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SITE INVESTIGATION FOR STUDY AREA 39 WITH TRANSMITTAL LETTER NTC ORLANDO FL
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SITE INVESTIGATION REPORT
for
STUDY AREA 39

Naval Training Center
Orlando, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0024

AUGUST 2000

TETRA TECH NUS, INC.
800 Oak Ridge Turnpike, A-600 ▪ Oak Ridge, Tennessee 37830
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0800-A145

August 11, 2000

Ms. Barbara Nwokike (Code 1873) (IRP RPM)
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0024

Subject: Site Investigation Report for Study Area 39
Naval Training Center, Orlando, Florida

Dear Ms. Nwokike:

Enclosed is the final Site Investigation Report for Study Area 39. If you have any questions regarding the report or the investigation at Study Area 39, please contact me at (865) 220-4730.

Sincerely,

Steven B. McCoy, P.E.
Task Order Manager

SBM:ckf

Enclosures

c: Mr. Rick Allen, Harding Lawson Associates
Mr. Michael J. Campbell, Tetra Tech NUS
Mr. David Grabka, FDEP
Mr. Wayne Hansel, SOUTHDIV (2 copies)
Mr. Mark Perry/File, Tetra Tech NUS (unbound)
Ms. Nancy Rodriquez, USEPA Region 4
Ms. Vickie Stitt, Tetra Tech NUS
Mr. Steve Tsangaris, CH2M Hill
Ms. Jacque Van Audenhove, Tetra Tech NUS (2 copies)
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August 25, 2000

Ms. Barbara Nwokike (Code 1873) (IRP RPM)
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North Charleston, SC 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0024

Subject: Site Investigation Report for Study Area 39
Naval Training Center, Orlando, Florida

Dear Ms. Nwokike:

Enclosed is the signed signature block for the Site Investigation Report for Study Area 39. Please replace pages 4-1 and 4-2 in your copy of this report with the signed pages. If you have any questions please contact me at (865) 220-4730.

Sincerely,

Steven B. McCoy, P.E.
Task Order Manager

SBM:ckf

Enclosures

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Mr. Steve Tsangaris, CH2M Hill
Ms. Jacque Van Audenhove, Tetra Tech NUS (2 copies)
File/Edb

SITE INVESTIGATION REPORT
FOR
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NO. N62467-94-D-0888
CONTRACT TASK ORDER 0024

AUGUST 2000

PREPARED UNDER THE SUPERVISION OF:

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TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

P.G. CERTIFICATION

I hereby certify that this Site Investigation Report for Study Area 39 was prepared under my direct supervision in accordance with acceptable standards of geological practice.

Michael J. Campbell, P.G. / Date
License No. PG-0001981

MICHAEL J. CAMPBELL
LICENSE
No. 1981
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST

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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
AMSL	above mean sea level
bgs	below ground surface
BGSV	Background Screening Value
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTOC	below top of casing
DCE	dichloroethene
DO	Dissolved Oxygen
DOC	Dissolved Organic Carbon
DPT	direct push technology
DQO	Data Quality Objective
FDEP	Florida Department of Environmental Protection
FOC	Fraction of Organic Carbon
GCTL	Groundwater Cleanup Target Level
HLA	Harding Lawson Associates
IC	Ion Chromatography
MS/MSD	matrix spike/matrix spike duplicate
NA	natural attenuation
NTC	Naval Training Center
NTU	Nephelometric Turbidity Unit
ORP/Eh	Oxidation-Reduction Potential
PCE	tetrachloroethene
POP	Project Operations Plan
SA	Study Area
SDCWA	San Diego County Water Authority
TCE	trichloroethene
TOC	top of casing
UNF	Unnumbered Facility
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound

EXECUTIVE SUMMARY

An environmental site investigation was performed from July 1999 through March 2000 at Study Area (SA) 39, located at the Main Base of the former Naval Training Center, Orlando, Florida. The objectives of the investigation were to delineate the lateral and vertical extent of tetrachloroethene (PCE) in groundwater at concentrations exceeding the screening criteria, to install additional wells as needed for compliance monitoring, and to evaluate the potential for natural attenuation at the site. The investigation was performed in several phases. The scope of the investigation was based on the results of previous investigations which showed that concentrations of chlorinated hydrocarbons, primarily PCE, in the surficial aquifer at SA 39 exceeded the Florida Groundwater Cleanup Target Levels (GCTLs).

Direct Push Technology Sampling

For the initial phase of this investigation, a direct push technology (DPT) groundwater sampling program was conducted at 11 locations to investigate the current PCE plume conditions and to locate permanent monitoring wells for compliance monitoring. Because contamination was detected at the deepest interval sampled [35 to 37 feet below ground surface (bgs)] during a previous investigation, this DPT investigation began at 40 feet bgs with samples collected at 10-ft intervals to a terminal depth of 70 feet bgs. One sample was collected at 80 feet bgs at location P005 where previous sampling at a depth of 35 to 37 feet bgs showed the highest concentration of dissolved PCE. Seven samples from five locations had analyte concentrations exceeding GCTLs. PCE was the most widespread contaminant. The highest concentration (17 μg/L) was detected in a sample collected at 40 feet bgs. PCE concentrations overall were highest at 40 feet bgs, with lower PCE concentrations and a smaller plume footprint at the lower depths. The DPT data suggest that the southern extent of the plume extends beneath Lake Gear.

Monitoring Well Sampling

Seven monitoring wells were destroyed during the utility construction by the City of Orlando in the spring of 1998. Those monitoring wells were replaced in July and August of 1999. Based on the DPT results, two additional wells were installed downgradient of the source area and screened at approximately 80 feet bgs, at the base of the surficial aquifer. Also based on DPT results, a well was installed approximately 30 feet southwest from Building 137, screened at 24 to 29 feet bgs. A well cluster (three wells screened at approximately 15 feet bgs, 30 feet bgs, and 40 feet bgs, respectively) was installed downgradient of the existing wells to define the southeastern edge of the PCE plume. An additional well cluster was installed in March of 2000 east of well 04A to delineate the eastern edge of the plume in that area.

All wells, except for 01A which could not be found, were sampled and analyzed for volatile organic compounds. A total of 10 analytes was detected. Of those 10 analytes, three (bromodichloromethane, chloroform, and PCE) were identified at concentrations exceeding the GCTLs. The exceedances of trihalomethanes (bromodichloromethane and chloroform) are attributed to releases of chlorinated drinking water or wastewater from a utility pipeline. PCE, identified in 15 of 32 wells sampled and in 1 duplicate sample, was the most widespread contaminant and ranged in concentration from 0.43 μg/L to 94 μg/L (well 38B). The PCE plume begins near concrete loading ramps and extends southeast to just east of Building 137 and south to Lake Gear. The shallow component of the plume (approximately 15 feet bgs) is located upgradient, or nearest the concrete ramps. The intermediate component of the plume (approximately 30 feet bgs) is located slightly downgradient (east), with the deeper component (approximately 40 feet bgs) further downgradient. There was no PCE detected in the two wells screened at the base of the surficial aquifer. The PCE plume was delineated to the north, west, and east. The southern portion of the plume apparently extends beneath the northern shoreline of Lake Gear and was not delineated.

Natural Attenuation

Seven wells were sampled in October 1999 to evaluate the potential for naturally occurring bacteria and other conditions to attenuate the PCE plume at SA 39. Two soils samples (16-20 feet bgs and 36-49 feet bgs) were collected from a clean, upgradient location and were analyzed for total volatile solids. Various parameters (dissolved oxygen, nitrate, hydrogen, methane, sulfate, chloride, and ethene) in groundwater were evaluated to determine if reduction/oxidation of the PCE was occurring. Although some of the data indicates anoxic conditions, the results are not conclusive. In addition, no marked decrease in PCE concentrations over time was observed, and distinctive daughter products are absent or were rarely detected. One daughter product, trichloroethene, was detected at trace levels in some wells but there was no marked presence. Therefore, reductive dechlorination does not seem to be occurring. This process requires an organic carbon substrate to proceed, and the site data show that concentrations of dissolved organic carbon in the groundwater are low (i.e., 5 mg/L or less).

Conclusions and Recommendations

Concentrations of PCE at SA 39 warrant cleanup. It is recommended that remedial alternatives including natural attenuation be evaluated. In addition, temporary groundwater-use restrictions should be imposed for the surficial aquifer. These recommendations are consistent with those in the Site Screening Report (HLA, 1999).

1.0 INTRODUCTION

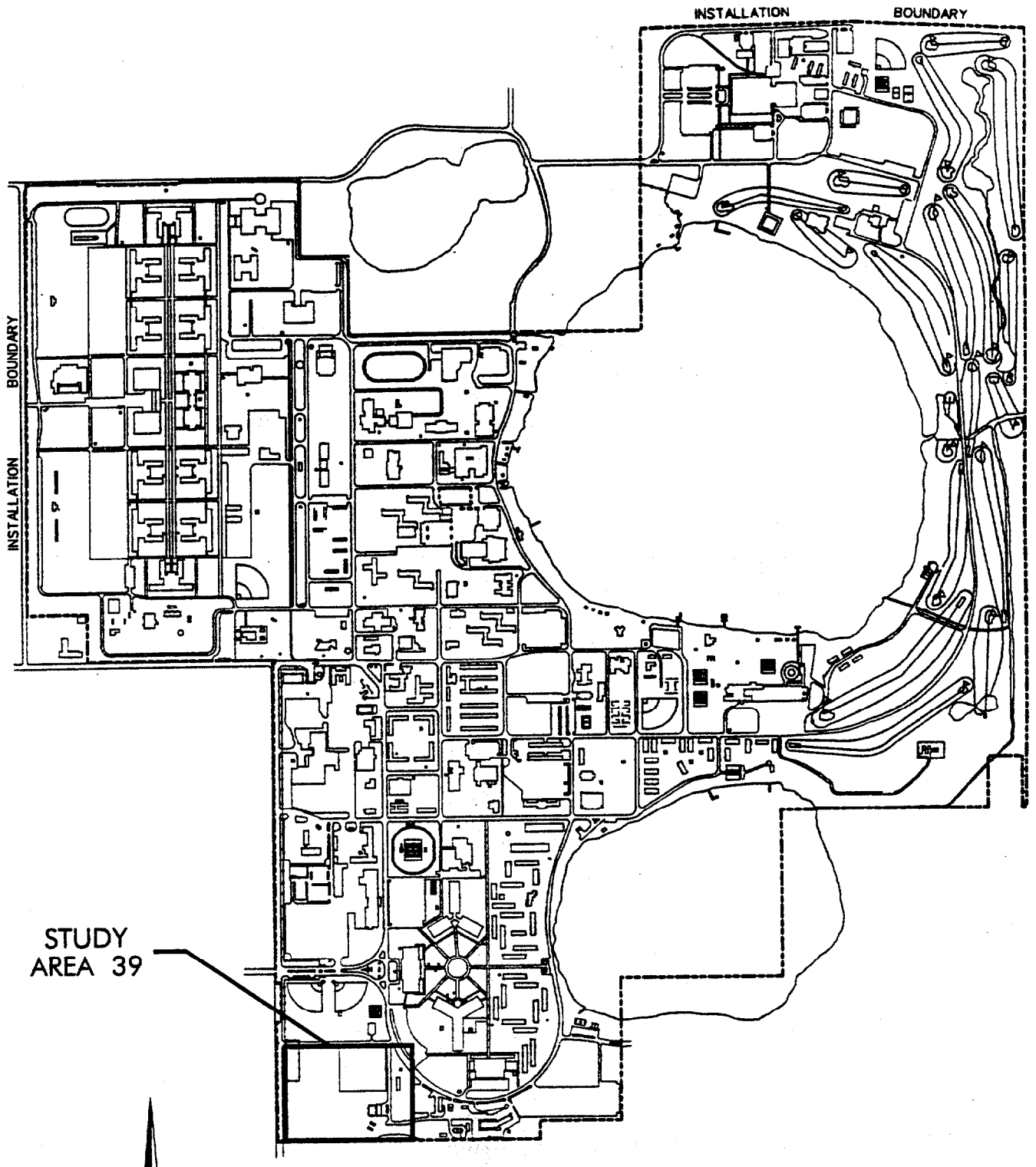
1.1 SITE DESCRIPTION

Study Area (SA) 39 is located in the southwest corner of the Main Base at the Naval Training Center (NTC), Orlando (Figure 1-1). The study area encompasses approximately 10 acres of land bounded on the south and west by the Main Base's property line, on the east by Grace Hopper Avenue, and on the north by Nautilus Street (Figure 1-2). Most of the west side of SA 39 is undeveloped and covered with grass except for a small stand of trees in the southwest corner. The two northern corners are occupied by parking lots. A stormwater retention pond occupies the area between the two parking lots. The retention pond is finished at approximately 6 feet below grade.

Surface runoff from the study area drains to the retention pond and then into Lake Gear, a small lake (approximately 500 feet in diameter) located immediately south of the base. Lake Gear is likely a "sinkhole lake," implying formation through sinkhole development. Although no known studies substantiate this claim, Lake Gear appears to be morphologically similar to documented sinkhole lakes in the area (Beck and Sinclair, 1968). For additional site description details, see the *Base Realignment and Closure Environmental Site Screening Report, Study Area 39, NTC Orlando* (HLA, 1999).

Two large dumpsters were located on the southeast corner of SA 39. Concrete loading ramps (structures 4060 and 4067) were used for the dumpsters and remain in place. The area between the dumpsters was used as temporary storage for debris (e.g., trees and brush). The facility's grounds maintenance contractor used the area to the east to house a small, mobile trailer office building and a fenced storage yard. The former Hazardous Materials Storage Facility (Building 137) is located further to the east.

The southwest corner of this study area was used for coal storage when the base's utilities were powered by coal. The former coal storage area was designated Unnumbered Facility (UNF) 10. A second area of concern was the western half of the site (north of the coal yard) that was used as a "bottle" landfill (UNF 6) prior to 1947. Most of the landfill is actually contained within SA 40, located immediately north of SA 39. This landfill was reportedly used for the disposal of demolition debris that may have included asbestos-containing material, small armaments, medical wastes, and household refuse (ABB Environmental Services, Inc. [ABB-ES], 1995a and 1995b).



-N-

1200 0 1200

SCALE IN FEET

FIGURE 1-1

SITE LOCATION MAP
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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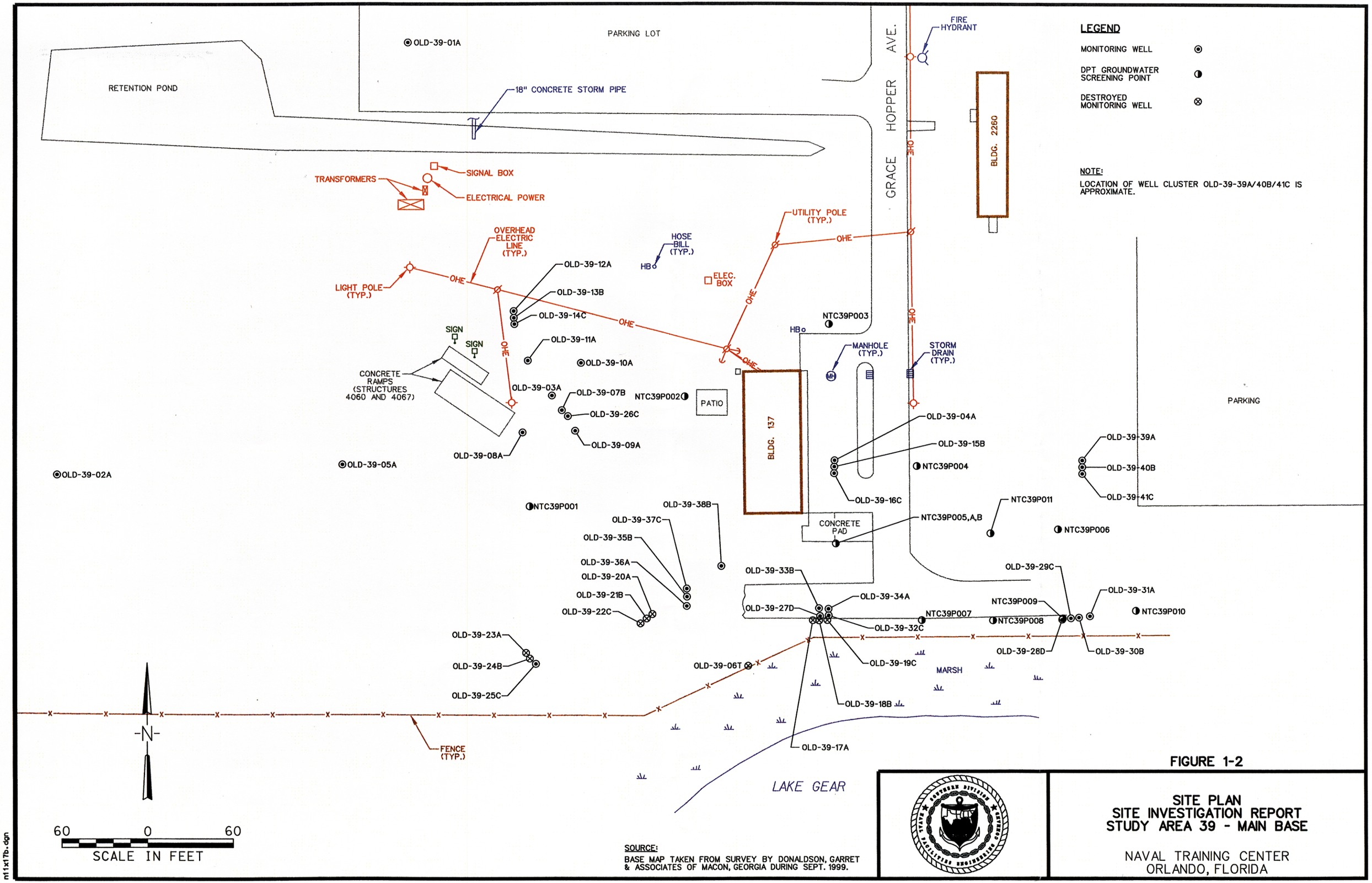


LEGEND

MONITORING WELL	⊙
DPT GROUNDWATER SCREENING POINT	◑
DESTROYED MONITORING WELL	⊗

NOTE:

LOCATION OF WELL CLUSTER OLD-39-39A/40B/41C IS APPROXIMATE.

SOURCE:

BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 1-2

SITE PLAN
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

CAD FILE NO./DATE: 7457M043.dgn/8-11-00

1.2 BACKGROUND

During the initial site screening investigation in March 1996, six monitoring wells were installed at SA 39. Tetrachloroethene (PCE) was detected above the current Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Level (GCTL) (FDEP, 1999) of 3 μg/L in one well. Five additional wells were installed and revealed a PCE plume extending at least 30 feet radially from well OLD-39-03A. A direct push technology (DPT) investigation conducted in March 1997 further delineated the PCE plume at several depths below ground surface (bgs) and also identified a limited trichloroethene (TCE) impact above the current GCTL of 3 μg/L. To confirm the DPT screening results, 15 additional monitoring wells were installed and incorporated with 3 existing wells to form 6 well clusters. Each cluster consisted of a shallow well screened across the water table, an intermediate well screened just above a layer of clay located approximately 30 feet bgs, and a deep well screened below the clay layer. PCE and TCE were detected in samples collected from the well clusters, with PCE detected above the GCTL. Several monitoring wells located across the southern boundary of the site were destroyed or abandoned for utility installation. Additional details about the previous investigations at this site are given in Section 2.1.

1.3 HYDROGEOLOGIC SETTING

Soil sampling conducted during the installation of monitoring wells in both the previous and current investigations provided descriptions of the unconsolidated sediments beneath the site to a depth of approximately 85 ft bgs. The installation of 41 monitoring wells at various depths and monitoring of water levels in the wells between July 1997 and March 2000 have provided data regarding the potentiometric head distribution, groundwater gradient, and flow direction at the site. Slug tests were conducted in one shallow well, two intermediate wells, and three deep wells during the previous investigations. A summary of these data is presented in the following paragraphs. Boring logs and hydraulic conductivity test data from the previous investigations can be found in the *Base Realignment and Closure Environmental Site Screening Report, Study Area 39* (HLA, 1999). Boring logs for the current investigation are provided in Appendix A.

Sediments from the ground surface to approximately 10 feet bgs are typically light colored (white, tan, to light gray), fine to medium grained, loose sand with some silty layers. Below 10 foot depth to 50 foot depth the sediment color is typically darker (brown, dark brown, gray, olive), the grain size is increasingly coarser, and some sand layers are dense. At most boring locations, an interbedded zone of sand, silty sand, sandy clay, or clay, generally 2 feet thick, was encountered

at depths of 25 to 30 feet bgs. The texture of this zone is variable across the site, ranging from dense, coarse sand to stiff, dry clay to soft clay. Split-spoon sampler refusal was encountered in this layer at some locations. Below 50 feet bgs, 1- to 2-foot-thick layers of coarse to very coarse sand are interbedded with fine to medium grained sand, and the sediment color is variable from light to dark. A layer of sandy clay, ranging from soft to stiff and dry, was encountered at approximately 80 feet bgs in the two deepest boreholes (27D and 28D) completed at the site. All sand layers encountered consisted of predominantly quartz mineral grains. Some layers containing a low percentage of phosphate grains and shell fragments were occasionally encountered.

Groundwater is typically encountered from 10 to 12 feet bgs. The surficial aquifer, consisting mostly of saturated sand, extends to a depth of about 80 feet bgs across the site. Clay sediment encountered at about 80 feet bgs is interpreted to represent the top of the Hawthorn Group that directly overlies the Floridan Aquifer System. Cone penetrometer testing performed during the previous investigations (HLA, 1999) shows that saturated sand exists within the Hawthorn Group at depths of 90 to 100 feet bgs. Hydraulic conductivity test results from the surficial aquifer showed a range of 2.88 to 5.76 ft/day for the six wells tested with an average value of 4.11 ft/day (HLA, 1999). Historically, the direction of groundwater flow at SA 39 for all depths monitored in the surficial aquifer has been east-southeast. Using a site-specific average groundwater horizontal gradient of 0.0025 ft/ft, the average hydraulic conductivity of 4.11 ft/day, and an assumed aquifer porosity of 0.3, the average linear groundwater flow velocity was calculated to be 0.034 ft/day, or about 13 ft/year. Additional information on the current direction and gradient of groundwater flow is provided in Section 3.1.

2.0 SITE INVESTIGATION

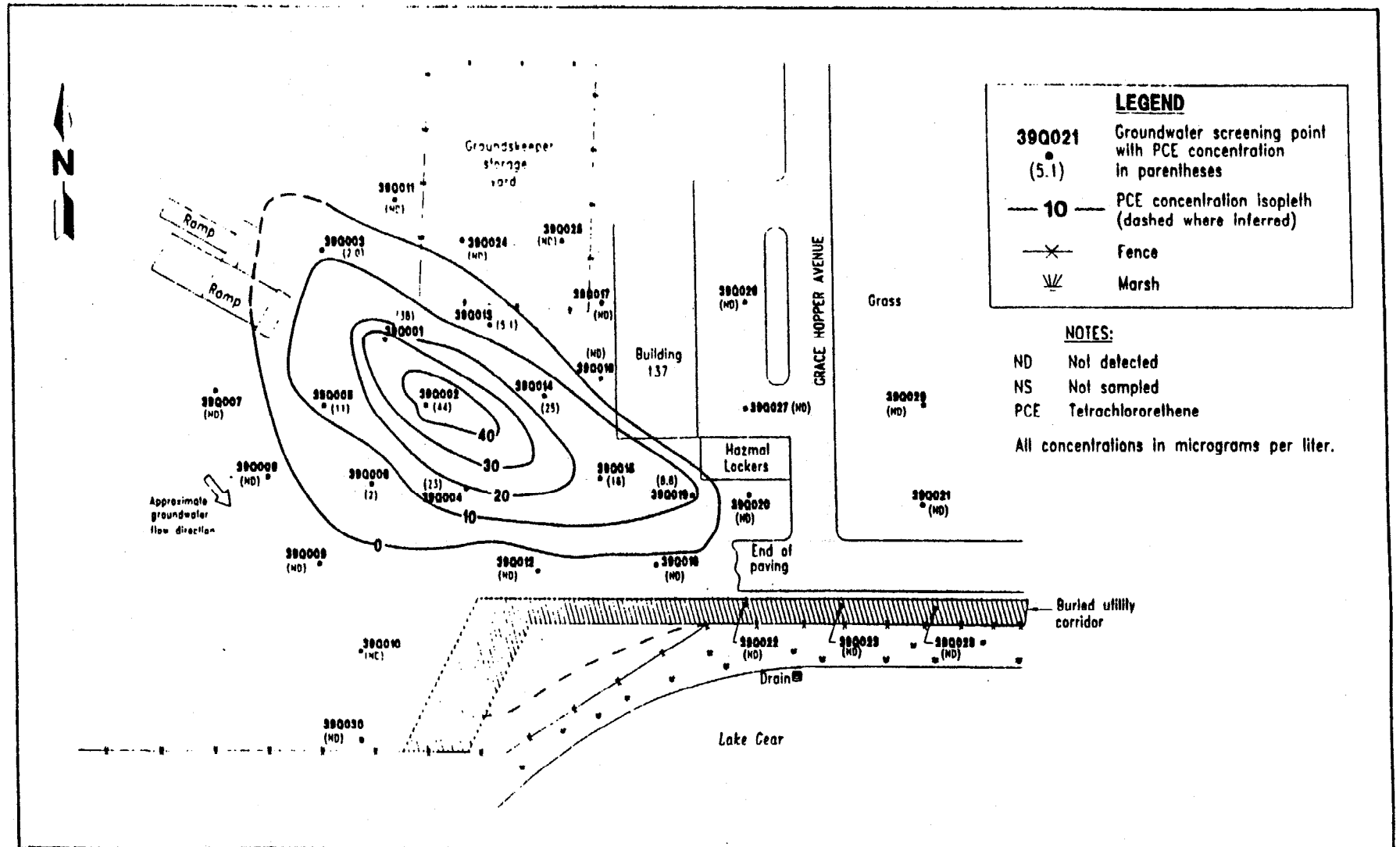
2.1 PREVIOUS INVESTIGATIONS

During the initial site screening investigation, five borings were completed in March 1996 as permanent shallow monitoring wells OLD-39-01A (01A) through 05A (HLA, 1999). In addition, one temporary monitoring well (06A) was installed near the northern shoreline of Lake Gear. In a sample collected from 03A, PCE was detected above the current GCTL of 3 μg/L. Five additional monitoring wells (four shallow wells and one intermediate depth well) were installed in November 1996 to investigate the extent of PCE contamination in the vicinity of well 03A. Samples collected from the five wells indicated that the PCE plume extended at least 30 feet in all directions from 03A and to the top of the shallow clay layer, approximately 30 feet bgs.

A cone penetrometer test program was conducted in March 1997 to characterize the lower portion of the surficial aquifer. This information was used to focus a DPT investigation intended to further define the horizontal and vertical extent of the plume. PCE was detected at various depths at concentrations above the current GCTL in several of the DPT groundwater samples. Figures 2-1, 2-2, 2-3, and 2-4 show the extent of the PCE or chlorinated hydrocarbons (PCE plus TCE) at various depths as determined by the DPT investigation. The southern and eastern limits of the plume were not fully defined because of a lack of data below approximately 25 feet in depth.

To confirm the March 1997 DPT investigation, 15 additional monitoring wells (12A through 26C) were installed and incorporated with 3 existing wells to form 6 shallow-intermediate-deep well clusters. Each cluster consisted of a shallow well screened across the water table (designated "A"), an intermediate well screened just above a layer of clay located approximately 30 feet bgs (designated "B"), and a deep well screened below the clay layer (designated "C"). After installation, groundwater levels were measured in each well, and an isocontour map based on those measurements showed groundwater within the surficial aquifer to flow eastward (HLA, 1999).

Seven wells were believed to be damaged beyond repair during utility construction along the southern boundary of the site in the spring of 1998 (HLA, 1998). Four of those wells (17A, 18B, 19C, and 23A) were found and abandoned by Tetra Tech NUS, Inc. (Tetra Tech) during the July 1999 event. Well 24B, although not one of the seven wells originally believed to be damaged, was also found to be destroyed by the construction and was abandoned by Tetra Tech.



0 40 80
SCALE: 1 INCH = 80 FEET

Figure 2-1
DPT – On-site Field Laboratory
PCE CONCENTRATIONS
AT 15 TO 17 FEET
BELOW LAND SURFACE
SOURCE: (HLA, 1999)

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 39

NAVAL TRAINING CENTER ORLANDO, FLORIDA

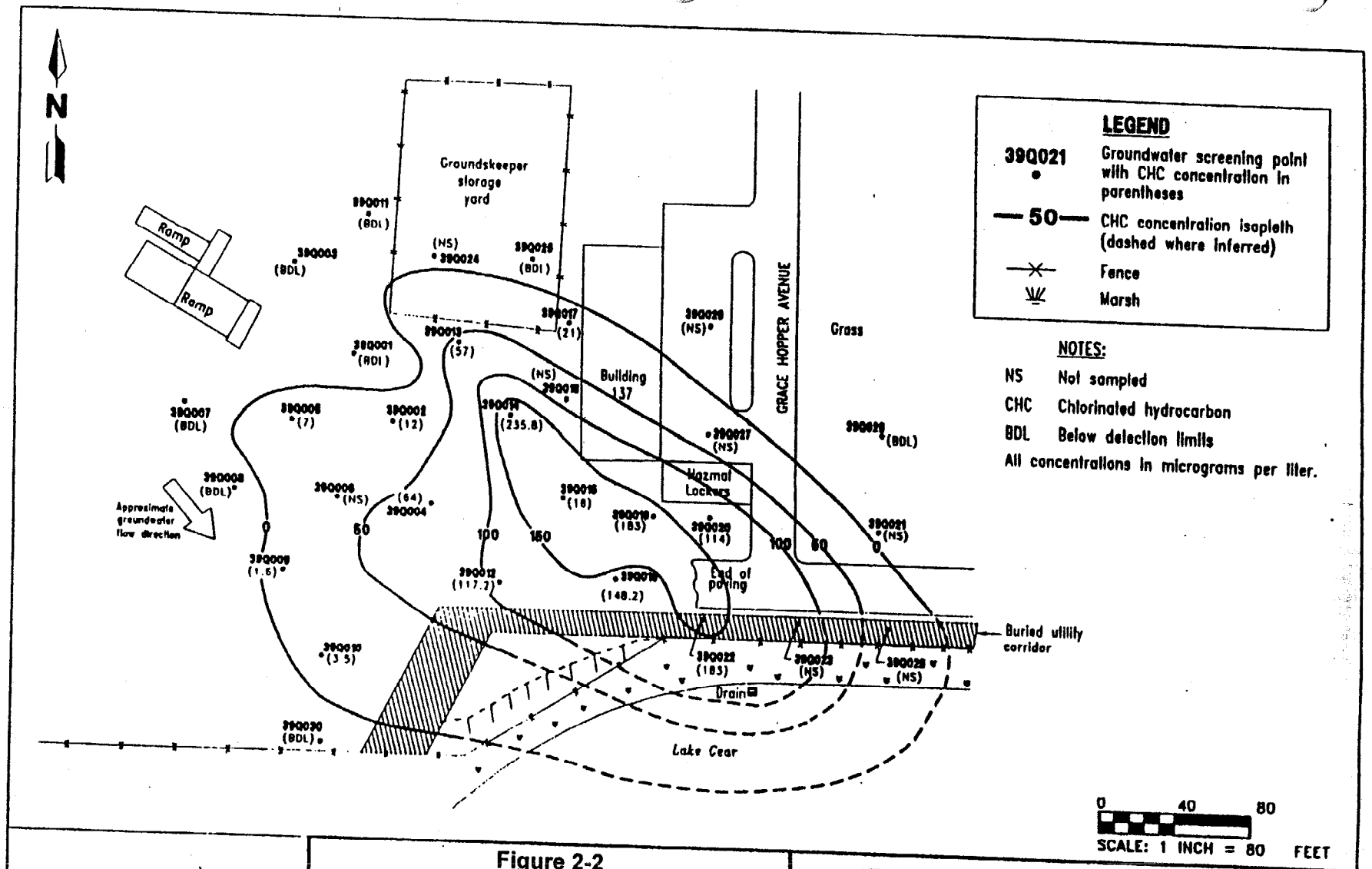


Figure 2-2
DPT – On-site Field Laboratory
TOTAL CHLORINATED HYDROCARBON CONCENTRATIONS AT 28 TO 30 FEET BELOW LAND SURFACE
SOURCE: (HLA, 1999)

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 39

NAVAL TRAINING CENTER ORLANDO, FLORIDA

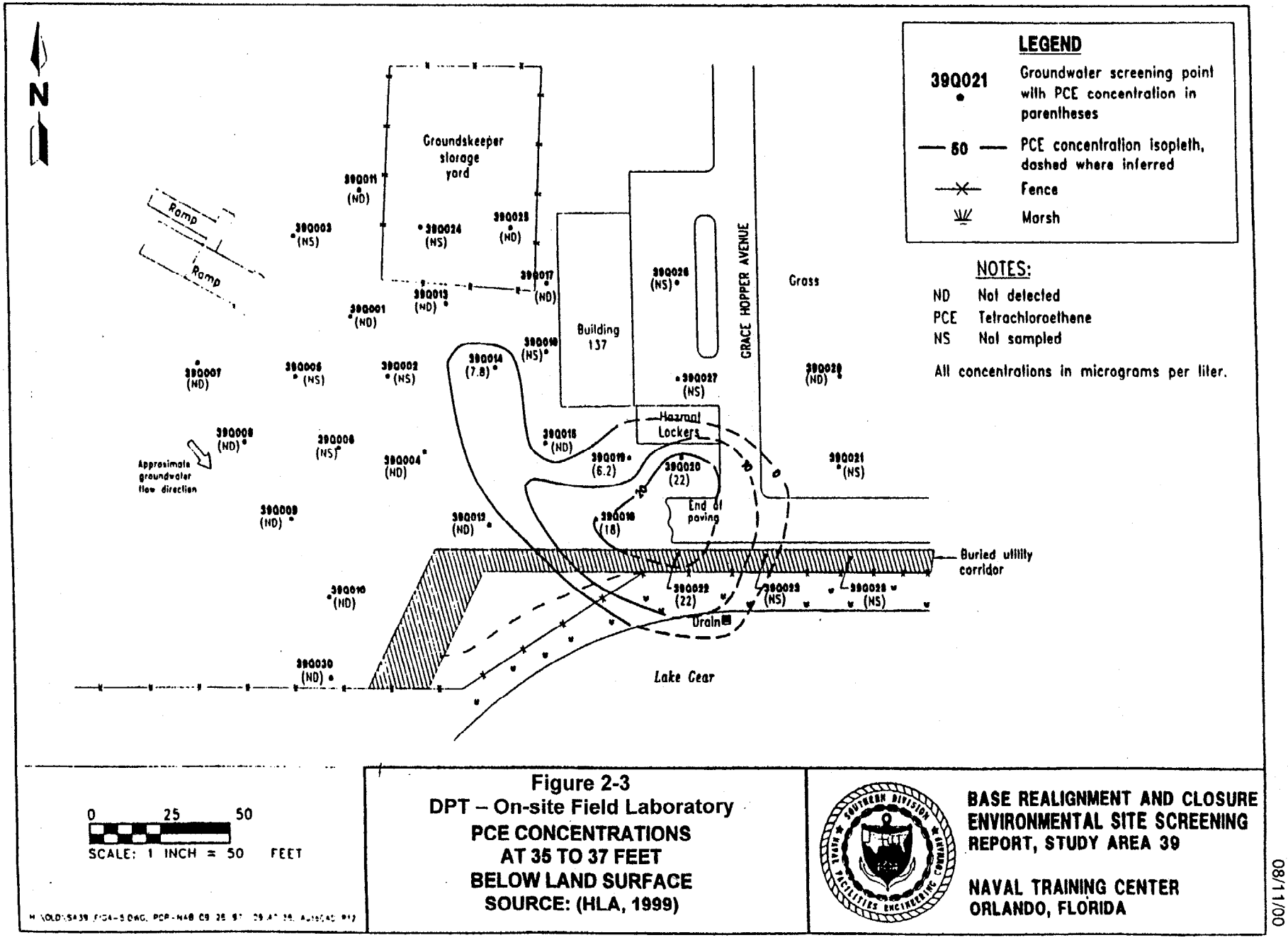
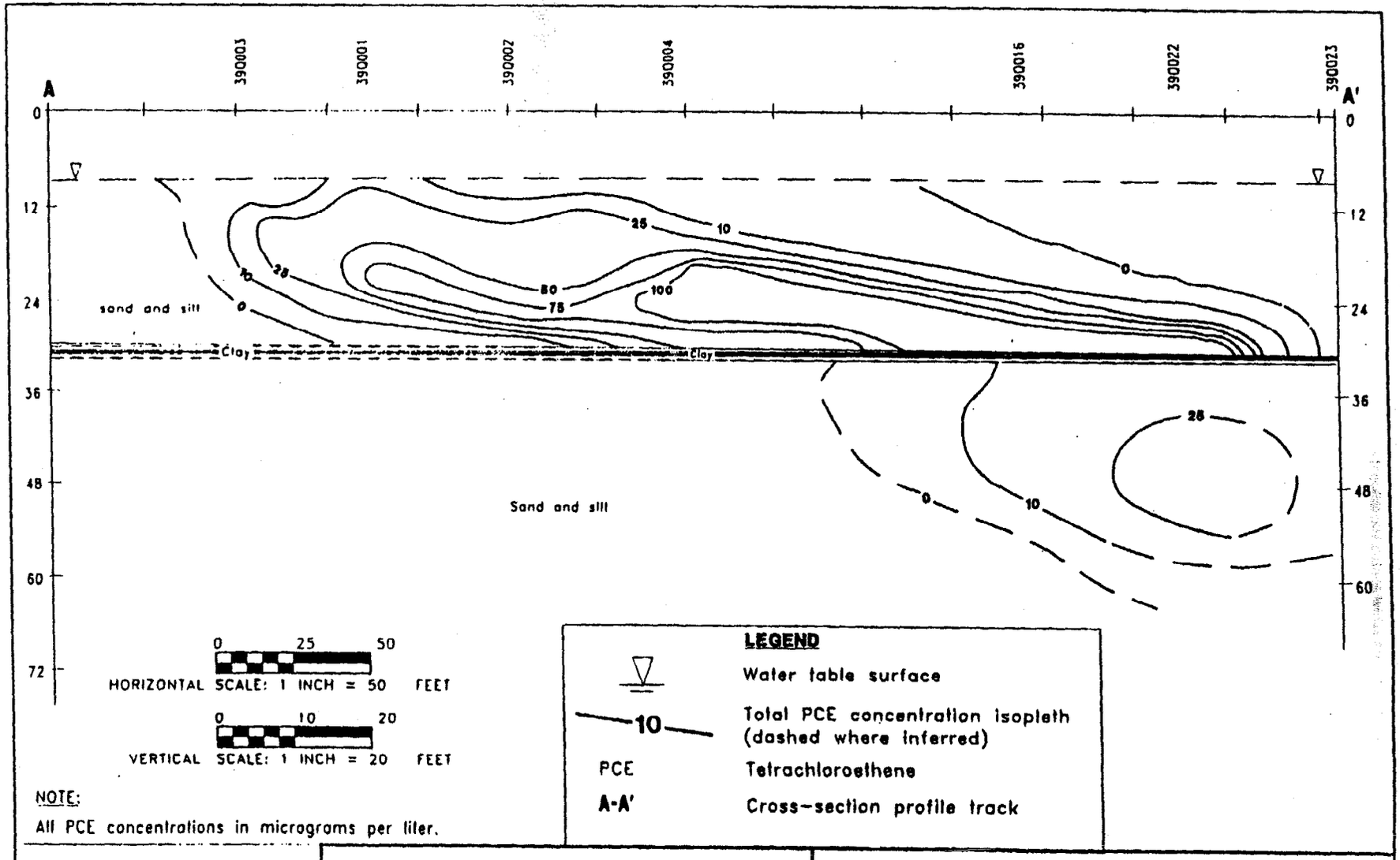


Figure 2-3
DPT – On-site Field Laboratory
PCE CONCENTRATIONS
AT 35 TO 37 FEET
BELOW LAND SURFACE
SOURCE: (HLA, 1999)

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING
REPORT, STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA



NOTE:
All PCE concentrations in micrograms per liter.

Figure 2-4
DPT – On-site Field Laboratory
PCE CONCENTRATION AND LITHOLOGIC CROSS SECTION
SOURCE: (HLA, 1999)

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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 39

NAVAL TRAINING CENTER ORLANDO, FLORIDA

Wells 20A, 21B, and 22C were not found during the 1999 event. These wells are believed to have been properly abandoned prior to, or destroyed completely during, the utility construction. Monitoring well 06A was a temporary well that was either previously abandoned or destroyed completely during the utility construction.

2.2 CURRENT INVESTIGATION

Tetra Tech conducted an investigation at SA 39 from July 1999 through March 2000 to define the extent of PCE contamination in groundwater. The scope of the investigation was based upon the results of previous investigations and included activities to define both the lateral and vertical extent of contamination and to investigate the groundwater flow direction. Because previous groundwater sampling was last conducted in 1997 and because several monitoring well clusters were destroyed by utility construction along the southern perimeter of the site, the investigation was conducted in two steps. First, a DPT groundwater sampling program was conducted to investigate the current plume conditions; this step included collection of samples from locations deeper in the aquifer and further downgradient than the previous investigation sample locations. Second, based upon the DPT results, monitoring wells were installed to provide permanent sampling locations and to collect water level data.

The objectives of the investigation were:

- Conduct a DPT investigation to define the horizontal and vertical extent of PCE contamination in groundwater.
- Abandon/replace seven monitoring wells that were destroyed during utility construction at the site.
- Install additional wells as needed, based on DPT results, to provide compliance monitoring.
- Sample surficial aquifer monitoring wells as appropriate based on the results of the DPT program.

All work was performed in accordance with the *Work Plan for the Investigation of Contaminated Groundwater, Study Area 39* (Tetra Tech, 1999). This work plan defined the site-specific activities performed and was consistent with guidance detailed in the *Project Operations Plan for Site Investigations and Remedial Investigations* [POP], Volume I (ABB-ES, 1997). Health and safety aspects of the work at SA 39 were controlled in accordance with the *Health and Safety Plan for*

Completion of Investigative Work and Data Sampling (B&R Environmental, 1997) and addenda (Tetra Tech, 1998 and 1999).

2.2.1 Direct Push Technology Groundwater Sampling

A DPT investigation was conducted to determine the horizontal and vertical extent of the PCE contamination in groundwater in the lower portion of the surficial aquifer. The DPT program consisted of collecting groundwater samples at selected locations and various target depths. Because contamination was detected at the deepest interval sampled during the previous investigation (35 to 37 feet bgs), this DPT investigation began at a depth of 40 feet bgs. All DPT groundwater samples were analyzed for volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method SW-846 8260B. The analyses were performed in accordance with USEPA Level II Data Quality Objectives (DQOs) by Quanterra Environmental Services in North Canton, Ohio, using 24-hour rapid turnaround.

The DPT groundwater samples collected during this investigation were numbered as follows:

NTC39P*NNNDD*

where: NTC = Naval Training Center
39 = two-digit SA designation (39)
P = sample type ("P" for DPT)
NNN = location number (e.g., 001 or 015)
DD = sample depth (e.g., 10 or 20)

For example, the sample collected at the 5th DPT location at a depth of 40 feet was designated NTC39P00540. Samples for field duplicates were identified with a "blind" number (e.g., NTC39D1000). The corresponding environmental sample was noted in the field logbook.

The locations of the 11 DPT sample points that were installed are shown on Figure 1-2. At each DPT sampling point discrete samples were obtained from various target depths. At most locations the first sample was collected at a depth of 40 feet bgs and subsequent samples were collected at 10-foot intervals to a terminal depth of 70 feet bgs. The 70-foot-depth samples were not collected at upgradient locations P001 and P002, and the 40-foot-depth sample was not collected at P002. An additional 80-foot-depth sample was collected only at location P005 in the area where previous sampling showed the highest concentrations of PCE in groundwater at a

depth of 35 to 37 feet. Previous cone penetrometer testing identified the top of the Hawthorn Group to be approximately 80 to 100 feet bgs.

One boring was advanced at each DPT location, except where noted by "A" or "B" modifiers, which denote separate pushes for the same location. The sampling devices used were stainless steel, continuous-slot, wire-wound screens contained in stainless steel casings having stainless steel drive points. The sampler was driven to the target depth using sections of 4-foot-long, hollow-stem drive rod. Once the target depth was reached, the drive rod was raised approximately 3 feet, thereby lifting the sampler casing and exposing the screen. With the screen exposed the required amount of Teflon®-lined tubing was inserted inside the drive rod down to the exposed screen and the other end was connected to a peristaltic pump. Pumping continued until the effluent began to clear (in some cases the effluent did not clear, particularly at the 70- and 80-foot-sample depths), at which point the pump was stopped and the samples collected using the tube evacuation method.

The sampling progressed by withdrawing the drive rod and sampler (the drive point remained in the subsurface), attaching a clean sampler to a clean drive rod, and the assembly was driven to the next (deeper) sample depth. Once all samples were collected from a location, the boreholes were abandoned with a bentonite/grout mixture. When finished at a location, the DPT rig and all downhole equipment were decontaminated using a high-pressure steam wash before use at the next location.

After sampling the first few locations, it was noted that large bubbles were forming in the VOC vials subsequent to being sealed. This was a result of the groundwater reacting with the hydrochloric acid preservative. After the second day of sampling, nonpreserved vials were used.

2.2.2 Monitoring Well Installation

A total of 15 monitoring wells were installed in the surficial aquifer during the investigation. Because the groundwater plume was known to have a significant vertical extent in the surficial aquifer, monitoring wells were generally installed in clusters that included wells of different depths. Figure 2-5 graphically depicts the A, B, C, and D well depths/identification that were used; this well nomenclature was consistent with wells installed during previous investigations at this site. Seven of the wells, in two clusters, were installed to replace two well clusters that were destroyed during utility construction. Seven additional wells, in two clusters, were installed along the eastern and southeastern perimeters of the site at downgradient locations to monitoring plume migration. One

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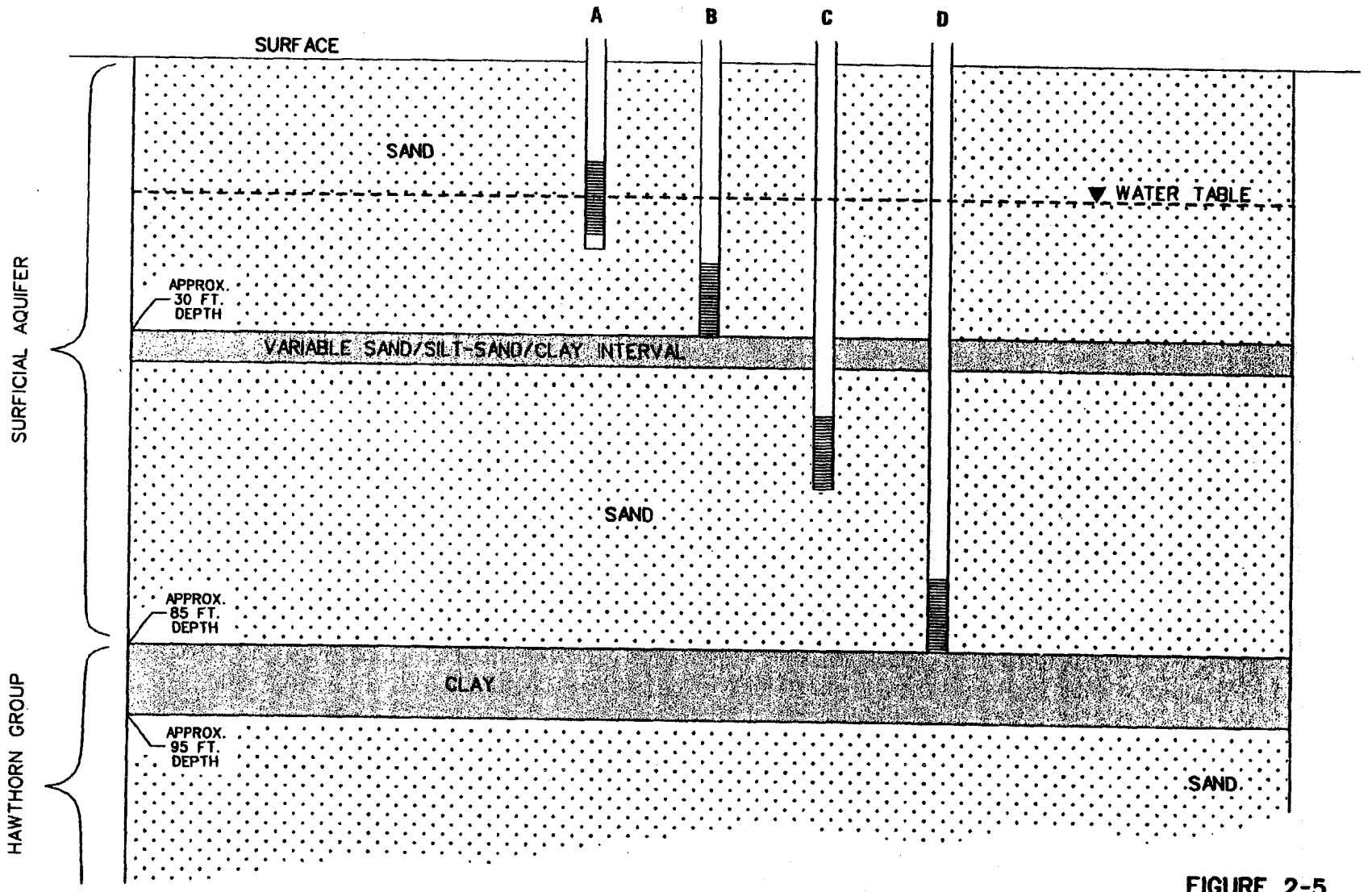

FIGURE 2-5

NOTE:

"C" AND "D" WELLS MAY OR MAY NOT BE DOUBLE CASED DEPENDING ON LOCATION.

NOT TO SCALE

WELL DEPTH SCHEMATIC
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
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well was installed near the center of the plume where DPT investigations had shown the highest plume concentrations. Table 2-1 provides the rationale for the new well locations and summarizes the construction details. Figure 1-2 depicts the locations of all permanent monitoring wells at the site.

TABLE 2-1

WELL CONSTRUCTION AND RATIONALE
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well I.D.	Rationale for Installation	Screened Interval (feet)	Total Depth (feet)
27D	Installed atop the Hawthorn Group downgradient of the source area. This depth was chosen to characterize groundwater conditions at the base of the surficial aquifer.	79.5-84.5	84.5
28D	Same rationale as above. Installed atop the Hawthorn Group further downgradient of the source area.	79.5-84.5	84.5
29C	Located downgradient of existing wells to define the groundwater plume in the "C" (deep–approximately 40 feet bgs) interval.	35-40	40
30B	Located downgradient of existing wells to define the groundwater plume in the "B" (intermediate–approximately 30 feet bgs) interval.	25-30	30
31A	Located downgradient of existing wells to define the groundwater plume in the "A" (shallow–approximately 15 feet bgs) interval.	8-18	18
32C	Replaced well 19C	34.5-39.5	39.5
33B	Replaced well 18B	24.5-29.5	29.5
34A	Replaced well 17A	7.5-17.5	17.5
35B	Replaced well 21B	24-29	29
36A	Replaced well 20A	7.5-17.5	17.5
37C	Replaced well 22C	40-45	45
38B	Installed in location of interest approximately 30 feet from the southwest corner of Building 137. No previous data collected from this location.	24-29	29

Monitoring Well Construction

All monitoring wells were constructed of Schedule 40, flush joint threaded, 2-inch-ID polyvinyl chloride pipe and flush-joint threaded, factory-slotted 0.010-inch well screen with a threaded end cap. Each section of well casing and screen was certified as compliant with the National Sanitation Foundation standards. The shallow A-depth well screens were 10 feet long to allow for potential water table fluctuation; the well screens were 5 feet long for all other well depths (i.e., B, C, and D). Bottoms of well screens were placed a minimum of 6 inches, but no more than 3 feet, above the bottom of the drilled borehole. Bottom plugs were flush threaded. Solvents or glues were not used during construction of monitoring wells.

Monitoring wells completed to depths less than 50 feet bgs (i.e., A, B, C wells) were drilled with hollow stem augers and installed through the augers. Two deeper wells (i.e., D wells) were installed using mud rotary drilling techniques. Clean silica sand of No. 20 to 40 U.S. Standard Sieve size was used as the filter pack material for all wells. The sand pack extended from 0.5 to 3 feet below the well screen to a minimum of 3 feet above the top of the well screen. A minimum 1-foot-thick layer of fine sand (uniformly graded with 100 percent by weight passing the No. 30 U.S. Standard sieve, and less than 2 percent by weight passing the No. 200 U.S. Standard sieve) was placed on top of the filter pack. Except for the A wells, a minimum 2-foot-thick bentonite pellet seal was installed above the fine sand pack and allowed to hydrate as per the manufacturer's recommendations. Only 100 percent, certified pure, sodium bentonite was used for well construction. For the A monitoring wells (approximately 15 feet bgs), the top of the screen was above the static water level. Therefore, no bentonite seal was installed. Instead the fine sand layer was increased in thickness to a minimum of 2 feet. The depth of backfill materials was frequently monitored during well installation using a weighted stainless steel or fiberglass tape measure. The remaining annulus above the hydrated bentonite seal (or above the fine sand layer in A wells) was backfilled to the surface, using a tremie pipe, with a 20:1 cement/bentonite grout. A maximum of 10 gallons of water per 94-pound bag of Type I cement was used for the grout. A protective steel surface casing with locking cap and concrete pad were completed around each well head. Well boring and completion logs are provided in Appendix A.

Preliminary well development was conducted during well construction by gently surging the well with a surge block to facilitate settlement of the filter pack sand around the well screen. After the level of the filter pack sand was stabilized, the remaining grout and seal materials were added to the annulus of the well. Final well development was performed no sooner than 24 hours after well installation. This development consisted of bailing and surging, and/or pumping, to restore the

hydraulic properties of the borehole wall and to remove mobile fines from the filter pack and disturbed formation. This process continued until the site geologist determined that no additional increase in water clarity or reduction in turbidity could be achieved. The results of the development efforts are described on the well development forms provided in Appendix A.

Soil Sampling

Split spoon soil samples were collected only from the deepest boring at each well cluster location. The samples were collected to facilitate the description of the lithologies present at the site, to identify potential low-permeability layers, and to collect samples for geotechnical analyses. The split spoon samples were collected at 5-foot-depth intervals from the ground surface to the terminal depth of the boring. At deep boring 27D, split spoon samples were collected continuously from the ground surface to total depth of 85 feet bgs. Samples for grain size and water content analyses were collected from borings 27D, 35B, and 38B. Geotechnical data are provided in Appendix B. Samples were not collected for chemical analyses with the exception of two samples from a boring located approximately 10 feet north of well 12A. These two samples (16-20 foot and 36-40 foot depths) were analyzed for total organic carbon.

2.2.3 Groundwater Sampling

Except for well 01A, which was not found, all existing SA 39 monitoring wells (28 total) were sampled using the low-flow or micro-purge technique during August/September 1999 and were analyzed for VOCs by the laboratory using USEPA Method 8260B. Before sampling, the static groundwater level in each well was measured. In March 2000, three additional groundwater monitoring wells were installed, were sampled using the low-flow or micro-purge technique, and were analyzed for VOCs by the laboratory using USEPA Method 8260B. Samples were collected and analyzed in accordance with USEPA Level IV DQOs. The work was performed in accordance with the site-specific work plan (Tetra Tech, 1999) and in accordance with the requirements of the POP (ABB-ES, 1997). The following summarizes the purging procedures used.

- The depth to water and total well depth were determined, and the discharge tubing was lowered into the well as slowly as possible to minimize disturbance to the water in the well.

- The end of the tubing was positioned near the midpoint of the saturated screen length and kept 2 to 3 feet above the bottom of the well, to minimize mobilization of particulates present in the bottom of the well.

- Purging began with the pump at the lowest setting and the speed slowly increased until discharge occurred.

- The pumping rate was adjusted until there was little or no water level drawdown; the drawdown goal was a maximum of 0.3 feet. The water level in the well was monitored continuously until the pumping rate stabilized. Water level and pumping rate were monitored and recorded every 3 to 5 minutes (or as appropriate) during purging. Any pumping rate adjustments were recorded (both time and flow rate). Purging proceeded at approximately 100 mL/min, except where well-specific conditions warranted a change.

- The parameters listed below were monitored and were recorded on the sample purging/collection log (Appendix A). Purging was considered complete when all field parameters stabilized. Stabilization was considered to have been achieved when three consecutive readings, taken at 3- to 5-minute intervals, were within the limits listed below.

Temperature (ºF)	± 5%
Specific conductance	± 5%
pH	± 5%
Oxidation-Reduction Potential (ORP/Eh)	± 5%
Dissolved Oxygen (DO)	± 5%
Turbidity	± 5% [values > 7 Nephelometric Turbidity Unit (NTU)]; ± 10% (values < 7 NTU)

Samples were collected immediately after purging was complete. Sample aliquots for analyses were collected using the tube evacuation method described in Section 4.5.2.2 of the POP (ABB-ES, 1997); these samples were also collected directly into laboratory-supplied, preserved containers. The sample field parameters were recorded on the sample purging/collection log (Appendix A). All sample containers were immediately labeled, placed on ice in a shipping cooler, and kept under custody by the sample team. One trip blank set was included with each shipping container that included samples for VOC analyses.

The monitoring well samples were numbered as follows:

NTC39TWWWRR

where: NTC = Naval Training Center
39 = two-digit SA designation (39)
T = sample type ("G" for groundwater, "D" for duplicate)
WWW = well location and screen depth designation (e.g., 27A)
RR = sampling round number (e.g., 10)

For example, the sample collected from well 27A was designated NTC39G27A10. Samples for field duplicates were identified with a "blind" number (e.g., NTC39D1000). The corresponding environmental sample was noted in the field logbook.

Quality Control Samples

Quality control samples were collected during the monitoring well sampling at the frequencies listed below.

- One field duplicate per 10 environmental samples.
- One trip blank set per cooler containing samples for VOC analysis.
- One matrix spike/ matrix spike duplicate (MS/MSD) per 20 environmental samples.

"MS/MSD" samples were identified on the labels and on the chain of custody. New sample numbers were not created for these samples. Additional sample volume was collected for each MS and MSD set.

2.2.4 Natural Attenuation

In October 1999, seven of the wells (12A, 14C, 29C, 30B, 32C, 33B, and 38B) were sampled for natural attenuation (NA) parameters. These data were used to evaluate the potential for NA of the groundwater plume. The analyses conducted, analytical methods, and other technical guidance regarding this sampling are provided in Table 2-2. The wells sampled included one uncontaminated, upgradient location in the A aquifer zone (12A) and one uncontaminated, upgradient location in the C aquifer zone (14C); two wells in the most contaminated portion of the groundwater plume in the B aquifer zone (33B and 38B) and one well in the most contaminated portion of the groundwater plume in the C aquifer zone (32C); and one well located in the downgradient extent of the plume in the B aquifer zone (30B) and one well located in the downgradient extent of the plume in the C aquifer zone (29C).

TABLE 2-2

NATURAL ATTENUATION PARAMETERS AND METHODS FOR GROUNDWATER SAMPLING STUDY AREA 39

NAVAL TRAINING CENTER ORLANDO, FLORIDA

Analytical Parameter	Method	Guidance
Alkalinity	Laboratory	Method E310.1
Biogenic gases: H, CO_2, N, Ethene, Ethane, Methane	Field gas extraction; laboratory analysis of fixed gases and light hydrocarbons	Extraction and analysis using MICROSEEPS propriety methodology.
Cations and Anions: N, NO_2, NO_3, Cl, PO_4.	Laboratory	USEPA 300 series; 48-hour hold time for nitrate and nitrite.
Carbon dioxide	Field test kit	HACH kit CA-DT; to confirm biogenic gas results.
Dissolved Organic Carbon (DOC)	Laboratory	SW-846 Method 9060; sample from clean, upgradient well(s).
Dissolved Oxygen (DO)	Field meter and field test kit	Previous data show DO <1 mg/L; verified with CHEMetrics field kits K-7501 (<1 mg/L) and K7512 (>1 mg/L); to confirm biogenic gas results.
Iron $^{+2}$ (ferrous)	Field test kit	Filter in the field if NTU >20 HACH kit IR-18C
Iron and Manganese	Laboratory	Filter in the field (0.45 μ)
pH, conductivity, ORP, temperature, turbidity	Field flow-through cell	Recorded during well purging
Sulfate	Laboratory	Ion chromatography (IC)
Sulfide	Field test kits for hydrogen sulfide and total sulfide	HACH kits HS-C and HS-WR
Fraction of Organic Carbon (FOC) in soil	Laboratory	SW-846 Method 9060 modified; sample of aquifer matrix from clean, upgradient location(s).

3.0 RESULTS

3.1 GROUNDWATER FLOW

The geographic distribution of dissolved chemicals in groundwater, as evidenced by the results of monitoring well sampling and analyses, indicates that a groundwater plume consisting primarily of chlorinated chemicals is migrating to the east and southeast across the site. The vertical distribution of dissolved contaminants in groundwater, primarily PCE, indicates that vertical groundwater movement is also occurring. The site investigation data show that groundwater flow is the primary mechanism of contaminant migration at SA 39.

Water levels in monitoring wells have been recorded on four occasions at SA 39. The monitoring well locations and well top elevations have been surveyed and located on the site plan map (see Figure 1-2). The depth to water and well top elevation survey data were used to determine the elevation of the potentiometric head at each well and are provided in Table 3-1. The data in Table 3-1 were used to construct potentiometric surface contour maps for the most current data set collected during March 2000. The data and potentiometric surface contours for monitoring wells constructed at similar depths within the surficial aquifer (i.e., A, B, and C well sets) are shown in Figures 3-1, 3-2, and 3-3, respectively.

The potentiometric contours for each of the three surficial aquifer depths are very similar and suggest that groundwater is flowing to the east-southeast, at a tangent to the shoreline of Lake Gear that borders the southern perimeter of SA 39. The average horizontal potentiometric gradients for each aquifer depth were calculated and are provided in Table 3-2. The gradients fall within a narrow range, 0.003 to 0.005 ft/ft, across all three aquifer depths and are consistent with the value of 0.0025 ft/ft reported for the water table in the previous Site Screening Report (HLA, 1999).

Because some degree of vertical plume migration is indicated by the groundwater data, the presence of vertical potentiometric gradients within the surficial aquifer was investigated. The data from five well clusters situated across the site were used to calculate the vertical groundwater gradients. The potentiometric head difference and the vertical distance between the midpoints of the well screens in the respective wells used for each vertical gradient determination were used in the calculation. These data are summarized in Table 3-2. All vertical gradients observed are downward from the overlying to the underlying aquifer depth.

