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February 25, 1999

Ms. Lori Murtaugh, Hydrogeologist
Groundwater Quality Section
Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201-1708

RE: Continued Groundwater Investigation Of The Marsh Lumber Company Facility Located In Pamplico, South Carolina (Site ID# A-21-AA-14343).

Dear Ms. Murtaugh:

Please find attached a copy of the continued groundwater investigation at Marsh Lumber Company in Pamplico, South Carolina.

Marsh contracted S&ME to complete the investigative activity. Work was performed in accordance with the bid specification is presented for your review and approval. The Scope of Work included :

- Development of detailed stratigraphic data in the area of the release;
- Determining if the pentachlorophenol plume is naturally attenuating or moving away from the position of MW-3
- Delineating the vertical and lateral extent of the plume.

The attached report indicated further stratigraphic information is needed to determine if the pentachlorophenol plume is naturally attenuating or migrating on top of a shallow clay layer. Marsh has authorized S&ME to develop and proceed with a Scope of Work for the continued assessment of the property.

Following this assessment, sufficient detail should be available to make informed decisions

If you have any questions regarding this information, please don't hesitate to call me at (336) 819-4035.

Best Regards,

Marsh Furniture Company

Bruce K. Braswell
Regulatory Compliance Manager

A28

**ADDITIONAL SITE ASSESSMENT
MARSH LUMBER COMPANY FACILITY
PAMPLICO, SOUTH CAROLINA
S&ME PROJECT NO. 1584-98-146**

Prepared For:

Marsh Furniture Company
P.O. Box 870
High Point, North Carolina 28261

Prepared By:

S&ME, Inc.
3718 Old Battleground Road
Greensboro, NC 27410

February 24, 1999

RECEIVED

MAR 1 1999

Water Monitoring, Assessment &
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MCL - 0.051

1.0 BACKGROUND

1.1 SITE HISTORY

The Marsh Lumber Company facility, located in Pamplico, South Carolina, consists of approximately 15 acres and contains a sawmill operation with approximately 75,000 square feet of enclosed space. Operations include lumber handling and storage, drying kilns, saw and dimension mills, and lumber treating and drying areas.

Lumber treating and drying includes the use of a dip tank and drip pad (e.g. Green Chain Area) used to treat green lumber freshly cut from logs. Reportedly, the Green Chain Area operations previously used a product containing sodium pentachlorophenol to treat the freshly cut lumber.

During 1992, Law Engineering completed a "Preliminary Site Contamination Assessment" at the subject site. Analytical results from the 1992 assessment indicated the existence of soil and groundwater contamination in the Green Chain area. Pentachlorophenol represented the primary contaminant of concern. The detected concentrations of pentachlorophenol exceed the Maximum Contaminant Levels (MCLs) established by EPA and the South Carolina Department of Health and Environment Control (SCDHEC).

As a result of the detection of penta-chlorophenol in the groundwater beneath the site, Law Engineering, as authorized by Marsh Lumber Company, completed additional site investigations during 1993, 1994, and 1998. A total of 8 shallow monitoring wells and one vertical extent monitoring well were installed by Law Engineering to assess the extent of the groundwater contaminant plume in the Green Chain Area. Groundwater analytical data collected by Law Engineering roughly defined the horizontal extent of the plume in all directions except toward the west. Although a vertical extent monitoring well was installed, the well was reportedly dry and never sampled. Therefore, an estimate of the vertical extent of the groundwater impacts could not be determined.

The following provides a summary of the previous site assessment reports:

- “Report of a Preliminary Site Contamination Assessment, Marsh Lumber Company, Pamplico, South Carolina,” Law Engineering, March 11, 1992.
- “Report of Assessment Activities, Marsh Lumber Facility, Pamplico, South Carolina,” Law Engineering, March 25, 1993.
- “Report of Additional Site Assessment Activities, Green Chain Area, Marsh Lumber Facility, Pamplico, South Carolina,” Law Engineering, January 3, 1994.
- “Report of Ground-Water Sampling and Chemical Analysis, Marsh Lumber Company, Pamplico, South Carolina,” Law Engineering, August 27, 1998.

1.2 CONTAMINANT OF CONCERN

As previously mentioned, lumber treating and drying operations includes the use of a dip tank and drip pad in the Green Chain Area to treat green lumber freshly cut from logs. Reportedly, the Green Chain Area operations previously used a product containing sodium pentachlorophenol to treat the freshly cut lumber.

Analytical results from the previous site investigation detected pentachlorophenol and several Tentatively Identified Compounds (TIC's) in the soil and groundwater beneath the subject site. Of particular concern is pentachlorophenol. The following provides a summary of several physical and chemical characteristics of the compound.

- Specific gravity = 1.98¹ (which makes pure pentachlorophenol heavier than water, which has a specific gravity of 1.00)
- Solubility = 0.001% (relatively insoluble)
- Pentachlorophenol is a biodegradable compound which has a reported half-life of weeks to months².

A dissolved-phase pentachlorophenol groundwater contaminant plume could migrate with the natural flow of the groundwater beneath the site. However, since pentachlorophenol has a density greater than water, any free-phase or dissolved phase pentachlorophenol could migrate vertically and/or laterally, dependent upon subsurface stratigraphy and the orientation of the stratigraphic units, rather than following the direction of natural groundwater flow. Therefore, particular attention must be paid to the subsurface stratigraphy when assessing the extent of a contaminant plume.

The following text provides a summary of the additional site assessment activities completed at the subject site to further the delineation of the groundwater impacts.

¹ NIOSH Pocket Guide to Chemical Hazards, DHHS (NIOSH) Publication No. 94-116, pp. 226.

² Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Philip H. Howard, Volume III – Pesticides, pp. 559-567.

2.0 SCOPE OF ADDITIONAL INVESTIGATIONS

On October 15, 1998, Marsh Furniture Company issued a Request For Proposal (RFP) to conduct additional site investigations aimed at furthering the assessment of the extent of the groundwater impacts and refining the understanding of the Pamplico site's subsurface geology/Hydrogeology. The following provides a brief summary of the scope of work completed by S&ME Inc. during January and February 1999.

- The Geoprobe™ Macro Core direct-push sampling tool was used to collect continuous soil core samples for geologic descriptions at probe locations GP-1, GP-2, and GP-3 (see Figure 2). A Licensed Geologist prepared geologic logs for each boring. Following description, each soil core was placed in core boxes, labeled, and retained by Marsh Furniture Company for future reference.
- The Geoprobe™ discrete interval sampling tool was used to collect groundwater samples at six geoprobe sample locations (GP-1 through GP-6), at selected depth intervals.
- Groundwater samples were collected from monitoring wells MW-1, MW-3, MW-8, MW9, MW-10, and MW-11 and submitted for laboratory analyses.
- Select sample intervals at locations GP-1 and GP-6 were resampled on January 28, 1999, and submitted for laboratory analyses, in an effort to confirm select sample analytical results received for the January 5, 1999, sampling event.
- All of the collected groundwater samples were submitted for laboratory analyses according to SW-846 Method 8270 (acid extractable) using the Priority Pollutant List.

Scope of Work (continued)

- The location of each Geoprobe™ boring was surveyed to provide the ground elevation and location of the sampling points relative to an artificial benchmark.
- All down-hole equipment was properly decontaminated prior to and following use. The decontamination water was contained and placed in 55-gallon 17H drums and labeled for subsequent disposal. A sample of the decontamination water stored in the drum was collected and submitted for laboratory analysis according to SW-846 Method 8270 (acid extractable) using the Priority Pollutant List.
- All bore-holes were properly abandoned with bentonite grout upon the completion of each boring.

Appendix A contains a copy of the RFP developed by Marsh Furniture Company. The scope of work outlined in this RFP was submitted to the South Carolina Department of Health and Environmental Control (SCDEHC). The scope of work was approved on November 30, 1998, and identified as SCDHEC Monitoring Well Installation Approval No. 318. As required by the Monitoring Well Installation Approval, notice of the proposed drilling activities (Geoprobe) were provided to the Pee Dee District Office on 12/30/98 (see **Appendix B**). The Geoprobe/drilling services completed for this phase of the investigation were provide by Troxler Geologic Services, Inc., a South Carolina Certified Well Contractor (Registration No. 1841) and South Carolina Certified Well Driller (Registration No. 1436). Copies of the corresponding registrations are provided in **Appendix C**.

3.0 GEOLOGY/HYDROGEOLOGY

3.1 REGIONAL GEOLOGY/HYDROGEOLOGY

The subject site is located within the Atlantic Coastal Plain Physiographic Province. The Coastal Plain is a gently rolling flat region underlain by a wedge of unconsolidated to semi-consolidated, predominantly clastic sedimentary rocks that range in age from Cretaceous to Holocene. The sedimentary package thickens seaward from a feather edge at their updip limit.

Soils in this region are generally interbedded silts, sands, and clays that have been deposited during successive advances and retreats of the ocean over the past several million years. The marine deposits located near rivers and creeks have been eroded and may be overlain by alluvial deposits.

As stated in Law Engineering's prior site assessment reports, "The town of Pamplico lies on one of a series of nearly level beach terraces formed in the relatively recent geologic past. These terraces have been extensively mapped and are generally identified on the basis of surface elevation. Downtown Pamplico and the surrounding area are mapped as part of the Wicomico Terrace. Terrace deposits are typically 40 to 50 feet in thickness and overlie more ancient, overconsolidated or lithified strata below. The terraces soils are typically characterized by relatively sandy soils near the southeast margin of the terrace. The soils become increasingly clayey in composition proceeding to the northeast, toward the upper margin of the terrace, reflecting an archaic *back-bay* depositional deposit."

A water table aquifer is commonly the first aquifer encountered underlying the upper portion of the Coastal Plain. The water table aquifer generally consists of sand, silt, and some gravel, at depths typically 50 feet or less. The groundwater originates as recharge from precipitation in aquifer outcrop areas. Topography is a major influence on regional flow in Coastal Plain aquifers. The elevation of recharge areas, the degree of incisement of streams, and the location and extent of lowland areas largely determines the groundwater flow patterns. Streams and swampy lowland areas are places where groundwater discharges either as base flow or diffuse upward leakage. Based upon the topography of the subject site, groundwater flow is anticipated to mimic topography, flowing down dip, perpendicular to topographic contour lines. On this basis, the direction of groundwater within the study area is anticipated to flow west or northwest, toward the adjacent unnamed tributary of Big Swamp.

3.2 SITE GEOLOGY/HYDROGEOLOGY

On January 5, 1999, the direct push probe technology was used to complete six (6) soil probes through the vadose zone soils and into the underlying water table aquifer (see Figure 2). Continuous core samples from the ground surface to the boring termination depth were collected at probe location GP-1, GP-2, and GP-3. A single 4-foot long Marco-core was collected at location GP-4, at a depth interval of 17 to 21 feet below grade, in an effort to confirm the predicted elevation of a suspect confining clay layer noted at GP-1, GP-2 and GP-3. Due to time constraints, no macro-core soil samples were collected for geologic descriptions at locations GP-5 and GP-6. Following the collection of each macro-core soil sample, the cores were logged by a geologist.

Based upon the stratigraphic information collected during this assessment and the prior site assessments, two geologic cross-section maps were prepared. As indicated in **Figures 3 and 4**, the upper most stratigraphic units encountered consist primarily of a mixture of silty clays, clayey silts, sandy silts, and silty sands. The lithologic descriptions do not suggest any distinct lateral continuity of the upper most lithologies, between the investigated boring locations. Law Engineering's soil investigation in the Green Chain Area, indicated a similar lack of lateral continuity within the near surface lithologic units.

The uppermost lithologies do, however, appear to overlie a relatively continuous clay unit, which overlies a distinct gray semi-consolidated, calcareous, fossiliferous, silty sand unit. These units were detected at depth at probe locations GP-1, GP-2, GP-3, and GP-4. Law Engineering's drilling logs describe a similar fossiliferous unit in monitoring well MW-8, at a similar elevation, however, an overlying clay layer was not reported (see Figure 3). This suspect relatively continuous clay layer was generally encountered at depths of plus or minus 18 feet below grade. The probe sample location survey data combined with the calculated depth to the top of this clayey unit, suggest that this unit locally dips slightly downward toward the west.

This clay rich layer could act as an aquitard or aquiclude, thus it could impede any potential vertical migration of the pentachlorophenol in the groundwater. As such, the groundwater sampling and analyses plan for this sampling event targeted the collection of groundwater samples at or just above this relatively continuous clay rich layer, and the collection of groundwater samples from below the clay rich layer for comparison. This sampling strategy permitted a limited evaluation of the effectiveness of this suspect aquitard against the vertical migration of the targeted groundwater contaminants. **Appendix D** contains copies of the geologic descriptions prepared for each probe location.

4.0 GROUNDWATER SAMPLING

4.1 GEOPROBE GROUNDWATER SAMPLE COLLECTION

On January 5, 1999, the Geoprobe's discrete interval sampling tool was used to collect groundwater samples at six probe test locations. Select intervals were chosen for groundwater sample collection and analysis based upon the observed stratigraphic sequences, applying the hypothesis that pentachlorophenol should sink in within the upper aquifer and preferably migrate down dip along the tops of the more restrictive stratigraphic units.

