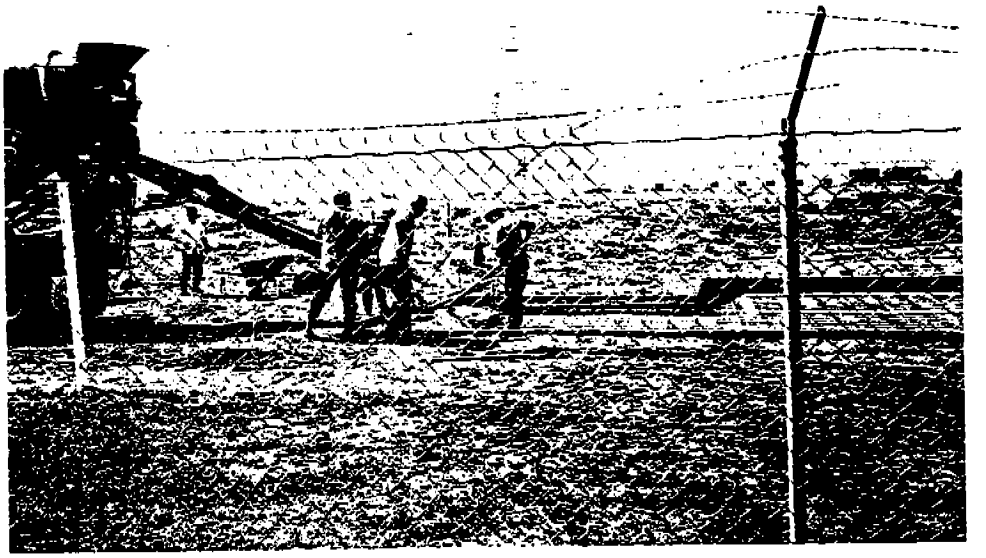
PHOTOGRAPHS



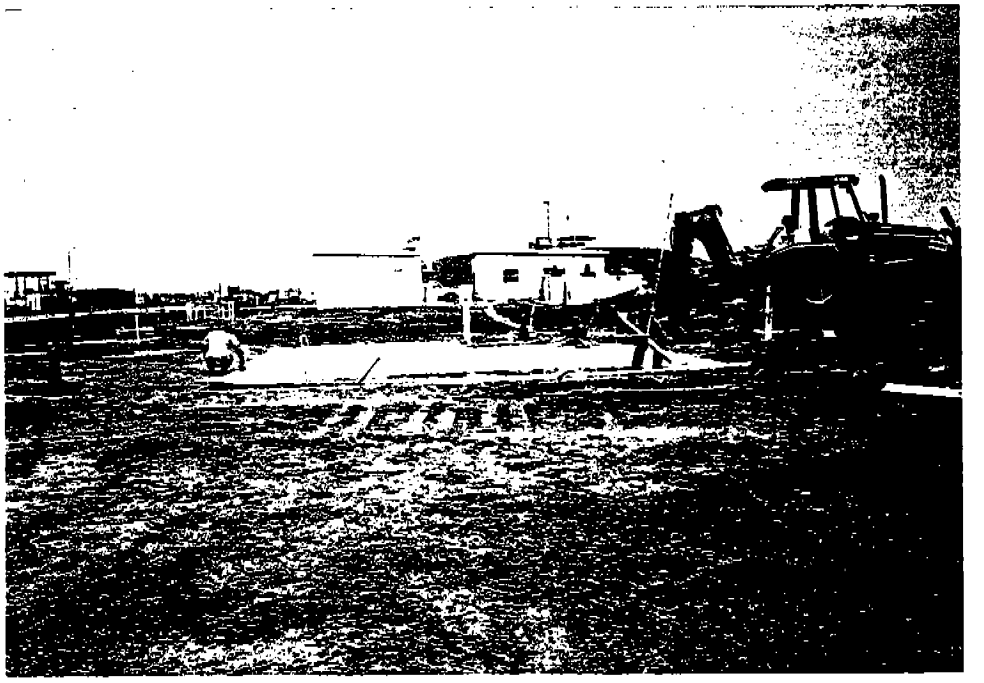
View looking east at the subgrade (grubbed vegetation) being prepared for construction of the light nonaqueous phase liquid (LNAPL) recovery system. A concrete pad will be constructed on top of the subgrade at this location. The concrete pad will be the foundation for two 20,000 gallon recovery tanks, an air compressor and totalizing flow meters. Laboratory and office buildings for the oily wastewater treatment system are in the background.



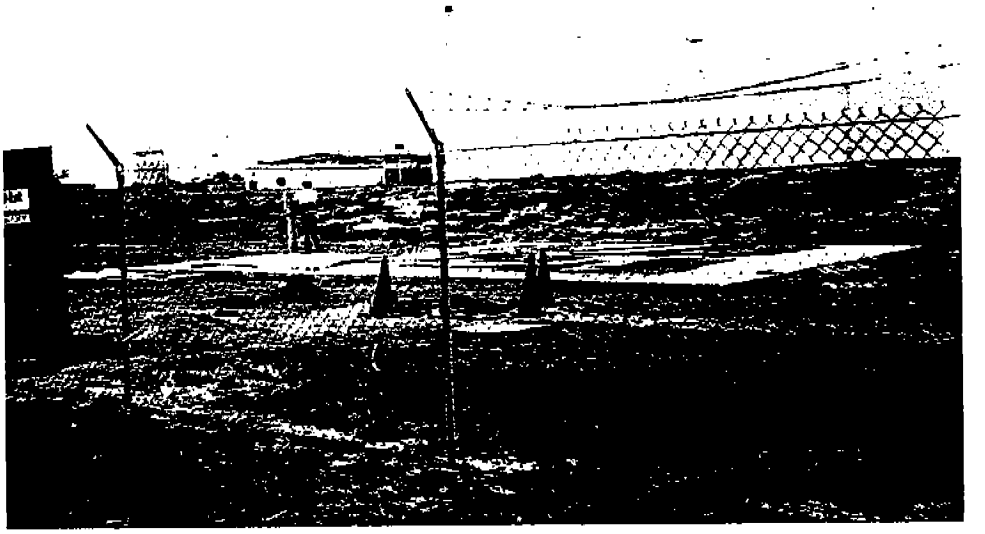
Placing steel rebar rods on the polyethylene vapor barrier at the prepared subgrade. View looking north toward the St. Johns River.



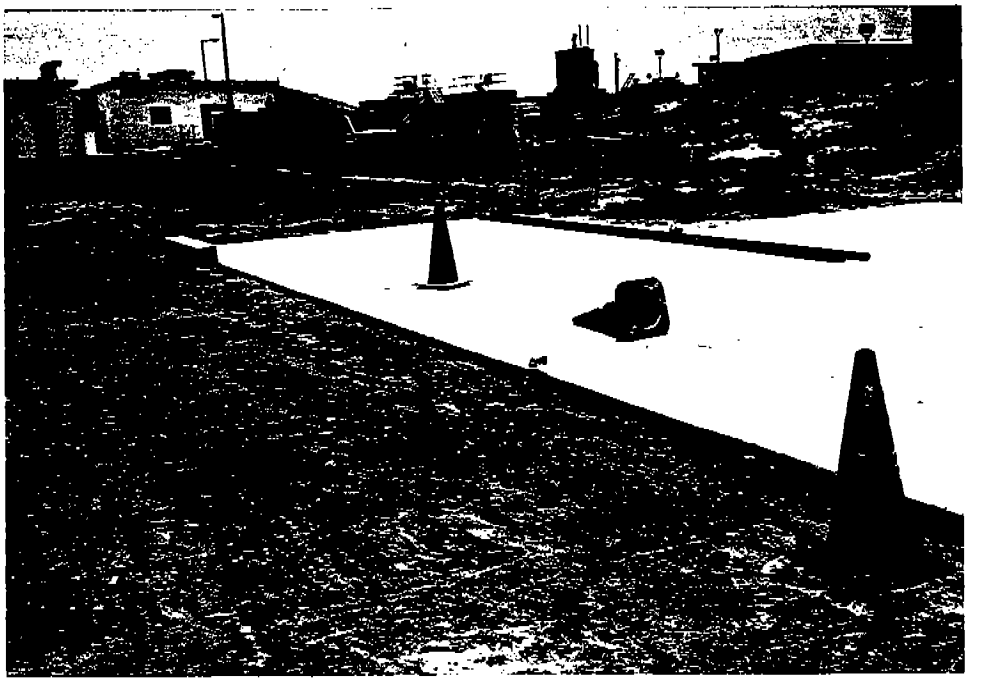
Pouring the concrete pad for the LNAPL recovery system. The load equalization tanks (LETs) for the oily waste treatment plant are in the background. View looking south.



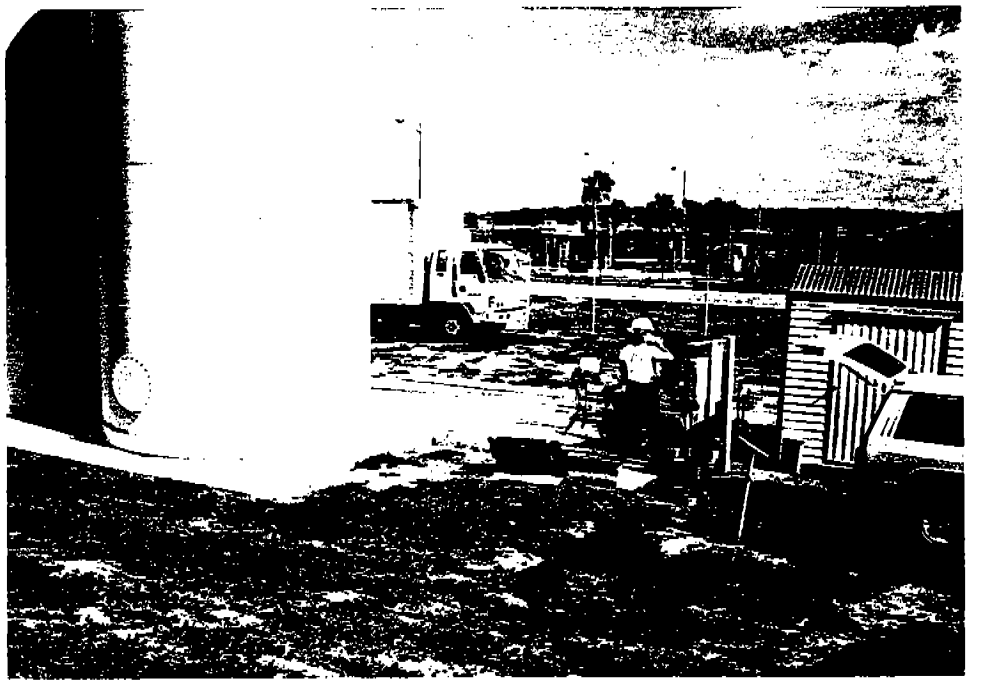
Finishing the concrete at the LNAPL recovery system.



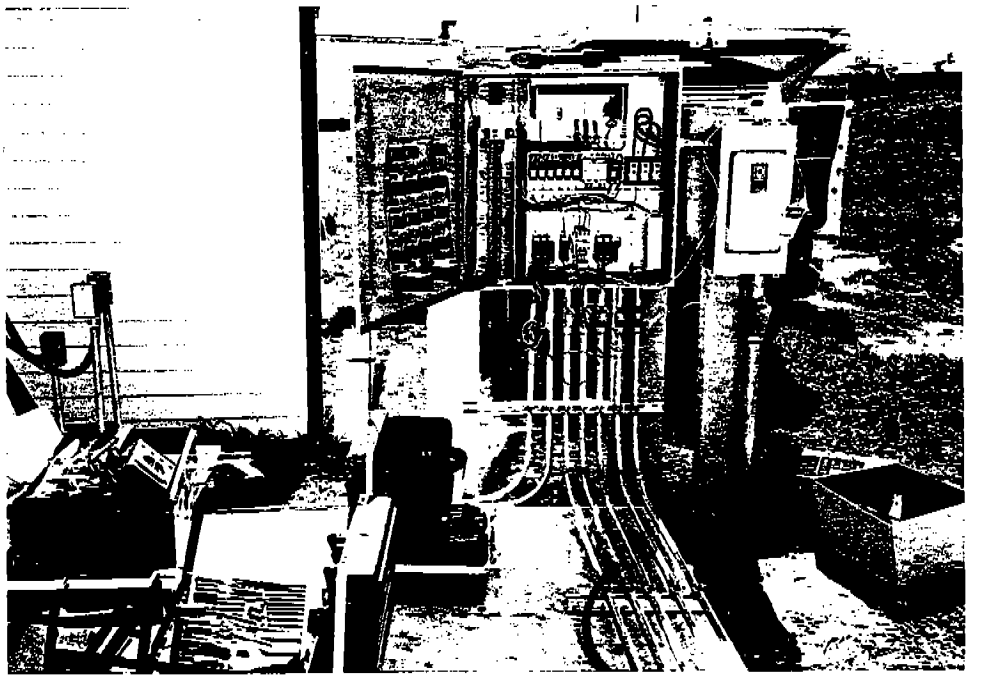
View looking southeast, completed concrete pad.



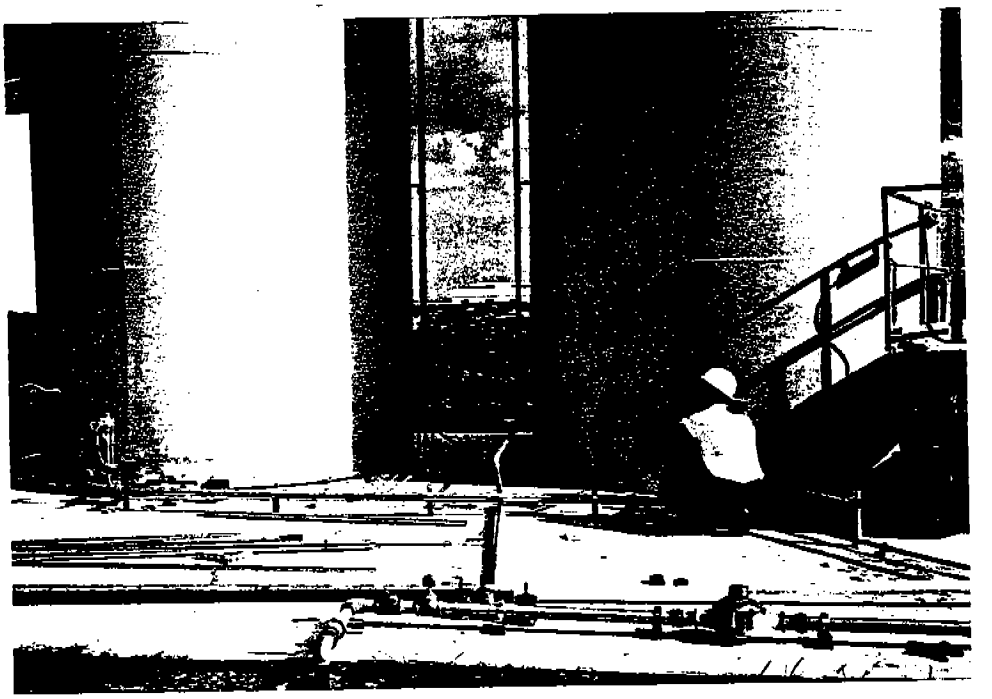
View looking southeast at utility connections at the LNAPL recovery system. The underground connection to the Oily Wastewater Treatment Plant is the pipe to the left of the cone laying on its side and the electrical connection is at the back right corner of the concrete pad.



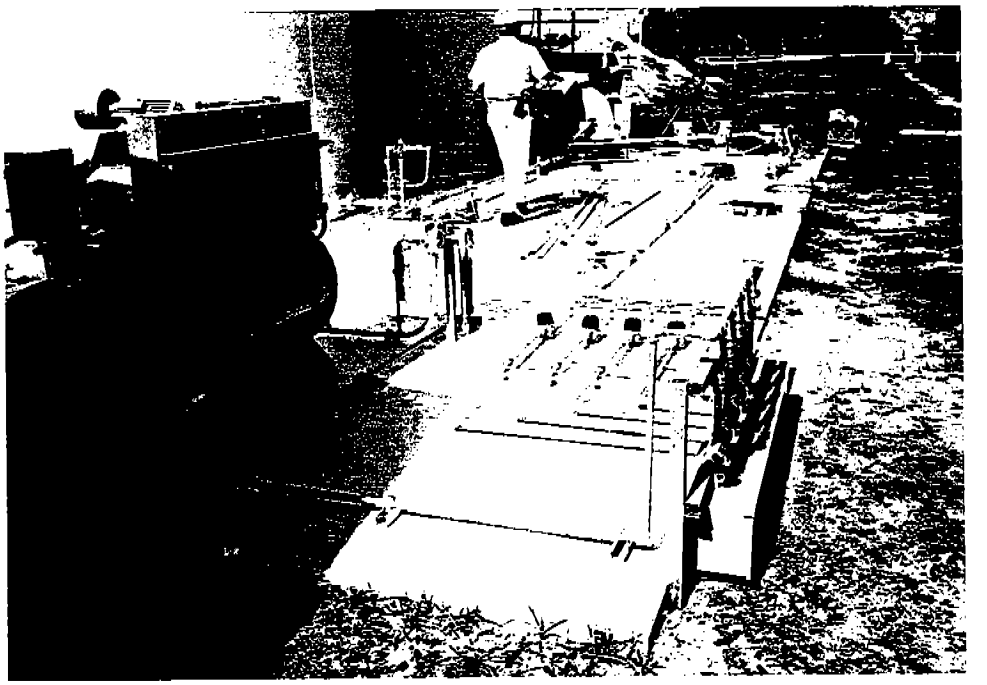
View looking north, the two 20,000 gallon recovery tanks have been placed on the concrete pad. The control panel for the LNAPL recovery system is being installed adjacent to the electrical connection.