TABLE 3-1

GROUNDWATER ELEVATION DATA
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Identifier	TOC Elevation (feet AMSL)	Depth to Water (feet BTOC)				Groundwater Elevation (feet AMSL)			
		7/9/97	7/25/97	9/9-11/99	3/11/00	7/9/97	7/25/97	9/9-11/99	3/11/00
OLD-39-01A	118.7				12.62				106.04
OLD-39-02A	119.06			13.14	12.6			105.92	106.46
OLD-39-03A	116.76	11.22	10.40	11.78	11.04	105.54	106.36	104.98	105.72
OLD-39-04A	115.16	11.00	10.03	11.35	10.30	104.16	105.13	103.81	104.86
OLD-39-05A	117.28			11.88	11.33			105.40	105.95
OLD-39-07B	116.90	11.50	10.66	12.00	11.43	105.40	106.24	104.90	105.47
OLD-39-08A	116.45								
OLD-39-09A	116.54			11.71				104.83	
OLD-39-010A	116.73								
OLD-39-011A									
OLD-39-012A	117.92			12.8	12.1			105.12	105.82
OLD-39-13B	117.74	11.92	11.23	12.66	11.98	105.82	106.51	105.08	105.76
OLD-39-14C	117.73	12.03	11.47	13.03	12.30	105.70	106.26	104.70	105.43
OLD-39-15B	115.13	10.96	10.07	11.56	10.42	104.17	105.06	103.57	104.71
OLD-39-16C	115.09	11.04	10.35	11.95	11.17	104.05	104.74	103.14	103.92
OLD-39-17A*	116.42	11.87	11.15			104.55	105.27		
OLD-39-18B*	116.41	11.89	11.18			104.52	105.23		
OLD-39-19C*	116.38	12.41	11.86			103.97	104.52		
OLD-39-20A*	117.56	12.74	11.80			104.82	105.76		
OLD-39-21B*	117.61	12.74	11.90			104.87	105.71		
OLD-39-22C*	117.70	12.74	12.18			104.96	105.52		
OLD-39-23A*	116.73	11.38	10.61			105.35	106.12		
OLD-39-24B*	116.54	11.21	10.45			105.33	106.09		
OLD-39-25C	116.32	11.11	10.58	12.43	11.73	105.21	105.74	103.89	104.59
OLO-39-26C	116.66	11.21	10.64	12.21	11.53	105.45	106.02	104.45	105.13
OLD-39-27D	118.73	--	--		15.90				102.83
OLD-39-28D	118.23	--	--		16.15				102.08
OLD-39-29C	118.38	--	--	15.85	15.09			102.53	103.29
OLD-39-30B	118.19	--	--	16.16	14.6			102.03	103.59
OLD-39-31A	118.13	--	--	14.88	13.84			103.25	104.29
OLD-39-32C	118.64	--	--	15.8	14.87			102.84	103.77
OLD-39-33B	118.78	--	--	15.5	14.18			103.28	104.6
OLD-39-34A	118.6	--	--	14.83	13.96			103.77	104.64
OLD-39-35B	120.08	--	--	16.13	15.23			103.95	104.85
OLD-39-36A	119.99	--	--	15.77	14.83			104.22	105.16
OLD-39-37C	119.93	--	--	17.06	15.43			102.87	104.5
OLD-39-38B	119.48	--	--	15.54	14.51			103.94	104.97
OLD-39-39A	117.16	--	--		12.63				104.53
OLD-39-40B	117.26	--	--		12.76				104.5
OLD-39-41C	117.12	--	--		13.74				103.38

* These wells were destroyed during utility construction in the Spring of 1998.
-- These wells were installed during July/August 1999 and March 2000.
Blank cell indicates no measurement recorded.
AMSL - above mean sea level
BTOC - below top of casing

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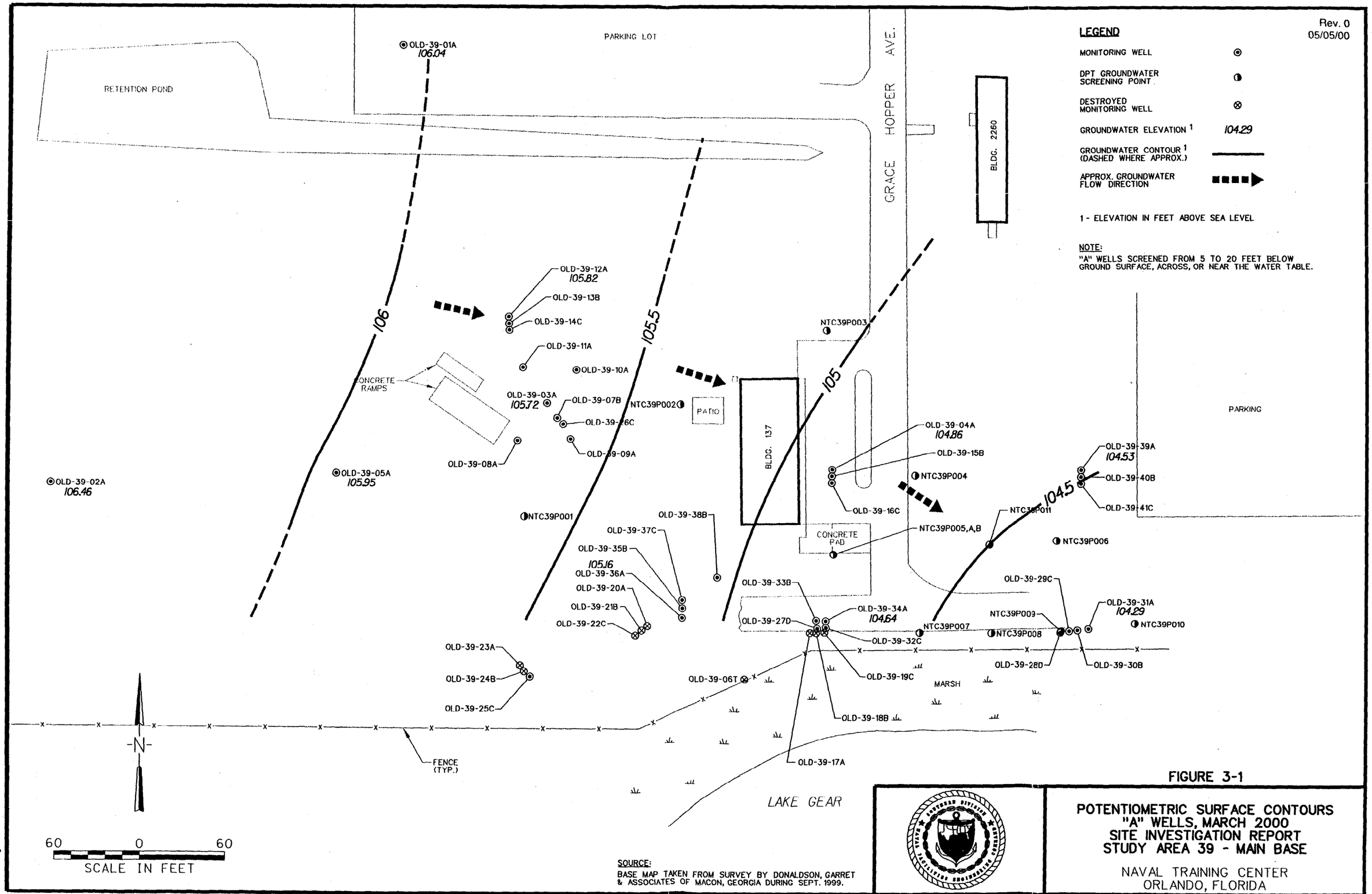

LEGEND

MONITORING WELL	⊙
DPT GROUNDWATER SCREENING POINT	◑
DESTROYED MONITORING WELL	⊗
GROUNDWATER ELEVATION [1]	104.29
GROUNDWATER CONTOUR [1] (DASHED WHERE APPROX.)	———
APPROX. GROUNDWATER FLOW DIRECTION	▬▬▬▶

1 - ELEVATION IN FEET ABOVE SEA LEVEL

NOTE:
"A" WELLS SCREENED FROM 5 TO 20 FEET BELOW GROUND SURFACE, ACROSS, OR NEAR THE WATER TABLE.

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-1

POTENTIOMETRIC SURFACE CONTOURS "A" WELLS, MARCH 2000 SITE INVESTIGATION REPORT STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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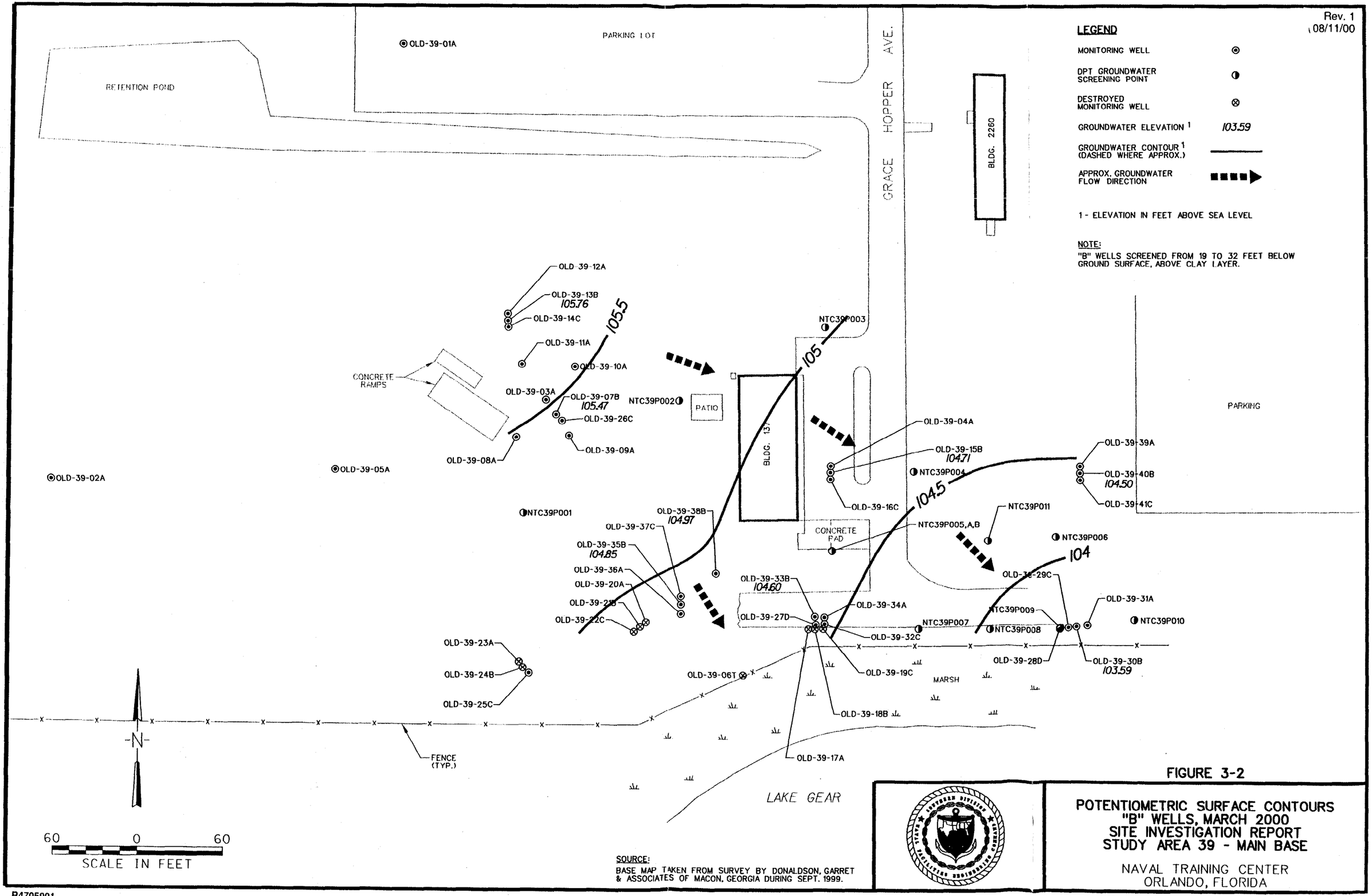

FIGURE 3-2

POTENTIOMETRIC SURFACE CONTOURS "B" WELLS, MARCH 2000
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

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CAD FILE NO./DATE: 7457M049.dgn/5-5-00

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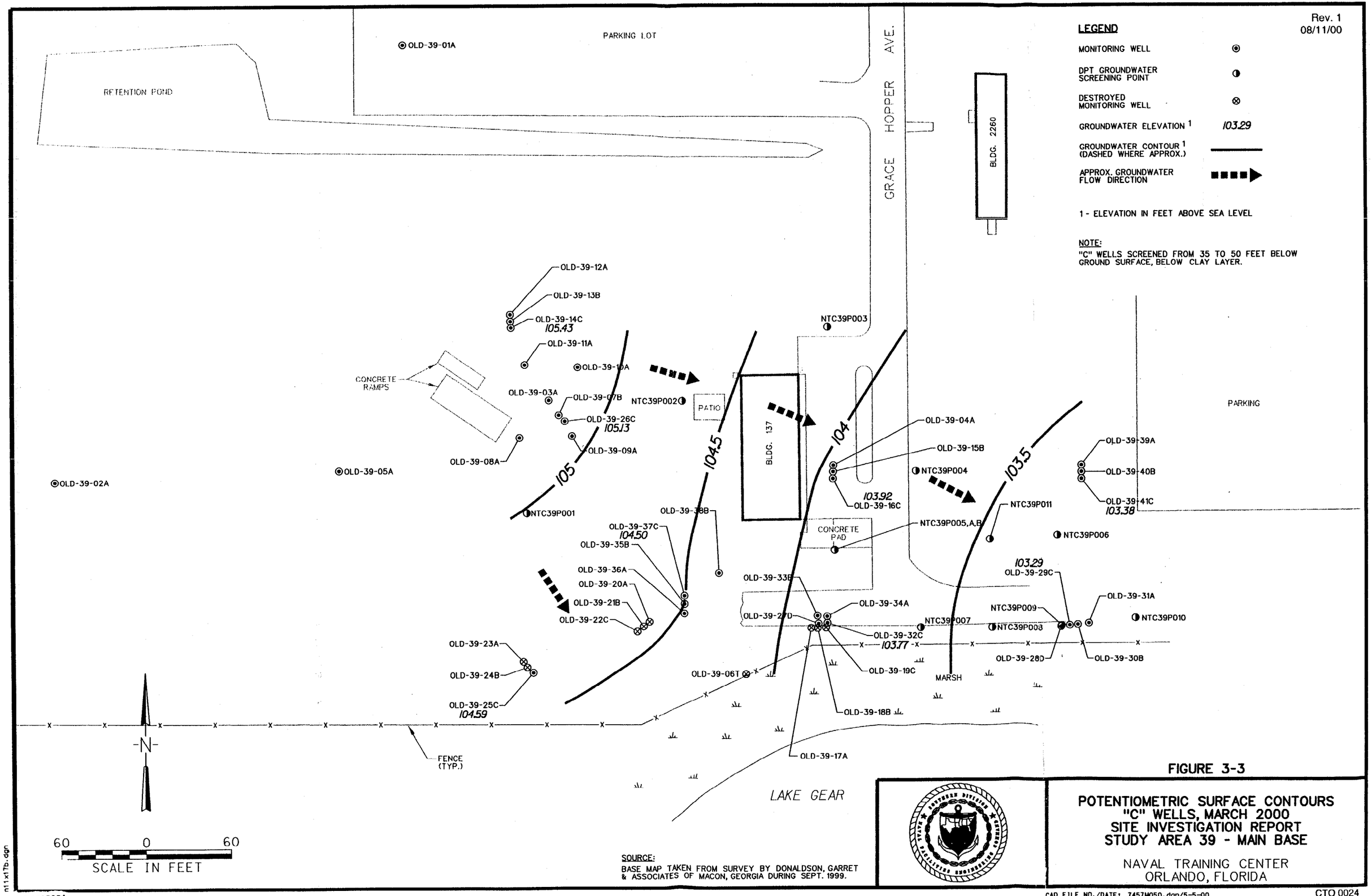

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-3

POTENTIOMETRIC SURFACE CONTOURS "C" WELLS, MARCH 2000 SITE INVESTIGATION REPORT STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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R4705001

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TABLE 3-2

AQUIFER HYDRAULIC GRADIENTS - MARCH 2000
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

AVERAGE HORIZONTAL AQUIFER GRADIENTS

Equipotential Elevation (feet)	Horizontal Distance (feet)	Average Horizontal Gradient		
		A Wells	B Wells	C Wells
106 105	305	0.003		
105 104	208		0.005	
105 103.5	276			0.005

VERTICAL AQUIFER GRADIENTS

Well Cluster	Groundwater Elevation (feet)	Screen Interval (feet bgs)	Vertical Distance (feet)	Vertical Gradient		
				A to B	B to C	C to D
12A	105.82	6 to 16	A-B = 14.5	0.004		
13B	105.76	23 to 28	B-C = 12		0.027	
14C	105.43	35 to 40				
36A	105.16	7.5 to 17.5	A-B = 13.5	0.023		
35B	104.85	23.5 to 28.5	B-C = 16		0.022	
37C	104.50	39.5 to 44.5				
34A	104.64	7.5 to 17.5	A-B = 14.5	0.003		
33B	104.60	24.5 to 29.5	B-C = 10		0.177	
32C	103.77	34.5 to 39.5	C-D = 45			
27D	102.83	79.5 to 84.5				0.021
39A	104.53	9.3 to 19.8	A-B = 11	0.003		
40B	104.50	22.8 to 28.3	B-C = 13		0.086	
41C	103.38	35.9 to 41.1				
31A	104.29	8 to 10	A-B = 18.5	0.038		
30B	103.59	25 to 30	B-C = 10		0.030	
29C	103.29	35 to 40	C-D = 44.5			0.027
28D	102.08	79.5 to 84.5				

Note: All vertical gradients are downward.

The results suggest that vertical gradients between A and B well pairs are relatively high at some well clusters (i.e., 35B/36A/37C and 29C/30B/31A). A similar observation was also made for some B and C well pairs (i.e., clusters 32C/33B/34A and 39A/40B/41C). These areas of relatively high vertical gradients may represent zones of lower permeability (resistance to flow) or greater surface recharge. Nearly all the vertical gradients observed were greater than the average horizontal gradients across the site. The vertical gradients between B and C well pairs (i.e., those wells completed directly above and below the thin clay zone identified from 25 to 30 feet bgs, see Figure 2-5), were greater than the vertical gradients observed between A and B well pairs at three of the five well cluster locations. Areas of low vertical gradient between B and C well pairs may represent areas of more pronounced vertical plume migration. The vertical gradients between C and D well pairs (i.e., 32C/33B/34A/27D and 28D/29C/30A/31B) are 0.021 and 0.027, respectively, and lie within the vertical gradient range in the upper parts of the surficial aquifer (Table 3-2).

3.2 DATA EVALUATION

3.2.1 Direct Push Technology Results

Of the 11 locations sampled, 7 samples from 5 locations contained analyte concentrations exceeding GCTLs (Table 3-3). PCE was the most widespread contaminant and ranged in concentration from 0.33 J μg/L to 17 μg/L at P00740. Figure 3-4 shows the locations of the DPT samples and the exceedances. Figures 3-5, 3-6, 3-7,and 3-8 show the extent of the PCE contamination at 40 feet bgs, 50 feet bgs, 60 feet bgs, and 70-80 feet bgs, respectively. PCE concentrations were highest at 40 feet bgs, with lower PCE concentrations and a smaller plume footprint at the lower depths. At all depths, the plume was found in the southeastern portion of the site. The southern extent of the plume was not fully delineated. The DPT analytical results are provided in Appendix C.

3.2.2 Monitoring Well Results

Laboratory analysis of the groundwater samples collected from monitoring wells in August/September 1999 and March 2000 detected 10 analytes (Table 3-4). Of those 10 analytes, three (bromodichloromethane, chloroform, and PCE) were identified at concentrations exceeding the GCTLs. PCE, identified in 15 samples and 1 duplicate, was the most widespread contaminant and ranged in concentration from 0.43 J μg/L to 94 μg/L (well 38B).

TABLE 3-3

POSITIVE DETECTIONS - DPT INVESTIGATION
JULY 1999
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

PAGE 1 OF 5

SAMPLE ID	FDEP GCTL[a]	NTC39P00140	NTC39P00150	NTC39P00160	NTC39P00250	NTC39P00260	NTC39P00340	NTC39P00350	NTC39P00360
LAB ID		A9G190108003	A9G190108004	A9G190108005	A9G190108001	A9G190108002	A9G160114002	A9G160114003	A9G160114004
SAMPLE DATE		7/17/99	7/17/99	7/17/99	7/17/99	7/17/99	7/15/99	7/15/99	7/15/99
Volatiles (µg/L)									
1,2-dichloroethane	3								
2-butanone	4200								20 J
Acetone	700								
Benzene	1	0.22 J		0.22 J	0.14 J				
Bromodichloromethane	0.6	4							
Carbon Disulfide	700						0.3 J	0.31 J	
Chloroform	5.7	36							
Dibromochloromethane	0.4	0.47 J							
Ethylbenzene	30				0.17 J			0.15 J	0.13 J
Methylene Chloride	5								
Styrene	100				0.17 J				
Tetrachloroethene	3								
Toluene	40	0.48 J	0.31 J	0.41 J	0.3 J	0.35 J			
Trichloroethene	3								
Xylenes, Total	20				0.51 J				

TABLE 3-3

POSITIVE DETECTIONS - DPT INVESTIGATION
JULY 1999
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	FDEP GCTL[a]	NTC39P00370	NTC39P00440	NTC39P00450	NTC39P00460	NTC39P00470	NTC39P00550	NTC39P00560	NTC39P005A70
LAB ID		A9G160114005	A9G150131001	A9G150131002	A9G150131003	A9G150131004	A9G200109001	A9G200109002	A9G200109003
SAMPLE DATE		7/15/99	7/14/99	7/14/99	7/14/99	7/14/99	7/18/99	7/18/99	7/18/99
Volatiles (ug/L)									
1,2-dichloroethane	3								
2-butanone	4200				10 J	10 J		22 J	
Acetone	700				65 J	26 J		44 J	
Benzene	1				0.45 J	0.51 J	0.24 J	0.91 J	0.29 J
Bromodichloromethane	0.6								
Carbon Disulfide	700						0.24 J	0.89 J	3.4 J
Chloroform	5.7				1.7 J				
Dibromochloromethane	0.4								
Ethylbenzene	30							0.2 J	
Methylene Chloride	5								
Styrene	100								
Tetrachloroethene	3		0.5 J				6.7	4.2	1.1
Toluene	40						0.32 J	1.3	0.42 J
Trichloroethene	3						1.6		0.35 J
Xylenes, Total	20							0.5 J	

TABLE 3-3

POSITIVE DETECTIONS - DPT INVESTIGATION
JULY 1999
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

PAGE 3 OF 5

SAMPLE ID	FDEP GCTL[a]	NTC39P005B80	NTC39P00640	NTC39P00650	NTC39P00650-D	NTC39P00660	NTC39P00670	NTC39P00740	NTC39P00740-D
LAB ID		A9G200109004	A9G150131005	A9G150131006	A9G150131008	A9G150131007	A9G160114001	A9G170122006	A9G170122007
SAMPLE DATE		7/19/99	7/14/99	7/14/99	7/14/99	7/14/99	7/15/99	7/16/99	7/16/99
Volatiles (ug/L)									
1,2-dichloroethane	3								
2-butanone	4200	10 J				9 J			
Acetone	700	25 J				33 J			
Benzene	1	0.64 J				0.36 J			
Bromodichloromethane	0.6								
Carbon Disulfide	700	0.31 J		0.12 J	0.31 J	0.2 J	0.23 J	0.56 J	0.49 J
Chloroform	5.7								
Dibromochloromethane	0.4								
Ethylbenzene	30								
Methylene Chloride	5								
Styrene	100								
Tetrachloroethene	3	4.6						17	14
Toluene	40	0.81 J						0.44 J	0.49 J
Trichloroethene	3	0.24 J						0.67 J	0.66 J
Xylenes, Total	20								

TABLE 3-3

POSITIVE DETECTIONS - DPT INVESTIGATION
JULY 1999
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	FDEP GCTL[a]	NTC39P00840	NTC39P00850	NTC39P00860	NTC39P00870	NTC39P00940	NTC39P00950	NTC39P00970	NTC39P01040
LAB ID		A9G170122002	A9G170122003	A9G170122004	A9G170122005	A9G160114006	A9G160114007	A9G170122001	A9G140109001
SAMPLE DATE		7/16/99	7/16/99	7/16/99	7/16/99	7/15/99	7/15/99	7/16/99	7/13/99
Volatiles (µg/L)									
1,2-dichloroethane	3						0.23 J		0.28 J
2-butanone	4200								
Acetone	700				8.1 J			11 J	
Benzene	1	0.34 J			0.53 J			0.33 J	
Bromodichloromethane	0.6								
Carbon Disulfide	700	0.28 J	0.56 J	0.49 J	0.47 J	0.21 J	0.48 J	0.7 J	0.41 J
Chloroform	5.7								
Dibromochloromethane	0.4								
Ethylbenzene	30								
Methylene Chloride	5							18 J	
Styrene	100								
Tetrachloroethene	3				5			0.33 J	
Toluene	40	1	0.62 J	0.5 J	0.93 J			0.89 J	
Trichloroethene	3				0.42 J				
Xylenes, Total	20								

TABLE 3-3

POSITIVE DETECTIONS - DPT INVESTIGATION
JULY 1999
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	FDEP GCTL[a]	NTC39P01050	NTC39P01060	NTC39P01070	NTC39P01140	NTC39P01150	NTC39P01160	NTC39P01170
LAB ID		A9G140109002	A9G140109003	A9G140109004	A9G200109006	A9G200109007	A9G200109008	A9G200109009
SAMPLE DATE		7/13/99	7/13/99	7/13/99	7/19/99	7/19/99	7/19/99	7/19/99
Volatiles (µg/L)								
1,2-dichloroethane	3	0.21 J	0.3 J					
2-butanone	4200							
Acetone	700							160 J
Benzene	1							
Bromodichloromethane	0.6							
Carbon Disulfide	700	0.7 J	0.49 J		1.4	0.55 J	1.4 J	3 J
Chloroform	5.7							
Dibromochloromethane	0.4							
Ethylbenzene	30							
Methylene Chloride	5	0.5 J		3.7 J				
Styrene	100							
Tetrachloroethene	3				0.37 J			
Toluene	40	0.38 J			0.18 J			
Trichloroethene	3				0.12 J			
Xylenes, Total	20							

[a] Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999).
"D" at the end of the sample ID indicates a duplicate sample.
Empty cells indicate non-detects.
J = estimated value
Only chemicals detected in at least one sample are shown.
Values in shaded cells are equal to or exceed the screening criteria.

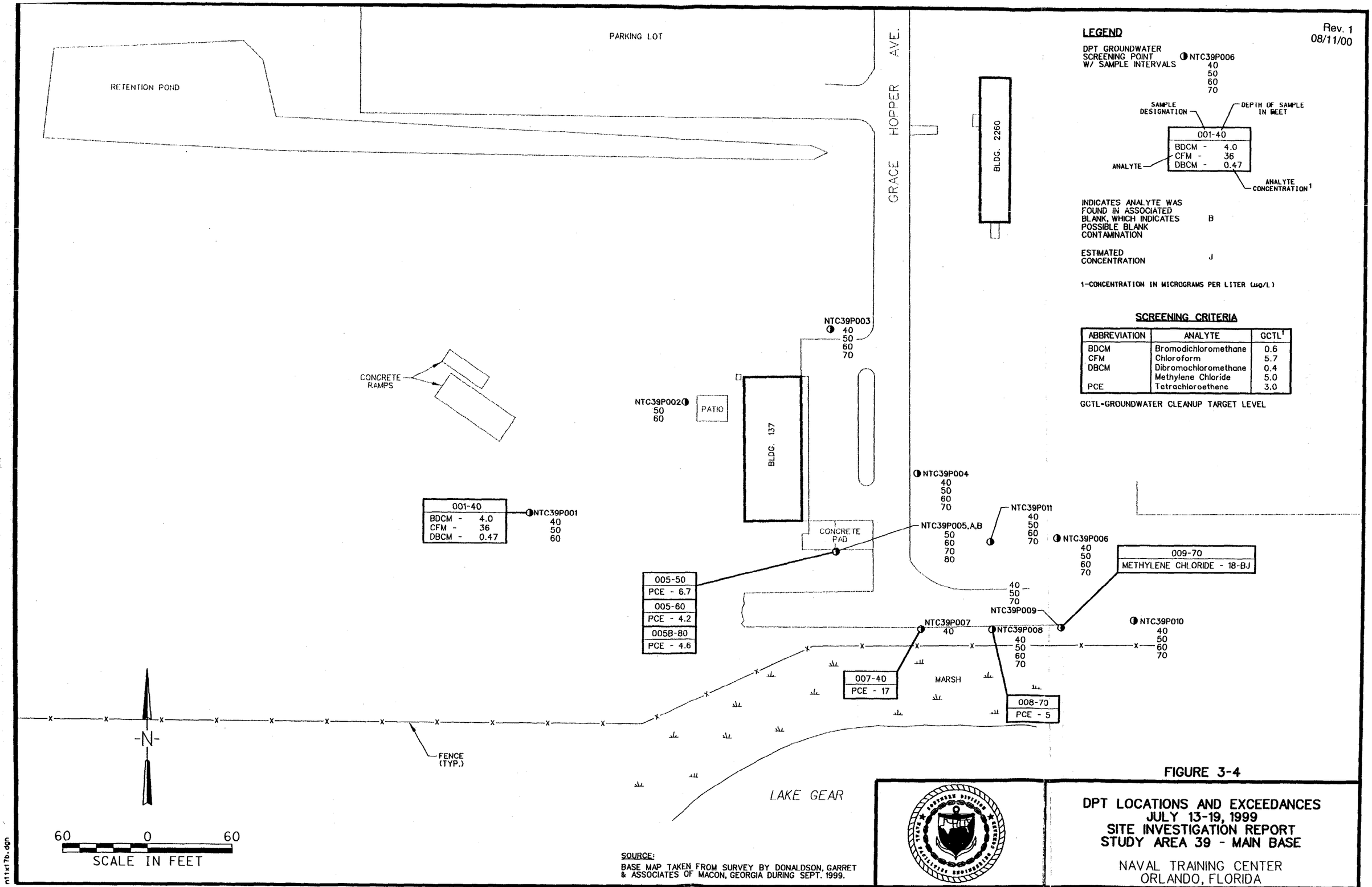

FIGURE 3-4

DPT LOCATIONS AND EXCEEDANCES
JULY 13-19, 1999
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

R4705001

CAD FILE NO./DATE: 7457M046.dgn/5-5-00

CTO 0024

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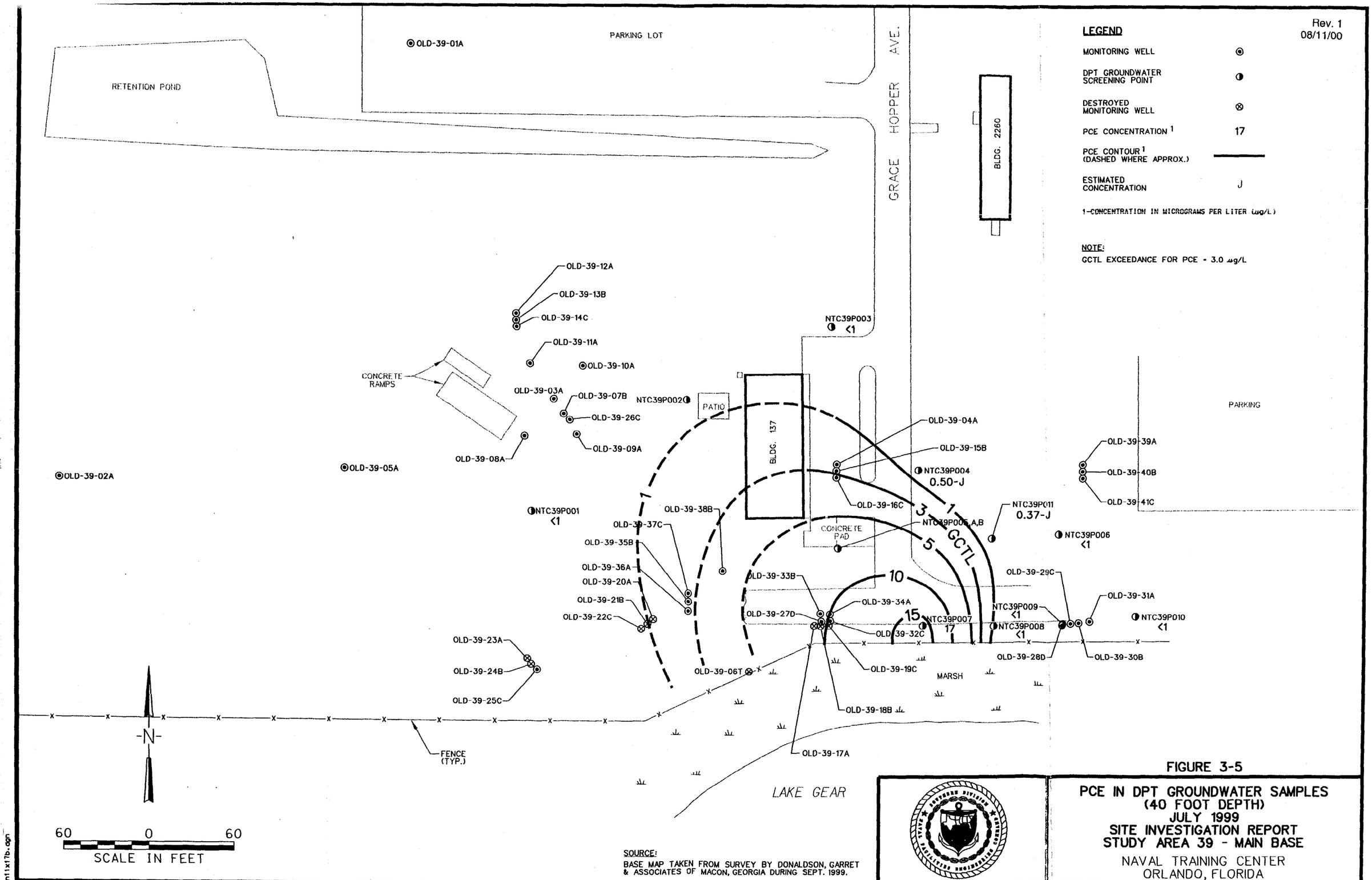
Rev. 1
08/11/00



SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-5

PCE IN DPT GROUNDWATER SAMPLES
(40 FOOT DEPTH)
JULY 1999
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

R4705001

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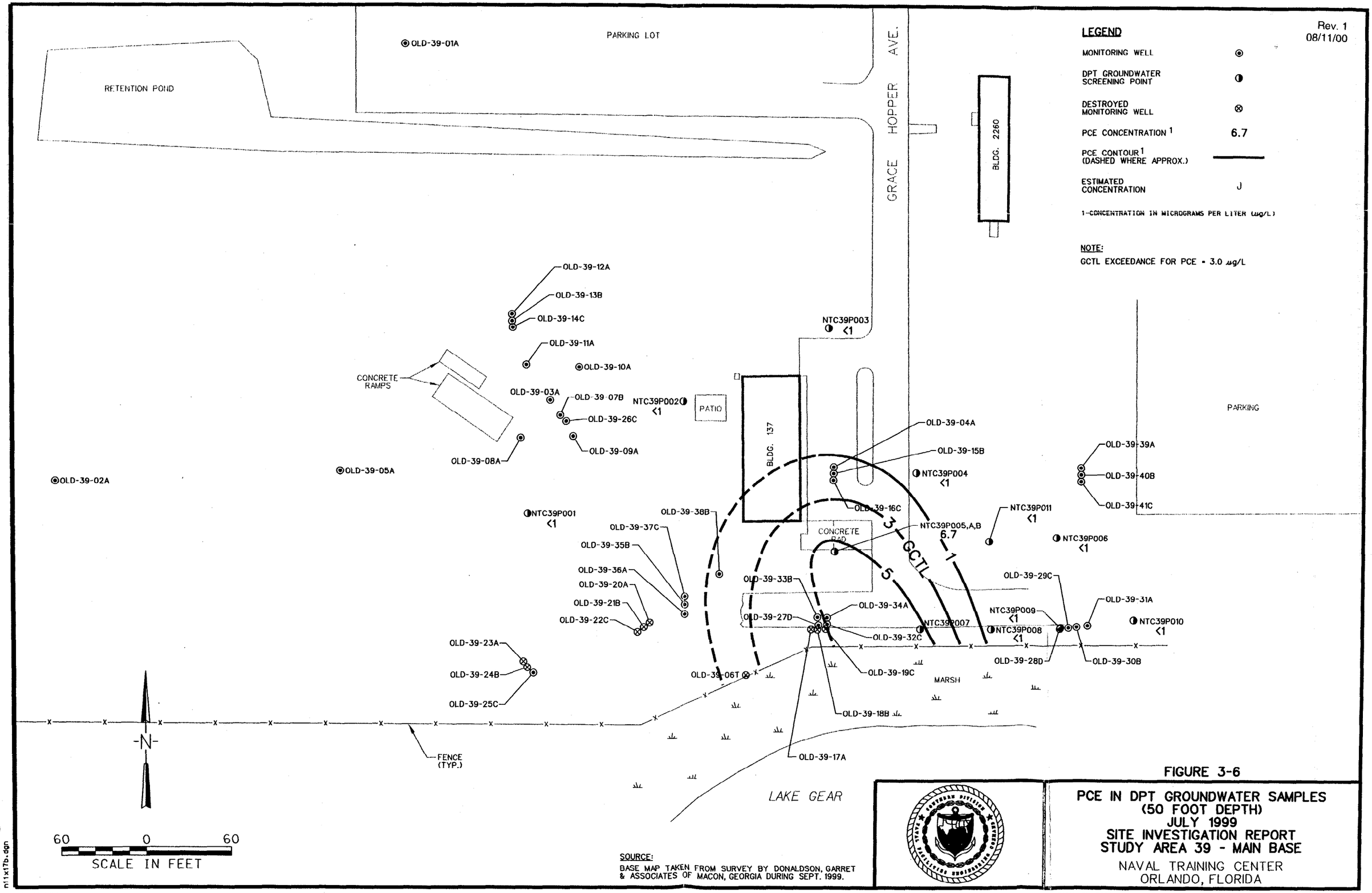
08/11/00



SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-6

PCE IN DPT GROUNDWATER SAMPLES
(50 FOOT DEPTH)
JULY 1999
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

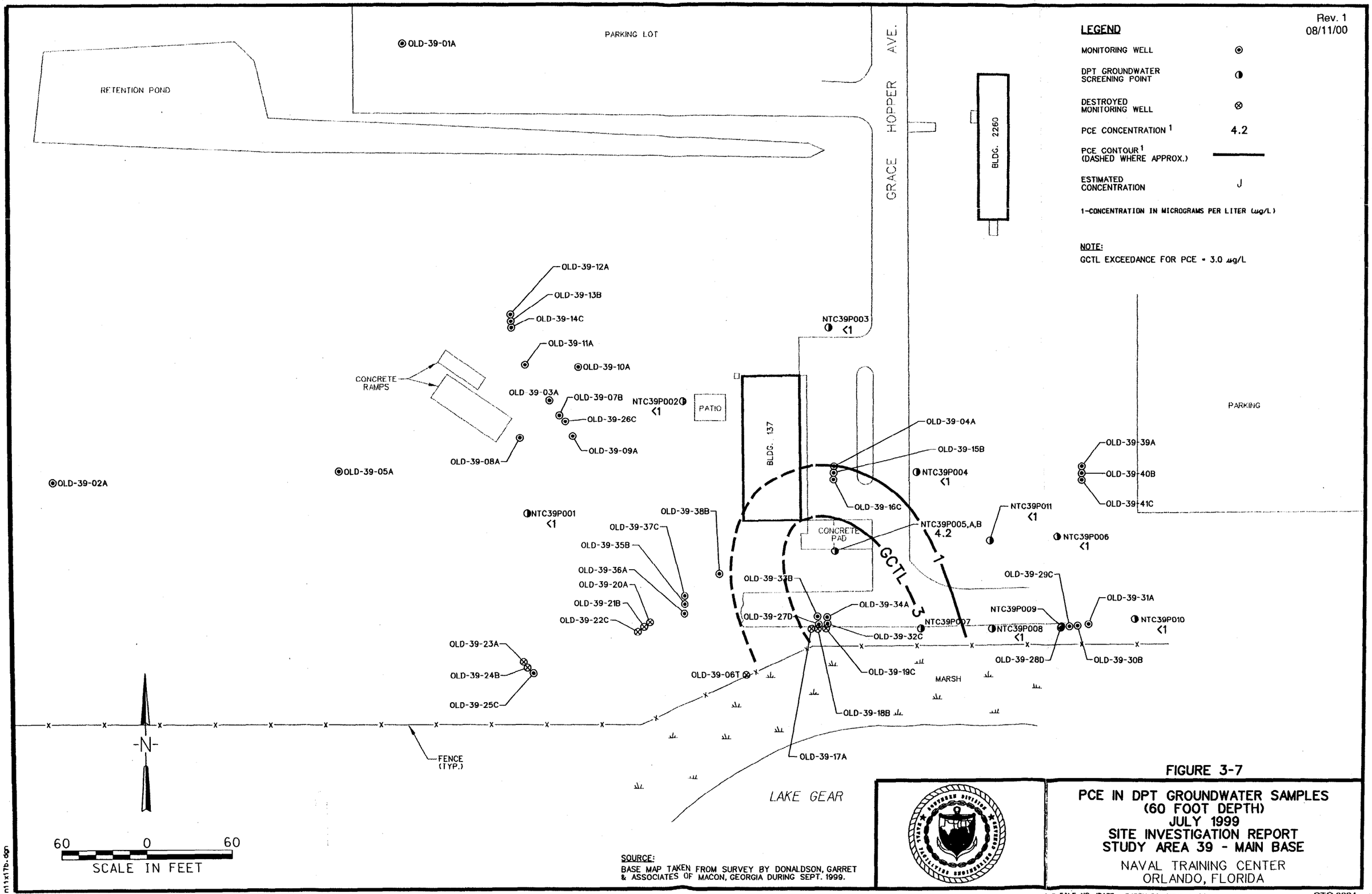
n11x17b.dgn

R4705001

CAD FILE NO./DATE: 7457M055.dgn/5-5-00

CTO 0024

Rev. 1
08/11/00



SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-7

PCE IN DPT GROUNDWATER SAMPLES (60 FOOT DEPTH) JULY 1999
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

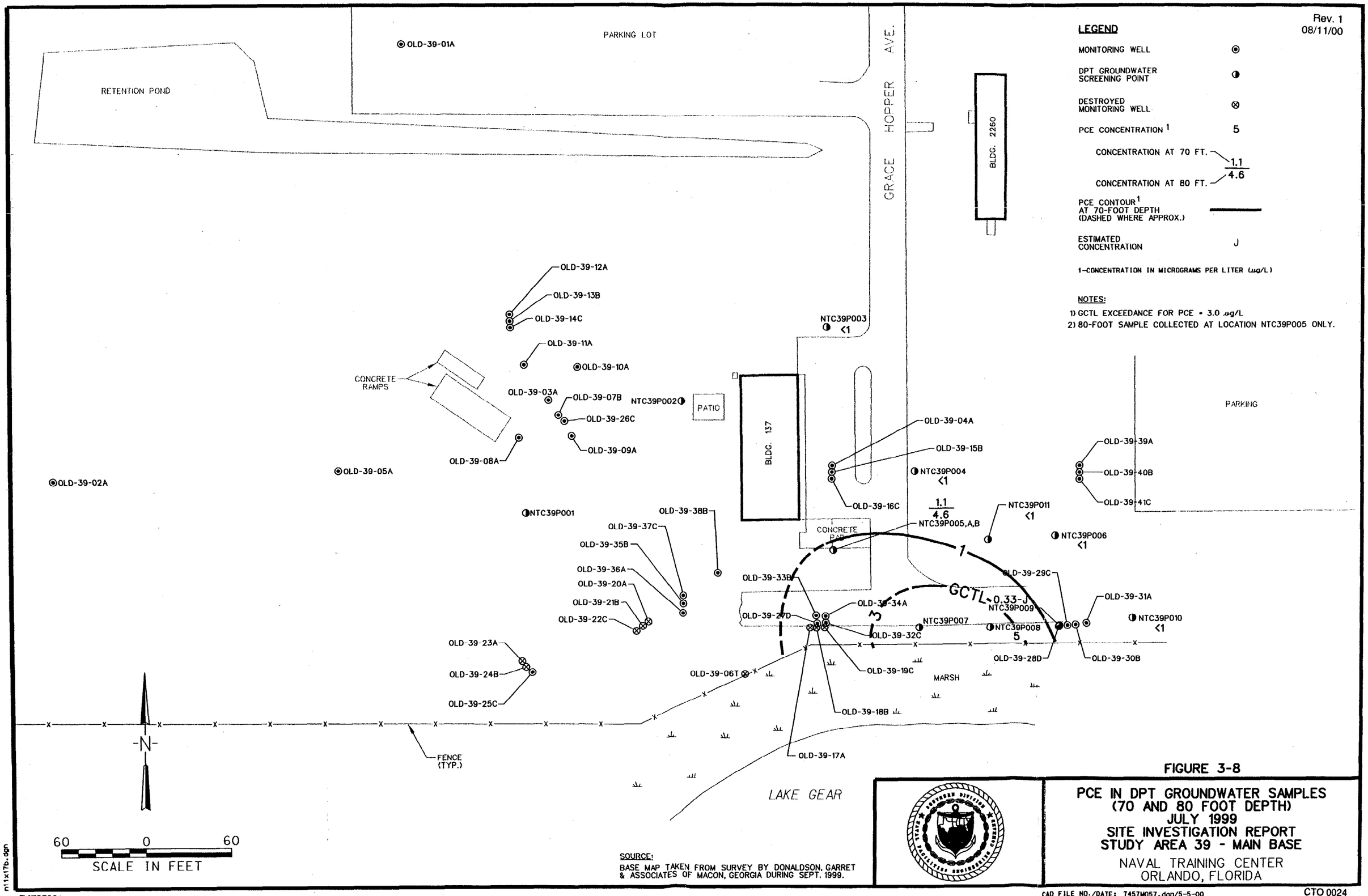
n11x17b.dgn

R4705001

CAD FILE NO./DATE: 7457M056.dgn/5-5-00

CTO 0024

Rev. 1
08/11/00



SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-8

PCE IN DPT GROUNDWATER SAMPLES (70 AND 80 FOOT DEPTH)
JULY 1999
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

R4705001

CAD FILE NO./DATE: 7457M057.dgn/5-5-00

CTO 0024

TABLE 3-4

POSITIVE DETECTIONS IN GROUNDWATER
SEPTEMBER 1999 AND MARCH 2000
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	FDEP GCTL[a]	39-2A	39-3A	39-4A	39-5A	39-7B	39-8A
SAMPLE ID			NTC39G02A10	NTC39G03A10	NTC39G04A10	NTC39G05A10	NTC39G07B10	NTC39G08A10
SAMPLE DATE			9/11/99	9/10/99	9/9/99	9/11/99	9/10/99	9/9/99
Volatile Organics (µg/L)								
Benzene	71-43-2	1						
Bromodichloromethane	74-97-5	0.6			1			
Carbon Disulfide	75-15-0	700						
Chloroform	67-66-3	5.7						
Chloromethane	74-87-3	2.7						
Cis-1,2-dichloroethene	156-59-2	70						
Dibromochloromethane	124-48-1	0.4						
Tetrachloroethene	127-18-4	3		8.3	5.7		9.6	23
Toluene	108-88-3	40						
Trichloroethene	79-01-6	3		0.39 J	0.29 J		0.17 J	0.35 J

TABLE 3-4

POSITIVE DETECTIONS IN GROUNDWATER
SEPTEMBER 1999 AND MARCH 2000
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	FDEP GCTL[a]	39-9A	39-10A	39-11A	39-12A	39-13B	39-14C	39-15B
SAMPLE ID			NTC39G09A10	NTC39G10A10	NTC39G11A10	NTC39G12A11	NTC39G13B10	NTC39G14C11	NTC39G15B10
SAMPLE DATE			9/10/99	9/9/99	9/11/99	9/10/99	9/10/99	9/10/99	9/9/99
Volatile Organics (µg/L)									
Benzene	71-43-2	1							
Bromodichloromethane	74-97-5	0.6							
Carbon Disulfide	75-15-0	700							
Chloroform	67-66-3	5.7							2.2
Chloromethane	74-87-3	2.7							
Cis-1,2-dichloroethene	156-59-2	70							
Dibromochloromethane	124-48-1	0.4							
Tetrachloroethene	127-18-4	3	5.7	0.43 J	4.9				4.5
Toluene	108-88-3	40							
Trichloroethene	79-01-6	3	0.29 J						0.35 J

TABLE 3-4

POSITIVE DETECTIONS IN GROUNDWATER
SEPTEMBER 1999 AND MARCH 2000
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

PAGE 3 OF 5

WELL DESIGNATION	CAS NUMBER	FDEP GCTL[a]	39-16C	39-25C	39-26C	39-27D	39-28D	39-29C	39-30B
SAMPLE ID			NTC39G16C10	NTC39G25C10	NTC39G26C10	NTC39G27D01	NTC39G28D01	NTC39G29C11	A9I150121016
SAMPLE DATE			9/9/99	9/9/99	9/10/99	8/4/99	8/3/99	9/13/99	9/13/99
Volatile Organics (µg/L)									
Benzene	71-43-2	1					0.33 J		
Bromodichloromethane	74-97-5	0.6				0.95 J	1.7 J		
Carbon Disulfide	75-15-0	700					0.38 J		
Chloroform	67-66-3	5.7				5.3	9.6 J		
Chloromethane	74-87-3	2.7					0.22 J		
Cis-1,2-dichloroethene	156-59-2	70			1.3				
Dibromochloromethane	124-48-1	0.4				0.13 J	0.29 J		
Tetrachloroethene	127-18-4	3	11						
Toluene	108-88-3	40					0.14 J		
Trichloroethene	79-01-6	3	0.31 J		2.1		0.14 J		

TABLE 3-4

POSITIVE DETECTIONS IN GROUNDWATER
SEPTEMBER 1999 AND MARCH 2000
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	FDEP GCTL[a]	39-30B	39-31A	39-32C	39-33B	39-34A	39-35B	39-35B
SAMPLE ID			NTC39G30B10	NTC39G431A10	NTC39G32C10	NTC39G33B10	NTC39434A10	NTC39G35B10	NTC39G35B10-D
SAMPLE DATE			9/13/99	9/12/99	9/12/99	9/12/99	9/11/99	9/11/99	9/11/99
Volatile Organics (ug/L)									
Benzene	71-43-2	1							
Bromodichloromethane	74-97-5	0.6							
Carbon Disulfide	75-15-0	700							
Chloroform	67-66-3	5.7							
Chloromethane	74-87-3	2.7							
Cis-1,2-dichloroethene	156-59-2	70							
Dibromochloromethane	124-48-1	0.4							
Tetrachloroethene	127-18-4	3			26	27		84	77
Toluene	108-88-3	40							
Trichloroethene	79-01-6	3			0.46 J	1.6		1.1 J	1.1 J

TABLE 3-4

POSITIVE DETECTIONS IN GROUNDWATER
SEPTEMBER 1999 AND MARCH 2000
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	FDEP GCTL[a]	39-36A	39-37C	39-38B	39-39A	39-39A	39-40B	39-41C
SAMPLE ID			NTC39G36A10	NTC39G37C10	NTC39G38B10	NTC39G39A10	NTC39G39A10D	NTC39G40B10	NTC39G41C10
SAMPLE DATE			9/11/99	9/12/99	9/12/99	3/9/00	3/9/00	3/9/00	3/9/00
Volatile Organics (µg/L)									
Benzene	71-43-2	1							
Bromodichloromethane	74-97-5	0.6							
Carbon Disulfide	75-15-0	700						0.11 J	0.71 J
Chloroform	67-66-3	5.7		1.2 J					
Chloromethane	74-87-3	2.7						0.59 J	2.1
Cis-1,2-dichloroethene	156-59-2	70							
Dibromochloromethane	124-48-1	0.4							
Tetrachloroethene	127-18-4	3	1.1	8.7	94				0.27 J
Toluene	108-88-3	40		1.4 J					
Trichloroethene	79-01-6	3			1.5 J				

[a] Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999).
"D" at the end of the sample ID indicates a duplicate sample.
Empty cells indicate non-detects.
J = estimated value
Only chemicals detected in at least one sample are shown.
Values in shaded cells are equal to or exceed the screening criteria.

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID		Screening Criteria[a]		39G00101	39G00201	39G00201D	39G00202	39G00202D	39G00301	39G00301	39G00301D	39G00301D	39G00303	39G00401	39G00402
LAB ID	CAS	NTC	FDEP	MA627002	MA627003	MA627004	ABBOW*8	ABBOW*7	MA640003	J9601825-002	MA640004	J9601825-003	OLD-39-03A	MA640005	C7E230134002
SAMPLE DATE	Number	BGSV[b]	GCTL[c]	4/2/96	4/2/96	4/2/96	8/29/96	8/29/96	4/3/96	11/27/96	4/3/96	11/27/96	5/16/97	4/3/96	5/22/97
Volatiles (µg/L)							NA	NA							
1,2,4-trimethylbenzene	95-63-6		10												
1,3,5-trimethylbenzene	108-67-8		10												
Benzene	71-43-2		1												
Bromodichloromethane	75-27-4		0.6												
Carbon disulfide	75-15-0		700		2	2			1		1			3	
Chloroform	67-66-3		5.7												
Chloromethane	74-87-3		2.7								0.3 J				
Cis-1,2-dichloroethene	156-59-2		70												
Dibromochloromethane	124-48-1		0.4												
Styrene	100-42-5		100		3	3									
Tetrachloroethene	127-18-4		3						8	15	10	14	8.6		
Toluene	108-88-3		40												
Trichloroethene	79-01-6		3												
Trichlorofluoromethane	75-69-4		2100												
Semivolatiles (µg/L)							NA	NA		NA		NA	NA		NA
Di-n-butylphthalate	84-74-2		700											1 J	
Explosives (µg/L)							NA	NA		NA		NA	NA		NA
2,4,6-trinitrotoluene	118-96-7		10						0.066						
Inorganics (µg/L)							NA	NA		NA		NA	NA		NA
Aluminum	7429-90-5	4067	200	1750 J	1550 J	1550 J			257 J		273 J			1160 J	
Antimony	7440-36-0	4.1	6	1.6 B											
Arsenic	7440-38-2	5	50		3.9 B	3 B									
Barium	7440-39-3	31.4	2000			53.8 J									
Calcium	7440-70-2	36830	*	30800	132000	135000			50600		50700			13200	
Cobalt	7440-48-4	*	420		22.2 B	21.7 B									
Copper	7440-50-8	5.4	1000	3.8 J											
Iron	7439-89-6	1227	300		1320 J	1220 J									
Magnesium	7439-95-4	4560	*	1200 B	819 B	838 B			2170 B		2170 B			1190 B	
Manganese	7439-96-5	17	50		13.3 J	13.5 J									
Mercury	7439-97-6	0.12	2	0.24 J										0.17 J	
Nickel	7440-02-0	*	100		12.5 B	12.2 B									
Potassium	7440-09-7	5400	*	998 B	2470 B	2000 B			7080		7340			3070 B	
Selenium	7782-49-2	9.7	50												
Sodium	7440-23-5	18222	*	1040 J	5960 J	6020 J			4300 BJ		4310 BJ			2310 J	
Vanadium	7440-62-2	20.6	49	5 B	1.9 B				5.3 B		5.4 B			7 B	
Zinc	7440-66-6	4	5000		85.5 J	88.1 J									
Radionuclides (pCi/L)				(e)	(e)	(e)			(e)	NA	(e)	NA	NA	(e)	NA
gross Alpha	-	13	15	6.57	33.3	38.5	7.17	6.27	4.69		0.85			11.5	
gross Beta[d]	-	9.5	50	7.53	40.6	39.3	10.5	10.4	12.5		10.2			15.8	
Lead-210	-						-0.008	-0.2							
Polonium-210	-						0.16	0.18							
Potassium-40	-						-20.5	-24.7							
Radium-226	-						0.27	0.28							
Thorium-228	-						1.33	1.31							
Thorium-230	-						0.62	0.39							
Uranium-234	-						0.16	0.15							
Uranium	-						0.11	0.09							

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	CAS Number	Screening Criteria[a] NTC BGSV[b]	FDEP GCTL[c]	39G00501	39G00601	39G00701	39G00702	39G00801	39G00901	39G01001	39G01101	39G01201	39G01301	39G01401
LAB ID				MA640002	MA801001	J9601825-004	OLD-39-07B	J9601817-001	J9601817-002	J9601817-003	J9601817-005	C7E150129001	C7E150129002	OLD-39-14C
SAMPLE DATE				4/3/96	4/23/96	11/27/96	5/15/97	11/26/96	11/26/96	11/26/96	11/26/96	5/13/97	5/13/97	5/14/97
Volatiles (ug/L)					NA									
1,2,4-trimethylbenzene	95-63-6		10											
1,3,5-trimethylbenzene	108-67-8		10											
Benzene	71-43-2		1											
Bromodichloromethane	75-27-4		0.6											
Carbon disulfide	75-15-0		700	0.3 J										
Chloroform	67-66-3		5.7											0.1 J
Chloromethane	74-87-3		2.7											
Cis-1,2-dichloroethene	156-59-2		70											
Dibromochloromethane	124-48-1		0.4											
Styrene	100-42-5		100											
Tetrachloroethene	127-18-4		3			12	11	22	36	3	2			
Toluene	108-88-3		40								1			
Trichloroethene	79-01-6		3				0.23 J	2						
Trichlorofluoromethane	75-69-4		2100											
Semivolatiles (ug/L)					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2		700											
Explosives (ug/L)					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-trinitrotoluene	118-96-7		10											
Inorganics (ug/L)					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	7429-90-5	4067	200	365 J										
Antimony	7440-36-0	4.1	6											
Arsenic	7440-38-2	5	50											
Barium	7440-39-3	31.4	2000											
Calcium	7440-70-2	36830	*	50400										
Cobalt	7440-48-4	*	420											
Copper	7440-50-8	5.4	1000	2.3 J										
Iron	7439-89-6	1227	300	269 J										
Magnesium	7439-95-4	4560	*	2040 B										
Manganese	7439-96-5	17	50											
Mercury	7439-97-6	0.12	2											
Nickel	7440-02-0	*	100											
Potassium	7440-09-7	5400	*	3850 B										
Selenium	7782-49-2	9.7	50	1.4 B										
Sodium	7440-23-5	18222	*	4230 J										
Vanadium	7440-62-2	20.6	49	2.4 B										
Zinc	7440-66-6	4	5000											
Radionuclides (pCi/L)				(e)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gross Alpha	-	13	15	1.43										
gross Beta[d]	-	9.5	50	5.51										
Lead-210	-													
Polonium-210	-													
Potassium-40	-													
Radium-226	-													
Thorium-228	-													
Thorium-230	-													
Uranium-234	-													
Uranium-238	-													

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	CAS	Screening Criteria[a]		39G01501	39G01601	39G01701	39G01701D	39G01801	39G01901	39G02001	39G02101	39G02201	39G02201D	39G02301
LAB ID		NTC	FDEP	OLD-39-15B	OLD-39-16C	OLD-39-17A	C7E220159004	OLD-39-18B	OLD-39-19C	C7E220159001	OLD-39-21B	OLD-39-22C	C7E200128002	C7E150129004
SAMPLE DATE	Number	BGSV[b]	GCTL[c]	5/22/97	5/22/97	5/21/97	5/21/97	5/21/97	5/22/97	5/21/97	5/19/97	5/19/97	5/19/97	5/14/97
Volatiles (µg/L)														
1,2,4-trimethylbenzene	95-63-6		10						1.9					
1,3,5-trimethylbenzene	108-67-8		10						1.9					
Benzene	71-43-2		1											
Bromodichloromethane	75-27-4		0.6											
Carbon disulfide	75-15-0		700											
Chloroform	67-66-3		5.7	0.28 J	0.22 J				0.38 J				0.11 J	
Chloromethane	74-87-3		2.7											
Cis-1,2-dichloroethene	156-59-2		70											
Dibromochloromethane	124-48-1		0.4											
Styrene	100-42-5		100											
Tetrachloroethene	127-18-4		3	1.6	12	0.78	0.89	9.3	27		1.3	0.44 J	0.46 J	
Toluene	108-88-3		40											
Trichloroethene	79-01-6		3	0.21 J	0.65			0.47 J	0.64					
Trichlorofluoromethane	75-69-4		2100						3					
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2		700											
Explosives (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-trinitrotoluene	118-96-7		10											
Inorganics (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	7429-90-5	4067	200											
Antimony	7440-36-0	4.1	6											
Arsenic	7440-38-2	5	50											
Barium	7440-39-3	31.4	2000											
Calcium	7440-70-2	36830	*											
Cobalt	7440-48-4	*	420											
Copper	7440-50-8	5.4	1000											
Iron	7439-89-6	1227	300											
Magnesium	7439-95-4	4560	*											
Manganese	7439-96-5	17	50											
Mercury	7439-97-6	0.12	2											
Nickel	7440-02-0	*	100											
Potassium	7440-09-7	5400	*											
Selenium	7782-49-2	9.7	50											
Sodium	7440-23-5	18222	*											
Vanadium	7440-62-2	20.6	49											
Zinc	7440-66-6	4	5000											
Radionuclides (pCi/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gross Alpha	-	13	15											
gross Beta[d]	-	9.5	50											
Lead-210	-													
Polonium-210	-													
Potassium-40	-													
Radium-226	-													
Thorium-228	-													
Thorium-230	-													
Uranium-234	-													
Uraniu[illegible]	-													

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	CAS	Screening Criteria[a]		39G02401	39G02501	39G02601	NTC39G02A10	NTC39G03A10	NTC39G04A10	NTC39G05A10	NTC39G07B10	NTC39G08A10	NTC39G09A10
LAB ID		NTC	FDEP	C7E190111001	OLD-39-25C	OLD-39-26C	A9I150121003	A9I110147007	A9I100197006	A9I150121004	A9I110147006	A9I100197003	A9I110147004
SAMPLE DATE	Number	BGSV[b]	GCTL[c]	5/14/97	5/15/97	5/15/97	9/11/99	9/10/99	9/9/99	9/11/99	9/10/99	9/9/99	9/10/99
Volatiles (µg/L)													
1,2,4-trimethylbenzene	95-63-6		10										
1,3,5-trimethylbenzene	108-67-8		10										
Benzene	71-43-2		1										
Bromodichloromethane	75-27-4		0.6						1				
Carbon disulfide	75-15-0		700										
Chloroform	67-66-3		5.7		0.2 J	0.65							
Chloromethane	74-87-3		2.7										
Cis-1,2-dichloroethene	156-59-2		70										
Dibromochloromethane	124-48-1		0.4										
Styrene	100-42-5		100										
Tetrachloroethene	127-18-4		3					8.3	5.7		9.8	23	5.7
Toluene	108-88-3		40										
Trichloroethene	79-01-6		3					0.39 J	0.29 J		0.17 J	0.35 J	0.29 J
Trichlorofluoromethane	75-69-4		2100										
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2		700										
Explosives (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-trinitrotoluene	118-96-7		10										
Inorganics (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	7429-90-5	4067	200										
Antimony	7440-36-0	4.1	6										
Arsenic	7440-38-2	5	50										
Barium	7440-39-3	31.4	2000										
Calcium	7440-70-2	36830	*										
Cobalt	7440-48-4	*	420										
Copper	7440-50-8	5.4	1000										
Iron	7439-89-6	1227	300										
Magnesium	7439-95-4	4560	*										
Manganese	7439-96-5	17	50										
Mercury	7439-97-6	0.12	2										
Nickel	7440-02-0	*	100										
Potassium	7440-09-7	5400	*										
Selenium	7782-49-2	9.7	50										
Sodium	7440-23-5	18222	*										
Vanadium	7440-62-2	20.6	49										
Zinc	7440-66-6	4	5000										
Radionuclides (pCi/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gross Alpha	-	13	15										
gross Beta[d]	-	9.5	50										
Lead-210	-												
Polonium-210	-												
Potassium-40	-												
Radium-226	-												
Thorium-228	-												
Thorium-230	-												
Uranium-234	-												
Uranium-238	-												

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID		Screening Criteria[a]		NTC39G10A10	NTC39G11A10	NTC39G12A10	NTC39G13B10	NTC39G14C10	NTC39G15B10	NTC39G16C10	NTC39G25C10	NTC39G26C10	NTC39G27D01
LAB ID	CAS	NTC	FDEP	A9I100197007	A9I150121002	A9I110147003	A9I110147002	A9I110147008	A9I100197004	A9I100197005	A9I100197002	A9I110147005	A9H050124003
SAMPLE DATE	Number	BGSV[b]	GCTL[c]	9/9/99	9/11/99	9/10/99	9/10/99	9/10/99	9/9/99	9/9/99	9/9/99	9/10/99	8/4/99
Volatiles (µg/L)													
1,2,4-trimethylbenzene	95-63-6		10										
1,3,5-trimethylbenzene	108-67-8		10										
Benzene	71-43-2		1										
Bromodichloromethane	75-27-4		0.6										0.95 J
Carbon disulfide	75-15-0		700										
Chloroform	67-66-3		5.7						2.2				5.3
Chloromethane	74-87-3		2.7										
Cis-1,2-dichloroethene	156-59-2		70									1.3	
Dibromochloromethane	124-48-1		0.4										0.13 J
Styrene	100-42-5		100										
Tetrachloroethene	127-18-4		3	0.43 J	4.9				4.5	11			
Toluene	108-88-3		40										
Trichloroethene	79-01-6		3						0.35 J	0.31 J		2.1	
Trichlorofluoromethane	75-69-4		2100										
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2		700										
Explosives (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-trinitrotoluene	118-96-7		10										
Inorganics (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	7429-90-5	4067	200										
Antimony	7440-36-0	4.1	6										
Arsenic	7440-38-2	5	50										
Barium	7440-39-3	31.4	2000										
Calcium	7440-70-2	36830	*										
Cobalt	7440-48-4	*	420										
Copper	7440-50-8	5.4	1000										
Iron	7439-89-6	1227	300										
Magnesium	7439-95-4	4560	*										
Manganese	7439-96-5	17	50										
Mercury	7439-97-6	0.12	2										
Nickel	7440-02-0	*	100										
Potassium	7440-09-7	5400	*										
Selenium	7782-49-2	9.7	50										
Sodium	7440-23-5	18222	*										
Vanadium	7440-62-2	20.6	49										
Zinc	7440-66-6	4	5000										
Radionuclides (pCi/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gross Alpha	-	13	15										
gross Beta[d]	-	9.5	50										
Lead-210	-												
Polonium-210	-												
Potassium-40	-												
Radium-226	-												
Thorium-228	-												
Thorium-230	-												
Uranium-234	-												
Uranium-238	-												

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	CAS	Screening Criteria[a]		NTC39G28D01	NTC39G29C10	NTC39G30B10	NTC39G30B10-D	NTC39G31A10	NTC39G32C10	NTC39G33B10	NTC39G34A10	NTC39G35B10	NTC39G35B10-D
LAB ID		NTC	FDEP	A9H050124002	A9I150121018	A9I150121016	A9I150121017	A9I150121014	A9I150121010	A9I150121012	A9I150121006	A9I150121007	A9I150121008
SAMPLE DATE	Number	BGSV[b]	GCTL[c]	8/3/99	9/13/99	9/13/99	9/13/99	9/12/99	9/12/99	9/12/99	9/11/99	9/11/99	9/11/99
Volatiles (ug/L)													
1,2,4-trimethylbenzene	95-63-6		10										
1,3,5-trimethylbenzene	108-67-8		10										
Benzene	71-43-2		1	0.33 J									
Bromodichloromethane	75-27-4		0.6	1.7 J									
Carbon disulfide	75-15-0		700	0.38 J									
Chloroform	67-66-3		5.7	9.6 J									
Chloromethane	74-87-3		2.7	0.22 J									
Cis-1,2-dichloroethene	156-59-2		70										
Dibromochloromethane	124-48-1		0.4	0.29 J									
Styrene	100-42-5		100										
Tetrachloroethene	127-18-4		3						26	27		84	77
Toluene	108-88-3		40	0.14 J									
Trichloroethene	79-01-6		3	0.14 J					0.46 J	1.6		1.1 J	1.1 J
Trichlorofluoromethane	75-69-4		2100										
Semivolatiles (ug/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2		700										
Explosives (ug/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-trinitrotoluene	118-96-7		10										
Inorganics (ug/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	7429-90-5	4067	200										
Antimony	7440-36-0	4.1	6										
Arsenic	7440-38-2	5	50										
Barium	7440-39-3	31.4	2000										
Calcium	7440-70-2	36830	*										
Cobalt	7440-48-4	*	420										
Copper	7440-50-8	5.4	1000										
Iron	7439-89-6	1227	300										
Magnesium	7439-95-4	4560	*										
Manganese	7439-96-5	17	50										
Mercury	7439-97-6	0.12	2										
Nickel	7440-02-0	*	100										
Potassium	7440-09-7	5400	*										
Selenium	7782-49-2	9.7	50										
Sodium	7440-23-5	18222	*										
Vanadium	7440-62-2	20.6	49										
Zinc	7440-66-6	4	5000										
Radionuclides (pCi/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gross Alpha	-	13	15										
gross Beta[d]	-	9.5	50										
Lead-210	-												
Polonium-210	-												
Potassium-40	-												
Radium-226	-												
Thorium-228	-												
Thorium-230	-												
Uranium-234	-												
Uranium-238	-												

TABLE 3-5

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	CAS	Screening Criteria[a]		NTC39G36A10	NTC39G37C10	NTC39G38B10	NTC39G39A10	NTC39G39A10-D	NTC39G40B10	NTC39G41C10
LAB ID		NTC	FDEP	A9I150121005	A9I150121011	A9I150121013	A0C100116002	A0C100116003	A0C100116004	A0C100116005
SAMPLE DATE	Number	BGSV[b]	GCTL[c]	9/11/99	9/12/99	9/12/99	3/9/00	3/9/00	3/9/00	3/9/00
Volatiles (µg/L)										
1,2,4-trimethylbenzene	95-63-6		10							
1,3,5-trimethylbenzene	108-67-8		10							
Benzene	71-43-2		1						0.11 J	0.71 J
Bromodichloromethane	75-27-4		0.6							
Carbon disulfide	75-15-0		700						0.59 J	2.1
Chloroform	67-66-3		5.7		1.2 J					
Chloromethane	74-87-3		2.7							
Cis-1,2-dichloroethene	156-59-2		70							0.27 J
Dibromochloromethane	124-48-1		0.4							
Styrene	100-42-5		100							
Tetrachloroethene	127-18-4		3	1.1	8.7	94				
Toluene	108-88-3		40		1.4 J					
Trichloroethene	79-01-6		3			1.5 J				
Trichlorofluoromethane	75-69-4		2100							
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2		700							
Explosives (µg/L)				NA	NA	NA	NA	NA	NA	NA
2,4,6-trinitrotoluene	118-96-7		10							
Inorganics (mg/L)				NA	NA	NA	NA	NA	NA	NA
Aluminum	7429-90-5	4067	200							
Antimony	7440-36-0	4.1	6							
Arsenic	7440-38-2	5	50							
Barium	7440-39-3	31.4	2000							
Calcium	7440-70-2	36830	*							
Cobalt	7440-48-4	*	420							
Copper	7440-50-8	5.4	1000							
Iron	7439-89-6	1227	300							
Magnesium	7439-95-4	4560	*							
Manganese	7439-96-5	17	50							
Mercury	7439-97-6	0.12	2							
Nickel	7440-02-0	*	100							
Potassium	7440-09-7	5400	*							
Selenium	7782-49-2	9.7	50							
Sodium	7440-23-5	18222	*							
Vanadium	7440-62-2	20.6	49							
Zinc	7440-66-6	4	5000							
Radionuclides (pCi/L)				NA	NA	NA	NA	NA	NA	NA
gross Alpha	-	13	15							
gross Beta[d]	-	9.5	50							
Lead-210	-									
Polonium-210	-									
Potassium-40	-									
Radium-226	-									
Thorium-228	-									
Thorium-230	-									
Uranium-234	-									
Uranium-238	-									

TABLE 3-5

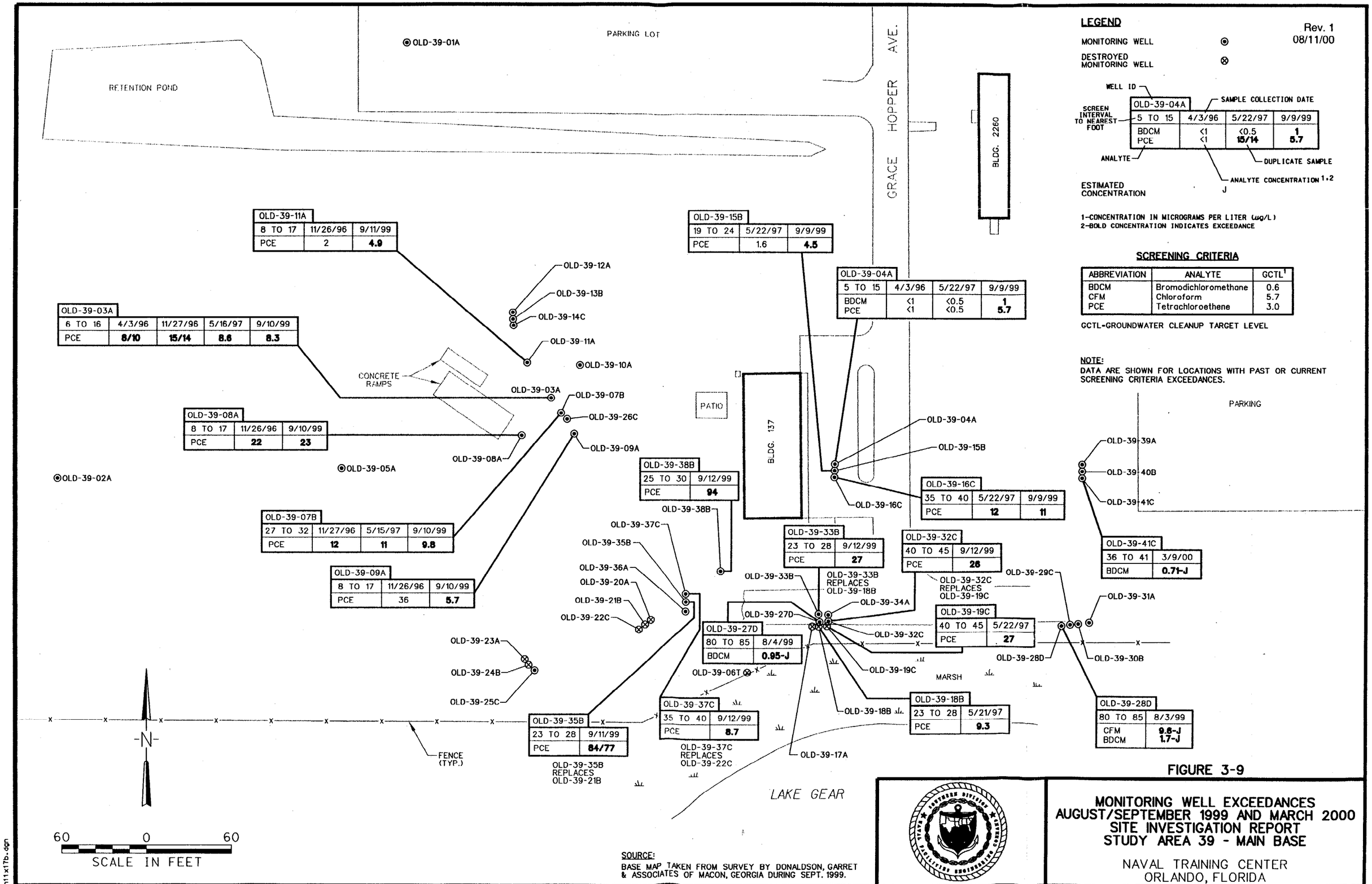
SUMMARY OF HISTORICAL POSITIVE DETECTIONS IN GROUNDWATER
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Notes:

* indicates that the criteria or screening value is not available.
B = value between detection limit and reporting limit for inorganic analytes.
"D" at the end of the sample ID indicates a duplicate sample.
Empty cells indicate non-detects.
"J" qualifier indicates an estimated value.
Only chemicals detected in at least one sample are shown.
NA = Not analyzed.
Values in shaded cells are equal to or exceed the screening criteria.

