

**Appendix 2.5A—Geotechnical Investigation and Laboratory Testing Data Report**

(Excludes contents of report Appendix G)

Prepared by  
MACTEC Engineering and Consulting, Inc.  
February 22, 2006

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engineering and constructing a better tomorrow

February 22, 2006  
(reissued August 9, 2006 in electronic file format)

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Subject: **Data Report of Geotechnical Investigation and Laboratory Testing  
Southern Advanced Light Water Reactor, Early Site Permit  
Vogtle Electric Generating Plant  
Burke County, Georgia  
MACTEC Project Number 6141-05-0227**

Dear Mr. McCallum:

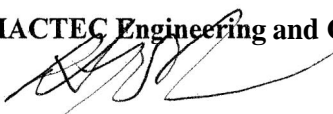
MACTEC Engineering and Consulting, Inc. (MACTEC) and our team of subconsultants are pleased to submit this data report relating to the Early Site Permit (ESP) for the Advanced Light Water Reactor (ALWR) proposed at SNOC's Plant Vogtle in Burke County, Georgia.

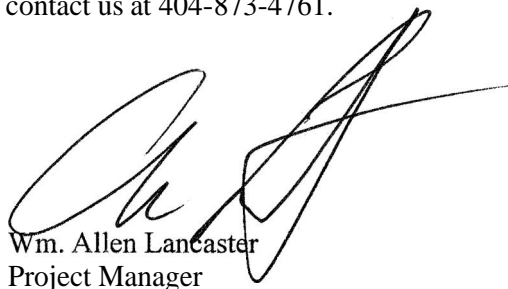
The scope of work was generally as described in Technical Specification 25144-000-3PS-CY00-00001, Rev. 0, with modifications based on discussions with BECHTEL and outlined in our Quality Assurance Project Document and subsequent correspondence. Broadly, the scope included soil borings, soil coring, rock coring, piezo-cone soundings, seismic cone soundings, well installation, field permeability testing using newly installed and pre-existing wells, borehole geophysical logging and laboratory soil testing.

Should you have any questions, please do not hesitate to contact us at 404-873-4761.

Sincerely,

**MACTEC Engineering and Consulting, Inc.**

  
Pieter J. DePree, P.E.  
Principal Engineer

  
Wm. Allen Lancaster  
Project Manager

Distribution: Addressee (4)  
Mr. Scott C. Lindvall, William Lettis & Associates, Inc.  
Mr. John Prebula, BECHTEL,

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Table 3: Laboratory Test Summary

All of Above Text, Figure, and Table is included in:

001–Data Report of Geotechnical Investigation ALWR ESP Plant Vogtle.pdf

### Appendices:

Appendix A – Boring Data (002–Ap A Boring Data.pdf)

Appendix B – CPT Report (003\_Ap B CPT Report.pdf)

Appendix C – Geophysical Report (004–Ap C Geophysical Report.pdf; 005\_Ap C Geophysical Report Appendices A, B, C & D.pdf; 006\_Ap C Geophysical Report Appendices E & F.pdf)

Appendix D – Field Permeability Testing (007\_Ap D Field Permeability Testing.pdf)

Appendix E – Laboratory Testing (008\_Ap E Laboratory Testing.pdf)

Appendix F – Hammer Calibration (009–Ap F Hammer Calibration.pdf)

Appendix G – Core Photos (010\_Ap G B-1003 Core Photos... through 019\_Ap G B-1003 Core Photos...)

CD Containing Electronic Data and Photos



## **1 BACKGROUND**

### **1.1 Purpose**

The purpose of the work is defined by Technical Specification 25144-000-3PS-CY00-00001, Rev. 0, prepared by Bechtel Power Corporation (Bechtel). In brief, the Southern Nuclear Operating Company, Inc. (SNOC) requires an Early Site Permit (ESP) for an Advanced Light Water Reactor (ALWR) at Plant Vogtle in Burke County, Georgia. Obtaining this permit requires significant geotechnical and geologic data.

### **1.2 Site Description**

The site is located west of the main Plant Vogtle area. Topography is generally defined by a gently rolling river terrace ranging from about elevation 210 to 280 feet, MSL. The area drains to the north and northwest toward the Savannah River. There has been some past grading including large fills in portions of the area. The area is generally wooded with small to medium pines and traversed by various roadways, mostly unpaved. Support buildings related to the existing plant are located along the southern side of the investigation area.

### **1.3 Project Description**

The project will consist of a new Advanced Light Water Reactor (ALWR) unit. Details of construction are not yet available, but we anticipate major components of the construction will include a reactor vessel, turbine building with turbine supports, and cooling towers. These major structures will likely require high capacity foundations which will likely bear at depth. Ancillary structures will include office and service buildings, buried pipelines and other utilities, and paved areas including parking, loading, and roadways. Grading with excavation and fill on the order of 30 to 40 feet is likely.

## **2 SCOPE OF WORK**

The scope of MACTEC's services was in general accordance with Technical Specification 2514-000-3PS-CY00-00001, Rev. 0, with modifications based on discussions with BECHTEL and outlined in our Quality Assurance Project Document (QAPD) and subsequent correspondence.

### **2.1 Preparation**

MACTEC obtained permits necessary for performing the work, prepared and submitted a QAPD for the work which was reviewed and approved by Bechtel. Exploratory locations were then located using surveying methods to the nearest 0.5 feet horizontally and the nearest 0.1 foot vertically using third order accuracy surveying techniques. At the completion of exploratory activities, locations were resurveyed to capture changes in locations necessitated by various

conditions and coordinated with BECHTEL. Completed locations are shown on Figure 1. Prior to exploration, the MACTEC team located existing underground utilities near the exploratory locations and submitted a report of the locations. In some cases, minor clearing and site preparation was required at the exploratory locations.

Prior to conducting standard penetration tests (SPT) our rig-mounted, automatic hammers were calibrated (see GRL Report in Appendix F). Hammer energy varied from 65 to 87 percent of theoretical. Although there was some correlation of hammer energy to depth, the correlation was not perfect and correction of SPT results to  $N_{60}$  values would entail some subjective judgment. Therefore, SPT results presented in the boring logs in Appendix A are uncorrected and results of hammer calibration are presented in Appendix F.

## **2.2 Subsurface Exploration**

### **2.2.1 Soil Boring and Sampling**

Twelve borings, designated B-1001 through B-1011 and B-1013, were drilled at the site. Boring locations are shown on Figure 1 and tabulated along with logs of borings in Appendix A. Boring B-1012 was eliminated from the scope by SNOC/BECHTEL.

Except for boring B-1003, all borings were advanced using mud-rotary drilling techniques and polymer and/or bentonite drilling fluid to depths of 100 to 304 feet below the ground surface. Standard Penetration Tests (SPT) were conducted continuously (at 1.5 foot intervals) in the upper 15 feet of each boring and at 5 to 10 foot intervals thereafter. Relatively undisturbed (Shelby Tube, Pitcher, or Piston) samples were collected at intervals selected by SNOC/BECHTEL. In cohesive soils, a pocket penetrometer and/or Torvane device were used to evaluate the undisturbed samples shortly after collection.

Borings were drilled at B-1002A and C-1005A to facilitate suspension logging. No sampling was conducted.

Soil samples from the SPT borings were placed into 8 oz. jars with threaded plastic lids. Adhesive paper labels were placed on the sides of the jars. The labels are pre-printed to accommodate pertinent sample information including project identification, date, boring number, sample number and depth, penetration resistance and a brief description of the enclosed sample. Jar samples were placed in cardboard boxes and stored in the on-site sample storage shed as directed by SNOC/BECHTEL. Jar and undisturbed samples selected for additional testing by SNOC/BECHTEL were returned to MACTEC's laboratory at the end of each week.

### **2.2.2 Continuous Soil Coring**

Boring B-1003 was advanced using continuous soil/rock coring procedures to a depth of 1338 feet using a Christensen 94 mm wire line system. A log of this boring is included in Appendix A. To core crystalline rock below a depth of about 1050 feet, grouted casing was installed to allow use of water rather than viscous mud for drilling fluid. Average core recovery was 77%

throughout the entire hole depth. Cores were logged continuously by MACTEC's field geologist prior to photographing and storage. Selected samples from the cores were sealed in glass jars and returned to the laboratory for further testing. Soil and rock cores were placed in wooden core boxes lined with plastic sheeting and stored on-site at the location specified by SNOC/Bechtel. Core boxes were stored in the on-site sample storage shed as directed by SNOC and Bechtel.

### **2.2.3 Seismic Suspension Logging**

Following completion of boreholes 1002, 1002A, 1003, and 1004 and C-1005A, these drill holes were filled with high-consistency drilling mud to maintain open holes. GeoVision then conducted geophysical suspension logging of the holes using various tools. The procedures and results are discussed in detail in Appendix C.

### **2.2.4 Cone Penetration Testing**

Static Cone Penetration Tests (CPT) were conducted at 12 locations (C-1001 through C-1010, plus C-1001A and C-1009A, added due to shallow refusal) to refusal, encountered at depths of 6 to 117 feet by Applied Research Associates, Inc. in general accordance with the specification. At 3 locations, seismic downhole tests were conducted in conjunction with the static, CPT. Results are reported in Appendix B.

### **2.2.5 Grouting Boreholes**

After completion of all drilling, sampling, and seismic logging activities in each borehole, holes were grouted full using tremie methods in general accordance with the specification. The grout mix specified in 25144-000-3PS-CY00-00001 was used. Displaced drilling fluid was sprayed over a wide area of the ground surface or allowed to flow into a mud pit excavated near selected boreholes. This procedure was discussed with Mr. Thomas of SNOC on June 14, 2005 at the Vogtle Site.

### **2.2.6 Field Permeability Testing**

In-situ hydraulic conductivity testing was conducted in accordance with Section 8 of ASTM D 4044 in the fifteen new observation wells recently installed at Plant Vogtle by others. The tests were performed utilizing both falling head ("slug-in") and rising head ("slug-out") tests to assess the water transmitting characteristics of the aquifer. The data acquired from the field permeability tests was analyzed to estimate the hydraulic conductivity of the aquifer using the Bower and Rice slug test methodology. A data report containing all of the information required by Section 9 of ASTM D 4044 was prepared presenting the results of the field permeability testing and analyses and is included in Appendix D.

### **2.2.7 Laboratory Testing**

Laboratory Testing was conducted based on laboratory assignments provided by Bechtel. The physical soil testing was performed within MACTEC's laboratory in Atlanta. Test results are included in Appendix E.





Table 1: Equipment Summary



**PLANT VOGTLE - ALWR ESP - EQUIPMENT SUMMARY**

**CME 55 Drilling Rig**  
**CME 75 Drilling Rig**  
**Speedstar Quickdrill 275 Drilling Rig**  
**Gardner Denver 15 W Drilling Rig**  
**Christiansen Wireline Coring System**  
**ARA Mack-I Penetrometer Truck**  
**OYO Model 170 Suspension Logging Probe and Recorder**  
**Robertson Geologging Model 3ACS 3 Leg Caliper Probe**  
**Robertson Geologging HIRAT High Resolution Televiwer Probe**  
**InSitu miniTROLL Pressure Transducer**  
**Topcon 303 GTS Total Station**

Table 2: Field Boring and CPT Summary



**PLANT VOGTLE - ALWR ESP - BORING/CPT LOCATIONS**

From Figure 1 - State Grid 1,143,000=plant grid 80+00 (North)

From Figure 1 - State Grid 624,000=plant grid 100+00 (East)