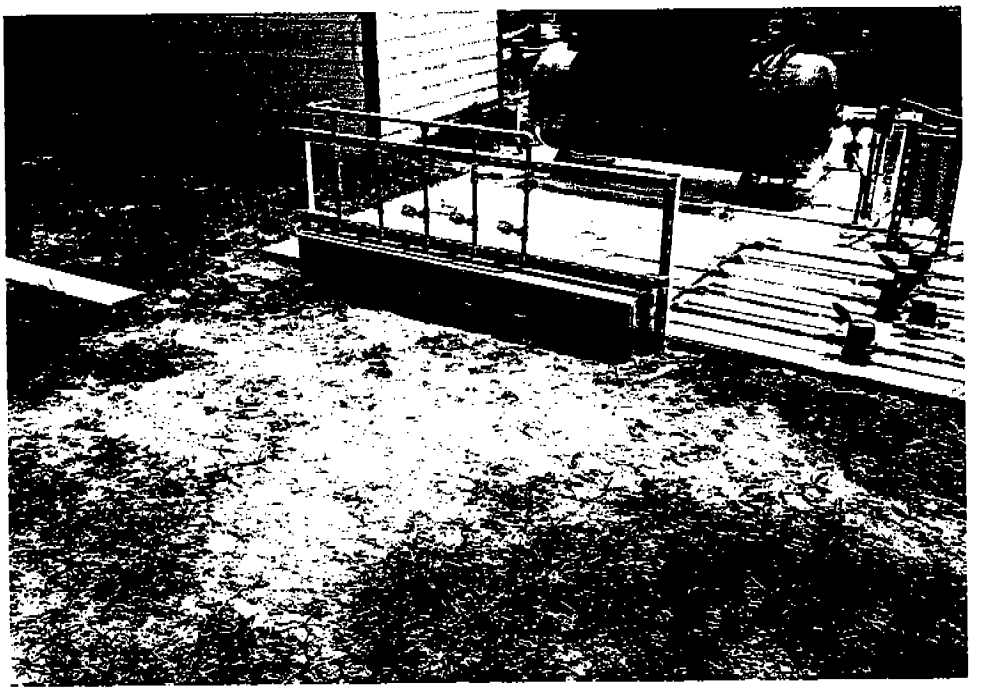
View looking east at the open control box. The shed in the top and bottom pictures is to cover the air compressor (not shown in the pictures). The shed was too small and was replaced with a larger shed.



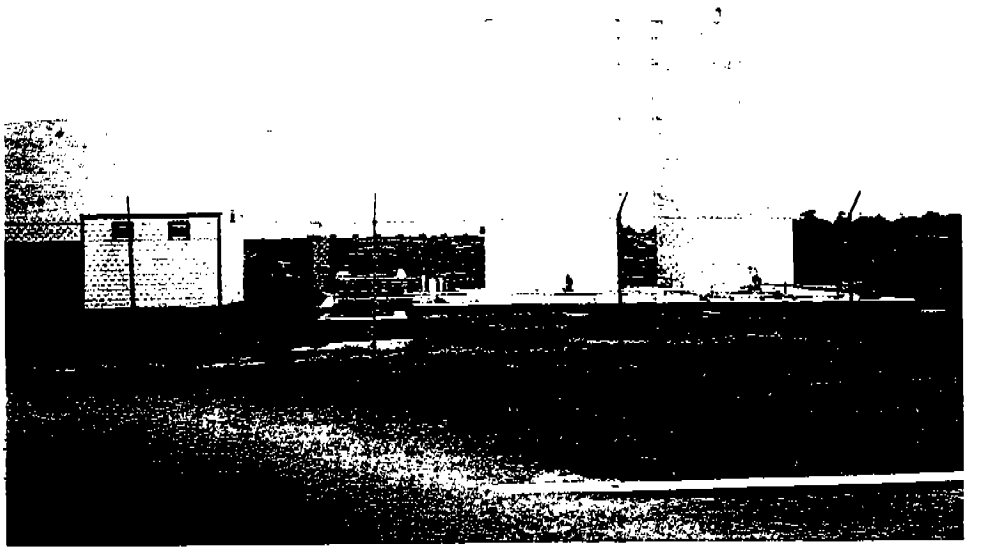
View looking south at electrical and water conduits for the 20,00 gallon recovery tanks. The pipe, with attached manual valve and totalizing flow meter, along the front (north side) of the photograph is the connection for the LNAPL recovery system to discharge to the Oily Wastewater Treatment Plant.



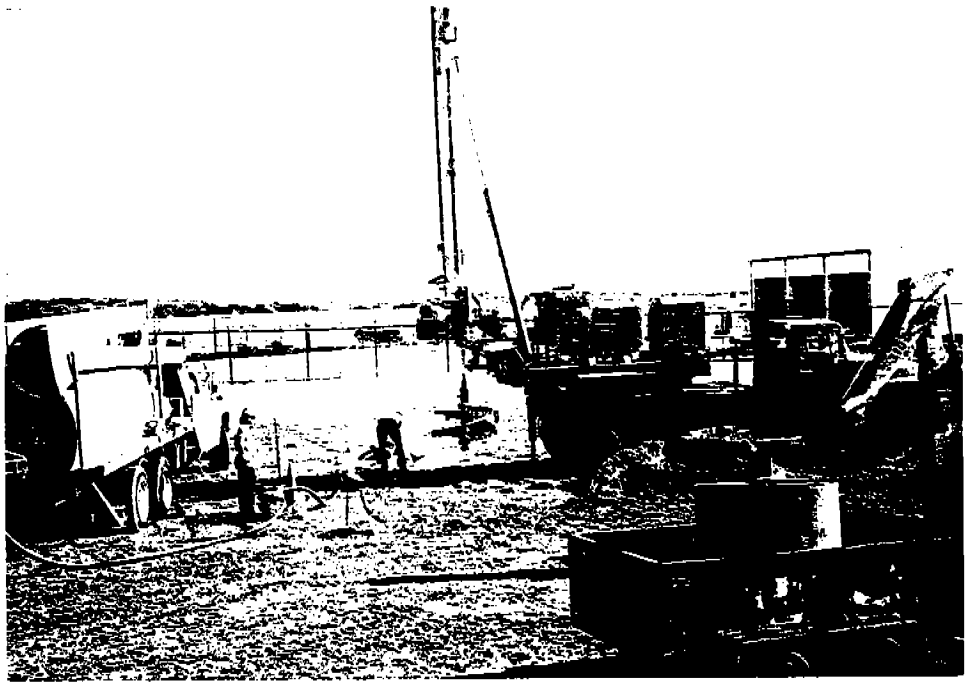
View looking west at the piping for fluids recovered from the five LNAPL recovery sumps. The air compressor for the LNAPL recovery system is on the front left of the photograph. The box on the front right of the concrete pad contains conduits that lead to each of the recovery sumps. Each conduit contains a compressed air pipeline, which supplies air to run the LNAPL pumps, and a pipeline for recovered fluids. Each pipeline for recovered fluids has a totalizing flow meter.



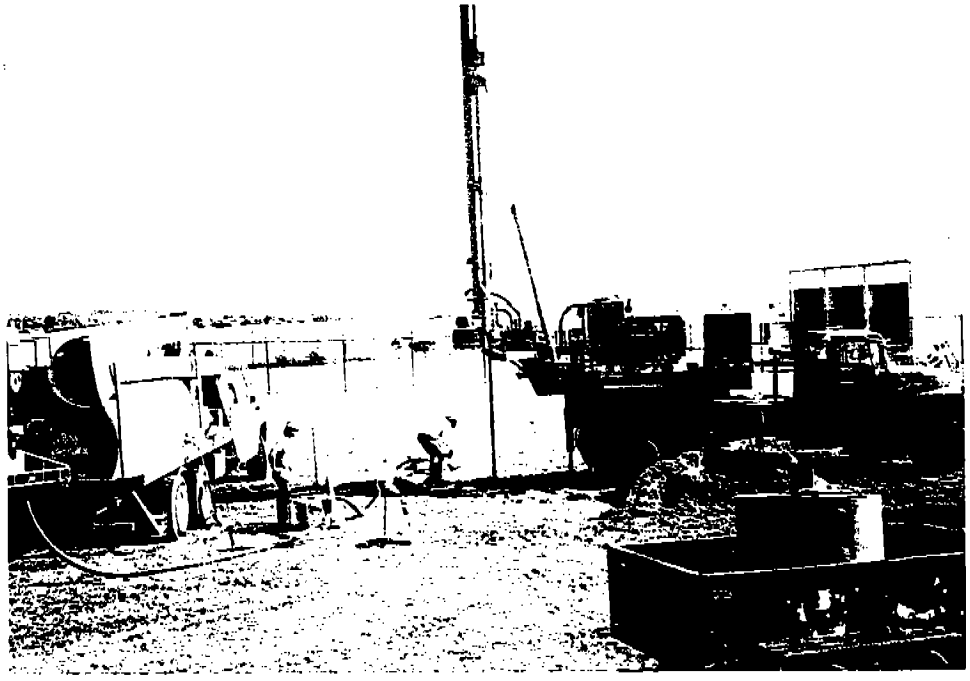
View looking south at the stub out box for conduits leading to the recovery sumps, the air compressor, and totalizing meters.



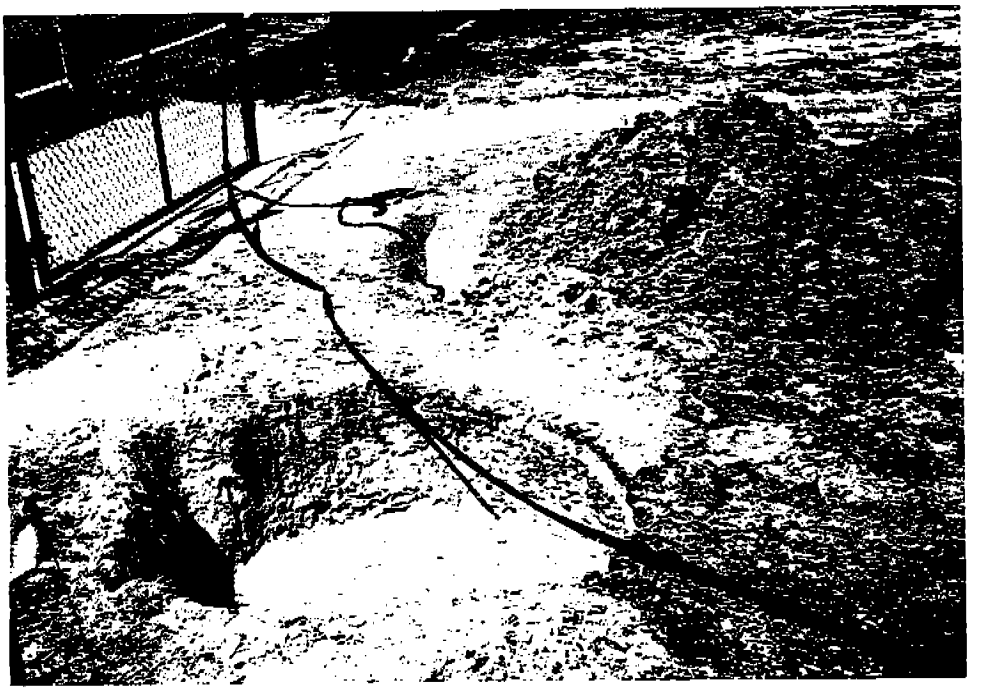
View looking south at the LNAPL recovery system. The three LETs are in the background. The mound behind the LNAPL recovery tanks is Solid Waste Management Unit (SWMU) 7, the sludge drying beds. SWMU 7 is one of the sources for the LNAPL that is being recovered.



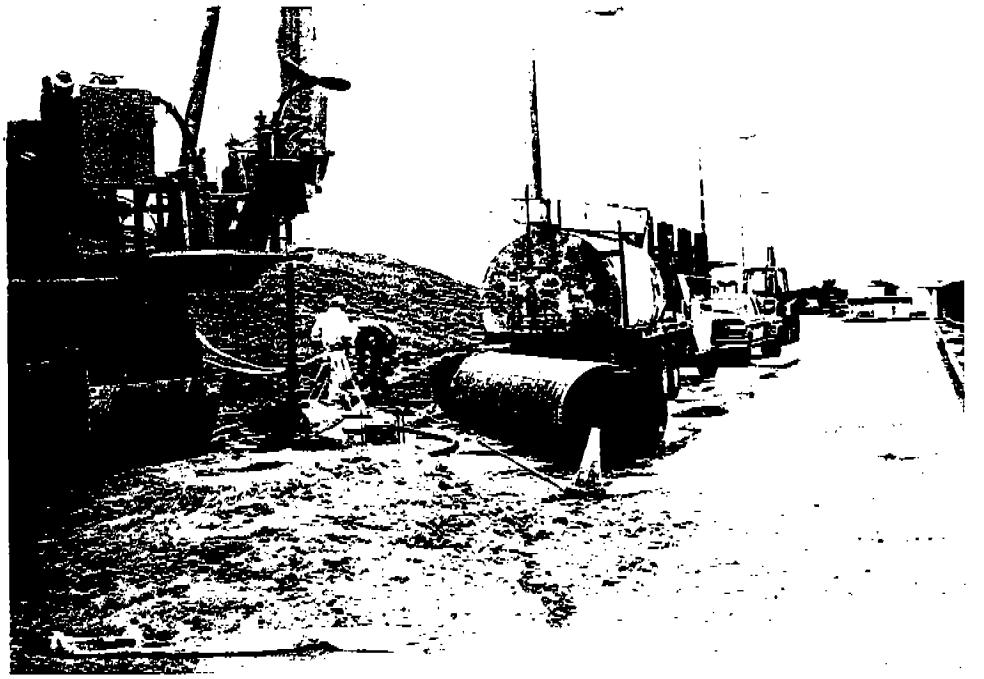
View looking north at recovery sump location number 1. A 4-foot diameter solid-stem auger was used to drill the recovery sump boreholes. The drilling support truck is located on the left (west) side of the photograph. The tremie pipe used to place a concrete mat at the bottom of each borehole, and gravel around the annular space between the sump screen and borehole, is on the right side of the support truck. The support truck also has a crane for handling the well screen and tremie pipe.



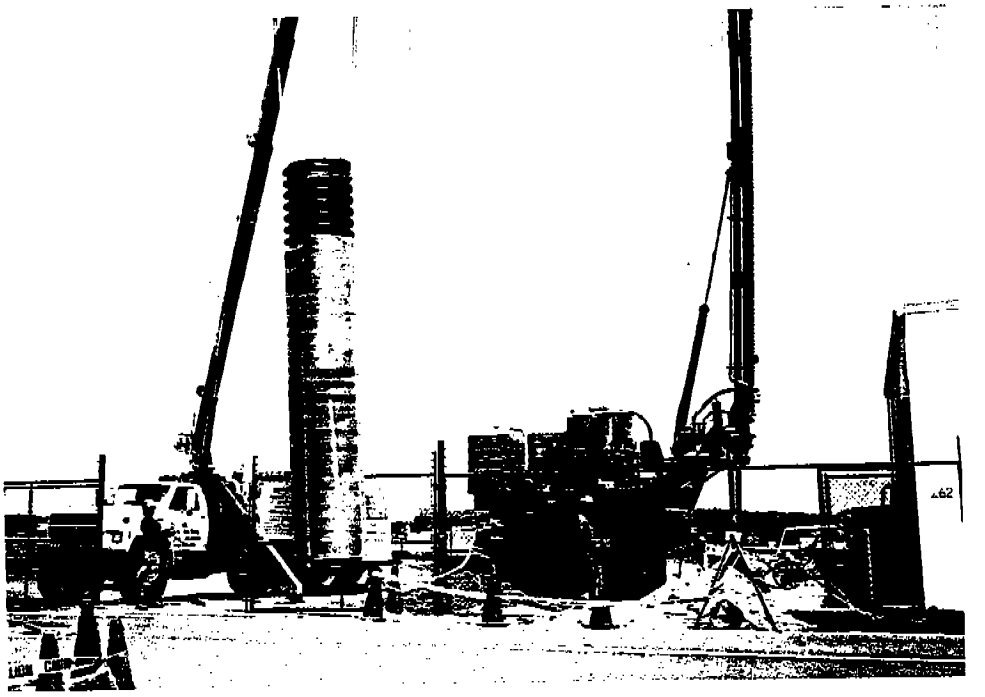
View looking north. Drilling is in progress, the worker behind the drilling rig is mixing a bentonite and water slurry. The slurry stabilizes (prevents from collapsing) the borehole side walls during drilling and installation of sump construction material (e.g., screen, riser, gravel and concrete).



View looking southwest at recovery sump number 2, drilling completed. Soil mound is cuttings from drilling the borehole.

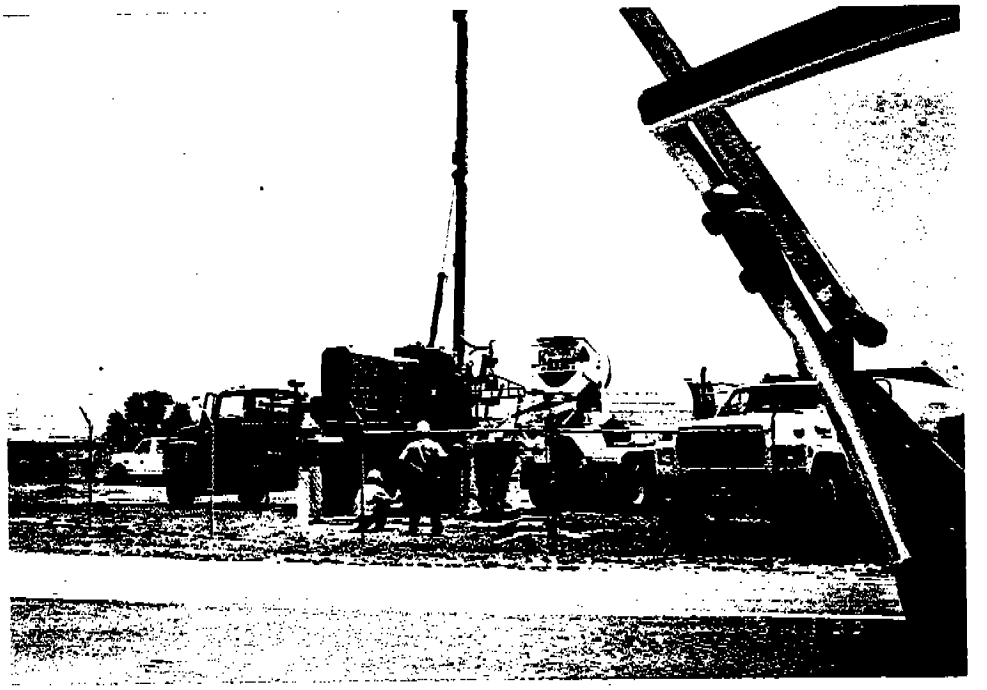


View looking west at recovery sump number 5. The recovery sump well screen, 3-foot diameter high density polyethylene (HDPE) pipe is to be placed in the completed borehole. The slotted (1/4-inch diameter perforations) part of the HDPE pipe is wrapped with galvanized screen (1/16-inch square openings).