Select groundwater sample intervals at probe locations GP-1 and GP-6 were resampled on January 28, 1999. Groundwater samples ML-A and ML-B collected on January 28, 1999 were obtained from approximately the same locations and depth intervals as samples GP-1-15 and GP-6-17, respectively, collected on January 5, 1999. The sample locations were re-sampled and analyzed in an effort of confirm the analytical results received for the January 5, 1999, sampling event. Of particular concern was the detection of pentachlorophenol at location GP-1-15, a location predicted to produce a non-detectable concentration of pentachlorophenol, based on the results from prior site investigations. **Table 1** provides a summary of the groundwater intervals sampled at each probe location.

Each groundwater sample was placed in laboratory-prepared containers. A new pair of disposable vinyl gloves were utilized at each location to minimize the potential for cross-contamination of the samples. Each sample container was labeled with the project name and number, the time and date of sample collection, the analyses to be performed, and the presence or absence of preservative. The sample containers were then placed on ice and cooled to approximately 4° C. The chain-of-custody was initiated and the cooler was shipped to Specialized Assays, Inc. located in Nashville, Tennessee. The samples were analyzed according to SW-846 Method 8270 (acid extractable) using the Priority Pollutant List.

4.2. MONITORING WELL GROUNDWATER SAMPLE COLLECTION

Groundwater samples were collected from monitoring wells MW-1, MW-3, MW-8, MW-9, MW-10, and MW-11 on January 5, 1999. Prior to sample collection, the volume of water in each well was determined. Using new disposable Teflon™ bailers at each well location, a minimum 3 well casing volumes were purged from each well, prior to sample collection. **Table 2** provides a summary of the monitoring well field sampling data.

Following the purging, groundwater samples were collected with the disposable Teflon™ bailer and placed in laboratory-prepared containers. A new pair of disposable vinyl gloves were utilized at each location to minimize the potential for cross-contamination of the samples. Each sample container was labeled with the project name and number, the time and date of sample collection, the analyses to be performed, and the presence or absence of preservative. The sample containers were then placed on ice and cooled to approximately 4° C. The chain-of-custody was initiated and the cooler was shipped to Specialized Assays, Inc. located in Nashville, Tennessee. The samples were analyzed according to SW-846 Method 8270 (acid extractable) using the Priority Pollutant List.

5.0 GROUNDWATER ANALYTICAL RESULTS

Table 3 provides a summary of the groundwater analytical results. **Figure 5** provides an isoconcentration plan map for the concentrations of pentachlorophenol detected during January 1999. The detected concentrations of pentachlorophenol were plotted on Cross-Sections A- A' and B-B' to provide an estimate of the vertical extent of the groundwater impacts (see **Figure 6 and Figure 7**). Copies the groundwater analytical results area contained in **Appendix E**.

The 1999 groundwater analytical results did not detect pentachlorophenol in the immediate vicinity of the suspect source area, the Green Chain Area, as evidenced by the "not detected" concentrations reported for sample locations MW-1 and GP-6-17. Since probe location GP-6-17 was in the area between the Green Chain and the nearest down gradient monitoring well MW-3, it was resampled and analyzed in an effort to confirm the presence and/or absence of pentachlorophenol in this area. Analytical results for the sample ML-B (e.g. equivalent sample location to GP-1-15) detected 100 micrograms per liter (ug/l) pentachlorophenol. Although pentachlorophenol was detected, the concentration was not the relative highest concentration detected during this phase of investigation.

Previous analytical results indicated monitoring well MW-3 as the area of highest concentrations. Well MW-3 is located approximately 130 feet downgradient of the Green Chain. The detection of 696 ug/l at probe location GP-1-15 (sampled interval = 11 to 15 feet below grade) represents the relative greatest groundwater pentachlorophenol concentration detected during this sample event. Based upon the results of the prior site assessments and the sample locations physical distance from the suspect source area (approximately 320 feet), the concentration detected at GP-1-15 was not predicted. This sample location was resampled on January 28, 1999, in an effort to confirm the detected concentration. The resampling and analyses results for ML-A detected 270 ug/l. Based upon the distribution of the detected concentrations of pentachlorophenol, it is not clear if GP-1-15 represents a second source area or simply location along a preferred pathway for groundwater contaminant migration.

The groundwater samples GP-1-30, GP-2-24 and MW-8 roughly define the vertical extent of the pentachlorophenol in the groundwater (see Figures 6 and 7). The clay rich layer encountered at locations GP-1 and GP-2, is thought to restrict any further vertical migration of the contaminant below this layer. This hypothesis is supported by the analytical data and was used in the preparation of the isoconcentration cross-sections.

6.0 CONCLUSIONS

The stratigraphic data collected during the completion of the geoprobe borings evidenced the presence a clay rich layer beneath portions of the site. Based upon the analytical data collected during this phase of the investigation, this clay layer appears to be limiting the vertical migration of **the dissolved phase pentachlorophenol in the groundwater.** The apparent dip of this clay layer may also be responsible for controlling the lateral migration of the dissolved phase contaminant plume.

Groundwater analytical data suggests that the horizontal extent of the dissolved phase groundwater contaminant plume has been generally defined to the north, east and west. Additional investigations are needed to evaluated the relatively high concentration of pentachlorophenol detected at probe location GP-1 located approximately 320 feet south, southeast of the suspect source area, the Green Chain.

The historic groundwater analytical data summarized in Table 3 suggests that the detected concentrations of pentachlorophenol in the groundwater monitoring wells, appears to decrease over time. Natural biodegradation and diffusion of pentachlorophenol within the shallow aquifer are possible explanations.

7.0 SOLE USE STATEMENT

All materials and information which will be obtained by S&ME on this project will be provided for the sole use of Marsh Furniture Company, Inc. for this project. Use of the report issued for this project by any third parties will be at such party's sole risk. S&ME disclaims liability for any use of or reliance on the report issued for this project by third parties.

TABLE 1
GEOPROBE GROUNDWATER SAMPLE INTERVALS SUMMARY
MARSH LUMBER COMPANY
PAMPLICO, SOUTH CAROLINA
S&ME PROJECT NO. 1584-98-146

Sample Location	Sampled Interval In Feet Below Grade	Stratigraphic Position Relative to clay layer	Analytical Results (Pentachlorophenol in ug/l)
GP-1-15	11 to 15	at and above clay	696
ML-A	11 to 15	at and above clay	270
GP-1-30	26 to 30	below clay layer	nd
GP-2-16	12 to 16	at and above clay	nd
GP-2-24	20 to 24	at and above clay	nd
GP-3-19	15 to 19	at and above clay	74
GP-4-17	13 to 17	at and above clay	nd
GP-5-15	11 to 15	at or above clay	nd
GP-6-17	13 to 17	at or above clay?	nd
ML-B	13 to 17	at or above clay?	100

nd = not detected

ug/L = micrograms per liter

TABLE 2
GROUNDWATER ELEVATION DATA (1/5/99)
MARSH LUMBER COMPANY
PAMPLICO, SOUTH CAROLINA
S&ME PROJECT NO. 1584-98-146

Well Location	Total Depth (feet)	Amount Purged (gallons)	T.O.C. (feet)	DTGW (feet)	Groundwater Elevation (feet)
MW-1	15.2	5	100.39	7.8	92.59
MW-3	15.0	5	99.13	8.78	90.35
MW-8*	49.4	15	99.3	21.52	77.78
MW-9	18.0	5	97.97	8.11	89.86
MW-10	15.5	6	93.42	4.19	89.23
MW-11	15.5	5	97.45	7.58	89.87

** Well was under pressure. Water level had not equilibrated during the sampling event.*

TOC = Top of Casing Elevation (as reported by Law Engineering)

DTGW = measured depth to groundwater.

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
MARSH LUMBER COMPANY
PAMPLICO, SOUTH CAROLINA
S&ME PROJECT NO. 1584-98-146

S&ME Inc's Geoprobe™ Groundwater Sampling Analytical Results										
Parameter	Sampling Date	GP-1-15	GP-1-30	GP-2-16	GP-2-24	GP-3-19	GP-4-17	GP-5-15	GP-6-17	Purge/Decon
Pentachlorophenol	1/5/99	696	ND	ND	ND	74	ND	ND	ND	ND
Pentachlorophenol	1/28/99	270**	NT	NT	NT	NT	NT	NT	100**	NT
Monitoring Well Pentachlorophenol Concentrations Summary										
Parameter	Sampling Date	MW-1	MW-3	MW-8	MW-9	MW-10	MW-11	Comments		
Pentachlorophenol	1/6/93	ND	4000	NT	NT	NT	NT	Law Environmental Sampling Results		
Pentachlorophenol	2/10/93	ND	4300	NT	NT	NT	NT	Law Environmental Sampling Results		
Pentachlorophenol	10/18/93	ND	3000	NT	ND	62	ND	Law Environmental Sampling Results		
Pentachlorophenol	7/24/98	NT	215	NT	NT	76	NT	Law Environmental Sampling Results		
Pentachlorophenol	1/5/99	ND	271	ND	ND	58	ND	S&ME Sampling Results		

all concentrations reported in micrograms/liter (ug/l)

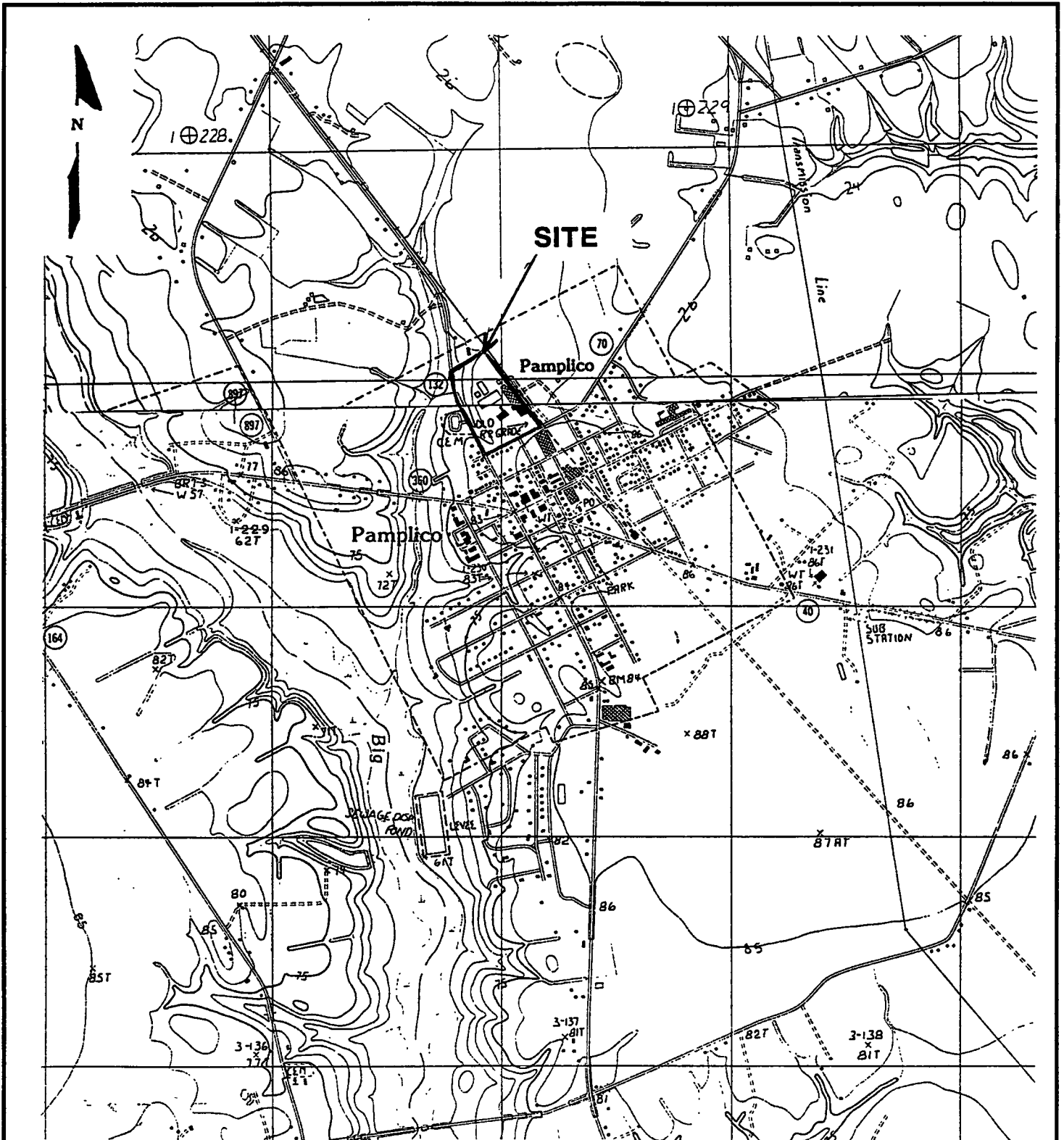
NT = not tested

ND = not detected

* Only the pentachlorophenol detections have been summarized in this table.