Description	Elevation (ft)	Plant Grid		State Grid		Termination Depth (ft)	Water Elevation (ft)
		Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)		
B 1001	221.64	7,661.92	6,220.42	1,142,661.92	620,220.42	123.9	NR
B 1002	221.98	7,998.52	6,985.47	1,142,998.52	620,985.47	260.0	166.0
B 1002A	222.27	7,985.62	6,986.07	1,142,985.62	620,986.07	105.0	176.0
B 1003	223.21	7,974.36	7,889.85	1,142,974.36	621,889.85	1,338.0	NR
B 1003 Top sf Casing	224.85	7,974.99	7,889.45	1,142,974.99	621,889.45	1,338.0	NR
B 1004	249.78	7,985.41	6,131.44	1,142,985.41	620,131.44	304.8	117.0
B 1005	253.14	8,991.57	6,155.35	1,143,991.57	620,155.35	164.3	NR
B 1006	255.95	8,810.26	7,342.90	1,143,810.26	621,342.90	124.1	242.0
B 1007	221.02	7,662.29	7,120.13	1,142,662.29	621,120.13	125.0	161.0
B 1008	219.51	7,670.93	7,996.15	1,142,670.93	621,996.15	124.5	168.0
B 1009	220.39	6,000.54	6,361.26	1,141,000.54	620,361.26	98.9	NR
B 1010	218.60	6,000.12	7,279.68	1,141,000.12	621,279.68	104.5	203.0
B 1011	219.38	8,741.13	8,378.01	1,143,741.13	622,378.01	100.0	NR
B 1013	218.62	5,976.08	8,272.50	1,140,976.08	622,272.50	105.0	205.0
C 1001A	248.57	8,028.13	6,355.97	1,143,028.13	620,355.97	116.7	NR
C 1002	222.13	7,667.65	6,574.64	1,142,667.65	620,574.64	78.5	NR
C 1003	219.80	7,669.31	7,477.88	1,142,669.31	621,477.88	80.0	175.2
C 1004	220.82	7,646.13	8,361.85	1,142,646.13	622,361.85	77.0	NR
C 1005	223.81	7,995.27	8,174.61	1,142,995.27	622,174.61	82.0	189.8
C 1005A	223.66	7,989.75	8,179.26	1,142,989.75	622,179.26	90.0	NR
C 1006	222.80	8,001.46	7,261.58	1,143,001.46	621,261.58	74.0	NR
C 1007	222.81	8,270.62	8,055.05	1,143,270.62	622,055.05	81.7	NR
C 1008	221.30	8,268.48	6,930.90	1,143,268.48	620,930.90	76.0	NR
C 1009A	218.93	5,979.63	6,798.49	1,140,979.63	620,798.49	99.8	NR
C 1010	219.06	6,008.35	7,754.15	1,141,008.35	621,754.15	96.0	NR
OW 1001A Conc Pad/Grade	226.38	7,893.50	6,218.43	1,142,893.50	620,218.43	45.0	NW
OW 1001A Top sf Casing	228.85	7,893.50	6,218.43	1,142,893.50	620,218.43	45.0	NR

NR = No Reading, unable to record water level due to drilling mud.



Table 3: Laboratory Test Summary



BORING NO.	SAMPLE NO.	DEPTH/ELEV.	USCS	MATERIAL DESCRIPTION	LL	PL	PI
B-1002							
	6	7.5'/214.28'		Silty sand			
	11	18.5'/203.48'		Silty sand			
	13	28.5'/193.48'		Silty sand			
	14	33.5'/188.48'		Sandy silt			
	15	38.5'/183.48'		Silty clay	48	27	21
	18	53.5'/168.48'		Silty sand			
	20	63.5'/158.48'		Silty sand			
	22	73.5'/148.48'		Silty sand			
	24	83.5'/138.48'		Silty sand			
	UD-1 Upper	92.0'/129.98'	GM	Silty gravel with sand	72	37	35
	UD-1 Middle	92.0'/129.98'		Silty gravel with sand			
	UD-2	103.5'/118.48'	Cb	Sandy silt	34	22	12
	UD-3	113.5'/108.48'	SC	Clayey sand	29	19	10
	UD-4	123.5'/98.48'	GC-GM	Silty clayey gravel with sand	22	17	5
	UD-5	133.5'/88.48'	SM	Silty sand with gravel	32	25	7
	33	153.5'/68.48'	CL	Sandy silt with gravel	34	21	13
	38	188.5'/33.48'	SM	Silty sand	NP	NP	NP
	43	238.5'/-16.52'		Silty sand			
B-1003							
	3	15.0'/208.21'		Silty sand			
	7	35.0'/185.21'		Silty sand			
	11	55.0'/168.21'		Silty gravel with sand			
	14	75.0'/148.21'		Poorly graded sand with silt			
	17	88.0'/135.21'	SM	Silty sand with gravel	93	42	51
	UD-1	93.0'/130.21'	SM	Silty sand	54	32	22
	22	104.7'/118.51'	SM	Silty sand	83	51	32
	27	121.7'/101.51'	SM	Silty sand	NP	NP	NP
	31	141.7'/81.51'	SM	Silty sand	46	28	18
	36	165.7'/57.51'	SP-SM	Poorly graded sand with silt	NP	NP	NP
	40	185.7'/37.51'		Silty sand			
	44	205.7'/17.51'		Silty sand			
	51	240.7'/-17.49'		Poorly graded sand with silt			
	59	280.7'/-57.49'		Silty sand			
	66	315.7'/-92.49'	GW	Well-graded gravel with sand	53	38	15
	73	350.7'/-127.49'	CL	Silt with sand	41	22	19
	83	400.7'/-177.49'		Silty sand			
	93	450.7'/-227.49'		Silty sand			
	103	496.7'/-273.49'		Silty sand			

BORING NO.	SAMPLE NO.	DEPTH/LEV.	USCS	MATERIAL DESCRIPTION	LL	PL	PI
B-1004							
	7	9.0'/240.78'		Silty sand			
	9	12.0'/237.78'		Silty sand			
	12	23.5'/226.28'		Silty sand			
	16	43.5'/206.28'	H	Silt with sand	58	24	34
	18	53.5'/196.28'		Sandy silt			
	21	68.5'/181.28'		Silty sand			
	24	83.5'/166.28'		Silty sand			
	32	123.5'/126.28'	GM	Silty gravel with sand	43	19	24
	UD-1 Upper	144.0'/105.78'	SM	Silty sand	59	38	21
	UD-1 Middle	144.0'/105.78'		Silty sand			
	UD-2	153.5'/96.28'	SM	Silty sand	43	27	16
	UD-3 Upper	163.5'/86.28'	GC	Clayey gravel with sand	31	22	9
	UD-3 Middle	163.5'/86.28'		Clayey gravel with sand			
	UD-4 Upper	177.0'/72.78'	SM	Silty sand with gravel	31	22	9
	UD-4 Middle	177.0'/72.78'		Silty sand with gravel			
	UD-5	188.5'/61.28'	SM	Silty sand with gravel	34	27	7
	UD-6	198.5'/51.28'	SC	Silty sand	31	21	10
B-1006							
	6	7.5'/248.45'		Poorly graded sand with silt			
	14	33.5'/222.45'		Silty sand			
	19	58.5'/197.45'	CH	Silt with sand	97	30	67
	21	68.5'/187.45'		Silty sand			
	25	88.5'/167.45'		Silty sand			
	29	108.5'/147.45'		Silty sand with gravel			
	32	123.5'/132.45'	MH	Silt with sand	99	43	56
B-1010							
	6	7.5'/211.1'		Silty sand			
	14	33.5'/185.1'		Silty sand			
	19	58.5'/160.1'		Silty sand			
	22	73.5'/145.1'		Silty sand			
	27	98.5'/120.1'	CH	Sandy silt	94	36	58



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April 21, 2006

Mr. Tom McCallum  
Southern Nuclear Operating Company, Inc.  
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Phone: (205) 992-6697  
e-mail: tomccall@southernco.com

Subject: Corrected Grain Size Reports and Boring Logs  
Data Report of Geotechnical Investigation and Laboratory Testing  
Southern Advanced Light Water Reactor, Early Site Permit  
Vogtle Electric Generating Plant  
Burke County, Georgia  
MACTEC Project Number 6141-05-0227


Dear Mr. McCallum:

In the course of our internal quality assurance auditing, we have discovered a computer input error for grain size testing at the above project. In general, the results are impacted by only a few percentage points and, while all results are slightly impacted, USCS classifications changed in only 4 cases. Corrected laboratory reports and boring logs (fines percentage was included on the boring logs as well as 4 changes in classification) are attached. Please substitute these into Appendices A and E of our report.

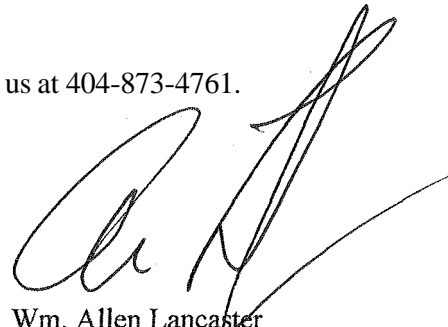
Should you have any questions, please do not hesitate to contact us at 404-873-4761.

Sincerely,

**MACTEC Engineering and Consulting, Inc.**



Pieter J. DePree, P.E.  
Principal Engineer



Wm. Allen Lancaster  
Civil Engineer

Distribution: Addressee (4)  
Mr. Scott C. Lindvall, William Lettis & Associates, Inc.  
Mr. John Prebula, BECHTEL

Enclosed: Table 3: Laboratory Test Summary  
Boring Logs (10 pages)  
Grain Size Curves (45 pages)  
Atterberg Limits (2 pages)



# APPENDIX A

Table of As Built Surveyed Boring, Well, and Probe Locations

Key to Symbols

Boring Logs (14)

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Table 2: Field Boring and CPT Summary





























**P U N T V O G T L E - A L W R E S P - B O R I N G / C P T L O C A T I O N S**

From Figure 1 - State Grid 1,143,000=plant grid 80+00 (North)

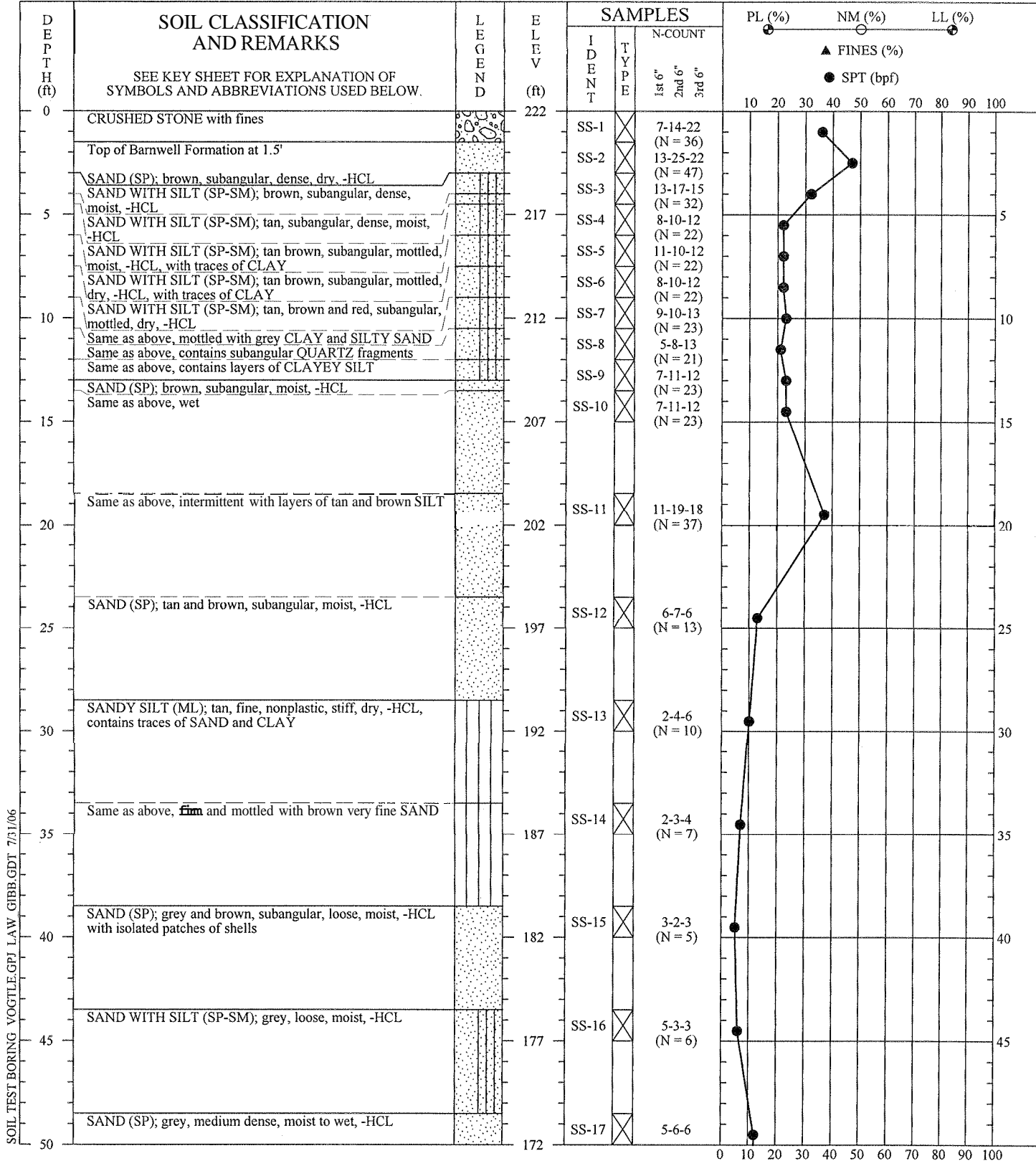
From Figure 1 - State Grid 624,000=plant grid 100+00 (East)