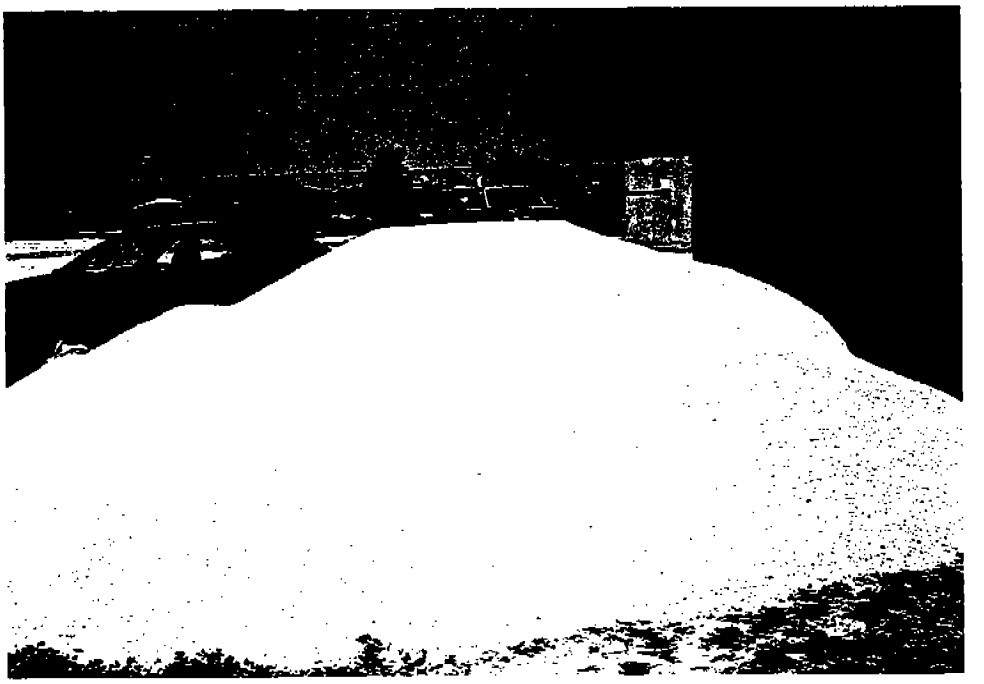


View looking north at recovery sump number 2, crane is being used to lift and lower an HDPE well screen into the borehole.

View looking north at recovery sump number 1, crane is being used to lower the tremie pipe into the borehole.

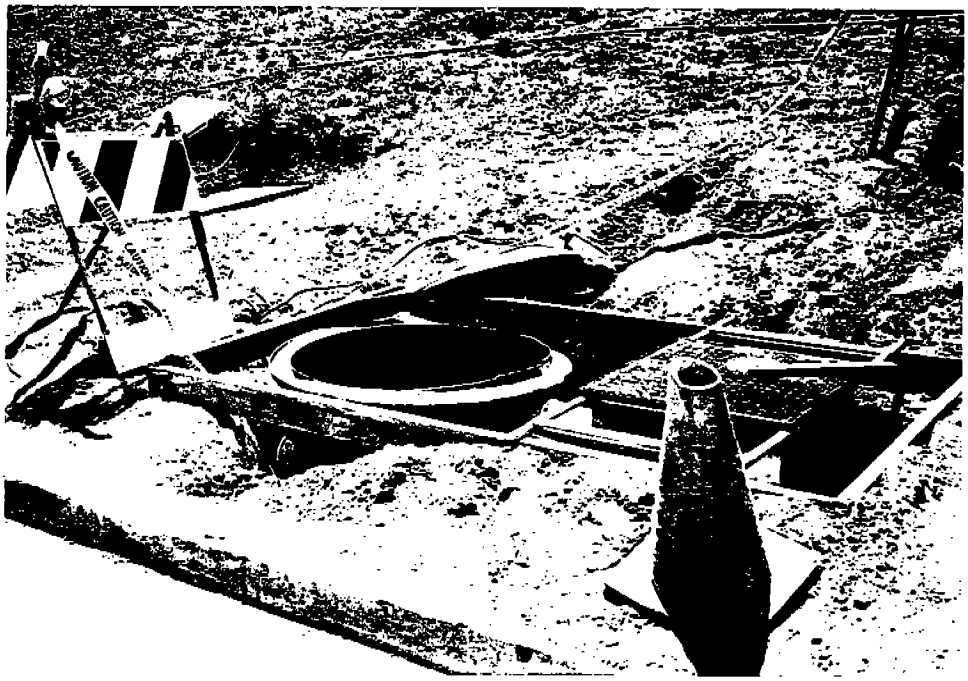


View looking south at recovery sump number 1, concrete is being placed in the bottom of the borehole to make a bottom seal for the sump.

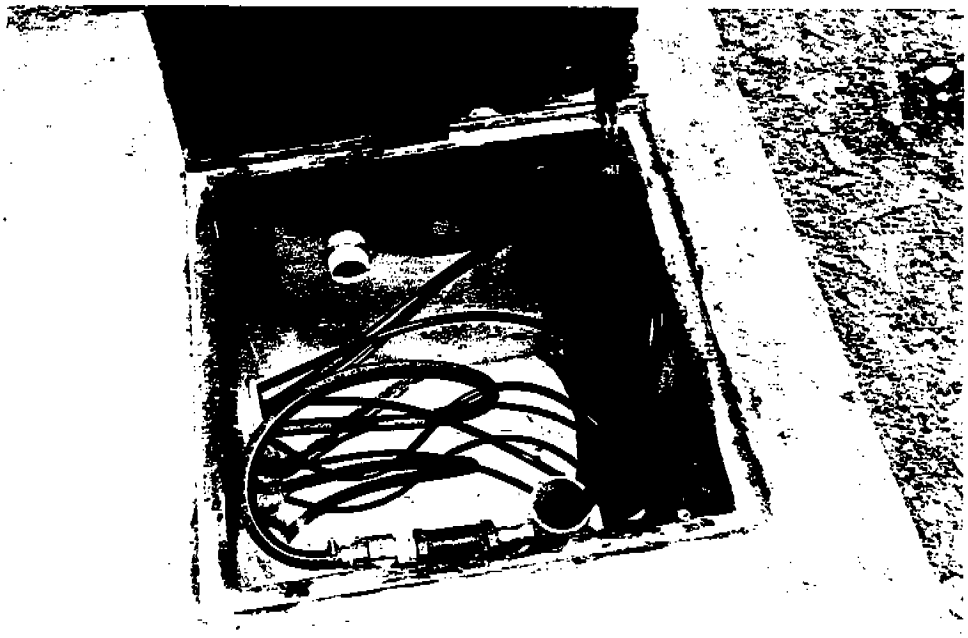


View of the gravel stockpile. The gravel was placed in the annular space between the galvanized screen part of the HDPE pipe and the borehole. The gravel was placed from the top of the concrete seal to a depth of approximately 4 feet beneath the land surface (bls). The annular space between 4 to 2 feet bls was filled with bentonite in pellet form. The remaining annular space, 2 feet to the land surface, was filled with a neat cement grout.

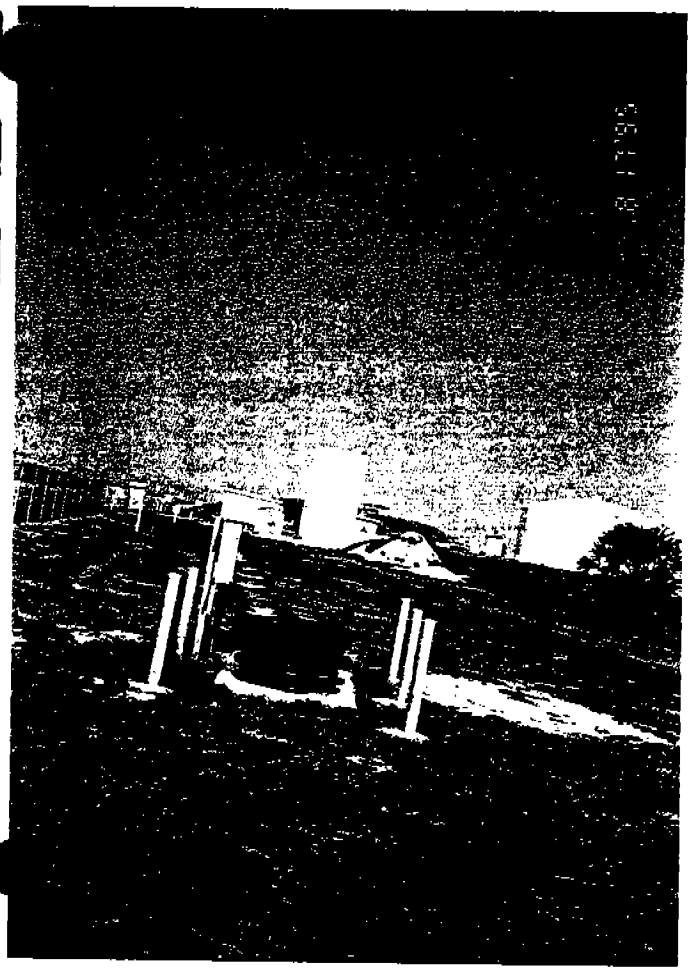
View looking north at recovery sump number 2. A trench has been dug on the south side of the recovery sump for installation of a wellhead and valve assembly box. The valve assembly box contains a compressed air pipeline, a fluid recovery pipeline, and a pressure controller.



View of an open recovery well and a valve assembly box with cover. The wood framing is for a concrete pad that will be placed around the recovery sump and valve assembly box.



View of an open valve assembly box.



View looking east at recovery sump number 1. The recovery sump installation has been completed. The recovery sump has a cap, bollards have been place around the sump and valve assembly box. A control panel box is located on the left (north) side of the sump. The LNAPL recovery system and one of the Oily Wastewater Treatment Plant LETs are in the background.

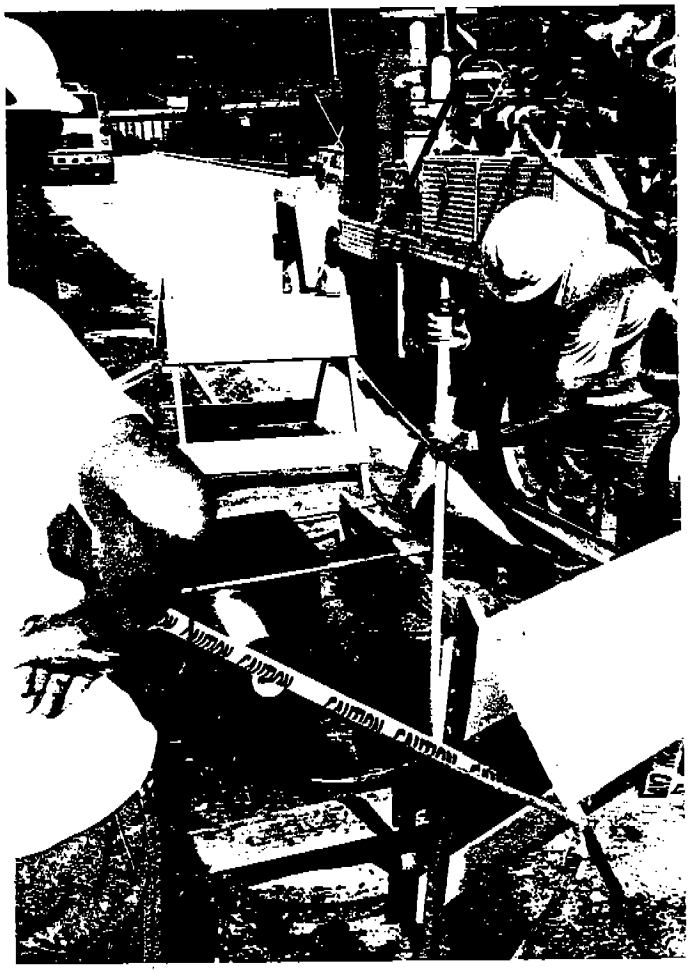
View of a 20 cubic yard (yd^3) rolloff bin being emptied into the western most SWMU 7 sludge drying bed. The rolloff bin contained drill cuttings from the recovery sump locations. Approximately 47 yd^3 of drill cuttings were placed in the sludge drying bed.

View of recovery sump development water being discharged into the western most SWMU 7 sludge drying bed. The soil pile is cuttings from the recovery sump locations.

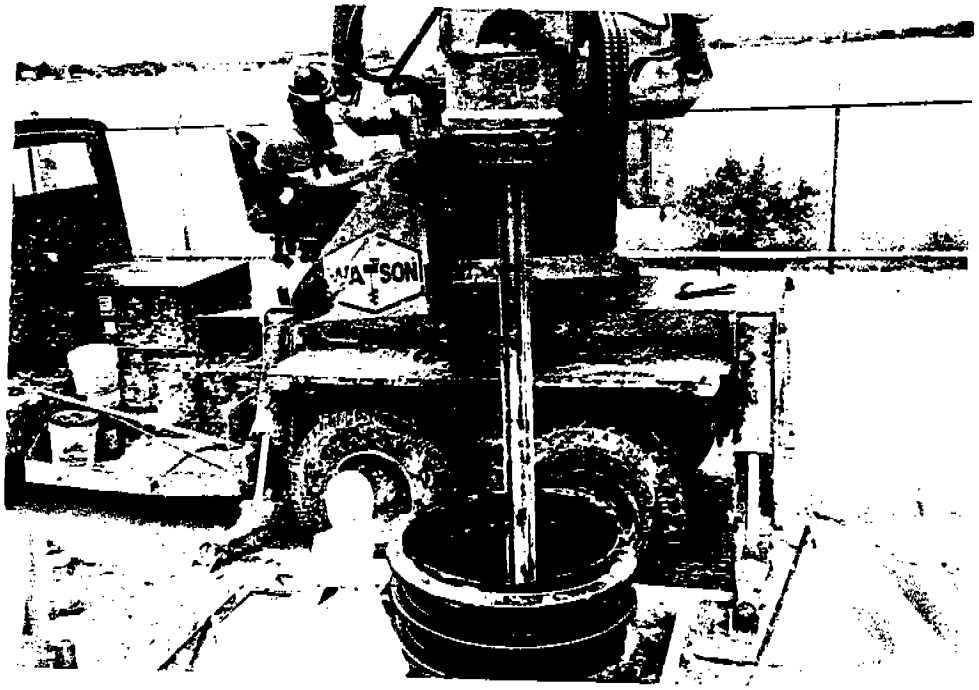
View of recovery sump number 1 looking northwest. During development, the sump was overpumped prior to the concrete seal at the bottom of the sump setting up. This resulted in the development of a breach(s) in the concrete seal. Sand was measured at a depth of 13 feet beneath the top of the sump casing after sump development activities. PVC pipe was used to probe through the sand and confirm that the concrete seal was not intact. The breach was repaired using neat cement grout pumped through the PVC pipe both below and above the fractured concrete seal.

View of recovery sump 2. Using the PVC pipe to check the concrete seal at recovery sump 2. Sand was found at a depth of 18 feet beneath the top of the sump casing. A breach was identified and repaired as previously described.

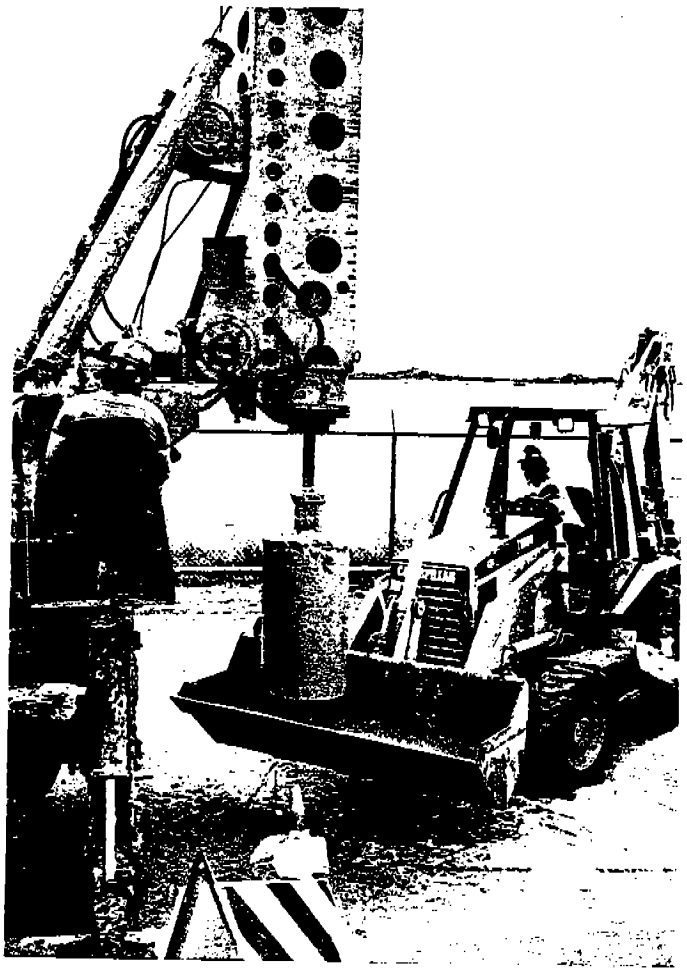
View of recovery sump 4. Using the PVC pipe to check the concrete seal. Sand was found at a depth of 15 feet 4 inches beneath the top of the sump casing. A breach was not identified.