(a) For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV. Analytes with no GCTL are not considered to have exceedances.
(b) Background Screening Value (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, 1995c) for inorganics only.
(c) Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999)
(d) The screening value of 50 pCi/L (40 CFR 141) is referenced because the activities for specific radionuclides in the samples have not been determined. These data are required for conversion to the 4 millirem/year federal and state reference level.
(e) Sampled for gross Alpha and gross Beta only.



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LEGEND

MONITORING WELL ⊙

DESTROYED MONITORING WELL ⊗

WELL ID — OLD-39-04A

SCREEN INTERVAL TO NEAREST FOOT — 5 TO 15

SAMPLE COLLECTION DATE — 4/3/96 | 5/22/97 | 9/9/99

BDCM	<1	<0.5	1
PCE	<1	15/14	5.7

ANALYTE — BDCM, PCE

DUPLICATE SAMPLE — 15/14

ANALYTE CONCENTRATION[1,2] — 1, <1, <0.5, 1, 5.7

ESTIMATED CONCENTRATION — J

1-CONCENTRATION IN MICROGRAMS PER LITER (ug/L)
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

SCREENING CRITERIA

ABBREVIATION	ANALYTE	GCTL[1]
BDCM	Bromodichloromethane	0.6
CFM	Chloroform	5.7
PCE	Tetrachloroethene	3.0

GCTL=GROUNDWATER CLEANUP TARGET LEVEL

NOTE:
DATA ARE SHOWN FOR LOCATIONS WITH PAST OR CURRENT SCREENING CRITERIA EXCEEDANCES.

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-9

MONITORING WELL EXCEEDANCES
AUGUST/SEPTEMBER 1999 AND MARCH 2000
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

R4705001

CAD FILE NO./DATE: 7457M047.dgn/5-2-00 000700001Z CTO 0024

PCE contamination exists over the central and southeastern portions of the site in the A, B, and C aquifer zones. PCE was not detected in wells 27D and 28D, completed at the base of the surficial aquifer; however, bromodichloromethane and chloroform were detected above their respective GCTLs. Detections of these compounds are likely a result of a leak of chlorinated drinking water or wastewater. Trihalomethanes (chloroform, bromoform, bromodichloromethane and dibromochloromethane) occur as by-products of using chlorine to disinfect water (SDCWA, 1998). The groundwater analytical results from the August/September 1999 and March 2000 sampling events are provided in Appendix D (Summary of Well Analytical Results). Historical groundwater analytical data are presented in Table 3-5. Shaded cells indicate analyte concentrations that equal or exceed GCTLs. Figure 3-9 shows the distribution of historical groundwater exceedances.

1999/2000 Groundwater Monitoring

PCE concentrations above the GCTL (3 μg/L) in the shallow aquifer zone (A wells) were detected in 03A (8.3 μg/L) near the concrete ramps and in surrounding wells 08A (23 μg/L), 09A (5.7 μg/L), and 11A (4.9 μg/L) (Figure 3-10). Monitoring wells to the north, west, and south of these four wells did not have PCE exceedances. An additional PCE exceedance in the A aquifer zone was detected in 04A (5.7 μg/L), east of Building 137 and 03A. Monitoring well 39A, installed in March 2000 east (downgradient) of 04A, did not have any detectable PCE.

PCE concentrations above the GCTL in the intermediate aquifer zone (B wells) were detected in 07B (9.8 μg/L), 15B (4.5 μg/L), 33B (27 μg/L), 35B (84 μg/L), 35B-duplicate (77 μg/L), and 38B (94 μg/L) located on the southeastern portion of the site, just north of Lake Gear (Figure 3-11). Monitoring wells to the north and east (downgradient) of 07B and 15B did not have PCE exceedances. Wells east (downgradient) of these three did not have any PCE detected above the GCTL.

PCE concentrations above the GCTL in the deep aquifer zone (C wells) were detected in monitoring wells 16C (11 µg/L), 32C (26 µg/L), and 37C (8.7 µg/L) (Figure 3-12). Monitoring wells to the north, west, and east (downgradient) of these three wells did not have PCE exceedances.

3.2.3 Natural Attenuation

To evaluate if naturally occurring bacteria and other conditions capable of attenuating the groundwater plume are present at the study area, seven wells (12A, 14C, 29C, 30B, 32C, 33B, and 38B) were sampled for NA parameters (Table 3-6). The field measurments for these

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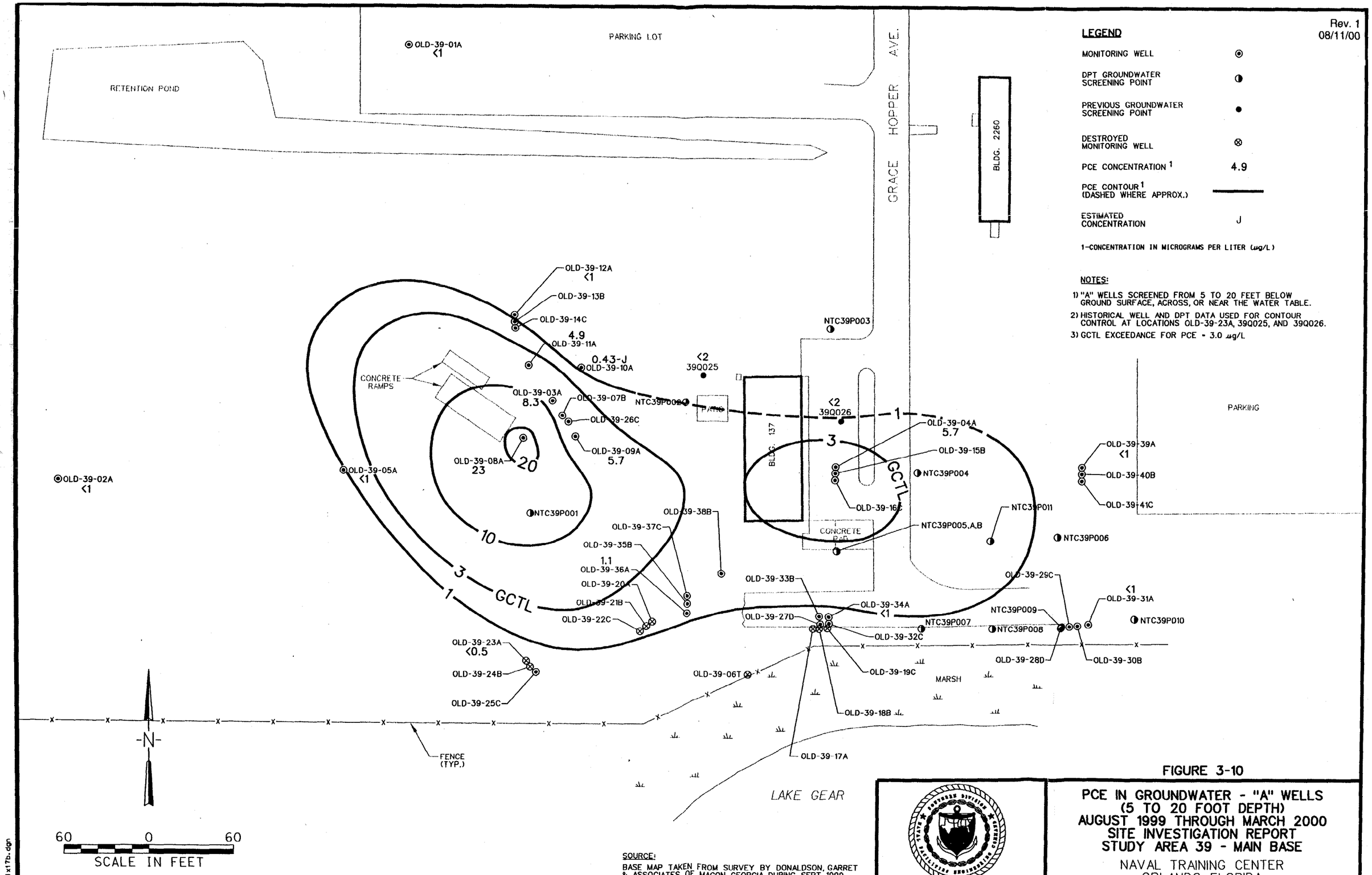

LEGEND

MONITORING WELL	⊙
DPT GROUNDWATER SCREENING POINT	◑
PREVIOUS GROUNDWATER SCREENING POINT	●
DESTROYED MONITORING WELL	⊗
PCE CONCENTRATION [1]	4.9
PCE CONTOUR [1] (DASHED WHERE APPROX.)	———
ESTIMATED CONCENTRATION	J

1-CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

NOTES:

1) "A" WELLS SCREENED FROM 5 TO 20 FEET BELOW GROUND SURFACE, ACROSS, OR NEAR THE WATER TABLE.
2) HISTORICAL WELL AND DPT DATA USED FOR CONTOUR CONTROL AT LOCATIONS OLD-39-23A, 39Q025, AND 39Q026.
3) GCTL EXCEEDANCE FOR PCE = 3.0 µg/L

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-10

PCE IN GROUNDWATER - "A" WELLS
(5 TO 20 FOOT DEPTH)
AUGUST 1999 THROUGH MARCH 2000
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

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CAD FILE NO./DATE: 7457M051.dgn/5-2-00

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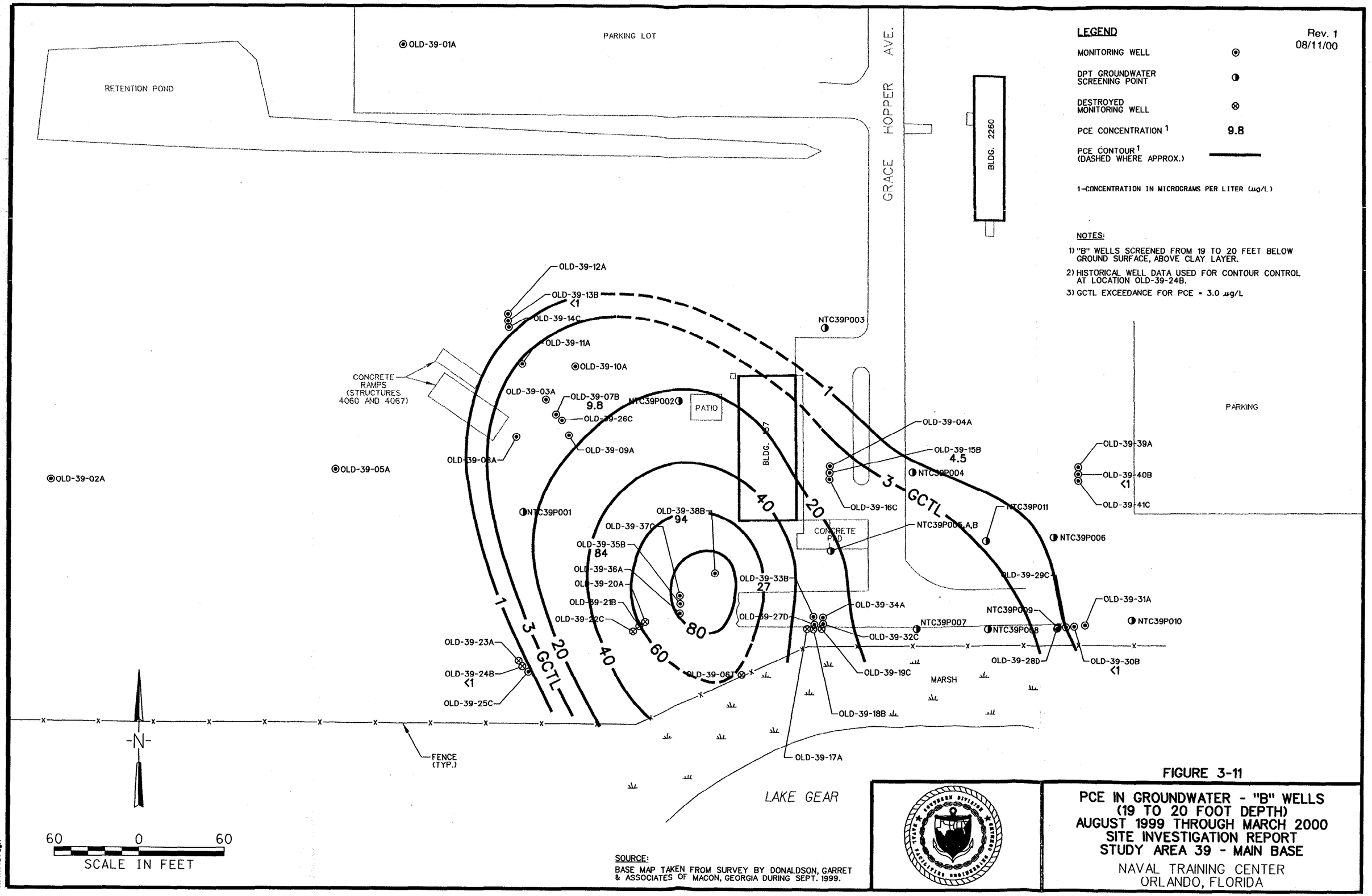

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-11

PCE IN GROUNDWATER - "B" WELLS
(19 TO 20 FOOT DEPTH)
AUGUST 1999 THROUGH MARCH 2000
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457M052.dgn/8-11-00

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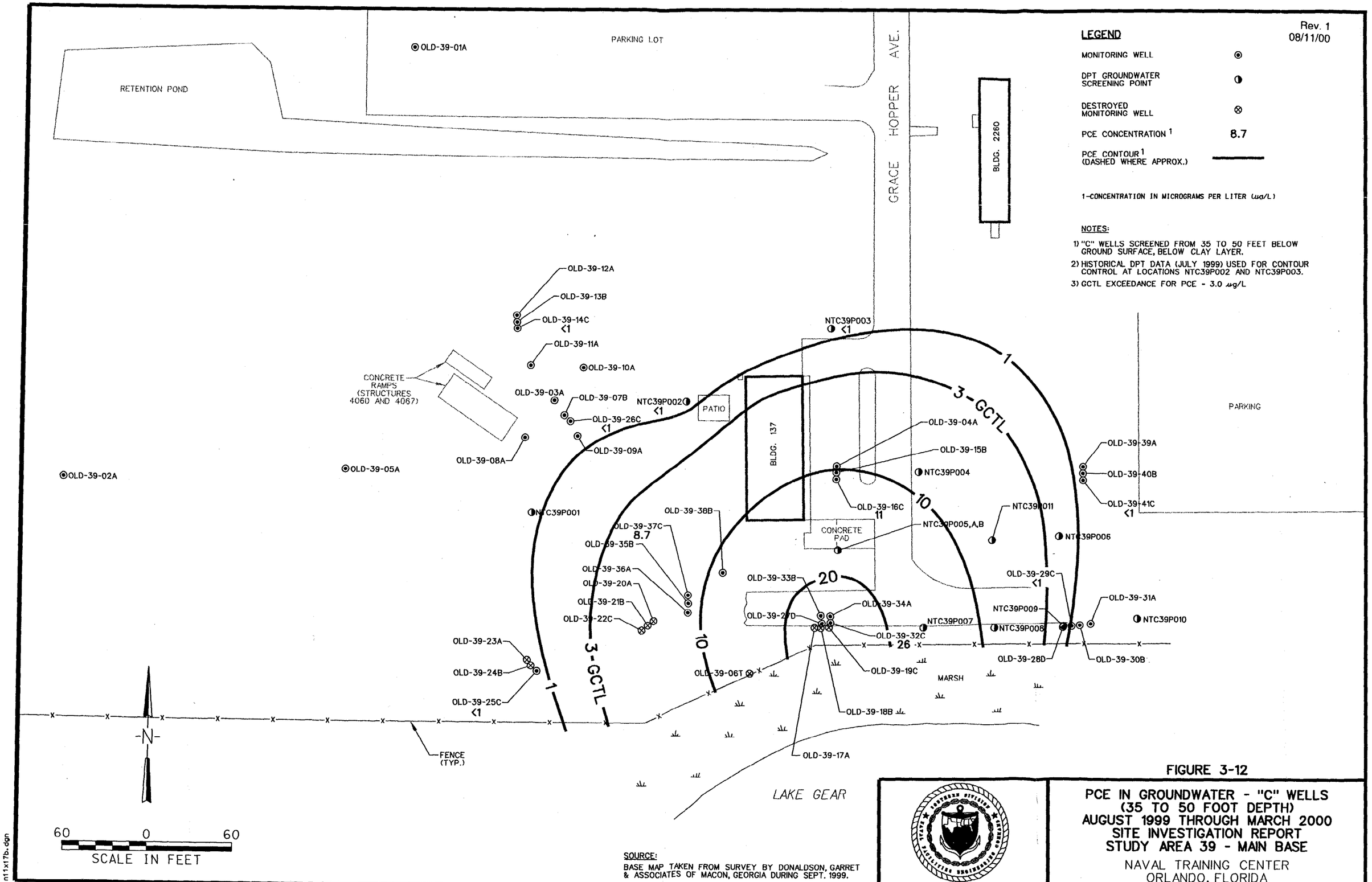

SOURCE:
BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

FIGURE 3-12

PCE IN GROUNDWATER - "C" WELLS
(35 TO 50 FOOT DEPTH)
AUGUST 1999 THROUGH MARCH 2000
SITE INVESTIGATION REPORT
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

CAD FILE NO./DATE: 7457M053.dgn/8-11-00

TABLE 3-6

NATURAL ATTENUATION FACTORS
STUDY AREA 39

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	39-12A	39-14C	39-29C	39-30B	39-32C	39-33B	39-33B	39-38B		
SAMPLE ID	NTC39G12A11	NTC39G14C11	NTC39G29C11	NTC39G30B11	NTC39G32C11	NTC39G33B11	NTC39G33B11-D	NTC39G38B11	NTC39U391620	NTC39U393640
LAB ID	A9J070102001	A9J070102002	A9J070102003	A9J070102004	A9J070133002	A9J070133001	A9J070133004	A9J070133003	A9J070133005	A9J070133006
SAMPLE DATE	10/4/99	10/4/99	10/4/99	10/4/99	10/4/99	10/6/99	10/6/99	10/6/99	10/6/99	10/6/99
Inorganics (μg/L)									NA	NA
Iron	16.4 U	227 U	378	498	970	82.9 U	71.8 U	1020		
Manganese	6.5 U	1.5 U	1.5 U	8.9 U	25.9 U	4.2 U	6.5 U	14 U		
Non-Gaseous (mg/L)									NA	NA
Chloride	3	1.4	4.4	4.7	6.7	8.6	7.8	10.1		
Dissolved organic carbon	5	NA	5	5	3	4	5	3		
Nitrate	12.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52		
Nitrite	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		
Orthophosphate (PO_4)	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		
Sulfate	8.2	4.6	8.6	12.5	22	52	49.8	24		
Total alkalinity	71	5 U	32	5.1	12	5 U	5 U	17		
Total organic carbon	NA	3	NA	NA	NA	NA	NA	NA		
Dissolved Gases							NA		NA	NA
Carbon dioxide (mg/L)	20.3	74.7	84.7	101.6	95.3	186.9		114.1		
Ethane (μg/L)	0.001 U	0.002	0.013	0.006	0.023	0.001		0.004		
Ethene (μg/L)	0.003	0.016	0.059	0.15	0.072	0.009		0.067		
Hydrogen (nm/L)	0.8	0.6	2	0.9	0.8	0.8		0.8		
Methane (μg/L)	0.31	5.59	5.28	10.03	5.36	3.11		0.87		
Nitrogen (mg/L)	14.7	16.1	14.9	14.7	15.5	14		14.7		
Oxygen (mg/L)	6.74	2.16	4.5	4.4	2.93	4.16		4.16		
Field Test Kit (mg/L)							NA		NA	NA
Fe^{+2}	0	0.21	0.16	0.43	0.71	0.08		1		
Sulfide	0.02	0.07	0.8	0.56	0.35	0.34		0.4		
Field Flow through Cell							NA		NA	NA
pH (SU)	6.82	4.59	5.81	4.81	5.24	4.56		5.34		
ORP (+/- mv)	142.3	80.4	-83.4	-17.3	-41.6	-14.4		-49.9		
Conductivity (mS/cm)	301	33	173	73	115	176		148		
Temperature (°C)	27.09	25.43	26.36	26.43	27.71	27.91		26.78		
Turbidity (NTU)	3.5	0	45	13	9	1.6		4		
Volatile Solids (%)										
Total Volatile Solids	NA	NA	NA	NA	NA	NA	NA	NA	1.5	0.22

nm/L = nanomoles per liter
NA = Not analyzed
"U" = qualifier indicates non-detect

parameters are provided in Appendix E. Two soil samples from a boring located approximately 10 feet north of well 12A (16-20 feet and 36-40 feet bgs) were analyzed for total volatile solids. The 16-20 foot sample had 1.5 percent total volatile solids and the 36-40 foot sample had 0.22 percent total volatile solids.

The major contaminant in groundwater at SA 39 is PCE, a chlorinated solvent. Monitoring wells at three different depths delineated the presence of PCE at various levels in the subsurface. Previous investigations indicate that PCE is present in groundwater at all depths with concentrations exceeding the screening criterion (3 μg/L). Due to the presence of high concentrations of PCE, natural attenuation aspects applicable to chlorinated solvents were considered to evaluate the progress of natural attenuation at SA 39.

Microbial degradation of chlorinated solvents is complex. Under some reduction/oxidation (redox) conditions, these compounds can serve as electron donors while under some other redox conditions chlorinated ethenes serve as electron acceptors. In addition, these compounds can be degraded by various co-metabolic processes. Under anaerobic conditions, chlorinated solvents can be reductively dechlorinated. For PCE, this process occurs in the following sequence:

PCE -----> TCE +Cl -----> DCE +Cl -----> VC + Cl -----> Ethene +Cl

The rate at which these degradations occur depends on specific compound and geochemical conditions. However, the progress of the biodegradation may be monitored by the presence of various degradation products.

Reductive dechlorination, a process in which chlorinated solvents serve as electron acceptors, requires an organic carbon substrate to proceed. This can be found in naturally occurring particulate organic carbon in aquifer sediments; benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds; aliphatic petroleum compounds; and similar substances. The organic carbon substrates are degraded by fermentation bacteria that produce molecular hydrogen that reacts directly with the chlorinated solvent, resulting in reductive dechlorination.

Concentrations of chlorinated solvents and their daughter products give a direct indication of the presence or absence of microbial degradation processes. In general, the production of cis-1,2-dichloroethene (DCE), vinyl chloride, and chloride ions along aquifer flow paths is direct evidence of intrinsic biodegradation. Particularly, in the event of a chlorinated ethene (e.g., PCE) spill, cis-1,2-DCE and vinyl chloride are reliable indicators of microbial reductive dechlorination.

Results

NA parameters sampled and analyzed during the October 1999 event were evaluated to monitor the progress of biodegradation of PCE at SA 39. The analysis of various parameters is presented below.

1. Dissolved Oxygen

Well No.	DO (mg/L)
12A	6.74
14C	2.16 (background well)
29C	4.5
30B	4.4
32C	2.93
33B	4.16
38B	4.16

For reductive dechlorination, DO should be less than 0.5 mg/L. The DO levels measured are not favorable for NA of PCE because, at the above levels, oxygen reduction will be the predominant microbial process.

2. Nitrate

Well No.	Nitrate(mg/L)	Degradation Products (µg/L)
12A	12.3	None
14C	ND	None (background well)
29C	ND	None
30B	ND	None
32C	ND	TCE at 0.46J
33B	ND	TCE at 1.6
38B	0.52	TCE at 1.5 J

Nitrate concentration above 0.5 mg/L indicates nitrate reduction. No specific reduction in PCE was observed, and the presence of daughter products is limited. There was no strong evidence of reductive dechlorination.

3. Hydrogen

Well No.	H_2 (nm/L)
12A	0.8
14C	0.6 (background well)
29C	2
30B	0.9
32C	0.8
33B	0.8
38B	0.8

A value greater than 5 indicates methanogenesis. Values in the range 0.2 – 0.8 indicate Fe^{+3} reduction. Methane and iron values are not indicative of the above.

4. Methane

Well No.	Methane (μg/L)
12A	0.31
14C	5.59 (background well)
29C	5.28
30B	10.03
32C	5.36
33B	3.11
38B	0.87

No marked increase in methane levels occurred compared to the background well.

5. Sulfate

Well No.	Sulfate (mg/L)
12A	8.2
14C	4.6 (background well)
29C	8.6
30B	12.5
32C	22
33B	52
38B	24

In general sulfate levels have increased compared to the background well, which indicates no anoxic conditions under which reductive dechlorination of PCE can occur.

6. Chloride

Well No.	Chloride (mg/L)
12A	3.0
14C	1.4 (background well)
29C	4.4
30B	4.7
32C	6.7
33B	8.6
38B	10.1

An increase in chloride concentration compared to the background well indicates potential degradation; however, the increase does not correspond to daughter product (e.g., ethene) concentration.

7. Ethene

Well No.	Ethene (µg/L)
12A	0.003
14C	0.016 (background well)
29C	0.059
30B	0.15
32C	0.072
33B	0.009
38B	0.067

No consistency in the ethene production and chloride concentration was observed.

4.0 CONCLUSIONS

4.1 GROUNDWATER CONTAMINATION

Groundwater concentrations of dissolved PCE exceed the Florida GCTL. The PCE plume begins near the concrete ramps to the northeast and extends southeast past Building 137 and south to Lake Gear. The shallow component of the plume (aquifer zone A) is located upgradient, or nearest the concrete ramps. The intermediate component of the plume (aquifer zone B) is located slightly downgradient, with the deeper component (aquifer zone C) further downgradient. This suggests that the plume is migrating downward as it nears Lake Gear. No PCE was detected in the two wells screened at the base of the surficial aquifer. The PCE plume was delineated to the north, west, and east. The southern portion of the plume apparently extends beneath the shoreline of Lake Gear and was not delineated.

Concentrations of PCE at the site warrant cleanup. It is recommended that remedial alternatives and their cost benefits be evaluated. In addition, temporary groundwater use restrictions should be imposed for the surficial aquifer. These recommendations are consistent with previous recommendations by HLA (HLA, 1999).

4.2 NATURAL ATTENUATION

Some of the data indicate anoxic conditions; however, the results are not conclusive. No marked decrease in PCE concentrations was observed, and a distinctive daughter product, cis-1,2-DCE, was rarely detected (one detection at 1.3 μg/L over two sampling events). Traces of TCE are found in some wells but there was no marked presence. Therefore, reductive dechlorination does not seem to be a significant process at SA 39. Reductive dechlorination, a process in which chlorinated solvents serve as an electron acceptor, requires an organic carbon substrate to proceed. Microbial utilization of this natural carbon source drives reductive dechlorination (i.e., organic carbon is the primary substrate for microorganism growth). Dissolved carbon was measured at 5 mg/L in the upgradient and downgradient wells. Good conditions for reductive dechlorination typically require total organic carbon of >20 mg/L (Wiedemeier et al., 1996).

4.3 OPT CONCURRENCE

The undersigned members of the OPT concur with the findings and recommendations of the preceding investigation.

STUDY AREA 39

Tony Rodriguez	8/16/00
U.S. Environmental Protection Agency, Region IV	Date
David P. Gabka	8/16/00
Florida Department of Environmental Protection	Date
Wayne Hamel	8/16/00
U.S. Department of the Navy	Date

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APPENDIX A

FIELD FORMS AND LOGS

BORING LOG

PROJECT NAME: NTC Orlando - SA 39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc.
DRILLING RIG: Diedrich D-120

BORING NUMBER: NTC-39-SB27
DATE: 7/26-27/99
GEOLOGIST: John Hofer / Skip Bart
DRILLER: Nick Smarrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
Post Hole Dig.	0	NA	NA				gray	SAND, fine- to v. fine-grained						
	4													
SS	4		6 5	1305			Dk gray	SAND, fg - vfg, sub-rounded to subangular qtz.	SP	black mottling	Ø	Ø	Ø	Ø
	6		Ø Ø											
	6		6 6	1307						geotech	Ø	Ø	Ø	Ø
	8		6 6											
	8		6 6	1310			brown				Ø	Ø	Ø	Ø
	10		5 Ø											
	10		6 6	1315			Dk brown			saturated	Ø	Ø	Ø	Ø
	12		6 2											
	12		6 6	1318							Ø	→		→
	14		6 Ø											
	14		6 6	1320				SAND, fg, trace silt	SP	geotech	Ø	→		→
	16		6 6											
	16		6 6	1330							Ø	→		→
	18		Ø Ø											
	18		6 6	1335							Ø	→		→
	20		Ø Ø											
	20		6 2	1339		v. dense		SAND, hardpan @ 20.5, silty / trace clay	SM	refusal @ 20.5	Ø	Ø	→	→
	22		R R											
	22		6 6	1345				SAND, fg-mg, well sorted	SP	geotech	Ø	→		→
	24		Ø Ø											
	24		6 6	1440							Ø	→		→

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: mud rotary

Drilling Area Background (ppm): Ø

Converted to Well? Yes X No ____ Well I.D. #: OLD-39-27D

BORING LOG

PROJECT NAME: NTC Orlando - SA 39
PROJECT NUMBER:
DRILLING COMPANY:
DRILLING RIG:

BORING NUMBER: NTC - 39 - 27
DATE: 7/26-27/99
GEOLOGIST:
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
SS	26		2/Ø		26'		v. dk brown	SAND, fg-mg, well sorted	SP					
	26		6/1	1525			brown	SAND, vfg, silty, tr. clay	SM	geotech	Ø			
	28		R/R											
	28		6/6	1538	28.9'						Ø			
	30		3/R		29.3'		gray	SAND, fg-mg	SP	refusal @ 29.3' ~~tr~~ trace phos.				
	30		6/6	1547			dk gray	SILT, clayey & sandy	ML	geotech	Ø			
	32		5/Ø		32'									
	32		6/3	1550			lt gray	SAND, vfg, trace silt	SP	trace phos. geotech	Ø			
	34		Ø/Ø											
	34		6/6	1600							Ø			
	36		Ø/Ø											
	36		6/6	1607			olive gray	SAND, vfg-fg, some silt	SP/SM		Ø			
	38		4/Ø											
	38		6/6	1614							Ø			
	40		1/Ø		40'									
	40		6/4	1620				SAND, silty, vfg, gradational contact	SM	geotech	Ø			
	42		Ø/Ø											
	42		6/6	1626							Ø			
	44		Ø/Ø				lt gray							
	44		6/6	1630			brown				Ø			
	46		Ø/Ø											
	46		6/6	1642			olive green	SAND, silty, vfg-fg			Ø			
	48		2/Ø		48'									
	48		6/6	1650			olive brown	SAND, fg-mg, some silt, sub round to subangular	SP	geotech	Ø			
	50		3/Ø											

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Drilling Area Background (ppm): Ø

Remarks: mud rotary

Converted to Well? Yes X No

Well I.D. #: OLD - 39 - 27D

BORING LOG

PROJECT NAME: NTC Orlando - SA 39
PROJECT NUMBER:
DRILLING COMPANY:
DRILLING RIG:

BORING NUMBER: NTC-39-27
DATE: 7/26-27/99
GEOLOGIST:
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
SS	50	9/15	6/1	0819	50.25'		white	SAND, coarse-grained	SP	geotech (SB)	Ø			
	52	16/18	Ø/Ø				gray	SAND, fg, silty, ~~ot~~	SM	geotech				
	52	10/18	6/6	0826				~~tola~~ (SB)		black & brown	Ø			
	54	19/17	3/Ø					trace clay		lineations				
	54	12/17	6/2.5	0837				SAND, mg, trace silt	SP		Ø			
	56	16/24	Ø/Ø											
	56	12/16	6/3.5	0844							Ø			
	58	26/24	Ø/Ø											
	58	12/18	6/5.5	0850			white	SAND, mg	SP	geotech	Ø			
	60	19/22	Ø/Ø				gray							
	60	10/15	6/6	0859			lt gray	SAND, cg-vcg,	SP	geotech	Ø			
	62	21/20	.25/Ø				dk gray	SAND, fg-mg, trace	SP					
	62	8/12	5/Ø	0904				silt			Ø			
	64	17/21	Ø/Ø				lt gray	SAND, cg-vcg, rounded to	SP					
	64	14/20	6/6	0931				subrounded			Ø			
	66	25/22	1/Ø				lt brown	SAND, mg-cg	SP					
	66	18/24	6/1.5	0936							Ø			
	68	26/30	Ø/Ø											
	68	16/18	6/2.75	0939			med. brown	trace silt		thin vein of white coarse sand	Ø			
	70	22/28	Ø/Ø											
	70	17/32	6/2.5	1042		mod. dense	brown gray	SAND, mg-cg	SP	geotech TP usal @ 70.8'	Ø			
	72	50+/-	R/R			V dense	dk gray black	SAND, cg, trace silt	SP	geotech				
	72	16/18	6/Ø	1100	72.3'		brown gray	SAND, mg-cg			Ø			
	74	26/22	Ø/Ø			dense	dk gray	SAND, fg-mg, silty	SM					
	74	14/26	6/4.5	1108							Ø			

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: mud rotary

Drilling Area Background (ppm): Ø

Converted to Well? Yes ✓ No

Well I.D. #: OLD-39-27D

BORING LOG

PROJECT NAME: NTC Orlando - SA39
PROJECT NUMBER:
DRILLING COMPANY:
DRILLING RIG:

BORING NUMBER: NTC-39-27
DATE: 7/26-27/99
GEOLOGIST:
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or RQD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
SS	76	21/20	Ø/Ø											
	76	12/20	5.75/Ø	1129						bit coarser-grnd	Ø			
	78	24/32	Ø/Ø											
	78	10/16	6/3.25	1135							Ø			
	80	18/26	Ø/Ø				dk gray	SAND, cg, silty	SM					
	80	14/33	6/3	1312			brown			geotech	Ø			
	82	29/30	Ø/Ø				dk gray	SAND, fg-cg, some silt	SW	thin clay stringer				
	82	9/10	6/5.75	1320						geotech	Ø			
	84	13/17	Ø/Ø		82.9'	stiff, short recov	dk olive brown	CLAY, sandy	CL	dry				
										BORING TERMINATED @ 85.5 FT. BGS				

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Drilling Area Background (ppm): Ø

Remarks: mud rotary

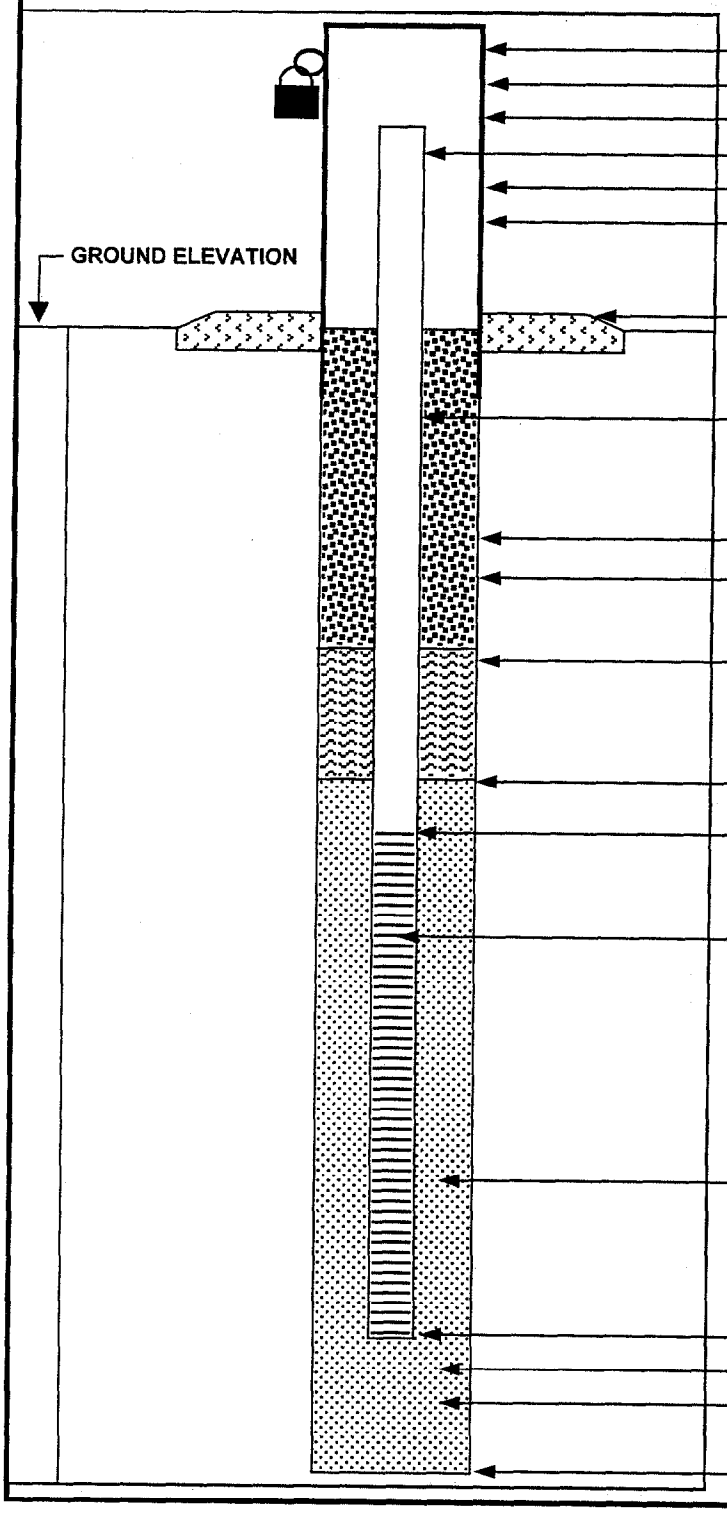
Converted to Well? Yes ✓ No

Well I.D. #: OLD-39-27D

WELL NO.: OLD - 39 - 27D ✓

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando - SA 39	LOCATION	SA 39	DRILLER	GPI - Nick Smarrito
PROJECT NO.	7457	BORING	NTC-39-~~SB~~27	METHOD:	
ELEVATION	116.00	DATE	7/27/99	DRILLING	Mud rotary ~~with~~ (SB)
FIELD GEOLOGIST	John Hoper / Slup Barton			DEVELOPMENT	sub pump



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.73

STICK-UP TOP OF SURFACE CASING:

STICK-UP OF RISER PIPE: 2.73 ft

I.D. OF SURFACE CASING: 6 in.

TYPE OF SURFACE CASING: stainless steel (square)

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2 in.

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6.25 in.

TYPE OF SEAL: neat grout w/ bentonite

ELEVATION / DEPTH OF SEAL: 73.5 ft

TYPE OF SEAL: bentonite (3/8 pellets)

DEPTH - TOP OF SAND PACK: 75.5 ft

ELEVATION / DEPTH - TOP OF SCREEN: 79.5 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. x 5 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2' layer of 30-65 on top

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 84.5 ft

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 85.5 ft

TYPE OF BACKFILL BELOW MONITORING WELL: sand pack

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 85.5 ft

BORING LOG

PROJECT NAME: NTC Orlando - SA 39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc.
DRILLING RIG: Diedrich D-120

BORING NUMBER: NTC-39-28
DATE: 7/27-28/99
GEOLOGIST: Skip Barten
DRILLER: Nick Smarrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
post hole dig.	0					loose	lt gray	SAND, fg-mg,	SP					
	4													
SS	4	3/3	6/6	1638		loose	white	SAND, coarse-grnd.	SP	trace phos., dry	Ø			
SS	6	3/6	6/0.5		5.2'	firm	gray	SAND, mg-cg	SP	damp				
SS	10	3/4	6/2.75	1640	10.5'		wt A-gray	SAND, coarse	SP		Ø			
SS	12	6/6	Ø/Ø				dk brown	SAND, mg, trace silt	SP					
SS	15	7/5	6/6	1654			dk brown	medium- to coarse-grnd. (mg, cg)	SP	saturated, lots of organics in gw.	Ø			
SS	17	6/7	1.25/Ø											
SS	20	4/8	6/6	1505			dark brown				Ø			
SS	22	14/15	0.75/Ø											

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Drilling Area Background (ppm): Ø

Remarks: mud rotary drilling fg = fine-grained; mg = medium-grained; cg = coarse-grained; v = very

Converted to Well? Yes X No ____ Well I.D. #: OLD-39-28D

BORING LOG

PROJECT NAME: NTC Orlando - SA39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc.
DRILLING RIG: Diedrich D-120

BORING NUMBER: NTC-39-28
DATE: 7/27-28/99
GEOLOGIST: Skip Barten
DRILLER: Nick Smarrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
SS	25	19/32	6/6	0749				same ↓						
SS	27	50+	0.5		25.75	very dense	lt gray	mg sand	SP	refusal @ 26'	Ø			
SS	30	8/12	6/6	0903		mod. soft	lt gray	sandy clay	CL		Ø			
SS	32	16/26	4.5		30.25	loose	white	sand, cg	SP	trace phosphate				
SS	35	10/13	6/6	1014		loose	wht/buff	laminated sand, mg to	SP		Ø			
SS	37	16/16	0.25					cg, approx. ½ in thick	SP					
								laminae						
SS	40	5/8	6/6	1038				same, buff layers up to	SP		Ø			
SS	42	12/22	3					3 in. thick, trace						
								silt						
SS	45	9/18	6/4.5	1404			buff	sand w/ brown line-	SP		Ø			
SS	47	20/22						ations, trace silt						

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: mud rotary; mg = medium-grained; cg = coarse-grained

Drilling Area Background (ppm): Ø

Converted to Well? Yes X No ____ Well I.D. #: OLD-39-28D

BORING LOG

PROJECT NAME: NTC Orlando - SA39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc.
DRILLING RIG: Diedrich D-120

BORING NUMBER: NTC-39-28
DATE: 7/27-28/99
GEOLOGIST: Skip Barker
DRILLER: Nick Smarrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
SS	50	8/17	6/6	1416			gray/brown	clayey sand, mg to cg	SC		Ø			
SS	52	24/22	2.5											
					50.25		dk gray	silty sand, fg to mg w/ brown clay stringers	SP					
SS	55	16/22	6/6	1430	55	loose	lt gray yel. brown	sand, cg to vcg	SP		Ø			
SS	57	29/39	6/2											
SS	60	13/21	6/6	1444		med. dense	brown/gray	sand, mg to cg	SP/SW		NA: PID MALFUNCTION			
SS	62	26/25												
SS	65	16/18	6/6	1517			red/brown	sand, cg	SP	w/ phosphate or iron nodules faint lineations	NA			
SS	67	20/24	0.75		65.25		gray	sand, cg, trace silt						
SS	70	13/26	6/2.5	1537		v. dense	dk gray	sand, mg to cg	SP	w/ sparse blk grains	NA			
SS	72	50T												

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: mud rotary; cg = coarse-grained; mg = medium-grained; fg = fine-grained; v = very

Drilling Area Background (ppm): Ø

Converted to Well? Yes X No ____ Well I.D. #: OLD-39-28D

BORING LOG

PROJECT NAME: NTC Orlando - SA39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc
DRILLING RIG: Diedrich D-120

BORING NUMBER: NTC-39-28
DATE: 7/27-28/99
GEOLOGIST: Shyl Barton
DRILLER: Nick Smorrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**
SS	75	Pt 30 / 50t	6	1601				same portions (70-72)		refusal @ 75.5ft	NA		
SS	77												
					80								
SS	80	2 3 / 5 8	6 6 / 4.5			soft	gray	v. sandy clay		1.5in ribbon			
	82		6 / 2.5										
SS	84												
					85			Boring terminated @ 85.5 ft BLS					

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: mud rotary ; mg = medium-grained ; v = very

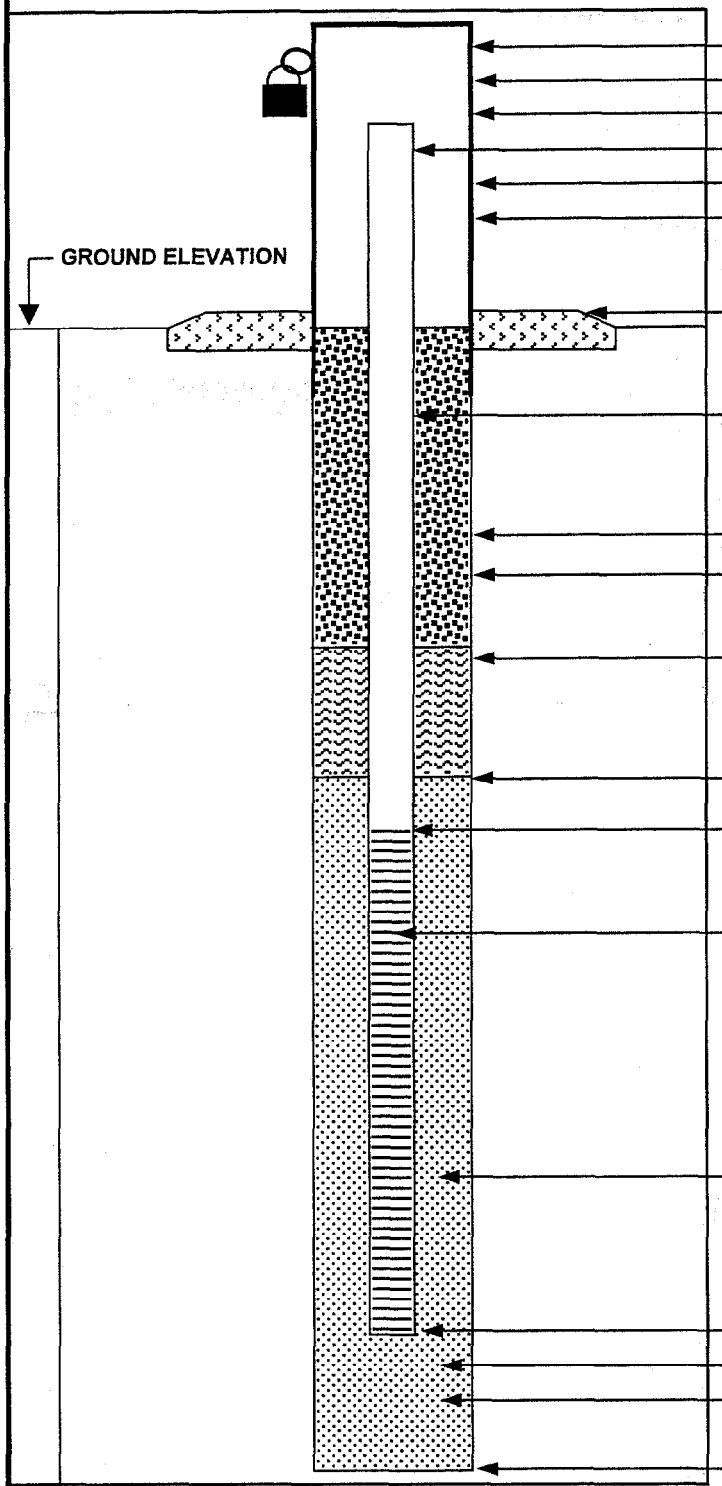
Drilling Area Background (ppm): N/A

Converted to Well? Yes X No _____ Well I.D. #: OLD-39-28D

WELL NO.: OLD-39-28D

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION	SA39	DRILLER	GPI-Nick Smarrito
PROJECT NO.	7457	BORING	NTC-39-SB28	METHOD:	
ELEVATION	115.40	DATE	7/28/99	DRILLING	mud rotary
FIELD GEOLOGIST	Skip Barton			DEVELOPMENT	sub pump



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.23

STICK-UP TOP OF SURFACE CASING:

STICK-UP OF RISER PIPE: 2.83 ft

I.D. OF SURFACE CASING: 6 in.

TYPE OF SURFACE CASING: ~~st~~ stainless steel (square)

TYPE OF SURFACE SEAL: concrete

RISER PIPE I.D.: 2-in.

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6.25 in.

TYPE OF SEAL: neat grout w/ bent.

ELEVATION / DEPTH OF SEAL: 73.5 ft

TYPE OF SEAL: 3/8" bent. pellets

DEPTH - TOP OF SAND PACK: 75.5 ft

ELEVATION / DEPTH - TOP OF SCREEN: 79.5 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. x 5 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2 ft layer of 30-65

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 84.5 ft

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 85.5 ft

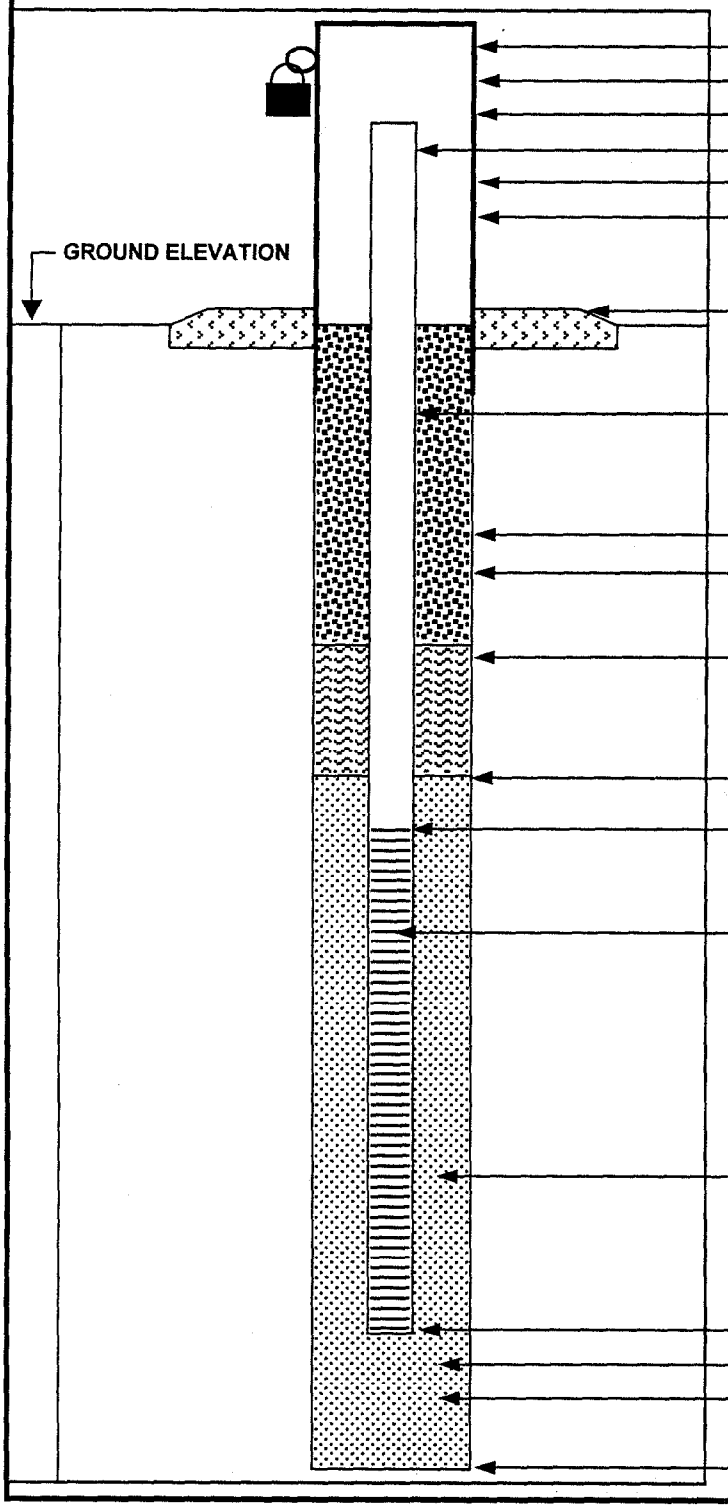
TYPE OF BACKFILL BELOW MONITORING WELL: SAND

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 85.5 ft

WELL NO.: OLD - 39 - 29C

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION	SA39	DRILLER	GPI Nick Smarrito
PROJECT NO.	7457	BORING	NTC - 39 - SB29	METHOD:	
ELEVATION	115.40	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	Skip Barton			DEVELOPMENT	sub pump



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.38

STICK-UP TOP OF SURFACE CASING:

STICK-UP OF RISER PIPE: 2.98 ft.

I.D. OF SURFACE CASING: 8 in.

TYPE OF SURFACE CASING: Stainless Steel (square)

TYPE OF SURFACE SEAL: concrete

RISER PIPE I.D.: 2 in.

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 8.25 in.

TYPE OF SEAL: Neat grout w/ bent.

ELEVATION / DEPTH OF SEAL: /28 ft.

TYPE OF SEAL: 3/8" bent. pellets

DEPTH - TOP OF SAND PACK: /30 ft

ELEVATION / DEPTH - TOP OF SCREEN: /35 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. x 5 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2ft. layer of 30-65 on top

ELEVATION / DEPTH TO BOTTOM OF SCREEN: /40 ft.

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: /40.5 ft

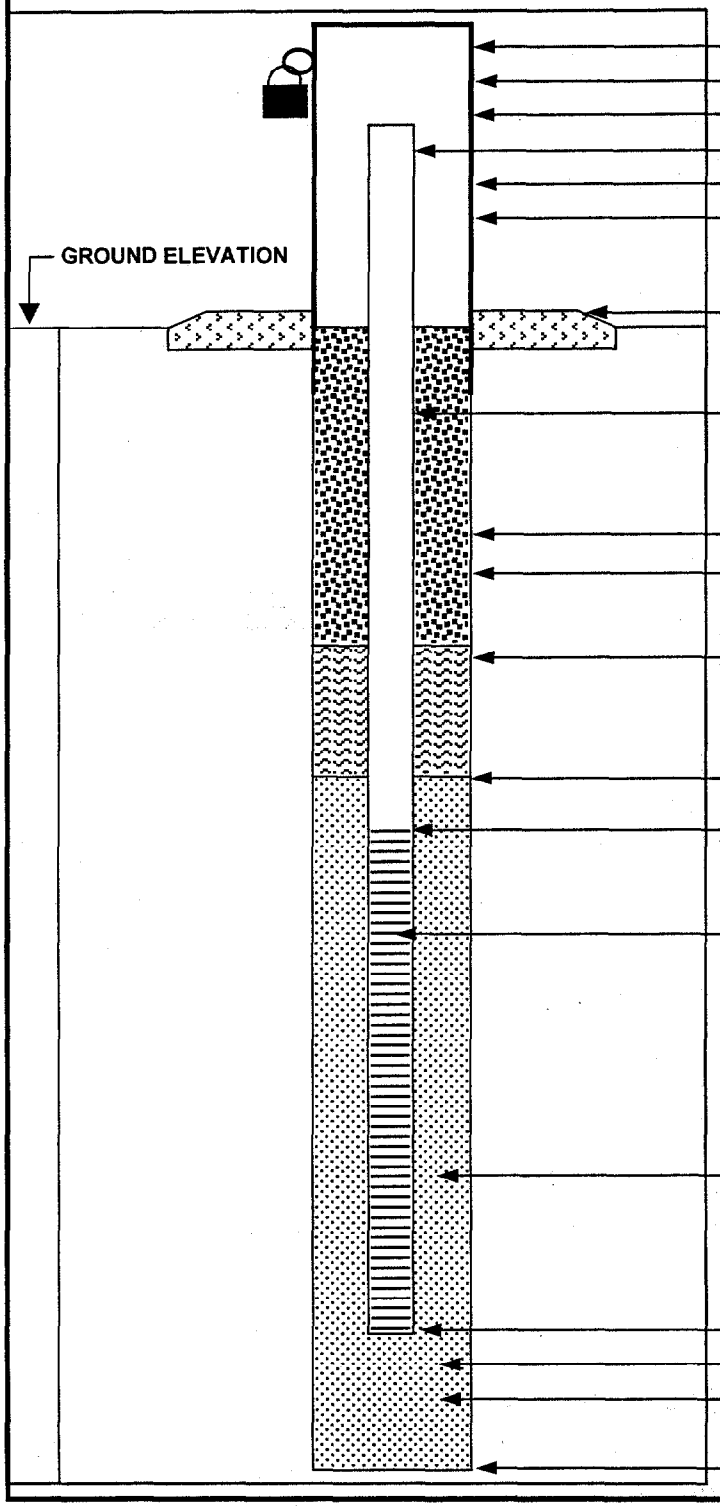
TYPE OF BACKFILL BELOW MONITORING WELL: sand

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: /40.5 ft.

WELL NO.: OLD-39-30B

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION	SA39	DRILLER	GPI Nick Smarito
PROJECT NO.	7457	BORING	NTC-39-SB30	METHOD:	
ELEVATION	115.30	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	Skip Barton			DEVELOPMENT	sub pump



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.19

STICK-UP TOP OF SURFACE CASING:

STICK-UP OF RISER PIPE: 2.89 ft

I.D. OF SURFACE CASING: 6 in.

TYPE OF SURFACE CASING: Stainless Steel (Square)

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2 in.

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 8.25 in.

TYPE OF SEAL: Neat grout w/ bent.

ELEVATION / DEPTH OF SEAL: /18 ft

TYPE OF SEAL: 3/8" bent. pellets

DEPTH - TOP OF SAND PACK: /20 ft.

ELEVATION / DEPTH - TOP OF SCREEN: /25 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. X 5 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2 ft. layer of 30-65 on top

ELEVATION / DEPTH TO BOTTOM OF SCREEN: /30 ft

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: /30.5

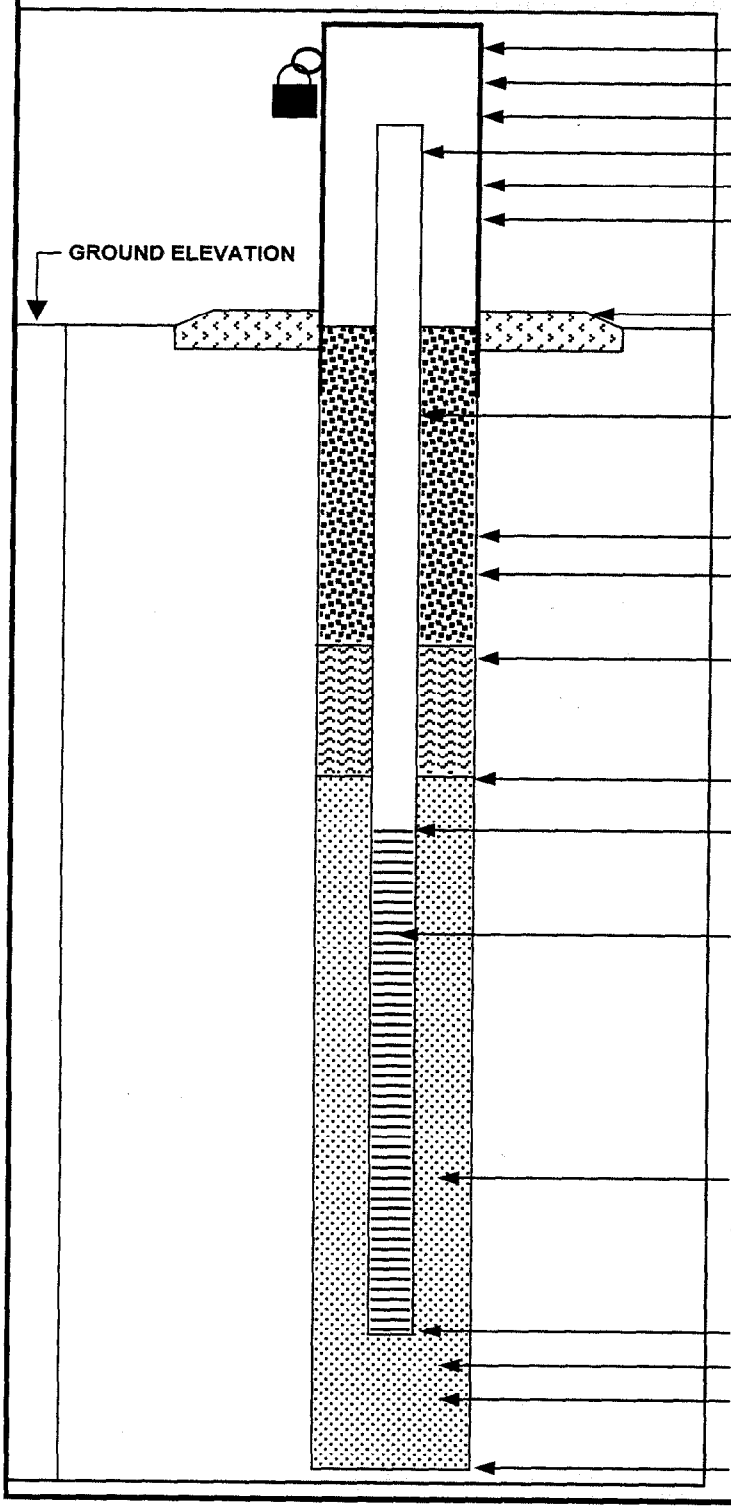
TYPE OF BACKFILL BELOW MONITORING WELL: SAND

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 30.5

WELL NO.: OLD - 39 - 31A

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION	SA 39	DRILLER	GPI Nick Smarrito
PROJECT NO.	7457	BORING	NTC-39-SB31	METHOD:	
ELEVATION	115.10	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	Skip Barton			DEVELOPMENT	sub pump



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.13

STICK-UP TOP OF SURFACE CASING:

STICK-UP OF RISER PIPE: 3.03 ft

I.D. OF SURFACE CASING: 6 in.