Description	Elevation (ft)	Plant Grid		State Grid		Termination Depth (ft)	Water Elevation (ft)
		Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)		
B 1001	221.64	7,661.92	6,220.42	1,142,661.92	620,220.42	123.9	NR
B 1002	221.98	7,998.52	6,985.47	1,142,998.52	620,985.47	260.0	166.0
B 1002A	222.27	7,985.62	6,986.07	1,142,985.62	620,986.07	105.0	176.0
B 1003	223.21	7,974.36	7,889.85	1,142,974.36	621,889.85	1,338.0	NR
B 1003 Top of Casing	224.85	7,974.99	7,889.45	1,142,974.99	621,889.45	1,338.0	NR
B 1004	249.78	7,985.41	6,131.44	1,142,985.41	620,131.44	304.0	117.0
B 1005	253.14	8,991.57	6,155.35	1,143,991.57	620,155.35	164.3	NR
B 1006	255.95	8,810.26	7,342.90	1,143,810.26	621,342.90	124.1	242.0
B 1007	221.02	7,662.29	7,120.13	1,142,662.29	621,120.13	125.0	161.0
B 1008	219.51	7,670.93	7,996.15	1,142,670.93	621,996.15	124.5	168.0
B 1009	220.39	6,000.54	6,361.26	1,141,000.54	620,361.26	98.9	NR
B 1010	218.60	6,000.12	7,279.68	1,141,000.12	621,279.68	104.5	203.0
B 1011	219.38	8,741.13	8,378.01	1,143,741.13	622,378.01	100.0	NR
B 1013	218.62	5,976.08	8,272.50	1,140,976.08	622,272.50	105.0	205.0
C 1001A	248.57	8,028.13	6,355.97	1,143,028.13	620,355.97	116.7	NR
C 1002	222.13	7,667.65	6,574.64	1,142,667.65	620,574.64	78.5	NR
C 1003	219.80	7,669.31	7,477.88	1,142,669.31	621,477.88	80.0	175.2
C 1004	220.82	7,646.13	8,361.85	1,142,646.13	622,361.85	77.0	NR
C 1005	223.81	7,995.27	8,174.61	1,142,995.27	622,174.61	82.0	189.8
C 1005A	223.66	7,989.75	8,179.26	1,142,989.75	622,179.26	90.0	NR
C 1006	222.80	8,001.46	7,261.58	1,143,001.46	621,261.58	74.0	NR
C 1007	222.81	8,270.62	8,055.05	1,143,270.62	622,055.05	81.7	NR
C 1008	221.30	8,268.48	6,930.90	1,143,268.48	620,930.90	76.0	NR
C 1009A	218.93	5,979.63	6,798.49	1,140,979.63	620,798.49	99.0	NR
C 1010	219.06	6,008.35	7,754.15	1,141,008.35	621,754.15	96.0	NR
OW 1001A Conc Pad/Grade	226.38	7,893.50	6,218.43	1,142,893.50	620,218.43	45.0	NR
OW 1001A Top of Casing	228.85	7,893.50	6,218.43	1,142,893.50	620,218.43	45.0	NR

NR = None Recorded

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES	Undisturbed Sample	Auger Cuttings																																				
COARSE GRAINED SOILS (More than 50% of material is LARGER than No 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	 GW	Well graded gravels, gravel - sand mixtures, little or no fines.	 Split Spoon Sample	 Bulk Sample																																				
		GRAVELS WITH FINES (Appreciable amount of fines)	 GP	Poorly graded gravels or grave - sand mixtures, little or no fines.	 Rock Core	 Crandall Sampler																																				
			 GM	Silty gravels, gravel - sand - silt mixtures.	 Dilatometer	 Pressure Meter																																				
			 GC	Clayey gravels, gravel - sand - clay mixtures.	 Packer	 No Recovery																																				
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 Sieve Size)	CLEAN SANDS (Little or no fines)	 SW	Well graded sands, gravelly sands, little or no fines.	 Water Table at time of drilling	 Water Table after 24 hours																																				
		SANDS WITH FINES (Appreciable amount of fines)	 SP	Poorly graded sands or gravelly sands, little or no fines.																																						
			 SM	Silty sands, sand - silt mixtures																																						
			 SC	Clayey sands, sand - clay mixtures.																																						
FINE GRAINED SOILS (More than 50% of material is SMALLER than No 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		 ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts and with slight plasticity.	<div>Correlation of Penetration Resistance with Relative Density and Consistency</div> <table><thead><tr><th colspan="2">SAND &amp; GRAVEL</th><th colspan="2">SILT &amp; CLAY</th></tr><tr><th>No. of Blows</th><th>Relative Density</th><th>No. of Blows</th><th>Consistency</th></tr></thead><tbody><tr><td>0 - 4</td><td>Very Loose</td><td>0 - 2</td><td>Very Soft</td></tr><tr><td>5 - 10</td><td>Loose</td><td>3 - 4</td><td>Soft</td></tr><tr><td>11 - 30</td><td>Medium Dense</td><td>5 - 8</td><td>Firm</td></tr><tr><td>31 - 50</td><td>Dense</td><td>9 - 15</td><td>Stiff</td></tr><tr><td>Over 50</td><td>Very Dense</td><td>16 - 30</td><td>Very Stiff</td></tr><tr><td></td><td></td><td>31 - 50</td><td>Hard</td></tr><tr><td></td><td></td><td>Over 50</td><td>Very Hard</td></tr></tbody></table>		SAND & GRAVEL		SILT & CLAY		No. of Blows	Relative Density	No. of Blows	Consistency	0 - 4	Very Loose	0 - 2	Very Soft	5 - 10	Loose	3 - 4	Soft	11 - 30	Medium Dense	5 - 8	Firm	31 - 50	Dense	9 - 15	Stiff	Over 50	Very Dense	16 - 30	Very Stiff			31 - 50	Hard			Over 50	Very Hard
			SAND & GRAVEL				SILT & CLAY																																			
			No. of Blows	Relative Density			No. of Blows	Consistency																																		
	0 - 4	Very Loose	0 - 2	Very Soft																																						
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	11 - 30	Medium Dense	5 - 8	Firm																																						
	31 - 50	Dense	9 - 15	Stiff																																						
	Over 50	Very Dense	16 - 30	Very Stiff																																						
		31 - 50	Hard																																							
		Over 50	Very Hard																																							
 CL	Inorganic lays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.																																									
 OL	Organic silts and organic silty clays of low plasticity.																																									
SILTS AND CLAYS (Liquid limit GREATER than 50)		 MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.																																							
		 CH	Inorganic clays of high plasticity, fat clays																																							
		 OH	Organic clays of medium to high plasticity, organic silts.																																							
HIGHLY ORGANIC SOILS		 PT	Peat and other highly organic soils.																																							
<div>BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.</div> <table><thead><tr><th rowspan="2">SILT OR CLAY</th><th colspan="3">SAND</th><th colspan="2">GRAVEL'</th><th rowspan="2">Cobbles</th><th rowspan="2">Boulders</th></tr><tr><th>Fine</th><th>Medium</th><th>Coarse</th><th>Fine</th><th>Coarse</th></tr></thead><tbody><tr><td></td><td>No.200</td><td>No.40</td><td>No.10 No.4</td><td>3/4"</td><td>3"</td><td>12"</td><td></td></tr></tbody></table> <div>U.S. STANDARD SIEVE SIZE</div>							SILT OR CLAY	SAND			GRAVEL'		Cobbles	Boulders	Fine	Medium	Coarse	Fine	Coarse		No.200	No.40	No.10 No.4	3/4"	3"	12"																
SILT OR CLAY	SAND			GRAVEL'		Cobbles		Boulders																																		
	Fine	Medium	Coarse	Fine	Coarse																																					
	No.200	No.40	No.10 No.4	3/4"	3"	12"																																				
<div>KEY TO SYMBOLS AND DESCRIPTIONS</div> <div></div>																																										

Reference: The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 1953 (Revised April, 1960)



DRILLER: Jimmy Oglesby (MACTEC)  
EQUIPMENT: CME-75 (Auto-Hammer)  
METHOD: Rotary Wash with Mud  
HOLE DIA.: 4 inches  
REMARKS: Plant Grid: N 7661.92, E 6220.42  
+HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

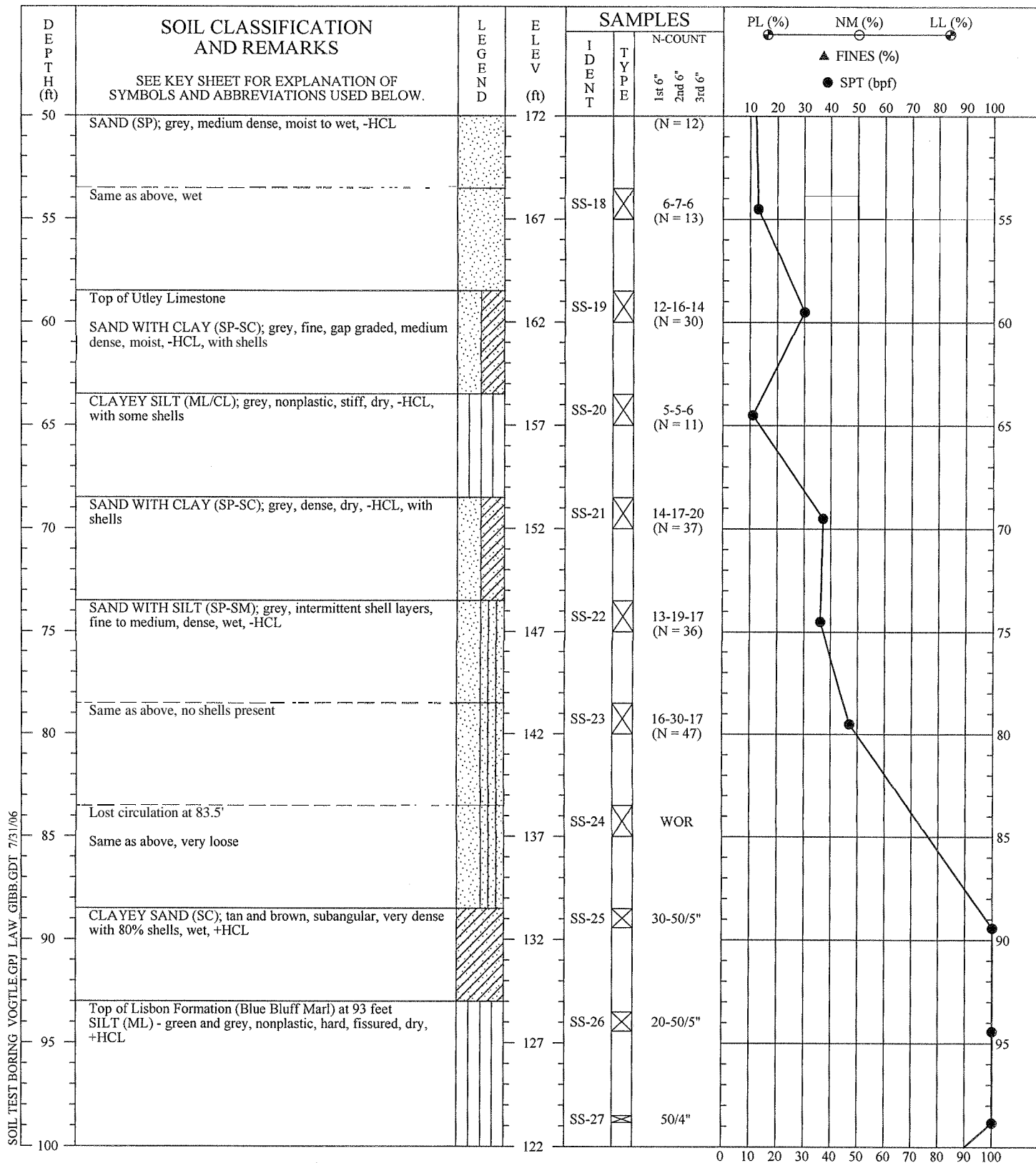
### SOIL TEST BORING RECORD

BORING NO.: B-1001  
PROJECT: ALWR - ESP  
LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
DRILLED: August 30, 2005  
PROJECT NO.: 6141-05-0227