** = Re-sampling and analysis of select location on 1/28/99. Sample IDs ML-A equivalent to GP-1-15 and ML-B equivalent to GP-6-17

The sample IDs for the resampling event were changed relative to the original ID's for quality control.



NOTE: DRAWING REPRODUCED FROM USGS TOPOGRAPHIC MAPS, PAMPICO NORTH, SOUTH CAROLINA QUADRANGLE (CONTOUR INTERVAL TWO METERS), DATED 1986; AND PAMPICO SOUTH, SOUTH CAROLINA QUADRANGLE, (CONTOUR INTERVAL FIVE FEET), DATED 1990.

1000 0 1000 2000
 APPROXIMATE SCALE IN FEET

SCALE: 1" = 1000'
 CHECKED BY: eqh
 DRAWN BY: eqh
 DATE: 2/19/98



SITE LOCATION MAP
 Marsh Lumber Company
 Pamplico, South Carolina
 JOB NO. 1584-98-146

FIGURE NO.
 1

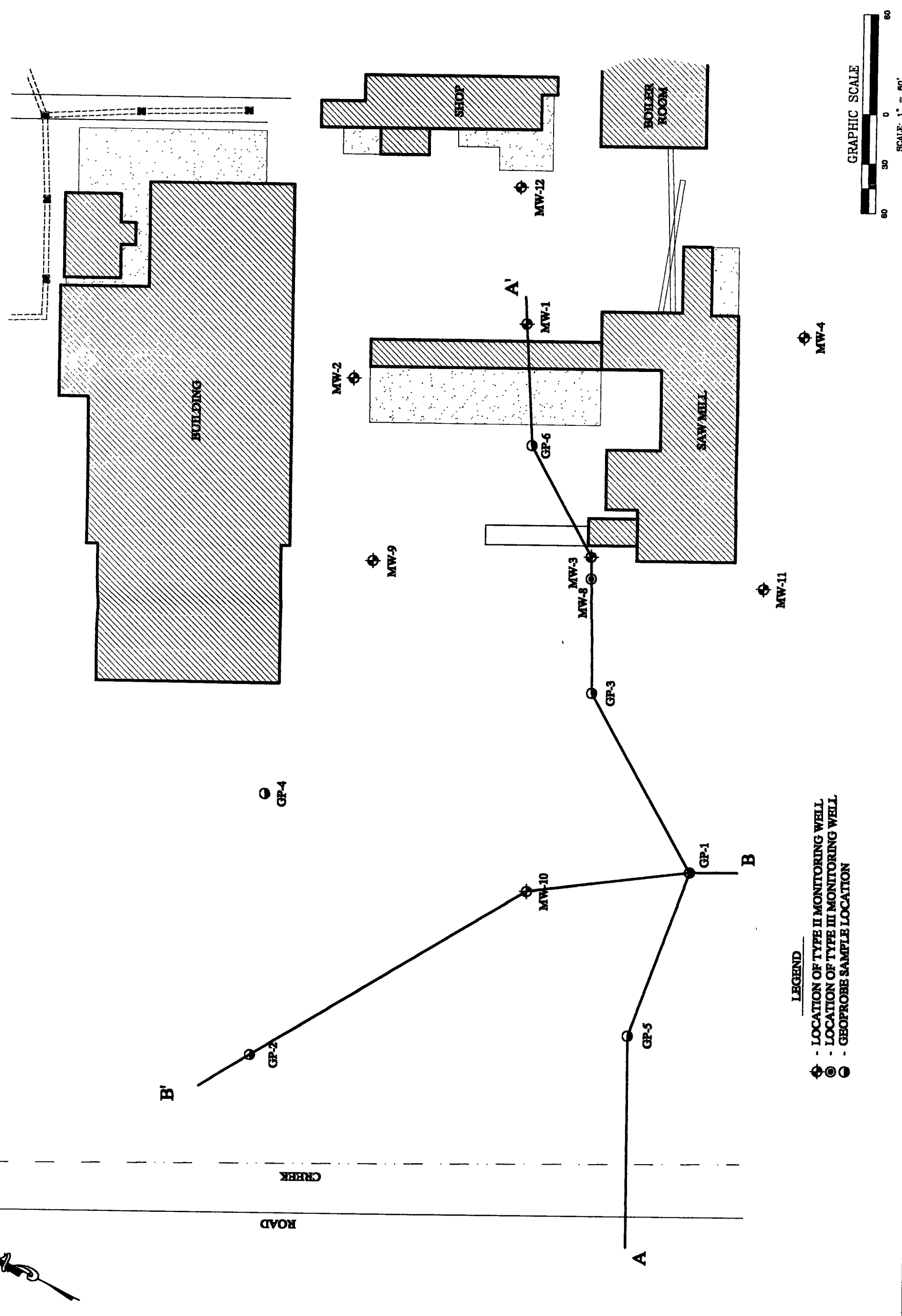
SCALE: AS SHOWN
 DRAWN BY: RDM
 CHECKED BY: BOBH

JOB NO. 1584-98-146
 DATE: FEBRUARY, 1999
 FIGURE NO. 2

MARSH LUMBER COMPANY
 PAMPLICO, SOUTH CAROLINA

SITE PLAN

ENVIRONMENTAL SERVICES
 ENGINEERING • TESTING



LEGEND
 - LOCATION OF TYPE II MONITORING WELL
 - LOCATION OF TYPE III MONITORING WELL
 - GEOFROBE SAMPLE LOCATION

GRAPHIC SCALE
 SCALE: 1" = 60'

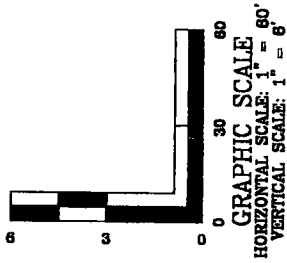
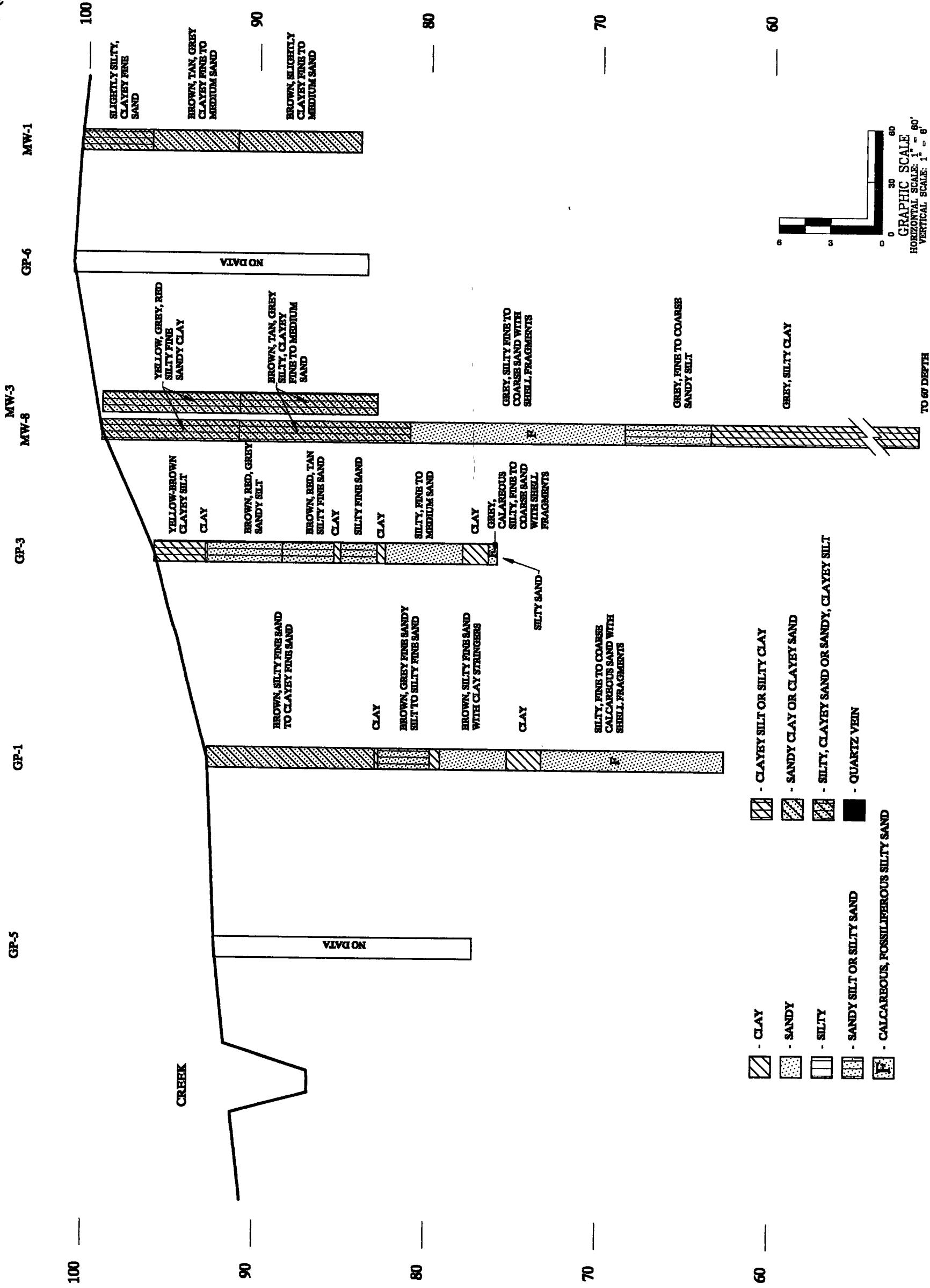


CROSS-SECTION A-A'
MARSH LUMBER COMPANY
PAMPLICO, SOUTH CAROLINA

SCALE: AS SHOWN
DRAWN BY: RDM
CHECKED BY: BOBH
JOB NO. 1584-98-146
DATE: FEBRUARY, 1999
FIGURE NO. 3

A' ELEV. (FT.)

A ELEV. (FT.)



TO 60' DEPTH



CROSS-SECTION B-B'
MARSH LUMBER COMPANY
PAMPLICO, SOUTH CAROLINA

SCALE: AS SHOWN
DRAWN BY: RDM
CHECKED BY: BOBH

JOB NO. 1584-98-146
DATE: FEBRUARY, 1999
FIGURE NO. 4

B' ELEV. (FT.)

B ELEV. (FT.)