TYPE OF SURFACE CASING: stainless steel (square)

TYPE OF SURFACE SEAL: concrete

RISER PIPE I.D.: 2 in.

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 8.25 in.

TYPE OF SEAL: neat grout w/ bent.

ELEVATION / DEPTH OF SEAL: NA

TYPE OF SEAL: NA

DEPTH - TOP OF SAND PACK: / 3 ft

ELEVATION / DEPTH - TOP OF SCREEN: / 5 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. x 10 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2 ft of 30-65 on top

ELEVATION / DEPTH TO BOTTOM OF SCREEN: / 18 ft

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: / 18.5 ft

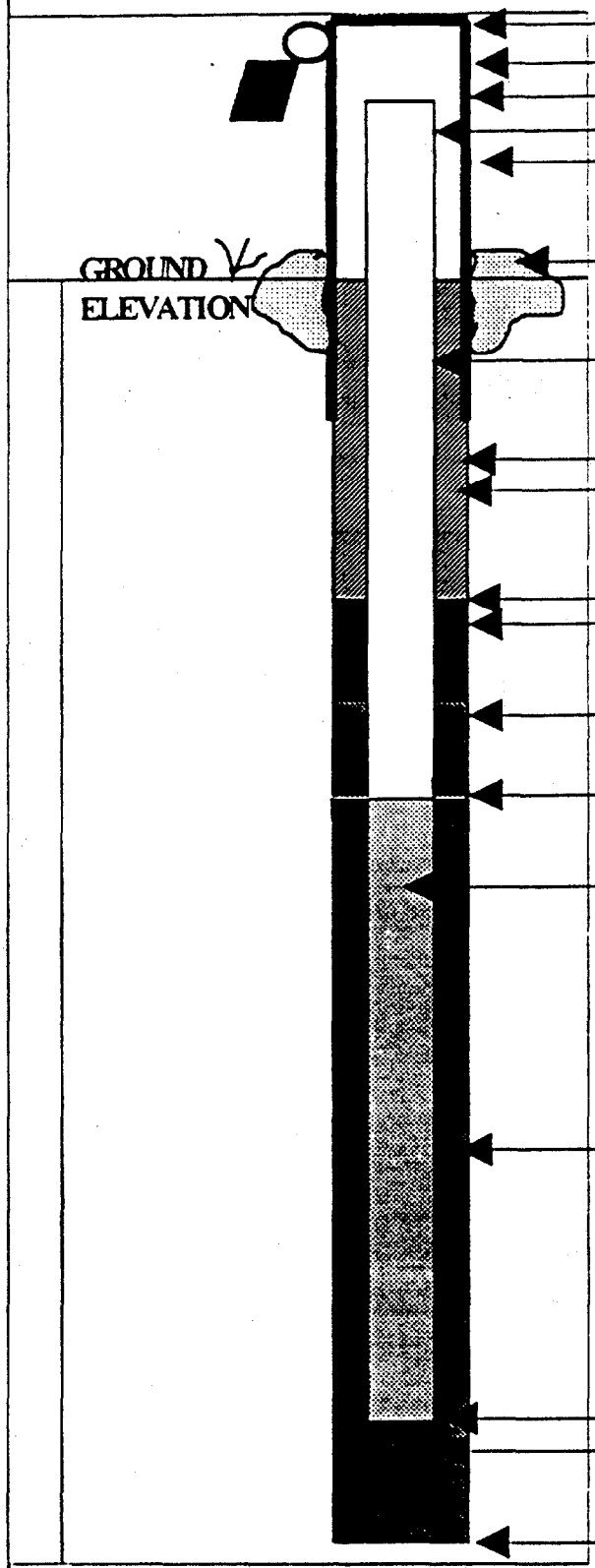
TYPE OF BACKFILL BELOW MONITORING WELL: sand

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: / 18.5 ft

BORING NO: OLD-39-32

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION:	SA 39	DRILLER	Jeff Ziegler
PROJECT NO.	7454	BORING	OLD-39-32C	METHOD:	~~DPT~~
ELEVATION	116.00'	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	S. Hofer			DEVELOPMENT:	NA



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.64'

STICK-UP TOP OF SURFACE CASING: 3'

STICK-UP RISER PIPE: 2.64'

I.D. OF SURFACE CASING: 6"

TYPE OF SURFACE CASING: Steel

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6"

TYPE OF SEAL: Cement / Bentonite

ELEVATION / DEPTH OF SEAL: 139

TYPE OS SEAL: bentonite

fine sand 30

DEPTH TOP OF SAND PACK: 31

ELEVATION / DEPTH TOP OF SCREEN: 134.5

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: 20/30

ELEVATION / DEPTHBOTTOM OF SCREEN: 139.5

ELEVATION / DEPTH BOTTOM OF SAND PACK: 140

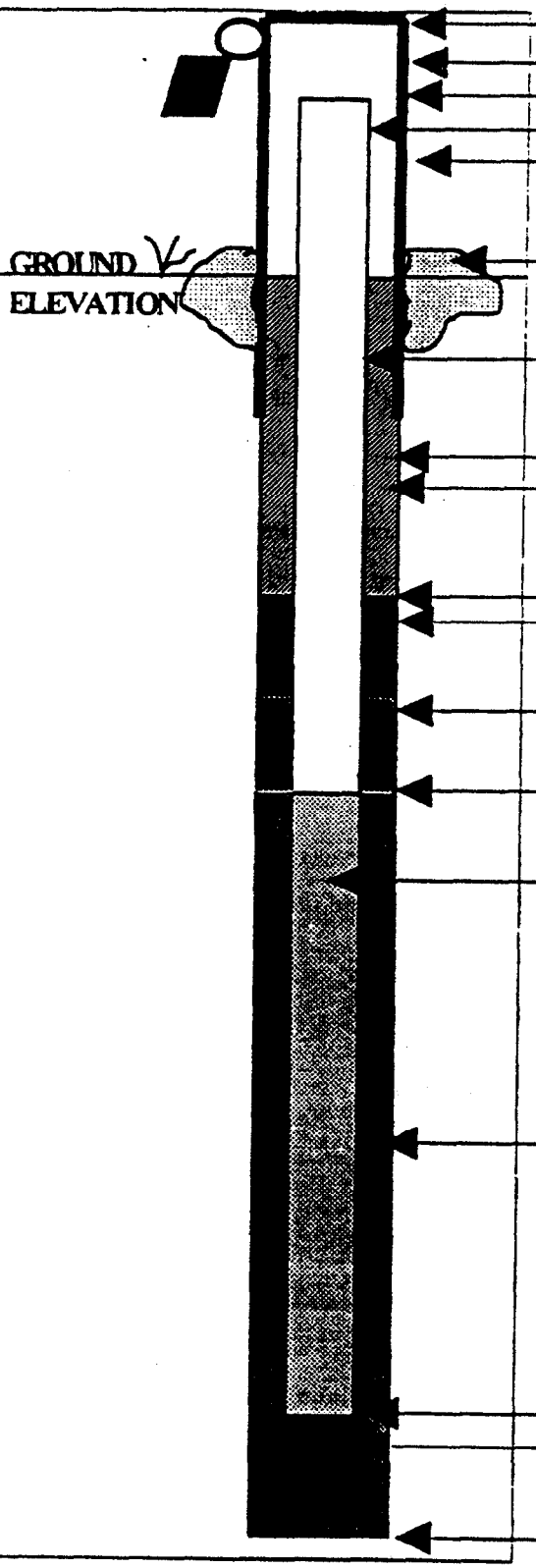
TYPE OF BACKFILL BELOW OBSERVATION WELL: NA

ELEVATION / DEPTH OF HOLE: 140

BORING NO.: OLD-39-

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION:	SA-39	DRILLER	Jeff Ziegler
PROJECT NO.	7457	BORING	OLD-39-33B	METHOD: ~~DPT~~	
ELEVATION	116.20'	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	J. Hofer			DEVELOPMENT: NA	



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.78'

STICK-UP TOP OF SURFACE CASING: 3

STICK-UP RISER PIPE: 2.58'

I.D. OF SURFACE CASING: 6"

TYPE OF SURFACE CASING: Steel

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6"

TYPE OF SEAL: Cement/bent

ELEVATION / DEPTH OF SEAL: 119

TYPE OS SEAL: bentonite

fine sand 20

DEPTH TOP OF SAND PACK: 21

ELEVATION / DEPTH TOP OF SCREEN: 124.5

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: 20/30

ELEVATION / DEPTHBOTTOM OF SCREEN: 129.5

ELEVATION / DEPTH BOTTOM OF SAND PACK: 130

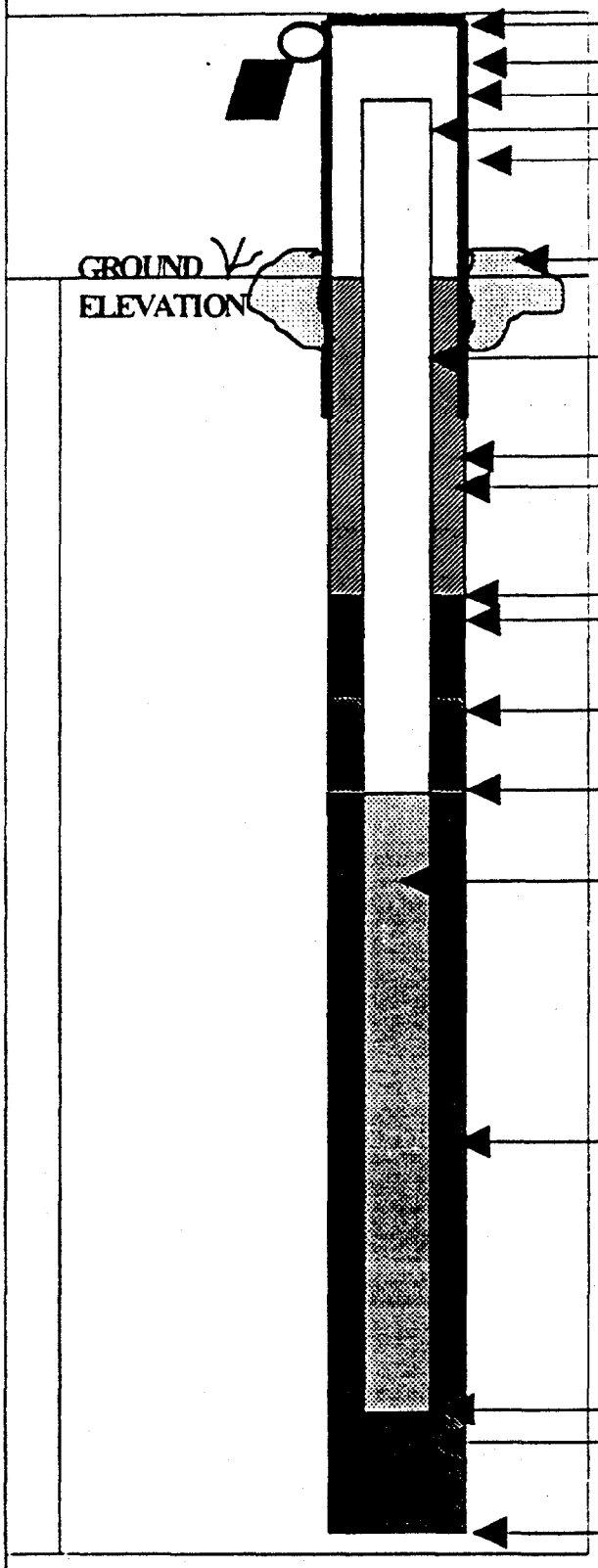
TYPE OF BACKFILL BELOW OBSERVATION WELL: NA

ELEVATION / DEPTH OF HOLE: 130

BORING NO: OLD-39-34A

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION:	SA-39	DRILLER	Jeff Ziegler
PROJECT NO.	7457	BORING	OLD-39-34A	METHOD:	~~BPT~~
ELEVATION	116.20	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	J. Hofer			DEVELOPMENT:	NA



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 118.60

STICK-UP TOP OF SURFACE CASING: 3'

STICK-UP RISER PIPE: 2.4'

I.D. OF SURFACE CASING: 6"

TYPE OF SURFACE CASING: Steel

TYPE OF SURFACE SEAL: concrete

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6"

TYPE OF SEAL: cement / bent

ELEVATION / DEPTH OF SEAL: 15

TYPE OS SEAL: fine Sand

DEPTH TOP OF SAND PACK: 6

ELEVATION / DEPTH TOP OF SCREEN: 17.5

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: 20/30

ELEVATION / DEPTHBOTTOM OF SCREEN: 117.5

ELEVATION / DEPTH BOTTOM OF SAND PACK: 120

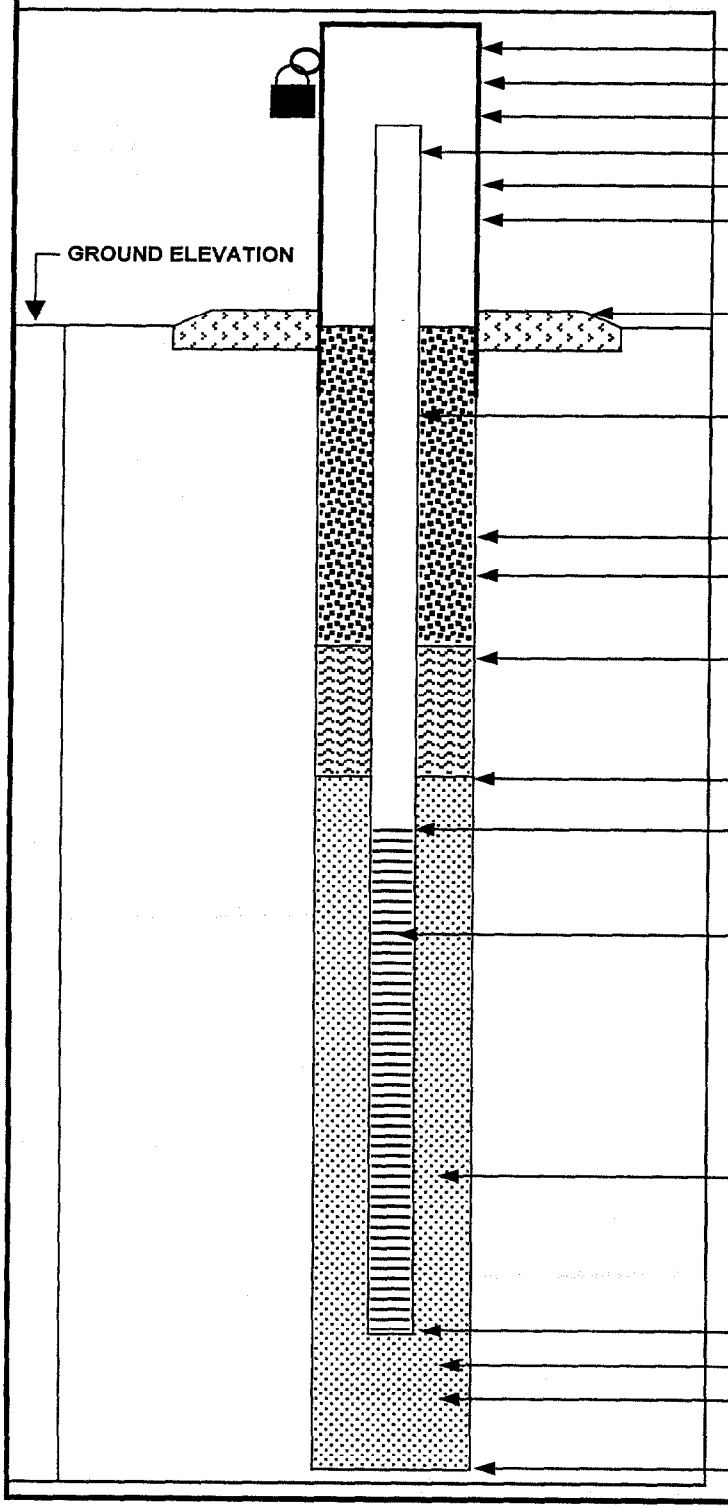
TYPE OF BACKFILL BELOW OBSERVATION WELL: 20/30 Sand

ELEVATION / DEPTH OF HOLE: 120

WELL NO.: OLD-39-35B

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION	SA39	DRILLER	GPI Nick Smarrito
PROJECT NO.	7457	BORING	NTC-39-SB35	METHOD:	
ELEVATION	117.10	DATE	7/29/99	DRILLING	HSA
FIELD GEOLOGIST	Skip Barton			DEVELOPMENT	Sub pump



ELEVATION OF TOP OF SURFACE CASING: ~~120.08~~
ELEVATION OF TOP OF RISER PIPE: 120.08 ft
STICK-UP TOP OF SURFACE CASING:
STICK-UP OF RISER PIPE: 2.98 ft
I.D. OF SURFACE CASING: 6 in. square
TYPE OF SURFACE CASING: Stainless steel

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2 in.
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 8.25 in.
TYPE OF SEAL: Neat grout w/ bent.

ELEVATION / DEPTH OF SEAL: 117 ft
TYPE OF SEAL: 3/8" bent. pellets

DEPTH - TOP OF SAND PACK: 19 ft
ELEVATION / DEPTH - TOP OF SCREEN: 123.5 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. x 5 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2 ft of ~~30~~ 35-60 at top

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 128.5 ft
ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 129 ft
TYPE OF BACKFILL BELOW MONITORING WELL: sand
ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 129 ft

BORING LOG

PROJECT NAME: NTC-Orlando SA39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc.
DRILLING RIG: Diedrich D-120

BORING NUMBER: NTC-39-SB35
DATE: 7/29/99
GEOLOGIST: Skip Raiton
DRILLER: Nick Smarrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or ROD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
HA	0			1456		loose	lt gray	fg to mg sand	SP		Ø			
	3													
SS	5	4/4	6/6	1506			lt gray	mg to cg sand	SP	small coal	Ø			
SS	7	7/6	5.75		6ft	firm	dk gray	mg to cg sand	SP	fragments				
						loose	lt gray	cg to vcg sand	SP	dry				
SS	10	3/4	6/6	1513		loose	dk brown	mg sand, trace silt	SP	damp	Ø			
SS	12	4/8	6/2			loose	lt gray	mg sand	SP	damp				
						v loose	white	cg sand	SP	phosphatic,				
SS	15	5/8	6/6	1521		firm	dk brown	mg sand,	SP	saturated,	5.8	Ø	Ø	Ø
SS	17	10/14	6/3							degraded organic odor				
SS	20	3/5	6/6	1526		loose	dk brown	cg sand	SP	same odor	1.1	Ø	Ø	Ø
SS	22	4/6	3											

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: HSA; fg = fine-grained; mg = medium-grained; cg = coarse-grained; v = very

Drilling Area Background (ppm): Ø

Converted to Well? Yes X No ____ Well I.D. #: OD-39-35B

BORING LOG

PROJECT NAME: NTC Orlando - SA39
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Protection Inc.
DRILLING RIG: Diedrich D-120
BORING NUMBER: NTC-39-SB35
DATE: 7/29/99
GEOLOGIST: Skip Barton
DRILLER: Nick Smarrito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or RQD (%)	Sample Recovery/ Sample Length	Time	Lithology Change (Depth/Ft.) or Screened Level	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**
SS	25	8 / 22	6 / 6	1534				same as above			Ø		
	27	50+	6 / 2			dense, v. firm	lt. brn	cg sand	SP				
	27	10 / 29	5.5 / -	1540		v. dense hard	dk brn	clayey sand	SC		Ø		
	29	34 / 45	- / -			loose soft	lt. brn	cg sand	SP	refusal			
	29	12 / 14	6 / 2.25	1546		dense, firm	brn	fg to mg sand	SW/SP		Ø		
SS	31	21 / 26	- / -			mod. hard	dk brn	clayey sand (fg-mg)	SC	friable, moist			
	31	NA / NA	6 / -	1608		mod. stiff	brn gry	clayey sand	SC	dense, ½ in. ribbon	NA		
SS	33	NA / NA	- / -										
								BORING TERMINATED @ 29 ft BGS					

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response is read.

Remarks: HSA; cg = coarse-grained; brn = brown; fg = fine-grained; mg = medium-grained; gry = gray

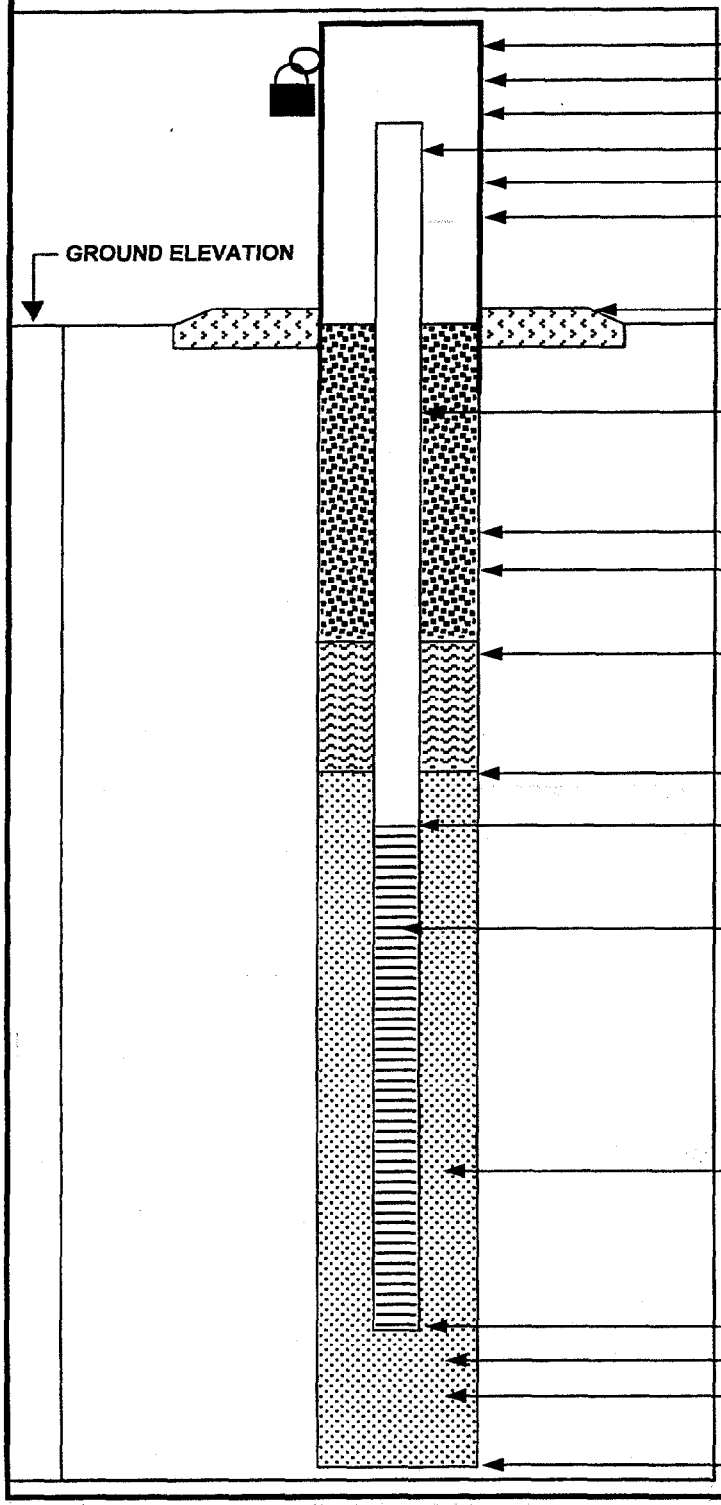
Drilling Area Background (ppm): Ø

Converted to Well? Yes X No _____ Well I.D. #: OLD-39-35B

WELL NO.: OLD-39-36A

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION	SA39	DRILLER	GPI Nick Smarrito
PROJECT NO.	7457	BORING	NTC-39-SB36	METHOD:	
ELEVATION	117.10	DATE	7/30/99	DRILLING	HSA
FIELD GEOLOGIST	Skip Barton			DEVELOPMENT	sub pump



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE: 119.99

STICK-UP TOP OF SURFACE CASING:

STICK-UP OF RISER PIPE: 2.89 ft

I.D. OF SURFACE CASING: 6 in. square

TYPE OF SURFACE CASING: Stainless steel

TYPE OF SURFACE SEAL: concrete

RISER PIPE I.D.: 2 in.

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 8.25 in.

TYPE OF SEAL: neat grout w/ bent.

ELEVATION / DEPTH OF SEAL: NA

TYPE OF SEAL: NA

DEPTH - TOP OF SAND PACK: 12 ft

ELEVATION / DEPTH - TOP OF SCREEN: 17.5 ft

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 0.01 in. x 10 ft

I.D. OF SCREEN: 2 in.

TYPE OF SAND PACK: 20-30 w/ 2 ft of 35-60 ct top

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 17.5 ft

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 18 ft

TYPE OF BACKFILL BELOW MONITORING WELL: sand

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 18 ft

NOTE: Water table well, no bent. seal installed per specifications.

Tetra Tech NUS, Inc.

WELL COMPLETION FORM

JOB NAME: NTC Orlando - SA39

JOB NUMBER: 7457

PROJECT MANAGER: Steve McCoy

LOGGED BY: Skip Barton

EDITED BY:

WELL NAME: OLD-39-37C

DATE: 7-30 & 8-2/99

DRILLING COMPANY: Groundwater Protection Inc.

EQUIPMENT:

☐ 4.25 INCH HOLLOW STEM AUGER

☑ 6 & 8 INCH ROTARY WASH

DRILLER: Nick Smarito

HOURS DRILLED: 2.5

GALLONS OF WATER USED DURING DRILLING: 100

METHOD OF DECONTAMINATION PRIOR TO DRILLING: Steam pressure wash

DEVELOPMENT

METHOD OF DEVELOPMENT: Surge & pump (see development log)

DEVELOPMENT BEGAN DATE: TIME:

YEILD: GPM	TIME: FROM	TO	DATE:
YEILD: GPM	TIME: FROM	TO	DATE:
YEILD: GPM	TIME: FROM	TO	DATE:

TOTAL WATER REMOVED DURING DEVELOPMENT: GALLONS

DESCRIPTION OF TURBIDITY AT END OF DEVELOPMENT:

☐ CLEAR ☐ SLIGHTLY CLOUDY

☐ MOD. TURBID ☐ VERY MUDDY

ODOR OF WATER:

WATER DISCHARGED TO:

☐ GROUND SURFACE ☐ TANK TRUCK

☐ STORM SEWERS ☐ STORAGE TANK

☐ DRUMS ☐ OTHER

MATERIALS USED

3 50lb SACKS OF 20-30 SAND

3.5 96lb SACKS OF portland CEMENT

also 1 50lb bag of 35-60 sand

GALLONS OF GROUT USED

12 SACKS POWDERED BENTONITE

50 POUNDS OF BENTONITE PELLETS

43 FEET OF 2 INCH PVC BLANK CASING

5 FEET OF 2 INCH PVC SLOTTED SCREEN

YARD3 CEMENT-SAND (REDI-MIX) ORDERED

YARDS3 CEMENT-SAND (REDI-MIX) USED

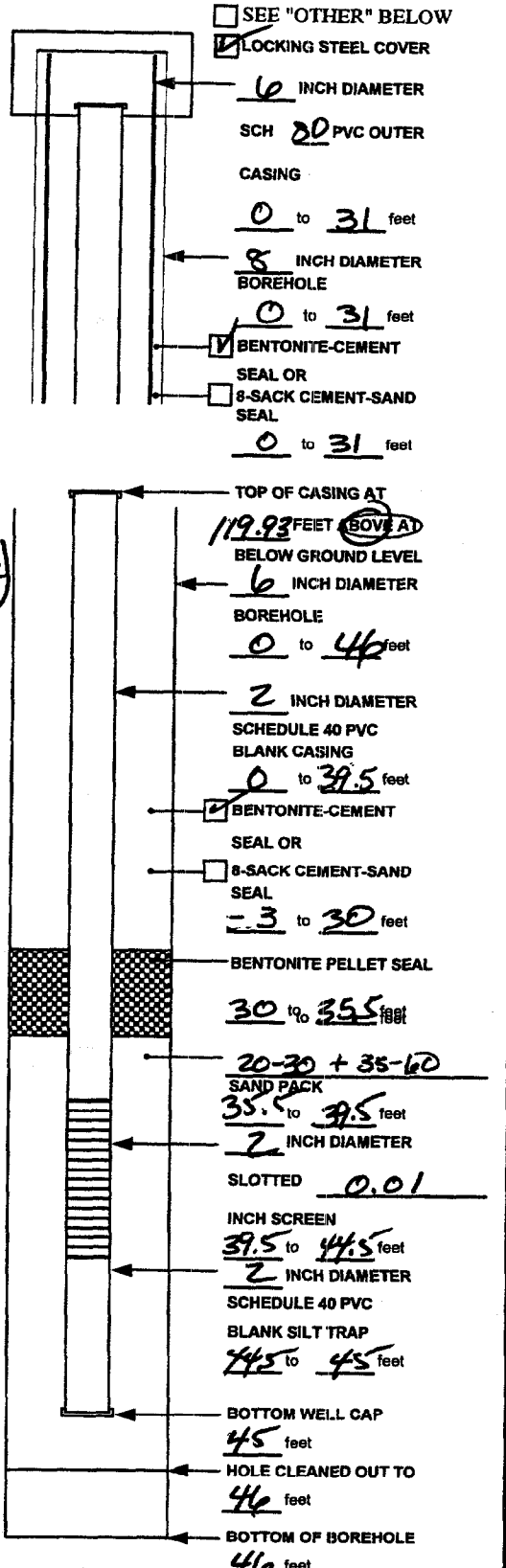
CONCRETE PUMPER USED? ☑ NO ☐ YES

NAME NA

WELL COVER USED: ☑ LOCKING STEEL COVER (Stainless)

☐ CHRISTY BOX

☐ OTHER



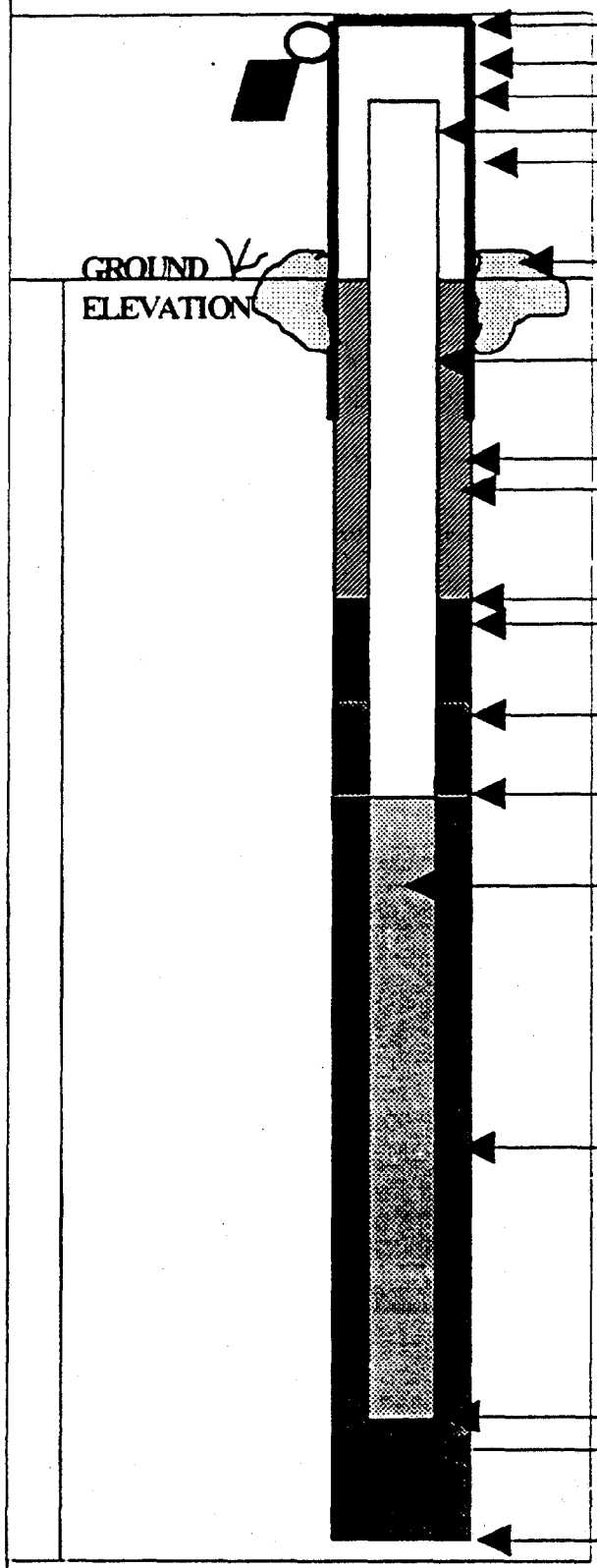
NOT TO SCALE

ADDITIONAL INFORMATION:

BORING NO OLD-39-38B

OVERBURDEN MONITORING WELL SHEET

PROJECT	NTC Orlando	LOCATION:	SA-39	DRILLER	Jeff Ziegler
PROJECT NO.	7457	BORING	OLD-39-38B	METHOD:	~~DPT~~
ELEVATION	116.70'	DATE	7/30/99	DRILLING	HSA
FIELD GEOLOGIST	J. Hofer			DEVELOPMENT:	NA



ELEVATION OF TOP OF SURFACE CASING:
ELEVATION OF TOP OF RISER PIPE: 119.48'
STICK-UP TOP OF SURFACE CASING: 3
STICK-UP RISER PIPE: 2.98'
I.D. OF SURFACE CASING: 6'
TYPE OF SURFACE CASING: Steel
TYPE OF SURFACE SEAL: concrete
RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 6"
TYPE OF SEAL: bent/cement
ELEVATION / DEPTH OF SEAL: 25 lbs 117
TYPE OS SEAL: bentonite
fine sand/bg — 19
DEPTH TOP OF SAND PACK: 5 bags 20
ELEVATION / DEPTH TOP OF SCREEN: 123.5
TYPE OF SCREEN: PVC
SLOT SIZE X LENGTH: 0.01
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: 20/30
ELEVATION / DEPTHBOTTOM OF SCREEN: 128.5
ELEVATION / DEPTH BOTTOM OF SAND PACK: 129
TYPE OF BACKFILL BELOW OBSERVATION WELL: Natural material
ELEVATION / DEPTH OF HOLE: 129

BORING LOG

PROJECT NAME: NTC Orlando
PROJECT NUMBER: 7457
DRILLING COMPANY: GPI
DRILLING RIG: Diedrich D-120

BORING NUMBER: OLD-39-38B
DATE: 7/30/99
GEOLOGIST: J Hofer
DRILLER: J.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (p: Sample	Sampler BZ	Borehole**	
0	0					gray	SAND, fine		Fill	0	0	0	
Moist-hole slight									Pieces of coal				
						white	SAND, vfg, silty	SM					
4	4												
4	SS		6/6			gray	SAND, fine-vfg	SP		0	0	0	
6			6/0										
10	SS		6/6			brown	SAND, fine-vfg,	SP	moist	0	0	0	
12			6/2				some silt						
15	SS		6/6			black	SAND, fine	SP	Saturated	0	0	0	0
17			6/0										
20	SS		6/6			black	SAND, fine, some	SP					
22			6/3				silt						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes _____ No _____ Well I.D. #: _____

BORING LOG

PROJECT NAME: NTC Orlando
PROJECT NUMBER: 7457
DRILLING COMPANY: GPI
DRILLING RIG: Diedrich D-120

BORING NUMBER: OLD-39-38B
DATE: 7/30/99
GEOLOGIST: J. Hofer
DRILLER: J.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
25	SS		6 / 6			brn-	SAND, fine, some	SP	trace shell frags				
27			6 / 4			blk	silt						
28.5	SS		6 / 0			dk olive gray	CLAY sandy, fined sand	CL	thin shell layer @ contact				
30.5			0										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

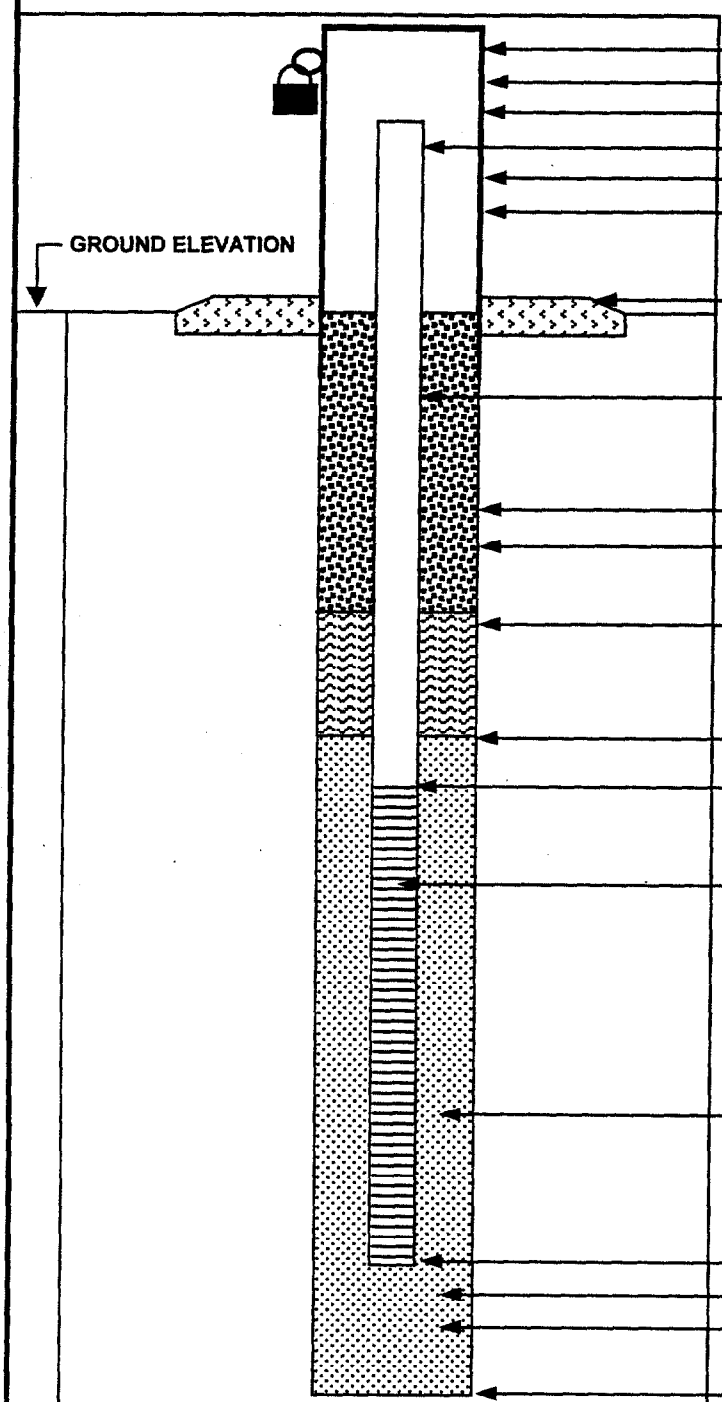
Remarks:

Converted to Well: Yes _____ No _____ Well I.D. #: _____

WELL NO.: OLD-39-39A

OVERBURDEN MONITORING WELL SHEET

PROJECT	Orlando NTC	LOCATION	Site 39	DRILLER	Nick Smarrito
PROJECT NO.	7547	BORING		METHOD:	
ELEVATION		DATE	3/7/00	DRILLING	HSA 4¼" ID
FIELD GEOLOGIST	BDH			DEVELOPMENT	



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE:

STICK-UP TOP OF SURFACE CASING: 3.35'

STICK-UP OF RISER PIPE: 3.07'

I.D. OF SURFACE CASING:

TYPE OF SURFACE CASING: Stainless steel

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6"

TYPE OF SEAL: Grout

ELEVATION / DEPTH OF SEAL: 6'

TYPE OF SEAL: 30/65 sand

DEPTH - TOP OF SAND PACK: 7.5'

ELEVATION / DEPTH - TOP OF SCREEN: 9.3'

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 10 X 10'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: 20/30 silica sand

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 19.8'

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 20'

TYPE OF BACKFILL BELOW MONITORING WELL: silica sand

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 20'

MONITORING WELL DEVELOPMENT RECORD

Well: OLD-39-39A
Site: Site 39
Date Installed: 3/7/00
Date Developed: 3/8/00
Dev. Method: Pump
Pump Type: Whale

Depth to Bottom (ft.): 19.58 BLS
Static Water Level Before (ft.): 12.58 BTOC
Static Water Level After (ft.): 12.64 BTOC
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.): 2"

Responsible Personnel: BDH, RH
Drilling Co.: Groundwater Protection
Project Name: Orlando NTC
Project Number: 7547

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1005		1		23.4	5.0	11	>990	ORP 241 Black
1009		5		23.4	4.9	9	>990	246 "
1011		10		23.3	5.0	7	>990	244 "
1014		15		23.4	5.1	6	>990	241 "
1017		20		23.2	5.1	5	>990	240 "
1020		25		23.4	5.1	4	>990	239 "
1023		30		23.5	5.1	4	>990	239 "
1026		35		23.6	5.2	4	>990	236 "
1029		40		23.6	5.2	4	>990	236 "
1032		45		23.7	5.2	3	>990	236 "
1035		50		23.5	5.2	3	>990	235 "
1038		55		23.7	5.2	3	>990	230 Dark Brown
1041		60		23.7	5.2	3	>990	230 " "
1044		65		23.9	5.2	3	>990	229 " "
1047		70		23.0	5.2	3	>990	228 " "
1050		75		23.2	5.2	3	>990	227 " "
1053		80		23.2	5.2	3	>990	220 " "
1056		85		23.2	5.2	3	>990	217 " "

MONITORING WELL DEVELOPMENT RECORD

Well: OUD-39-39A
Site: Site 39
Date Installed: 3-7-00
Date Developed: 3-8-00
Dev. Method: Pump
Pump Type: Whale

Depth to Bottom (ft.): 19.58 BLS
Static Water Level Before (ft.): 12.58 BTOC
Static Water Level After (ft.): 12.64 BTOC
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.): 2

Responsible Personnel: BDH, RH
Drilling Co.: Groundwater Protection
Project Name: Orlando NTC
Project Number: 7547

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/m~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1059	~~90~~ ORP	90		23.5	5.2	3	>990	ORP 214 Brown
1102		95		23.5	5.2	3	>990	214 "
1105		100		23.8	5.2	3	>990	213 "
1108		105	12.70 BTOC	23.6	5.2	3	>990	211 "
1354			12.59 BTOC					
1406		restart		23.7	5.1	4	990	140 very turbid - dark brown
1412		115		23.9	5.5	3	990	175 "
1417		125		24.1	5.3	3	990	162 "
1423		135		23.9	5.3	3	>990	149 "
1429		145		24.0	5.3	3	920	49 " brown
1449		160		23.4	5.3	3	680	134 " brown
1504		175		23.7	5.3	3	440	51 turbid brown
1509		190	12.64	23.2	5.2	3	490	101 turbid brown
stop development - out of drums (filled 4 drums)								

BORING LOG

PROJECT NAME: Orlando NTC
PROJECT NUMBER: 7457
DRILLING COMPANY: Groundwater Probation
DRILLING RIG: Diedrick D-120

BORING NUMBER: OLD - 39 - 40B
DATE: 3/7/00
GEOLOGIST: BPH
DRILLER: Rich Smarito

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	'		'	'									
SP-1	25'	6/7	1.6/2'	25.6	loose	lt gray	Sand, fine to med.		wet	0	0		0
@ 1007	27'	7/9		26.2'	fine to med	lt brn	Sand, clayey, brown		wet	0			
SP-2		18/15	2'/2'		loose	lt gray	Sand, fine to medium		wet	0			
@ 1016	29	23/19		28.6'		to tan				0			
					fine	lt to red gray	Clay, sandy		moist to wet				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

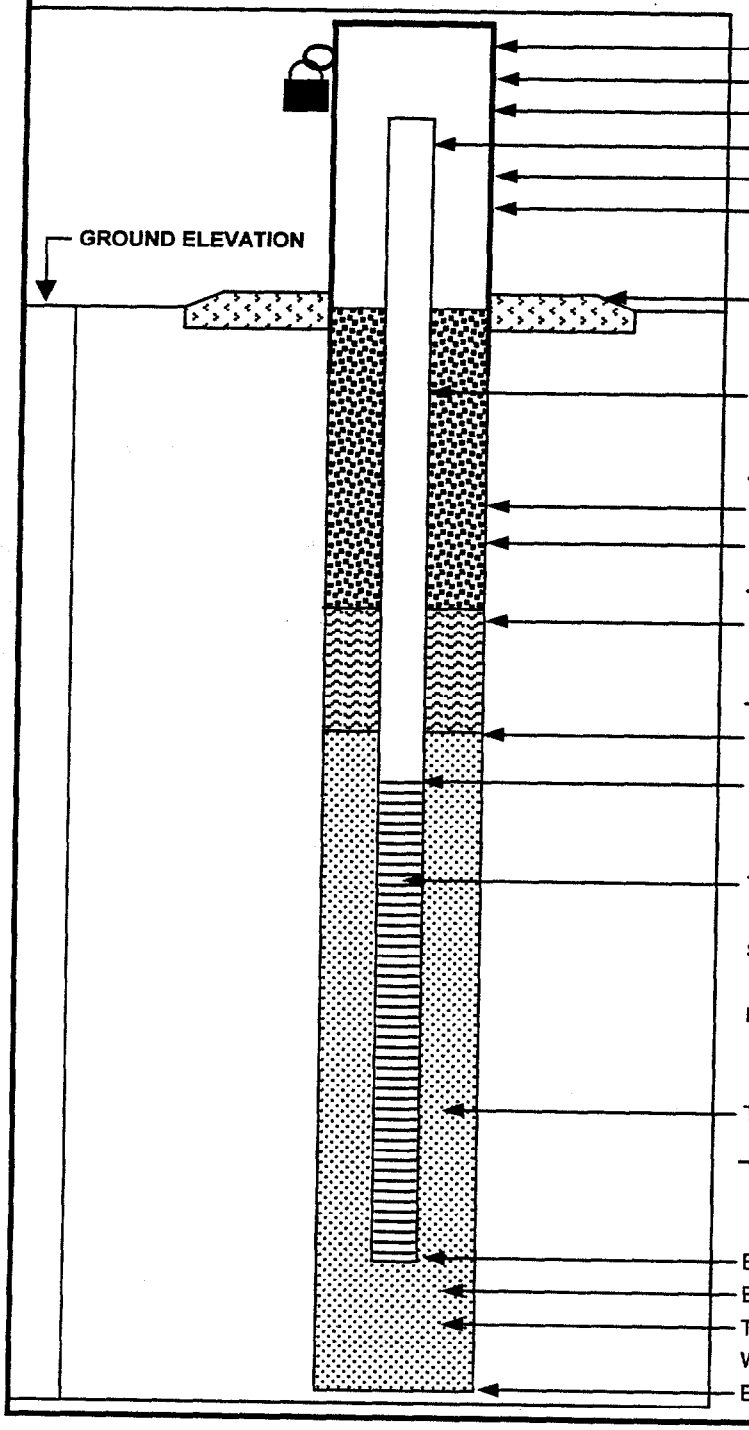
Drilling Area Background (ppm): 0

Converted to Well: Yes ✓ No _____ Well I.D. #: _____

WELL NO.: OLD-39-40B

OVERBURDEN MONITORING WELL SHEET

PROJECT	Orlando NTC	LOCATION	Site 39	DRILLER	Rich Smarito
PROJECT NO.	7457	BORING		METHOD:	
ELEVATION		DATE	3/7/00	DRILLING	HSA 4¼" ID
FIELD GEOLOGIST	BDH			DEVELOPMENT	



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE:

STICK-UP TOP OF SURFACE CASING: 3.4'

STICK-UP OF RISER PIPE: 3.16'

I.D. OF SURFACE CASING:

TYPE OF SURFACE CASING: Stainless Steel

TYPE OF SURFACE SEAL:

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6"

TYPE OF SEAL: Grout

ELEVATION / DEPTH OF SEAL: 18'

TYPE OF SEAL: Bentonite

DEPTH - TOP OF SAND PACK: 20.5'

ELEVATION / DEPTH - TOP OF SCREEN: 22.8'

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 10 X 5'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: 20/30 silica sand

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 28.3'

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 29'

TYPE OF BACKFILL BELOW MONITORING WELL: silica sand

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 29'

MONITORING WELL DEVELOPMENT RECORD

Well: OLD - 39 - 40B
Site: Site 39
Date Installed: 3/7/00
Date Developed: 3/8/00
Dev. Method: Pump
Pump Type: Whale

Depth to Bottom (ft.): 31.46' BTOC
Static Water Level Before (ft.): 12.81' BTOC
Static Water Level After (ft.): 16.1 BTOC
Screen Length (ft.): 5'
Specific Capacity: 3 gal.
Casing ID (in.): 2"

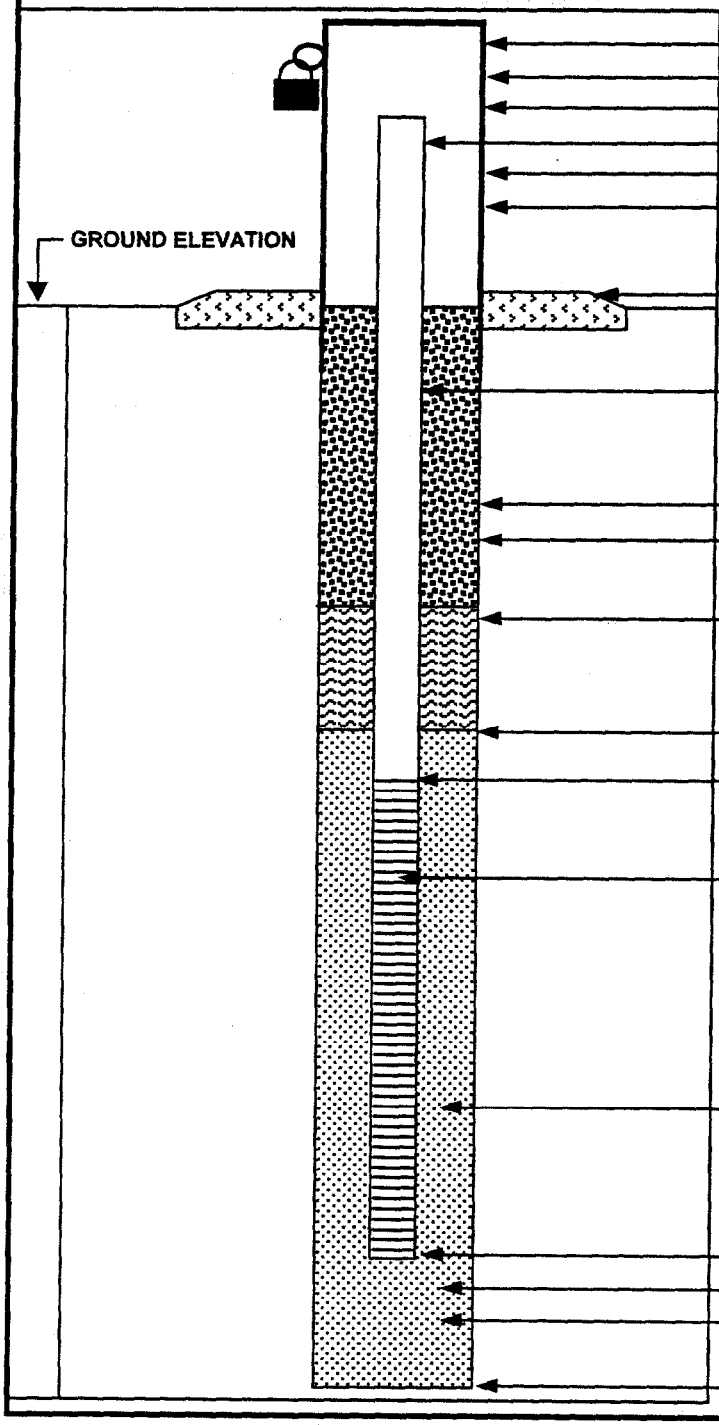
Responsible Personnel: BDH, RH
Drilling Co.: Groundwater Protection, Inc
Project Name: Orlando NTC
Project Number: 7457

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units µS/m)	Turbidity (NTU)	Remarks (odor, color, etc.)
1256		1		25.2	5.5	14	>990	ORP=92 very turbid, dark brown
1258		5		25.4	6.0	20	>990	-56 " "
1303		10		25.1	5.5	10	>990	10 " dark brown
1309		15		26.2	5.2	9	190	31 sl. turbid
1314		20		25.8	4.9	9	85	25 sl. turbid
1319		25		25.8	4.8	8	51	2 sl. turbid to milky
1325		30		25.7	4.7	8	40	-22 clear
1331		35		25.8	4.7	8	31	-12 clear
1337		40		25.8	4.7	8	15	-11 clear
1343		45		25.9	4.7	8	14	-36 clear
1344								well developed, removed 45 gallons

WELL NO.: OLD-39-41C

OVERBURDEN MONITORING WELL SHEET

PROJECT	Orlando NTC	LOCATION	Site 39	DRILLER	Nick Smarato
PROJECT NO.	7547	BORING		METHOD:	
ELEVATION		DATE	3/7/00	DRILLING	HSA 4 1/4" ID
FIELD GEOLOGIST	BDH			DEVELOPMENT	



ELEVATION OF TOP OF SURFACE CASING:

ELEVATION OF TOP OF RISER PIPE:

STICK-UP TOP OF SURFACE CASING: 3.15'

STICK-UP OF RISER PIPE: 2.95'

I.D. OF SURFACE CASING:

TYPE OF SURFACE CASING: Stainless steel

TYPE OF SURFACE SEAL: Concrete

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 6"

TYPE OF SEAL: Grout

ELEVATION / DEPTH OF SEAL:

TYPE OF SEAL: Bentonite ~~chips~~ gel

DEPTH - TOP OF SAND PACK:

ELEVATION / DEPTH - TOP OF SCREEN: 35.9'

TYPE OF SCREEN: PVC

SLOT SIZE X LENGTH: 10 X 5'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: 20/30 silica sand

ELEVATION / DEPTH TO BOTTOM OF SCREEN: 41.4'

ELEVATION / DEPTH TO BOTTOM OF SAND PACK: 42'

TYPE OF BACKFILL BELOW MONITORING WELL: silica sand

ELEVATION / DEPTH TO BOTTOM OF BOREHOLE: 42'

MONITORING WELL DEVELOPMENT RECORD

Well: OL D-39-41C
Site: Site 39
Date Installed: 3/7/00
Date Developed: 3/8/00
Dev. Method: pump
Pump Type: ~~Bailer~~ Rig pump

Depth to Bottom (ft.): 41.4' BLS
Static Water Level Before (ft.): 13.72 BTOC
Static Water Level After (ft.): 15.6 BTOC
Screen Length (ft.): 5'
Specific Capacity:
Casing ID (in.): 2"

Responsible Personnel: BDH, RH
Drilling Co.: Groundwater Protection, Inc.
Project Name: Orlando NTC
Project Number: 7457

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.)
1410				26.3	5.6	22	>990	185 very turbid - greenish gray
1414		10		26.8	5.5	15	>990	89 " " "
1418		20		26.1	5.4	11	530	14 turbid
1426		30		26.2	5.4	10	260	11 sl. turbid
1431		40		26.4	5.3	10	140	-6 sl. turbid
1441		55		26.3	5.5	9	190	-7 sl. turbid
1450		70		25.7	5.2	9	190	16 sl. turbid
1459		110		26.1	5.5	9	190	-2 sl. turbid
			15.6'					well developed
								out of drums, filled
								2 drums

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Orlando NTC
Project No.: 7457

[ ] Domestic Well Data
[✓] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: NTC 39 G 27D 01
Sample Location: 27D
Sampled By: BAR KJM
C.O.C. No.:
Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 080499 / Time: 1345	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO (mg/L) Meter	DO (mg/L) Titration	~~CO~~ orp	H_2S wL	Fe +2
Method: TUBE CONCENTRATION	CLEAR	5.29	415.00	28.98	43.6	4.02		44.5	16.84	

PURGE DATA

Date: 080499	~~Volume~~	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP	WL	Flow
Method: Micro Purge	1248 initial	5.44	424.00	30.11	85.3	7.84	N/M	36.4	16.89	100 ml/m
Monitor Reading (ppm): 0	1250	5.35	418.00	29.44	89.4	5.08		40.6	16.90	100
Well Casing Diameter: 2"	1300	5.32	418.00	29.33	76.6	4.53		43.0	16.84	90
Well Casing Material: PVC	1310	5.32	415.00	28.95	64.3	4.55		43.7	16.84	90
Total Well Depth (TD): 88.50	1320	5.31	414.00	28.96	54.6	4.19		44.1	16.84	90
Static Water Level (WL): 16.55	1330	5.30	414.00	28.99	45.2	4.04		44.4	16.84	90
One Casing Volume(gal/L):	1340	5.29	415.00	28.98	43.6	4.02		44.5	16.84	90
Start Purge (hrs): 1235										
End Purge (hrs): 1340										
Total Purge Time (min): 65										
Total Vol. Purged (gal/L): 5400 ml										

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs 8260B	HCL	3 - 40 ml VIALS	✓

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Orlando NTC
Project No.: 7457

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: NTC 39628D01
Sample Location: 28D
Sampled By: BGG. KJM
C.O.C. No.:
Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO (mg/L) Meter	DO (mg/L) Titration	~~CO_2~~ ORP	H_2S	Fe +2
Date: 08 03 99										
Time: ~~[illegible]~~										
Method: ~~Micro Purge~~ TUBE EVACUATION	Brown	5.93	777.00	30.12	+999	4.96	N/A	44.9		

PURGE DATA

	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP	WL	Flow
Date: 08 03 99										
Method: Micro Purge	~~1520~~ Initial	5.99	796.00	30.33	+999	4.98	N/M	43.6	17.00	100mL/m
Monitor Reading (ppm):	1510	5.99	795.00	30.36	+999	4.76		43.7	17.35	100
Well Casing Diameter: 2"	1530	5.97	792.00	30.33	+999	3.47		44.3	17.34	100
Well Casing Material: PVC	1530	5.96	789.00	30.40	+999	3.46		44.4	17.34	100
Total Well Depth (TD): 88.00	1540	5.95	785.00	30.21	+999	3.60		44.8	17.34	100
Static Water Level (WL): 16.98	1550	5.94	782.00	30.37	+999	3.85		44.8	17.34	100
One Casing Volume(gal/L): 13.60	1600	5.93	777.00	30.12	+999	3.76		44.9	17.34	100
Start Purge (hrs): 1440										
End Purge (hrs): 1600										
Total Purge Time (min): 80										
Total Vol. Purged (gal/L): 8000mL										

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOC'S 8260B	HCL	3 - 40ML VIALS	✓

OBSERVATIONS / NOTES

* STARTED PURGING DIRECTLY INTO BUCKET BECAUSE OF TURBID BROWN WATER. BOTTOM OF WELL SILTY WHEN T.D WAS MEASURED

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

YSI SN 98F0676 AB / 10
LaMotte SN 0357-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL KY~~ NTC Orlando
PROJECT NUMBER: ~~N7142 AN0051000~~ SA39

WELL ID.: MW- Old 3915 B
DATE: 9-9-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	Sal. (%)	Comments
0750	11.56	150	5.12	134.00	1.6	38.8	26.37		ORP - 69.0
0755	11.57	150	5.14	141 138	0.90	33.3	26.24		ORP - 46.0
0800	11.57	150	5.18	143 140	0.75	30.2	26.24		ORP - 8.4
0805	11.57	150	5.19	142 138	0.65	25.8	26.28		ORP 6.4
0810	11.58	150	5.22	142 138	0.85	24.1	26.22		ORP - -14.4
0815	11.58	150	5.24	141 138	0.75	24.4	26.20		ORP - -26.8
0820	11.58	150	5.25	141 138	0.60	24.3	26.24		ORP - -40.3
0825	11.58	150	5.26	141 138	0.55	25.5	26.22		ORP - -46.0
0830	11.58	150	5.27	142 138	0.60	25.8	26.22		ORP - -48.7
0835	11.58	150	5.27	142 138	0.50	24.7	26.17		ORP - -56.4
0840	11.58	150	5.27	140 137	0.40	25.0	26.21		ORP - -60.7
0845	11.58	150	5.28	140 137	0.60	25.4	26.23		ORP - -63.2
0850	11.58	150	5.28	140 137	0.55	24.8	26.20		ORP - -68.2
0855	11.58	150	5.28	139 136	0.50	25.5	26.24		ORP - -56.4
0900	11.58	150	5.29	140 137	0.35	24.9	26.19		ORP - -54.4
0905	11.58	150	5.30	140 137	0.40	24.9	26.15		ORP - -56.0

SIGNATURE(S): [illegible]

PAGE 1 OF 1

YSI SN 980697 AB / 145
Lamotte 08964098

sample time 11.95
1005
NTC 3916C
6.0 gals

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NOSL - KY
PROJECT NUMBER: N7142 AN0051000

WELL ID.: MW-OLD 3916C
DATE: 9/9/99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	Sal. (%)	Comments ORP
07:44	11.95								
07:50	12.05	130	4.80	68/67	22	-44	25.93		191.9
07:55	12.05	110	4.82	68/67	11	-61.8	26.07		154.4
08:00	12.05	130	4.76	66/65	3.7	-64.0	26.01		95.0 / adj flow down
08:05	12.05	115	4.73	66/65	1.8	-64.5	26.00		74.2
0810	12.07	130	4.71	63/62	0.30	-64.1	25.96		43.7
0815	12.07	130	4.71	60/59	0.00	-62.8	25.80		36.6
0820	12.07	130	4.67	62/61	0.40	-63.1	25.75		24.2
0825	12.07	140	4.67	62/61	0.00	-62.0	25.76		12.2
0830	12.07	130	4.67	62/61	0.15	-59.1	25.75		3.6
0835	12.07	150	4.68	62/61	0.00	-56.4	25.77		2.1
0840	12.08	170	4.65	61/60	0.15	-51.2	25.59		-17.0 ↓
0845	12.08	150	4.66	61/60	0.00	-50.2	25.51		-23.3 Keeps stepping
0850	12.08	180	4.66	61/60	0.00	-47.9	25.62		-33.3 ↓
0855	12.09	200	4.65	61/60	0.00	-43.6	25.63		-43.6
0900	12.14	200	4.65	59/59	0.00	-39.3	25.59		-47.3
0905	12.13	200	4.65	56/55	0.00	-37.8	25.42		-49.9 ↓
0910	12.12	175	4.62	57/56	0.00	-36.9	25.43		-54.1
0915	12.12	170	4.63	58/57	0.00	-35.8	25.50		-59.4
0920	12.10	180	4.65	57/56	0.00	-33.9	25.60		-64.2
0925	12.11	225	4.64	56/56	0.00	-31.5	25.53		-71.0
0930	12.13	270	4.63	55/54	0.00	-28.4	25.54		-73.1
0935	12.17	250	4.63	54/54	0.00	-26.2	25.48		-77.5
0940	12.15	250	4.61	53/52	0.00	-26.0	25.47		-79.9
0945	12.17	225	4.63	52/51	0.00	-23.9	25.50		-84.0
0950	12.14	210	4.62	53/53	0.00	-23.1	25.51		-88.5
0955	12.17	215	4.60	52/51	0.00	-22.0	25.53		-89.2
1000	12.16	215	4.60	53/53	0.00	-21.0	25.57		-92.3

SIGNATURE(S): R D Munson

YSI SN 98F0676 AB 1.
la Motte: SN 0357-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NOSL - KY
PROJECT NUMBER: N7142 AN0051000

WELL ID.: MW-~~OUD~~ 39-04A
DATE: 9-9-99

14.90
11.35

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	ORP (mV)	Comments
1030	11.35	100	5.53	154 / 145	4.2	62.4	28.11	181.0	
1035	11.35	100	5.46	155 / 146	4.6	60.3	28.08	192.1	
1040	11.35	100	5.46	156 / 147	4.7	59.5	28.20	197.8	
1045	11.35	100	5.46	158 / 148	4.2	59.7	28.56	200.4	
1050	11.35	100	5.45	158 / 148	4.1	58.4	28.58	204.1	
1055	11.35	100	5.42	160 / 149	4.7	58.0	28.63	208.4	
1100	11.35	100	5.43	158 / 148	4.3	57.9	28.66	208.9	
1105	11.35	100	5.44	158 / 148	4.1	57.4	28.76	210.2	
1115	11.35	100	5.44	160 / 149	4.0	55.3	28.84	213.6	Pump stop/had to Ready out.
1120	11.35	100	5.43	160 / 149	4.0	53.4	28.78	215.3	
1125	11.35	100	5.44	160 / 149	4.0	52.3	28.68	217.7	
1130	11.35	100	5.43	160 / 149	3.8	51.6	28.73	217.0	
1135	11.35	100	5.43	160 / 150	3.7	51.5	28.62	218.0	
1140	11.35	100	5.42	160 / 150	3.7	51.1	28.79	218.4	Sampled at 1145

SIGNATURE(S): [illegible]

PAGE ___ OF ___

Terminal SN 145 YSI SN 980697AB826B
LaMotte SN 0896-4098 Round

TD 39.45
WL 12.19
2.5 gals

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NOSL - KY
PROJECT NUMBER: N7142 AN0051000