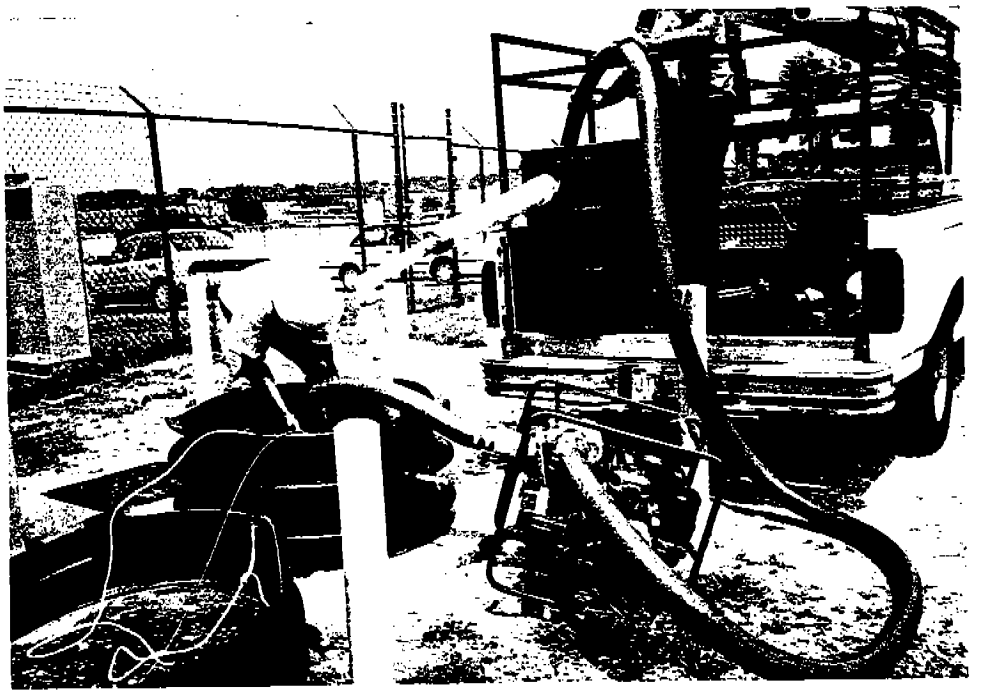
View of recovery sump 5. Using the PVC pipe to check the concrete seal. Sand was found at a depth of 10 feet beneath the top of the sump casing. A breach was not identified.



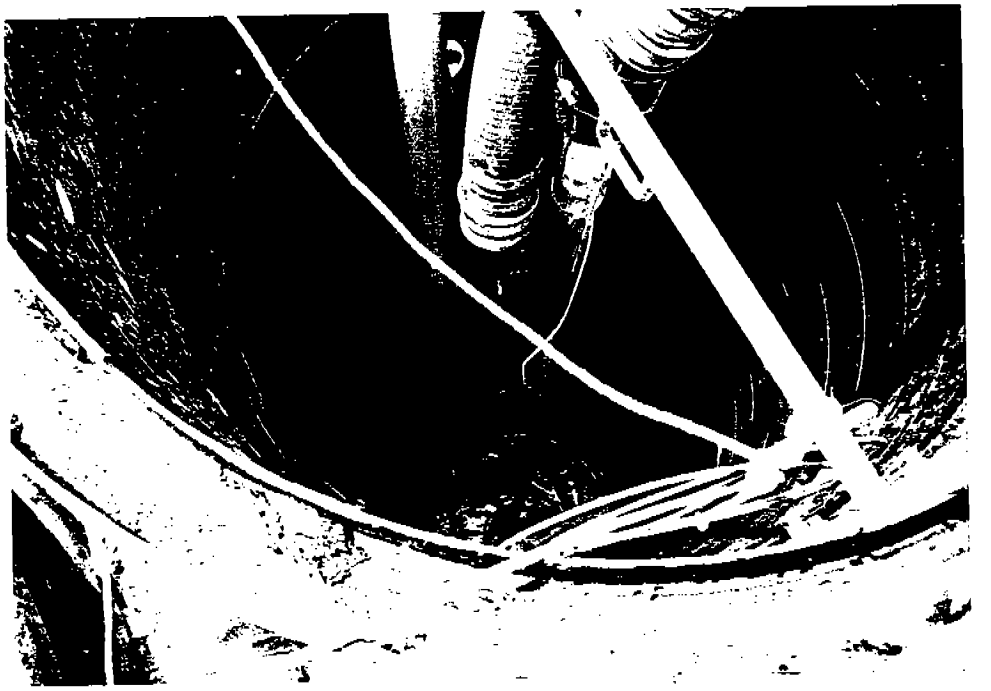
View looking north at recovery sump 5. A foundation drilling rig was used to remove sand from recovery sumps 1, 3, 4 and 5.



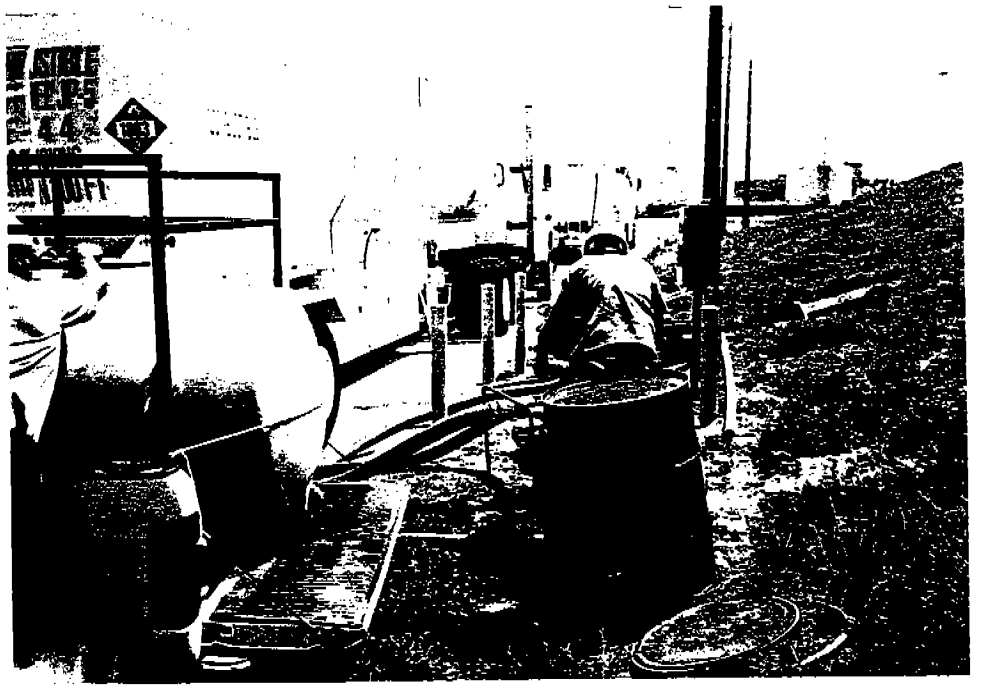
View looking north at recovery sump 5. A foundation clean out bucket was used to remove sand from the sump casing. The sand was placed on polyethylene sheeting adjacent to the sump or into a backhoe bucket as pictured.



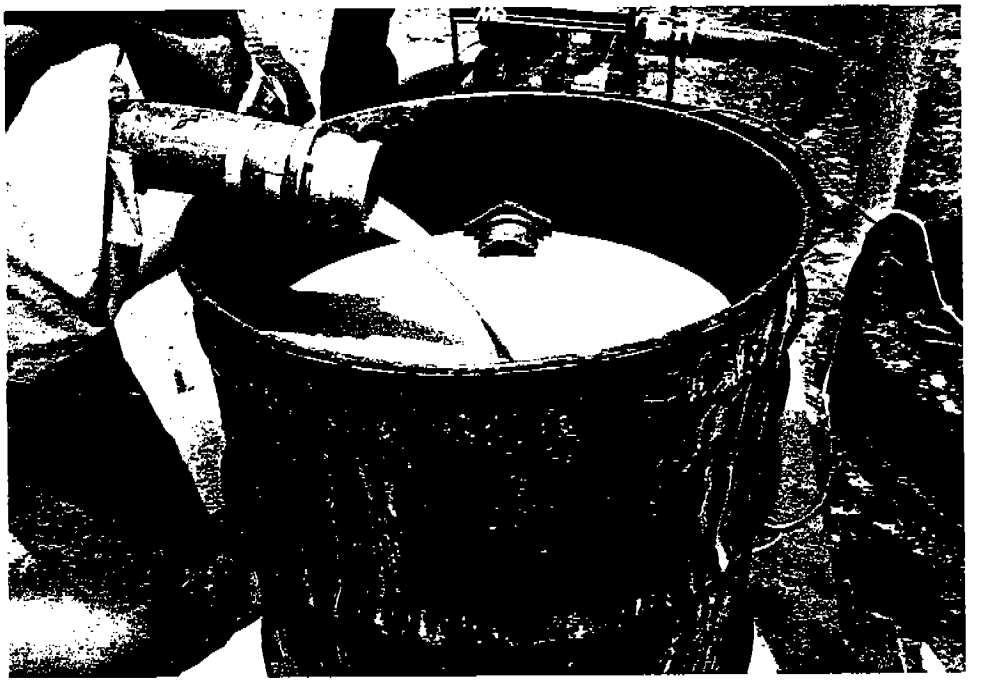
View of the redevelopment of recovery sump number 3. Water in the recovery sump was recirculated and sodium hexametaphosphate was added to deflocculate (breakdown electrical attractive charge) the drilling mud. This process was conducted at sumps 3 and 5 because they produced less than 1 gallon per minute.



View inside recovery sump 3. The sump was pumped dry to remove the drilling mud and chemical additive.



View of the redevelopment of recovery sump number 5.



View of the recirculation of fluid from recovery sump number 5.

ATTACHMENT C

FIGURES

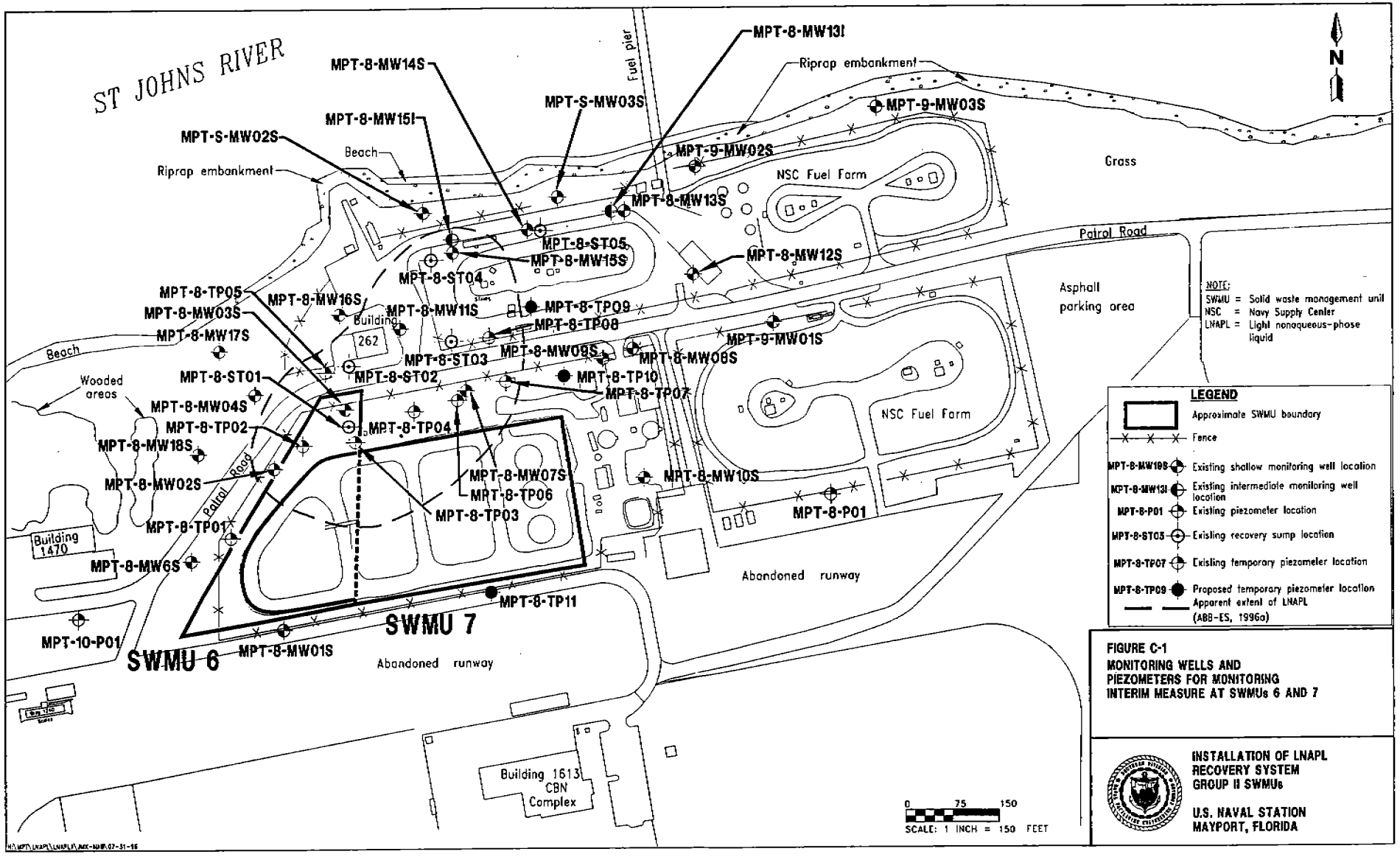
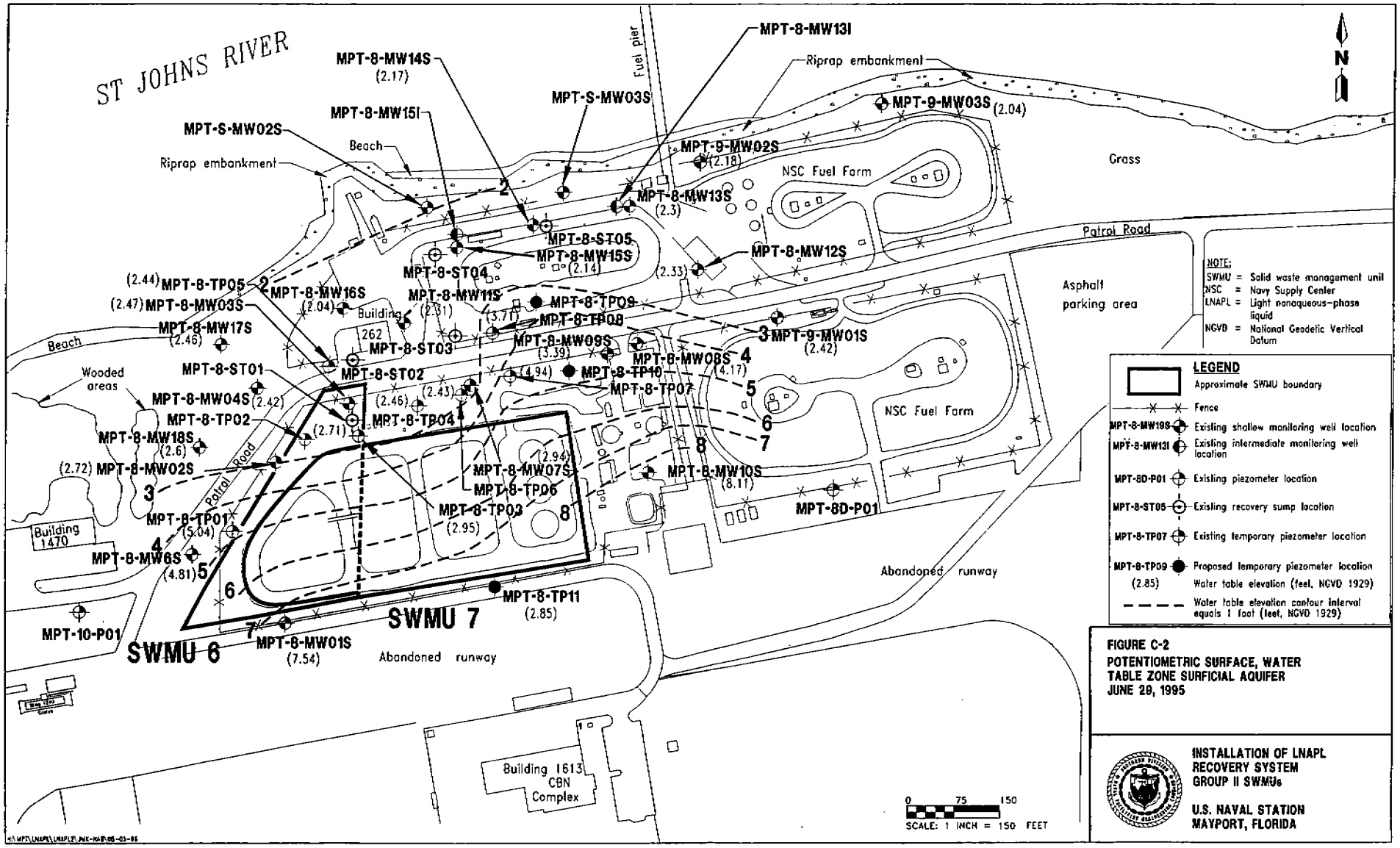