100

100

90

90

80

80

70

70

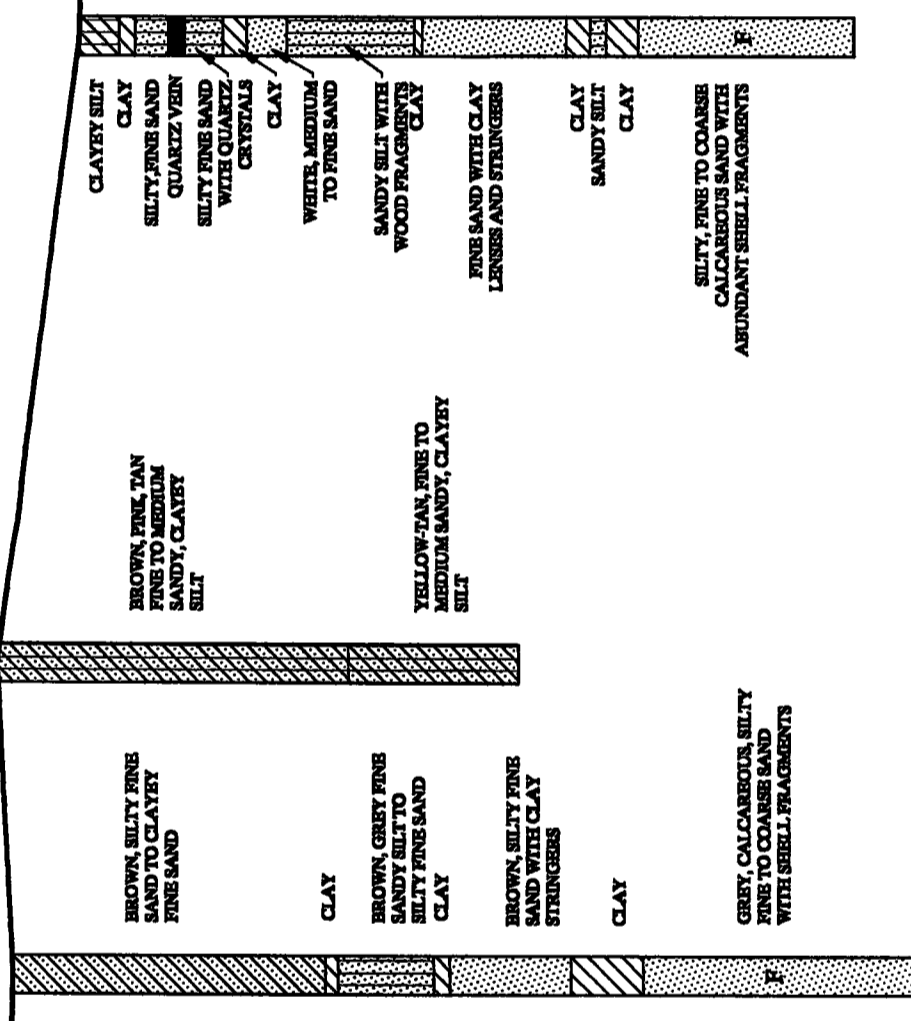
60

60

MW-10

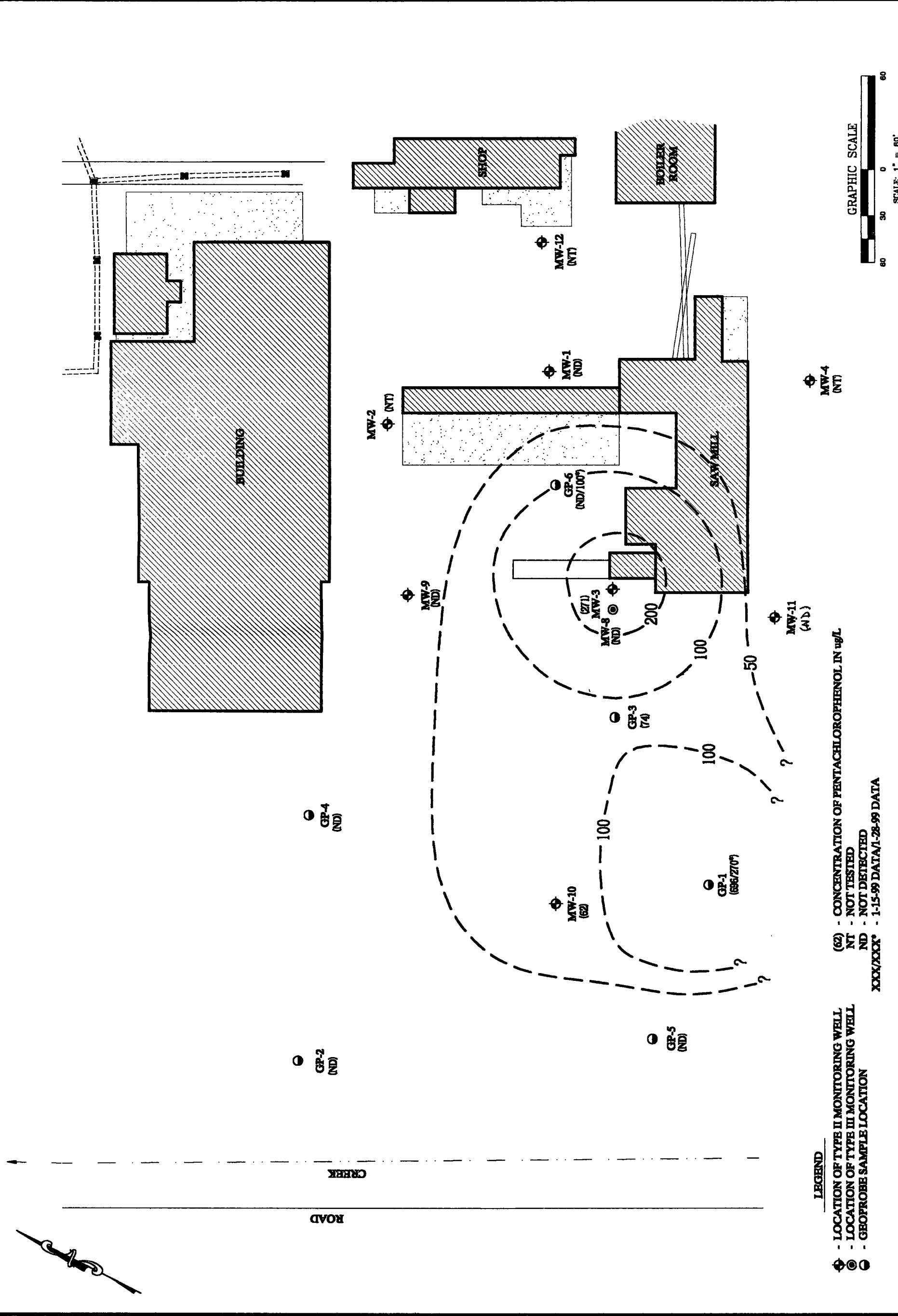
GP-2

GP-1

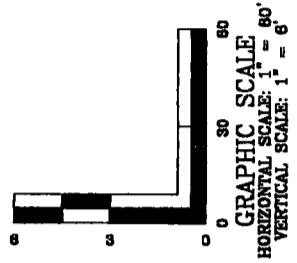
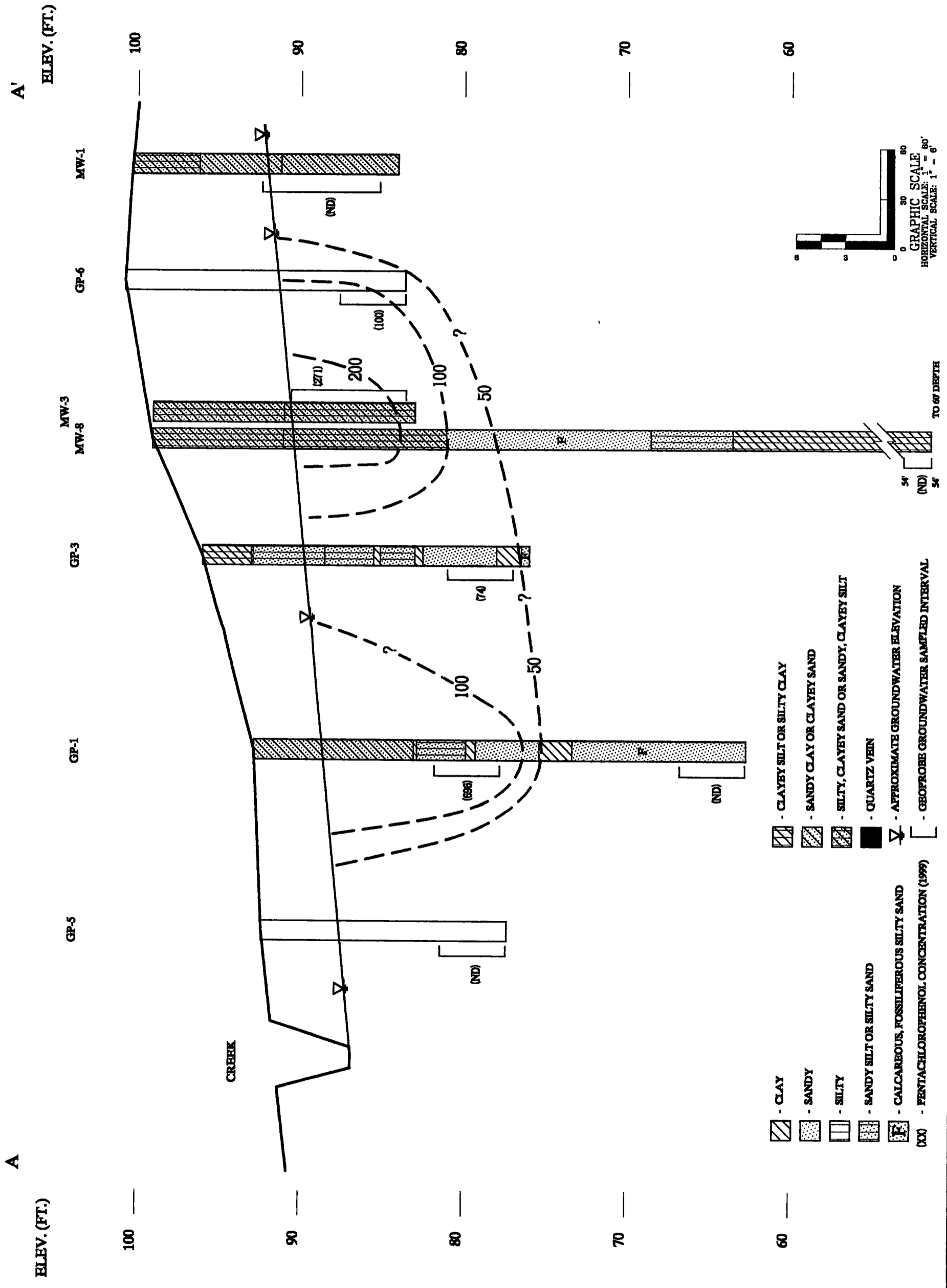
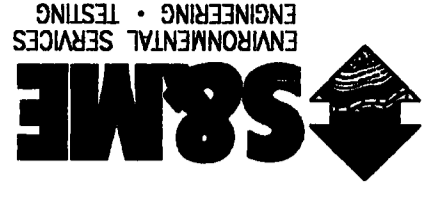


- CLAY
- SANDY
- SILTY
- SANDY SILT OR SILTY SAND
- CALCAREOUS, FOSSILIFEROUS SILTY SAND
- CLAYEY SILT OR SILTY CLAY
- SANDY CLAY OR CLAYEY SAND
- SILTY, CLAYEY SAND OR SANDY, CLAYEY SILT
- QUARTZ VEIN

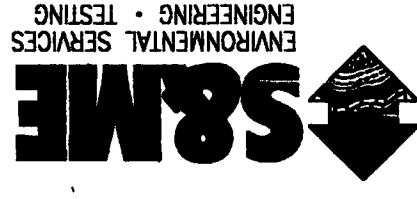




LEGEND
 ● - LOCATION OF TYPE II MONITORING WELL
 ⊕ - LOCATION OF TYPE III MONITORING WELL
 ○ - GEOPROBE SAMPLE LOCATION
 (62) - CONCENTRATION OF PENTACHLOROPHENOL IN ug/L
 NT - NOT TESTED
 ND - NOT DETECTED
 XXX/XXX - 1-15-99 DATA / 1-28-99 DATA



- CLAY
- SANDY
- SILTY
- SANDY SILT OR SILTY SAND
- CLAYEY SILT OR SILTY CLAY
- SANDY CLAY OR CLAYEY SAND
- SILTY, CLAYEY SAND OR SANDY, CLAYEY SILT
- QUARTZ VEIN
- APPROXIMATE GROUNDWATER ELEVATION
- GEOPROBE GROUNDWATER SAMPLED INTERVAL
- CALCARBOUS, FOSSILIFEROUS SILTY SAND
- PENTACHLOROPHENOL CONCENTRATION (1999)



B' ELEV. (FT.)