WELL ID.: MW-OLD 3925C
DATE: 9/9/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % (mg/L)	Temp. (Celsius)	Sal. (%)	Comments ORP
1340	12.43	100	5.85	144.0	2.24	-73.6	28.08		-45.8
1345	12.43	100	5.80	140.00	1.95	-63.6	28.14		-44.4
1350	12.43	100	5.77	136.00	2.71	-53.6	28.06		-44.4
1355	12.43	100	5.75	133.00	1.43	-49.6	27.97		-45.9
1400	12.43	100	5.72	131.00	2.30	-45.5	28.18		-44.9
1405	12.42	100	5.71	129.00	1.60	-40.7	28.50		-45.7
1410	12.42	100	5.72	129.00	1.44	-38.1	28.57		46.6
1415	12.42	100	5.71	128.00	1.83	-33.8	28.38		-47.3
1420	12.42	100	5.70	127.00	1.47	-32.7	28.42		-47.6
1425	12.42	100	5.69	127.00	1.19	-28.9	28.63		-47.7
1430	12.42	90	5.67	126.00	1.53	-28.1	28.74		-48.9
1435	12.41	90	5.66	125.00	0.50	-25.2	28.53		-49.3
1440	12.41	90	5.66	124.00	0.44	-22.9	28.73		-50.1
1445	12.41	90	5.65	126.00	0.34	-21.5	28.79		-49.8
1450	12.41	90	5.64	126.00	0.35	-21.4	28.76		-50.0
1455	12.41	90	5.63	126.00	0.21	-21.5	28.79		-50.0

SIGNATURE(S): R D Munson

PAGE ___ OF ___

YSI SN: 98F0676 AB/100 11.34 WL
hamotte SN: 0357-4197 16.45 TD
Sonde - 100

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~MOST - KY~~ NTC Orlando
PROJECT NUMBER: ~~N7142 ANOOS1000~~ SA39

WELL ID.: MW- OCD 3908A
DATE: 9-9-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	ORP	Comments
1335	unkn	100	5.93	195	6.7	59.1	28.72	154.3	1" PVC well
1340	unkn	100	5.93	195	6.6	60.1	28.83	150.1	inside 4" PVC
1345	unkn	100	5.93	196	5.6	61.3	28.64	147.6	water level could
1350	unkn	100	5.93	196	4.5	59.2	28.68	144.3	not be inserted.
1355	unkn	100	5.93	196	4.3	60.8	28.64	141.3	
1400	unkn	100	5.94	196	3.5	59.8	28.87	138.0	
1405	unkn	100	5.94	196	3.2	61.5	29.07	138.1	
1410	unkn	100	5.94	196	2.9	62.0	29.11	139.3	sampled H2O

SIGNATURE(S): [illegible]

PAGE 1 OF 1

2.26 2.48

YSI SN 98F0676 AB / 145
LaMotte SN 0357-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL-KY~~ NTC Orlando
PROJECT NUMBER: ~~N7142 AN0051000~~ SA39

WELL ID.: MW- ~~09~~ 39 10A
DATE: 9-9-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	ORP	Comments
1505	unkn	100	5.08	89.00	110	39.6	29.41	187.1	1" PVC inside of
1510	unkn	100	4.98	91.00	75	35.6	29.27	161.9	4" PVC, can not
1515	unkn	100	4.97	80.00	52	32.4	29.10	146.3	insert water level
1520	unkn	100	4.97	80.00	38	30.7	29.15	133.4	
1525	unkn	100	4.98	80.00	30	29.2	29.16	120.5	
1530	unkno	100	4.98	80.00	25	28.7	29.15	116.4	
1535	—	—	—	—	—	—	—	—	
1540	unkn	100	4.98	80.00	22	26.9	29.12	107.1	
1545	unkn	100	4.99	80.00	21	26.3	29.18	105.2	
1550	unkno	100	4.99	80.00	19	25.3	29.14	100.4	
1600	unknow	100	4.99	80.00	19	28.1	28.92	93.9	
1610	unkn	100	4.99	80.00	20	33.4	28.62	97.1	
1620	unkn	100	4.99	80.00	19	26.6	28.87	81.7	
1630	unknown	100	5.00	79.00	18	23.5	29.06	72.3	
1640	unkn	100	5.00	79.00	16	22.6	29.33	61.4	
1650	unkn	100	5.00	79.00	15	22.6	29.46	54.8	
1700	unkn	100	5.00	79.00	14	23.6	29.34	49.7	
1710	unkn	100	5.00	79.00	13	23.3	29.31	45.3	
1720	unkn	100	5.00	79.00	13	22.6	29.29	47.3	
1730	unkn	100	5.00	79.00	12	22.4	29.08	45.6	
1740	unkn	100	5.00	79.00	11	22.5	29.10	45.4	
1755	unk	100	5.00	79.00	10	22.1	28.50	44.9	
1800	unk	100	5.00	79.00	10	22.2	28.80	45.1	
1805	unk	100	5.00	79.00	9	22.3	28.65	45.4	
									sample taken 1815

SIGNATURE(S): [signature]

PAGE 1 OF 1

WL 13.03 ~~WL 11.83~~
TD 39.50 SOFT ~~TD 16.50~~ SOFT
2.5 gal +

Turb 0357-4197
YSI 98F0607AB / 145
PID 0.0

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NTC ORLANDO ~~NOSL KY~~
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW-OLD 39.4C
DATE: 9/10/99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. ~~(mS/cm)~~	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	~~Sal.~~ ORP (%)	Comments
0825	~~11.83~~ 13.03	100	3.66	105.00	11.0	-38.9	25.83	295.9	
0830	13.06	100	3.83	87.0	7.9	-39.6	25.95	275.7	
0835	13.06	100	4.30	51.00	5.5	-38.7	26.11	234.9	
0840	13.06	100	4.41	43.00	4.50	-38.7	26.15	223.9	
0845	13.06	100	4.48	36.00	6.0	-36.7	26.26	208.7	
0850	13.06	100	4.50	34.00	6.0	-34.5	26.33	196.0	
0855	13.06	100	4.50	32.00	6.60	-32.4	26.30	182.7	
0900	13.06	100	4.50	31.00	8.20	-29.7	26.48	173.4	
0905	13.06	100	4.51	31.00	8.60	-28.1	26.43	164.3	
0910	13.06	100	4.52	31.00	10.0	-25.5	26.47	152.1	
0915	13.06	100	4.51	31.00	10.0	-23.6	26.47	146.3	
0920	13.06	100	4.51	31.00	9.6	-22.6	26.57	141.3	
0925	13.06	100	4.51	31.00	9.0	-20.3	26.64	134.4	
0930	13.06	100	4.52	30.00	9.6	-19.2	26.65	128.3	
0935	13.06	100	4.52	30.00	10.0	-18.0	26.62	124.2	
0940	13.07	100	4.52	30.60	8.8	-16.8	26.64	120.6	
0945	13.06	100	4.52	30.00	8.3	-15.7	26.47	115.8	
0950	13.06	100	4.52	30.00	8.4	-14.7	26.50	112.9	
0955	13.06	100	4.52	30.00	7.1	-13.7	26.41	111.0	
1000	13.06	100	4.51	30.00	6.2	-12.8	26.42	109.3	
1005	13.06	100	4.51	30.00	6.1	-11.7	26.41	106.8	
1010	13.06	100	4.52	30.00	7.2	-11.3	26.45	102.9	
1015	13.06	100	4.52	30.00	6.0	-10.6	26.43	100.8	
1020	13.06	100	4.52	30.00	6.0	-10.1	26.53	98.7	
1025	13.06	90	4.52	30.00	5.0	-9.5	26.54	97.3	
1030	13.07	90	4.52	29.00	4.5	-9.2	26.59	95.5	
1035	13.07	90	4.51	29.00	4.1	-9.3	26.59	94.0	
1040	Sample								Purged 2.5+ gals
1050	Sample Dupe								

SIGNATURE(S): R D Munson

WL 12.66
TD 26.95

TURB SN 0357-4197
YSI SN 98F0607 /

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

Purge 2.5 gal

sampled 1355

PID Reading 0.0

PROJECT SITE NAME: ~~NOSL-KY~~ NTC ORLANDO

PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW- OLD 3913 B

DATE: 9/10/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sat.~~ ORP ~~(%)~~	Comments
1235	12.66	100	4.31	38.00	3.8	-17.9	30.01	235.1	
1240	12.68	100	4.80	27.00	2.2	-19.3	27.83	223.2	
1245	12.68	100	4.87	27.00	1.6	-20.0	27.65	217.2	
1250	12.68	100	4.94	27.00	1.3	-19.7	27.91	211.0	
1255	12.68	100.0	5.01	28.00	1.5	-19.6	28.00	204.2	
1300	12.68	100	5.03	29.00	1.5	-19.5	27.78	202.1	
1305	12.68	100	5.02	29.00	1.7	-18.7	27.68	198.2	
1310	12.68	100	5.00	29.00	1.9	-18.1	27.67	198.0	
1315	12.68	100	5.00	29.00	1.9	-17.7	27.88	193.6	
1320	12.68	100	5.03	29.00	1.7	-18.0	27.79	191.7	
1325	12.68	100	5.02	29.00	1.6	-17.7	27.86	190.5	
1330	12.68	100	5.02	30.00	1.7	-17.1	27.67	188.3	
1335	12.68	100	5.04	30.00	1.5	-16.5	27.75	186.1	
1340	12.68	100	4.98	29.00	1.6	-15.9	27.67	187.9	
1345	12.68	100	4.99	29.00	1.7	-15.6	27.77	184.5	
1350	12.68	100	5.00	29.00	1.6	-15.6	27.90	182.9	
									Purged appx 2.5 gals
1355	Sampled								

SIGNATURE(S): R D Munson

PAGE 1 OF 1

WL 12.80
TD 31.00
Purged 2.25 gals
SUMPL/605

Turb. SN 0357-4197 / 1 5
YSI SN 98F0607
PID Reading 0.0

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NTC ORLANDO ~~NOSL - KY~~
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: NTC 39G12A10 MW-OLD 3912A
DATE: 9/10/99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	~~Sal.~~ ORP (%)	Comments
1440	12.80	100	6.62	162.00	3.2	21.9	28.06	224.7	
1445	12.80	100	6.62	164.00	2.0	4.8	28.24	223.7	
1450	12.80	100	6.62	166.00	2.0	0.6	28.41	222.4	
1455	12.80	100	6.62	172.00	1.5	3.4	28.32	221.7	
1500	12.80	100	6.62	171.00	1.6	2.2	28.54	220.3	
1505	12.80	100	6.62	173.00	1.5	1.4	28.57	219.4	
1510	12.80	100	6.63	173.00	1.2	1.3	28.46	218.4	
1515	12.80	100	6.63	176.00	1.3	5.8	28.39	218.0	
1520	12.80	100	6.63	177.00	1.4	4.7	28.45	217.5	
1525	12.80	100	6.62	175.00	1.2	4.5	28.67	216.3	
1530	12.80	100	6.62	174.00	1.2	5.0	28.75	215.3	
1535	12.80	100	6.62	174.00	1.1	7.5	28.97	214.8	
1540	12.80	100	6.62	175.00	1.1	7.6	28.55	214.5	
1545	12.80	100	6.62	175.00	1.1	8.9	28.58	213.8	
1550	12.80	100	6.62	175.00	1.1	10.1	28.75	213.1	
1555	12.80	100	6.62	175.00	1.1	10.1	28.63	212.6	
1600	12.80	100	6.62	175.00	1.2	10.0	28.27	212.1	
									Purged appx 2.25 gals
1605	Sample								

SIGNATURE(S): R L Munson

6.07

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

turb. 0896-4098
YSI SN: 98F0676/100 5.87
~~TURB~~ IN 6820-03

PROJECT SITE NAME: ~~NOSL-KY~~ NTC ORLANDO
PROJECT NUMBER: N7142 AN0051000 3 9-SA

WELL ID.: MW- 012 3909A ~~012390AA~~ MJC 10/5/99
DATE: 9-10-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	~~Sat~~ ORP ~~(%)~~	Comments
0810	11.71	100	6.65	285.00	24.0	116.1	26.83	206.0	TD 16.59
0830	unknn	100	6.65	285.00	19.3	119.0	27.03	204.8	First Reading After
0835	unkn	100	6.65	286.00	12.7	114.2	27.39	203.4	Set-up.
0840	unkn	100	6.65	286.00	9.27	117.5	27.52	203.1	
0845	unkn	100	6.65	286.00	7.07	121.4	27.61	203.1	Small 1" PVC
0850	unkn	100	6.65	286.00	5.80	124.9	27.69	203.2	inside 4" PVC.
0855	unkn	100	6.65	286.00	3.91	122.0	27.79	203.2	Can not insert
									Water level into
									1" PVC w/ Tube
									installed
									Sample at
									0900.
									Total of 1.5 gals
									of Water removed

SIGNATURE(S): [signature]

PAGE 1 OF 1

VSI SN 98 676/100
Turb 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL - KY~~ NTC ORLANDO
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW- old 3907B
DATE: 9-10-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. ~~(mS/cm)~~	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	~~Sal.~~ ORP ~~(%)~~	Comments
1315	12:00	Set-up Equipment, Adjusted Flow Rate.							TD 31.55
1330	12.10	100	4.79	67.00	6.05	39.6	28.06	38.0	
1335	12.10	100	4.62	65.00	1.76	30.7	29.03	35.1	
1340	12.10	100	4.61	65.00	1.30	24.6	29.10	32.1	
1345	12.10	75	4.65	69.00	.55	17.2	29.32	20.8	
1350	12.10	75	4.66	71.00	.30	16.0	29.33	13.8	
1355	12.10	75	4.67	72.00	0.04	15.2	29.04	9.6	
1355	12.10	75	4.66	72.00	0.00	15.6	28.81	7.6	
1400	12.10	75	4.64	72.00	0.00	15.8	29.28	7.5	
1405	12.10	75	4.64	72.00	0.00	15.9	29.36	7.2	
									Took Sample At 1415
									Total of 1 gal of Water Removed.

SIGNATURE(S): [signature]

VSFSN 98F0676/100
TURB 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NTC ORlando ~~NOSL - KX~~
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-5A

WELL ID.: MW- 01d 3903A
DATE: 9-10-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	~~Sat.~~ ORP ~~(%)~~	Comments
1440	11.78	set-up	equipment		First	Reading	at 1455		TD 16.22
1455	11.78	100	6.55	263.00	0.00	100.8	29.70	97.5	
1500	11.78	100	6.62	266.00	0.00	123.9	29.88	111.2	
1505	11.78	100	6.65	266.00	0.00	132.8	30.00	119.9	
1510	11.78	100	6.65	264.00	0.00	137.2	29.92	126.3	
1515	11.78	100	6.62	256.00	0.00	134.2	29.89	132.3	
1520	11.78	100	6.56	257.00	0.00	130.3	29.75	138.8	
1525	11.78	100	6.59	259.00	0.00	141.3	30.07	143.5	
1530	11.78	100	6.59	264.00	0.00	145.3	30.11	145.8	
1535	11.78	100	6.59	265.00	0.00	148.5	30.23	147.6	
1540	11.78	100	6.59	262.00	0.00	145.3	29.94	151.0	
1545	11.78	100	6.58	262.00	0.00	148.9	30.13	153.8	
1550	11.78	100	6.56	261.00	0.00	149.1	30.04	156.4	Sample at
1555	11.78	100	6.57	262.00	0.00	152.7	29.89	158.4	
									1600
									Purged 2 gals of water.

SIGNATURE(S): [illegible]

PAGE 1 OF 1

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

YSI SN: 98F0676 1/100
~~TURB~~ IN: 6820-03
TURB 0896-4098

PROJECT SITE NAME: ~~NOSI~~ ~~NTC~~ NTC Orlando
PROJECT NUMBER: ~~N7142 AN0051000~~ NTC 39-SA

WELL ID.: MW- Old 39-26C
DATE: 9-10-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (~~mg/L~~ %)	Temp. (Celsius)	ORP (mV)	Comments
0925	12.21	100	6.67	142.00	15.6	23.0	26.89	111.9	TD 39.50
0955	12.24	100	6.69	142.00	12.4	24.0	26.94	114.1	First reading at
1000	12.24	100	6.69	142.00	10.4	25.6	27.03	116.5	0950
1005	12.24	100	6.70	144.00	9.0	28.2	27.10	120.4	
1010	12.24	100	6.72	145.00	8.35	28.6	27.15	116.6	
1015	12.24	100	6.72	147.00	7.64	28.8	27.12	119.6	
1020	12.24	100	6.74	148.00	6.55	28.5	27.13	122.5	
1025	12.24	100	6.74	148.00	5.74	29.9	27.15	129.4	
1030	12.24	100	6.75	149.00	5.65	31.0	27.16	132.6	
1035	12.24	100	6.75	149.00	5.25	31.1	27.26	136.8	
1040	12.24	100	6.76	150.00	5.23	30.0	27.33	136.7	
									Sample at 1045
									Remove 2+ gals of water

SIGNATURE(S): [signature]

WL 11.83 TD 16.65
YSI SN 98C0697 AB
Turb SN 6357-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

NTC 3961 A10

PROJECT SITE NAME: NOSL - KY
PROJECT NUMBER: N7142 AN0051000

WELL ID.: MW-OLD 3911A
DATE: 9-11-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sat.~~ ORP ~~(%)~~ mV	Comments *
0840	* See Comments	90	5.84	147.00	16.5	2.31	27.02	289.7	4" well w/1" inner
0845		90	5.83	145.00	7.19	12.3	26.99	291.6	well. No water
0850		90	5.83	145.00	4.00	3.0	27.10	293.1	levels available.
0855		90	5.82	145.00	3.17	-10.0	27.09	294.9	WLI probe & teflon
0900		100	5.82	145.00	2.74	~~-14~~ -20.2	27.08	296.3	tubing will not
0905		100	5.82	145.00	2.55	-27.9	27.13	298.0	both fit in well
0910		100	5.82	145.00	2.40	-34.9	27.18	299.2	
0915		100	5.82	145.00	2.40	-44.8	27.26	300.3	
0920		100	5.82	145.00	2.31	-48.6	27.24	301.3	
0925		100	5.82	144.00	2.20	-48.7	27.27	302.1	
0930		100	5.82	144.0	2.12	-47.9	27.34	303.7	
0935		100	5.82	145.0	2.28	-56.0	27.42	304.1	
0940		100	5.82	145.0	2.36	58.3	27.43	305.1	
0945		100	5.82	145.0	1.99	58.4	27.44	306.0	
									Purged approx ~~1.5 gal~~ 1.75
0950	Sampled								

SIGNATURE(S): [signature]

PAGE ___ OF ___

YSI SN98 697 AB
Turb SN0357-4197

WL 15.74
TD 19.95

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NTC ORLANDO ~~NOSL - KY~~
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW-39G36A10
DATE: 9/11/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sal (%)~~ ORP (mV)	Comments
1115	15.77 ~~+4.77~~ Dy	100	6.45	473.00	17	-70.9	29.50	246.2	Initial draw down 0.03'
1120	15.77 ~~+4.77~~ Dy	100	6.46	485.00	18	-46.3	29.51	244.8	
1125	15.77	100	6.46	481.00	16	-9.6	29.41	242.4	
1130	15.77	100	6.46	480.00	13	23.6	29.54	241.1	
1135	15.77	100	6.46	477.00	12	48.7	29.54	240.3	
1140	15.77	100	6.47	479.00	10.0	74.8	29.49	238.8	
1145	15.76	100	6.48	480.00	8.9	86.5	29.72	237.7	
1150	15.76	100	6.48	478.00	7.9	87.1	29.99	236.9	
1155	15.76	100	6.49	475.00	6.9	86.1	29.79	236.2	
1200	15.76	100	6.50	473.00	6.4	89.0	29.91	235.1	
1205	15.76	100	6.50	470.00	6.2	90.0	29.78	234.2	
1210	15.76	90	6.50	469.00	5.8	75.2	29.66	233.3	
1215	15.76	90	6.50	469.00	5.35	65.0	29.97	232.2	
1220	15.76	90	6.50	469.00	5.16	58.9	29.87	231.9	
1225	15.76	90	6.51	467.00	4.53	56.5	30.15	230.3	
1230	15.76	90	6.51	464.00	4.23	52.7	30.19	229.3	
1235	15.76	90	6.51	467.00	3.66	55.3	29.77	228.3	
1240	15.76	95	6.50	462.00	3.37	48.7	29.97	227.3	
1245	15.76	90	6.51	461.00	3.94	41.7	30.08	225.8	
1250	15.76	90	6.51	461.00	3.34	40.5	30.18	224.9	
1255	15.76	90	6.51	462.00	3.16	39.9	30.00	224.0	Purged appx 2.75 gals
1300	Sampled								

SIGNATURE(S): [illegible]

PAGE 1 OF 1

WL 16.13 YSI SN 98C06 97 AB
TD 3250 Turb SN 0357-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

NTC 39G 35B10

PROJECT SITE NAME: ~~NOSL KY~~ NTC ORLANDO
PROJECT NUMBER: ~~N7142 AN0051000~~ 39 SA

WELL ID.: MW- 39 35 B
DATE: 9/11/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	ORP ~~Sal.~~ mV ~~(%)~~	Comments
1600	16.13	100	4.55	76.00	6.87	-71.5	29.00	124.9	.02 init. drawdown
1605	16.15	100	4.45	74.00	3.11	-75.9	28.39	118.8	
1610	16.15	100	4.44	74.00	1.52	-90.9	28.41	114.1	
1615	16.14	100	4.44	75.00	1.10	-99.9	28.48	111.2	
1620	16.14	90	4.45	76.00	0.90	-99.9	28.86	108.2	
1625	16.14	95	4.46	77.00	1.06	-99.9	28.67	104.7	
1630	16.14	100	4.47	77.00	1.22	-99.9	28.36	101.5	
1635	16.14	100	4.48	79.00	1.48	-99.9	28.26	99.0	
1640	16.14	100	4.48	79.00	1.75	-99.9	28.30	97.2	
1645	16.14	100	4.50	80.00	1.88	-99.9	28.29	95.1	
1650	16.14	100	4.51	81.00	1.94	-99.9	28.32	92.3	
1655	16.14	100	4.52	82.00	2.35	-99.9	28.41	90.5	
1700	16.14	90	4.53	82.00	2.12	-99.9	28.77	88.8	
1705	16.14	95	4.53	83.00	2.34	-99.9	28.86	86.2	
1710	16.14	90	4.55	83.00	2.45	-99.9	29.19	84.1	
1715	16.14	90	4.55	84.00	2.28	-99.9	29.16	81.8	
1720	16.14	90	4.57	84.00	2.34	-99.9	29.09	79.5	
1725	16.14	90	4.57	85.00	2.37	-99.9	28.87	77.2	
1730	16.14	95	4.58	85.00	2.59	-99.9	28.80	74.2	
1735	16.14	95	4.59	86.00	2.61	-89.4	28.60	71.9	
1740	16.14	95	4.60	86.00	2.72	-85.8	28.29	68.4	
1745	16.14	95	4.62	86.00	2.85	-90.9	28.49	67.2	
1750	16.14	95	4.62	87.00	2.85	-84.4	28.66	66.1	
1755	16.15	95	4.63	87.00	3.31	81.6	28.79	64.1	
1800	16.15	100	4.64	87.00	2.89	-76.3	28.90	62.0	
1805	16.15	100	4.65	88.00	3.11	-70.6	28.42	59.3	
1810	16.15	100	4.66	88.00	3.48	-67.7	28.37	57.0	
1815	16.15	100	4.67	88.00	3.49	-61.2	28.31	55.0	
1820	16.15	100	4.68	89.00	3.33	-51.1	28.15	52.0	
1825	16.15	100	4.68	89.00	3.50	-46.2	28.11	50.1	

SIGNATURE(S): R D Munson

cont'd

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL-KY~~ NTC ORLANDO

PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW-39 35B

DATE: 9/11/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	ORP ~~Sat.~~ mV ~~(%)~~	Comments
1830	16.15	100	4.69	89.00	3.80	-39.6	28.07	48.4	
1835	16.15	95	4.69	89.00	3.81	-35.4	28.10	47.0	
1840	16.15	95	4.70	89.00	3.74	-35.1	28.20	45.8	
1845	16.15	95	4.70	89.00	3.97	-34.8	28.44	44.7	
1850	16.15	95	4.71	90.00	3.83	-33.1	28.14	43.2	
1855	16.15	95	4.72	90.00	4.37	-30.4	27.99	41.7	
1900	16.15	95	4.72	90.00	3.95	-29.8	27.90	40.7	
1905	16.15	95	4.72	90.00	4.33	-27.9	27.84	39.6	
									Purged approx 5.0 gals
1910	Sample								
1915	DUPE								

SIGNATURE(S): R D Munson

XSE SN 98F0676 AB
Turb SN 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL~~ - ~~NX~~ NTC Orlando
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW- ~~34A~~ 3934A
DATE: 9-11-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO o/b ~~(mg/L)~~	Temp. (Celsius)	ORP (%)	Comments
1415	14.83	Set-up equipment							TD-21.34
1430	14.84	100	6.52	384.00	13.1	103.5	30.39	151.8	
1435	14.84	100	6.49	386.00	9.95	105.9	30.45	158.6	3.3 gals To
1440	14.84	100	6.49	390.00	8.32	107.8	30.56	161.2	be purged
1445	14.84	100	6.47	395.00	7.05	110.0	30.66	164.3	
1450	14.84	100	6.46	399.00	6.36	110.9	30.62	164.6	
1455	14.84	100	6.46	402.00	5.98	111.8	30.54	163.9	
1500	14.84	100	6.45	405.00	5.05	116.9	30.64	164.6	1 gal Purged
1505	14.84	100	6.44	410.00	4.55	115.1	30.69	165.4	
1510	14.84	100	6.43	413.00	3.82	119.1	30.39	167.5	
1515	14.84	100	6.43	415.00	3.14	117.3	30.27	167.9	
1520	14.84	100	6.43	417.00	2.91	117.4	30.39	168.0	
1525	14.84	100	6.42	418.00	2.77	115.6	30.05	168.7	
1530	14.84	100	6.41	418.00	2.41	122.2	29.89	168.8	
1535	14.84	100	6.42	418.00	2.46	121.8	30.20	168.5	
1540	14.84	100	6.42	419.00	2.41	126.9	30.57	167.6	
1545	14.84	100	6.42	419.00	2.18	124.9	30.46	167.5	2 gal Purged
1550	14.84	100	6.42	420.00	2.11	124.3	30.29	167.1	
1555	14.84	100	6.42	420.00	2.24	122.9	30.12	167.2	
1600	14.84	100	6.42	420.00	2.14	122.9	30.07	166.5	
1605	14.84	100	6.41	421.00	1.95	122.0	29.38	166.4	
1610	14.84	100	6.41	420.00	2.18	123.2	29.29	166.2	
1615	14.84	100	6.41	420.00	2.01	123.9	29.29	166.0	
1620	14.84	100	6.41	419.00	2.22	122.5	29.70	165.8	
1630	14.84	100	6.42	420.00	1.92	123.1	29.61	164.8	3 gal Purged
									Sampled 1640

SIGNATURE(S): [illegible]

PAGE 1 OF 1

3.4 278 280

IN: 6820-03
YSI Ser: 98F0676 AB
Turb. SN 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL~~ - ~~NX~~ Ntc Orlando
PROJECT NUMBER: ~~N7742-AN0054000~~ 39-SA

WELL ID.: MW- Old 3902A
DATE: 9-12-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	ORP ~~(Volt)~~	Comments
0830	13.14	Set-up		—		—	—	—	TD-16.19
0850	13.20	100	4.67	321.00	5.7	58.3	26.81	290.4	First Reading
0855	13.20	100	4.66	325.00	4.4	60.7	26.85	291.4	
0900	13.20	100	4.65	325.00	4.0	62.7	26.88	290.5	
0905	13.20	100	4.65	327.00	3.4	64.9	26.91	289.3	1 gal Purged
0915	13.20	100	4.64	327.00	3.1	65.1	26.97	288.2	
0920	13.20	100	4.64	326.00	2.9	62.3	27.08	287.2	
0925	13.20	100	4.64	326.00	2.9	63.5	27.15	287.1	
0930	13.20	100	4.64	326.00	2.9	62.1	27.17	287.2	
0935	13.20	100	4.63	326.00	3.1	66.9	27.20	287.5	
0940	13.20	100	4.63	325.00	3.2	68.5	27.22	287.7	
0945	13.20	100	4.63	324.00	3.3	68.5	27.27	287.8	
0950	13.20	100	4.63	325.00	3.2	69.4	27.31	288.0	2 gals Purged
									Sampled at
									0955

SIGNATURE(S): [signature]

YSI SN 98F0676 AB
Turb. SN 0896-4098 2.71

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL - KY~~ NTC ORLANDO
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW- 01d3905A
DATE: 9-1~-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sat.~~ ORP (%)	Comments
1045	11.88	Set-up Equipment			—	—	—	—	TD 14.59
1115	12.00	100	6.19	594.00	27.5	165.3	27.62	163.0	First Reading
1120	12.00	100	6.17	552.00	20.5	159.0	27.79	150.0	0 PPM Reading
1125	12.00	100	6.17	532.00	15.8	152.3	27.84	139.3	
1130	12.00	100	6.17	508.00	11.2	141.7	27.80	126.6	
1135	12.00	100	6.16	482.00	8.45	133.0	27.84	118.7	
1140	12.00	100	6.16	467.00	6.34	125.5	27.74	113.7	
1145	12.00	100	6.15	459.00	5.06	123.3	27.76	108.7	
1150	12.00	100	6.15	448.00	3.31	122.9	27.90	104.1	1 gal Purged
1155	12.00	100	6.13	438.00	2.38	117.3	27.85	100.5	
1155	12.00	100	6.13	424.00	1.58	107.5	27.89	97.1	
1200	12.00	100	6.12	420.0	1.43	104.7	27.90	95.0	
1205	12.00	100	6.12	417.00	1.56	105.4	27.82	93.2	
1210	12.00	100	6.11	412.00	.99	102.2	27.94	90.5	
1215	12.00	100	6.11	411.00	.83	103.6	28.00	89.1	
1220	12.06	100	6.11	410.00	.77	104.0	28.13	88.0	
1230	12.00	100	6.11	408.00	.52	105.1	28.11	88.2	2 gal Purged
									Sampled 1245

SIGNATURE(S): [signature]

PAGE 1 OF 1

DL 15.47 TD 31.75 YSI SN 98C C 7 AD
TURB. Lamotte 0351-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL-KY~~ NTC ORLANDO
PROJECT NUMBER: N7142 AN0051000 39-SA

WELL ID.: MW-OLD 39 38B
DATE: 9/12/99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % ~~(mg/L)~~	Temp. (Celsius)	ORP ~~Sal.~~ mV ~~(%)~~	mg/L DO	Comments
1340	15.54	100	5.35	142.00	11.2	-99.9	28.57	8.1	-9.14	Drawdn .04
1345	15.54	100	5.32	150.00	11.1	-98.0	28.62	10.7	-7.55	
1350	15.54	100	5.35	147.00	9.89	-84.0	28.48	8.8	-6.45	
1355	15.54	100	5.39	149.00	8.52	-74.4	28.55	6.9	-5.71	
1400	15.54	100	5.42	149.00	9.36	-68.8	28.62	4.7	-5.32	
1405	15.53	100	5.45	142.00	10.09	-63.0	28.47	2.4	-4.83	
1410	15.54	100	5.49	140.00	8.93	-59.9	28.17	0.9	-4.70	
1415	15.54	100	5.49	141.00	7.25	-58.9	28.18	0.2	-4.60	
1420	15.54	100	5.49	141.00	9.06	-57.9	28.30	-0.9	-4.53	
1425	15.54	100	5.53	143.00	7.67	-56.2	28.45	-3.5	-4.35	
1430	15.54	100	5.52	143.00	6.25	-55.7	28.46	-2.7	-4.31	Go to 10min int.
1440	15.54	100	5.51	140.00	5.15	-52.9	28.27	-1.1	-4.13	
1450	15.54	100	5.52	140.00	4.11	-50.3	28.24	-2.7	-3.97	
1500	15.54	100	5.54	141.00	3.54	-48.8	27.94	-6.2	-3.81	
1510	15.54	100	5.53	140.00	3.00	-45.5	27.53	-8.8	-3.60	
1520	15.54	100	5.53	140.00	2.68	-42.2	27.70	-12.1	-3.30	
1530	15.54	100	5.54	140.00	2.49	-39.4	27.65	-15.5	-3.12	
1540	15.54	100	5.54	139.00	2.35	-35.5	27.42	-18.3	-2.83	
1545	15.54	100	5.53	139.00	2.36	-33.7	27.38	-19.1	~~-26.0~~ -26.5	Back to 5min int.
1550	15.54	100	5.56	140.00	2.19	-33.1	27.51	-20.1	-2.57	
1555	15.54	100	5.55	139.00	2.25	-32.1	27.51	-19.7	-2.51	
										Purged 2.25gal
1605	Sample									

SIGNATURE(S): R D Murson

PAGE 1 OF __

YSI SN 98C0697 AB
WL 16.49 TD 42.85 Turb hamotte SN0357-4197

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL-KY~~ NTC ORLANDO
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW-OLD3937C
DATE: 9/12/99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sat.~~ ORP (%)	mg/L DO	Comments
0905	17.06	100	12.10	2751.0	14.7	-19.1	27.36	-52.8	-1.45	
0910	17.53	100	12.11	2778.0	10.45	-5.6	27.43	-67.9	-0.38	
0915	17.92	100	12.11	2787.0	10.07	6.2	27.40	-80.9	0.52	
0920	18.08	80	12.11	2764.0	8.45	19.6	27.41	-88.7	1.57	Lower flow rate
0925	18.18	80	12.11	2746.0	8.47	23.2	27.43	-94.6	1.84	
0930	18.32	80	12.11	2717.0	7.73	28.6	27.35	-104.4	2.24	
0935	18.41	80	12.10	2677.0	7.29	31.0	27.18	-110.8	2.47	
0940	18.47	80	12.10	2649.0	6.94	33.2	27.10	-88.5	2.62	
0945	18.52	80	12.10	2619.0	6.96	32.3	26.99	-113.0	2.55	
0950	18.56	80	12.00	2586.0	6.47	32.9	26.90	-122.7	2.61	0949 RAIN
0955	18.60	80	12.09	2567.0	6.13	32.9	26.92	-127.7	2.61	
1000	18.62	75	12.09	2544.0	6.06	32.2	26.86	-131.6	2.58	
1005	18.63	75	12.08	2504.0	6.07	30.9	26.69	-136.8	2.46	Lower flow rate
1010	18.65	75	12.08	2466.0	6.01	30.2	26.54	-140.4	2.39	
1015	18.63	70	12.07	2419.0	5.54	31.3	26.44	-144.4	2.57	Lower flow rate
1020	18.60	70	12.06	2396.0	5.55	30.9	26.41	-146.3	2.46	
1025	18.61	70	12.06	2349.0	5.32	31.3	26.43	-149.0	2.52	
1030	18.57	75	12.05	2316.0	5.10	31.8	26.43	-151.3	2.52	
1035	18.56	75	12.04	2288.0	5.27	29.5	26.45	-153.0	2.36	
1040	18.55	70	12.03	2252.0	5.38	30.4	26.49	-154.9	2.44	
1045	18.58	70	12.02	2212.0	4.83	29.1	26.53	-157.1	2.29	
10:50	18.58	70	12.01	2186.0	4.75	28.9	26.56	-158.6	2.31	
10:55	18.57	70	12.01	2166.0	4.64	27.7	26.60	-159.8	2.20	
11:00	18.57	70	12.00	2142.0	4.60	26.4	26.63	-160.7	2.09	Sunshine
1105	18.57	70	11.99	2113.0	4.78	27.0	26.72	-162.8	2.15	
1110	18.56	70	11.98	2083.0	4.58	26.3	26.87	-163.1	2.05	
1115	18.58	70	11.97	2056.0	4.69	25.7	27.08	-164.3	2.02	
1120	18.58	70	11.96	2045.0	4.78	25.3	27.12	-165.0	1.99	
1125	18.58	70	11.96	2010.0	4.29	24.2	27.22	-166.0	1.91	
1130	18.58	70	11.95	1999.0	4.46	24.3	27.31	-166.7	1.93	

SIGNATURE(S): R D Munson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

Cont'd

PROJECT SITE NAME: NOSL - KY
PROJECT NUMBER: N7142 AN0051000

WELL ID.: MW-OLD3937C
DATE: 9/12/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	~~Sat.~~ (%)	Comments
1135	18.57	70	11.94	1985.0	4.21	23.8	27.75	-167.6	1.89 / Switch to 10 min Interval
1145	18.56	70	11.91	1944.0	4.46	25.5	28.54	-169.2	1.99
1155	18.57	70	11.90	1909.0	4.05	23.5	28.42	-170.4	1.81
1205	18.58	70	11.88	1858.0	4.08	21.2	28.75	-171.4	1.63
1215	18.57	70	11.87	1840.0	3.89	21.7	28.93	-172.4	1.66
1220	18.57	70	11.87	1830.0	4.00	19.7	29.04	-172.7	1.52 / switch back to 5 min INT
1225	18.57	70	11.86	1812.0	3.78	20.5	29.15	-172.8	1.54
1230	18.56	70	11.86	1801.0	3.85	20.4	29.04	-173.0	1.57
									Purged 3.75 gals
									Light Sheen on water

SIGNATURE(S): R D Munson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

VSEP 98F0676 AB
Turb. SN0896-4098

PROJECT SITE NAME: ~~NOSL~~ - ~~IR~~ NTC Orlando
PROJECT NUMBER: ~~N7142AN0051000~~ SA-39

WELL ID.: MW-3933B
DATE: 9-12-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sat.~~ ORP (%)	Comments 3.3
1050	15.50	~~15.50~~	Set-up	equipment		—	—		TD 32.55
1205	15.20	100	4.58	139.00	31.1	51.5	29.17	27.4	First Reading
1215	15.20	100	4.52	137.00	8.34	45.3	29.10	19.1	
1220	15.20	100	4.52	139.00	5.51	43.3	29.13	15.8	
1225	15.20	100	4.51	138.00	4.13	43.8	29.14	12.9	
1230	15.20	100	4.51	138.00	4.43	42.6	29.22	10.4	
1235	15.20	100	4.51	138.00	4.18	40.7	29.15	8.9	1 gal purged
1240	15.20	100	4.51	139.00	4.36	41.0	29.05	6.4	
1245	15.20	100	4.51	139.00	3.68	39.8	29.11	4.5	
1250	15.20	100	4.51	139.00	3.28	39.3	29.42	2.9	
1255	15.20	100	4.51	139.00	3.21	39.2	29.59	1.7	
1300	15.20	100	4.51	139.00	2.92	40.2	29.69	0.5	
1305	15.20	100	4.51	139.00	2.31	40.5	29.82	-1.0	
1310	15.20	100	4.52	139.00	2.20	38.7	29.59	-0.9	
1315	15.20	100	4.52	139.00	1.93	40.0	29.55	-1.9	
1320	15.20	100	4.52	139.00	1.86	38.8	29.28	-2.5	
1325	15.20	100	4.52	139.00	1.93	39.0	29.22	-3.7	2 gal Purged
1330	15.20	100	4.53	139.00	1.31	39.0	29.54	-3.5	
1335	15.20	100	4.53	140.00	2.04	42.0	29.99	-4.0	
1345	15.20	100	4.53	140.00	1.21	42.3	30.18	-4.1	
1350	15.20	100	4.53	140.00	1.03	42.6	30.03	-5.0	
1400	15.20	100	4.53	140.00	1.26	42.8	30.00	-6.1	
1410	15.20	80	4.53	140.00	0.90	42.0	29.74	-6.2	
1420	15.20	100	4.53	140.00	1.33	45.0	30.04	-5.9	3 gal Purged
1430	15.20	100	4.54	142.00	0.38	44.7	30.43	-7.1	
1435	15.20	100	4.54	143.00	0.50	44.7	30.15	-7.7	
1440	15.20	100	4.54	143.00	0.44	44.5	30.10	-7.5	
1445	15.20	100	4.54	143.00	0.47	44.7	30.15	-7.7	3.3 gal Purged
									Sampled AT 1500

SIGNATURE(S): [illegible]

PAGE__ OF__

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

YSI SN 98F0676 AB
Turb SN 0896-4098

PROJECT SITE NAME: ~~NOSL KY~~ Ntc Orlando
PROJECT NUMBER: ~~N7142-AN0051000~~ SA-39

WELL ID.: MW- 3932C
DATE: 4-12-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	~~Sal~~ ORP (%)	Comments 3.4 gals
0745	15.80	Set-up equipment			—	—	—	—	4D-42,69
0805	15.80	100	5.18	81.00	11.9	35.8	26.64	53.5	First Reading
0810	15.80	100	5.08	79.00	6.27	28.3	26.58	32.5	Calib Turb meter
0815	15.80	100	5.04	76.00	5.32	20.7	26.75	17.5	
0820	15.80	100	5.07	77.00	6.95	19.3	26.88	4.5	Readjusted water flow
0825	15.80	100	5.07	78.00	6.86	19.1	26.85	2.2	
0830	15.80	100	5.10	79.00	8.42	18.0	26.78	-5.2	
0835	15.80	100	5.12	80.00	9.34	16.3	26.60	-14.1	
0840	15.80	100	5.13	80.00	9.28	15.7	26.63	-15.8	
0845	15.80	100	5.13	80.00	9.49	15.1	26.66	-21.1	
0850	15.80	100	5.12	80.00	9.78	15.2	26.86	-23.6	
0855	15.80	100	5.14	80.00	9.76	14.8	26.97	-25.9	
0800	15.80	100	5.15	80.00	10.24	14.9	27.13	-26.9	
0805	15.80	80	5.15	81.00	10.05	15.0	27.08	-28.6	Slowed Pump to 80mL
0810	15.80	75	5.15	81.00	10.80	15.2	27.10	-29.6	
0815	15.80	75	5.15	80.00	10.36	15.2	27.23	-29.4	2 gals Removed
0920	15.80	75	5.15	80.00	10.41	15.1	27.30	-29.8	
0925	15.80	90	5.15	80.00	10.31	15.0	27.25	-30.8	
0930	15.80	75	5.15	80.00	10.80	14.8	27.13	-32.1	
0935	15.80	75	5.15	80.00	10.51	14.8	26.96	-33.9	
0940	15.80	75	5.15	79.00	10.37	14.6	26.92	-35.0	
0945	15.80	75	5.14	79.00	10.20	14.8	26.75	-35.0	
0955	15.80	75	5.14	79.00	10.01	14.6	26.69	-36.0	
1000	15.80	75	5.14	79.00	9.70	15.1	26.60	-36.7	Sampled At 10:45
1005	15.80	75	5.14	79.00	9.58	15.0	26.48	-38.0	
1010	15.80	75	5.13	79.00	9.17	15.0	26.28	-38.7	
1015	15.80	75	5.14	79.00	9.56	14.6	26.33	-39.7	3 gal Removed
10.20	15.80	75	5.14	79.00	9.51	14.8	26.29	-38.7	
10.25	15.80	75	5.15	79.00	9.98	14.9	26.33	-38.9	
10.30	15.80	75	5.15	79.00	9.42	15.0	26.36	-38.7	3.3 gal Removed

1 2

SIGNATURE(S): [illegible]

YSI SN 98F0676 AB
Turb SN 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSI-KY~~ NTC Orlando
PROJECT NUMBER: ~~N7142 AN0051000~~ SA-39

WELL ID.: MW-3931A
DATE: 9-12-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO % (~~mg/L~~)	Temp. (Celsius)	~~Sal~~ ORP (%)	Comments 2023
1515	14.88		Set-up equipment						TD 21.45
1550	14.91	100	4.36	62.00	9.77	45.0	28.95	214.4	First readings
1555	14.91	100	4.36	61.00	8.32	41.1	28.87	227.1	
1600	14.91	100	4.36	61.00	8.07	37.2	28.79	233.7	
1605	14.91	100	4.37	61.00	8.43	34.7	28.79	231.8	
1610	14.91	100	4.37	61.00	9.04	32.0	28.69	228.0	
1615	14.91	100	4.37	61.00	8.86	28.9	28.75	222.7	1 gal Purged
1620	14.91	100	4.38	61.00	8.90	26.8	28.48	214.1	
1625	14.91	100	4.38	60.00	8.94	25.5	28.32	210.4	
1630	14.91	100	4.38	60.00	8.87	24.4	28.49	207.2	
1635	14.91	100	4.38	60.00	9.09	23.7	28.60	205.9	
1640	14.91	100	4.38	60.00	9.20	22.5	28.58	199.0	
1645	14.91	100	4.39	60.00	9.47	21.3	28.59	194.4	
1650	14.91	100	4.40	60.00	9.66	20.1	28.57	191.3	
1655	14.91	100	4.40	60.00	9.64	19.7	28.50	187.4	2 gal Purged
1700	14.91	100	4.40	60.00	9.67	18.8	28.44	184.7	
1705	14.91	100	4.40	60.00	9.70	18.0	28.39	183.3	2.2 gals Purged
									Sampled at
									1715

SIGNATURE(S): [signature]

WL 1.56 TD 33.0

YSI SN 980697A 145
Lamotte SN 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL KY~~ NTC ORLANDO
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW-OLD 3930B
DATE: 9/13/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO ~~(mg/L)~~ %	Temp. (Celsius)	~~Sat (%)~~ ORP mV	DO mg/L	Comments
0825	16.16	100	4.85	64.00	13.8	-99.9	26.43	110	-13.98	Draw down 0.55
0830	16.21	100	4.89	74.00	14.7	-99.9	26.64	98.8	-14.11	
0835	16.15	75	4.94	67.00	17.1	-99.9	26.64	86.1	-13.91	Flow to 75 ml/min
0840	16.11	75	5.00	69.00	20.4	-99.9	26.73	77.5	-13.19	
0845	16.09	75	5.02	71.00	23.6	-99.9	26.91	70.6	-12.48	
0850	16.08	75	5.03	72.00	24.9	-99.9	27.07	65.6	-12.03	
0855	16.08	75	5.03	73.00	26.1	-99.9	27.11	63.2	-12.01	
0900	16.08	75	5.04	73.00	28.3	-99.9	27.16	58.3	-11.44	
0905	16.09	75	5.05	74.00	30.6	-99.9	27.43	54.1	-11.05	
0910	16.09	75	5.06	74.00	32.0	-99.9	27.56	51.4	-10.72	
0915	16.10	75	5.06	75.00	33.2	-99.9	27.66	47.7	-10.20	
0920	16.08	75	5.07	76.00	33.6	-99.9	27.77	44.6	-9.80	
0925	16.07	75	5.08	76.00	34.6	-99.9	27.92	41.8	-9.48	
0930	16.08	75	5.07	76.00	34.0	-99.9	27.96	40.4	-9.05	
0935	16.09	75	5.05	76.00	31.4	-99.9	28.09	38.4	-8.62	
0940	16.06	75	5.05	75.00	31.1	-99.9	28.15	35.8	-8.04	
0945	16.07	75	5.07	75.00	31.6	-99.9	28.25	32.0	-7.82	
0950	16.06	75	5.11	77.00	40.3	-96.8	28.28	27.7	-7.48	
0955	16.04	75	5.13	79.00	46.1	-92.1	28.32	25.0	-7.17	
1000	16.06	75	5.14	80.00	48.4	-86.6	28.41	23.3	-6.75	
1005	16.08	75	5.15	81.00	48.5	-85.0	28.35	21.1	-6.58	
1010	16.08	75	5.15	81.00	47.4	-81.3	28.35	19.9	-6.31	Switch to 10 min int
1020	16.09	75	5.13	81.00	40.2	-72.4	28.52	17.5	-5.60	
1030	16.07	75	5.10	79.00	31.4	-64.2	28.84	17.0	-4.94	
1040	16.06	75	5.08	76.00	26.7	-57.6	29.00	16.6	-4.41	
1050	16.06	75	5.05	74.00	23.8	-52.6	29.08	16.0	-4.06	
1100	16.06	75	5.04	73.00	22.2	-48.2	29.19	15.0	-3.71	
1110	16.06	75	5.04	73.00	21.0	-45.5	29.35	13.8	-3.49	
1120	16.06	75	5.04	73.00	20.3	-41.3	29.45	12.9	-3.16	
1130	16.06	75	5.02	72.00	18.8	-38.8	29.52	12.1	-2.97	

SIGNATURE(S): RD Munson

YSI SN980697AB/145 cont'd
Lamotte 0896-4098

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSL - KY~~ NTC ORLANDO
PROJECT NUMBER: ~~N7142 AN0051000~~ 39-SA

WELL ID.: MW-OLD 3930B
DATE: 9/13/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. ~~(mS/cm)~~ mS/cm	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	~~Sat (%)~~ ORP MV	Comments DO mS/cm
1140	16.06	75	5.02	72.00	18.9	-36.7	29.46	10.3	-2.9
1150	16.06	75	5.02	72.00	18.0	-34.0	29.39	8.0	-2.57
1200	16.06	75	5.02	72.00	18.1	-31.0	29.51	+7.0	-2.35
*1210	16.07	75	5.01	71.00	17.4	-28.2	29.69	+7.1	-2.17 Adj to 65ml/min
1220	15.95	70	5.01	71.00	16.5	-26.9	29.77	5.7	-2.04
1230	16.00	75	5.03	72.00	18.8	-26.1	29.25	3.6	-1.99 Pump stopped
1240	15.95	80	5.05	72.00	20.7	-35.1	29.84	9.9	-2.72 Pump stopped
1250	16.09	75	4.98	70.00	18.0	-42.2	28.96	13.4	-3.19
1300	16.05	70	4.99	71.0	17.1	-42.2	29.26	10.5	-3.20
1310	16.00	70	5.01	71.00	17.6	-42.2	29.66	7.9	-3.21
1320	16.09	75	5.00	71.00	18.4	41.4	29.42	6.5	-3.15 Pump stopped
1330	16.04	70	5.00	71.00	17.8	-40.1	29.69	4.8	-3.01
1340	16.03	70	5.01	71.00	17.5	-36.9	29.82	3.6	-2.81 Back to 5min interval
1345	16.03	70	5.01	71.00	17.8	-36.7	29.86	3.3	-2.76
1350	16.03	70	5.00	71.00	17.6	-35.1	29.55	2.8	-2.65
1355	16.03	70	5.00	71.00	17.0	-33.9	29.62	1.7	-2.56
1400	16.03	70	5.01	71.0	16.9	-32.9	29.59	0.6	-2.47
1405	16.03	70	5.00	71.00	16.1	-33.3	29.09	0.1	-2.53
1410	16.03	70	5.00	71.00	15.7	-32.3	29.20	-1.0	-2.51
1415	16.07	70	5.00	71.00	14.8	-30.8	29.36	-2.4	-2.31
1420	16.04	70	5.01	71.00	14.9	-30.9	29.53	-3.3	-2.32
1425	16.04	70	5.01	71.00	15.2	-31.1	29.28	-3.5	-2.36
1430	16.04	70	5.00	71.00	15.1	-30.6	29.56	-3.5	-2.31 Pump stopped
1440	Sample NTC39630B10								Purged appx 6.5 gals
1445	DUPE	NTC39D002							

SIGNATURE(S): RD Munson

YSI SN 98 F0676 AD / 100
Lamotte SN 0357-4197

98F0676

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~MOSI~~ ~~KY~~ NTC ORlando
PROJECT NUMBER: ~~N7142 AN0051~~000 SA-39

WELL ID.: MW-3929C
DATE: 9-13-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	~~Sat.~~ ORP (%)	Comments
0805	15.85	Set-up equipment						~~81.9~~	TD 42.85
0825	15.91	100	6.27	155.00	ER-3	53.8	26.98	-81.9	Water very dirty
0835	15.91	100	6.22	152.00	ER-2	54.1	27.12	-81.8	
0845	15.91	100	6.10	134.00	1065	39.1	26.88	-88.6	water dirty
0855	15.91	100	6.07	127.00	746	53.7	26.89	-63.1	
0900	15.91	100	6.10	136.00	1097	55.9	27.14	-71.6	
0905	15.91	100	6.11	137.00	ER-2	52.1	27.15	-75.6	
0910	15.91	100	6.10	136.00	ER-2	49.3	27.18	-78.4	
0920	15.91	100	6.09	135.00	ER-2	47.4	27.25	-79.9	
0925	15.91	100	6.10	135.00	1078	48.7	27.32	-82.0	2 gals Purge, water
0930	15.91	100	6.10	134.00	1026	46.7	27.37	-83.6	still Brown in color
0935	15.91	100	6.08	133.00	1009	47.4	27.40	-86.2	
0940	15.91	100	6.07	132.00	970	45.1	27.49	-86.9	
0945	15.91	100	6.07	132.00	921	43.4	27.49	-88.7	
0950	15.91	100	6.16	146.00	ER-2	51.2	27.51	-95.0	
0955	15.91	100	6.13	142.00	ER-2	49.9	27.63	-96.7	
1000	15.91	100	6.04	132.00	1057	40.3	27.74	-96.0	
1005	15.91	100	6.03	130.00	989	40.0	27.00	-96.0	
1010	15.91	100	6.02	127.00	857	40.4	27.86	-103.1	3 gals Purged
1025	15.91	100	5.99	122.00	772	40.1	28.09	-95.1	
1040	15.91	100	5.96	120.00	701	38.3	28.40	-105.1	
1045	15.91	100	5.95	119.00	689	37.5	28.45	-106.8	4 gals Purgeded
1050	15.91	100	5.95	118.00	681	36.5	28.55	-109.9	
1100	15.91	100	5.94	118.00	669	40.2	28.57	-111.8	
1105	15.91	100	5.94	118.00	656	38.5	28.63	-109.7	
1110 ✓	15.91	100	5.93	116.00	652	39.7	28.87	-100.3	
1115	15.91	100	5.93	116.00	635	38.7	28.94	-105.4	
1125	15.91	100	5.93	116.00	600	38.8	29.21	-107.7	
1135	15.91	100	5.91	114.00	596	39.2	29.26	-106.5	
1145	15.91	100	5.90	113.00	581	39.4	29.11	-114.0	

SIGNATURE(S):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: ~~NOSI~~ - ~~RY~~ NTC Orlando
PROJECT NUMBER: ~~N7142~~ ~~AN0051000~~ SA-39

WELL ID.: MW-3929C
DATE: 9-13-99

Time (Hrs.)	Water Level (Ft. below TCC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (%)	Temp. (Celsius)	ORP (%)	Comments
1155	15.91	100	5.89	113.00	5.78	40.3	29.28	-107.5	
1205	15.91	100	5.89	112.00	565	42.3	27.74	-105.5	544
1215	15.91	75	5.89	111.00	511	43.0	30.07	-102.8	511
1225	15.91	75	5.86	108.00	497	42.1	29.44	-101.7	507
1235	15.91	75	5.84	108.00	483	44.0	29.75	-97.7	497
1245	15.91	75	5.85	108.00	470	45.4	30.34	-99.4	
1250	15.91	75	5.85	108.00	471	42.1	29.49	-104.8	
1300	15.91	65	5.84	108.00	451	45.2	29.95	-102.3	
1330	15.91	65	5.84	108.00	451	44.2	30.23	-101.9	439
1400	15.91	65	5.81	105.00	445	43.9	29.67	-105.4	
1430	15.91	65	5.79	103.00	390	48.5	30.50	-96.9	438, 402
1500	15.91	65	5.78	102.00	400	49.2	30.90	-92.7	
1530	15.91	65	5.76	100.00	383	47.5	30.74	-96.3	
1600	15.91	65	5.76	100.00	418	49.5	30.54	-94.4	
1630	15.91	65	5.74	101.00	359	47.3	28.94	-100.4	
1650	1591	65	5.76	102.00	331	47.5	28.87	-105.6	Total of 11 gals purged

1500 - Called M. Campbell and explained the problems we were having with this well. Could not get the turb down, pump has been pumping as low as possible. 65mL/min Water has turned from a brown color to a light grey. Placed 100mL on water into a clear bottle, nothing had settled down in 4 hours. It appears the water is tinted that color. Mike request I continue pumping until 1700 hours and take sample. Also due to taking a MS/MSD requested I take 3 extra 40 mL bottles.

SIGNATURE(S): [signature]

Low Flow Purge Data Sheet

Well No.: OLD-39-39A

PROJECT: Orlando NTC
PROJECT NUMBER: 7457
SITE: Site 39

DATE: 3/9/00
WEATHER: Partly cloudy, mid 70's
PERSONNEL: BDA, RH

Well Screen Depth: 9.3' / 19.8' ft.
Initial Water Level: 12.59 @ 0935 hrs.

Pump Type/Material: Peristaltic
Pump Intake Depth: 14'

Tide Cycle: [ ] High @ ____ [ ] Low @ ____ [✓] Not Affected

Total Purge Volume= ~5 gal (gal / L) **Drawdown + Tubing Volume=** ____ (gal / L)

Time	Water Level feet below TOC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Salinity %	Eh mV	Comments ORP
1036	12.59		175								
1045	12.60		175	25.25	5.22	5	7.4	670	0		214 very turbid, brown
1047			100								
1248	12.60		100	25.40	5.06	5	7.1	660	0		216 very turbid, brown
1053				25.75	5.12	4	6.9	700	0		216 very turbid, brown
1058				25.96	5.06	4	7.1	710	0		216 " "
1103	12.60		130	25.80	5.08	4	7.1	730	0		218 " "
1108	12.60		130	25.76	5.05	4	7.0	730	0		218 turbid, "
1114				25.90	5.05	4	7.0	740	0		221 " "
1119				25.85	4.77	4	6.9	740	0		233 " "
1124	12.60		130	25.95	5.03	4	5.8	760	0		216 "
1130				25.54	5.04	4	5.9	740	0		212 "
1137				25.78	5.00	4	5.8	730	0		216 "
1143				25.22	5.01	4	6.1	710	0		213 "
1150				25.03	4.98	4	6.1	720	0		214 "
1157				25.74	5.03	4	6.2	730	0		210 "
1215	12.60		130	25.84	5.09	4	6.3	740	0		206 "
1225				25.74	5.11	4	6.3	730	0		205 " sampled

Remarks:

GROUNDWATER PURGING AND SAMPLING LOG

Date 100499

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: OLD 3912A
Sample Location: Bldg 137
Sampled By: KJM / JJM
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	1320	6.79	311.0	27.34	25.7	5.09	141.7	10.64	100
2	0.163	1325	6.82	303.0	27.13	7.6	4.74	138.8	10.64	100
3	0.367	1330	6.82	297.0	27.07	4.5	4.41	139.7	10.64	100
4	0.653	1335	6.82	300.0	27.05	4.0	4.53	140.5	10.64	100
5	1.020	1340	6.82	300.0	27.03	3.5	4.56	141.0	10.64	100
6	1.469	1345	6.82	301.0	27.09	3.6	4.55	142.0	10.64	100
8	2.611									
10	4.080									

Well Casing Diameter:
Total Well Depth (TD): 17.03
Static Water Level (WL): 10.64
One Casing Volume(gal/L): 1.06 gal
[3.78gals/L]
Start Purge (hrs): 1318
End Purge (hrs): 1346
Total Purge Time (min): 28 min
Total Vol. Purged (gal/L):
~~600 ML~~
7.8 Lt.

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 100499									
Time: 1350	Clear	6.82	301.0	27.09	3.5	4.56	142.3	10.64	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC	HCl	2 - 40 mL V. als	100499
~~Gross Alpha/Gross Beta/Total Uranium/Radium 226~~	~~HNO3 (pH < 2)~~	~~1 - 1 gal plastic cubitainer~~	
Alkalinity	None	250 mL Poly	
Nitrate, Cl, Phos, Nitrite, Sulfate	1 Lt. HNO3	1 Lt.	
T. Metals	1 Lt. none	1 Lt.	

ADDITIONAL INFORMATION

OVA Reading (ppm): 0 ppm

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Kenneth J. Mayer

GROUNDWATER PURGING AND SAMPLING LOG

Date 100599

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: NTC 396-140C
Sample Location: Bldg 137
Sampled By:
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	0920	4.91	45.0	25.00	5.66	1.50	151.7	10.78	100
2	0.163	0925	4.73	40.0	25.21	2.00	1.41	143.3	10.78	100
3	0.367	0930	4.62	34.0	25.35	0.74	1.28	135.8	10.78	100
4	0.653	0935	4.61	33.0	25.35	0.25	0.98	124.2	10.78	100
5	1.020	0940	4.60	33.0	25.36	0.00	1.01	114.5	10.78	100
6	1.469	0945	4.62	33.0	25.36	0.00	0.97	102.5	10.78	100
8	2.611	0950	4.61	34.0	25.40	0.00	0.97	98.1	10.78	100
10	4.080	0955	4.60	33.0	25.40	0.00	0.91	88.6	10.78	100
		1000	4.59	33.0	25.37	0.00	0.90	83.5	10.78	100
		1003	4.59	33.0	25.41	0.00	0.89	80.9	10.78	100
		1006	4.59	33.0	25.42	0.00	0.88	80.3	10.78	100

Well Casing Diameter: 2" PVC
Total Well Depth (TD): 39.29
Static Water Level (WL): 10.78
One Casing Volume(gal/L):
[3.78gals/L]
Start Purge (hrs): 0920
End Purge (hrs): 1006
Total Purge Time (min): 46 min
Total Vol. Purged (gal/L):
4.6 L.

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 100599									
Time: 1007	Clear	4.59	33.0	25.43	0.00	0.88	80.4	10.78	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC			100599
Gross Alpha/Gross Beta/Total Uranium/Radium 226	HNO3 (pH < 2)	1 - 1 gal plastic cubitainer	
AIK			
Cation & Anions			
T-Metals			

ADDITIONAL INFORMATION

OVA Reading (ppm):

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

GROUNDWATER PURGING AND SAMPLING LOG

Date 100599 Page___ of ___

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: NT139 & 29C11
Sample Location: B12 137
Sampled By:
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	1615	5.55	108.00	26.42	650.0	1.74	-56.1	13.74	100
2	0.163	1620	5.77	120.00	26.24	750.0	1.67	-71.0	13.74	100
3	0.367	1625	5.80	121.00	26.37	600.00	1.60	-76.8	13.74	100
4	0.653	1635	5.81	123.00	26.10	500.00	1.53	-80.1	13.74	100
5	1.020	1645	5.83	122.00	26.36	450.00	1.49	-76.0	13.78	100
6	1.469	1650	5.82	123.00	26.34	450.00	1.48	-83.0	13.78	100
8	2.611	1655	5.82	123.00	26.34	450.00	1.49	-83.5	13.78	100
10	4.080	1700	5.81	123.00	26.36	450.00	1.49	-83.4	13.78	100

Well Casing Diameter: 2" PVC
Total Well Depth (TD): 42.50
Static Water Level (WL): 13.68
One Casing Volume(gal/L): 4.8
[3.78gals/L]
Start Purge (hrs): 1612
End Purge (hrs): 1700
Total Purge Time (min): 48. min
Total Vol. Purged (gal/L): 4.8 L.

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 100599									
Time: 1710	milky	5.81	123.00	26.36	450.0	1.49	-83.4	13.78	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC			100599
Gross Alpha/Gross Beta/Total Uranium/Radium 226	HNO3 (pH < 2)	1 - 1 gal plastic cubitainer	
Alk.			
Anions & Cations			
Metals			

ADDITIONAL INFORMATION

OVA Reading (ppm):
used Filter

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Kevin Murphy

Date 100599

GROUNDWATER PURGING AND SAMPLING LOG

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: NTC346-30B11
Sample Location: PB 137
Sampled By: RSH / JSD
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	1335	4.92	74.00	26.16	14.0	2.06	20.7	13.50	100
2	0.163	1340	4.84	74.00	26.33	11.0	1.60	9.2	13.50	100
3	0.367	1345	4.83	74.00	26.52	17.0	1.29	-6.9	13.50	100
4	0.653	1350	4.85	75.00	26.53	18.0	1.28	-9.9	13.50	100
5	1.020	1355	4.87	76.00	26.55	19.0	1.27	-16.2	13.50	100
6	1.469	1400	4.87	76.00	26.51	21.00	1.30	-19.5	13.50	100
8	2.611	1405	4.87	75.00	26.45	17.0	1.23	-19.6	13.50	100
10	4.080	1410	4.81	73.00	26.46	16.0	1.23	-19.7	13.50	100
		1415	4.80	73.00	26.46	15.0	1.24	-17.7	13.50	100
		1445	4.87	76.00	26.13	14.0	1.45	-20.9	13.50	100
		1450	4.84	75.00	26.37	13.0	1.34	-12.8	13.50	100
		1455	4.83	74.00	26.38	13.0	1.34	-12.8	13.50	100
Well Casing Diameter:		1500	4.82	74.00	26.36	13.0	1.31	-19.6	13.50	100
Total Well Depth (TD): 32.80		1510	4.83	75.00	26.35	13.0	1.31	-20.4	13.50	100
Static Water Level (WL): 13.50		1520	4.83	74.00	26.26	13.0	1.34	-20.8	13.50	100
One Casing Volume(gal/L): 3.26		1525	4.83	75.00	26.15	12.0	1.36	-22.3	13.50	100
		1530	4.82	74.00	26.13	15.0	1.49	-17.4	13.50	100
[3.78gals/L]		1540	4.83	74.00	26.25	12.0	1.43	-17.0	13.50	100
		1555	4.80	73.00	26.12	13.0	1.46	-17.7	13.50	100
Start Purge (hrs): 1335		1600	4.81	73.00	26.43	13.0	1.42	-17.3	13.50	100
End Purge (hrs): 1600										
Total Purge Time (min): 145 min										
Total Vol. Purged (gal/L):										
14.5 Lt.										

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 1005									
Time: 1610	Clear	4.81	73.00	26.43	13.0	1.42	-17.3	13.50	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC	HCL	2 - 40 mL vials	100599
~~Gross Alpha/Gross Beta/Total Uranium/Radium 226~~	~~HNO3 (pH < 2)~~	~~1 - 1 gal plastic cubitainer~~	
ALK	None	250 mL plastic	↓
Cation + Anions	None	1 Lt. plastic	↓
+ metals - Filtered	None	1 Lt. plastic	

ADDITIONAL INFORMATION

OVA Reading (ppm):
Filtered Samples

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Jerri J. Margitt

Date 100699

GROUNDWATER PURGING AND SAMPLING LOG

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: NTC396-32011
Sample Location: Bldg. 127
Sampled By: SJM
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	1105	5.42	164.0	27.52	24.0	1.93	4.0	13.44	100
2	0.163	1115	5.66	197.0	27.65	30.0	1.58	-37.8	18.44	100
3	0.367	1120	5.60	187.0	27.62	20.00	1.43	-43.9	18.44	100
4	0.653	1125	5.52	171.0	27.73	17.0	1.39	-44.7	18.44	100
5	1.020	1130	5.50	165.0	27.70	18.0	1.37	-45.1	18.44	100
6	1.469	1135	5.46	157.0	27.51	17.0	1.34	-46.9	18.44	100
8	2.611	1140	5.43	151.0	27.49	15.0	1.32	-47.0	18.44	100
10	4.080	1145	5.39	142.0	27.49	13.0	1.28	-46.5	18.44	100
		1150	5.37	137.0	27.58	13.0	1.26	-46.1	18.44	100
		1155	5.34	134.0	27.62	13.0	1.26	-45.8	18.44	100
		1200	5.31	128.0	27.67	12.0	1.25	-44.3	18.44	100
		1205	5.27	122.0	27.63	11.0	1.24	-42.9	18.44	100
Well Casing Diameter: 2" PVC		1203	5.27	120.0	27.73	11.0	1.24	-42.6	18.44	100
Total Well Depth (TD): 42.52		1206	5.25	115.0	27.76	9.2	1.23	-41.2	18.44	100
Static Water Level (WL): 13.44		1209	5.24	115.0	27.71	9.0	1.22	-41.6	18.44	100
One Casing Volume(gal/L): 5.06										
[3.78gals/L]										
Start Purge (hrs): 1105										
End Purge (hrs): 1210										
Total Purge Time (min): 65 min										
Total Vol. Purged (gal/L): 6.5 lt.										