PAGE 1 OF 3

MACTEC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL



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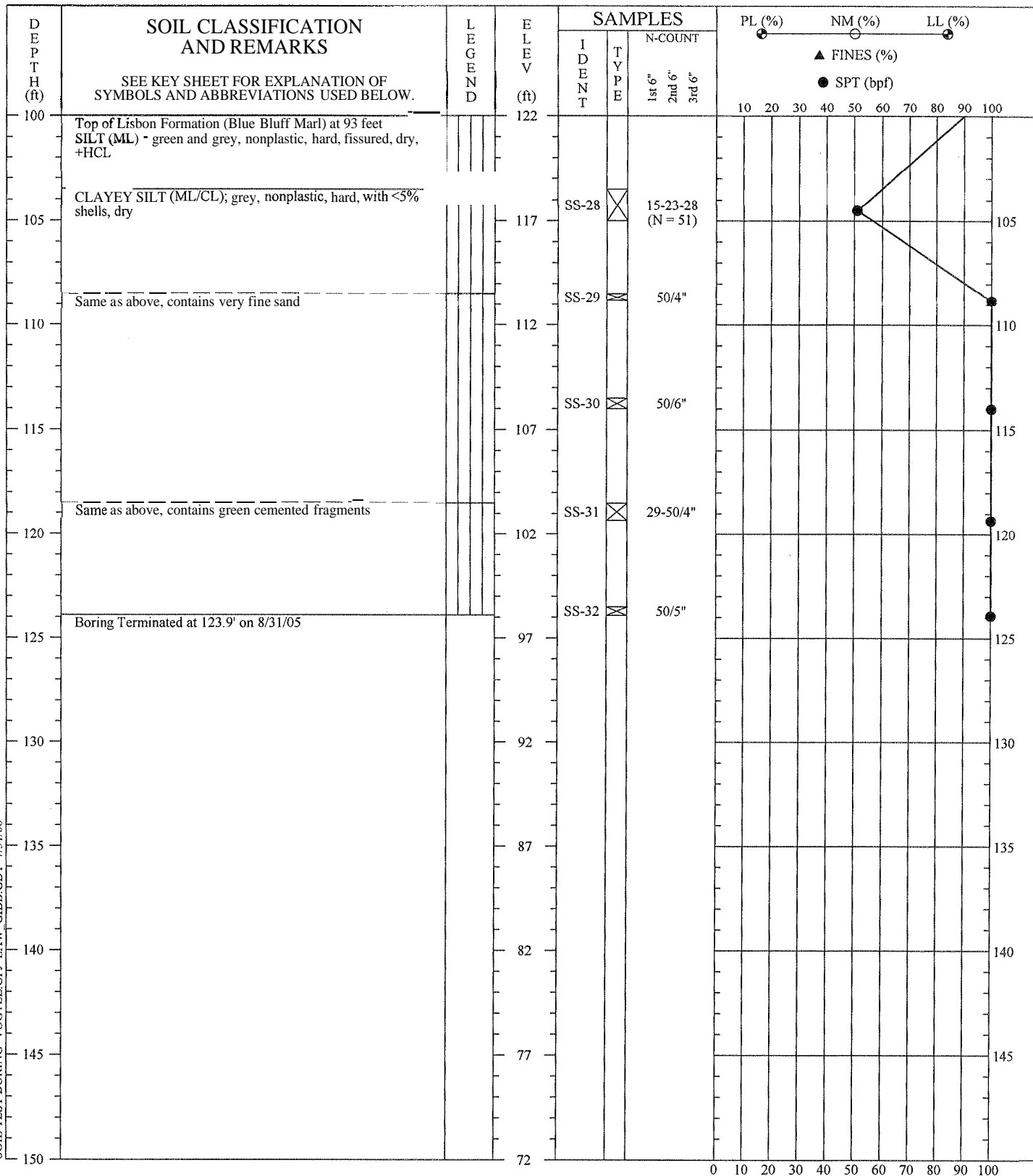
PAGE 2 OF 3

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SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7661.92, E 6220.42  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

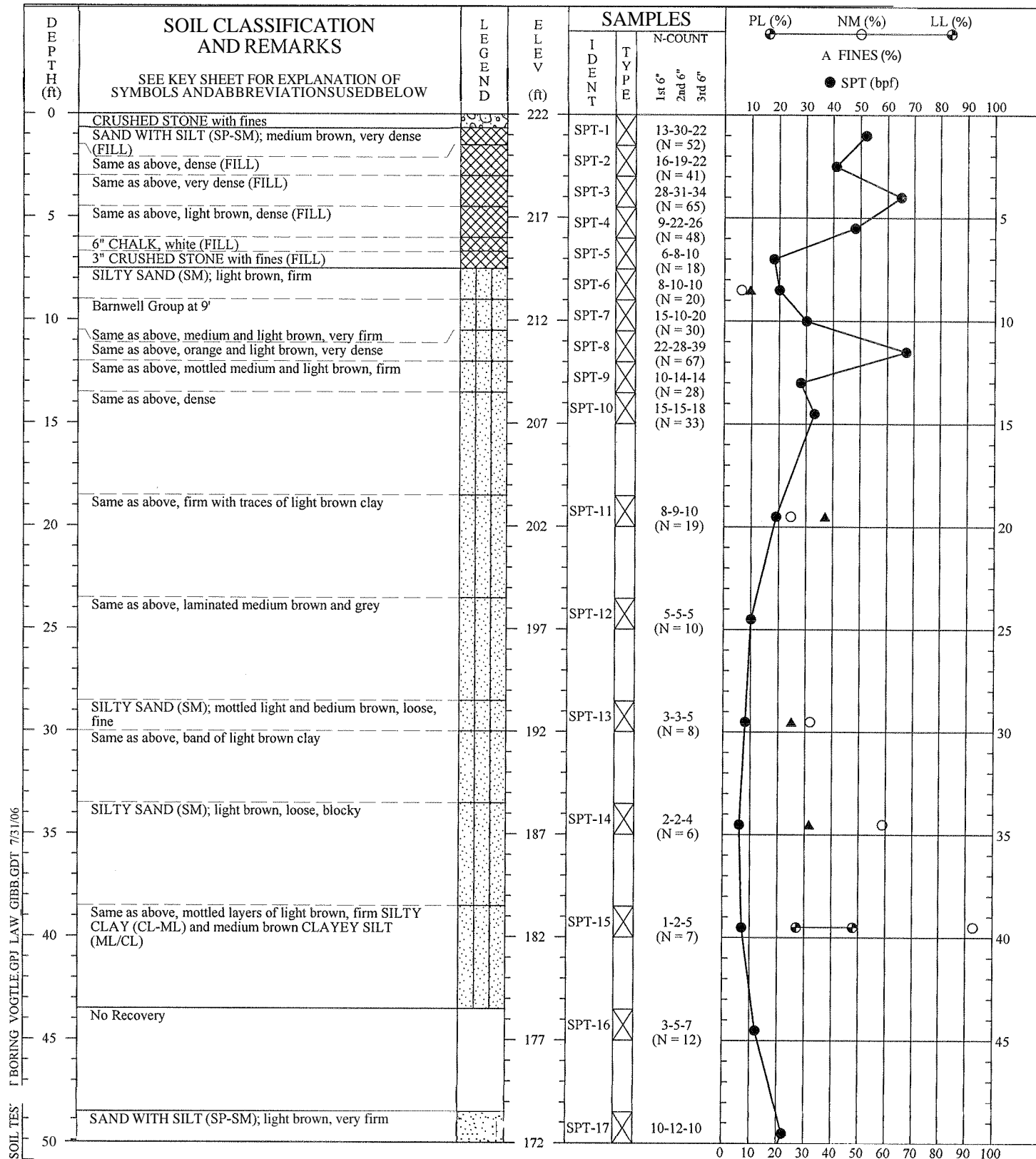
### SOIL TEST BORING RECORD

BORING NO.: B-1001  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, CA  
 DRILLED: August 30, 2005  
 PROJECT NO.: 6141-05-0227

PAGE 3 OF 3

THIS RECORD IS A REASONABLE INTERPRETATION OF  
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DRILLER: Robert Banks (MACTEC)  
EQUIPMENT: CME-55 (At Hammer)  
METHOD: Rotary Wash with Mud  
HOLE DIA.: 4 inches  
REMARKS: Plant Grid: N 7998.52, E 6985.47 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

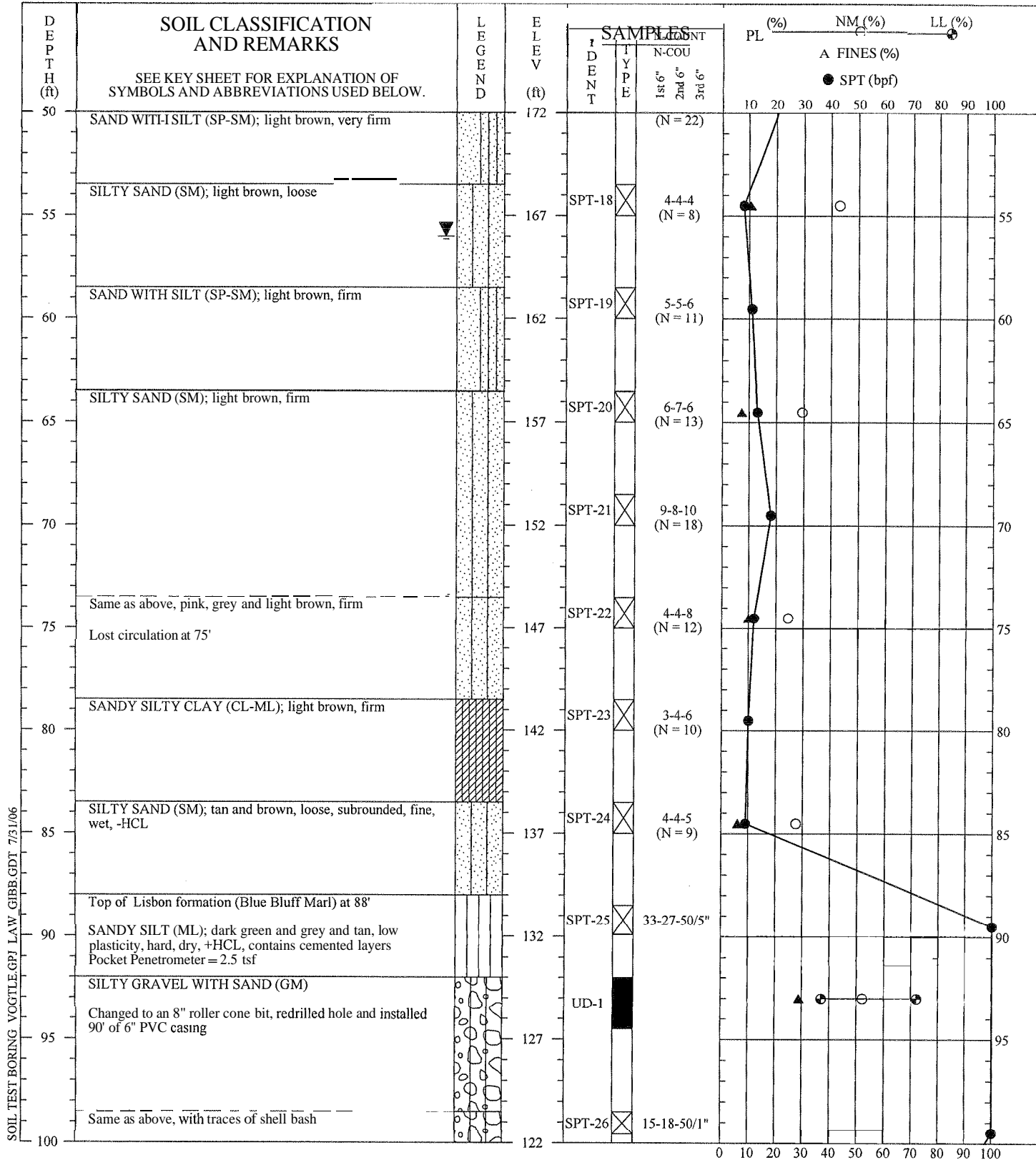
### SOIL TEST BORING RECORD

**BORING NO.:** B-1002  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 14, 2005  
**PROJECT NO.:** 6141-05-0227

PAGE 1 OF 6

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





DRILLER Robert Banks (MACTEC)  
EQUIPMENT CME-55 (Auto-Hammer)  
METHOD Rotary Wash with Mud  
HOLE DIA 4 inches  
REMARKS: Plant Grid: N 7998.52, E 6985.47 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