100 —

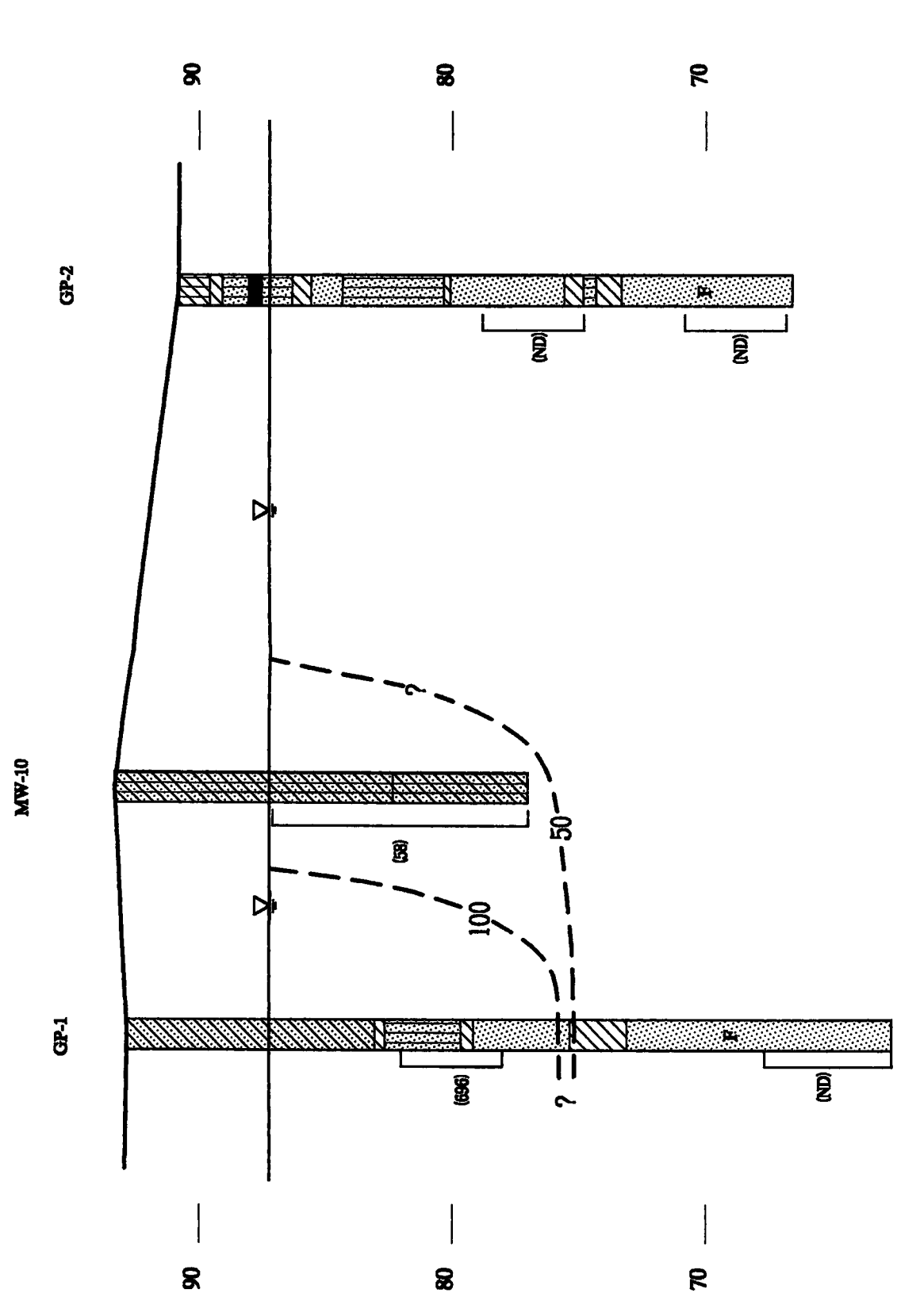
90 —

80 —

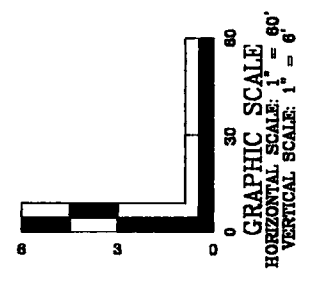
70 —

60 —

100 —



- CLAY
- SANDY
- SILTY
- SANDY SILT OR SILTY SAND
- CALCAREOUS, FOSSILIFEROUS SILTY SAND
- FENTACHLOROPHENOL CONCENTRATION (1999)
- CLAYEY SILT OR SILTY CLAY
- SANDY CLAY OR CLAYEY SAND
- SILTY, CLAYEY SAND OR SANDY, CLAYEY SILT
- QUARTZ VEIN
- APPROXIMATE GROUNDWATER ELEVATION
- GEOPROBE GROUNDWATER SAMPLED INTERVAL



APPENDIX A
MARSH FURNITURE RFP

Marsh Furniture Company

Request For Proposal

Facility Identification:

Marsh Lumber Company
Pamplico, South Carolina

October 15, 1998

Introduction

Marsh Furniture Company has assembled this fixed bid request for proposal for distribution to potential bidders to continue the assessment of a groundwater incident at the Marsh Lumber Company facility located in Pamplico, South Carolina. Interested bidders should have bids prepared and submitted to Bruce Braswell at Marsh Furniture Company in High Point, North Carolina. Bids can be faxed to (336) 884-0883. The due date for the bid is October 23, 1998. Questions regarding this bid specification can be directed to Bruce Braswell at Marsh Furniture Company at (336) 819-4035.

The Marsh Lumber Company facility, located in Pamplico, South Carolina, has a dip tank and drip pad (Green Chain Area) for green lumber freshly cut from logs. The Green Chain operation previously used pentachlorophenol. Assessment conducted previously at the Marsh Lumber Company facility indicated the presence of pentachlorophenol in groundwater. The constituent was detected in two monitoring wells (MW-3 & MW-10) hydraulically downgradient of the Green Chain Area (see **Figure 1**).

Scope of Work

Marsh Furniture Company is requesting proposals to conduct an additional assessment of the pentachlorophenol plume to determine the vertical and lateral extent of the groundwater impact. Data generated previously by Law Environmental indicates there is a potential aquatard/aquaclude located at approximately 30' in depth below grade. To perform this next assessment phase, Marsh Furniture Company is specifying the following details for the Scope of Work:

- The contractor shall use a geoprobe equipped with a Macro Core sampling tube to advance borings at the facility while obtaining continuous cores. Detailed stratigraphic logs shall be prepared from descriptions made in the field by a licensed geologist. Soil descriptions shall be made using AGI data sheets (NRCS for soils) and geologic units shall be described using AAPG protocol. Detailed descriptions shall be made and recorded of grain sizes and distribution, grain composition, matrix composition, and details regarding any evidence of biological activity (fossils, root zones, etc.). Close attention shall be paid to stratigraphic details (such as an underclay and/or the presence of clay rich layering) that may prevent the downward migration of pentachlorophenol to 30' below grade. Upon removal from the Macro Core, recovered soil/lithologic core sleeve's are to be labeled, using an indelible black marker, with an arrow indicating the stratigraphic upwards position. The cores are then to be placed in a waxed cardboard "core box" for description and storage. The contractor representative can use a razor knife or other sharp instrument to split the sleeves to allow description. It is the responsibility of the contractor to assure that 1/2 of the sleeve remains intact for future reference. Upon completion of the descriptions, the core box is to be labeled with the boring identification, date, total depth and any other pertinent information. The core boxes are the property of Marsh Furniture Company and are to be left on site at the completion of the project with a representative designated by Marsh Furniture Company.

- If a potential aquatard or aquaclude is encountered above 30' below grade, immediately following groundwater sampling at the borehole terminal depth, the geoprobe boring shall be tremmie grouted with a slurry of Portland cement and bentonite powder mixed 50/50. If the geoprobe borings do not encounter lithologic evidence that indicates the potential presence of an aquatard/aquaclude, the boring can be filled with 1/4" bentonite pellets to grade. Care is to be taken when backfilling with bentonite pellets to minimize bridging of the borehole.
- The contractor shall obtain groundwater samples using the geoprobe unit at depths of 15' below grade level and at 30' below grade (or on top of the "very stiff gray fine to coarse sandy silt" described by Law Environmental as being present at 30.50 feet below grade at the position of MW-8) at each proposed boring location shown in **Figure 2**. A minimum of three liters of groundwater are to be purged at each sampling interval prior to acquisition of groundwater samples. Purge water shall be contained and placed in a drum (17H) labeled as purge water for subsequent disposal.
- The contractor is expected to use care with the probe and sampling equipment to prevent cross-contamination. Accordingly, all reusable downhole equipment shall be steam cleaned and then decontaminated using the following procedures:

Wash with an Alconox solution
 Rinse with distilled water
 Rinse with isopropyl alcohol
 Rinse with distilled water
 Rinse with a 10% nitric acid solution
 Rinse with distilled water

- All decon water shall be contained and placed in a separate 17H drum and labeled as decon water for subsequent disposal.
- Following completion of the last borehole, the contractor shall survey the ground elevations and locations of the sampling points relative to an artificial benchmark established at a permanent structure (building corner etc.). In addition, the contractor shall survey the locations and top of casing elevations of MW-1, MW-3, MW-8, MW-9, MW-10 and MW-11, relative to the benchmark. Marsh Furniture Company will provide a person to assist with the survey and groundwater sampling.

Groundwater Sampling & Analytical Testing

In addition to the groundwater samples specified above, the contractor shall use disposable Teflon bailers (one for each well) to sample the following monitoring wells: MW-1, MW-3, MW-8, MW-9, MW-10 and MW-11. Samples are also to be obtained from the decon water drum and the purge water drum for disposal profiling. Groundwater samples obtained from monitoring wells, storage drums and the geoprobe assessment are to be analyzed at a laboratory licensed to conduct business in the state of South Carolina using EPA approved methodology. All groundwater samples are to be analyzed using

EPA Method 8270 (acid extractable) using the Priority Pollutant list. The contractor shall specify in the comments section of the Chain of Custody that pentachlorophenol is suspected. The laboratory chosen by the contractor shall assure that lowest possible detection limits indicated by SW-846 are maintained. If the detection limits are not achievable, the laboratory is to indicate the reason why in the laboratory test report.

All groundwater samples obtained from the Marsh Lumber Company facility are to be labeled, immediately placed on ice, and maintained at 4° C until delivered to the laboratory. The laboratory chosen by the contractor shall note the temperature of the samples at the time of delivery on the Chain of Custody.

Reporting

Upon receipt of the analytical test report from the laboratory, the contractor shall fax a copy of the results to the attention of Bruce Braswell at Marsh Furniture Company at (336) 884-0883. Within ten days of receiving the analytical test report from the laboratory, the contractor shall deliver to Marsh Furniture Company a draft copy of the assessment report for review. Marsh Furniture Company will review the draft report and comment to the contractor on any potential changes. Within ten days of the draft review, the contractor shall deliver to Marsh Furniture Company three final copies of the report for distribution.

At a minimum, the report shall have an introduction, discussion and conclusion. Assessment data shall be presented in the following form: two orthogonal geologic cross-sections that demonstrate stratigraphic relationships at the facility as determined by the lithologic descriptions made during the geoprobe investigation. The report shall contain isoconcentration contour maps that depict the lateral extent of the plume drawn on the plan view base map and the vertical extent of the plume superimposed on the geologic cross sections. Recommendations are to be submitted under a separate cover.

Insurance

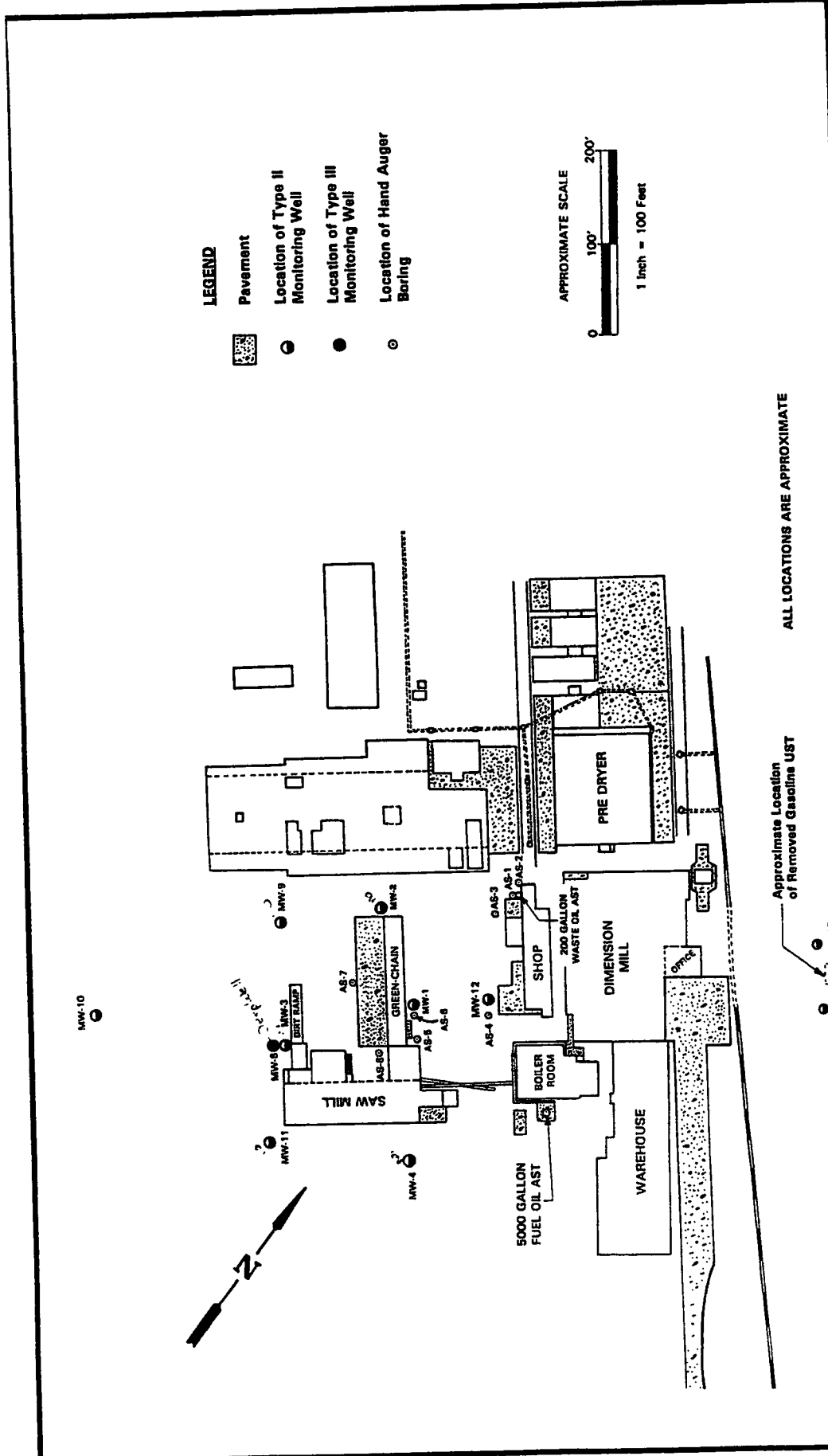
The contractor shall maintain the following insurance, limits of liability, and name Marsh Furniture Company and Marsh Lumber Company as additionally insured. Certificates of insurance indicating Marsh Furniture Company and Marsh Lumber Company as additionally insured shall be provided to Marsh Furniture Company prior to initiating the project. The limits of liability to be maintained are:

General Liability -	\$1,000,000.00
Pollution Liability -	\$1,000,000.00
Errors and Omissions -	\$1,000,000.00
Automobile General Liability -	\$1,000,000.00

Fixed Bid Form

Field Work			
Description	Units	Unit Rate	Extension
Mobilization			
Geoprobe - Day Rate			
Geoprobe Disposables			
Core Boxes			
Geologist			
EPA Method 8270 - AE			
17H Drums			
Service Truck			
Mileage			
Sample Shipment			
Per Diem			
Survey			
Report Preparation			
Principal			
Geologist			
Drafting			
Clerical			
Lump Sum Fixed Bid Total			

All bidding contractors are required to submit their bids on this form. This bid is a fixed price bid for the specified work and units. Change Orders will be given for a change in the Scope of Work only or a change in the specified units and only when previously executed in writing by Marsh Furniture Company.