FIGURE C-1
MONITORING WELLS AND PIEZOMETERS FOR MONITORING INTERIM MEASURE AT SWMUs 6 AND 7

INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs

U.S. NAVAL STATION MAYPORT, FLORIDA


ST JOHNS RIVER
Fuel pier
Riprap embankment
Beach
Grass
NSC Fuel Farm
Patrol Road
Asphalt parking area
Wooded areas
Building 262
Building 1470
Building 1613 CBN Complex
Abandoned runway
SWMU 6
SWMU 7
MPT-8-MW13I
MPT-8-MW14S (2.17)
MPT-8-MW15I
MPT-S-MW03S
MPT-S-MW02S
MPT-9-MW03S (2.04)
MPT-9-MW02S (2.18)
MPT-8-MW13S (2.3)
MPT-8-ST05
MPT-8-MW15S (2.14)
MPT-8-ST04
MPT-8-MW12S (2.33)
(2.44) MPT-8-TP05
MPT-8-MW16S (2.04)
(2.47) MPT-8-MW03S
MPT-8-MW11S (2.31)
MPT-8-TP09 (3.71)
MPT-8-TP08
MPT-8-MW17S (2.46)
MPT-8-ST03
MPT-8-MW09S (3.39)
MPT-9-MW01S (2.42)
MPT-8-MW08S (4.17)
MPT-8-ST01
MPT-8-ST02
MPT-8-TP10 (4.94)
MPT-8-TP07
MPT-8-MW04S (2.42)
MPT-8-TP02
MPT-8-TP04
MPT-8-MW18S (2.6)
(2.72) MPT-8-MW02S
MPT-8-MW07S (2.94)
MPT-8-TP06
MPT-8-MW10S (8.11)
MPT-8-TP03 (2.95)
MPT-8D-P01
MPT-8-TP01 (5.04)
MPT-8-MW6S (4.81)
MPT-8-TP11 (2.85)
MPT-10-P01
MPT-8-MW01S (7.54)
1 2 3 4 5 6 7 8
N
0 75 150
SCALE: 1 INCH = 150 FEET
NOTE:
SWMU = Solid waste management unit
NSC = Navy Supply Center
LNAPL = Light nonaqueous-phase liquid
NGVD = National Geodetic Vertical Datum
LEGEND
Approximate SWMU boundary
Fence
MPT-8-MW19S Existing shallow monitoring well location
MPT-8-MW13I Existing intermediate monitoring well location
MPT-8D-P01 Existing piezometer location
MPT-8-ST05 Existing recovery sump location
MPT-8-TP07 Existing temporary piezometer location
MPT-8-TP09 Proposed temporary piezometer location
(2.85) Water table elevation (feet, NGVD 1929)
Water table elevation contour interval equals 1 foot (feet, NGVD 1929)
FIGURE C-2
POTENTIOMETRIC SURFACE, WATER TABLE ZONE SURFICIAL AQUIFER
JUNE 20, 1995
INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs
U.S. NAVAL STATION MAYPORT, FLORIDA

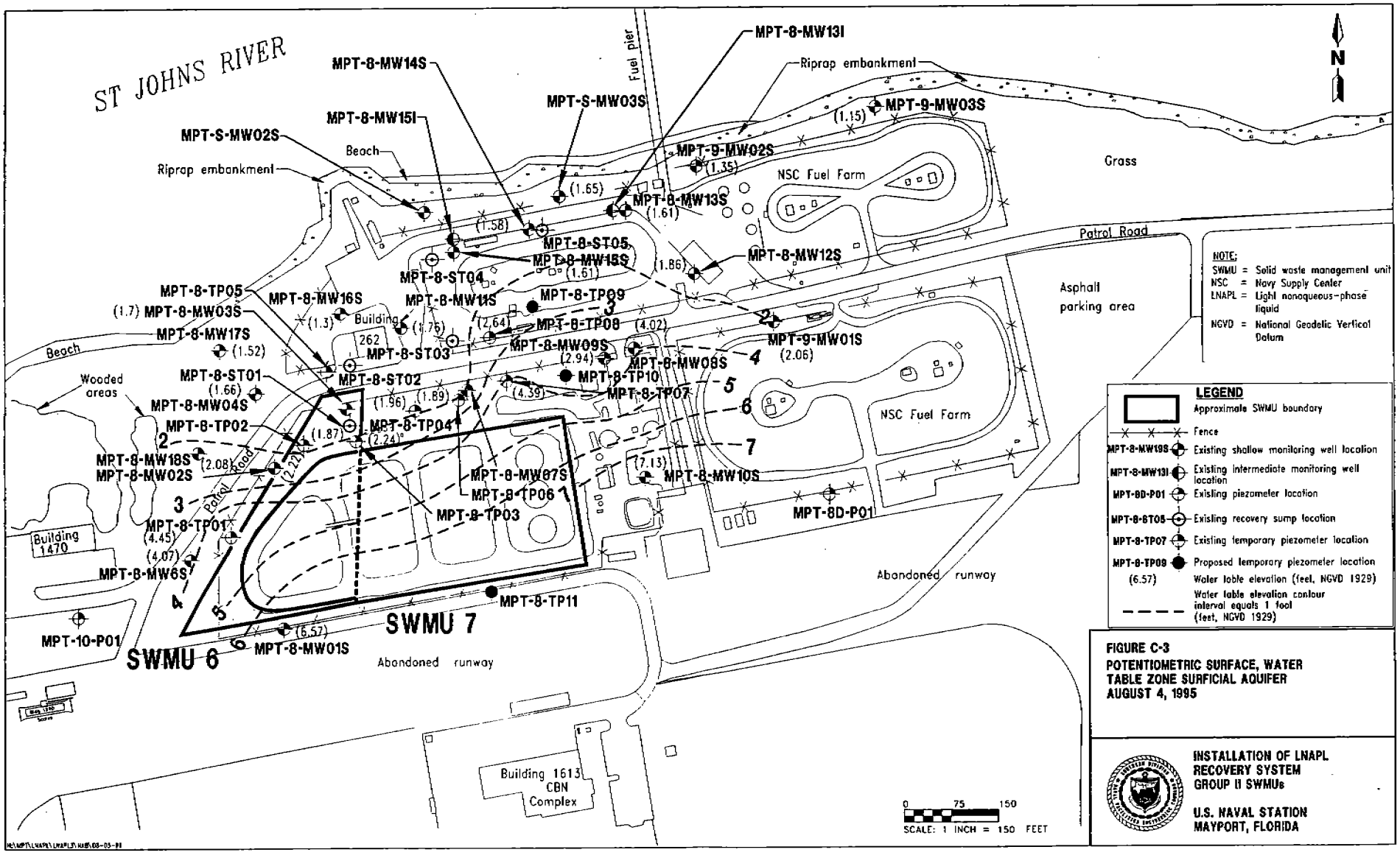


FIGURE C-3
POTENTIOMETRIC SURFACE, WATER TABLE ZONE SURFICIAL AQUIFER
AUGUST 4, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM
GROUP II SWMUs

U.S. NAVAL STATION
MAYPORT, FLORIDA

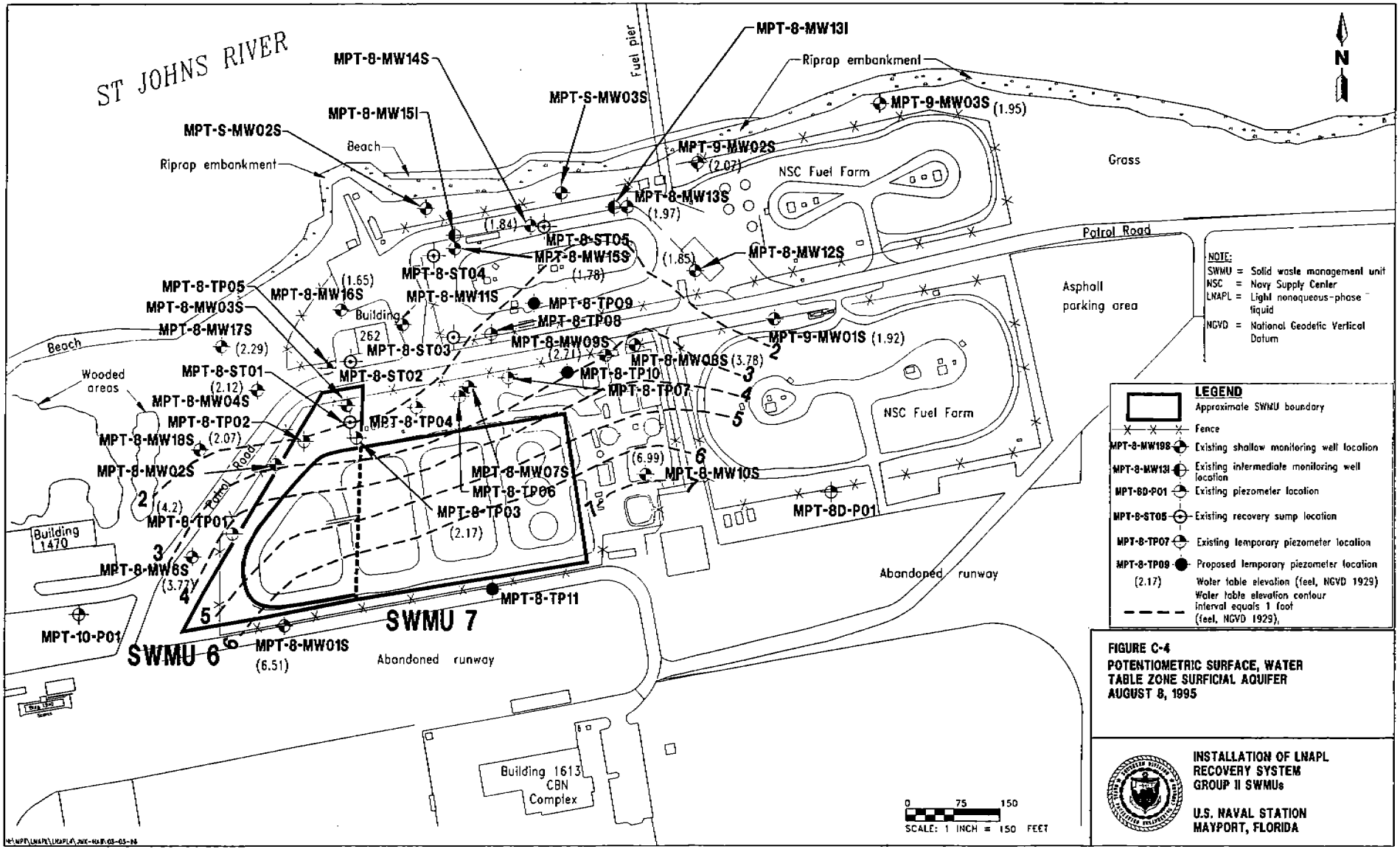


FIGURE C-4
POTENTIOMETRIC SURFACE, WATER TABLE ZONE SURFICIAL AQUIFER
AUGUST 8, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM
GROUP II SWMUs

U.S. NAVAL STATION
MAYPORT, FLORIDA

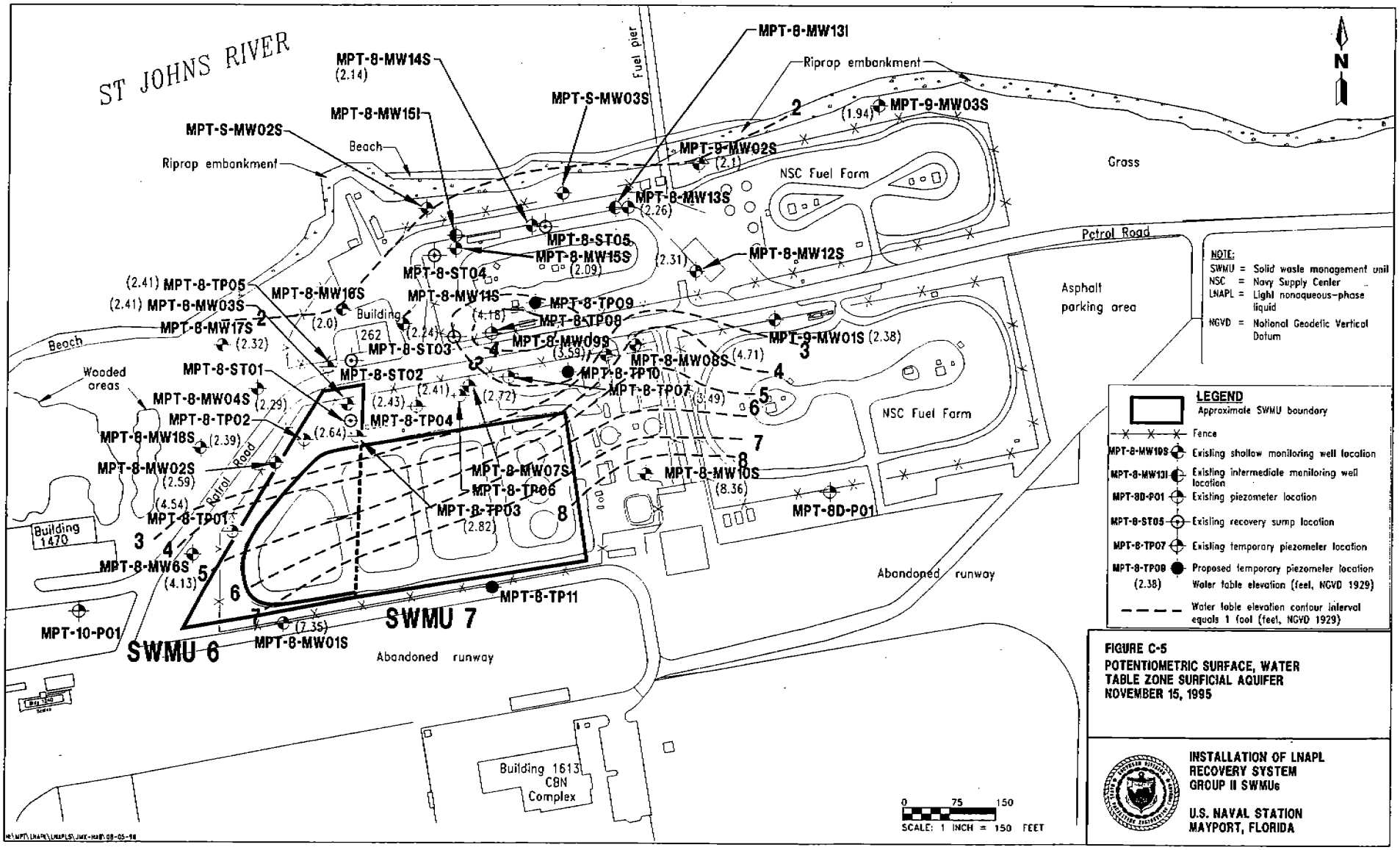


FIGURE C-5
POTENTIOMETRIC SURFACE, WATER TABLE ZONE SURFICIAL AQUIFER
NOVEMBER 15, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM
GROUP II SWMUs

U.S. NAVAL STATION
MAYPORT, FLORIDA

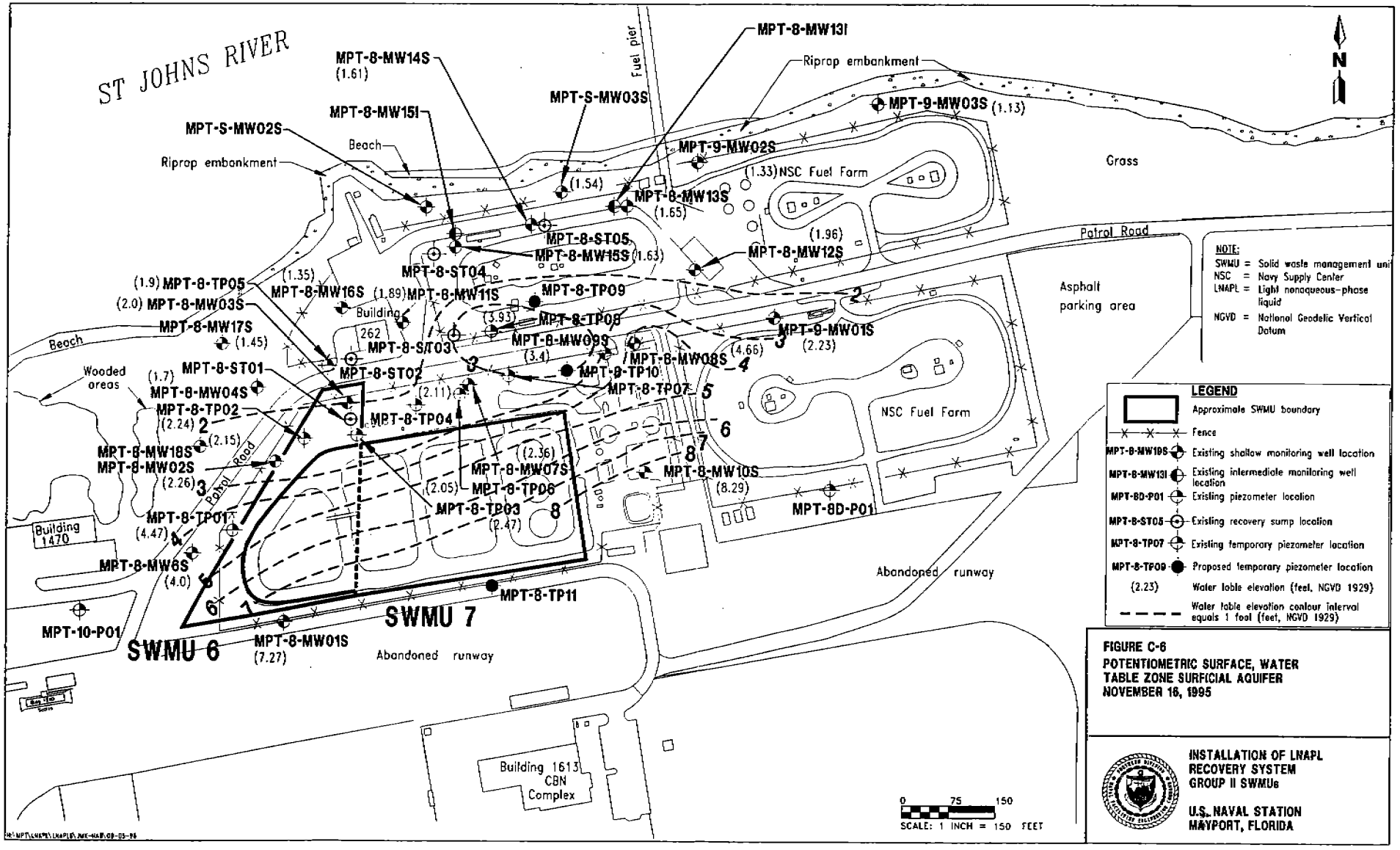


FIGURE C-6
POTENTIOMETRIC SURFACE, WATER TABLE ZONE SURFICIAL AQUIFER
NOVEMBER 16, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM
GROUP II SWMUs