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 100699									
Time: 1215	clear	5.24	115.0	27.71	9.0	1.23	-41.5	18.44	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC			100699
Gross Alpha/Gross Beta/Total Uranium/Radium 226	HNO3 (pH < 2)	1 - 1 gal plastic cubitainer	↓
Alk			
Anion & Cation			
T. metals			

ADDITIONAL INFORMATION

OVA Reading (ppm):

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): Kevin J. Margitt

GROUNDWATER PURGING AND SAMPLING LOG

Date 100699

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: NTC 39C-23B11
Sample Location: BLD 177
Sampled By: KJA
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	0930	4.50	154.0	26.96	12.0	2.20	73.0	13.79	100
2	0.163	0935	4.49	159.0	27.10	3.7	1.76	42.5	13.80	100
3	0.367	0940	4.46	157.0	27.24	2.1	1.65	31.4	13.80	100
4	0.653	0945	4.44	156.0	27.57	1.5	1.56	18.7	13.80	100
5	1.020	0950	4.44	158.0	27.65	1.5	1.55	13.1	13.80	100
6	1.469	0955	4.46	160.0	27.73	0.9	1.53	4.1	13.80	100
8	2.611	1000	4.46	162.0	27.65	1.4	1.51	4.6	13.80	100
10	4.080	1010	4.47	162.0	27.68	2.9	1.50	-2.1	13.80	100
		1020	4.51	167.0	27.91	1.3	1.53	-8.2	13.80	100
		1027	4.52	170.0	27.80	2.2	1.55	-11.1	13.80	100
		1030	4.54	173.0	27.86	1.3	1.56	-12.6	13.80	100
		1033	4.56	176.0	27.85	1.3	1.56	-14.1	13.80	100
Well Casing Diameter: 2" PVC		1036	4.57	177.0	27.85	1.1	1.58	-14.4	13.80	100
Total Well Depth (TD): 32.22		1039	4.56	176.0	27.91	1.0	1.59	-14.4	13.80	100
Static Water Level (WL): 12.75										
One Casing Volume(gal/L): 3.36										
[3.78gals/L]										
Start Purge (hrs): 0926										
End Purge (hrs): 1040										
Total Purge Time (min): 74 min										
Total Vol. Purged (gal/L): 7.4 L										

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 100699									
Time: 1045	Clear	4.56	176.0	27.91	1.6	1.59	-14.4	13.80	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC			100699
Gross Alpha/Gross Beta/Total Uranium/Radium 226	HNO3 (pH < 2)	1 - 1 gal plastic cubitainer	
RIK			
Anion & Cations			
Metals			

ADDITIONAL INFORMATION

OVA Reading (ppm):

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:

MS/MSD

Duplicate ID No.: NTC39C-D2000

Signature(s): Kevin J. Mayhew

Date 100699

GROUNDWATER PURGING AND SAMPLING LOG

Project Site Name: NTC Orlando
Project No.: CTO 0024

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Sample ID No.: NTC39G38B11
Sample Location: Bldg. 137
Sampled By: KJM
C.O.C. No.:

PURGING DATA

Casing Size (in.)	Gals/Ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
1	0.041	1355	5.09	128.0	26.64	6.0	1.68	31.3	13.20	100
2	0.163	1400	5.08	130.0	26.77	8.0	1.53	5.7	13.20	100
3	0.367	1405	5.23	140.0	26.88	7.1	1.42	-23.7	13.20	100
4	0.653	1410	5.25	141.0	26.82	6.4	1.40	-28.7	13.20	100
5	1.020	1415	5.30	146.0	26.74	5.2	1.38	-40.7	13.18	100
6	1.469	1420	5.31	146.0	26.74	5.0	1.37	-41.4	13.18	100
8	2.611	1425	5.33	147.0	26.74	5.1	1.37	-44.7	13.18	100
10	4.080	1430	5.35	149.0	26.75	5.0	1.37	-49.1	13.18	100
		1435	5.34	148.0	26.78	4.4	1.37	-49.9	13.18	100
		1440	5.34	148.0	26.89	4.1	1.37	-50.1	13.18	100

Well Casing Diameter: PVC 2"
Total Well Depth (TD): 31.55
Static Water Level (WL): 13.10
One Casing Volume(gal/L): 3.16

[3.78gals/L]

Start Purge (hrs): 1353
End Purge (hrs): 1440
Total Purge Time (min): 47 min
Total Vol. Purged (gal/L):
4.7 Lt.

SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 100699									
Time: 1445	clear	5.34	148.0	26.78	4.0	1.37	-49.9	13.18	100

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DOC			100699
Gross Alpha/Gross Beta/Total Uranium/Radium 226	HNO3 (pH < 2)	1 - 1 gal plastic cubitainer	✓
PHC			
Cations ; Anions			✓
T. metals			

ADDITIONAL INFORMATION

OVA Reading (ppm):

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): Kevin J. Murphy

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NTC Orlando/Study Area 39
Project No.: 7457

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: NTC39G39A1D
Sample Location: OLD-39-39A
Sampled By: BDH, RH
C.O.C. No.: 60390
Type of Sample:
[X] Low Concentration
[ ] High Concentration

PURGE DATA

Date: 3/9/00	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	DTW	Flow
Method: Pump	Initial								
Monitor Reading (ppm): 0	1								
Well Casing Diameter: 2"	2								
Well Casing Material: PVC	3								
Total Well Depth (TD):	19.8'								
Static Water Level (WL):	12.59								
One Casing Volume(gal/L):									
Start Purge (hrs):	1036								
End Purge (hrs):	1225								
Total Purge Time (min):									
Total Vol. Purged (gal/L):	~5g								

SAMPLING DATA

Date: 3/9/00 Time: 1225	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP	DTW ft BTOC	Flow ml/min
Method:	Brown	5.11	4	25.74	730	6.3	205	12.60	~130 ml

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOC	HC	(3) 40 ml	✓

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.: NTC 39D 00310

Signature(s): Bryan Hooze

Low Flow Purge Data Sheet

Well No.: OLD-39-40B

PROJECT: Orlando NTC
PROJECT NUMBER: 7457
SITE: Site 39

DATE: 3/9/00
WEATHER: Partly Cloudy mid 70°s
PERSONNEL: BDH, RH

Well Screen Depth: 22.8' / 28.3' ft.
Initial Water Level: 12.72 @ 0942 hrs.

Pump Type/Material: Peristaltic
Pump Intake Depth: 25'

Tide Cycle: [ ] High @ ____ [ ] Low @ ____ [✓] Not Affected

Total Purge Volume= ~5 gal. (gal / L) **Drawdown + Tubing Volume=** ____ (gal / L)

Time	Water Level feet below TOC	Volume ~~mL~~ gal	Flow Rate mL/min	Temp ºC	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Salinity %	Eh mV	Comments ORP
1055	12.89	~~150~~	150	27.6	5.0	8	2.1	220	0.0		20 mV
1100	13.10		100	28.1	4.9	8	1.7	200	0.0		27
1105	13.17		125	27.5	4.6	8	1.6	180	0.0		36
1110	13.18	1 gal.	125	27.5	4.5	8	1.4	150	0.0		43
1115	13.17		125	27.6	4.4	8	1.3	130	0.0		47
1120	13.18		125	28.1	4.4	8	1.3	120	0.0		43
1125	13.14		125	28.1	4.4	8	1.2	100	0.0		39
1130	13.16		125	27.7	4.5	8	1.1	90	0.0		30
1135	13.17	1.5 gal	125	27.7	4.5	8	1.0	84	0.0		26
1140	13.19		125	27.6	4.5	8	0.9	81	0.0		19
1145	13.19		125	26.9	4.5	8	0.9	73	0.0		6
1150	13.19		125	26.7	4.5	8	0.8	64	0.0		9
1155	13.19		125	27.3	4.5	8	0.8	59	0.0	ORP	20 20 Turbidimeter
1200	13.19		125	27.5	4.6	8	0.9	55	0.0	4	43.8 NTU
1205	13.19		125	27.5	4.6	8	0.8	49	0.0	-10	40.1
1210	13.19		125	27.5	4.7	8	0.8	49	0.0	-20	
1220	13.19		125	27.5	4.8	8	0.8	42	0.0	-33	
1235	13.21		125	27.3	4.8	8	0.8	33	0.0	-47	
1245	13.23		125	27.3	4.8	8	0.7	30	0.0	-55	

Remarks:

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NTC Orlando/Study Area 39
Project No.: 7457

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: NTC39G40B10
Sample Location: OLD-39-40B
Sampled By: BDH, RH
C.O.C. No.: 6D390
Type of Sample:
[X] Low Concentration
[ ] High Concentration

PURGE DATA

Date: 3/9/00	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	DTW	Flow
Method: Pump	Initial								
Monitor Reading (ppm): 0	1								
Well Casing Diameter: 2"	2								
Well Casing Material: PVC	3								
Total Well Depth (TD): 28.3'									
Static Water Level (WL): 12.89									
One Casing Volume(gal/L):									
Start Purge (hrs): 1055									
End Purge (hrs): 1245									
Total Purge Time (min):									
Total Vol. Purged (gal/L): ~5 g									

SAMPLING DATA

Date: 3/9/00 Time: 1250	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP	DTW ft BTOC	Flow ml/min
Method:	Clear	27.3	8	27.3	35	0.7	-55	13.23	125

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 (40ml)	✓

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): [illegible]

Low Flow Purge Data Sheet

Well No.: OLD-39-41C

PROJECT: Orlando NTC
PROJECT NUMBER: 7457
SITE: Site 39

DATE: 3/9/00
WEATHER: Partly Cloudy 70°s F
PERSONNEL: BDH, RH

Well Screen Depth: 35.9' / 41.4' ft.
Initial Water Level: 13.68 @ 0947 hrs.

Pump Type/Material: Peristaltic
Pump Intake Depth: 38'

Tide Cycle: [ ] High @ ____ [ ] Low @ ____ [✓] Not Affected

Total Purge Volume= ~5 gal (gal / L) **Drawdown + Tubing Volume=** ____ (gal / L)

Time	Water Level feet below TOC	Volume mL	Flow Rate mL/min	Temp ºC	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Salinity %	Eh mV	Comments ORP
1531	13.70										
1533											start purging
1536	13.92		150	29.3	5.8	15	4.0	>990	0		123 very turbid, brown
~~1539~~	13.88		125	29.2	5.1	15	1.7	>990	0		151 adjust flow rate to 125 a
1545	13.88	stop 3 times due to low rate	125	29.2	5.1	15	1.4	>990	0		149 very turbid low as pump will pump
1555	13.87		125	29.6	5.0	15	1.3	>990	0		149 " "
1605	13.87		125	28.8	5.0	15	1.3	>990	0		147 "
1615	13.87			28.5	5.0	14	1.2	>990	0		145 "
1625				28.4	5.0	14	1.1	>990	0		140 "
1635				28.2	5.0	14	1.2	>990	0		139 "
1645				28.1	5.0	14	1.1	>990	0		134 "
1655			125	28.4	5.0	14	1.1	>990	0		132 "
1705				28.3	5.0	14	1.0	>990	0		124 "
1715				28.1	5.0	14	0.9	>990	0		118 turbid
1725				28.0	5.0	14	1.0	866	0		115 turbid
1735				27.8	5.1	14	1.0	715	0		109 turbid
1745				27.7	5.1	14	0.9	664	0		99 turbid
1800	13.88		125	27.5	5.1	14	1.0	603	0		90 turbid Sampled

Remarks: Sampled @ 1800, turbidity slowly dropping, have to sample now to make delivery for tomorrow to lab.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NTC Orlando/Study Area 39
Project No.: 7457

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: NTC39641C 10
Sample Location: OLD-39-41C
Sampled By: BDH
C.O.C. No.: 60390
Type of Sample:
[X] Low Concentration
[ ] High Concentration

PURGE DATA

Date: 3/9/00	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	DTW	Flow
Method: Pump	Initial								
Monitor Reading (ppm): 0	1								
Well Casing Diameter: 2"	2								
Well Casing Material: PVC	3								
Total Well Depth (TD): 41.4									
Static Water Level (WL): 13.70'									
One Casing Volume(gal/L):									
Start Purge (hrs): 1533									
End Purge (hrs): 1800									
Total Purge Time (min):									
Total Vol. Purged (gal/L):									

SAMPLING DATA

Date: 3/9/00 Time: 1800	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP	DTW ft BTOC	Flow ml/min
Method:	Brown	5.1	14	27.5	603	1.0	90	13.88	125

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOC	HCL	3 (40ml)	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Brg Pbrge

APPENDIX B

SOIL GEOTECHNICAL DATA

Project: NTC 09 & NTC 39--ORLANDO Job Number: LB039

Manager: CLIENT Client: TETRA TECH NUS Project Description:

Location: FL

Elevation Datum:

Boring Depth Elev.	Specimen Description LL	PL	PI	No 200	Water Content	Organic Content	ASTM Class	K ft/day	Sieve Analysis No 4	No 10	No 40	No 60	No 100
SB-19 6.0				1.8	19.7				100.0	99.9	78.8	39.4	9.6
SB-19 14.0				10.6	20.5				100.0	100.0	90.6	66.4	23.8
SB-19 30.0				1.0	25.9				100.0	100.0	95.1	71.7	16.8
SB-27 8.0				2.7	5.1				99.4	99.0	93.8	61.7	11.0
SB-27 16.0				2.8	20.8				100.0	100.0	95.4	63.1	9.4
SB-27 23.0				2.7	21.3				100.0	100.0	95.0	57.7	9.2
SB-27 27.0				15.3	19.7				100.0	100.0	96.2	82.0	41.1
SB-27 32.0				29.0	16.4				100.0	100.0	94.9	83.5	54.9
SB-27 34.0				10.6	21.3				100.0	100.0	98.3	94.5	50.8
SB-27 42.0				7.9	23.0				100.0	100.0	99.9	99.6	57.1
SB-27 50.0				7.5	19.7				99.8	99.4	93.1	73.9	26.1
SB-27 52.0				7.8	25.8				100.0	100.0	99.8	96.7	37.5
SB-27 60.0				3.9	20.9				100.0	99.9	97.8	84.5	20.4
SB-27 62.0				2.7	18.7				100.0	99.8	41.3	19.7	7.1
SB-27 72.0				3.4	19.4				100.0	99.7	71.1	41.9	6.3
SB-27 74.0				2.5	20.8				100.0	99.8	90.7	70.7	7.7
SB-27 82.0				8.2	19.3				100.0	99.9	75.7	57.2	21.3
SB-27 84.0				27.2	27.8				100.0	97.9	73.2	57.0	35.7

Summary of Material Properties

UNIVERSAL ENGINEERING SCIENCES, INC.
ORLANDO, FLORIDA

Project: NTC 09 & NTC 39--ORLANDO Job Number: LB039

Manager: CLIENT Client: TETRA TECH NUS Project Description:

Location: FL

Elevation Datum:

Boring Depth Elev.	Specimen Description LL	PL	PI	No 200	Water Content	Organic Content	ASTM Class	K ft/day	Sieve Analysis No 4	No 10	No 40	No 60	No 100
SB-35 12.0				1.3	3.2				100.0	100.0	95.2	67.4	10.3
SB-35 17.0				5.7	23.1				100.0	100.0	96.7	66.4	14.1
SB-35 22.0				3.1	23.4				100.0	100.0	94.1	54.5	9.9
SB-35 29.0				10.8	19.6				100.0	100.0	95.0	78.4	35.2
SB-35 31.0				20.0	15.4				100.0	99.9	95.4	83.0	47.0
SB-38 6.0				3.8	6.2				100.0	100.0	95.1	61.8	11.3
SB-38 17.0				3.6	20.3				100.0	100.0	96.2	64.1	11.2
SB-38 27.0				2.7	20.3				99.9	99.8	96.4	67.8	10.7
SB-38 29.0				25.8	14.5				99.9	99.9	93.6	79.7	48.4

Summary of Material Properties

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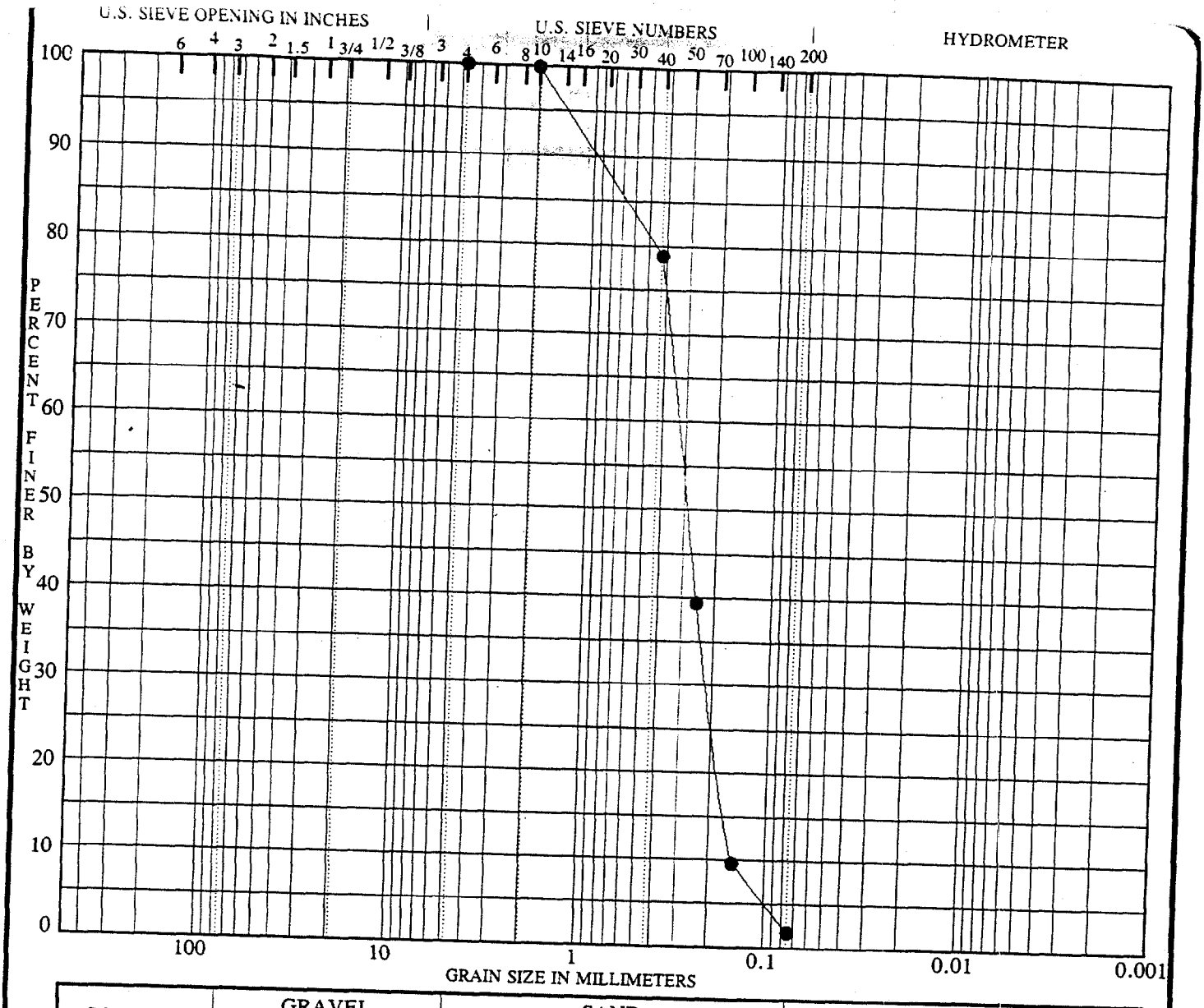

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-19	6.0		20				0.91	2.2

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-19	6.0	4.75	0.33	0.213	0.1510	0.0	98.2	1.8	

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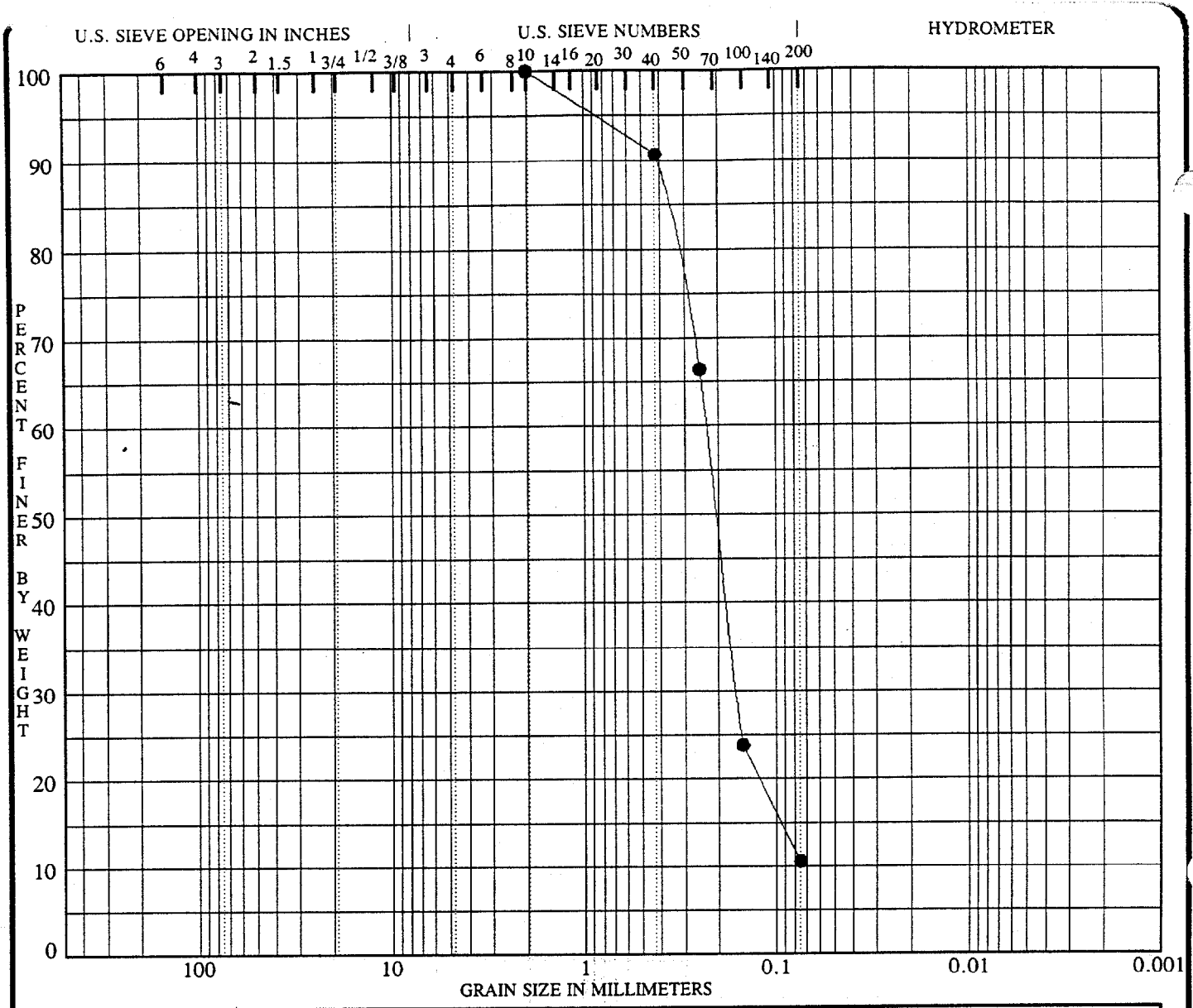

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**SB-19**	**14.0**		**21**				**1.61**	**3.3**

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**SB-19**	**14.0**	**2.00**	**0.23**	**0.162**		**0.0**	**89.4**	**10.6**	

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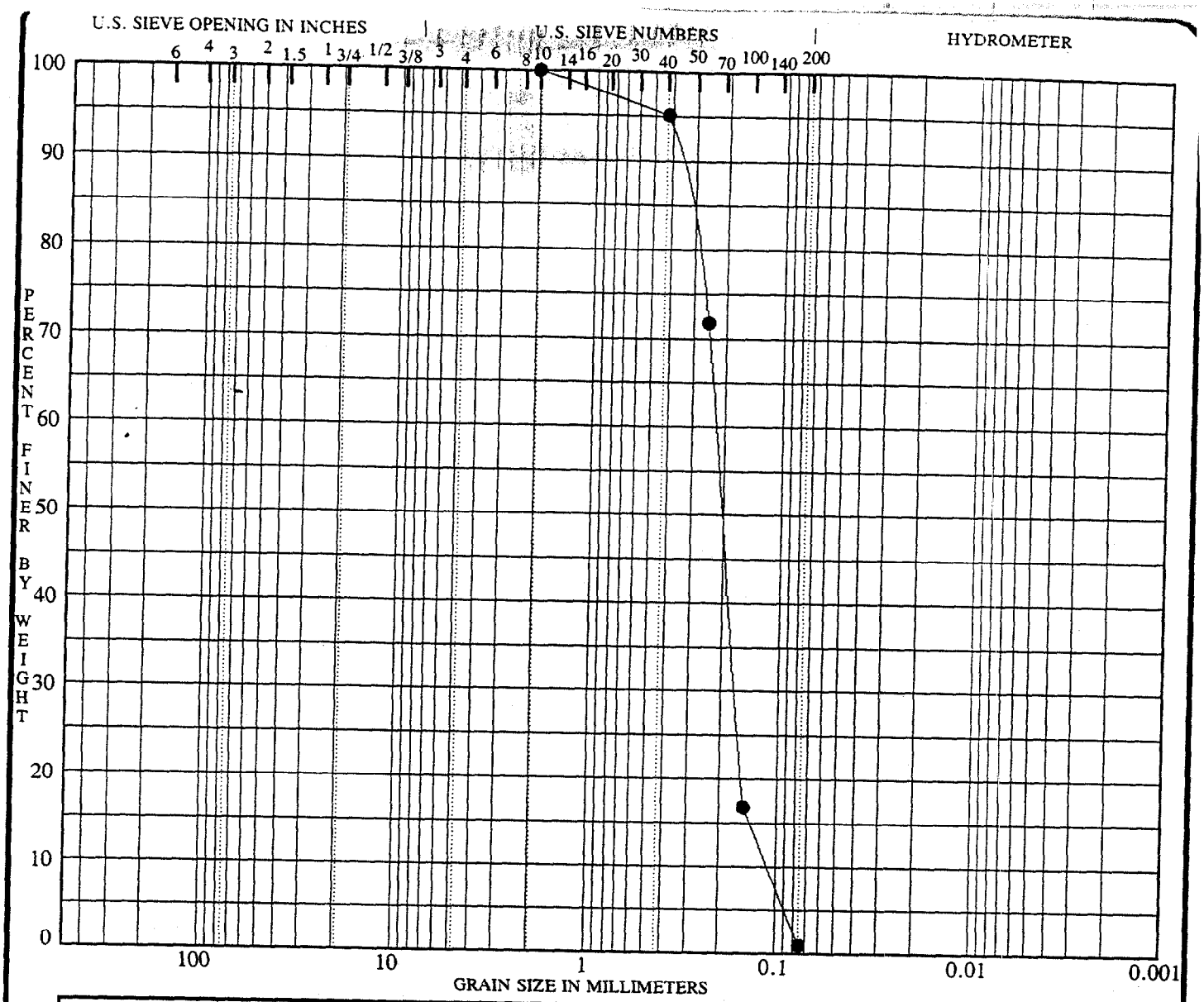

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-19	30.0		26				1.15	2.0

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-19	30.0	2.00	0.22	0.170	0.1113	0.0	99.0	1.0	

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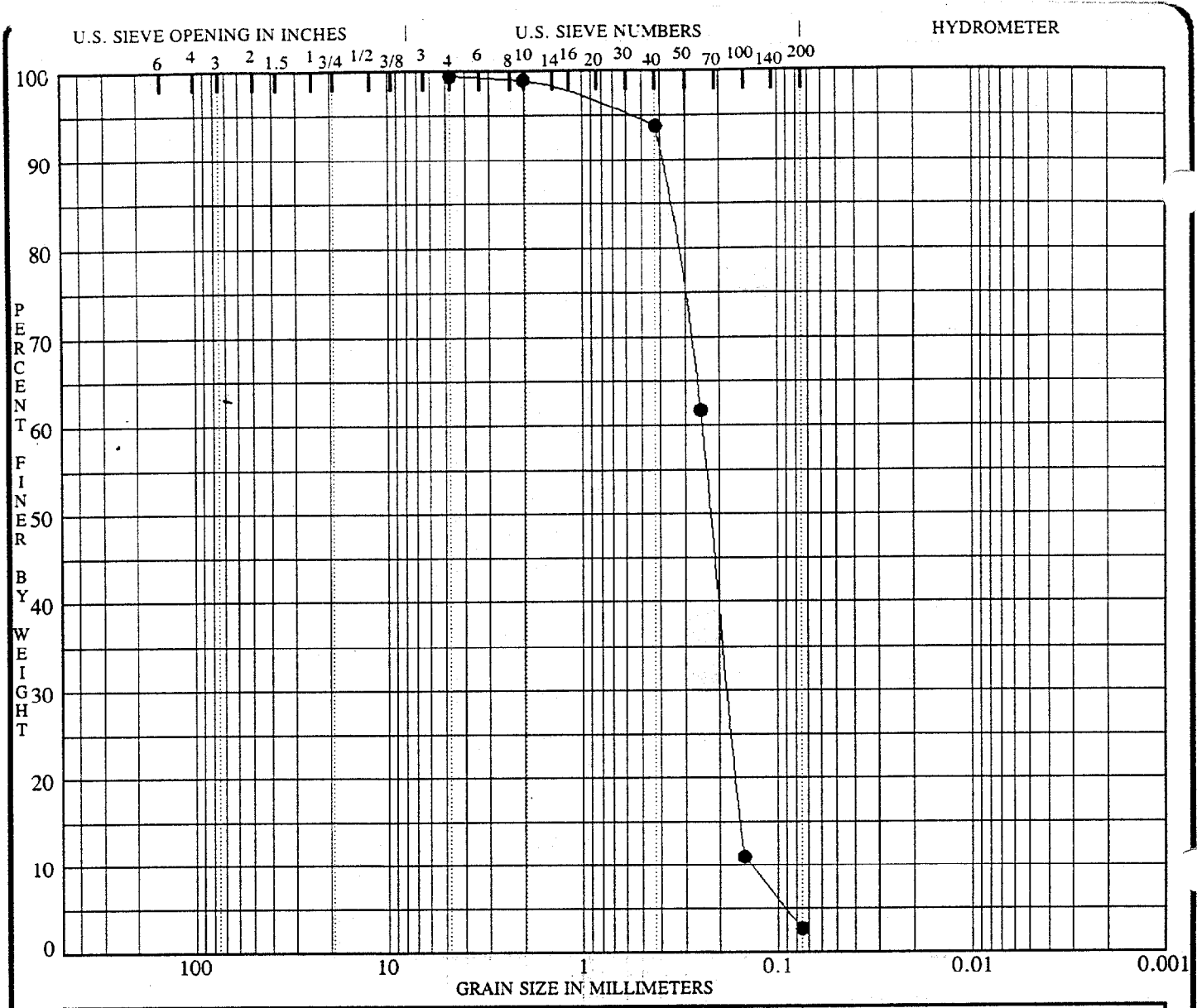

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	8.0		5					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	8.0		0.25	0.182	0.1380		96.7	2.7	

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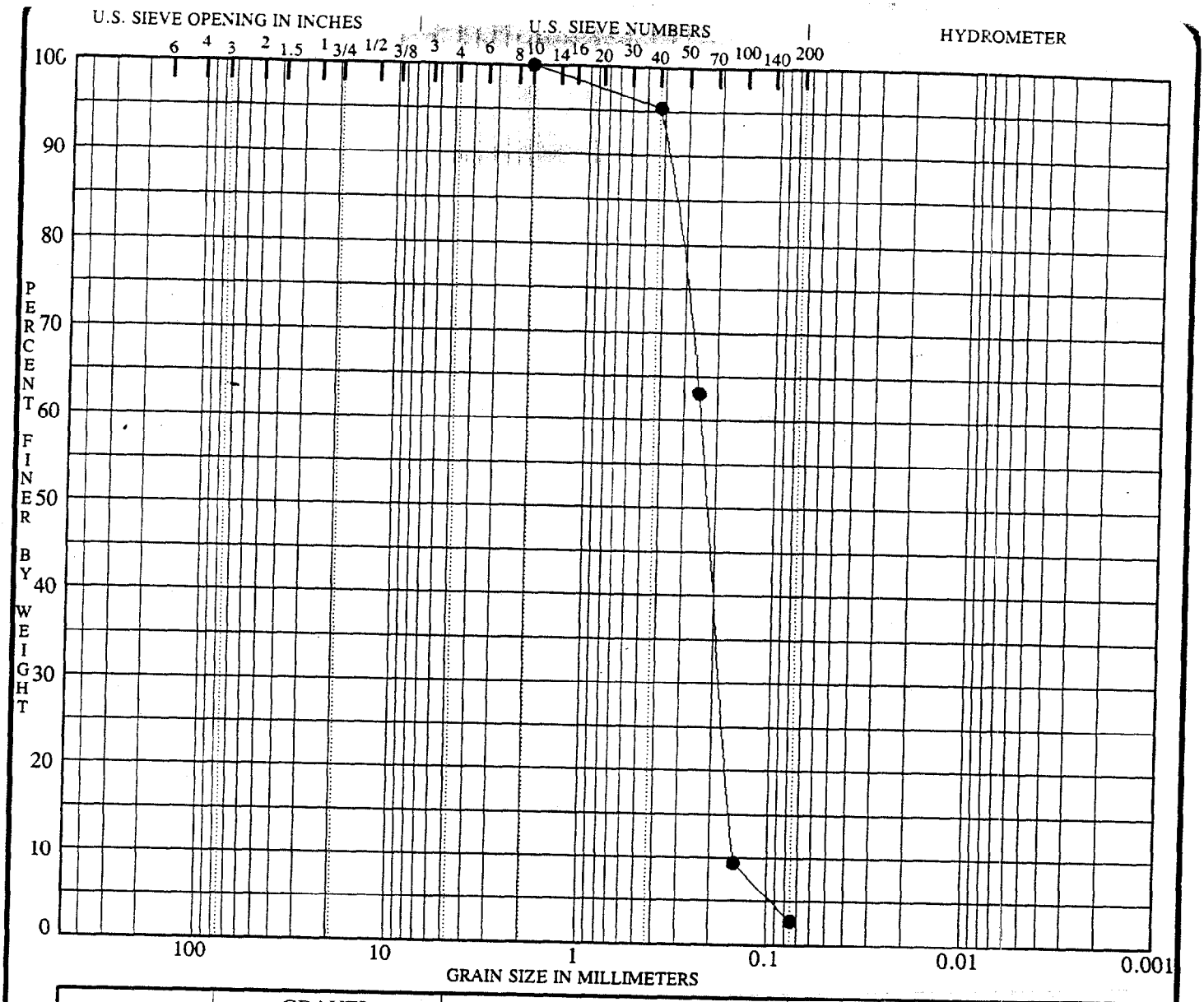

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	16.0		21				0.91	1.6

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	16.0	2.00	0.24	0.183	0.1509	0.0	97.2	2.8	

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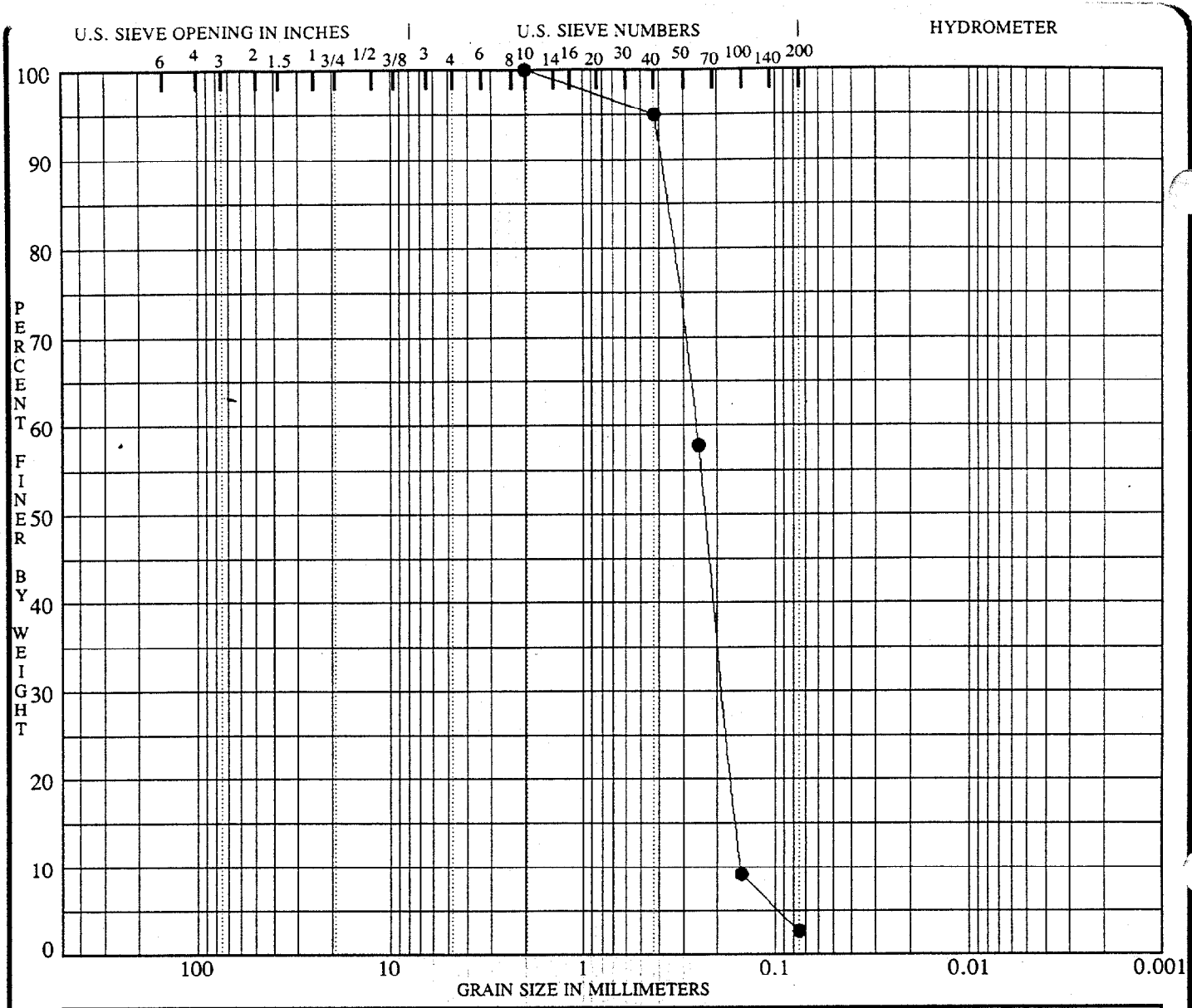

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**SB-27**	**23.0**		**21**				**0.89**	**1.7**

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**SB-27**	**23.0**	**2.00**	**0.26**	**0.187**	**0.1513**	**0.0**	**97.3**	**2.7**	

PROJECT **NTC 09 & NTC 39--ORLANDO - FL**

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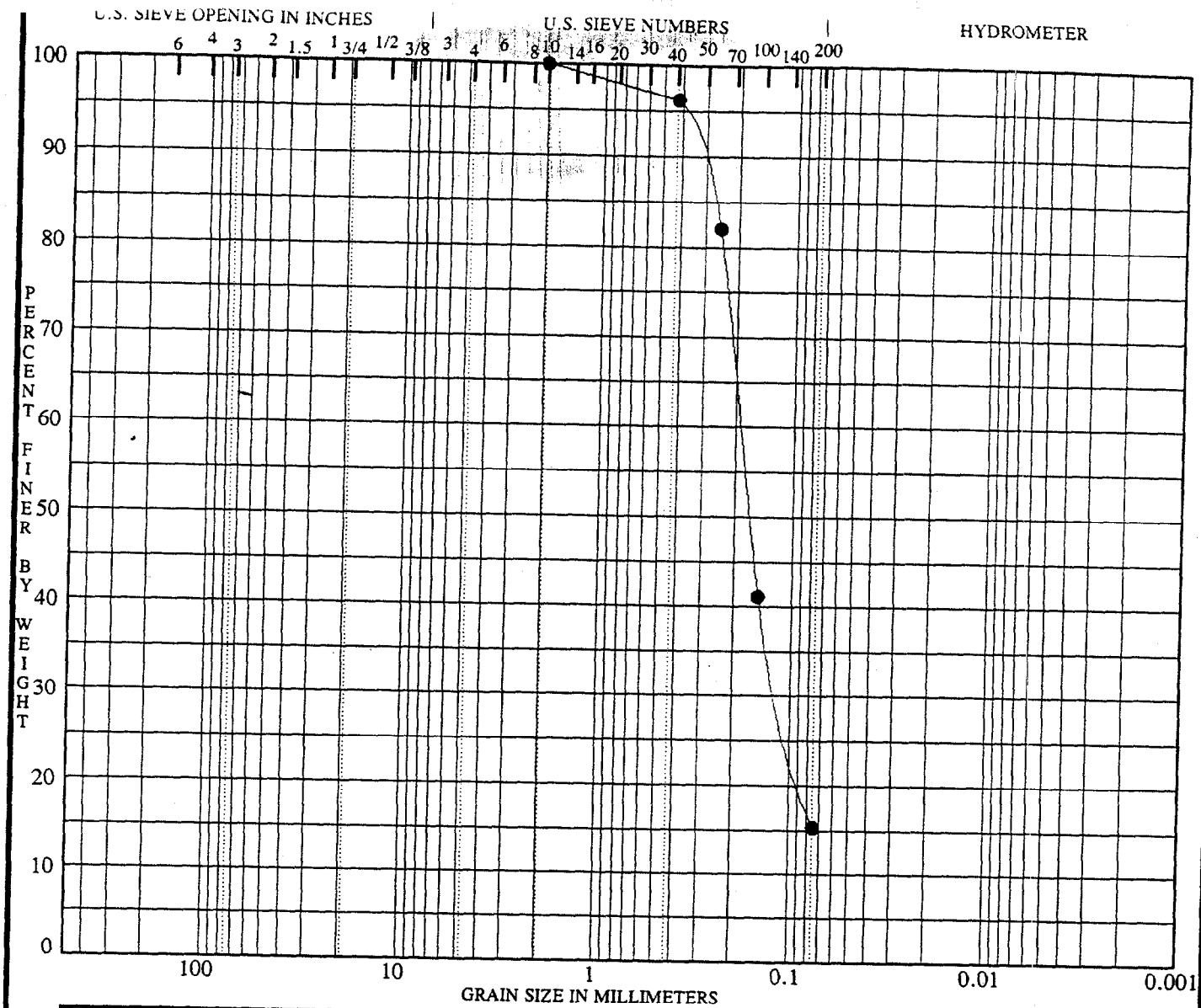

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	27.0		20					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	27.0	2.00	0.19	0.111		0.0	84.7	15.3	

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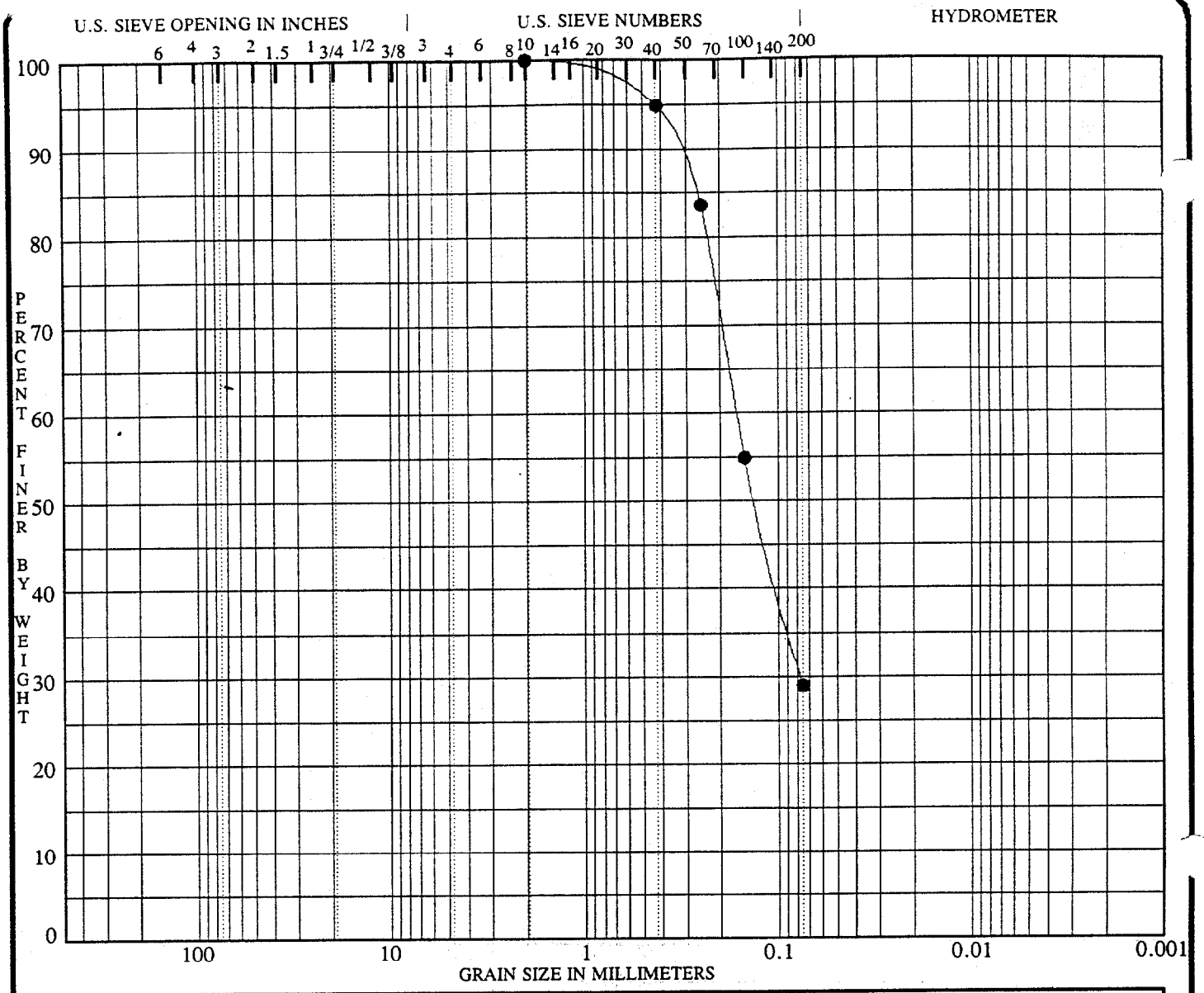

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	32.0		16					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	32.0	2.00	0.16	0.077		0.0	71.0	29.0	

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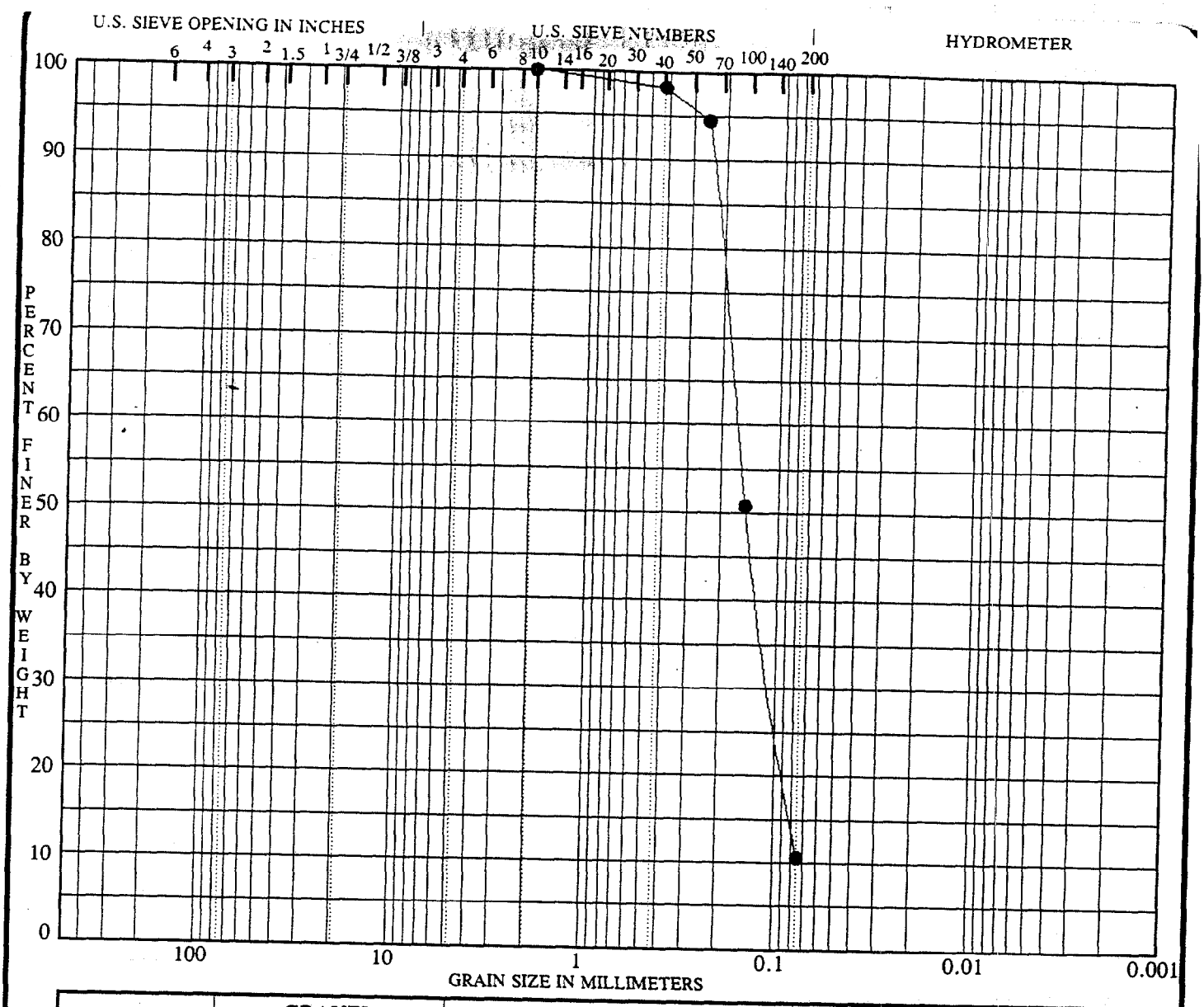

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● SB-27	34.0		21				0.94	2.4

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SB-27	34.0	2.00	0.17	0.105		0.0	89.4	10.6	

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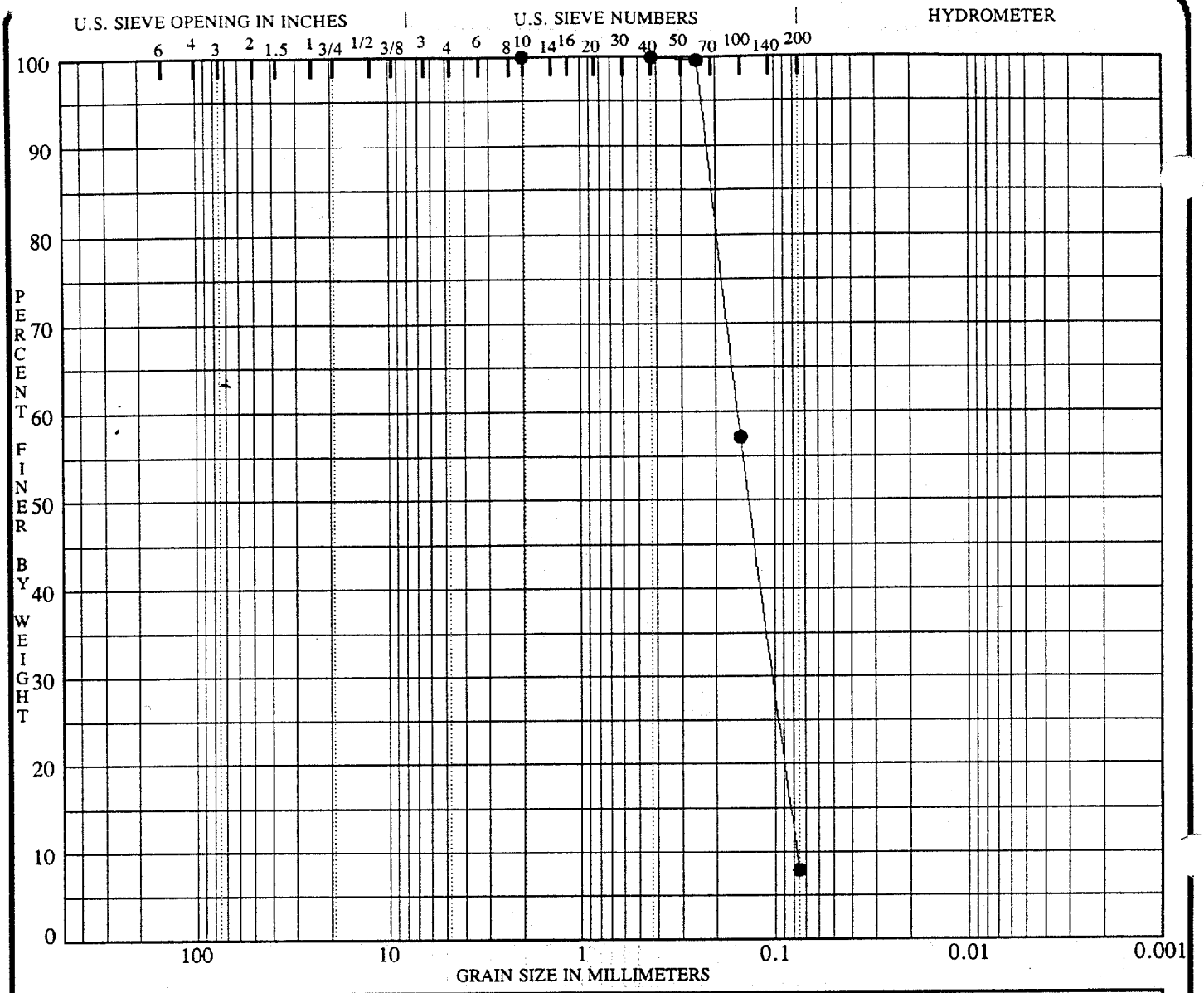

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	42.0		23				0.87	2.0

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	42.0	2.00	0.16	0.102	0.0773	0.0	92.1	7.9	

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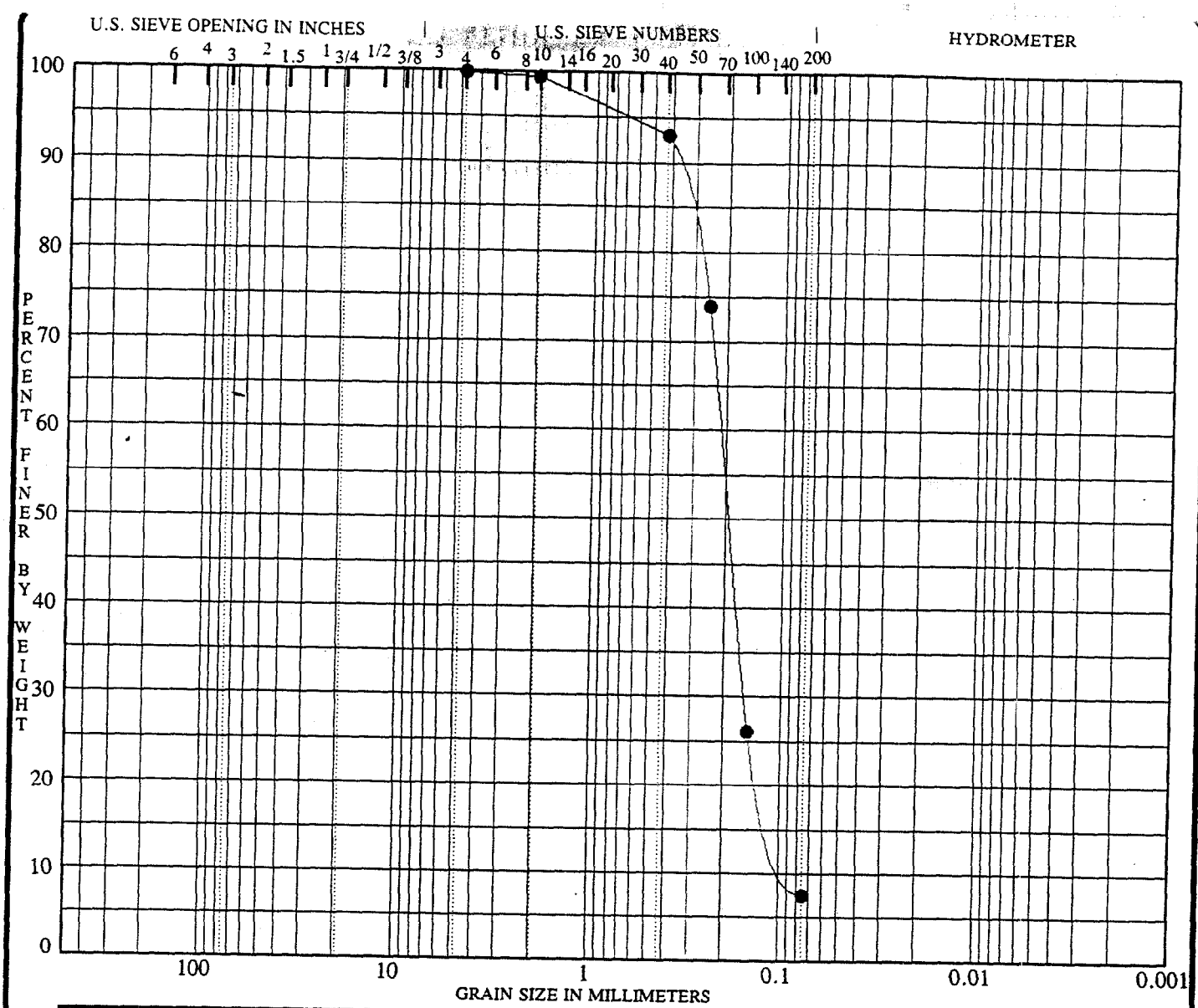

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	50.0		20					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	50.0		0.22	0.156	0.0823		92.3	7.5	

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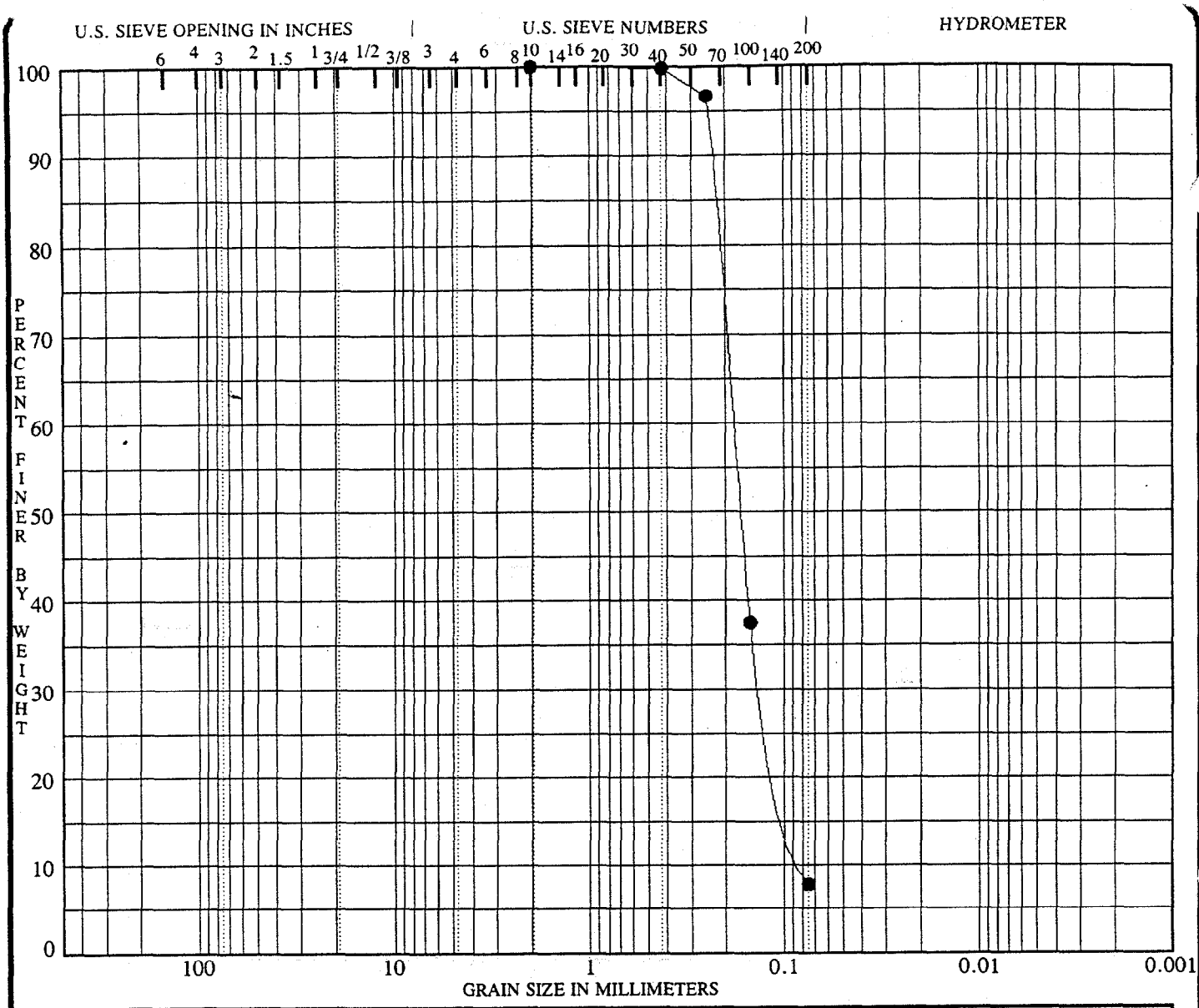

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	52.0		26				1.10	2.3

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	52.0	2.00	0.18	0.126	0.0790	0.0	92.2	7.8	

PROJECT NTC 09 & NTC 39--ORLANDO - FL

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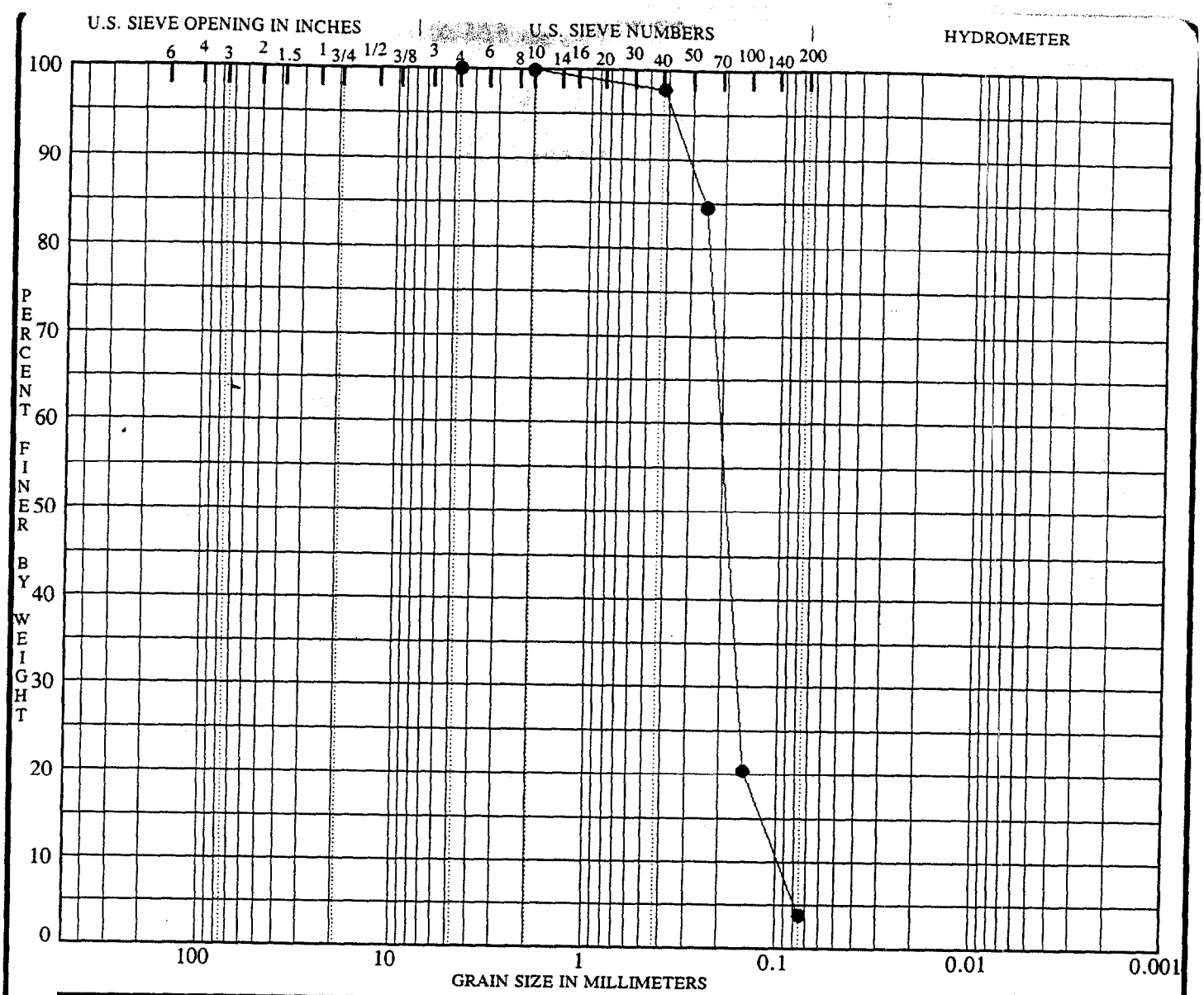