LAW ENGINEERING COLUMBIA, SOUTH CAROLINA Marsh Furniture Company High Point, North Carolina Law Engineering Project No. 499-2-4362-40		Site Plan Marsh Lumber Company Pamplico, South Carolina	
DWN. BY	DJD	12/93	SCALE: As Shown
CKD. BY	BTS	12/93	FIGURE 1
APPR'D.	BEC	12/93	

ALL LOCATIONS ARE APPROXIMATE

Approximate Location of Removed Gasoline UST

REFERENCE: As-Built Survey of Marsh Lumber Co. updated 9-28-91.

APPENDIX B
SCDEHC MONITORING WELL INSTALLATION PERMIT



Date of Issue: November 30, 1998
Approval No: 318

2600 Bull Street
Columbia, SC 29201-1708

Monitoring Well Installation Approval

COMMISSIONER:
Douglas E. Bryant

BOARD:
John H. Burris
Chairman

William M. Hull, Jr., MD
Vice Chairman

Roger Leaks, Jr.
Secretary

Mark B. Kent

Cyndi C. Mosteller

Brian K. Smith

Rodney L. Grandy

Approval is hereby granted to: Law Engineering
(on behalf of): Marsh Lumber
Site ID#: 14343
County: Florence

This approval is for the construction of monitoring wells designated GP-1 through GP-5 in accordance with the construction plans and technical specifications submitted to the Department on October 30, 1998. The well(s) are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well be submitted to within thirty (30) days of completion (of last well(s) installed).
2. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.
3. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Pee Dee District, EQC Office (843-661-4825). *Gary Stowe*
4. Please provide groundwater quality analytical data (chemical analyses and/or water level(s)) and associated measurements (i.e., *in-situ* field measurements) to Lori Murtaugh within thirty (30) days of receipt from laboratory.
5. Monitoring wells shall be installed by a well driller certified by the State of South Carolina.
6. Each well shall be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate shall provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification number.
7. Wells shall be abandoned per R.61-71.10.

*referred
Leslie Matheny
12/30/98*



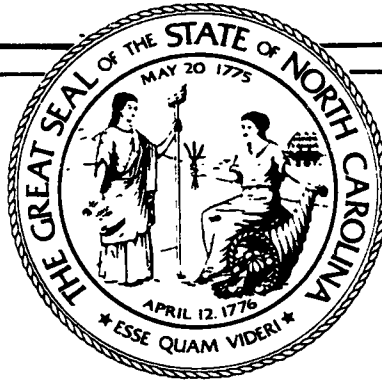
This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71.

Approved by:

[Signature]
B. Thomas Knight, P.G., Manager
Groundwater Quality Section
Bureau of Water

cc: Reggie Massey, Pee Dee District EQC
Bruce Braswell, Marsh Lumber

APPENDIX C
DRILLER'S REGISTRATIONS

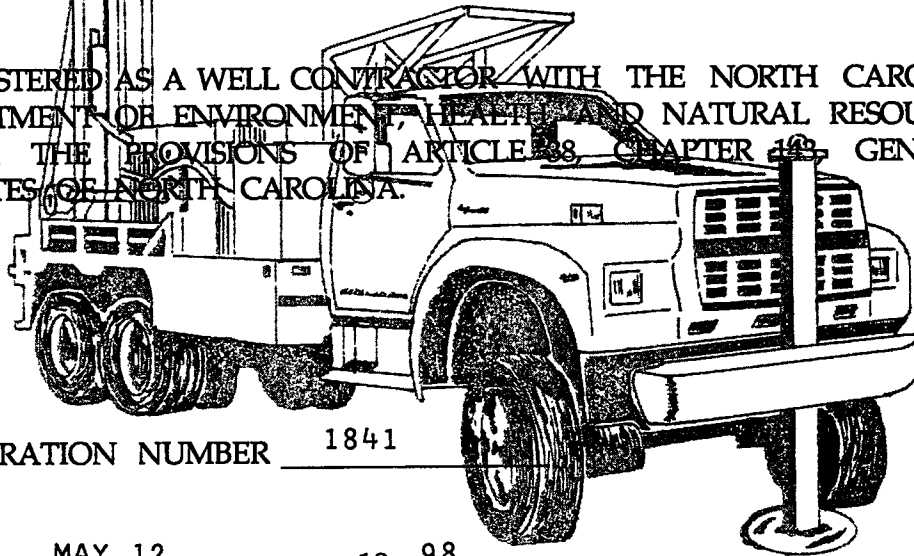


Certificate of Registration of Well Contractor

THIS IS TO CERTIFY THAT

TROXLER GEOLOGIC SERV., INC.


IS REGISTERED AS A WELL CONTRACTOR WITH THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES UNDER THE PROVISIONS OF ARTICLE 38, CHAPTER 143, GENERAL STATUTES OF NORTH CAROLINA.



REGISTRATION NUMBER 1841

ISSUED MAY 12, 19 98

EXPIRES DECEMBER 31, 19 98


CHIEF,

GROUNDWATER SECTION

The State of South Carolina Environmental Certification Board

This is to Certify that

Ben J. Troxler

having given satisfactory evidence of the necessary qualifications as required by Code of Laws
of South Carolina has been duly certified as a

Well Driller

in the

State of South Carolina

*and is entitled to the rights and privileges as provided by the State of South Carolina,
and subject to the Powers of revocation as vested in said Board. In Testimony*

Witness the Signature of the Chairman and Administrator under Seal of the Board

the 28th day of August 19 98

Number 1436

Thomas P. Fright Chairman

Wm. R. Moran Administrator



APPENDIX D
GEOLOGIC LOGS

FIELD DRILLING RECORD

BORING NUMBER GP-1 LOCATION Marsh Lumber, Pamlico, SC
 DATE STARTED 1/5/99 DATE COMPLETED 1/5/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 28 foot DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
0	3'	Black silt fg sand w/ ~10% wood/bark organic matter within the matrix. Wood fragments up to > 1/4". % wood fragments decreases with depth					
3'	8'	Wet brown silty well sorted fg sand with no visible organic matter. The matrix exhibits a lt. brown & gray color mottling at depth					
8'	9'	Wet gray-brown clayee fg sand (~10% clay)					
9'	9.75'	Wet gray-brown silty fg sand (<30% silt/clay)					
9.75'	10'	" " " clayee mg sand (well sorted)					
10'	11.75'	Wet gray-brown fg sandy silt (~20% fg sand in a silt/clay matrix) color changes to gray-white w/ ↑ depth					
11.75'	13.5'	Wet brown-orange silty fg sand (<40% silt/clay)					
13.5'	14'	Wet brown silty-clay or clayee silt w/ ~10% fg-mg sand in matrix					
14'	15'	Wet brown silty well sorted vfg sand					
15'	16.25'	transition to a gray silty vfg sand					
16.25'	17.5'	transition to a brown silty clay w/ occasional gray plastic clay stringers/lenses					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

FIELD DRILLING RECORD

BORING NUMBER GP-1 LOCATION Marsh Lumber, Pamplico, SC
 DATE STARTED 1/5/99 DATE COMPLETED 1/5/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 28 foot DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
17.5'	19	Gray-green silty clay (silt/clay 90%, sand 10%) (possible restrictive horizon)					
19	19.5	Black firm clayee silt					
19.5	28	lt. gray calcareous silty to fg sand matrix w/ 10-20% fossil/shell fragments. Some portions semi-consolidated shell/fossils ~ 40% @ 20-24' " " ~ 20% @ 24-26'					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

FIELD DRILLING RECORD

BORING NUMBER GP-2 LOCATION Marsh Lumber, Pamlico SC
 DATE STARTED 1/5/99 DATE COMPLETED 1/5/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 24' DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
0	1	dry brown calcareous clayey silt w/ <20% vfg sand					
1	1.25	becomes black clay-silt w/ rare white clay varves/stringers					
1.25	2.25	Brown silty clay					
2.25	2.75	red-brown mottled silty vfg sand w/ occasional grey plastic clay stringers					
2.75	3	fracture grey - milky white Quartz vein fragment up to ~ 1/4"					
3	3.75	Brown silty well sorted vfg sand w/ <2% quartz grains up to ~ 1/4" throughout matrix					
3.75	4.25	tan-brown silty well sorted fg sand (~60-70% fg sand)					
4.25	5.5	Brown silty clay transitions into a silty vfg sand @ ~5'					
5.5	6.5	tan-white well sorted fg sand					
6.5	7.25	Brown sandy-silt w/ ~10% wood fragments (caving from above?)					
7.25	7.5	tan-white sandy silt (~20% fg sand in matrix)					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

FIELD DRILLING RECORD

BORING NUMBER GP-2 LOCATION Marsh Lumber, Pamlico SC
 DATE STARTED 1/5/99 DATE COMPLETED 1/5/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 29' DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
7.5	10.5	brown - dk brown sandy silt (~10-20% fg sand in matrix) w/ ~10% wood fragments in the matrix					
10.5	10.75	Gray-black slightly plastic clay w/ ~2% vfg sand & trace fibrous wood in matrix					
10.75	11.75	Gray silty well sorted vfg sand ▷ 1" layer @ ~11' bg w/ ~40% clay					
11.75	12.5	Gray-white fg - vfg well sorted sand w/ isolated wispy thin grey clay stringers.					
12.5	15.25	Gray vfg sand to silty sand					
15.25	16	Orange-brown sandy clay (w/ <5% mg sand in matrix)					
16	16.5	Gray vfg sand to silty sand					
16.5	17.5	Brown slightly plastic clay w/ <5% mg sand in matrix					
17.5	24	Gray poorly sorted calcareous silty sand matrix w/ 40% shell fragments up to 1/4" dia some portion partially consolidated → shell hash ~70% @ 20-22' bg → shell hash ~30% @ 22-24' bg					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

FIELD DRILLING RECORD

BORING NUMBER GP3 LOCATION Marsh Lumber, Pamplico SC
 DATE STARTED 1/5/99 DATE COMPLETED 1/5/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 20' DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
0	3.75	Dry orange-brown firm clayey silt w/ 10-20% vfg sand in the matrix					
3.75	4.25	transition to an orange-brown silty clay					
4.25	5.75	mottled orange-red sand silt (<10% fg sand in matrix) with occasional grey clay stringers					
5.75	7.5	same A/A but mottled grey-brown coloration					
7.5	10.5	Transition to orange-brown-red mottled silty well sorted sand (~70% vfg sand)					
10.5	10.75	Grey plastic clay					
10.75	12.5	wet non-calcareous pink-brown-tan mottled silty vfg sand					
12.5	13	transition into a pink-red-brown vfg sandy clay w/ grey isolated clay stringers					
13	13.5	Pink-red-brown mottled clay w/ ~10% fg/mg sand in matrix					
13.5	16.0	orange-brown silty vfg sand (non-calc.) transition to ↓					
16.0	18.25	Brown silty well sorted fg sand					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

FIELD DRILLING RECORD

BORING NUMBER GP3 LOCATION Marsh Lumber, Pamplico SC
 DATE STARTED 1/5/99 DATE COMPLETED 1/5/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 20' DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
18.25	19.75	Brown slightly plastic clay w/ <10% vfg sand & shell fragment in the matrix					
19.75	20	Grey calcareous silty sand to fg sand w/ abundant broken shell fragments					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

FIELD DRILLING RECORD

BORING NUMBER GP-4 LOCATION Marsh Lumber, Pamplico SC
 DATE STARTED 1/6/99 DATE COMPLETED 1/6/99
 GEOLOGIST E. Henriques DRILLER Troxler Geologic
 METHOD OF DRILLING Geoprobe SAMPLING METHOD Macro-Core
 DIAMETER OF BORING 2" DIAMETER OF CASING NA
 TOTAL DEPTH 21' DEPTH OF CASING NA