U.S. NAVAL STATION
MAYPORT, FLORIDA

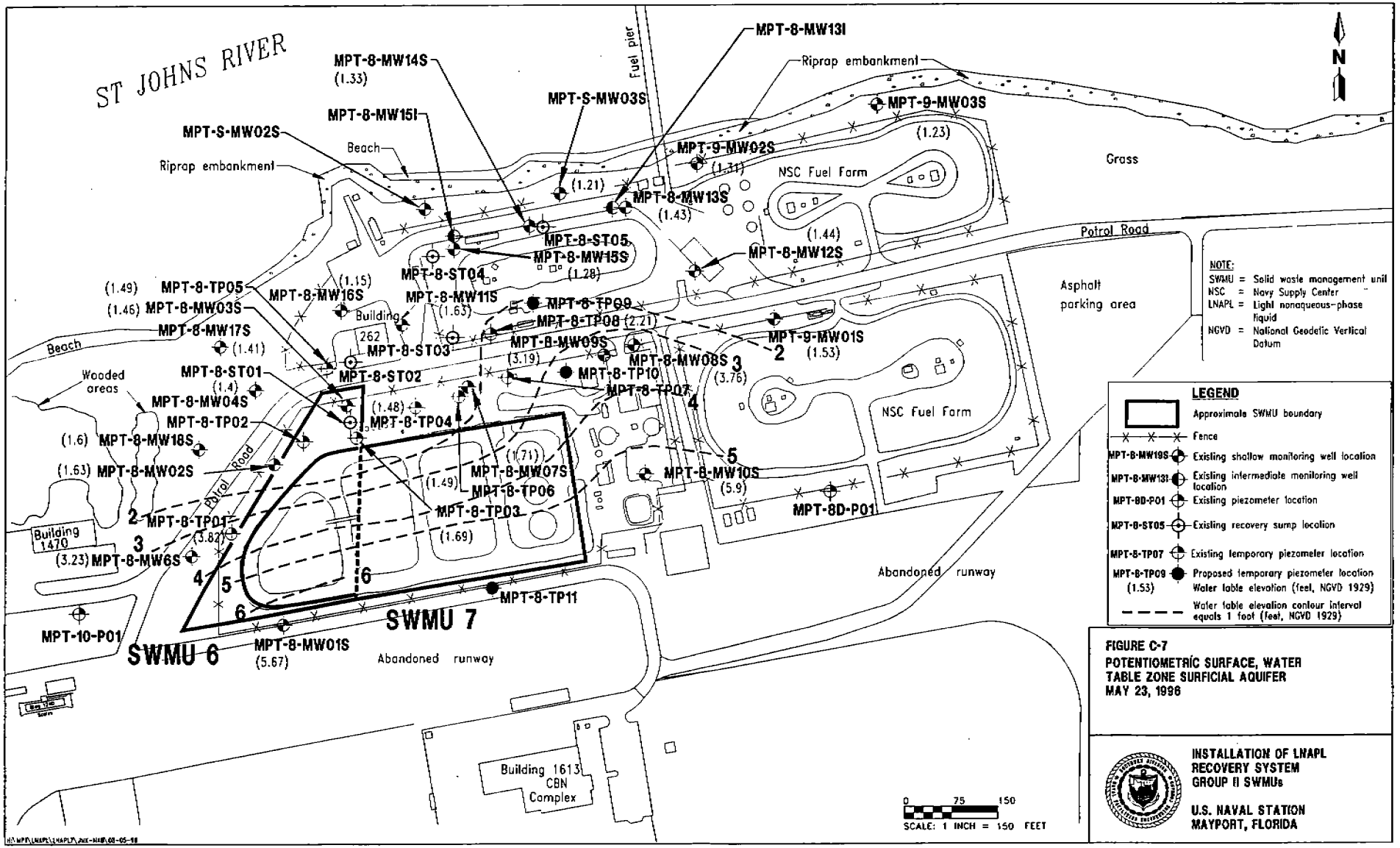


FIGURE C-7
POTENTIOMETRIC SURFACE, WATER TABLE ZONE SURFICIAL AQUIFER
MAY 23, 1996

INSTALLATION OF LNAPL RECOVERY SYSTEM
GROUP II SWMUs

U.S. NAVAL STATION
MAYPORT, FLORIDA

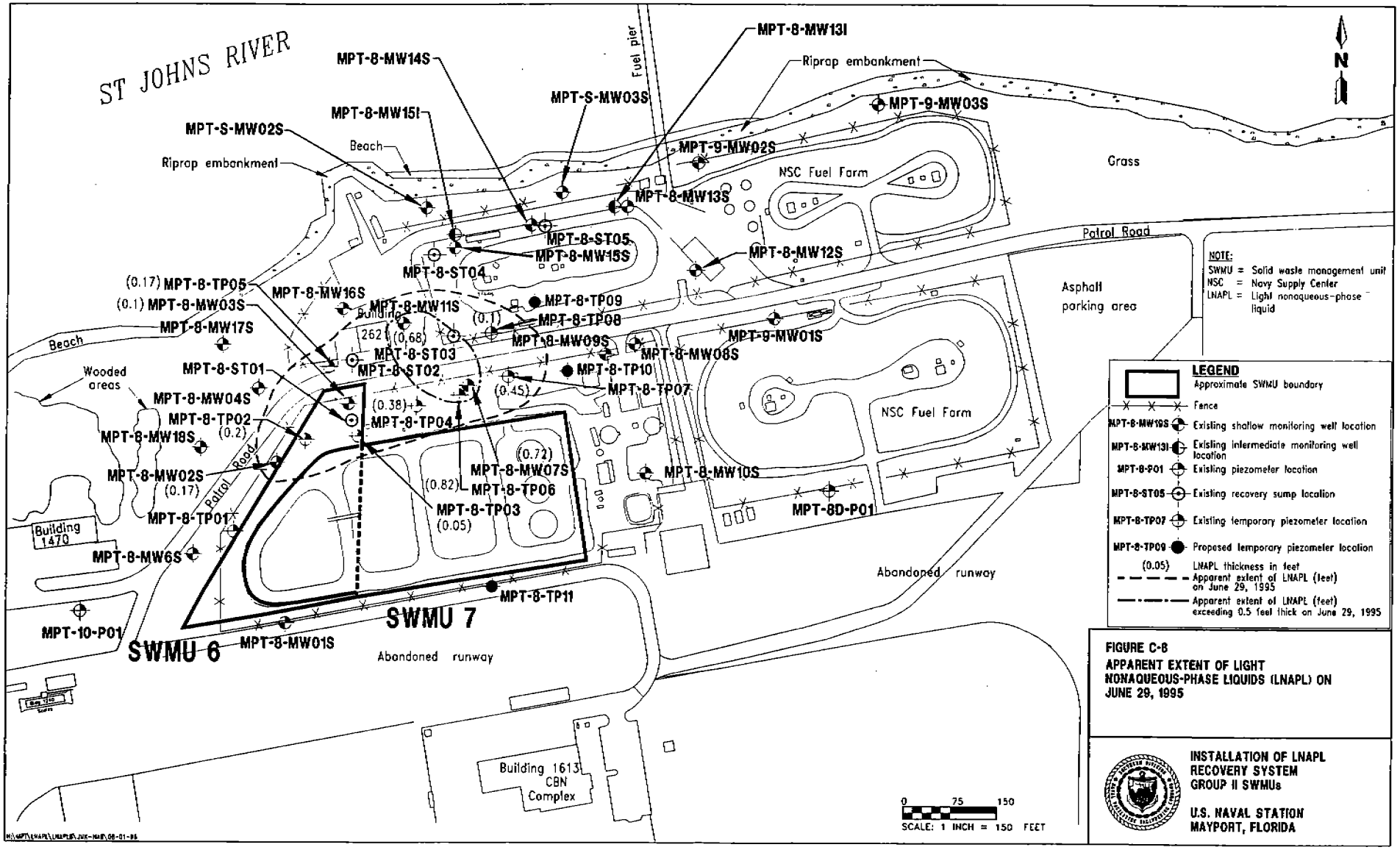


FIGURE C-8
APPARENT EXTENT OF LIGHT NONAQUEOUS-PHASE LIQUIDS (LNAPL) ON JUNE 29, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs

U.S. NAVAL STATION MAYPORT, FLORIDA

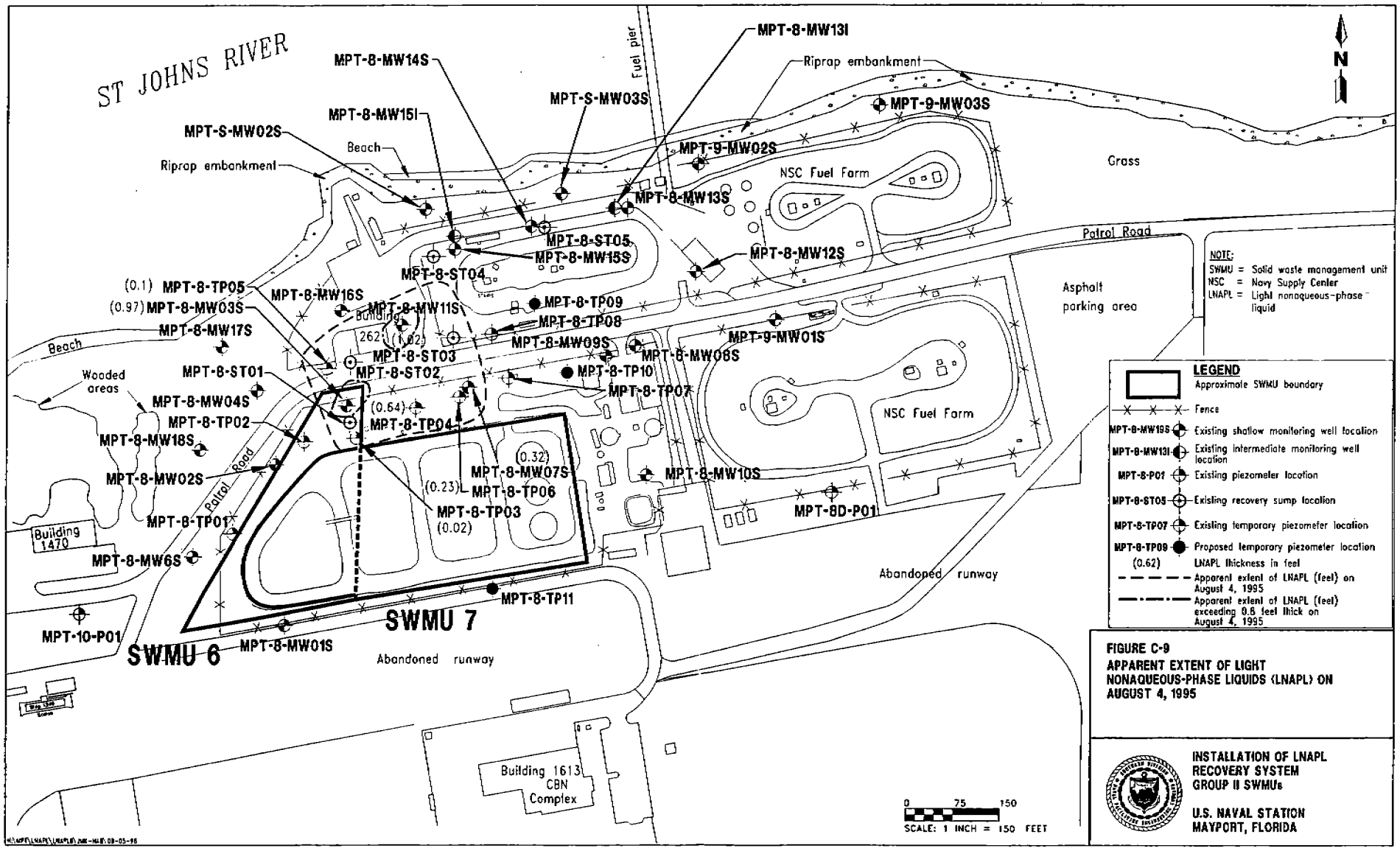
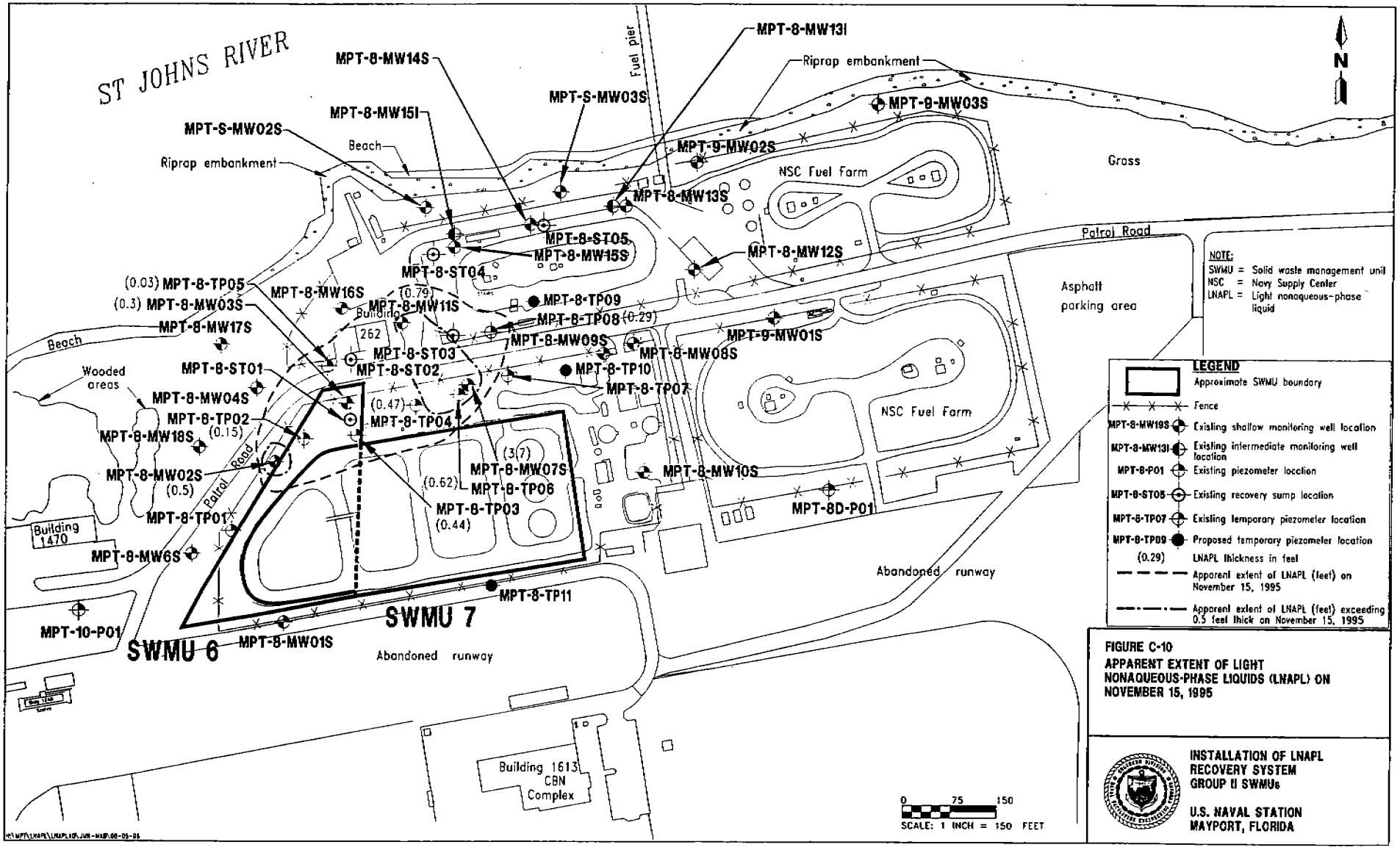


FIGURE C-9
APPARENT EXTENT OF LIGHT NONAQUEOUS-PHASE LIQUIDS (LNAPL) ON AUGUST 4, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs