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	60.0		21				1.32	2.1

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	60.0	4.75	0.21	0.162	0.0969	0.0	96.1	3.9	

PROJECT NTC 09 & NTC 39--ORLANDO - FL

JOB NO. LB039

DATE 08/16/99

GRADATION CURVES

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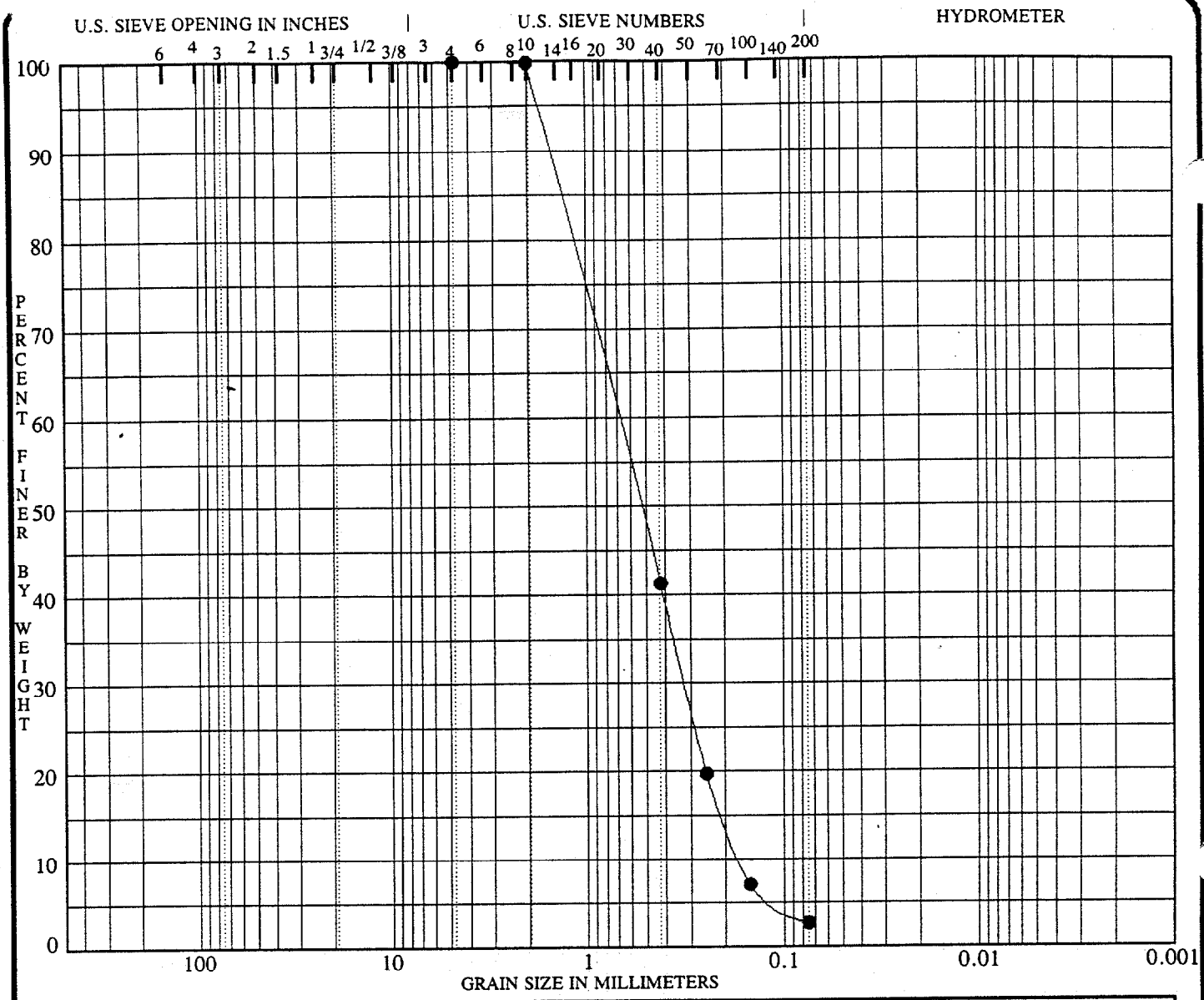

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● SB-27	62.0		19				0.88	4.1

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SB-27	62.0	4.75	0.70	0.322	0.1687	0.0	97.3	2.7	

PROJECT NTC 09 & NTC 39--ORLANDO - FL

JOB NO. LB039
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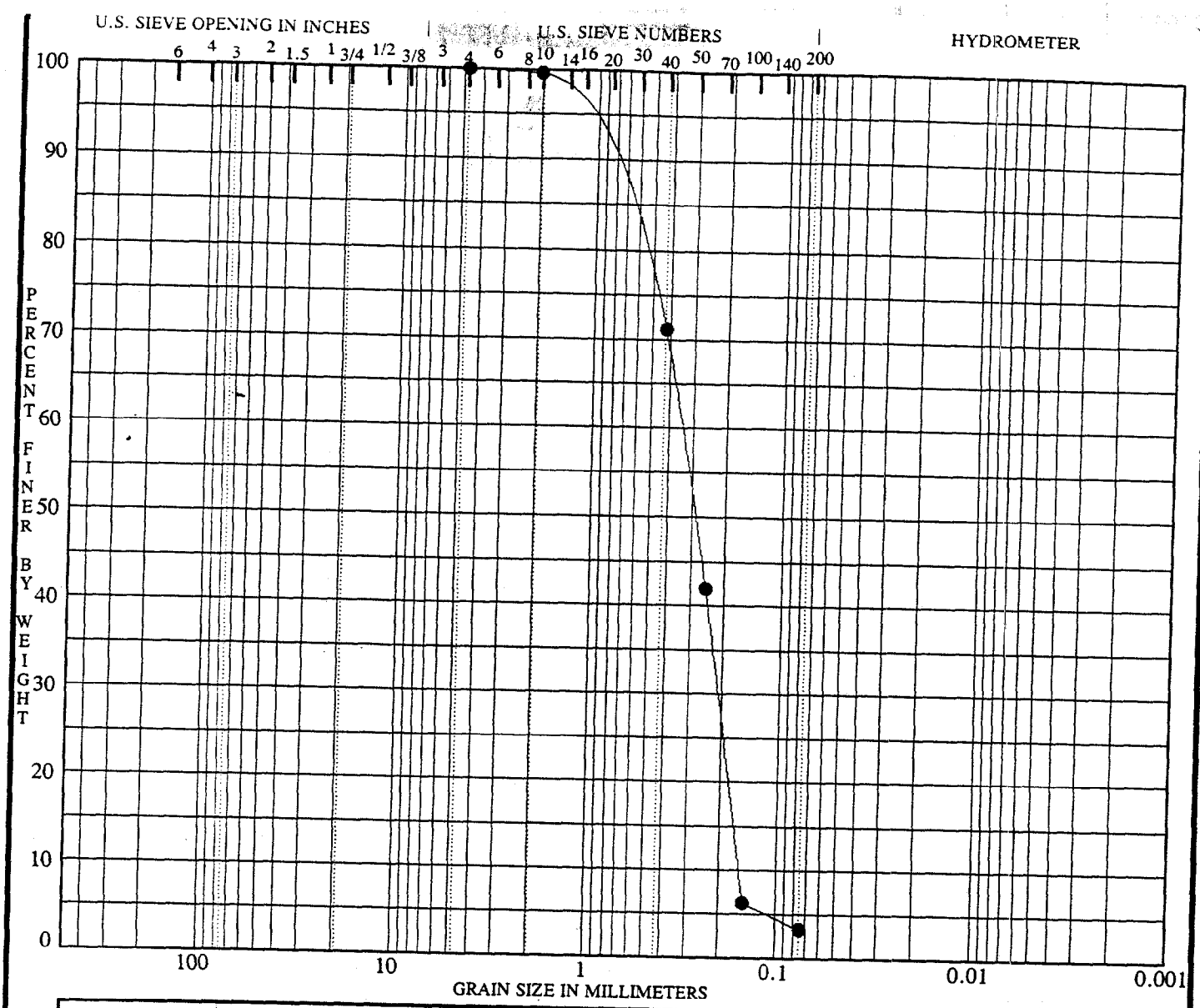

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	72.0		19				0.81	2.2

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	72.0	4.75	0.35	0.211	0.1582	0.0	96.6	3.4	

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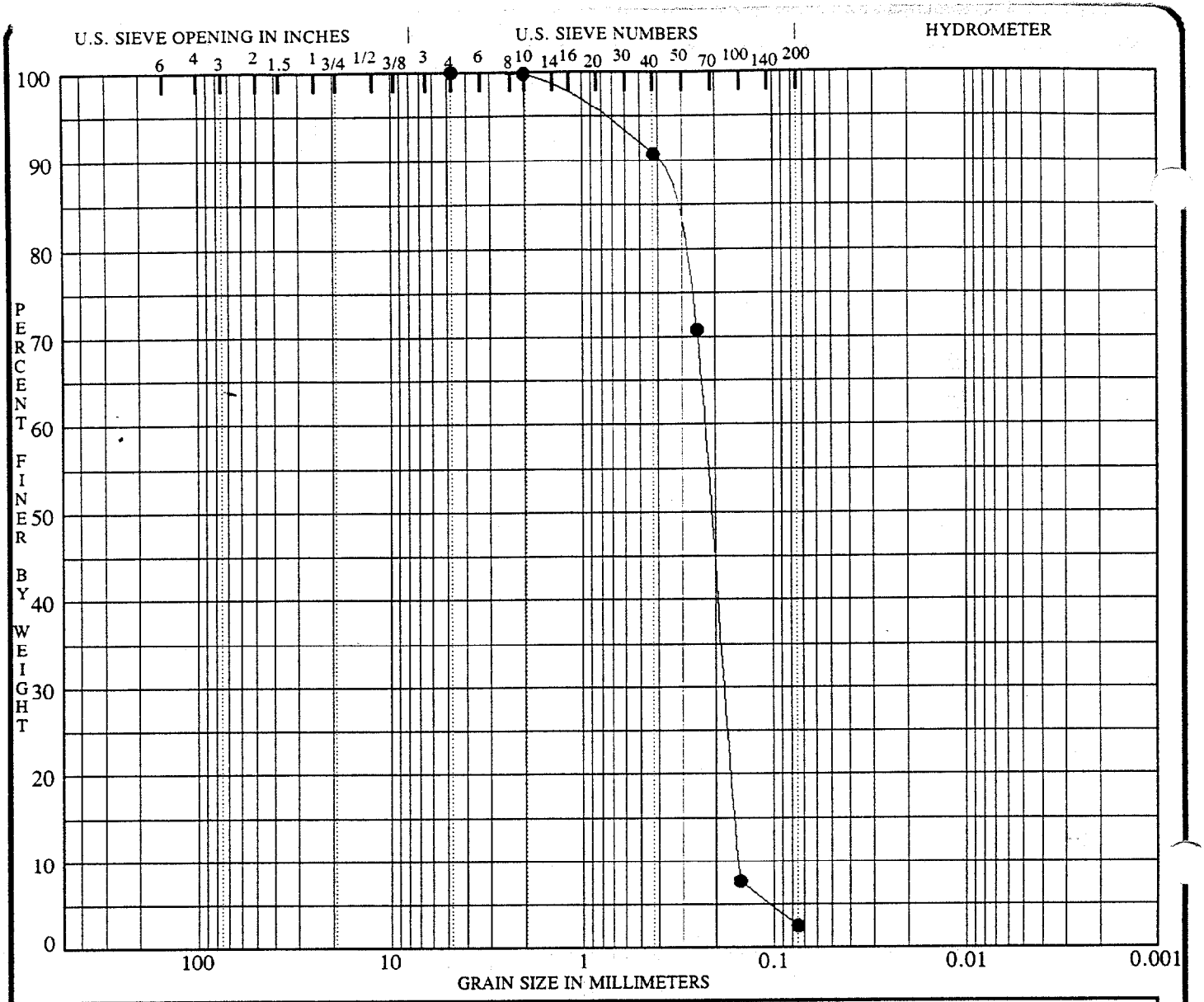

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	74.0		21				0.92	1.5

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	74.0	4.75	0.23	0.180	0.1528	0.0	97.5	2.5	

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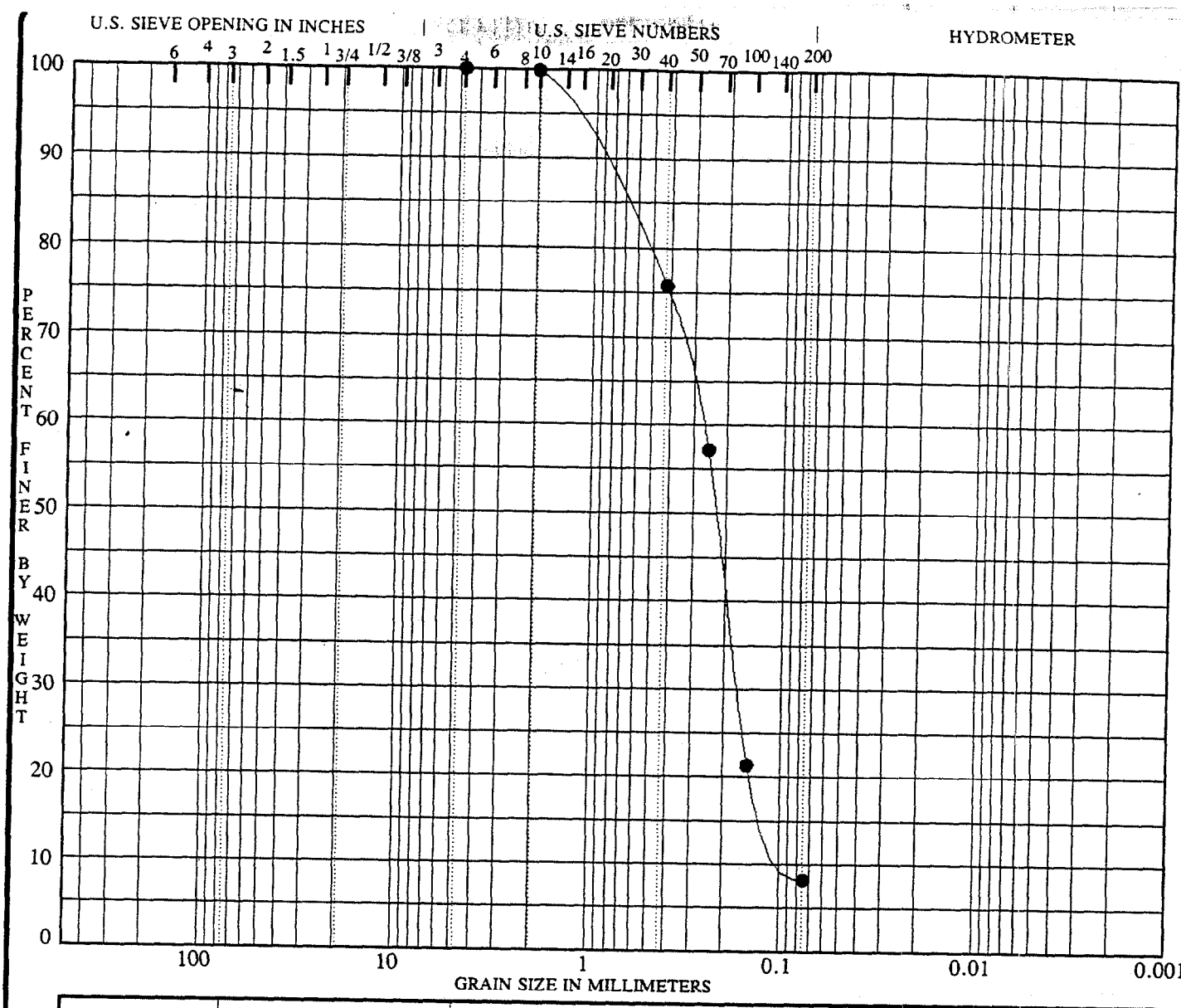

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	82.0		19				1.29	3.3

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	82.0	4.75	0.27	0.170	0.0825	0.0	91.8	8.2	

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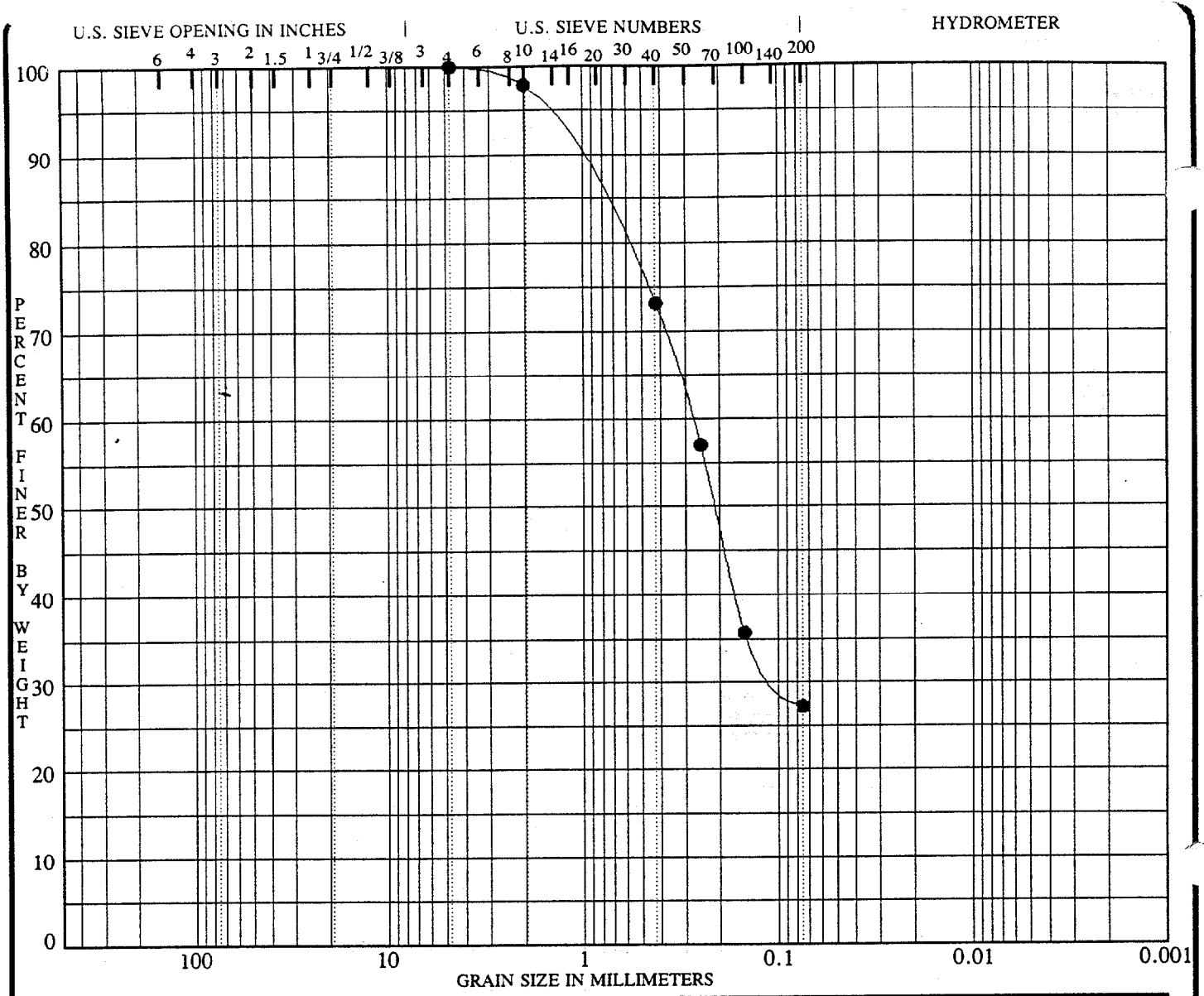

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-27	84.0		28					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-27	84.0	4.75	0.28	0.094		0.0	72.8	27.2	

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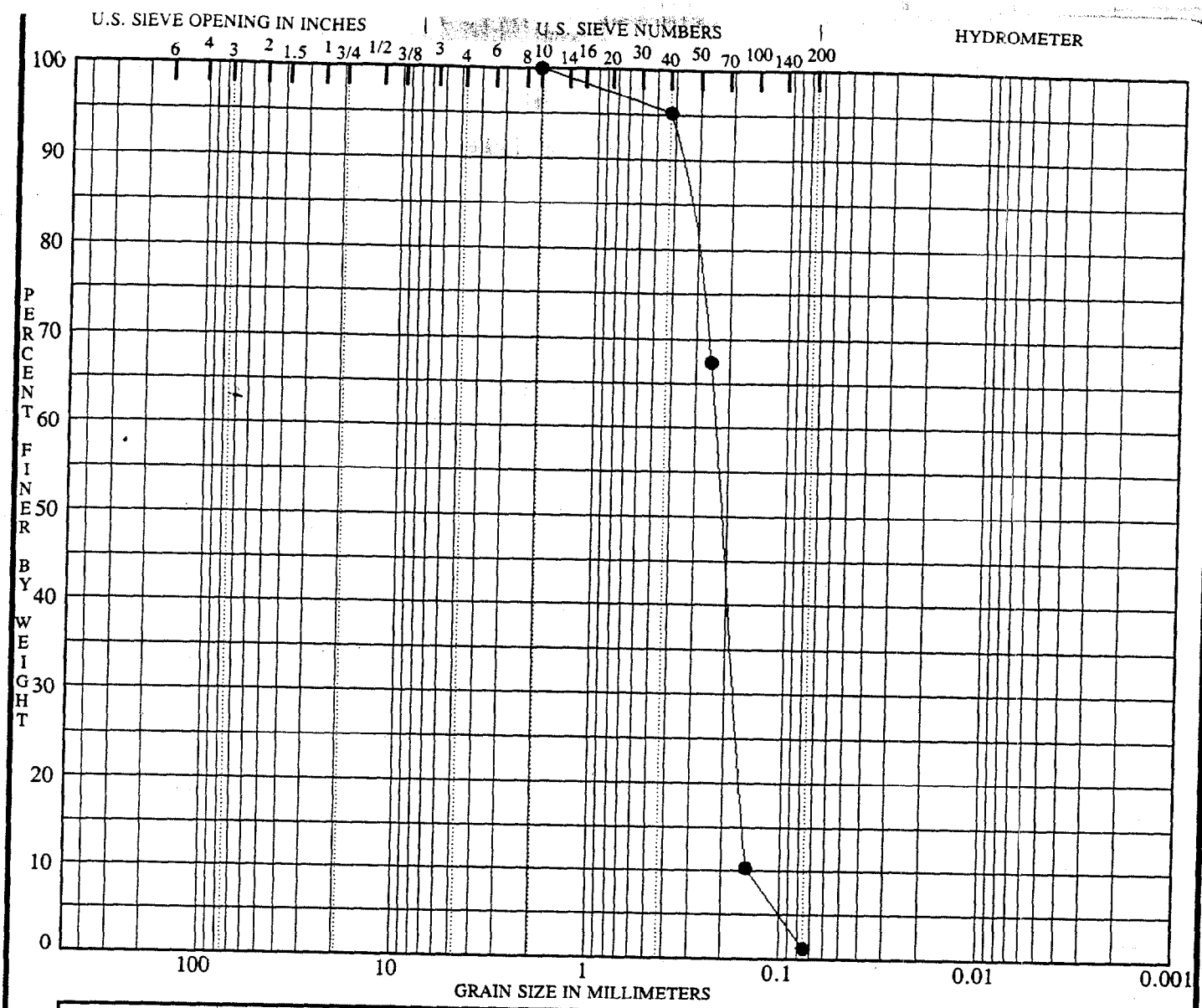

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● SB-35	12.0		3				0.93	1.6

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SB-35	12.0	2.00	0.23	0.179	0.1466	0.0	98.7	1.3	

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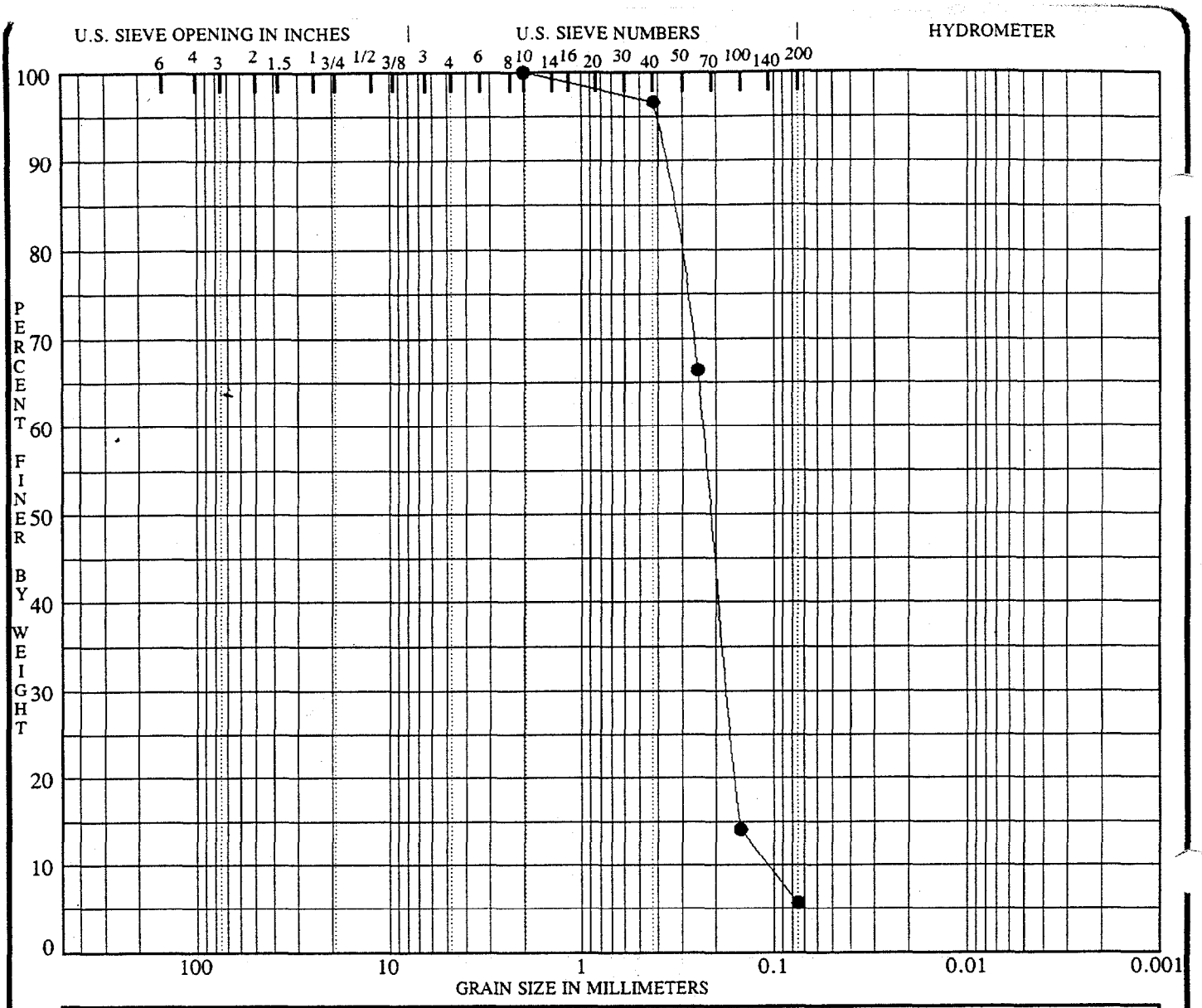

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-35	17.0		23				1.22	2.2

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-35	17.0	2.00	0.23	0.175	0.1069	0.0	94.3	5.7	

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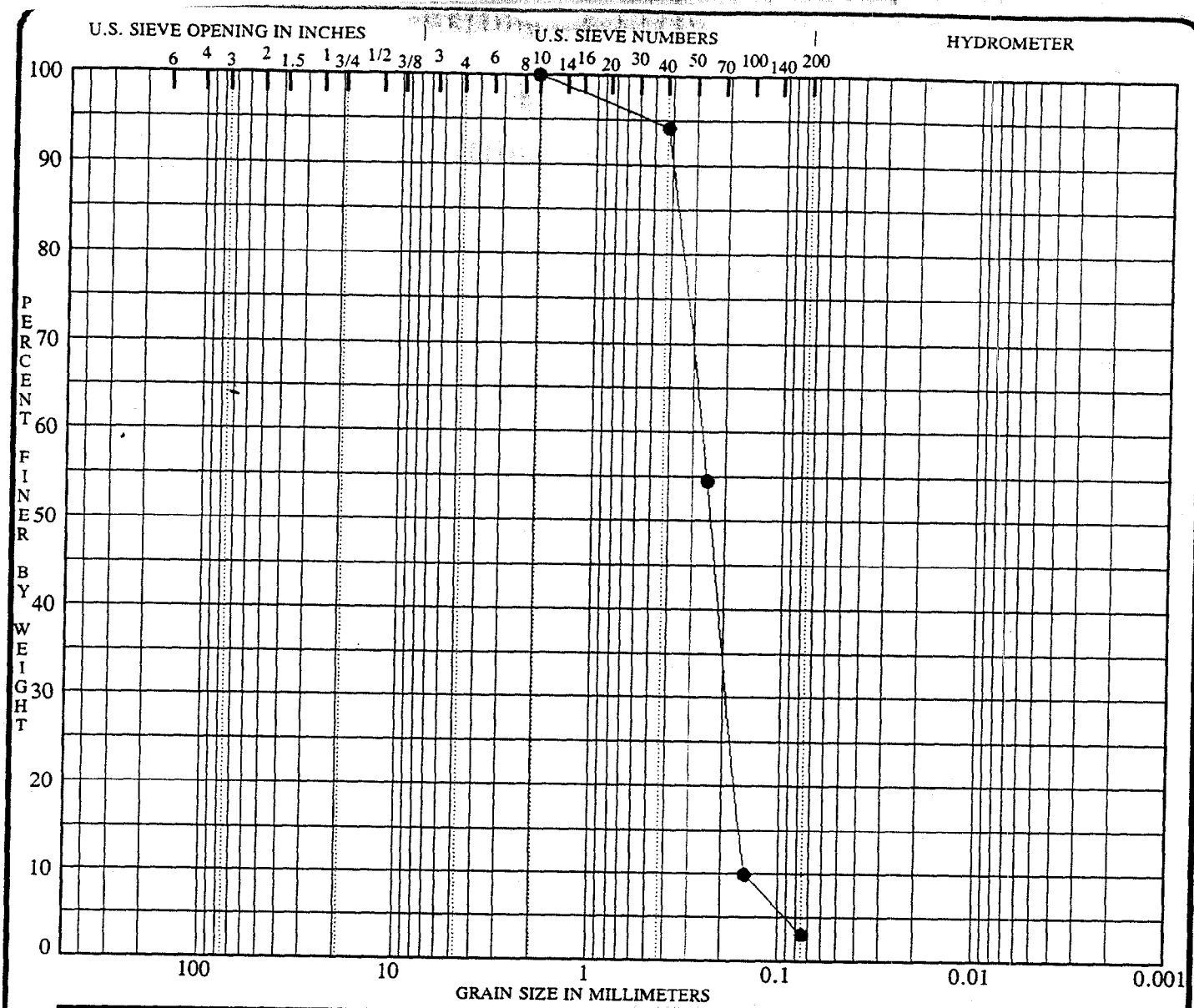

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-35	22.0		23				0.88	1.8

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-35	22.0	2.00	0.27	0.189	0.1502	0.0	96.9	3.1	

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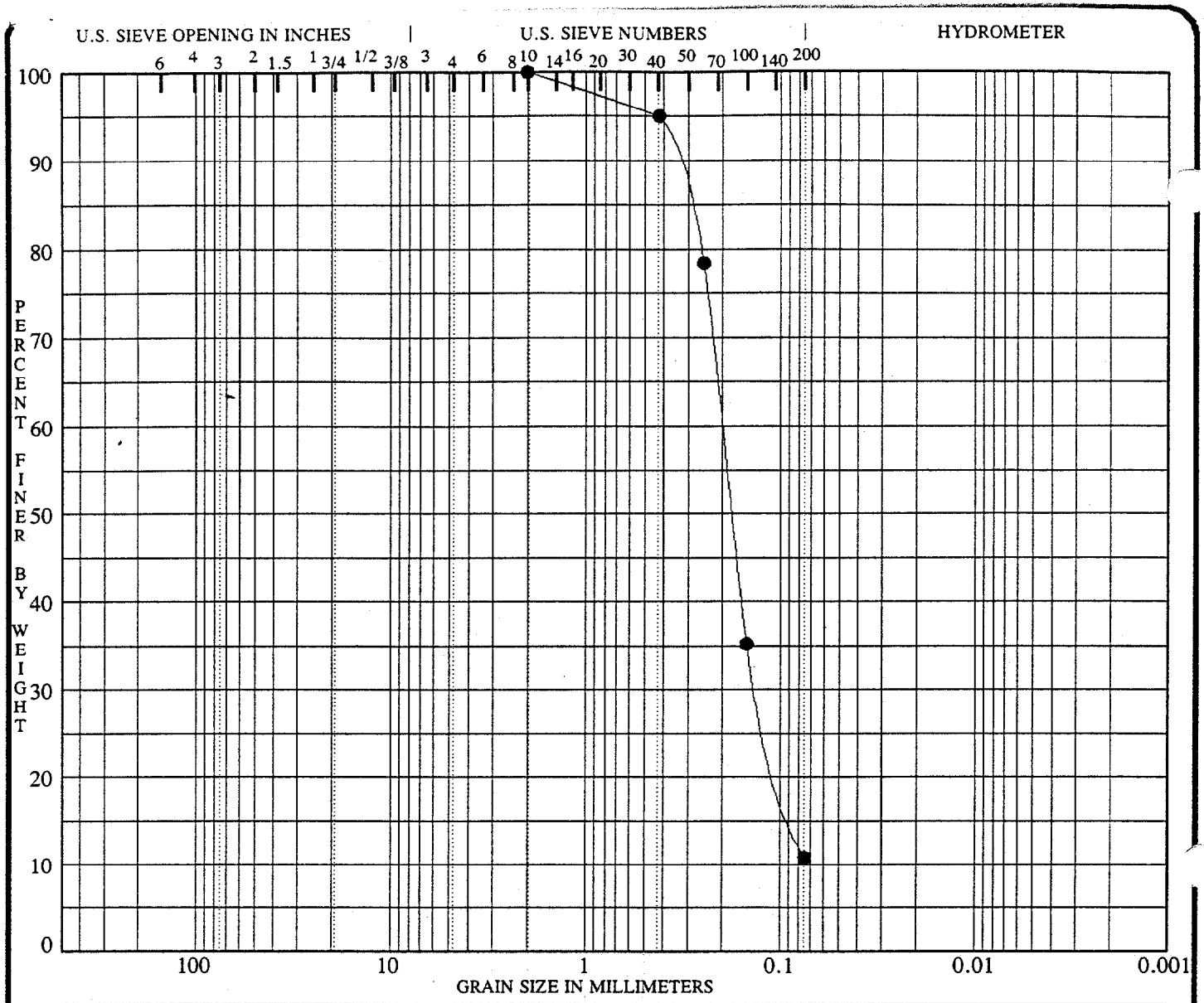

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-35	29.0		20				1.19	2.9

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-35	29.0	2.00	0.20	0.129		0.0	89.2	10.8	

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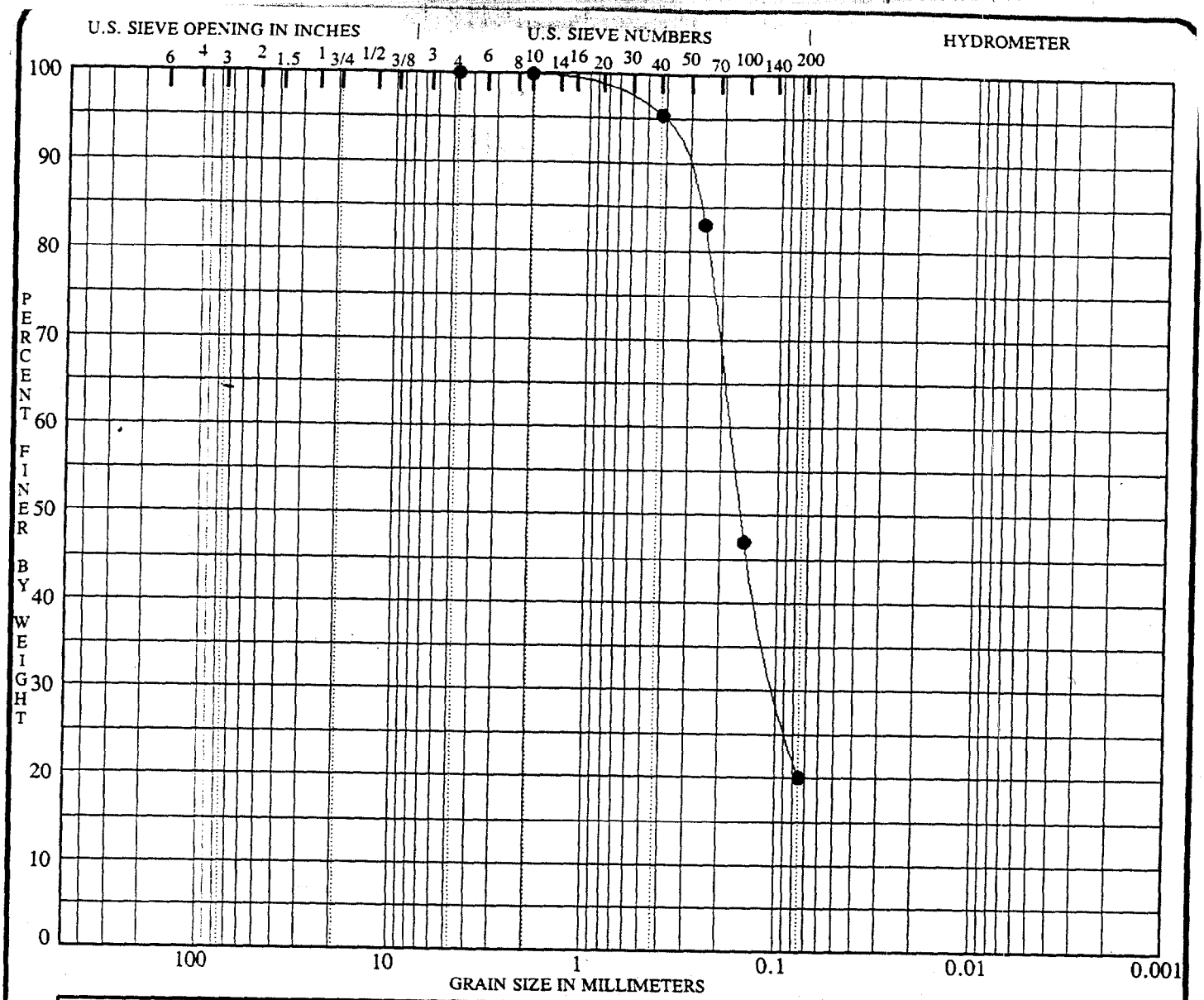

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-35	31.0		15					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-35	31.0	4.75	0.18	0.097		0.0	80.0	20.0	

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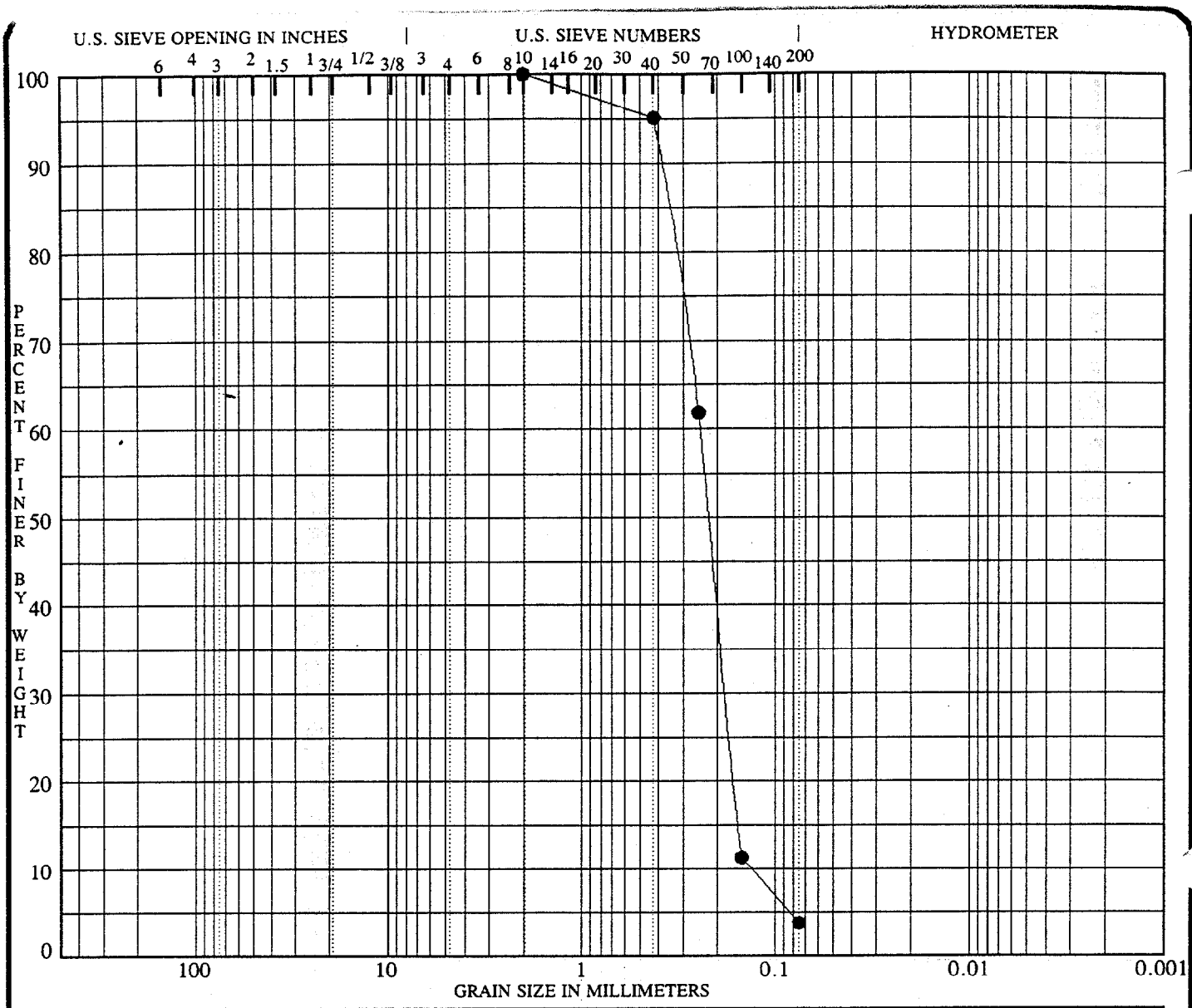

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**SB-38**	**6.0**		**6**				**1.01**	**1.8**

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**SB-38**	**6.0**	**2.00**	**0.25**	**0.181**	**0.1330**	**0.0**	**96.2**	**3.8**	

PROJECT **NTC 09 & NTC 39--ORLANDO - FL**

JOB NO. **LB039**
DATE **08/16/99**

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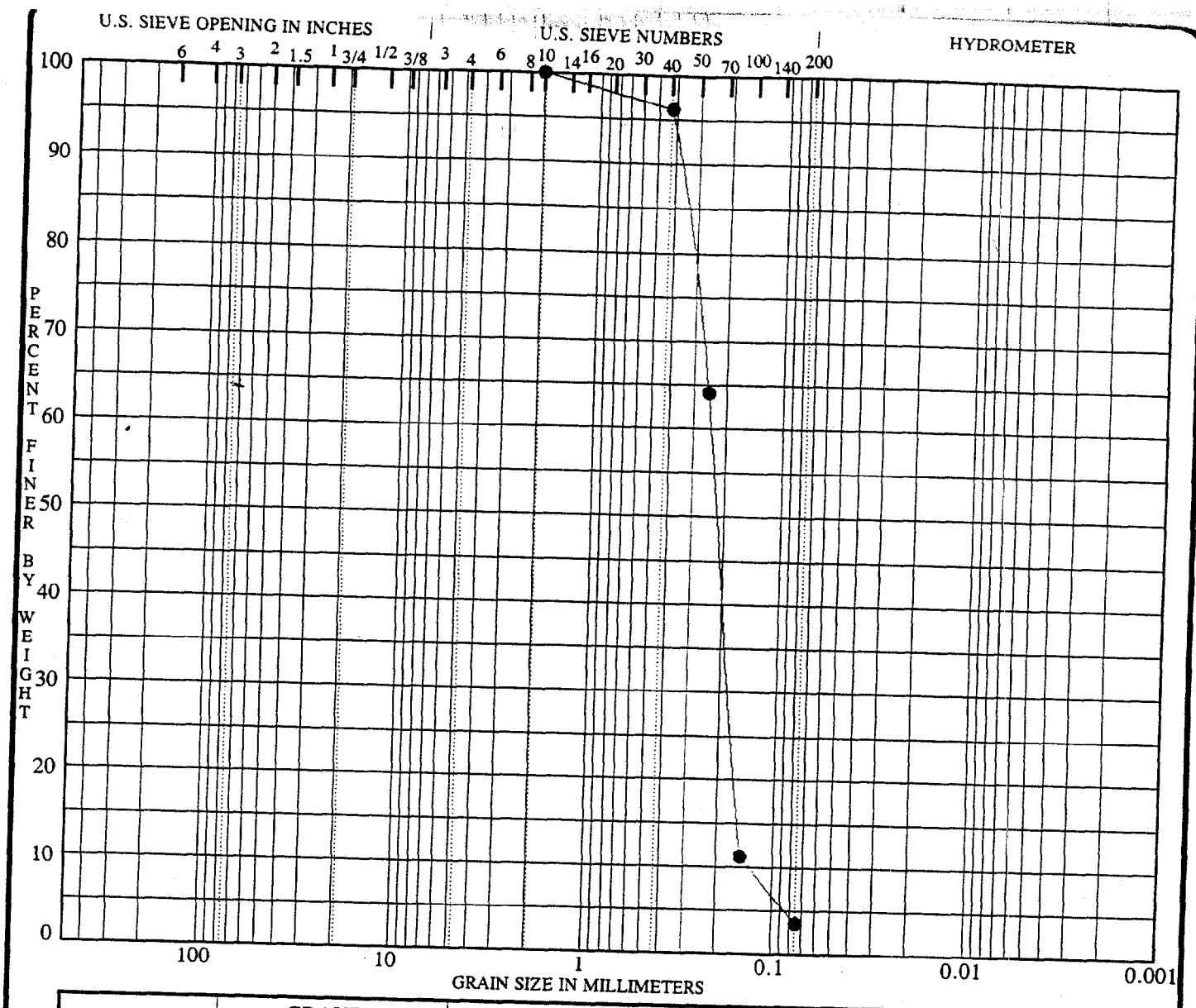

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● SB-38	17.0		20				1.00	1.8

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SB-38	17.0	2.00	0.24	0.180	0.1344	0.0	96.4	3.6	

PROJECT NTC 09 & NTC 39--ORLANDO - FL

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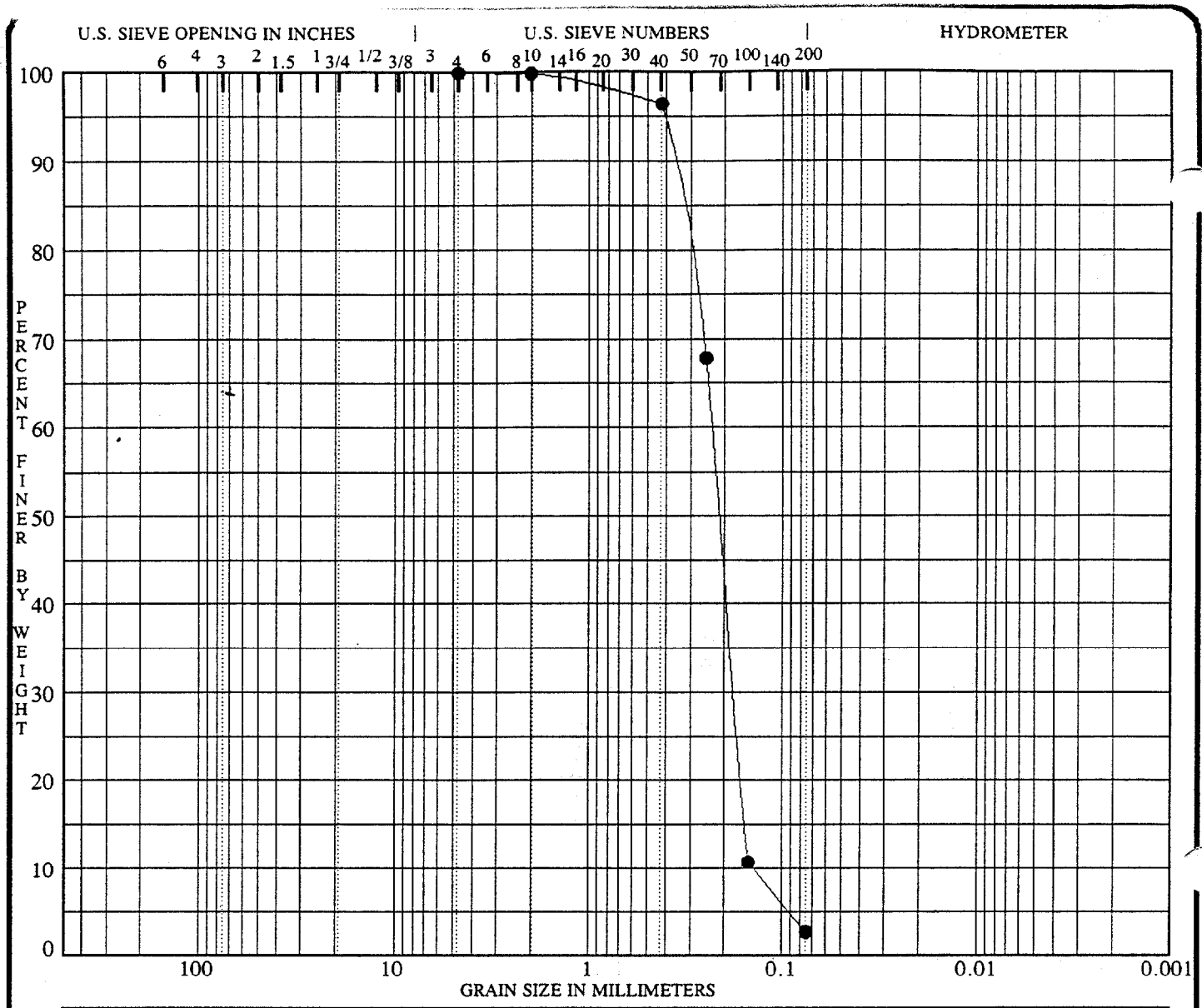

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**SB-38**	**27.0**		**20**					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**SB-38**	**27.0**		**0.23**	**0.178**	**0.1412**		**97.2**	**2.7**	

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GRADATION CURVES

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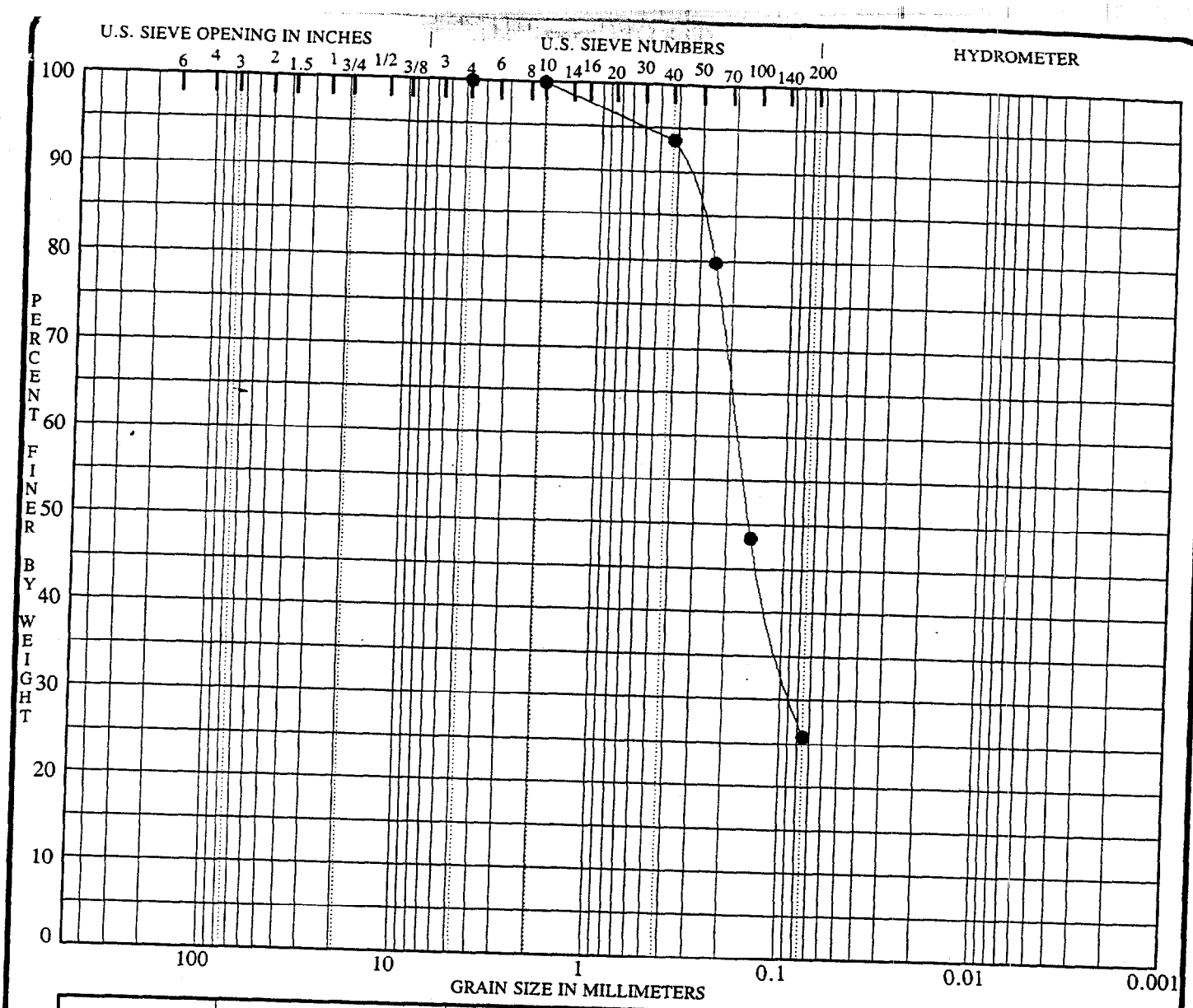
ORLANDO, FLORIDA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	SB-38	29.0		14					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-38	29.0		0.18	0.085			74.1	25.8	

PROJECT NTC 09 & NTC 39--ORLANDO - FL

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GRADATION CURVES

UNIVERSAL ENGINEERING SCIENCES
ORLANDO, FLORIDA

APPENDIX C

SUMMARY OF DPT ANALYTICAL RESULTS

TABLE C-1

SA 39 DPT DATA SUMMARY

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	NTC39P00140	NTC39P00150	NTC39P00160	NTC39P00250	NTC39P00260	NTC39P00340	NTC39P00350	NTC39P00360	NTC39P00370	NTC39P00440
LAB ID	A9G190108003	A9G190108004	A9G190108005	A9G190108001	A9G190108002	A9G160114002	A9G160114003	A9G160114004	A9G160114005	A9G150131001
SAMPLE DATE	7/17/99	7/17/99	7/17/99	7/17/99	7/17/99	7/15/99	7/15/99	7/15/99	7/15/99	7/14/99
Volatiles (ug/L)										
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	20 J	10 UR	10 UR
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	23 U	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR	10 UR
Benzene	0.22 J	1 U	0.22 J	0.14 J	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1 U	1 U	1 U	1 U	1 U	0.3 J	0.31 J	1 U	1 U	1 U
Carbon Tetrachloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	36	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cis-1,2-dichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cis-1,3-dichloropropene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.47 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U	0.17 J	1 U	1 U	0.15 J	0.13 J	1 U	1 U
Methylene Chloride	1.3 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	1 U	1 U	1 U	0.17 J	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 J
Toluene	0.48 J	0.31 J	0.41 J	0.3 J	0.35 J	1 U	1.5 U	1.5 U	1.1 U	1 U
Trans-1,2-dichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trans-1,3-dichloropropene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	1 U	1 U	1 U	0.51 J	1 U	1 U	1 U	1 U	1 U	1 U

TABLE C-1

SA 39 DPT DATA SUMMARY

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	NTC39P00450	NTC39P00460	NTC39P00470	NTC39P00550	NTC39P00560	NTC39P005A70	NTC39P005B80	NTC39P00640	NTC39P00650	NTC39P00650-D
LAB ID	A9G150131002	A9G150131003	A9G150131004	A9G200109001	A9G200109002	A9G200109003	A9G200109004	A9G150131005	A9G150131006	A9G150131008
SAMPLE DATE	7/14/99	7/14/99	7/14/99	7/18/99	7/18/99	7/18/99	7/19/99	7/14/99	7/14/99	7/14/99
Volatiles (ug/L)										
1,1,1-Trichloroethane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
2-Butanone	10 UR	10 J	10 J	10 UR	22 J	10 UR	10 J	10 UR	10 UR	10 UR
2-Hexanone	10 U	12 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-methyl-2-pentanone	10 U	12 U	10 U	10 U	11 U	10 UJ	10 U	10 U	10 U	10 U
Acetone	10 UR	65 J	26 J	10 UR	44 J	10 UR	25 J	10 UR	10 UR	10 UR
Benzene	1 U	0.45 J	0.51 J	0.24 J	0.91 J	0.29 J	0.64 J	1 U	1 U	1 U
Bromodichloromethane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Bromoform	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	1.2 U	1 U	1 UJ	1.1 UJ	1 UJ	1 UJ	1 U	1 U	1 U
Carbon Disulfide	1 U	1.2 U	1 U	0.24 J	0.89 J	3.4 J	0.31 J	1 U	0.12 J	0.31 J
Carbon Tetrachloride	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Chloroform	1 U	1.7 J	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Chloromethane	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Cis-1,2-dichloroethene	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Cis-1,3-dichloropropene	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1.2 U	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	1 U	1.2 U	1 U	1 U	2 U	1.5 U	1.5 U	1 U	1 U	1 U
Styrene	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1.2 U	1 U	6.7	4.2	1.1	4.6	1 U	1 U	1 U
Toluene	1 U	12 U	1 U	0.32 J	1.3	0.42 J	0.81 J	1 U	1 U	1 U
Trans-1,2-dichloroethene	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Trans-1,3-dichloropropene	1 U	1.2 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1.2 U	1 U	1.6	1.1 U	0.35 J	0.24 J	1 U	1 U	1 U
Vinyl Chloride	1 U	1.2 U	1 U	1 U	1.1 U	1 UJ	1 U	1 U	1 U	1 U
Xylenes, Total	1 U	1.2 U	1 U	1 U	0.5 J	1 U	1 U	1 U	1 U	1 U

TABLE C-1

SA 39 DPT DATA SUMMARY

NAVAL TRAINING CENTER ORLANDO, FLORIDA

SAMPLE ID	NTC39P00660	NTC39P00670	NTC39P00740	NTC39P00740-D	NTC39P00840	NTC39P00850	NTC39P00860	NTC39P00870	NTC39P00940	NTC39P00950
LAB ID	A9G150131007	A9G160114001	A9G170122006	A9G170122007	A9G170122002	A9G170122003	A9G170122004	A9G170122005	A9G160114006	A9G160114007
SAMPLE DATE	7/14/99	7/15/99	7/16/99	7/16/99	7/16/99	7/16/99	7/16/99	7/16/99	7/15/99	7/15/99
Volatiles (ug/L)										
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.23 J
2-Butanone	9 J	10 UR	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	33 J	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	8.1 J	10 UJ	10 UJ
Benzene	0.36 J	1 U	1 U	1 U	0.34 J	1 U	1 U	0.53 J	1 U	1 U
Bromodichloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	0.2 J	0.23 J	0.56 J	0.49 J	0.28 J	0.56 J	0.49 J	0.47 J	0.21 J	0.48 J
Carbon Tetrachloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cis-1,2-dichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cis-1,3-dichloropropene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	1 U	1 U	1 U	1 U	1.4 U	1.1 U	1 U	2.3 U	1 U	1 U
Styrene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	17	14	1 U	1 U	1 U	5	1 U	1 U
Toluene	1 U	1.1 U	0.44 J	0.49 J	1	0.62 J	0.5 J	0.93 J	1 U	1 U
Trans-1,2-dichloroethene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trans-1,3-dichloropropene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1 U	0.67 J	0.66 J	1 U	1 U	1 U	0.42 J	1 U	1 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE C-1

SA 39 DPT DATA SUMMARY

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

SAMPLE ID	NTC39P00970	NTC39P01040	NTC39P01050	NTC39P01060	NTC39P01070	NTC39P01140	NTC39P01150	NTC39P01160	NTC39P01170
LAB ID	A9G170122001	A9G140109001	A9G140109002	A9G140109003	A9G140109004	A9G200109006	A9G200109007	A9G200109008	A9G200109009
SAMPLE DATE	7/16/99	7/13/99	7/13/99	7/13/99	7/13/99	7/19/99	7/19/99	7/19/99	7/19/99
Volatiles (ug/L)									
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
1,1-Dichloroethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
1,1-Dichloroethene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
1,2-Dichloroethane	1 U	0.28 J	0.21 J	0.3 J	10 U	1 U	2.5 U	10 U	10 U
1,2-Dichloropropane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
2-Butanone	10 U	10 U	10 U	10 U	100 U	10 UR	25 UR	100 UR	100 UR
2-Hexanone	10 U	10 U	10 U	10 U	100 U	10 U	25 U	100 U	100 U
4-methyl-2-pentanone	10 U	10 U	10 U	10 U	100 U	10 U	25 U	100 U	100 U
Acetone	11 J	10 UJ	10 UJ	10 UJ	100 UJ	10 UR	25 UR	100 UR	160 J
Benzene	0.33 J	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Bromodichloromethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Bromoform	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Bromomethane	1 U	1 U	1 U	1 U	10 U	1 UJ	2.5 UJ	10 UJ	10 UJ
Carbon Disulfide	0.7 J	0.41 J	0.7 J	0.49 J	10 U	1.4	0.55 J	1.4 J	3 J
Carbon Tetrachloride	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Chlorobenzene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Chloroethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Chloroform	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Chloromethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Cis-1,2-dichloroethene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Cis-1,3-dichloropropene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Dibromochloromethane	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Ethylbenzene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Methylene Chloride	18 J	1 U	0.5 J	1 U	3.7 J	1 U	2.5 U	10 U	10 U
Styrene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Tetrachloroethene	0.33 J	1 U	1 U	1 U	10 U	0.37 J	2.5 U	10 U	10 U
Toluene	0.89 J	1 U	0.38 J	1 U	10 U	0.18 J	2.5 U	10 U	10 U
Trans-1,2-dichloroethene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Trans-1,3-dichloropropene	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Trichloroethene	1 U	1 U	1 U	1 U	10 U	0.12 J	2.5 U	10 U	10 U
Vinyl Chloride	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U
Xylenes, Total	1 U	1 U	1 U	1 U	10 U	1 U	2.5 U	10 U	10 U

DPT SUMMARY

(Source: Appendix F from HLA, 1999)

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G02501		39G02601		39Q00104		39Q00108		39Q00203		39Q00404		39Q01203		39Q01203D	
Lab ID	C7E190111002		C7E190111003		C7C200110003		C7C280112002		C7C200110004		C7C280112003		C7D010135003		C7D010135004	
Sampling Date	15-May-97		15-May-97		18-Mar-97		26-Mar-97		18-Mar-97		26-Mar-97		29-Mar-97		29-Mar-97	
Volatile Organics, ug/L																
1,1,1,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1,1-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1,2-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,3-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,3-Trichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,4-Trimethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dibromoethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,3,5-Trimethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,3-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,3-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,4-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
2,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
2-Chlorotoluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
4-Chlorotoluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromoform	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromomethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Carbon tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Chlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Chloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Chloroform	0.2	J	0.65		0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G02501		39G02601		39Q00104		39Q00108		39Q00203		39Q00404		39Q01203		39Q01203D	
Lab ID	C7E190111002		C7E190111003		C7C200110003		C7C280112002		C7C200110004		C7C280112003		C7D010135003		C7D010135004	
Sampling Date	15-May-97		15-May-97		18-Mar-97		26-Mar-97		18-Mar-97		26-Mar-97		29-Mar-97		29-Mar-97	
Chloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
cis-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Dibromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Dibromomethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Dichlorodifluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Isopropylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Methylene chloride	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
n-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
n-Propylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
p-Isopropyltoluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
sec-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Styrene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
tert-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Tetrachloroethene	0.5	U	0.5	U	0.92		0.2	J	48		0.5	U	41		33	
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
trans-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.1	J	0.5	U	0.76	J	0.68	J
Trichlorofluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Vinyl chloride	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Xylene (total)	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,4-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Hexachlorobutadiene	0.5	U	0.5	U	0.1	J	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Naphthalene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U

Appendix F

Table F-7 Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39Q01302		39Q01404		39Q01405		39Q01604		39Q02001		39Q02002		39Q02003		39Q02004	
Lab ID	C7D010135002		C7D020110001		C7D020110002		C7D020110003		C7D040105001		C7D040105002		C7D040105003		C7D040105004	
Sampling Date	29-Mar-97		31-Mar-97		31-Mar-97		31-Mar-97		1-Apr-97		1-Apr-97		1-Apr-97		2-Apr-97	
Volatile Organics, ug/L																
1,1,1,2-Tetrachloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trimethylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3,5-Trimethylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2-Chlorotoluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
4-Chlorotoluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	0.19	J	2.5	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	0.5	U	2.2	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39Q01302		39Q01404		39Q01405		39Q01604		39Q02001		39Q02002		39Q02003		39Q02004	
Lab ID	C7D010135002		C7D020110001		C7D020110002		C7D020110003		C7D040105001		C7D040105002		C7D040105003		C7D040105004	
Sampling Date	29-Mar-97		31-Mar-97		31-Mar-97		31-Mar-97		1-Apr-97		1-Apr-97		1-Apr-97		2-Apr-97	
Chloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Isopropyltoluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	6.2		260		2.2		14		0.5	U	0.5	U	6.4		11	
Toluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.63	
trans-1,2-Dichloroethene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.28	J	2.6	J	0.5	U	0.17	J	0.5	U	0.5	U	0.1	J	0.18	J
Trichlorofluoromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (total)	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	0.5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39Q02005		39Q02006		39Q02210		39Q02210D		39Q02702	
Lab ID	C7D040105005		C7D040105006		C7D080138008		C7D080138007		C7D080138009	
Sampling Date	2-Apr-97		2-Apr-97		5-Apr-97		5-Apr-97		3-Apr-97	
Volatile Organics, ug/L										
1,1,1,2-Tetrachloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trimethylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,3,5-Trimethylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
2-Chlorotoluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
4-Chlorotoluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Benzene	0.5	U	1.6	J	0.5	U	0.5	U	0.5	U
Bromobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	0.5	U	4.7	J	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	U	5	U	0.5	U	0.5	U	0.5	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39Q02005		39Q02006		39Q02210		39Q02210D		39Q02702	
Lab ID	C7D040105005		C7D040105006		C7D080138008		C7D080138007		C7D080138009	
Sampling Date	2-Apr-97		2-Apr-97		5-Apr-97		5-Apr-97		3-Apr-97	
Chloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	0.5	U	5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
p-Isopropyltoluene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Styrene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	1.6		260		0.5	U	0.5	U	0.5	U
Toluene	0.5	U	4	J	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.5	U	4.4	J	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Xylene (total)	0.5	U	5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	U	5	U	0.5	U	0.5	U	0.5	U
Naphthalene	0.5	U	5	U	0.5	U	0.5	U	0.5	U

TABLE F-8

SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Table I-1
Groundwater Screening Results
(Onsite Field Laboratory)

Base Realignment and Closure
Environmental Site Screening Report
Study Area 39
Naval Training Center
Orlando, Florida

Sample ID	Depth Interval (feet bls)	Analyte Concentration (µg/ℓ)				
		1,1-DCE	Trans 1,2-DCE	cis 1,2-DCE	TCE	PCE
39Q00101F	15 to 17	<2	<2	<2	<2	**38**
39Q00102F	20 to 22	<2	<2	<2	<2	**99**
39Q00103F	25 to 27	<2	<2	<2	<2	**10**
39Q00104F	30 to 32	<2	<2	<2	<2	<2
39Q00105F	36 to 37	<2	<2	<2	<2	<2
39Q00106F	40 to 41	<2	<2	<2	<2	<2
39Q00107F	45 to 46	<2	<2	<2	<2	<2
39Q00108F	50 to 51	<2	<2	<2	<2	<2
39Q00109F	60 to 61	<2	<2	<2	<2	<2
39Q00110F	70 to 71	<2	<2	<2	<2	<2
39Q00111F	80 to 81	<2	<2	<2	<2	<2
39Q00201F	15 to 17	<2	<2	<2	<2	**44**
39Q00202F	20 to 22	<2	<2	<2	<2	**26**
39Q00203F	25 to 27	<2	<2	<2	<2	**90**
39Q00204F	28 to 30	<2	<2	<2	<2	**12**
39Q00204FD	–	<2	<2	<2	<2	**6.0**
39Q00301F	20 to 22	<2	<2	<2	<2	2.0
39Q00302F	25 to 27	<2	<2	<2	<2	<2
39Q00303F	30 to 32	<2	<2	<2	<2	<2
39Q00401F	20 to 22	<2	<2	<2	<2	**23**
39Q00402F	25 to 27	<2	<2	<2	<2	**119**
39Q00403F	30 to 32	<2	<2	<2	2.0	**62**
39Q00404F	35 to 36	<2	<2	<2	<2	<2
39Q00405F	40 to 41	<2	<2	<2	<2	<2
39Q00406F	45 to 46	<2	<2	<2	<2	<2
39Q00407F	50 to 51	<2	<2	<2	<2	<2
39Q00408F	60 to 61	<2	<2	<2	<2	<2
39Q00409F	70 to 71	<2	<2	<2	<2	<2
39Q00410F	80 to 81	<2	<2	<2	<2	<2
39Q00410FD	–	<2	<2	<2	<2	<2
39Q00501F	15 to 17	<2	<2	<2	<2	**11**
39Q00502F	20 to 22	<2	<2	<2	<2	**4.5**
39Q00503F	25 to 27	<2	<2	<2	<2	2.0
39Q00504F	30 to 32	<2	<2	<2	<2	7.0

See notes at end of table.