DEPTH		LITHOLOGIC DESCRIPTION <small>color, texture, structure, consistency, additional features, etc.</small>	PENETRATION TEST RESULTS				
FROM	TO		DEPTH	RECOVERY	6"	12"	18"
		note: only (1) 4ft. macro-core soil sample collect from 17-20' bg. This step taken to confirm the elevation & presence of the targeted clay layer					
17	17.5	Orange-brown slightly calcareous sandy clay (~10% vfg sand in matrix)					
17.5	20	Orange-brown silty-clay to clay. w/ ~20% vfg sand in the matrix also ~1% vfg shell fragments in the matrix					
20	21	Brown-tan calcareous sand to silty sand matrix with ~40% shell hash, some shell fragments < 1/4". Some partially consolidated material in the matrix					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 SCREEN LENGTH (ft) _____ DEPTH (ft) _____ DIAMETER (in) _____ MATERIAL _____
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____
 DEPTH TO TOP SEAL _____ BENTONITE USED _____
 BAGS OF CEMENT USED _____

APPENDIX E
ANALYTICAL RESULTS



SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

S & ME 6548

3 18 OLD BATTLEGROUND RD
G EENS BORO, NC 27410

P oject: 1584-98-146
P oject Name: MARSH PAMPLICO SC
Sampler:

Lab Number: 99-A12226
Sample ID: ML-A
Sample Type: Ground water
Site ID:

Date Collected: 1/28/99
Time Collected: 10:15
Date Received: 1/29/99
Time Received: 8:30

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2-Chlorophenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2-Nitrophenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
4-Nitrophenol	ND	ug/l	25.	25.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
Pentachlorophenol	270.	ug/l	250.	25.	10	2/ 6/99	11:34	N. Goodrich	8270C	414
Phenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	2/ 6/99	6:05	N. Goodrich	8270C	414
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	2/ 6/99	6:05	N. Goodrich	8270C	414

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Mt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	940. ml	1.0 ml	2/ 2/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	37.	10. - 100.
surr-2-Fluorophenol	27.	9. - 100.
surr-2,4,6-Tribromophenol	60.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A12226
Sample ID: ML-A

Page 2

Report Approved By:

Report Date: 2/ 6/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 84009



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Phone 1-615-726-0177

ANALYTICAL REPORT

S & ME 6548

3 18 OLD BATTLEGROUND RD
G EENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO SC
Sampler:

Lab Number: 99-A12227
Sample ID: ML-B
Sample Type: Ground water
Site ID:

Date Collected: 1/28/99
Time Collected: 11:45
Date Received: 1/29/99
Time Received: 8:30

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2-Chlorophenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2-Nitrophenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
4-Nitrophenol	ND	ug/l	25.	25.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
Pentachlorophenol	100.	ug/l	25.	25.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
Phenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	2/ 6/99	7:55	N. Goodrich	8270C	414
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	2/ 6/99	7:55	N. Goodrich	8270C	414

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
DNA's	940. ml	1.0 ml	2/ 2/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	21.	10. - 100.
surr-2-Fluorophenol	30.	9. - 100.
surr-2,4,6-Tribromophenol	64.	15. - 134.



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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A12227
Sample ID: ML-B

Page 2

Report Approved By:

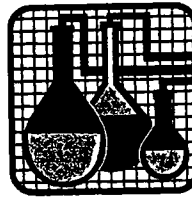
Report Date: 2/ 6/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 84009

**SPECIALIZED ASSAYS
ENVIRONMENTAL**

7A- 037245



2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

REFERRING CLIENT

Account: 6548
S & ME

3718 Old Battleground Rd
Greensboro, NC 27410
Ph: 910-288-7180 Fax: 910-288-8980

Specialized Assays: (800) 765-0980

BILLING CONTROL NUMBER (FOR LAB USE ONLY)	PROJECT #	P.O. #
129188	1584-98-146	8298

NAME (Signature-Please Print)	PROJECT NAME
<i>Suzanne</i>	Marsh Pamlico SC.

LAB USE ONLY ACC#	SAMPLE DESCRIPTION	DATE	TIME	COMP	GRAB	# of CONT	ANALYSIS REQUESTED
2226	ML-A	1/28/99	10:15a		✓	2	8270 acid extractables
2227	ML-B	1/28/99	11:45a		✓	2	8270 ACID EXTRACTABLES

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Received for Laboratory by:	Date / Time
<i>[Signature]</i>	1/28/99 12:30 PM		<i>[Signature]</i>	1/29/99 830
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Remarks Method 8270 Acid Extractables, Priority Pollutants List Pentachlorophenol is suspected	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)		
			SAI Project #:	

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite side

FIELD REPORT

**Geoprobe Groundwater Resampling
Marsh Lumber Co. - Pamplico South Carolina
S&ME Project No. 1584-98-146**

Date of Field Work: 1/28/99

Weather Conditions: SUNNY / WARM
LIGHT WIND 60°

S&ME Representative: Gary Simcox

Geoprobe Subcontractor: Troxler Geologic Services (Ben Troxler)

Original Sample Location: GP-1-15 (DVI open 15'-11')

Sampler Initials: AS

Resample I.D. # ML-A

Witness by: BT

Sample Method: Geoprobe, discrete interval sampler

Sampled Interval: 11' - 15'

Sample Date: 1/28/99

Sample Time: 10:15A

Samplers Comments: THE WATER WAS MILKY / CLEAR
I FILLED 2 1L BOTTLES AND LABELED THEM BZTD AND BZTD2
WE PLACED THE PROBES WITHIN 5' OF THE FIRST PROBE

Original Sample Location: GP-6-17 (DVI open 17'-13')

Sampler Initials: AS

Resample I.D. # ML-B

Witness by: BT

Sample Method: Geoprobe, discrete interval sampler

Sampled Interval: 13' - 17'

Sample Date: 1/28/99

Sample Time: 11:45 AM

Samplers Comments: THE WATER WAS CLEAR / IT HAD LITTLE OR NO ODR.
I FILLED 2 1L BOTTLES

869 632 45

1343

1293

JOB NO. 1584-98-146

SHEET NO. _____

DATE 1/28/99JOB NAME MARSH LUMBER COMPANY Pamlico, SC.COMPUTED BY G. SimcoxSUBJECT GROUNDWATER RESAMPLING w/ GEOPROBE

CHECKED BY _____

ON SITE APPROX. 9:00 AM. I CHECKED IN w/ LAUREN ARD TO LET HIM KNOW WE WERE ON SITE. WHILE WAITING ON BEN TROXLER (TROXLER GEOLOGIC SERVICES), I LOCATED THE PREVIOUS PROBE LOCATIONS AS PER ED'S MAP.

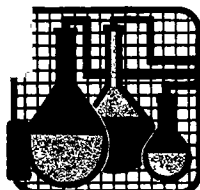
GP-1 WAS LOCATED ON THE MAP IN THE RIGHT AREA, BUT THE 200' DISTANCE FROM MW-10 WAS ONLY 100'. WE ACCIDENTALLY FOUND THE OLD FLAG FROM THE ORIGINAL PROBE. WE OFFSET APPROX. 5' TO THE NORTH & PROBED TO 15'.

AT THE PREVIOUS LOCATION, GP-6, WE MEASURED 35' OVER & 10' UP FROM THE CONCRETE PAD TO GET TO THIS PROBE LOCATION. BEN FELT LIKE THIS WAS VERY CLOSE TO THE ORIGINAL LOCATION. HERE WE PROBED TO 17' & TOOK OUR SAMPLE.

THE SAMPLES WERE LABELED, PUT ON ICE, & SHIPPED VIA FEDEX SHORTLY AFTER BEING TAKEN.

NOTE:

PROBE ROD & SAMPLING SCREEN WERE DECONTAMINATED AS PER ED'S INSTRUCTIONS BEFORE & AFTER EACH LOCATION.

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
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 Nashville, TN 37204-0566
 Phone 1-615-726-0177

ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
 GREENSBORO, NC 27410

Project: 1584-98-146
 Project Name: MARSH PAMPLICO
 Sampler: EQH

Lab Number: 99-A2257
 Sample ID: GP-1-30
 Sample Type: Ground water
 Site ID:

Date Collected: 1/ 5/99
 Time Collected: 15:45
 Date Received: 1/ 8/99
 Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	H. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	H. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	H. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	H. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	925. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol 45	19.	10. - 100.
surr-2-Fluorophenol	32.	9. - 100.
surr-2,4,6-Tribromophenol	47.	15. - 134.



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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A2257
Sample ID: GP-1-30

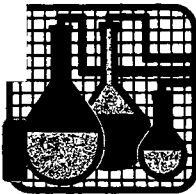
Page 2

Report Approved By:

Report Date: 1/18/99

Theodore J. Duello, Ph. D., Lab Director
Michael H. Dunn, M. S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387



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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Lab Number: 99-A2257
Sample ID: GP-1-30
Sample Type: Ground water
Site ID:

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Date Collected: 1/ 5/99
Time Collected: 15:45
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	M. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	M. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/15/99	12:02	M. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:02	M. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	925. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol 45	19.	10. - 100.
surr-2-Fluorophenol	32.	9. - 100.
surr-2,4,6-Tribromophenol	47.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2257
Sample ID: GP-1-30

Page 2

Report Approved By:

T. J. Duello

Report Date: 1/18/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387

**SPECIALIZED ASSAYS, INC.**

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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
 GREENSBORO, NC 27410

Lab Number: 99-A2258
 Sample ID: GP-1-15
 Sample Type: Ground water
 Site ID:

Project: 1584-98-146
 Project Name: MARSH PAMPLICO
 Sampler: EQH

Date Collected: 1/ 5/99
 Time Collected: 12:45
 Date Received: 1/ 8/99
 Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/15/99	12:39	H. Goodrich	8270C	9292
Pentachlorophenol	696.	ug/l	250.	25.	10	1/17/99	20:24	H. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/15/99	12:39	H. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/15/99	12:39	H. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BMA's	950. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	24.	10. - 100.
surr-2-Fluorophenol	43.	9. - 100.
surr-2,4,6-Tribromophenol	70.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2258
Sample ID: GP-1-15

Page 2

Report Approved By:

Report Date: 1/18/99

Theodore J. Duello, Ph. D., Lab Director
Michael H. Dunn, M. S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387



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Nashville, TN 37204-0566
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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Lab Number: 99-A2259
Sample ID: GP-2-16
Sample Type: Ground water
Site ID:

Date Collected: 1/ 5/99
Time Collected: 17:45
Date Received: 1/ 8/99
Time Received: 9:00

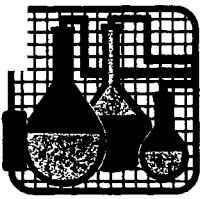
Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/15/99	13:15	H. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/15/99	13:15	H. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/15/99	13:15	H. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/15/99	13:15	H. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	1000 ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	26.	10. - 100.
surr-2-Fluorophenol	46.	5. - 100.
surr-2,4,6-Tribromophenol	65.	15. - 134.



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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A2259
Sample ID: GP-2-16

Page 2

Report Approved By:



Report Date: 1/18/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387



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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Lab Number: 99-A2260
Sample ID: GP-2-24
Sample Type: Ground water
Site ID:

Date Collected: 1/ 5/99
Time Collected: 19:30
Date Received: 1/ 8/99
Time Received: 9:00

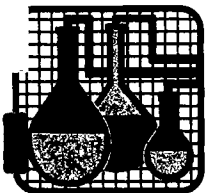
Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	28.	25.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	28.	25.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	28.	25.	1	1/15/99	13:52	N. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	28.	25.	1	1/15/99	13:52	N. Goodrich	8270C	9292
Phenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	28.	25.	1	1/15/99	13:52	N. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	11.	10.	1	1/15/99	13:52	N. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
DNA's	900. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	24.	10. - 100.
surr-2-Fluorophenol	42.	9. - 100.
surr-2,4,6-Tribromophenol	57.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2260
Sample ID: GP-2-24

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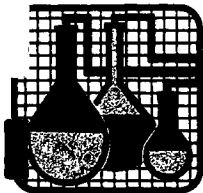
Report Approved By:

T. J. Duello

Report Date: 1/18/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387



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ANALYTICAL REPORT

S & ME 6548

1718 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Lab Number: 99-A2261
Sample ID: GP-3-19
Sample Type: Ground water
Site ID:

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EGH

Date Collected: 1/ 6/99
Time Collected: 11:30
Date Received: 1/ 8/99
Time Received: 9:00

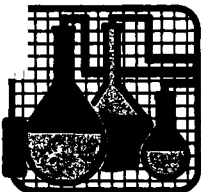
Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	32.	25.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	32.	25.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	32.	25.	1	1/15/99	14:28	H. Goodrich	8270C	9292
Pentachlorophenol	74.	ug/l	32.	25.	1	1/15/99	14:28	H. Goodrich	8270C	9292
Phenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	32.	25.	1	1/15/99	14:28	H. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	13.	10.	1	1/15/99	14:28	H. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	780. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	32.	10. - 100.
surr-2-Fluorophenol	51.	9. - 100.
surr-2,4,6-Tribromophenol	65.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2261
Sample ID: GP-3-19

Page 2

Report Approved By:

T. J. Duello

Report Date: 1/18/99

Theodore J. Duello, Ph.D., Lab Director
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Laboratory Certification Number: 387