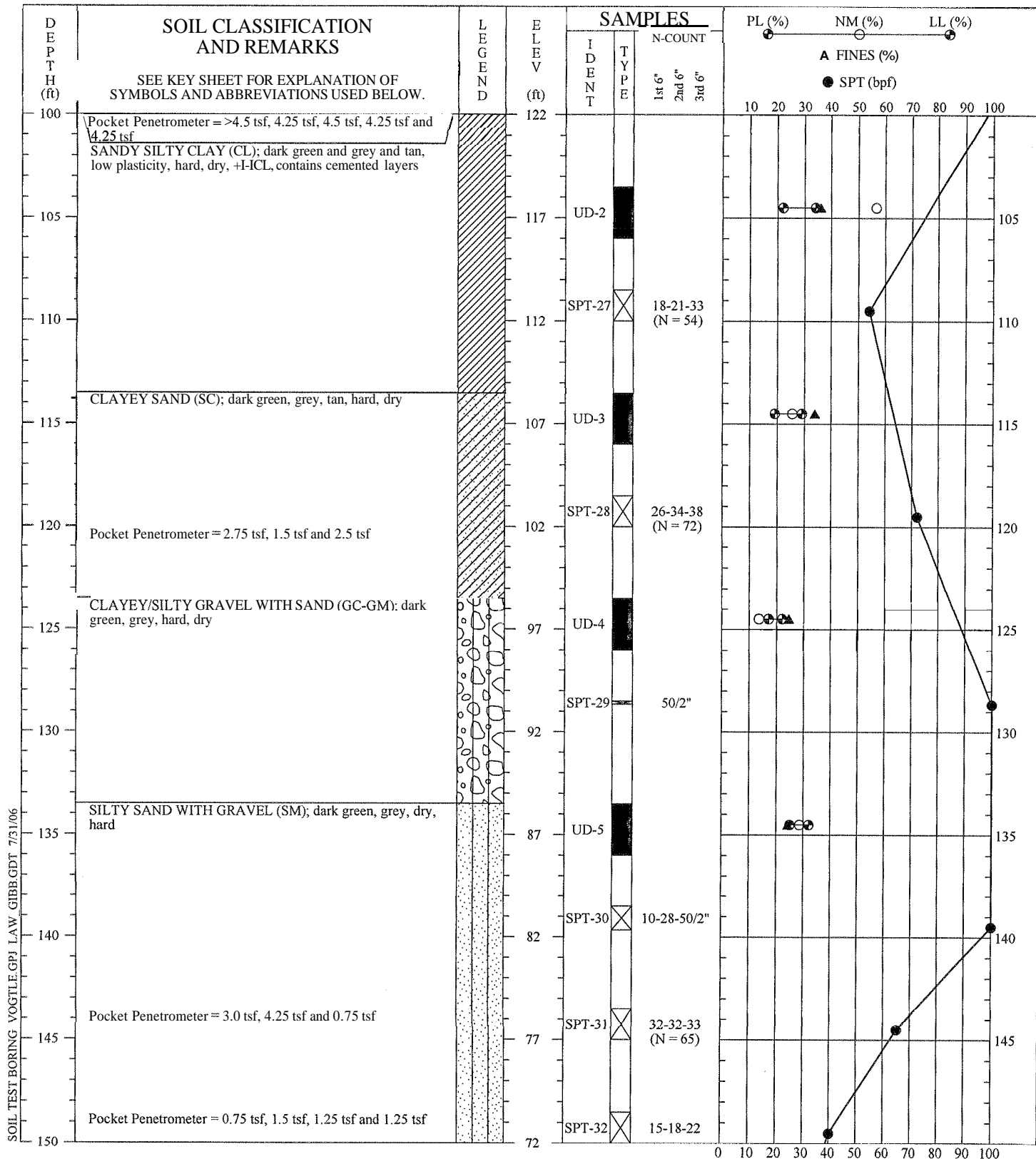
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BORING NO.: B-1002  
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LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
DRILLED: September 14, 2005  
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PAGE 2 OF 6



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SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
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 REMARKS: Plant Grid: N 7998.52, E 6985.47 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

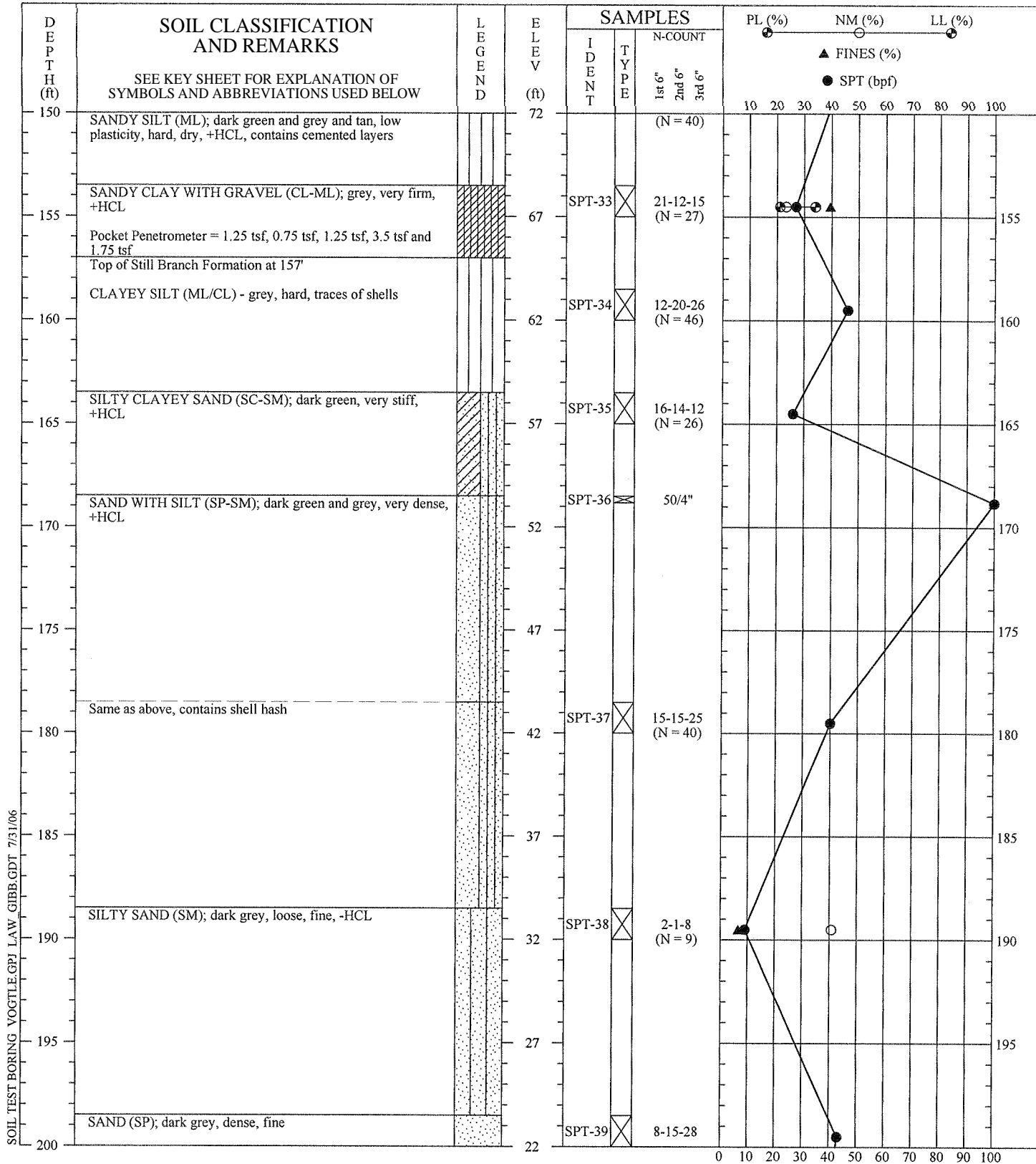
### SOIL TEST BORING RECORD

**BORING NO.:** B-1002  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 14, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Robert.Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7998.52, E 6985.47 +HCL denotes a visible reaction with Hydrochloric Acid (FICL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

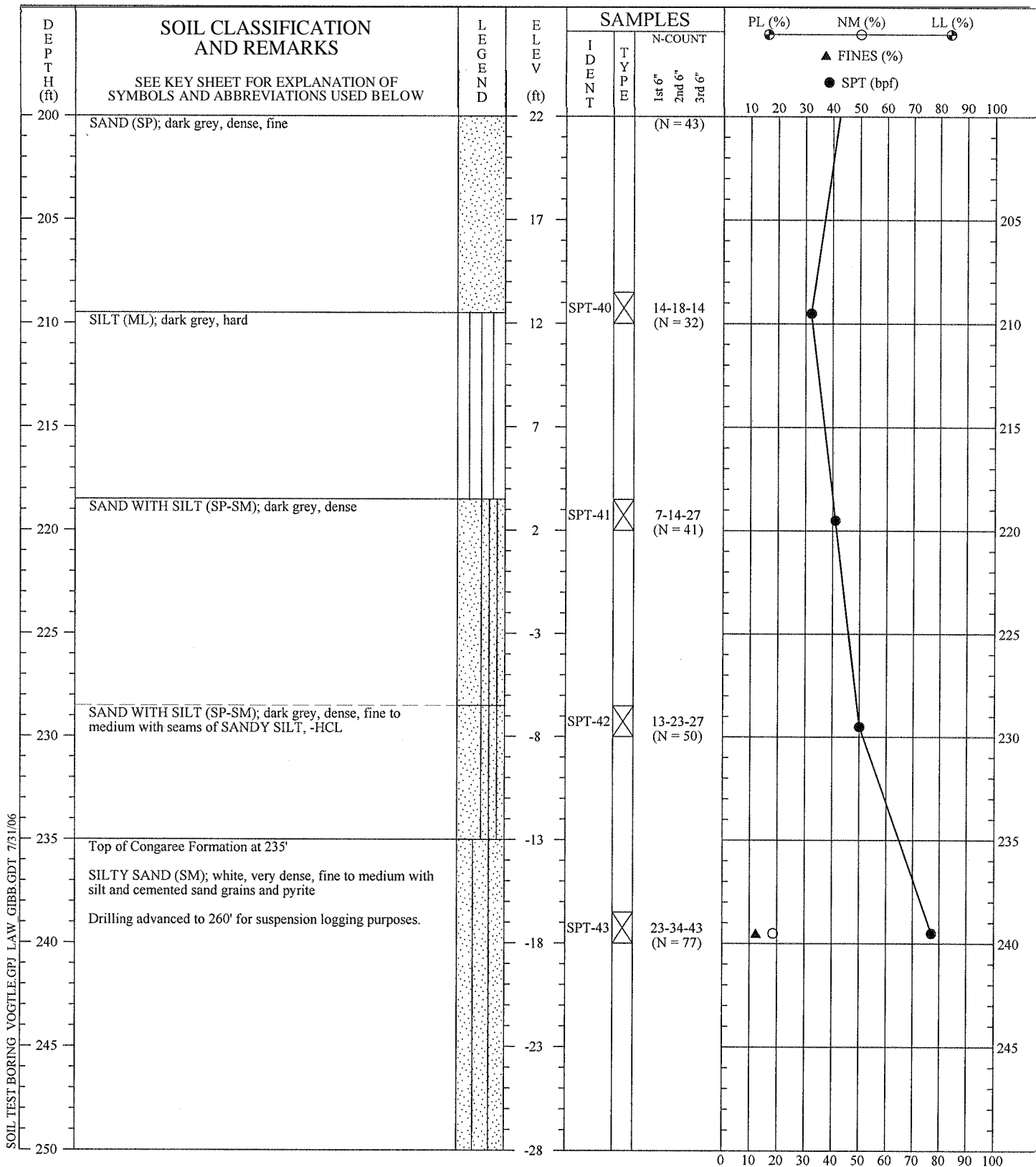
### SOIL TEST BORING RECORD

BORING NO.: B-1002  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 14, 2005  
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DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
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### SOIL TEST BORING RECORD