Table I-1 (Continued)
Groundwater Screening Results
(Onsite Field Laboratory)

Base Realignment and Closure
Environmental Site Screening Report
Study Area 39
Naval Training Center
Orlando, Florida

Sample ID	Depth Interval (feet bls)	Analyte Concentration (µg/ℓ)				
		1,1-DCE	Trans 1,2-DCE	cis 1,2-DCE	TCE	PCE
39Q00601F	16 to 18	<2	<2	<2	<2	**2.0**
39Q00602F	20 to 22	<2	<2	<2	<2	**5.0**
39Q00602FD	--	<2	<2	<2	<2	**5.0**
39Q00701F	15 to 16	<2	<2	<2	<2	<2
39Q00702F	20 to 21	<2	<2	<2	<2	<2
39Q00703F	25 to 26	<2	<2	<2	<2	<2
39Q00704F	29 to 30	<2	<2	<2	<2	<2
39Q00705F	35 to 36	<2	<2	<2	<2	<2
39Q00706F	40 to 41	<2	<2	<2	<2	<2
39Q00801F	15 to 16	<2	<2	<2	<2	<2
39Q00802F	20 to 21	<2	<2	<2	<2	<2
39Q00803F	25 to 26	<2	<2	<2	<2	<2
39Q00804F	29 to 30	<2	<2	<2	<2	<2
39Q00805F	35 to 36	<2	<2	<2	<2	<2
39Q00901F	15 to 16	<2	<2	<2	<2	<2
39Q00902F	20 to 21	<2	<2	<2	<2	<2
39Q00903F	25 to 26	<2	<2	<2	<2	**5.2**
39Q00904F	29 to 30	<2	<2	<2	<2	<2
39Q00905F	35 to 36	<2	<2	<2	<2	<2
39Q01001F	15 to 16	<2	<2	<2	<2	<2
39Q01002F	20 to 21	<2	<2	<2	<2	<2
39Q01003F	25 to 27	<2	<2	<2	<2	**3.3**
39Q01004F	29 to 30	<2	<2	<2	<2	**3.5**
39Q01005F	35 to 36	<2	<2	<2	<2	<2
39Q01101F	15 to 16	<2	<2	<2	<2	<2
39Q01102F	20 to 22	<2	<2	<2	<2	<2
39Q01103F	25 to 27	<2	<2	<2	<2	<2
39Q01104F	30 to 32	<2	<2	<2	<2	<2
39Q01105F	35 to 37	<2	<2	<2	<2	<2
39Q01201F	15 to 16	<2	<2	<2	<2	<2
39Q01202F	20 to 21	<2	<2	<2	<2	**25**
39Q01203F	25 to 26	<2	<2	<2	<2	**66**
39Q01204F	29 to 30	<2	<2	<2	<2	**116**
39Q01205F	35 to 36	<2	<2	<2	<2	<2

See notes at end of table.

Table I-1 (Continued)
Groundwater Screening Results
(Onsite Field Laboratory)

Base Realignment and Closure
Environmental Site Screening Report
Study Area 39
Naval Training Center
Orlando, Florida

Sample ID	Depth Interval (feet bls)	Analyte Concentration (µg/ℓ)				
		1,1-DCE	Trans 1,2-DCE	cis 1,2-DCE	TCE	PCE
39Q01301F	15 to 16	<2	<2	<2	<2	**5.1**
39Q01302F	20 to 21	<2	<2	<2	<2	**21**
39Q01303F	25 to 26	<2	<2	<2	**2.2**	**107**
39Q01304F	28 to 29	<2	<2	<2	<2	**57**
39Q01305F	35 to 36	<2	<2	<2	<2	<2
39Q01401F	15 to 16	<2	<2	<2	<2	**25**
39Q01402F	20 to 21	<2	<2	<2	<2	**12**
39Q01403F	25 to 26	<2	<2	<2	<2	**57**
39Q01404F	28 to 29	<2	<2	<2	<2	**234**
39Q01405F	35 to 36	<2	<2	<2	<2	**7.8**
39Q01405FD	--	<2	<2	<2	<2	**7.1**
39Q01501F	15 to 16	<2	<2	<2	<2	**16**
39Q01502F	20 to 21	<2	<2	<2	<2	**62**
39Q01503F	25 to 26	<2	<2	<2	<2	**78**
39Q01504F	29 to 30	<2	<2	<2	<2	**16**
39Q01505F	35 to 36	<2	<2	<2	<2	<2
39Q01601F	15 to 16	<2	<2	<2	<2	<2
39Q01602F	20 to 21	<2	<2	<2	<2	**4.0**
39Q01603F	25 to 26	<2	<2	<2	<2	**76**
39Q01604F	29 to 30	<2	<2	<2	**2.2**	**146**
39Q01605F	35 to 36	<2	<2	<2	<2	**18**
39Q01701F	15 to 16	<2	<2	<2	<2	<2
39Q01702F	20 to 21	<2	<2	<2	<2	**2.1**
39Q01703F	25 to 26	<2	<2	<2	<2	**2.8**
39Q01704F	28 to 29	<2	<2	<2	<2	**2.1**
39Q01705F	35 to 36	<2	<2	<2	<2	<2
39Q01801	15 to 16	<2	<2	<2	<2	<2
39Q01802F	20 to 21	<2	<2	<2	<2	<2
39Q01803F	25 to 26	<2	<2	<2	<2	**40**
39Q01901F	15 to 16	<2	<2	<2	<2	**8.8**
39Q01902F	20 to 21	<2	<2	<2	<2	<2
39Q01903F	25 to 26	<2	<2	<2	<2	**37**
39Q01903FD	25 to 26	<2	<2	<2	<2	**31**
39Q01904F	28 to 29	<2	<2	<2	<2	**183**

See notes at end of table.

Table I-1 (Continued)
Groundwater Screening Results
(Onsite Field Laboratory)

Base Realignment and Closure
Environmental Site Screening Report
Study Area 39
Naval Training Center
Orlando, Florida

Sample ID	Depth Interval (feet bls)	Analyte Concentration (µg/ℓ)				
		1,1-DCE	Trans 1,2-DCE	cis 1,2-DCE	TCE	PCE
39Q01905F	35 to 36	<2	<2	<2	<2	**6.2**
39Q01906F	40 to 41	<2	<2	<2	<2	<2
39Q02001F	15 to 16	<2	<2	<2	<2	<2
39Q02002F	20 to 21	<2	<2	<2	<2	<2
39Q02002FD	–	<2	<2	<2	<2	<2
39Q02003F	25 to 26	<2	<2	<2	<2	**71**
39Q02003FD	–	<2	<2	<2	<2	**68**
39Q02004F	28 to 29	<2	<2	<2	<2	**114**
39Q02005F	35 to 36	<2	<2	<2	<2	**22**
39Q02006F	40 to 41	<2	<2	<2	<2	**228**
39Q02006FD	–	<2	<2	<2	**2.2**	**243**
39Q02101F	15 to 16	<2	<2	<2	<2	<2
39Q02102F	20 to 21	<2	<2	<2	<2	<2
39Q02201F	15 to 16	<2	<2	<2	<2	<2
39Q02202F	20 to 21	<2	<2	<2	<2	<2
39Q02203F	25 to 26	<2	<2	<2	<2	**11**
39Q02204F	28 to 29	<2	<2	<2	<2	**183**
39Q02205F	35 to 36	<2	<2	<2	<2	**22**
39Q02206F	40 to 41	<2	<2	<2	<2	**26**
39Q02207F	45 to 46	<2	<2	<2	<2	**26**
39Q02208F	50 to 51	<2	<2	<2	<2	**46**
39Q02209F	60 to 61	<2	<2	<2	<2	**8.9**
39Q02210F	70 to 71	<2	<2	<2	<2	<2
39Q02210FD	–	<2	<2	<2	<2	<2
39Q02211F	80 to 81	<2	<2	<2	<2	<2
39Q02211FD	–	<2	<2	<2	<2	<2
39Q02301F	15 to 16	<2	<2	<2	<2	<2
39Q02302F	20 to 21	<2	<2	<2	<2	<2
39Q02303f	25 to 26	<2	<2	<2	<2	<2
39Q02401F	15 to 16	<2	<2	<2	<2	<2
39Q02402F	20 to 21	<2	<2	<2	<2	<2
39Q02403F	24 to 25	<2	<2	<2	<2	<2
39Q02501F	15 to 16	<2	<2	<2	<2	<2
39Q02502F	20 to 21	<2	<2	<2	<2	<2

See notes at end of table.

Table I-1 (Continued)
Groundwater Screening Results
(Onsite Field Laboratory)

Base Realignment and Closure
Environmental Site Screening Report
Study Area 39
Naval Training Center
Orlando, Florida

Sample ID	Depth Interval (feet bls)	Analyte Concentration (µg/ℓ)				
		1,1-DCE	Trans 1,2-DCE	cis 1,2-DCE	TCE	PCE
39Q02503F	25 to 26	<2	<2	<2	<2	<2
39Q02504F	28 to 29	<2	<2	<2	<2	<2
39Q02505F	35 to 36	<2	<2	<2	<2	<2
39Q02506F	40 to 41	<2	<2	<2	<2	<2
39Q02601F	15 to 16	<2	<2	<2	<2	<2
39Q02602F	20 to 21	<2	<2	<2	<2	<2
39Q02701F	15 to 16	<2	<2	<2	<2	<2
39Q02702F	20 to 21	<2	<2	<2	<2	**4.2**
39Q02801F	15 to 16	<2	<2	<2	<2	<2
39Q02802F	20 to 21	<2	<2	<2	<2	<2
39Q02803F	25 to 26	<2	<2	<2	<2	<2
39Q02803FD	--	<2	<2	<2	<2	<2
39Q02901F	15 to 16	<2	<2	<2	<2	<2
39Q02902F	20 to 21	<2	<2	<2	<2	<2
39Q02903F	25 to 26	<2	<2	<2	<2	<2
39Q02904F	28 to 29	<2	<2	<2	<2	<2
39Q02905F	35 to 36	<2	<2	<2	<2	<2
39Q02906F	40 to 41	<2	<2	<2	<2	<2
39Q03001F	15 to 16	<2	<2	<2	2.2	<2
39Q03002F	20 to 21	<2	<2	<2	<2	<2
39Q03003F	25 to 26	<2	<2	<2	<2	<2
39Q03004F	30 to 31	<2	<2	<2	<2	<2
39Q03005F	35 to 36	<2	<2	<2	<2	<2
39Q03005FD	--	<2	<2	<2	<2	<2

Notes: ID = identifier.
bls = below land surface
µg/ℓ = micrograms per liter
DCE = dichloroethene
TCE = trichloroethene
PCE = perchloroethylene
< = less than.
-- = not detected.

APPENDIX D

SUMMARY OF WELL ANALYTICAL RESULTS (CLP LABORATORY)

TABLE D-1

VALIDATED DATA

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	39-2A	39-3A	39-4A	39-5A	39-7B	39-8A	39-9A	39-10A	39-11A
SAMPLE ID	NTC39G02A10	NTC39G03A10	NTC39G04A10	NTC39G05A10	NTC39G07B10	NTC39G08A10	NTC39G09A10	NTC39G10A10	NTC39G11A10
LAB ID	A9I150121003	A9I110147007	A9I100197006	A9I150121004	A9I110147006	A9I100197003	A9I110147004	A9I100197007	A9I150121002
SAMPLE DATE	9/11/99	9/10/99	9/9/99	9/11/99	9/10/99	9/9/99	9/10/99	9/9/99	9/11/99
Volatile Organics (ug/L)									
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
1,2-Dichloropropane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
2-Butanone	10 UJ	10 UR	10 UR	10 UJ	10 UR	20 UR	10 UR	25 UR	10 UJ
2-Hexanone	10 UJ	10 U	10 U	10 UJ	10 U	20 U	10 U	25 U	10 UJ
4-Methyl-2-Pentanone	10 U	10 U	10 U	10 U	10 U	20 U	10 U	25 U	10 U
Acetone	10 UJ	10 UR	10 UR	10 UJ	10 UR	20 UR	10 UR	25 UR	10 UJ
Benzene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Bromodichloromethane	1 U	1 U	1	1 U	1 U	2 U	1 U	2.5 U	1 U
Bromoform	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Bromomethane	1 UJ	1 U	1 U	1 UJ	1 U	2 U	1 U	2.5 U	1 UJ
Carbon Disulfide	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Carbon Tetrachloride	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Chloroethane	1 UJ	1 U	1 U	1 UJ	1 U	2 U	1 U	2.5 U	1 UJ
Chloroform	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Chloromethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Cis-1,2-Dichloroethene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Cis-1,3-Dichloropropene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Dibromochloromethane	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Methylene Chloride	1.3 U	1 U	1 U	1.3 U	1 U	2 U	1 U	2.5 U	1.3 U
Styrene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Tetrachloroethene	1 U	8.3	5.7	1 U	9.8	23	5.7	0.43 J	4.9
Toluene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Trans-1,2-Dichloroethene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Trans-1,3-Dichloropropene	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Trichloroethene	1 U	0.39 J	0.29 J	1 U	0.17 J	0.35 J	0.29 J	2.5 U	1 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U
Xylenes, Total	1 U	1 U	1 U	1 U	1 U	2 U	1 U	2.5 U	1 U

TABLE D-1

VALIDATED DATA

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	39-12A	39-12A	39-13B	39-14C	39-14C	39-15B	39-16C	39-25C	39-26C	39-27D
SAMPLE ID	NTC39G12A10	NTC39G12A11	NTC39G13B10	NTC39G14C10	NTC39G14C11	NTC39G15B10	NTC39G16C10	NTC39G25C10	NTC39G26C10	NTC39G27D01
LAB ID	A9I110147003	A9I110147003	A9I110147002	A9I110147008	A9J070102002	A9I100197004	A9I100197005	A9I100197002	A9I110147005	A9H050124003
SAMPLE DATE	9/10/99	10/4/99	9/10/99	9/10/99	10/4/99	9/9/99	9/9/99	9/9/99	9/10/99	8/4/99
Volatile Organics (vol.)										
1,1,1-Trichloroethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2-Butanone	10 UR	NA	10 UR	10 UR	NA	10 UR	10 UR	10 UR	10 UR	10 UR
2-Hexanone	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
Acetone	10 UR	NA	10 UR	10 UR	NA	10 UR	10 UR	10 UR	10 UR	10 UR
Benzene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	0.95 J
Bromoform	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	NA	1 U	1 U	NA	2.2	1 U	1 U	1 U	5.3
Chloromethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Cis-1,2-Dichloroethene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1.3	1 U
Cis-1,3-Dichloropropene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	0.13 J
Ethylbenzene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Styrene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	NA	1 U	1 U	NA	4.5	11	1 U	1 U	1 U
Toluene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Trans-1,2-Dichloroethene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Trans-1,3-Dichloropropene	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	NA	1 U	1 U	NA	0.35 J	0.31 J	1 U	2.1	1 U
Vinyl Chloride	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U

TABLE D-1

VALIDATED DATA

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	39-28D	39-29C	39-29C	39-30B	39-30B	39-30B	39-31A	39-32C	39-32C
SAMPLE ID	NTC39G28D01	NTC39G29C10	NTC39G29C11	NTC39G30B10	NTC39G30B10-D	NTC39G30B11	NTC39G31A10	NTC39G32C10	NTC39G32C11
LAB ID	A9H050124002	A9I150121018	A9I150121018	A9I150121016	A9I150121017	A9J070102004	A9I150121014	A9I150121010	A9J070133002
SAMPLE DATE	8/3/99	9/13/99	10/4/99	9/13/99	9/13/99	10/4/99	9/12/99	9/12/99	10/4/99
Volatile Organics (µg/L)									
1,1,1-Trichloroethane	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
1,1,2,2-Tetrachloroethane	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
1,1,2-Trichloroethane	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
1,1-Dichloroethane	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
1,1-Dichloroethene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
1,2-Dichloroethane	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
1,2-Dichloropropane	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
2-Butanone	10 UR	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	12 UJ	NA
2-Hexanone	10 UJ	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	12 UJ	NA
4-Methyl-2-Pentanone	10 UJ	10 U	NA	10 U	10 U	NA	10 U	12 U	NA
Acetone	10 UR	10 UJ	NA	10 UJ	10 UJ	NA	10 UJ	12 UJ	NA
Benzene	0.33 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Bromodichloromethane	1.7 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Bromoform	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Bromomethane	1 UJ	1 UJ	NA	1 UJ	1 UJ	NA	1 UJ	1.2 UJ	NA
Carbon Disulfide	0.38 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Carbon Tetrachloride	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Chlorobenzene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Chloroethane	1 UJ	1 UJ	NA	1 UJ	1 UJ	NA	1 UJ	1.2 UJ	NA
Chloroform	9.6 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Chloromethane	0.22 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Cis-1,2-Dichloroethene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Cis-1,3-Dichloropropene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Dibromochloromethane	0.29 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Ethylbenzene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Methylene Chloride	1 U	1 U	NA	1 U	1 U	NA	1 U	3.6 U	NA
Styrene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Tetrachloroethene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	26	NA
Toluene	0.14 J	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Trans-1,2-Dichloroethene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Trans-1,3-Dichloropropene	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Trichloroethene	0.14 J	1 U	NA	1 U	1 U	NA	1 U	0.46 J	NA
Vinyl Chloride	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA
Xylenes, Total	1 UJ	1 U	NA	1 U	1 U	NA	1 U	1.2 U	NA

TABLE D-1

VALIDATED DATA

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	39-33B	39-33B	39-33B	39-34A	39-35B	39-35B	39-36A	39-37C
SAMPLE ID	NTC39G33B10	NTC39G33B11	NTC39G33B11-D	NTC39G34A10	NTC39G35B10	NTC39G35B10-D	NTC39G36A10	NTC39G37C10
LAB ID	A9I150121012	A9J070133001	A9J070133004	A9I150121006	A9I150121007	A9I150121008	A9I150121005	A9I150121011
SAMPLE DATE	9/12/99	10/6/99	10/6/99	9/11/99	9/11/99	9/11/99	9/11/99	9/12/99
Volatile Organics (ug/L)								
1,1,1-Trichloroethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
1,1,2,2-Tetrachloroethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
1,1,2-Trichloroethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
1,1-Dichloroethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
1,1-Dichloroethene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
1,2-Dichloroethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
1,2-Dichloropropane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
2-Butanone	10 UJ	NA	NA	10 UJ	33 UJ	33 UJ	10 UJ	50 UJ
2-Hexanone	10 UJ	NA	NA	10 UJ	33 UJ	33 UJ	10 UJ	50 UJ
4-Methyl-2-Pentanone	10 U	NA	NA	10 U	33 U	33 U	10 U	50 U
Acetone	10 UJ	NA	NA	10 UJ	33 UJ	33 UJ	10 UJ	75 UJ
Benzene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Bromodichloromethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Bromoform	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Bromomethane	1 UJ	NA	NA	1 UJ	3.3 UJ	3.3 UJ	1 UJ	5 UJ
Carbon Disulfide	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Carbon Tetrachloride	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Chlorobenzene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Chloroethane	1 UJ	NA	NA	1 UJ	3.3 UJ	3.3 UJ	1 UJ	5 UJ
Chloroform	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	1.2 J
Chloromethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Cis-1,2-Dichloroethene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Cis-1,3-Dichloropropene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Dibromochloromethane	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Ethylbenzene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Methylene Chloride	1.5 U	NA	NA	1.5 U	10 U	12 U	1.5 U	5 U
Styrene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Tetrachloroethene	27	NA	NA	1 U	84	77	1.1	8.7
Toluene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	1.4 J
Trans-1,2-Dichloroethene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Trans-1,3-Dichloropropene	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Trichloroethene	1.6	NA	NA	1 U	1.1 J	1.1 J	1 U	5 U
Vinyl Chloride	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U
Xylenes, Total	1 U	NA	NA	1 U	3.3 U	3.3 U	1 U	5 U

TABLE D-1

VALIDATED DATA

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	39-38B	39-38B	39-39A	39-39A	39-40B	39-41C		
SAMPLE ID	NTC39G38B10	NTC39G38B11	NTC39G39A10	NTC39G39A10-D	NTC39G40B10	NTC39G41C10	NTC39U391620	NTC39U393640
LAB ID	A9I150121013	A9J070133003	A0C100116002	A0C100116003	A0C100116004	A0C100116005	A9J070133005	A9J070133006
SAMPLE DATE	9/12/99	10/6/99	3/9/00	3/9/00	3/9/00	3/9/00	10/6/99	10/6/99
Volatile Organics (µg/L)								
1,1,1-Trichloroethane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
1,1,2,2-Tetrachloroethane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
1,1,2-Trichloroethane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
1,1-Dichloroethane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
1,1-Dichloroethene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
1,2-Dichloroethane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
1,2-Dichloropropane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
2-Butanone	33 UJ	NA	10 U	10 U	10 U	10 U	NA	NA
2-Hexanone	33 UJ	NA	10 U	10 U	10 U	10 U	NA	NA
4-Methyl-2-Pentanone	33 U	NA	10 U	10 U	10 U	10 U	NA	NA
Acetone	33 UJ	NA	1.8 U	2 U	1.9 U	23 U	NA	NA
Benzene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Bromodichloromethane	3.3 U	NA	1 U	1 U	0.11 J	0.71 J	NA	NA
Bromoform	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Bromomethane	3.3 UJ	NA	1 U	1 U	1 U	1 U	NA	NA
Carbon Disulfide	3.3 U	NA	1 U	1 U	0.11 U	0.22 U	NA	NA
Carbon Tetrachloride	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Chlorobenzene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Chloroethane	3.3 UJ	NA	1 U	1 U	1 U	1 U	NA	NA
Chloroform	3.3 U	NA	1 U	1 U	0.59 J	2.1	NA	NA
Chloromethane	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Cis-1,2-Dichloroethene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Cis-1,3-Dichloropropene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Dibromochloromethane	3.3 U	NA	1 U	1 U	1 U	0.27 J	NA	NA
Ethylbenzene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Methylene Chloride	7.1 U	NA	1 U	1 U	1 U	1 U	NA	NA
Styrene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Tetrachloroethene	94	NA	1 U	1 U	1 U	1 U	NA	NA
Toluene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Trans-1,2-Dichloroethene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Trans-1,3-Dichloropropene	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Trichloroethene	1.5 J	NA	1 U	1 U	1 U	1 U	NA	NA
Vinyl Chloride	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA
Xylenes, Total	3.3 U	NA	1 U	1 U	1 U	1 U	NA	NA

SUMMARY OF HISTORICAL WELL ANALYTICAL RESULTS (CLP LABORATORY)

APRIL 1996 – MAY 1997

(Source: Appendix F from HLA, 1999)

Appendix F

Table F-6. Summary of Groundwater Analytical Results

Study Area 39 - Target Analyte List and Target Compound List Analyses

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00101		39G00201		39G00201D		39G00202		39G00202D		39G00301		39G00301D		39G00401		39G00501		39G00601	
Lab ID	MA627002		MA627003		MA627004		ABBOW*8		ABBOW*7		MA640003		MA640004		MA640005		MA640002		MA801001	
Sampling Date	2-Apr-96		2-Apr-96		2-Apr-96		29-Aug-96		29-Aug-96		3-Apr-96		3-Apr-96		3-Apr-96		3-Apr-96		23-Apr-96	
Volatile Organics, ug/L																				
1,1,1-Trichloroethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,1,2-Trichloroethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,1-Dichloroethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,1-Dichloroethene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,2-Dibromo-3-chloropropane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,2-Dibromoethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,2-Dichlorobenzene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,2-Dichloroethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,2-Dichloropropane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,3-Dichlorobenzene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
1,4-Dichlorobenzene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
2-Butanone	5	UR	5	UR	5	UR	NA		NA		5	UR	5	UR	5	UR	5	UR	NA	
2-Hexanone	5	U	5	U	5	U	NA		NA		5	U	5	U	5	U	5	U	NA	
4-Methyl-2-pentanone	5	U	5	U	5	U	NA		NA		5	U	5	U	5	U	5	U	NA	
Acetone	5	UR	3	R	3	R	NA		NA		2	R	5	UR	5	UR	2	R	NA	
Benzene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Bromochloromethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Bromodichloromethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Bromoform	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Bromomethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Carbon disulfide	1	U	2		2		NA		NA		1		1		3		0.3	J	NA	
Carbon tetrachloride	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Chlorobenzene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Chloroethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Chloroform	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Chloromethane	1	U	1	U	1	U	NA		NA		1	U	0.3	J	1	U	1	U	NA	
cis-1,2-Dichloroethene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
cis-1,3-Dichloropropene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Dibromochloromethane	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Ethylbenzene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Methylene chloride	2	U	2	U	2	U	NA		NA		2	U	2	U	2	U	2	U	NA	
Styrene	1	U	3		3		NA		NA		1	U	1	U	1	U	1	U	NA	

Appendix F

Table F-6 Summary of Groundwater Analytical Results

Study Area 39 - Target Analyte List and Target Compound List Analyses

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00101		39G00201		39G00201D		39G00202		39G00202D		39G00301		39G00301D		39G00401		39G00501		39G00601	
Lab ID	MA627002		MA627003		MA627004		ABBOW8		ABBOW7		MA640003		MA640004		MA640005		MA640002		MA801001	
Sampling Date	2-Apr-96		2-Apr-96		2-Apr-96		29-Aug-96		29-Aug-96		3-Apr-96		3-Apr-96		3-Apr-96		3-Apr-96		23-Apr-96	
Tetrachloroethene	1	U	1	U	1	U	NA		NA		8		10		1	U	1	U	NA	
Toluene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
trans-1,2-Dichloroethene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
trans-1,3-Dichloropropene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Trichloroethene	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Vinyl chloride	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Xylene (total)	1	U	1	U	1	U	NA		NA		1	U	1	U	1	U	1	U	NA	
Semivolatile Organics, ug/L																				
1,2,4-Trichlorobenzene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2,2'-oxybis(1-Chloropropane)	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2,4,5-Trichlorophenol	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
2,4,6-Trichlorophenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2,4-Dichlorophenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2,4-Dimethylphenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2,4-Dinitrophenol	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
2,4-Dinitrotoluene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2,6-Dinitrotoluene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2-Chloronaphthalene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2-Chlorophenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2-Methylnaphthalene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2-Methylphenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
2-Nitroaniline	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
2-Nitrophenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
3,3'-Dichlorobenzidine	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
3-Nitroaniline	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
4-Bromophenyl-phenylether	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
4-Chloro-3-methylphenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
4-Chloroaniline	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
4-Chlorophenyl-phenylether	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
4-Methylphenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
4-Nitroaniline	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
4-Nitrophenol	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
Acenaphthene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	

Appendix F

Table F-6 Summary of Groundwater Analytical Results

Study Area 39 - Target Analyte List and Target Compound List Analyses

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00101		39G00201		39G00201D		39G00202		39G00202D		39G00301		39G00301D		39G00401		39G00501		39G00601	
Lab ID	MA627002		MA627003		MA627004		ABBOW*8		ABBOW*7		MA640003		MA640004		MA640005		MA640002		MA801001	
Sampling Date	2-Apr-96		2-Apr-96		2-Apr-96		29-Aug-96		29-Aug-96		3-Apr-96		3-Apr-96		3-Apr-96		3-Apr-96		23-Apr-96	
Acenaphthylene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Anthracene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Benzo(a)anthracene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Benzo(a)pyrene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Benzo(b)fluoranthene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Benzo(g,h,i)perylene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Benzo(k)fluoranthene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
bis(2-Chloroethoxy)methane	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
bis(2-Chloroethyl)ether	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Butylbenzylphthalate	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Carbazole	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Chrysene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Di-n-butylphthalate	10	U	10	U	10	U	NA		NA		10	U	10	U	1	J	10	U	NA	
Di-n-octylphthalate	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Dibenz(a,h)anthracene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Dibenzofuran	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Diethylphthalate	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Dimethylphthalate	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Fluoranthene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Fluorene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Hexachlorobenzene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Hexachlorobutadiene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Hexachlorocyclopentadiene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Hexachloroethane	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Isophorone	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
N-Nitroso-di-n-propylamine	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Naphthalene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Nitrobenzene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Pentachlorophenol	25	U	25	U	25	U	NA		NA		25	U	25	U	25	U	25	U	NA	
Phenanthrene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Phenol	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	

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Table F-6. Summary of Groundwater Analytical Results

Study Area 39 - Target Analyte List and Target Compound List Analyses

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00101		39G00201		39G00201D		39G00202		39G00202D		39G00301		39G00301D		39G00401		39G00501		39G00601	
Lab ID	MA627002		MA627003		MA627004		ABBOW*8		ABBOW*7		MA640003		MA640004		MA640005		MA640002		MA801001	
Sampling Date	2-Apr-96		2-Apr-96		2-Apr-96		29-Aug-96		29-Aug-96		3-Apr-96		3-Apr-96		3-Apr-96		3-Apr-96		23-Apr-96	
Pyrene	10	U	10	U	10	U	NA		NA		10	U	10	U	10	U	10	U	NA	
Pesticides/PCBs, ug/L																				
4,4'-DDD	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
4,4'-DDE	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
4,4'-DDT	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
Aldrin	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
alpha-BHC	0.05	UJ	0.05	UJ	0.05	UJ	NA		NA		0.05	UJ	0.05	UJ	0.05	UJ	0.05	UJ	NA	
alpha-Chlordane	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Aroclor-1016	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
Aroclor-1221	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
Aroclor-1232	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
Aroclor-1242	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
Aroclor-1248	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
Aroclor-1254	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
Aroclor-1260	0.5	U	0.5	U	0.5	U	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U	NA	
beta-BHC	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
delta-BHC	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Dieldrin	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
Endosulfan I	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Endosulfan II	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
Endosulfan sulfate	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
Endrin	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
Endrin aldehyde	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
Endrin ketone	0.1	U	0.1	U	0.1	U	NA		NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	
gamma-BHC (Lindane)	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
gamma-Chlordane	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Heptachlor	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Heptachlor epoxide	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Methoxychlor	0.5	UJ	0.5	UJ	0.5	UJ	NA		NA		0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	NA	
Toxaphene	5	U	5	U	5	U	NA		NA		5	U	5	U	5	U	5	U	NA	
Herbicides, ug/L																				
2,4,5-T	NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
2,4,5-TP (Silvex)	NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
2,4-D	NA		NA		NA		NA		NA		NA		NA		NA		NA		2.5	U

Appendix F

Table F-6. Summary of Groundwater Analytical Results

Study Area 39 - Target Analyte List and Target Compound List Analyses

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00101		39G00201		39G00201D		39G00202		39G00202D		39G00301		39G00301D		39G00401		39G00501		39G00601	
Lab ID	MA627002		MA627003		MA627004		ABBOW*8		ABBOW*7		MA640003		MA640004		MA640005		MA640002		MA801001	
Sampling Date	2-Apr-96		2-Apr-96		2-Apr-96		29-Aug-96		29-Aug-96		3-Apr-96		3-Apr-96		3-Apr-96		3-Apr-96		23-Apr-96	
2,4-DB	NA		NA		NA		NA		NA		NA		NA		NA		NA		2.5	U
2,4-DP (Dichloroprop)	NA		NA		NA		NA		NA		NA		NA		NA		NA		2.5	U
Dalapon	NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U
Dicamba	NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
Dinoseb	NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
MCPA	NA		NA		NA		NA		NA		NA		NA		NA		NA		250	U
MCPP	NA		NA		NA		NA		NA		NA		NA		NA		NA		250	U
Explosives, ug/L																				
1,3,5-Trinitrobenzene	0.04	U	0.04	U	0.04	U	NA		NA		0.04	U	0.04	U	0.04	U	0.04	U	NA	
1,3-Dinitrobenzene	0.04	U	0.04	U	0.04	U	NA		NA		0.04	U	0.04	U	0.04	U	0.04	U	NA	
2,4,6-Trinitrotoluene	0.04	U	0.04	U	0.04	U	NA		NA		0.07		0.04	U	0.04	U	0.04	U	NA	
2-Amino-4,6-Dinitrotoluene	0.04	U	0.04	U	0.04	U	NA		NA		0.04	U	0.04	U	0.04	U	0.04	U	NA	
2-Nitrotoluene	0.08	U	0.08	U	0.08	U	NA		NA		0.08	U	0.08	U	0.08	U	0.08	U	NA	
3-Nitrotoluene	0.09	U	0.09	U	0.09	U	NA		NA		0.09	U	0.09	U	0.09	U	0.09	U	NA	
4-Amino-2,6-Dinitrotoluene	0.04	U	0.04	U	0.04	U	NA		NA		0.04	U	0.04	U	0.04	U	0.04	U	NA	
4-Nitrotoluene	0.09	U	0.09	U	0.09	U	NA		NA		0.09	U	0.09	U	0.09	U	0.09	U	NA	
HMX	0.09	U	0.09	U	0.09	U	NA		NA		0.09	U	0.09	U	0.09	U	0.09	U	NA	
RDX	0.09	U	0.09	U	0.09	U	NA		NA		0.09	U	0.09	U	0.09	U	0.09	U	NA	
Tetryl (total)	0.05	U	0.05	U	0.05	U	NA		NA		0.05	U	0.05	U	0.05	U	0.05	U	NA	
Inorganics, ug/L																				
Aluminum	1750	J	1550	J	1550	J	NA		NA		257	J	273	J	1160	J	365	J	NA	
Antimony	1.6	B	1.1	U	2.7	U	NA		NA		2.6	U	2.2	U	1.8	U	1.1	U	NA	
Arsenic	1.3	U	3.9	B	3	B	NA		NA		1.3	U	1.3	U	1.3	U	1.3	U	NA	
Barium	20.5	U	30.5	U	53.8	J	NA		NA		2.9	U	3.1	U	9.6	U	3.8	U	NA	
Beryllium	0.2	U	0.2	U	0.2	U	NA		NA		0.2	U	0.2	U	0.2	U	0.2	U	NA	
Cadmium	1.8	UJ	1.8	UJ	1.8	UJ	NA		NA		1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ	NA	
Calcium	30800		132000		135000		NA		NA		50600		50700		13200		50400		NA	
Chromium	5.1	U	2.2	U	2.2	U	NA		NA		2.2	U	2.5	U	4.6	U	2.2	U	NA	
Cobalt	1.5	U	22.2	B	21.7	B	NA		NA		1.5	U	1.5	U	1.5	U	1.5	U	NA	
Copper	3.8	J	2	UJ	2	UJ	NA		NA		2	UJ	2	UJ	2	UJ	2.3	J	NA	
Iron	75.4	U	1320	J	1220	J	NA		NA		22.4	U	28.7	U	94.8	U	269	J	NA	
Lead	1.2	UJ	1.2	UJ	1.2	UJ	NA		NA		1.2	UJ	1.2	UJ	1.2	UJ	1.2	UJ	NA	
Magnesium	1200	B	819	B	838	B	NA		NA		2170	B	2170	B	1190	B	2040	B	NA	
Manganese	2.5	U	13.3	J	13.5	J	NA		NA		1.4	U	1.6	U	2.2	U	2.5	U	NA	
Mercury	0.24	J	0.1	UJ	0.1	U	NA		NA		0.1	UJ	0.1	U	0.17	J	0.1	UJ	NA	

Appendix F

Table F-6. Summary of Groundwater Analytical Results

Study Area 39 - Target Analyte List and Target Compound List Analyses

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00101		39G00201		39G00201D		39G00202	39G00202D	39G00301		39G00301D		39G00401		39G00501		39G00601
Lab ID	MA627002		MA627003		MA627004		ABBOW*8	ABBOW*7	MA640003		MA640004		MA640005		MA640002		MA801001
Sampling Date	2-Apr-96		2-Apr-96		2-Apr-96		29-Aug-96	29-Aug-96	3-Apr-96		3-Apr-96		3-Apr-96		3-Apr-96		23-Apr-96
Nickel	7 7	U	12.5	B	12.2	B	NA	NA	7.7	U	7.7	U	7.7	U	7.7	U	NA
Potassium	998	B	2470	B	2000	B	NA	NA	7080		7340		3070	B	3850	B	NA
Selenium	1 3	U	1 3	U	1 3	U	NA	NA	1.3	U	1.3	U	1.3	U	1.4	B	NA
Silver	2 2	UJ	2 2	UJ	2 2	UJ	NA	NA	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	NA
Sodium	1040	J	5960	J	6020	J	NA	NA	4300	BJ	4310	BJ	2310	J	4230	J	NA
Thallium	0 86	U	0 86	UJ	0 86	UJ	NA	NA	0.86	UJ	0.86	UJ	0.86	U	0.86	U	NA
Vanadium	5	B	1 9	B	1 6	U	NA	NA	5.3	B	5.4	B	7	B	2.4	B	NA
Zinc	4	U	85 5	J	88 1	J	NA	NA	5.2	U	3.4	U	5.7	U	5.9	U	NA
Radiological, pCi/L																	
Gross Alpha	6 57		33 3		38 5		7.17	6.27	4.69		0.85		11.5		1.43		NA
Gross Alpha, Uncertainty	NA		NA		NA		1.11	1.02	NA		NA		NA		NA		NA
Gross Beta	7 53		40 6		39 3		10.5	10.4	12.5		10.2		15.8		5.51		NA
Gross Beta, Uncertainty	NA		NA		NA		1.32	1.34	NA		NA		NA		NA		NA
Lead-210	NA		NA		NA		-0.01	-0.2	NA		NA		NA		NA		NA
Lead-210, Uncertainty	NA		NA		NA		0.35	0.34	NA		NA		NA		NA		NA
Polonium-210	NA		NA		NA		0.16	0.18	NA		NA		NA		NA		NA
Polonium-210, Uncertainty	NA		NA		NA		0.04	0.07	NA		NA		NA		NA		NA
Potassium-40	NA		NA		NA		-20.5	-24.7	NA		NA		NA		NA		NA
Potassium-40, Uncertainty	NA		NA		NA		10.5	10.4	NA		NA		NA		NA		NA
Radium-226	NA		NA		NA		0.27	0.28	NA		NA		NA		NA		NA
Radium-226, Uncertainty	NA		NA		NA		0.05	0.05	NA		NA		NA		NA		NA
Thorium-228	NA		NA		NA		1.33	1.31	NA		NA		NA		NA		NA
Thorium-228, Uncertainty	NA		NA		NA		0.16	0.16	NA		NA		NA		NA		NA
Thorium-230	NA		NA		NA		0.62	0.39	NA		NA		NA		NA		NA
Thorium-230, Uncertainty	NA		NA		NA		0.08	0.06	NA		NA		NA		NA		NA
Uranium-234	NA		NA		NA		0.16	0.15	NA		NA		NA		NA		NA
Uranium-234, Uncertainty	NA		NA		NA		0.03	0.03	NA		NA		NA		NA		NA
Uranium-238	NA		NA		NA		0.11	0.09	NA		NA		NA		NA		NA
Uranium-238, Uncertainty	NA		NA		NA		0.03	0.02	NA		NA		NA		NA		NA
General Chemistry, mg/L																	
Total Petroleum Hydrocarbons	0 05	U	0 05	U	0 05	U	NA	NA	0.05	U	0.05	U	0.05	U	0.05	U	NA
Total Suspended Solids	4	U	4	U			NA	NA	4	U			4	U	4	U	NA

TABLE F-7

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
METHOD 524.2 VOLATILE ORGANICS ANALYSIS ONLY

(Source: Appendix F from HLA, 1999)

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00302	39G00302D	39G00303	39G00402	39G00701	39G00702	39G00801	39G00901	39G01001
Lab ID	J9601825-002	J9601825-003	C7E190111006	C7E230134002	J9601825-004	C7E190111004	J9601817-001	J9601817-002	J9601817-003
Sampling Date	27-Nov-96	27-Nov-96	16-May-97	22-May-97	27-Nov-96	15-May-97	26-Nov-96	26-Nov-96	26-Nov-96
Volatile Organics, ug/L									
1,1,1,2-Tetrachloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,1-Dichloropropene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2,3-Trichloropropane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2-Dibromoethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,3-Dichloropropane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
2,2-Dichloropropane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
2-Chlorotoluene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
4-Chlorotoluene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Benzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Bromobenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Bromochloromethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Bromodichloromethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Bromoform	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Carbon tetrachloride	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Chloroform	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G00302		39G00302D		39G00303		39G00402		39G00701		39G00702		39G00801		39G00901		39G01001	
Lab ID	J9601825-002		J9601825-003		C7E190111006		C7E230134002		J9601825-004		C7E190111004		J9601817-001		J9601817-002		J9601817-003	
Sampling Date	27-Nov-96		27-Nov-96		16-May-97		22-May-97		27-Nov-96		15-May-97		26-Nov-96		26-Nov-96		26-Nov-96	
Chloromethane	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Dibromochloromethane	NA		NA		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Dibromomethane	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Dichlorodifluoromethane	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Isopropylbenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Methylene chloride	5	U	5	U	0.5	U	0.5	U	5	U	0.5	U	5	U	5	U	5	U
n-Butylbenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
n-Propylbenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
p-Isopropyltoluene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
sec-Butylbenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Styrene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
tert-Butylbenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Tetrachloroethene	15		14		8.6		0.5	U	12		11		22		36		3	
Toluene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Trichloroethene	1	U	1	U	0.5	U	0.5	U	1	U	0.23	J	2		1	U	1	U
Trichlorofluoromethane	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Vinyl chloride	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Xylene (total)	3	U	3	U	0.5	U	0.5	U	3	U	0.5	U	3	U	3	U	3	U
1,2,4-Trichlorobenzene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Hexachlorobutadiene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	1	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G01101		39G01201		39G01301		39G01401		39G01501		39G01601		39G01701		39G01701D	
Lab ID	J9601817-005		C7E150129001		C7E150129002		C7E150129003		C7E230134003		C7E230134004		C7E220159003		C7E220159004	
Sampling Date	26-Nov-96		13-May-97		13-May-97		14-May-97		22-May-97		22-May-97		21-May-97		21-May-97	
Volatile Organics, ug/L																
1,1,1,2-Tetrachloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trimethylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3,5-Trimethylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2-Chlorotoluene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
4-Chlorotoluene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	1	U	0.5	U	0.5	U	0.1	J	0.28	J	0.22	J	0.5	U	0.5	U

Appendix F

Table F-7 Summary of Groundwater Analytical Results

Study Area 39 - Method 524 2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G01101		39G01201		39G01301		39G01401		39G01501		39G01601		39G01701		39G01701D	
Lab ID	J9601817-005		C7E150129001		C7E150129002		C7E150129003		C7E230134003		C7E230134004		C7E220159003		C7E220159004	
Sampling Date	26-Nov-96		13-May-97		13-May-97		14-May-97		22-May-97		22-May-97		21-May-97		21-May-97	
Chloromethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	NA		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Isopropyltoluene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	2		0.5	U	0.5	U	0.5	U	1.6		12		0.78		0.89	
Toluene	1		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	1	U	0.5	U	0.5	U	0.5	U	0.21	J	0.65		0.5	U	0.5	U
Trichlorofluoromethane	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (total)	3	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Appendix F

Table F-7 Summary of Groundwater Analytical Results

Study Area 39 - Method 524 2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G01801		39G01901		39G02001		39G02101		39G02201		39G02201D		39G02301		39G02401	
Lab ID	C7E230134001		C7E230134006		C7E220159001		C7E200128003		C7E200128001		C7E200128002		C7E150129004		C7E190111001	
Sampling Date	21-May-97		22-May-97		21-May-97		19-May-97		19-May-97		19-May-97		14-May-97		14-May-97	
Volatile Organics, ug/L																
1,1,1,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1,1-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1,2-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2,3-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2,3-Trichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2,4-Trimethylbenzene	0.5	U	1.9		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2-Dibromoethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,3,5-Trimethylbenzene	0.5	U	1.9		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,3-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,3-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,4-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
2,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
2-Chlorotoluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
4-Chlorotoluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Bromobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Bromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Bromoform	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Bromomethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Carbon tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Chlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Chloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Chloroform	0.5	U	0.38	J	0.5	U	0.5	U	0.5	U	0.11	J	0.5	U	1	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G01801		39G01901		39G02001		39G02101		39G02201		39G02201D		39G02301		39G02401	
Lab ID	C7E230134001		C7E230134006		C7E220159001		C7E200128003		C7E200128001		C7E200128002		C7E150129004		C7E190111001	
Sampling Date	21-May-97		22-May-97		21-May-97		19-May-97		19-May-97		19-May-97		14-May-97		14-May-97	
Chloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
cis-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Dibromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Dibromomethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Dichlorodifluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Isopropylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Methylene chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
n-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
n-Propylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
p-Isopropyltoluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
sec-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Styrene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
tert-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Tetrachloroethene	9.3		27		0.5	U	1.3		0.44	J	0.46	J	0.5	U	1	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
trans-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	0.47	J	0.64		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichlorofluoromethane	0.5	U	3		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Xylene (total)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,2,4-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Hexachlorobutadiene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Naphthalene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G02501		39G02601		39Q00104		39Q00108		39Q00203		39Q00404		39Q01203		39Q01203D	
Lab ID	C7E190111002		C7E190111003		C7C200110003		C7C280112002		C7C200110004		C7C280112003		C7D010135003		C7D010135004	
Sampling Date	15-May-97		15-May-97		18-Mar-97		26-Mar-97		18-Mar-97		26-Mar-97		29-Mar-97		29-Mar-97	
Volatile Organics, ug/L																
1,1,1,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1,1-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1,2-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,1-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,3-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,3-Trichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,4-Trimethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dibromoethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,3,5-Trimethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,3-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,3-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,4-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
2,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
2-Chlorotoluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
4-Chlorotoluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromoform	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Bromomethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Carbon tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Chlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Chloroethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Chloroform	0.2	J	0.65		0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U

Appendix F

Table F-7. Summary of Groundwater Analytical Results

Study Area 39 - Method 524.2 Volatile Organics Analysis Only

Naval Training Center, Orlando

Orlando, FL

Sample ID	39G02501		39G02601		39Q00104		39Q00108		39Q00203		39Q00404		39Q01203		39Q01203D	
Lab ID	C7E190111002		C7E190111003		C7C200110003		C7C280112002		C7C200110004		C7C280112003		C7D010135003		C7D010135004	
Sampling Date	15-May-97		15-May-97		18-Mar-97		26-Mar-97		18-Mar-97		26-Mar-97		29-Mar-97		29-Mar-97	
Chloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
cis-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Dibromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Dibromomethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Dichlorodifluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Isopropylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Methylene chloride	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
n-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
n-Propylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
p-Isopropyltoluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
sec-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Styrene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
tert-Butylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Tetrachloroethene	0.5	U	0.5	U	0.92		0.2	J	48		0.5	U	41		33	
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
trans-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.1	J	0.5	U	0.76	J	0.68	J
Trichlorofluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Vinyl chloride	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Xylene (total)	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
1,2,4-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Hexachlorobutadiene	0.5	U	0.5	U	0.1	J	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U
Naphthalene	0.5	U	0.5	U	0.5	U	0.5	U	1.2	U	0.5	U	0.84	U	0.84	U

APPENDIX E

NATURAL ATTENUATION FIELD SHEETS

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC Orlando
Project No.: 7457
Sampled By: JJM & KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): JJM

Sample ID No.: NTC39G33B11
Sample Location: Site No. 39
Duplicate: ☒
Blank: ☐

SAMPLING DATA:

	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	Color (Visual)
Date: 10/6/99							
Time: 1045							
Method: Low Flow	4.56	176.0	1.6	1.59	27.91	-14.4	Clear

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1028

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
	x 0.01 =	mg/L
	x 0.02 =	mg/L

CHEMetrics: 0.8 mg/L

Notes:

Alkalinity:

Analysis Time: ____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: ____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	____ & ____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	____ & ____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	____ & ____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	____ & ____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	____ & ____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	____ & ____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: ____ Digits Required: 1st.: ____ 2nd.: ____ 3rd.: ____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: ____ mg/L) Analysis Time: 1036

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☑	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count	Concentration
____ x 0.1 =	mg/L
____ x 0.2 =	mg/L
177 x 1.0 =	177 mg/L
____ x 2.0 =	mg/L

CHEMetrics: ____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: ____ Digits Required: 1st.: ____ 2nd.: ____ 3rd.: ____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC39G-33B11
Sample Location: Site No. 39
Duplicate: ☒
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 (DR-8 50) HS-C Color Chart HS-WR Color Wheel Analysis Time: 1058
Program/Module: 610nm 93 Other:

Concentration: 0.34 mg/L Filtered: ☐
Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8 __ Other: Analysis Time:
Program/Module: 91
Concentration: mg/L Filtered: ☐

Standard Solution: ☐ Results:
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Nitrite (NO_2^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 60
Concentration: mg/L Reagent Blank Correction: ☐
Standard Solution: ☐ Results: ☐
Notes:

Nitrate (NO_3^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 55
Concentration: mg/L
Nitrite Interference Treatment: ☐
Standard Solution: ☐ Results: Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC39G33B11
Sample Location: Site No. 39
Duplicate: ☒
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8__ HACH MN-5 Other: _____ Analysis Time: _____
Program/Module: 525nm 41
Concentration: _____ mg/L
Filtered: ☐
Digestion: ☐
Standard Solution: ☐ Results: _____
Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 50 IR-18C Color Wheel Other: _____ Analysis Time: 1052
Program/Module: 500nm 33
Concentration: 0.08 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1040
Concentration: 1.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Mulitplication is correct for each *Multiplier* table: ☑
Final calulated concentration is within the appropriate *Range Used* block: ☑
Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑
Title block is initialized by person who performed the QA/QC Ckecklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: NTC Orlando
Project No.: 7457
Sampled By: JJM & KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): JJM

Sample ID No.: NTC39G32C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	Color (Visual)
Date: 10/6/94							
Time: 1215							
Method: Low Flow	5.24	115.0	9.0	1.22	27.71	-41.6	Clear

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1253

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
_____	x 0.01 =	mg/L
_____	x 0.02 =	mg/L

CHEMetrics: 1.0 mg/L

Notes:

Alkalinity:

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____ Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 1204

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☑	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1 =	mg/L
_____	x 0.2 =	mg/L
123	x 1.0 =	123 mg/L
_____	x 2.0 =	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC 39G 32C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 DR-8 50 HS-C Color Chart HS-WR Color Wheel Analysis Time: 1250
Program/Module: 610nm 93 Other:

Concentration: 0.35 mg/L Filtered: ☐
Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8 __ Other: Analysis Time:
Program/Module: 91
Concentration: mg/L Filtered: ☐

Standard Solution: ☐ Results:
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Nitrite (NO_2^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 60
Concentration: mg/L Reagent Blank Correction: ☐
Standard Solution: ☐ Results: ☐
Notes:

Nitrate (NO_3^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 55
Concentration: mg/L
Nitrite Interference Treatment: ☐
Standard Solution: ☐ Results: Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:

Project No.:

Sampled By:

Field Analyst:

Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC39G32C11

Sample Location: Site No. 39

Duplicate: ☐

Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8__ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 50 IR-18C Color Wheel Other: _____ Analysis Time: 1240

Program/Module: 500nm 33

Concentration: 0.71 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 12:00

Concentration: 1.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑

Correct measurement units are cited in the SAMPLING DATA block: ☑

Mulitplication is correct for each *Multiplier* table: ☑

Final calulated concentration is within the appropriate *Range Used* block: ☑

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑

Title block is initialized by person who performed the QA/QC Ckecklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC orlando
Project No.: 7457
Sampled By: JJM & KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC 39G38B11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	Color (Visual)
Date: 10/6/99							
Time: 1445							
Method: Low Flow	5.34	148.0	4.0	1.37	26.78	-49.9	Clear

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT (CHEMetrics (Range: 0-1 mg/L)) Analysis Time: 14:40

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
	x 0.01 =	mg/L
	x 0.02 =	mg/L

CHEMetrics: 0.8 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: (HACH Digital Titrator CA-DT) CHEMetrics (Range: _____ mg/L) Analysis Time: 1440

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☑	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1 =	mg/L
	x 0.2 =	mg/L
135	x 1.0 =	135 mg/L
	x 2.0 =	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:

Project No.:

Sampled By:

Field Analyst:

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: NTC39G38B11

Sample Location: Site No. 39

Duplicate: ☐

Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 DR-8 50 HS-C Color Chart HS-WR Color Wheel Analysis Time: 1509

Program/Module: 610nm 93 Other:

Concentration: 0.46 mg/L Filtered: ☐

Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8 __ Other: Analysis Time:

Program/Module: 91

Concentration: mg/L Filtered: ☐

Standard Solution: ☐ Results:

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Nitrite (NO_2^--N):

Analysis Time:

Equipment: DR-700 DR-8 __ Other: Filtered: ☐

Program/Module: 60

Concentration: mg/L Reagent Blank Correction: ☐

Standard Solution: ☐ Results: ☐

Notes:

Nitrate (NO_3^--N):

Analysis Time:

Equipment: DR-700 DR-8 __ Other: Filtered: ☐

Program/Module: 55

Concentration: mg/L

Nitrite Interference Treatment: ☐

Standard Solution: ☐ Results: Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:

Project No.:

Sampled By:

Field Analyst:

Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC39G38B11

Sample Location: Site No. 39

Duplicate: ☐

Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 50 IR-18C Color Wheel Other: _____ Analysis Time: 15:02

Program/Module: 500nm 33

Concentration: 1.00 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 14:57

Concentration: 0.7 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑

Correct measurement units are cited in the SAMPLING DATA block: ☑

Mulitplication is correct for each *Multiplier* table: ☑

Final calulated concentration is within the appropriate *Range Used* block: ☑

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑

Title block is initialized by person who performed the QA/QC Ckecklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC Orlando
Project No.: 7457
Sampled By: JJM KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): MM

Sample ID No.: NTC39G14C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	Color
Date: 10/5/99	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	(Visual)
Time: 1007							
Method: Low flow	4.59	33.0	0	0.88	25.43	80.4	Clear

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0 - 1 mg/L) Analysis Time: 0952

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
_____	x 0.01 =	mg/L
_____	x 0.02 =	mg/L

CHEMetrics: 1.0 mg/L

Notes:

Alkalinity:

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____ Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 0955

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☑	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1 =	mg/L
_____	x 0.2 =	mg/L
120	x 1.0 =	120 mg/L
_____	x 2.0 =	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC39G14C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 (DR-850) HS-C Color Chart HS-WR Color Wheel Analysis Time: 1019
Program/Module: 610nm 93 Other:

Concentration: 0.07 mg/L Filtered: ☐
Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8 __ Other: Analysis Time:
Program/Module: 91
Concentration: mg/L Filtered: ☐

Standard Solution: ☐ Results:
Standard Additions: ☐ Digits Required: 0.1ml: 0.2ml: 0.3ml:
Notes:

Nitrite (NO_2^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 60
Concentration: mg/L Reagent Blank Correction: ☐
Standard Solution: ☐ Results: ☐
Notes:

Nitrate (NO_3^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 55
Concentration: mg/L
Nitrite Interference Treatment: ☐
Standard Solution: ☐ Results: Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml: 0.2ml: 0.3ml:
Notes:

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): JM

Sample ID No.: NTC39G14C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____
Program/Module: 525nm 41
Concentration: _____ mg/L
Filtered: ☐
Digestion: ☐
Standard Solution: ☐ Results: _____
Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 50 IR-18C Color Wheel Other: _____ Analysis Time: 10:13
Program/Module: 500nm 33
Concentration: 0.21 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1003
Concentration: 0.1 mg/L Exceeded 5.0 mg/L range on color chart: ☐
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Mulitplication is correct for each *Multiplier* table: ☑
Final calulated concentration is within the appropriate *Range Used* block: ☑
Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑
Title block is initialized by person who performed the QA/QC Ckecklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC Orlando
Project No.: 7457
Sampled By: JJM & KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): JJM

Sample ID No.: NTC 39G30B11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	Color (Visual)
Date: 10/5/99							
Time: 1610							
Method: Low Flow	4.81	73.00	13.0	1.42	26.43	-17.3	Clear

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1640

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
	x 0.01 =	mg/L
	x 0.02 =	mg/L

CHEMetrics: 0.8 mg/L

Notes: Filtered

Alkalinity:

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____ Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 1652

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☑	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1 =	mg/L
	x 0.2 =	mg/L
126	x 1.0 =	126 mg/L
	x 2.0 =	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): MNC

Sample ID No.: NTC 39 G 30 B11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 DR-850 HS-C Color Chart HS-WR Color Wheel Analysis Time: 1644
Program/Module: 610nm 93 Other:

Concentration: 0.56 mg/L Filtered: ☑
Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8 __ Other: Analysis Time:
Program/Module: 91
Concentration: mg/L Filtered: ☐

Standard Solution: ☐ Results:
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Nitrite (NO_2^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 60
Concentration: mg/L Reagent Blank Correction: ☐
Standard Solution: ☐ Results: ☐
Notes:

Nitrate (NO_3^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 55
Concentration: mg/L
Nitrite Interference Treatment: ☐
Standard Solution: ☐ Results: Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC39G30B11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8__ HACH MN-5 Other: _____ Analysis Time: _____
Program/Module: 525nm 41
Concentration: _____ mg/L
Filtered: ☐
Digestion: ☐
Standard Solution: ☐ Results: _____
Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 50 IR-18C Color Wheel Other: _____ Analysis Time: 1635
Program/Module: 500nm 33
Concentration: 0.43 mg/L
Filtered: ☑
Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1445
Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING/DATA block: ☑
Mulitplication is correct for each *Multiplier* table: ☑
Final calulated concentration is within the appropriate *Range Used* block: ☑
Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑
Title block is initialized by person who performed the QA/QC Ckecklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC orlando
Project No.: 7457
Sampled By: JJM & KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC 39G 29C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	Color (Visual)
Date: 10/5/94							
Time: 1710							
Method: Low flow	5.81	173.00	450	1.49	26.36	-83.4	Cloudy

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1710

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
	x 0.01 =	mg/L
	x 0.02 =	mg/L

CHEMetrics: 1.0 mg/L

Notes: Filtered

Alkalinity:

Analysis Time:

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	&	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	&	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	&	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	&	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	&	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	&	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 1715

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☑	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1 =	mg/L
	x 0.2 =	mg/L
130	x 1.0 =	130 mg/L
	x 2.0 =	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: NTC39G29C11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 DR-850 HS-C Color Chart HS-WR Color Wheel Analysis Time: 1723
Program/Module: 610nm 93 Other:

Concentration: 0.80 mg/L Filtered: ☑
Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8 __ Other: Analysis Time:
Program/Module: 91
Concentration: mg/L Filtered: ☐

Standard Solution: ☐ Results:
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Nitrite (NO_2^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 60
Concentration: mg/L Reagent Blank Correction: ☐
Standard Solution: ☐ Results: ☐
Notes:

Nitrate (NO_3^--N):

Analysis Time:
Equipment: DR-700 DR-8 __ Other: Filtered: ☐
Program/Module: 55
Concentration: mg/L
Nitrite Interference Treatment: ☐
Standard Solution: ☐ Results: Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:
Project No.:
Sampled By:
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: NTC 39G 29C 11
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8__ HACH MN-5 Other: _____ Analysis Time: _____
Program/Module: 525nm 41
Concentration: _____ mg/L
Filtered: ☐
Digestion: ☐
Standard Solution: ☐ Results: _____
Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-850 IR-18C Color Wheel Other: _____ Analysis Time: 1728
Program/Module: 500nm 33
Concentration: ~~[illegible]~~ mg/L
Filtered: ☑
Notes: 0.16

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1725
Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Mulitplication is correct for each *Multiplier* table: ☑
Final calulated concentration is within the appropriate *Range Used* block: ☑
Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑
Title block is initialized by person who performed the QA/QC Ckecklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTCorlando
Project No.: CTO 0024 7457
Sampled By: JJM KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): [illegible]

Sample ID No.: 01D3912A
Sample Location: Site No. 39
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	Color (Visual)
Date: 10/4/99							
Time: 1350							
Method: Low flow	6.82	301.0	3.5	4.56	27.09	142.3	Clear

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT (CHEMetrics (Range: 1-12 mg/L)) Analysis Time: 13:45

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Cou	Multiplier	Concentration
	x 0.01 =	mg/L
	x 0.02 =	mg/L

CHEMetrics: 4.0 mg/L

Notes:

Alkalinity:

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____ Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: (HACH Digital Titrator CA-DT) CHEMetrics (Range: _____ mg/L) Analysis Time: 13:45

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☑	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1 =	mg/L
244	x 0.2 =	48.8 mg/L
	x 1.0 =	mg/L
	x 2.0 =	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC orlando
Sample ID No.: 01D 39 12A
Project No.: CTO 0024 7457
Sample Location: Site No. 39
Sampled By: JJM KJM
Duplicate: ☐
Field Analyst: JJM
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): JJM

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide (S^{2-}):

Equipment: DR-700 (DR-850) HS-C Color Chart HS-WR Color Wheel Analysis Time: 14:30
Program/Module: 610nm 93 Other: _____

Concentration: 0.02 mg/L Filtered: ☐
Notes:

Sulfate (SO_4^{2-}):

Equipment: DR-700 DR-8__ Other: _____ Analysis Time: _____
Program/Module: 91
Concentration: _____ mg/L Filtered: ☐

Standard Solution: ☐ Results: _____
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Nitrite (NO_2^--N):

Analysis Time: _____
Equipment: DR-700 DR-8__ Other: _____ Filtered: ☐
Program/Module: 60
Concentration: _____ mg/L Reagent Blank Correction: ☐
Standard Solution: ☐ Results: ☐
Notes:

Nitrate (NO_3^--N):

Analysis Time: _____
Equipment: DR-700 DR-8__ Other: _____ Filtered: ☐
Program/Module: 55
Concentration: _____ mg/L
Nitrite Interference Treatment: ☐
Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NTC orlando
Project No.: 7457
Sampled By: JJM KJM
Field Analyst: JJM
Field Form Checked as per QA/QC Checklist (initials): JJM

Sample ID No.: OID 3912A
Sample Location: Site No. 59
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____
Program/Module: 525nm 41
Concentration: _____ mg/L
Filtered: ☐
Digestion: ☐
Standard Solution: ☐ Results: _____
Reagent Blank Correction: ☐
Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____
Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-850 IR-18C Color Wheel Other: _____ Analysis Time: 14:25
Program/Module: 500nm 33
Concentration: 0.0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 14:10
Concentration: 0.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Mulitplication is correct for each *Multiplier* table: ☑
Final calulated concentration is within the appropriate *Range Used* block: ☑
Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☑
Title block is initialized by person who performed the QA/QC Ckecklist: ☑