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ANALYTICAL REPORT

S & ME 6548

718 OLD BATTLEGROUND RD
REENSBORO, NC 27410

Lab Number: 99-A2262
Sample ID: GP-4-17
Sample Type: Ground water
Site ID:

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EGH

Date Collected: 1/ 6/99
Time Collected: 14:30
Date Received: 1/ 8/99
Time Received: 9:00

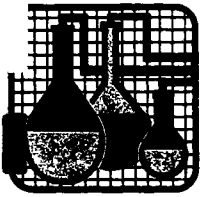
AnalYTE	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/15/99	15:42	N. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/15/99	15:42	N. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/15/99	15:42	N. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/15/99	15:42	N. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Ml/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
DMA's	950. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	21.	10. - 100.
surr-2-Fluorophenol	37.	9. - 100.
surr-2,4,6-Tribromophenol	55.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2262
Sample ID: GP-4-17

Page 2

Report Approved By:

T. J. Duello

Report Date: 1/18/99

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ANALYTICAL REPORT

S & ME 6548

18 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Lab Number: 99-A2263
Sample ID: GP-5-15
Sample Type: Ground water
Site ID:

Date Collected: 1/ 6/99
Time Collected: 16:00
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/16/99	3:48	N. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/16/99	3:48	N. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/16/99	3:48	N. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/16/99	3:48	N. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
DNA's	1000 ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	24.	10. - 100.
surr-2-Fluorophenol	41.	9. - 100.
surr-2,4,6-Tribromophenol	61.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2263
Sample ID: GP-5-15

Page 2

Report Approved By:

Report Date: 1/18/99

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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Lab Number: 99-A2264
Sample ID: GP-6-17
Sample Type: Ground water
Site ID:

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Date Collected: 1/ 6/99
Time Collected: 17:00
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/16/99	4:24	H. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/16/99	4:24	H. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/16/99	4:24	H. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/16/99	4:24	H. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BMA's	980. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol 45	22.	10. - 100.
surr-2-Fluorophenol	33.	9. - 100.
surr-2,4,6-Tribromophenol	57.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2264
Sample ID: GP-6-17

Page 2

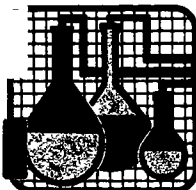
Report Approved By:

T. J. Duello

Report Date: 1/18/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387



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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Lab Number: 99-A2265
Sample ID: PURGE/DECON
Sample Type: Ground water
Site ID:

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Date Collected: 1/ 6/99
Time Collected: 18:00
Date Received: 1/ 8/99
Time Received: 9:00

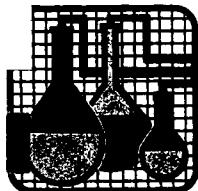
Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/16/99	5:01	N. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/16/99	5:01	N. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/16/99	5:01	N. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/16/99	5:01	N. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BWA's	980. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	16.	10. - 100.
surr-2-Fluorophenol	22.	9. - 100.
surr-2,4,6-Tribromophenol	76.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2265
Sample ID: PURGE/DECON

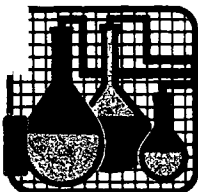
Page 2

Report Approved By:

Report Date: 1/18/99

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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Lab Number: 99-A2266
Sample ID: MW-1
Sample Type: Ground water
Site ID:

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Date Collected: 1/ 5/99
Time Collected: 12:40
Date Received: 1/ 8/99
Time Received: 9:00

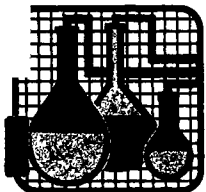
Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2-Chlorophenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2-Nitrophenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292
4-Nitrophenol	ND	ug/l	25.	25.	1	1/16/99	5:38	N. Goodrich	8270C	9292
Pentachlorophenol	ND	ug/l	25.	25.	1	1/16/99	5:38	N. Goodrich	8270C	9292
Phenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/16/99	5:38	N. Goodrich	8270C	9292
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/16/99	5:38	N. Goodrich	8270C	9292

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	950. ml	1.0 ml	1/12/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	29.	10. - 100.
surr-2-Fluorophenol	51.	9. - 100.
surr-2,4,6-Tribromophenol	71.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2266
Sample ID: MW-1

Page 2

Report Approved By:

T. J. Duello

Report Date: 1/18/99

Theodore J. Duello, Ph.D., Lab Director
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Laboratory Certification Number: 387



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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Lab Number: 99-A2267
Sample ID: MW-3
Sample Type: Ground water
Site ID:

Date Collected: 1/ 5/99
Time Collected: 15:30
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2-Chlorophenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2-Nitrophenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243
4-Nitrophenol	ND	ug/l	25.	25.	1	1/12/99	4:33	H. Goodrich	8270C	8243
Pentachlorophenol	271.	ug/l	125.	25.	5	1/12/99	9:32	H. Goodrich	8270C	8243
Phenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/12/99	4:33	H. Goodrich	8270C	8243
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/12/99	4:33	H. Goodrich	8270C	8243

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BNA's	950. ml	1.0 ml	1/11/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	22.	10. - 100.
surr-2-Fluorophenol	34.	9. - 100.
surr-2,4,6-Tribromophenol	87.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2267
Sample ID: MW-3

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Report Approved By:

Report Date: 1/18/99

Theodore J. Duello, Ph. D., Lab Director
Michael H. Dunn, M. S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387



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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Lab Number: 99-A2268
Sample ID: MW-B
Sample Type: Ground water
Site ID:

Date Collected: 1/ 5/99
Time Collected: 16:30
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2-Chlorophenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2-Nitrophenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243
4-Nitrophenol	ND	ug/l	25.	25.	1	1/12/99	5:10	H. Goodrich	8270C	8243
Pentachlorophenol	ND	ug/l	25.	25.	1	1/12/99	5:10	H. Goodrich	8270C	8243
Phenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/12/99	5:10	H. Goodrich	8270C	8243
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/12/99	5:10	H. Goodrich	8270C	8243

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BWA's	960. ml	1.0 ml	1/11/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	19.	10. - 100.
surr-2-Fluorophenol	30.	9. - 100.
surr-2,4,6-Tribromophenol	78.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2268
Sample ID: MW-8

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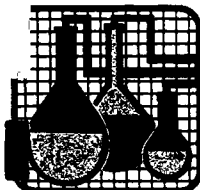
Report Approved By:



Report Date: 1/18/99

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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Lab Number: 99-A2269

Sample ID: MW-9

Sample Type: Ground water

Site ID:

Project: 1584-98-146

Project Name: MARSH PAMPLICO

Sampler: EQH

Date Collected: 1/ 5/99

Time Collected: 15:30

Date Received: 1/ 8/99

Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2-Chlorophenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2-Nitrophenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243
4-Nitrophenol	ND	ug/l	25.	25.	1	1/12/99	5:46	N. Goodrich	8270C	8243
Pentachlorophenol	ND	ug/l	25.	25.	1	1/12/99	5:46	N. Goodrich	8270C	8243
Phenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/12/99	5:46	N. Goodrich	8270C	8243
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/12/99	5:46	N. Goodrich	8270C	8243

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
DNA's	940. ml	1.0 ml	1/11/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol d5	21.	10. - 100.
surr-2-Fluorophenol	31.	9. - 100.
surr-2,4,6-Tribromophenol	80.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2269
Sample ID: MW-9

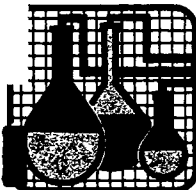
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Report Date: 1/18/99

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ANALYTICAL REPORT

S & ME 6548

118 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EQH

Lab Number: 99-A2270
Sample ID: MW-10
Sample Type: Ground water
Site ID:

Date Collected: 1/ 5/99
Time Collected: 17:30
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2-Chlorophenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2,4-Dichlorophenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2,4-Dimethylphenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243
4,6-Dinitro-2-methylphenol	ND	ug/l	31.	25.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2,4-Dinitrophenol	ND	ug/l	31.	25.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2-Nitrophenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243
4-Nitrophenol	ND	ug/l	31.	25.	1	1/12/99	6:22	M. Goodrich	8270C	8243
Pentachlorophenol	58.	ug/l	31.	25.	1	1/12/99	6:22	M. Goodrich	8270C	8243
Phenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2,4,5-Trichlorophenol	ND	ug/l	31.	25.	1	1/12/99	6:22	M. Goodrich	8270C	8243
2,4,6-Trichlorophenol	ND	ug/l	12.	10.	1	1/12/99	6:22	M. Goodrich	8270C	8243

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
BWA's	810. ml	1.0 ml	1/11/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol 45	28.	10. - 100.
surr-2-Fluorophenol	42.	9. - 100.
surr-2,4,6-Tribromophenol	92.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2270
Sample ID: MW-10

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Report Approved By:



Report Date: 1/18/99

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ANALYTICAL REPORT

S & ME 6548

18 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

Project: 1584-98-146
Project Name: MARSH PAMPLICO
Sampler: EGH

Lab Number: 99-A2271
Sample ID: MW-11
Sample Type: Ground water
Site ID:

Date Collected: 1/ 5/99
Time Collected: 12:45
Date Received: 1/ 8/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2-Chlorophenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2-Nitrophenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243
4-Nitrophenol	ND	ug/l	25.	25.	1	1/12/99	8:19	N. Goodrich	8270C	8243
Pentachlorophenol	ND	ug/l	25.	25.	1	1/12/99	8:19	N. Goodrich	8270C	8243
Phenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	1/12/99	8:19	N. Goodrich	8270C	8243
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	1/12/99	8:19	N. Goodrich	8270C	8243

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Ml/Vol		Date	Analyst	Method
	Extracted	Extract Vol			
DNA's	930. ml	1.0 ml	1/11/99	Fitzwater	3510

Surrogate	% Recovery	Target Range
surr-Phenol #5	21.	10. - 100.
surr-2-Fluorophenol	32.	9. - 100.
surr-2,4,6-Tribromophenol	93.	15. - 134.



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ANALYTICAL REPORT

Laboratory Number: 99-A2271

Sample ID: MW-11

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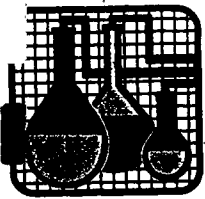
Report Approved By:



Report Date: 1/18/99

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Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
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Laboratory Certification Number: 387



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S & ME 6548

3718 OLD BATTLEGROUND RD
GREENSBORO, NC 27410

CHAIN OF CUSTODY

Project Number: 1584-98-146		Sampler: EQM		Analysis Requested			
Project Name: Marsh Pamplico		SAE Quote:					
Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles
2257	GP1-30	1/5/99	1545	Aq	X		1 X
58	GP1-15	1/5/99	1245	Aq	X		1 X
59	GP2-16	1/5/99	1745	Aq	X		1 X
60	GP2-24	1/5/99	1930	Aq	X		1 X
61	GP3-19	1/6/99	1130	Aq	X		1 X
62	GP4-17	1/6/99	1430	Aq	X		1 X
63	GP5-15	1/6/99	1600	Aq	X		1 X
64	GP6-17	1/6/99	1500	Aq	X		1 X
2265	Purge/Decon	1/6/99	1800	Aq	X		1 X
Relinquished by: Ed Haggis		D/T: 1/7/99	Received by: M. Beatty		D/T: 1/8/99	Received by:	
Relinquished by:		D/T:	Received by:		D/T:	Received by:	

8270 Acid Extractables

Cooler Temperature When Received: 4°C

Laboratory Project Number: 126690

Cooler Seals Intact?

Fed-X Air Bill Number:

SPECIAL INSTRUCTIONS:

Method 8270 Acid Extractables, Priority Pollutants List
Pentachlorophenol is suspected



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S & ME 6548

3718 OLD BATTLEGROUND RD
GREENSBORO, NC 27110

CHAIN OF CUSTODY

Project Number: 1584-98-146				Sampler: EQH				Analysis Requested			
Project Name: Marsh Pamplico				SAE Quote:							
Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles				
2266	MW-1	1/5/99	1240	Aq	X		1	X			
67	MW-3	1/5/99	1530	Aq	X		1	X			
68	MW-8	1/5/99	1630	Aq	X		1	X			
69	MW-9	1/5/99	1530	Aq	X		1	X			
70	MW-10	1/5/99	1730	Aq	X		1	X			
2271	MW-11	1/5/99	1245	Aq	X		1	X			
Relinquished by:		D/T	Received by:		D/T	Relinquished by:		D/T	Received by:		D/T
Ed Hemmings		1/7/99	MB		1/8/99			-			
		1000			9200						
Relinquished by:		D/T	Received by:		D/T	Relinquished by:		D/T	Received by:		D/T

8270 acid extractables

Cooler Temperature When Received:
 Laboratory Project Number:
 Cooler Seals Intact?
 Fed-X Air Bill Number:

SPECIAL INSTRUCTIONS:
 Method 8270 Acid extractables, Priority Pollutants List
 pentachlorophenol is suspected