**BORING NO.:** B-1002

**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA

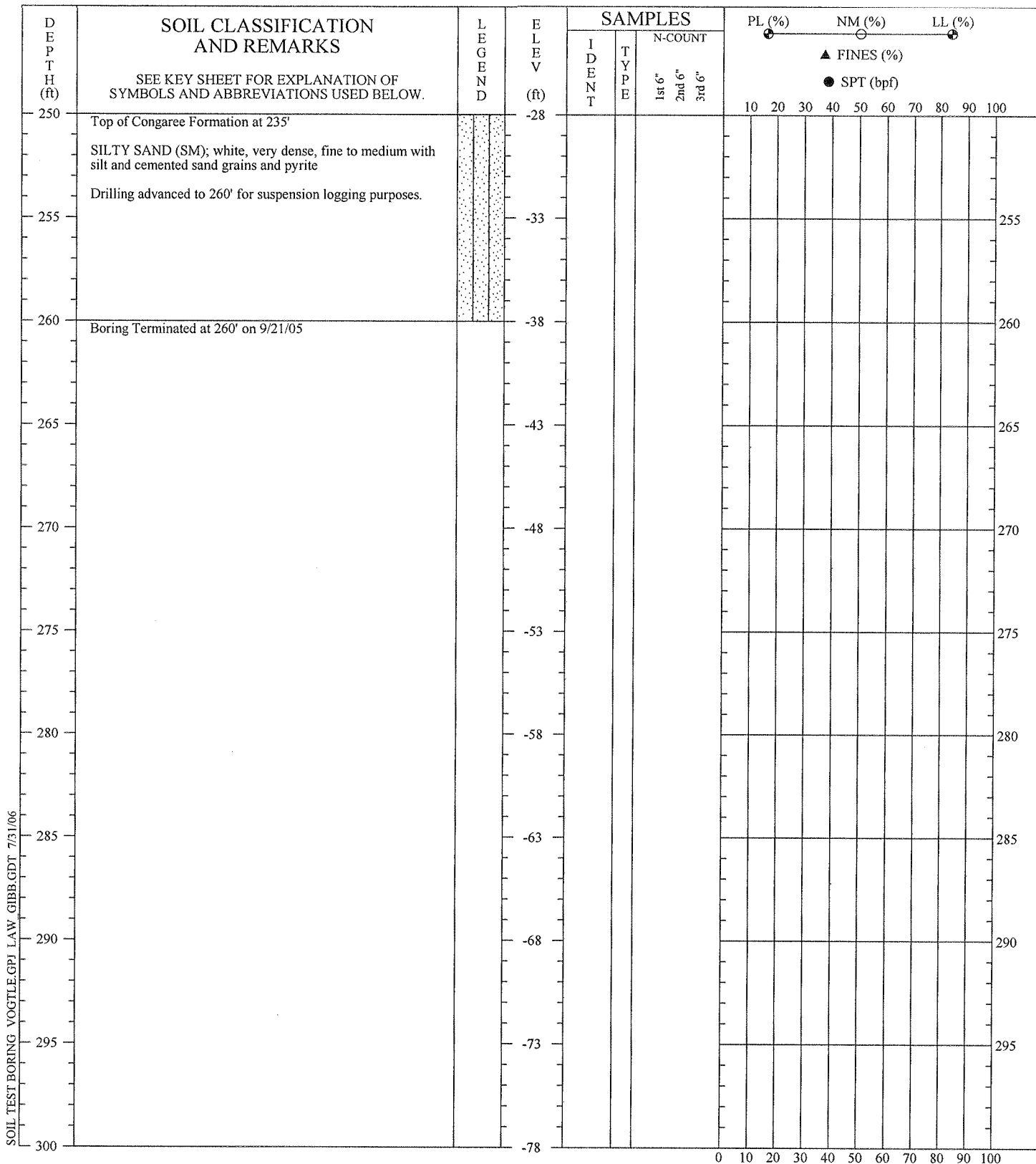
**DRILLED:** September 14, 2005

**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



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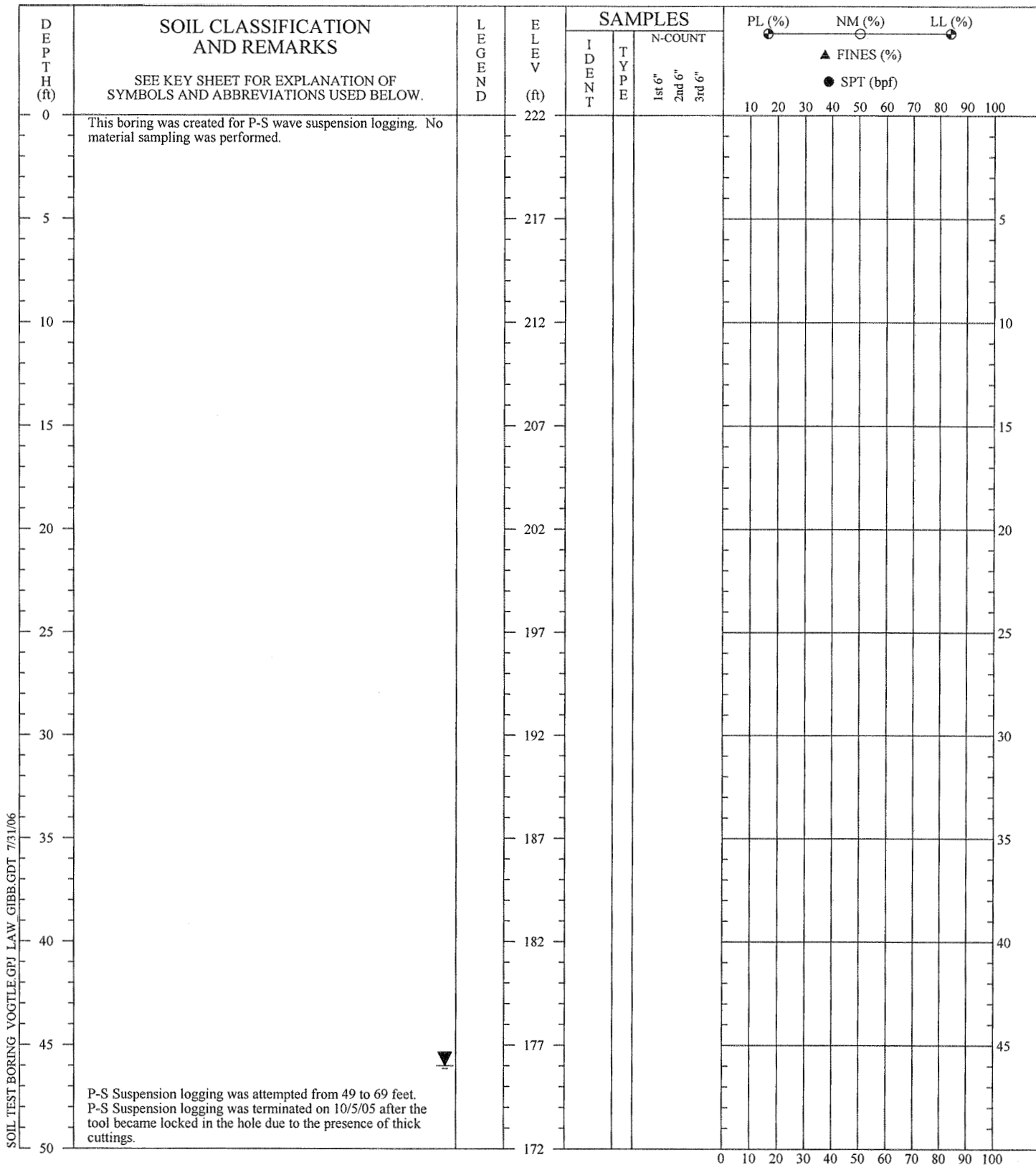
### SOIL TEST BORING RECORD

BORING NO.: B-1002  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 14, 2005  
 PROJECT NO.: 6141-05-0227

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DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7985.62, E 6986.07  
 Water depth represents depth of water and mud as measured on 10/5/05. Hole caved to 56 feet 10/5/05.

### SOIL TEST BORING RECORD

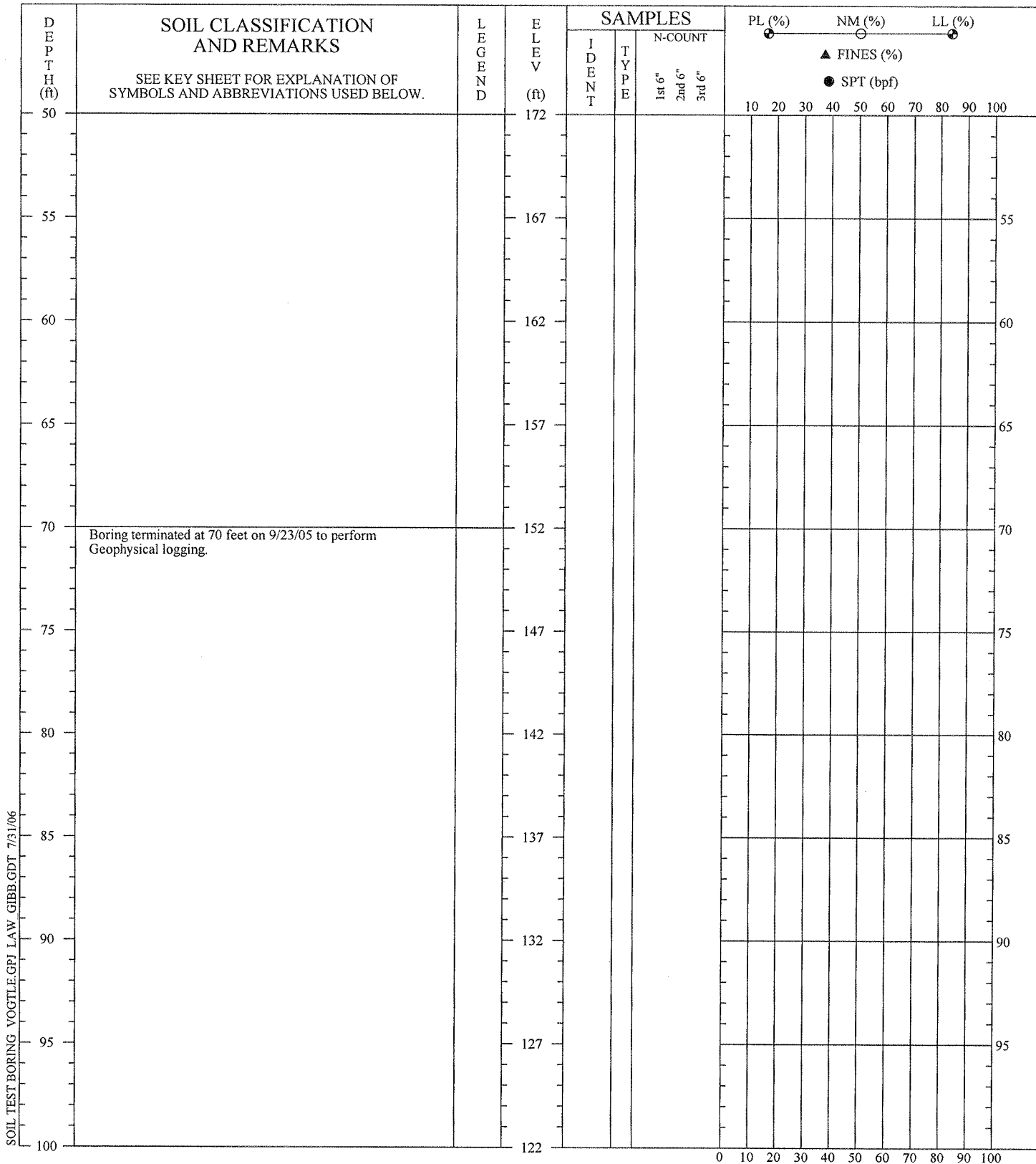
**BORING NO.:** B-1002A  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 23, 2005  
**PROJECT NO.:** 6141-05-0227

PAGE 1 OF 3



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SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7985.62, E 6986.07  
 Water depth represents depth of water and mud as  
 measured on 1015105. Hole caved to 56 feet 1015105.