U.S. NAVAL STATION MAYPORT, FLORIDA


ST JOHNS RIVER
Fuel pier
MPT-8-MW13I
Riprap embankment
MPT-8-MW14S
MPT-S-MW03S
MPT-9-MW03S
MPT-8-MW15I
MPT-S-MW02S
Beach
Riprap embankment
MPT-9-MW02S
NSC Fuel Farm
Grass
MPT-8-MW13S
MPT-8-ST05
MPT-8-MW15S
MPT-8-MW12S
Patrol Road
MPT-8-ST04
(0.03) MPT-8-TP05
MPT-8-MW16S
(0.79)
MPT-8-MW11S
MPT-8-TP09
(0.3) MPT-8-MW03S
Building 262
MPT-8-TP08
(0.29)
Asphalt parking area
MPT-8-MW17S
MPT-8-MW09S
MPT-9-MW01S
Beach
MPT-8-ST03
MPT-8-MW08S
Wooded areas
MPT-8-ST01
MPT-8-ST02
MPT-8-TP10
MPT-8-TP07
MPT-8-MW04S
(0.47)
MPT-8-TP04
MPT-8-TP02
(0.15)
MPT-8-MW18S
NSC Fuel Farm
(3.7)
MPT-8-MW07S
MPT-8-TP06
MPT-8-MW10S
MPT-8-MW02S
(0.5)
Patrol Road
(0.62)
MPT-8-TP03
(0.44)
MPT-8-TP01
MPT-8D-P01
Building 1470
MPT-8-MW6S
MPT-8-TP11
Abandoned runway
MPT-10-P01
SWMU 7
SWMU 6
MPT-8-MW01S
Abandoned runway
Building 1613 CBN Complex
0 75 150
SCALE: 1 INCH = 150 FEET
N
NOTE:
SWMU = Solid waste management unit
NSC = Navy Supply Center
LNAPL = Light nonaqueous-phase liquid
LEGEND
Approximate SWMU boundary
Fence
MPT-8-MW19S Existing shallow monitoring well location
MPT-8-MW13I Existing intermediate monitoring well location
MPT-8-P01 Existing piezometer location
MPT-8-ST05 Existing recovery sump location
MPT-8-TP07 Existing temporary piezometer location
MPT-8-TP09 Proposed temporary piezometer location
(0.29) LNAPL thickness in feet
Apparent extent of LNAPL (feet) on November 15, 1995
Apparent extent of LNAPL (feet) exceeding 0.5 feet thick on November 15, 1995
FIGURE C-10
APPARENT EXTENT OF LIGHT NONAQUEOUS-PHASE LIQUIDS (LNAPL) ON NOVEMBER 15, 1995
INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs
U.S. NAVAL STATION MAYPORT, FLORIDA

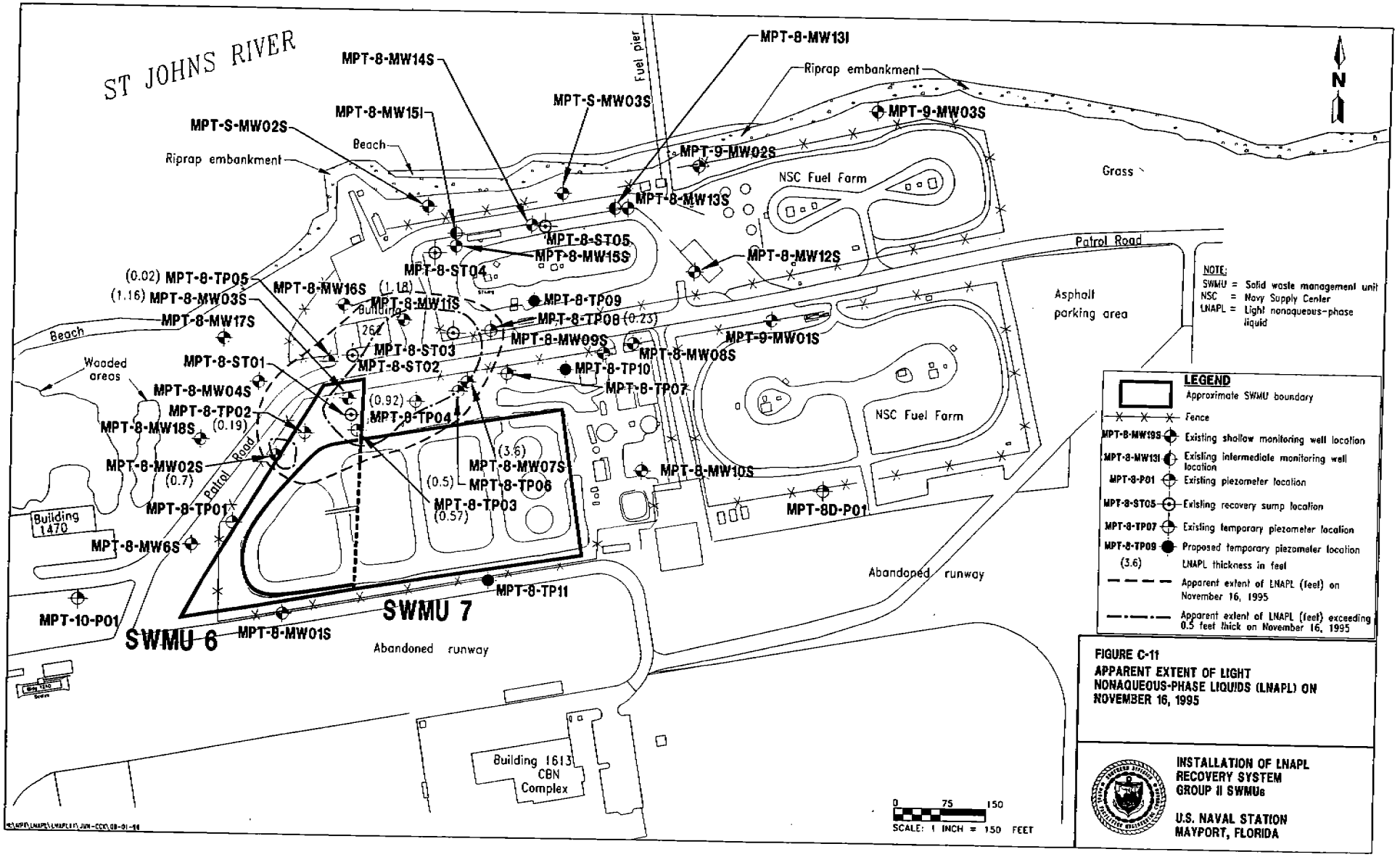


FIGURE C-11
APPARENT EXTENT OF LIGHT NONAQUEOUS-PHASE LIQUIDS (LNAPL) ON NOVEMBER 16, 1995

INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs

U.S. NAVAL STATION MAYPORT, FLORIDA

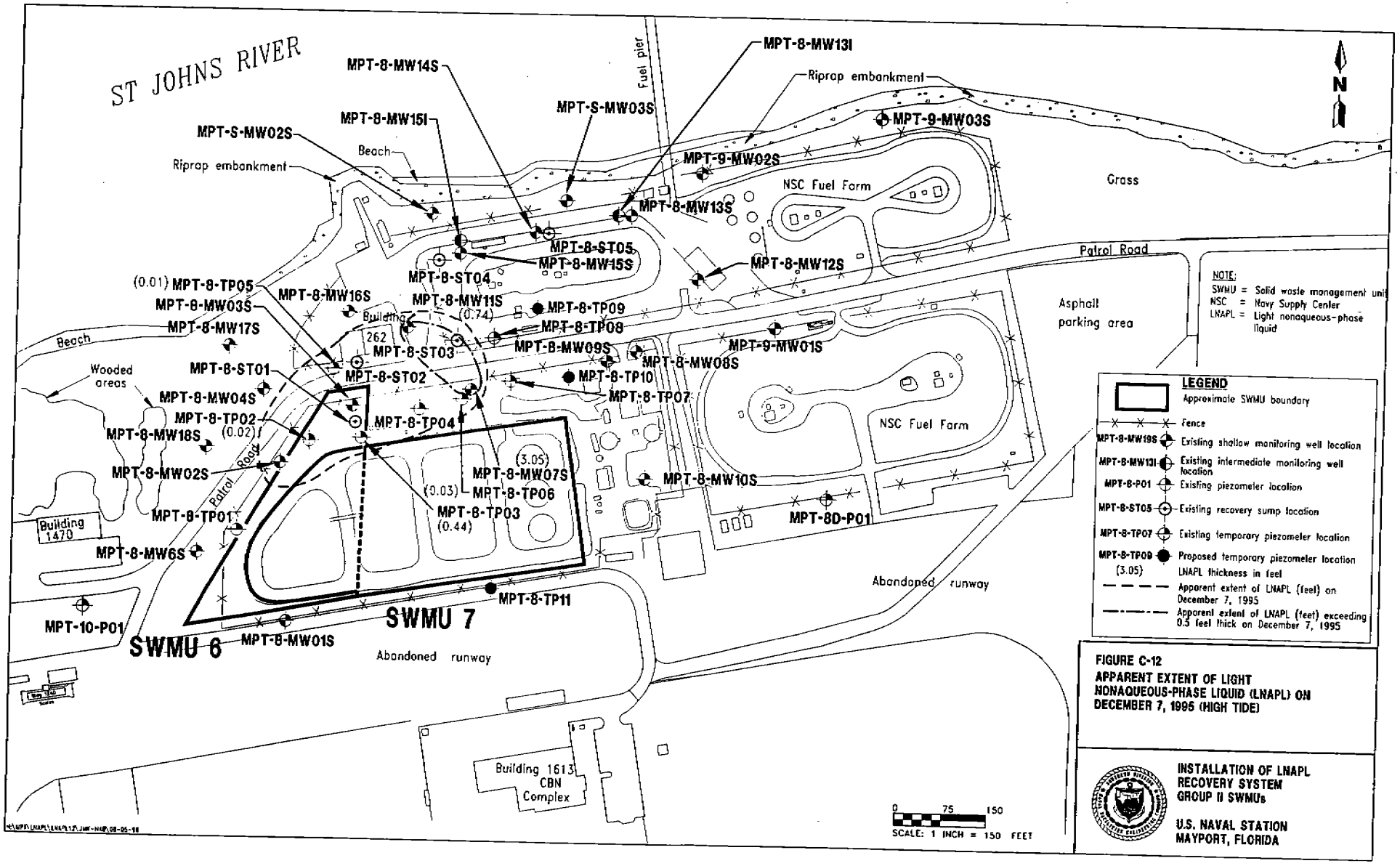


FIGURE C-12
APPARENT EXTENT OF LIGHT NONAQUEOUS-PHASE LIQUID (LNAPL) ON DECEMBER 7, 1995 (HIGH TIDE)

INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs

U.S. NAVAL STATION MAYPORT, FLORIDA

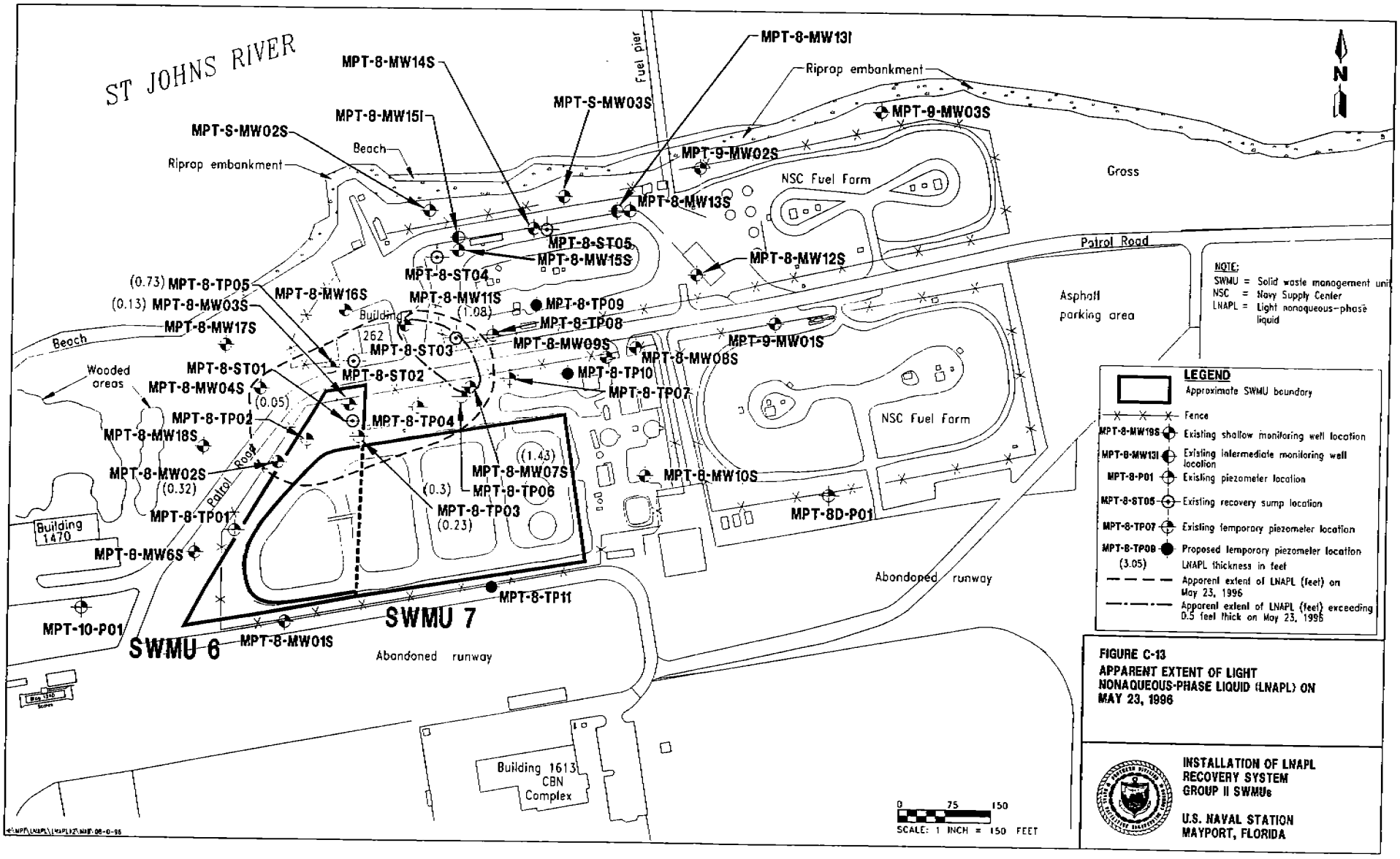


FIGURE C-13
APPARENT EXTENT OF LIGHT NONAQUEOUS-PHASE LIQUID (LNAPL) ON MAY 23, 1996

INSTALLATION OF LNAPL RECOVERY SYSTEM GROUP II SWMUs

U.S. NAVAL STATION MAYPORT, FLORIDA

ATTACHMENT D

TABLES

Table D-1
Estimated Groundwater Elevation and Apparent LNAPL Thickness on June 29, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW01S	2204730.6	366284.7	15.75	8.21	--	--	7.54
MPT-8-MW02S	2204968.2	366261.8	13.93	11.38	11.19	0.17	2.72
MPT-8-MW03S	2205069.4	366363.4	13.72	11.35	11.24	0.10	2.47
MPT-8-MW04S	2205098.3	366255	11.9	9.48	--	--	2.42
MPT-8-MW06S	2204828.9	366149.2	11.57	6.76	--	--	4.81
MPT-8-MW07S	2205103.2	366601.4	11.73	9.51	8.68	0.72	2.94
MPT-8-MW08S	2205160.8	366882.7	13.12	8.95	--	--	4.17
MPT-8-MW09S	2204961.3	366890.1	12.55	9.16	--	--	3.39
MPT-8-MW10S	2205154.0	366823.9	13.11	5.00	--	--	8.11
MPT-8-MW11S	2205203.6	366493.3	11.46	9.83	9.05	0.68	2.31
MPT-8-MW12S	2205289.8	366969.9	12.93	10.60	--	--	2.33
MPT-8-MW13S	2205390.0	366852.9	11.33	9.03	--	--	2.30
MPT-8-MW14S	2205362.1	366701.2	10.72	8.55	--	--	2.17
MPT-8-MW15S	2205227.2	366393.5	10.03	7.89	--	--	2.14
MPT-8-MW16S	2205227.2	366393.5	10.03	7.99	--	--	2.04
MPT-8-MW17S	2205125.4	366229.5	10.89	8.43	--	--	2.46
MPT-8-MW18S	2205001.9	366161.4	8.8	6.20	--	--	2.60
MPT-8-TP01	2204912.6	366232.1	12.15	7.11	--	--	5.04
MPT-8-TP02	2205010.7	366304.9	10.61	7.92	7.90	0.02	2.71
MPT-8-TP03	2205026.6	366405.2	13.45	10.55	10.49	0.05	2.95
MPT-8-TP04	2205084.4	366462.3	14.88	12.80	12.36	0.38	2.46
MPT-8-TP05	2205153.2	366412.4	14.87	12.60	12.40	0.17	2.44
MPT-8-TP06	2205191.7	366617.4	15.66	13.75	13.15	0.52	2.43
MPT-8-TP07	2205099.1	366561.5	14.34	9.85	9.33	0.45	4.94

See notes at end of table.

Table D-1 (Continued)
Estimated Groundwater Elevation and Apparent LNAPL Thickness on June 29, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-TP08	2205114.0	366661.6	14.65	10.95	10.94	0.01	3.71
MPT-9-MW01S	2205218.8	367081.4	14.42	12.00	--	--	2.42
MPT-9-MW02S	2205465.4	367012.3	13.39	11.21	--	--	2.18
MPT-9-MW03S	2205507.6	367183	11.53	9.49	--	--	2.04

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-2
Estimated Groundwater Elevation and Apparent LNAPL Thickness on August 4, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW01S	2204730.6	366284.7	15.75	9.18	--	--	6.57
MPT-8-MW02S	2204968.2	366261.8	13.93	11.71	--	--	2.22
MPT-8-MW03S	2205069.4	366363.4	13.72	12.99	11.88	0.97	1.70
MPT-8-MW04S	2205098.3	366255.0	11.9	10.24	--	--	1.66
MPT-8-MW06S	2204828.9	366149.2	11.57	7.50	--	--	4.07
MPT-8-MW08S	2205160.8	366882.7	13.12	9.10	--	--	4.02
MPT-8-MW09S	2204961.3	366890.1	12.55	9.61	--	--	2.94
MPT-8-MW10S	2205154.0	366823.9	13.11	5.98	--	--	7.13
MPT-8-MW11S	2205203.6	366493.3	11.46	10.72	9.55	1.02	1.76
MPT-8-MW12S	2205289.8	366969.9	12.93	11.07	--	--	1.86
MPT-8-MW13I	2205390.0	366852.9	11.33	10.12	--	--	1.21
MPT-8-MW13S	2205390.0	366852.9	11.33	9.72	--	--	1.61
MPT-8-MW14S	2205362.1	366701.2	10.72	9.14	--	--	1.58
MPT-8-MW15I	2205346.6	366578.6	9.96	8.57	--	--	1.39
MPT-8-MW15S	2205227.2	366393.5	10.03	8.42	--	--	1.61
MPT-8-MW16S	2205227.2	366393.5	10.03	8.73	--	--	1.30
MPT-8-MW17S	2205125.4	366229.5	10.89	9.37	--	--	1.52
MPT-8-MW18S	2205001.9	366161.4	8.8	6.72	--	--	2.08
MPT-8-TP01	2204912.6	366232.1	12.15	7.70	--	--	4.45
MPT-8-TP02	2205010.7	366304.9	10.61	8.74	--	--	1.87
MPT-8-TP03	2205026.6	366405.2	13.45	11.23	11.21	0.02	2.24
MPT-8-TP04	2205084.4	366462.3	14.88	13.56	12.82	0.64	1.96
MPT-8-TP05	2205153.2	366412.4	14.87	13.27	13.15	0.10	1.70
MPT-8-TP06	2205191.7	366617.4	15.66	14.00	13.73	0.23	1.89
MPT-8-TP07	2205099.1	366561.5	14.34	10.27	9.90	0.32	4.39
MPT-8-TP08	2205114.0	366661.6	14.65	12.01	--	--	2.64

See notes at end of table.

Table D-2 (Continued)
Estimated Groundwater Elevation and Apparent LNAPL Thickness on August 4, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-9-MW01S	2205218.8	367081.4	14.42	12.36	--	--	2.06
MPT-9-MW02S	2205465.4	367012.3	13.39	12.04	--	--	1.35
MPT-9-MW03S	2205507.6	367183.0	11.53	10.38	--	--	1.15
MPT-S-MW03S	2205411.6	366783.9	11.9	10.25	--	--	1.65
MPT-8-ST02	2205239.2	366750.2	14.34	13.11	--	--	1.23
MPT-8-ST05	2205209.0	366869.7	13.46	15.04	--	--	-1.58

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-3
Estimated Groundwater Elevation and Apparent LNAPL Thickness on August 8, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW01S	2204730.6	366284.7	15.75	9.24	--	--	6.51
MPT-8-MW04S	2205098.3	366255.0	11.9	9.78	--	--	2.12
MPT-8-MW06S	2204828.9	366149.2	11.57	7.80	--	--	3.77
MPT-8-MW08S	2205160.8	366882.7	13.12	9.34	--	--	3.78
MPT-8-MW09S	2204961.3	366890.1	12.55	9.84	--	--	2.71
MPT-8-MW10S	2205154.0	366823.9	13.11	6.12	--	--	6.99
MPT-8-MW12S	2205289.8	366969.9	12.93	11.08	--	--	1.85
MPT-8-MW13I	2205390.0	366852.9	11.33	9.51	--	--	1.82
MPT-8-MW13S	2205390.0	366852.9	11.33	9.36	--	--	1.97
MPT-8-MW14S	2205362.1	366701.2	10.72	8.88	--	--	1.84
MPT-8-MW15I	2205346.6	366578.6	9.96	8.10	--	--	1.86
MPT-8-MW15S	2205227.2	366393.5	10.03	8.25	--	--	1.78
MPT-8-MW16S	2205227.2	366393.5	10.03	8.38	--	--	1.65
MPT-8-MW17S	2205125.4	366229.5	10.89	8.60	--	--	2.29
MPT-8-MW18S	2205001.9	366161.4	8.8	6.73	--	--	2.07
MPT-8-TP01	2204912.6	366232.1	12.15	7.95	--	--	4.20
MPT-8-TP03	2205026.6	366405.2	13.45	11.37	11.27	0.09	2.17
MPT-9-MW01S	2205218.8	367081.4	14.42	12.50	--	--	1.92
MPT-9-MW02S	2205465.4	367012.3	13.39	11.32	--	--	2.07
MPT-9-MW03S	2205507.6	367183.0	11.53	9.58	--	--	1.95
MPT-9-P01S	2205413.6	367665.5	12.22	10.15	--	--	2.07

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-4
Estimated Groundwater Elevation and Apparent LNAPL Thickness on November 15, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW01S	2204730.6	366284.7	15.75	8.40	--	--	7.35
MPT-8-MW02S	2204968.2	366261.8	13.93	11.84	11.27	0.50	2.59
MPT-8-MW03S	2205069.4	366363.4	13.72	11.61	11.26	0.30	2.41
MPT-8-MW04S	2205098.3	366255.0	11.9	9.61	--	--	2.29
MPT-8-MW06S	2204828.9	366149.2	11.57	7.44	--	--	4.13
MPT-8-MW07S	2205103.2	366601.4	11.73	12.71	8.46	3.70	2.72
MPT-8-MW08S	2205160.8	366882.7	13.12	8.41	--	--	4.71
MPT-8-MW09S	2204961.3	366890.1	12.55	8.96	--	--	3.59
MPT-8-MW10S	2205154.0	366823.9	13.11	4.75	--	--	8.36
MPT-8-MW11S	2205203.6	366493.3	11.46	10.01	9.10	0.79	2.24
MPT-8-MW12S	2205289.8	366969.9	12.93	10.62	--	--	2.31
MPT-8-MW13S	2205390.0	366852.9	11.33	9.07	--	--	2.26
MPT-8-MW14S	2205362.1	366701.2	10.72	8.58	--	--	2.14
MPT-8-MW15S	2205227.2	366393.5	10.03	7.94	--	--	2.09
MPT-8-MW16S	2205227.2	366393.5	10.03	8.03	--	--	2.00
MPT-8-MW17S	2205125.4	366229.5	10.89	8.57	--	--	2.32
MPT-8-MW18S	2205001.9	366161.4	8.8	6.41	--	--	2.39
MPT-8-TP01	2204912.6	366232.1	12.15	7.61	--	--	4.54
MPT-8-TP02	2205010.7	366304.9	10.61	8.12	7.95	0.15	2.64
MPT-8-TP03	2205026.6	366405.2	13.45	11.07	10.57	0.44	2.82
MPT-8-TP04	2205084.4	366462.3	14.88	12.92	12.38	0.47	2.43
MPT-8-TP05	2205153.2	366412.4	14.87	12.49	12.45	0.03	2.41
MPT-8-TP06	2205191.7	366617.4	15.66	13.87	13.16	0.62	2.41
MPT-8-TP07	2205099.1	366561.5	14.34	10.85	--	--	3.49
MPT-8-TP08	2205114.0	366661.6	14.65	10.76	10.43	0.29	4.18

See notes at end of table.

Table D-4 (Continued)
Estimated Groundwater Elevation and Apparent LNAPL Thickness on November 15, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-9-MW01S	2205218.8	367081.4	14.42	12.04	--	--	2.38
MPT-9-MW02S	2205465.4	367012.3	13.39	11.29	--	--	2.10
MPT-9-MW03S	2205507.6	367183.0	11.53	9.59	--	--	1.94
MPT-9-P01S	2205413.6	367665.5	12.22	9.98	--	--	2.24
MPT-8-ST01	2205329.5	366695.2	13.06	10.71	10.69	0.02	2.37
MPT-8-ST02	2205239.2	366750.2	14.34	12.06	12.02	0.03	2.31
MPT-8-ST03	2205082.7	366687.2	15.12	12.82	--	--	2.30
MPT-8-ST04	2205037.6	366818.3	11.91	9.82	--	--	2.09
MPT-8-ST05	2205209.0	366869.7	13.46	11.42	--	--	2.04

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-5
Estimated Groundwater Elevation and Apparent LNAPL Thickness on November 16, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW01S	2204730.6	366284.7	15.75	8.48	--	--	7.27
MPT-8-MW02S	2204968.2	366261.8	13.93	12.37	11.57	0.70	2.26
MPT-8-MW03S	2205069.4	366363.4	13.72	12.88	11.55	1.16	2.00
MPT-8-MW04S	2205098.3	366255.0	11.9	10.20	--	--	1.70
MPT-8-MW06S	2204828.9	366149.2	11.57	7.57	--	--	4.00
MPT-8-MW07S	2205103.2	366601.4	11.73	12.97	8.83	3.60	2.36
MPT-8-MW08S	2205160.8	366882.7	13.12	8.46	--	--	4.66
MPT-8-MW09S	2204961.3	366890.1	12.55	9.15	--	--	3.40
MPT-8-MW10S	2205154.0	366823.9	13.11	4.82	--	--	8.29
MPT-8-MW11S	2205203.6	366493.3	11.46	10.75	9.39	1.18	1.89
MPT-8-MW12S	2205289.8	366969.9	12.93	10.97	--	--	1.96
MPT-8-MW13I	2205390.0	366852.9	11.33	9.94	--	--	1.39
MPT-8-MW13S	2205390.0	366852.9	11.33	9.68	--	--	1.65
MPT-8-MW14S	2205362.1	366701.2	10.72	9.11	--	--	1.61
MPT-8-MW15I	2205346.6	366578.6	9.96	8.48	--	--	1.48
MPT-8-MW15S	2205227.2	366393.5	10.03	8.40	--	--	1.63
MPT-8-MW16S	2205227.2	366393.5	10.03	8.68	--	--	1.35
MPT-8-MW17S	2205125.4	366229.5	10.89	9.44	--	--	1.45
MPT-8-MW18S	2205001.9	366161.4	8.8	6.65	--	--	2.15
MPT-8-TP01	2204912.6	366232.1	12.15	7.68	--	--	4.47
MPT-8-TP02	2205010.7	366304.9	10.61	8.56	8.34	0.19	2.24
MPT-8-TP03	2205026.6	366405.2	13.45	11.55	10.89	0.57	2.47
MPT-8-TP04	2205084.4	366462.3	14.88	13.69	12.63	0.92	2.11
MPT-8-TP05	2205153.2	366412.4	14.87	12.99	12.97	0.02	1.90
MPT-8-TP06	2205191.7	366617.4	15.66	14.11	13.53	0.50	2.05
MPT-8-TP08	2205114.0	366661.6	14.65	10.95	10.69	0.23	3.93

See notes at end of table.

Table D-5 (Continued)
Estimated Groundwater Elevation and Apparent LNAPL Thickness on November 16, 1995

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-9-MW01S	2205218.8	367081.4	14.42	12.19	--	--	2.23
MPT-9-MW02S	2205465.4	367012.3	13.39	12.06	--	--	1.33
MPT-9-MW03S	2205507.6	367183.0	11.53	10.40	--	--	1.13
MPT-S-MW03S	2205411.6	366783.9	11.9	10.36	--	--	1.54
MPT-8-ST01	2205329.5	366695.2	13.06	10.80	10.71	0.08	2.34
MPT-8-ST02	2205239.2	366750.2	14.34	12.36	12.30	0.05	2.03
MPT-8-ST03	2205082.7	366687.2	15.12	12.92	--	--	2.20
MPT-8-ST04	2205037.6	366818.3	11.91	10.20	--	--	1.71
MPT-8-ST05	2205209.0	366869.7	13.46	11.61	--	--	1.85

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-6
Estimated Groundwater Elevation and Apparent LNAPL Thickness on December 7, 1995; 0841 hours (high tide)

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW07S	2205103.2	366601.4	11.73	12.51	9.00	3.05	2.27
MPT-8-MW11S	2205203.6	366493.3	11.46	10.12	9.27	0.74	2.08
MPT-8-MW16S	2205227.2	366393.5	10.03	8.22	--	--	1.81
MPT-8-MW17S	2205125.4	366229.5	10.89	8.76	--	--	2.13
MPT-8-TP01	2204912.6	366232.1	12.15	8.02	--	--	4.13
MPT-8-TP02	2205010.7	366304.9	10.61	8.27	8.25	0.02	2.36
MPT-8-TP03	2205026.6	366405.2	13.45	11.65	11.15	0.44	2.24
MPT-8-TP05	2205153.2	366412.4	14.87	12.80	12.79	0.01	2.08
MPT-8-TP06	2205191.7	366617.4	15.66	13.67	13.64	0.03	2.02
MPT-8-TP07	2205099.1	366561.5	14.34	10.85	--	--	3.49
MPT-8-TP08	2205114.0	366661.6	14.65	11.60	--	--	3.05

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-7
Estimated Groundwater Elevation and Apparent LNAPL Thickness on December 7, 1995 at 1442 hours (low tide)

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW07S	2205103.2	366601.4	11.73	12.65	9.3	2.91	1.99
MPT-8-MW11S	2205203.6	366493.3	11.46	11	9.62	1.20	1.66
MPT-8-MW16S	2205227.2	366393.5	10.03	8.85	--	--	1.18
MPT-8-MW17S	2205125.4	366229.5	10.89	9.42	--	--	1.47
MPT-8-TP01	2204912.6	366232.1	12.15	8.02	--	--	4.13
MPT-8-TP02	2205010.7	366304.9	10.61	8.5	--	--	2.11
MPT-8-TP03	2205026.6	366405.2	13.45	11.85	11.2	0.57	2.17
MPT-8-TP05	2205153.2	366412.4	14.87	13.25	--	--	1.62
MPT-8-TP06	2205191.7	366617.4	15.66	14.03	13.85	0.16	1.79
MPT-8-TP07	2205099.1	366561.5	14.34	10.88	--	--	3.46
MPT-8-TP08	2205114.0	366661.6	14.65	11.78	--	--	2.87

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

Table D-8
Estimated Groundwater Elevation and Apparent LNAPL Thickness on May 23, 1996

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-MW01S	2204730.6	366284.7	15.75	10.08	--	--	5.67
MPT-8-MW02S	2204968.2	366261.8	13.93	12.62	12.25	0.32	1.63
MPT-8-MW03S	2205069.4	366363.4	13.72	12.39	12.24	0.13	1.46
MPT-8-MW04S	2205098.3	366255.0	11.9	10.55	10.49	0.05	1.40
MPT-8-MW05D	2203931.2	366641.3	13.29	9.80	--	--	3.49
MPT-8-MW05S	2203928.6	366639.8	13	4.41	--	--	8.59
MPT-8-MW06S	2204828.9	366149.2	11.57	8.34	--	--	3.23
MPT-8-MW07S	2205103.2	366601.4	11.73	11.45	9.81	1.43	1.71
MPT-8-MW08S	2205160.8	366882.7	13.12	9.36	--	--	3.76
MPT-8-MW09S	2204961.3	366890.1	12.55	9.36	--	--	3.19
MPT-8-MW10S	2205154.0	366823.9	13.11	7.21	--	--	5.90
MPT-8-MW11S	2205203.6	366493.3	11.46	10.91	9.67	1.08	1.63
MPT-8-MW12S	2205289.8	366969.9	12.93	11.49	--	--	1.44
MPT-8-MW13I	2205390.0	366852.9	11.33	9.96	--	--	1.37
MPT-8-MW13S	2205390.0	366852.9	11.33	9.90	--	--	1.43
MPT-8-MW14S	2205362.1	366701.2	10.72	9.39	--	--	1.33
MPT-8-MW15I	2205346.6	366578.6	9.96	8.32	--	--	1.64
MPT-8-MW15S	2205227.2	366393.5	10.03	8.75	--	--	1.28
MPT-8-MW16S	2205227.2	366393.5	10.03	8.88	--	--	1.15
MPT-8-MW17S	2205125.4	366229.5	10.89	9.48	--	--	1.41
MPT-8-MW18S	2205001.9	366161.4	8.8	7.20	--	--	1.60
MPT-8-TP01	2204912.6	366232.1	12.15	8.33	--	--	3.82
MPT-8-TP03	2205026.6	366405.2	13.45	11.99	11.73	0.23	1.69
MPT-8-TP04	2205084.4	366462.3	14.88	13.85	13.33	0.45	1.48
MPT-8-TP05	2205153.2	366412.4	14.87	14.11	13.27	0.73	1.49
MPT-8-TP06	2205191.7	366617.4	15.66	14.47	14.12	0.30	1.49

See notes at end of table.

Table D-8 (Continued)
Estimated Groundwater Elevation and Apparent LNAPL Thickness on May 23, 1996

Installation of LNAPL Recovery System at
SWMUs 6 and 7, RCRA Corrective Action Plan
U.S. Naval Station
Mayport, Florida

Location Identifier	Coordinate[1]		Measuring Point Elevation (feet, NGVD[2])	Depth to Groundwater (feet)	Depth to LNAPL (feet)	Apparent Thickness[3] of LNAPL (feet)	Elevation of Groundwater (feet, NGVD[4])
	North	East					
MPT-8-TP08	2205114.0	366661.6	14.65	12.44	--	--	2.21
MPT-9-MW01S	2205218.8	367081.4	14.42	12.89	--	--	1.53
MPT-9-MW02S	2205465.4	367012.3	13.39	12.08	--	--	1.31
MPT-9-MW03S	2205507.6	367183.0	11.53	10.30	--	--	1.23
MPT-9-P01S	2205413.6	367665.5	12.22	11.05	--	--	1.17
MPT-16-MW01I	220523.5	367542.0	12.64	10.85	--	--	1.79
MPT-16-MW02S	2205468.0	367483.2	10.65	9.75	9.15	0.52	1.42
MPT-16-MW03S	2205439.1	367599.1	11.19	9.98	--	--	1.21
MPT-S-MW01S	2206144.0	368038.0	14.59	4.41	--	--	10.18
MPT-S-MW03S	2205411.6	366783.9	11.9	10.69	--	--	1.21

[1] State Plane Coordinate System, 1983.
[2] Elevation relative to the NGVD of 1929.
[3] Thickness is the difference between the depth to the LNAPL and depth to the groundwater level multiplied by a specific gravity of 0.87 (ABB Environmental Services, Inc., 1994).
[4] Where LNAPL is present, the groundwater elevation relative to the NGVD of 1929 includes the thickness of the LNAPL.

Notes: LNAPL = light nonaqueous-phase liquid.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
NGVD = National Geodetic Vertical Datum.
-- = LNAPL not determined to be present; therefore, LNAPL thickness not determined.

ATTACHMENT E

REFERENCES

REFERENCES

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