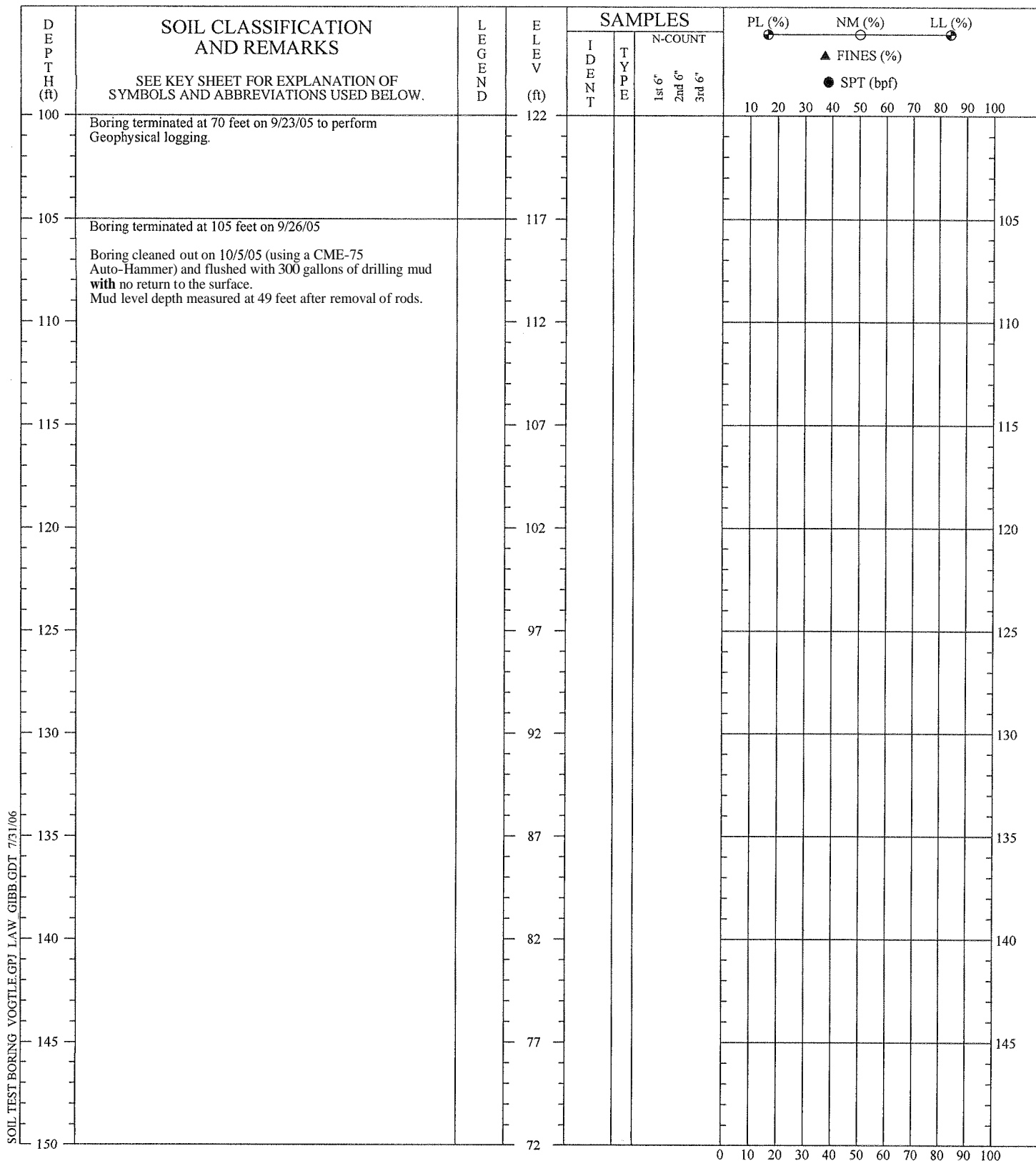
### SOIL TEST BORING RECORD

**BORING NO.:** B-1002A  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 23, 2005  
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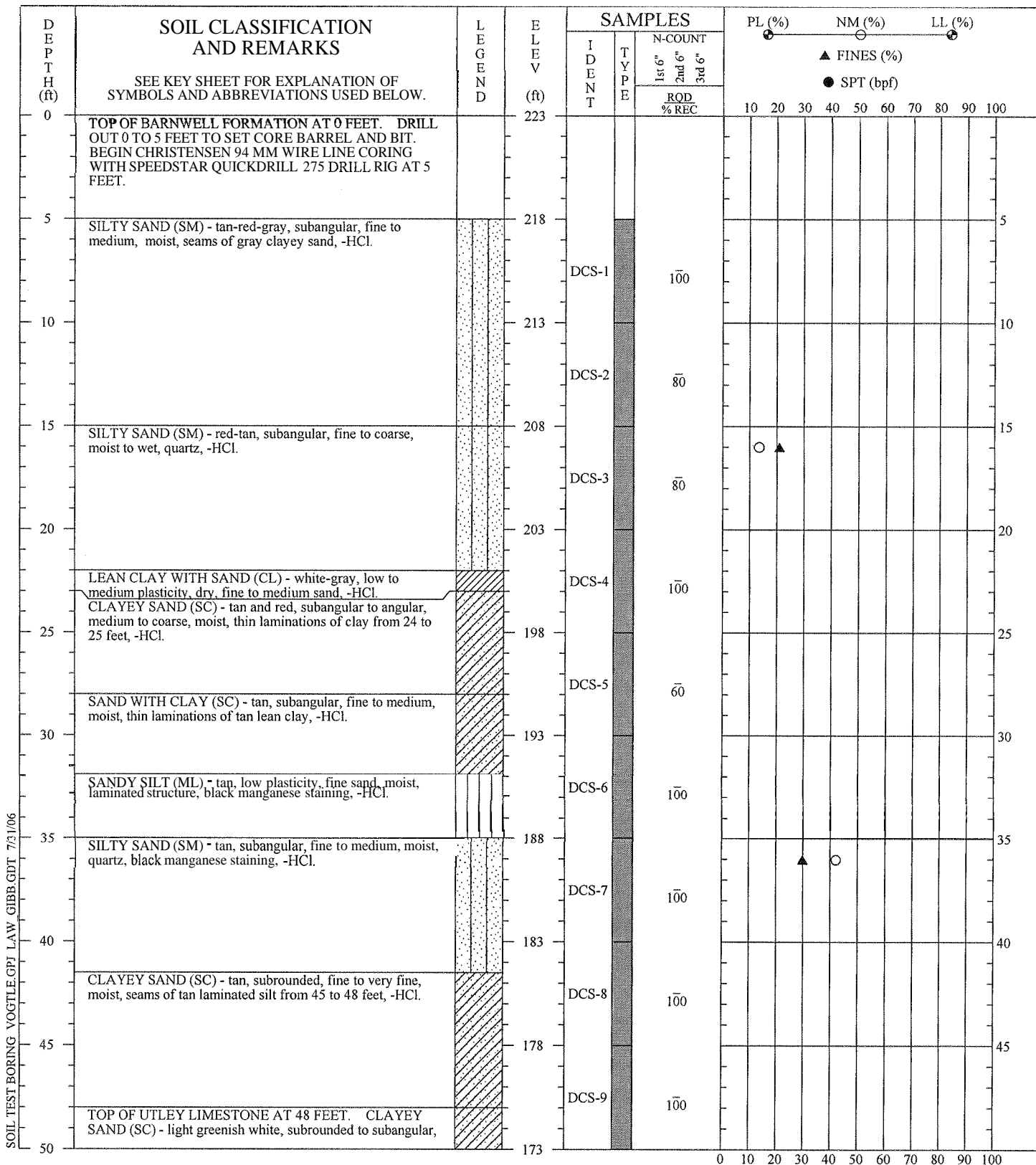
SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

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 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
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 REMARKS: Plant Grid: N 7985.62, E 6986.07  
 Water depth represents depth of water and mud as measured on 10/5/05. Hole caved to 56 feet 10/5/05.

SOIL TEST BORING RECORD	
<b>BORING NO.:</b>	B-1002A
<b>PROJECT:</b>	ALWR - ESP
<b>LOCATION:</b>	PLANT VOGTLE, BURKE COUNTY, GA
<b>DRILLED:</b>	September 23, 2005
<b>PROJECT NO.:</b>	6141-05-0227
<b>PAGE 3 OF 3</b>	

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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

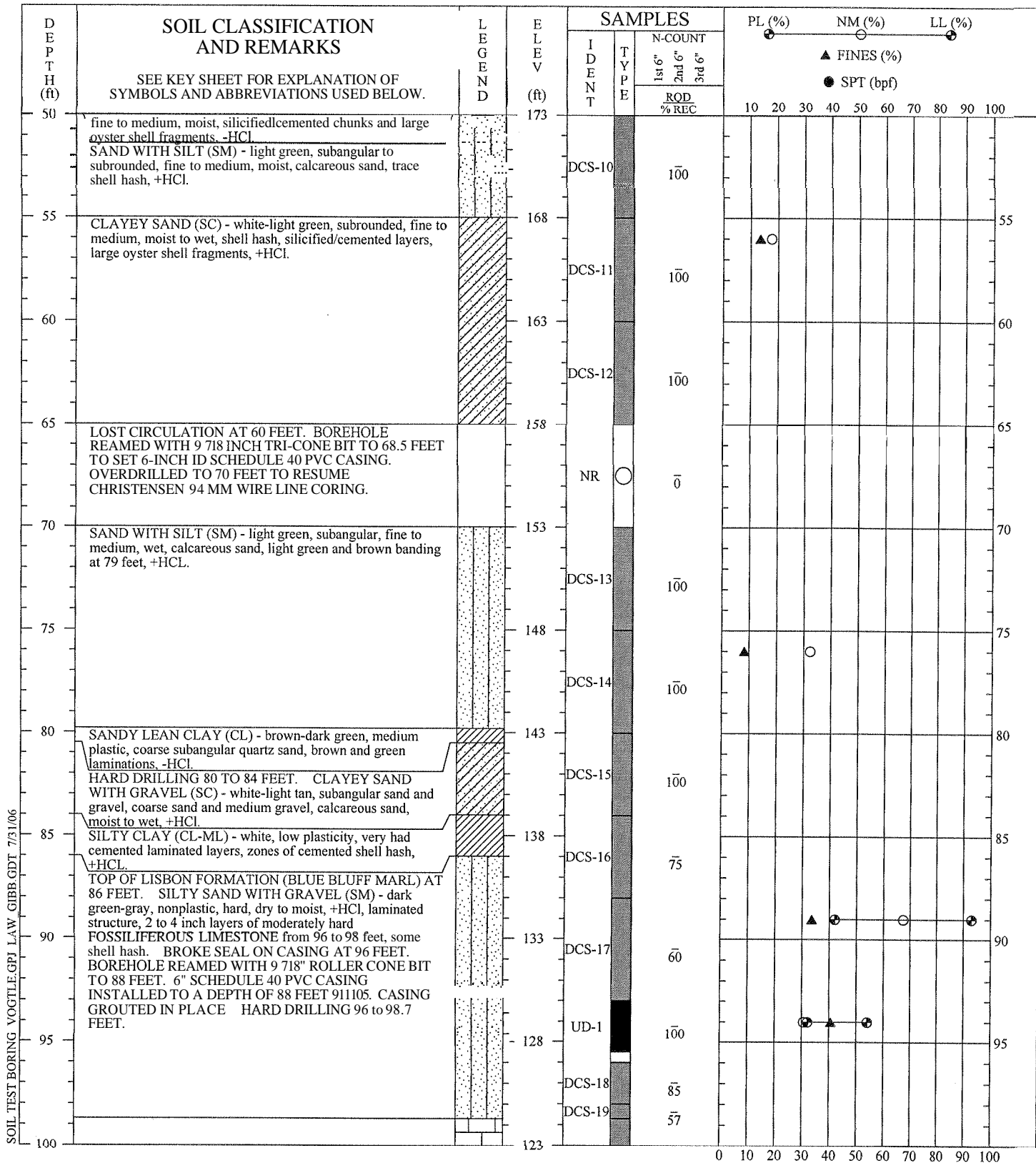
### SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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**MACTEC**

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 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
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 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

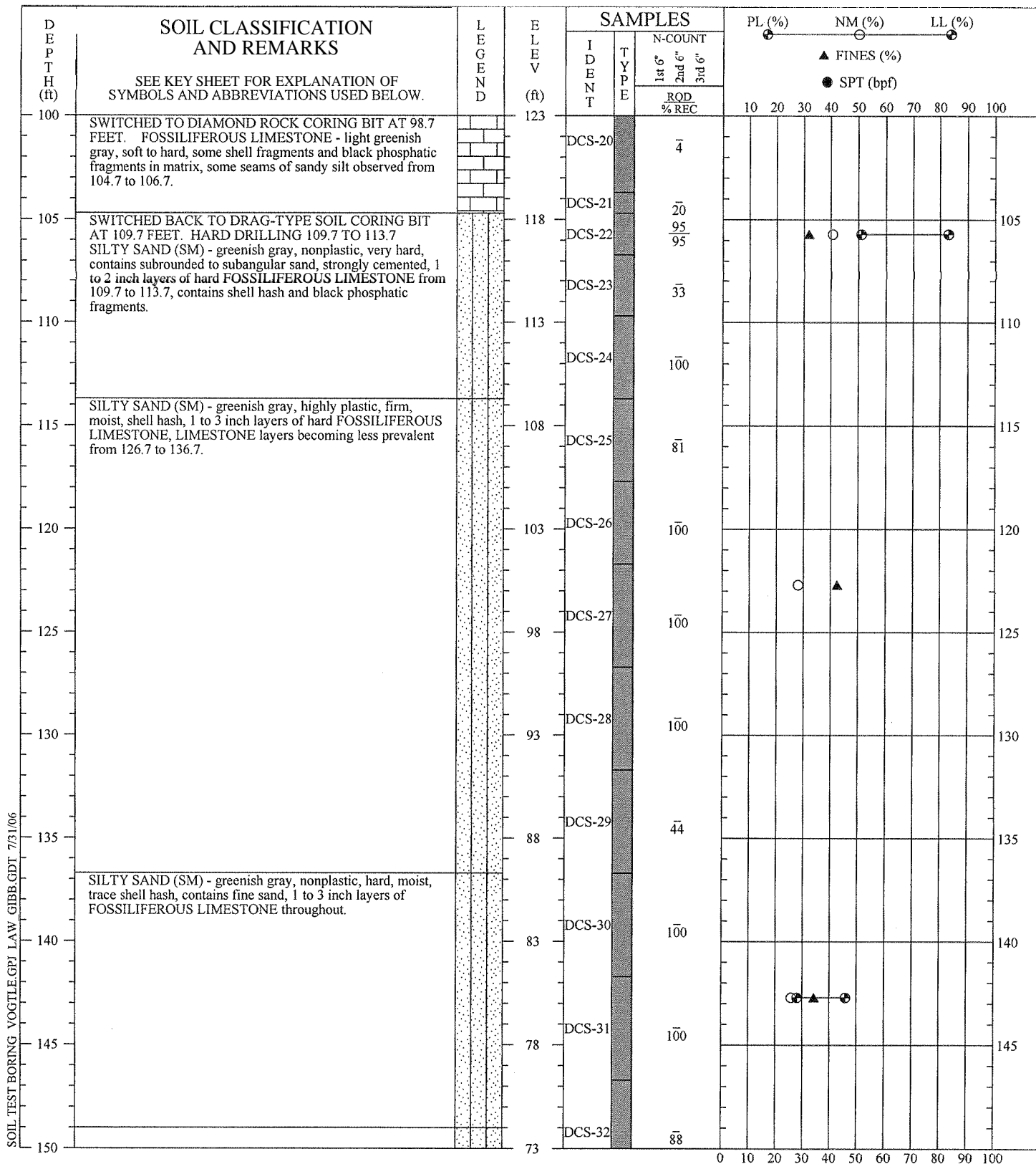
### SOIL TEST BORING RECORD

BORING NO.: B-1003  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 1, 2005  
 PROJECT NO.: 6141-05-0227

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**MACTEC**

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 REMARKS: Plant Grid: N 7974.36, E **7889.85**  
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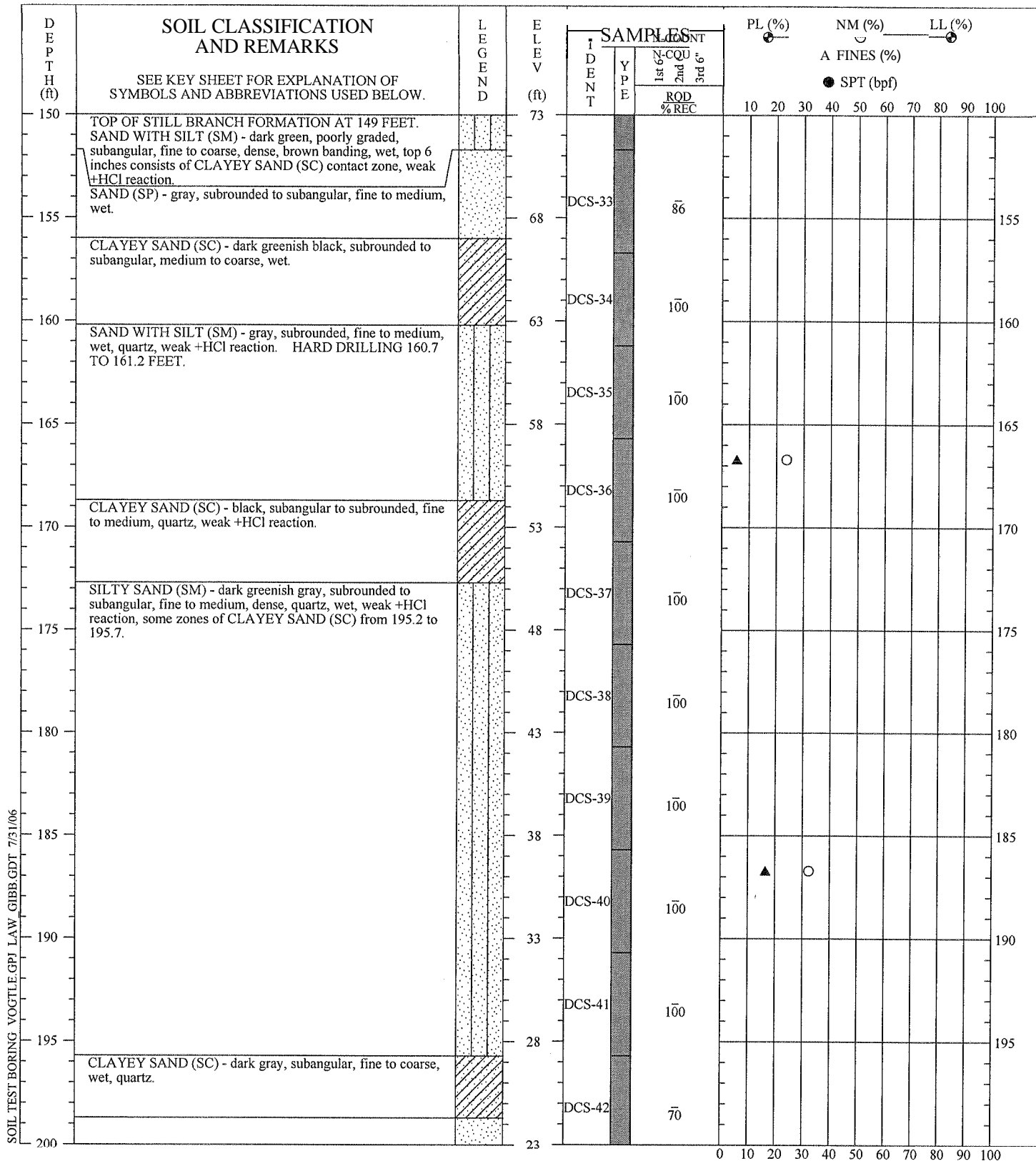
### SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: GRAVES DRILLING (STEVE RODGERS)  
EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
METHOD: Christensen Wire Line  
HOLE DIA.: 6 inches  
REMARKS: Plant Grid: N 4974.36, E 7889.85  
+HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

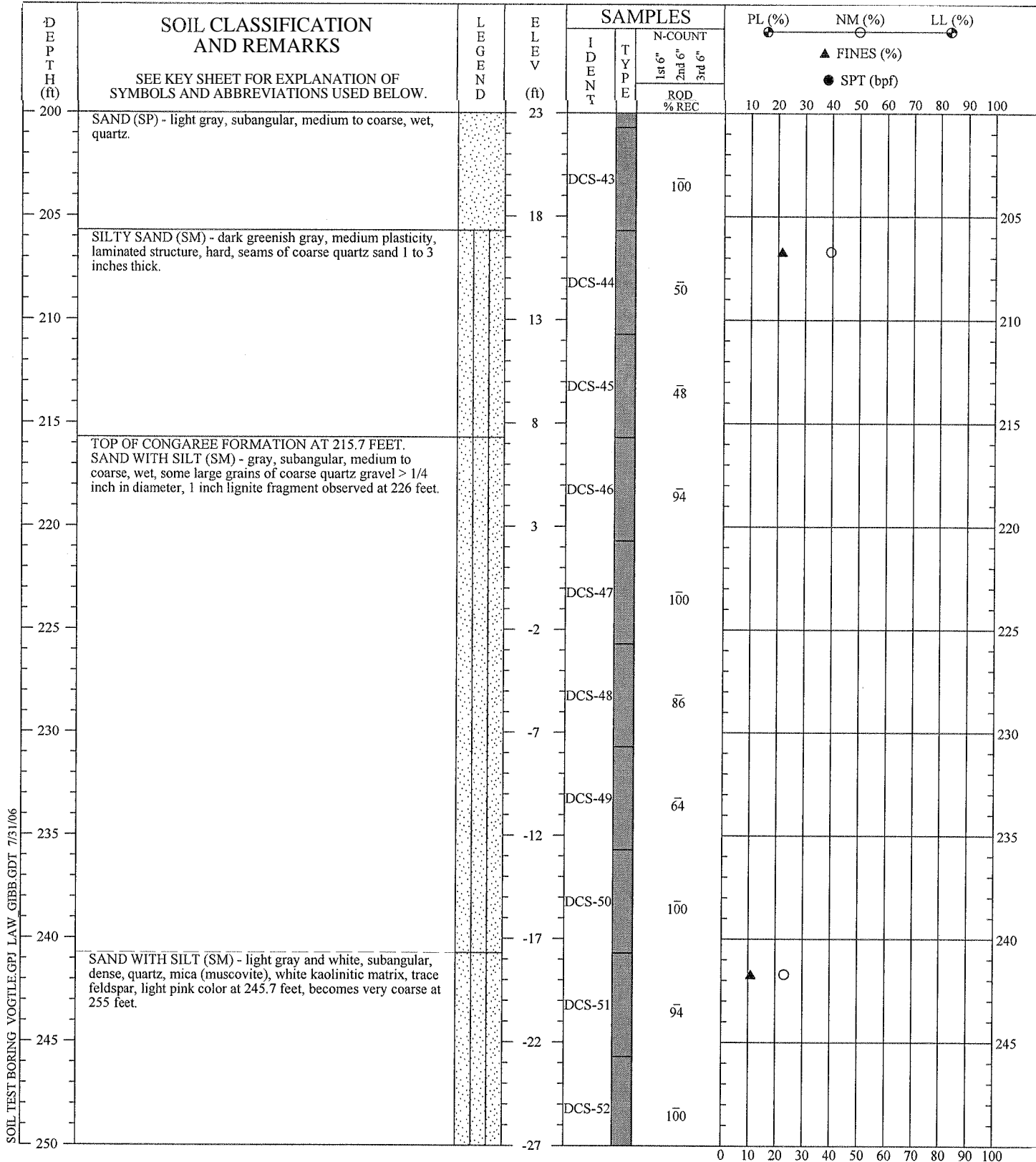
### SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, CA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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**MACTEC**

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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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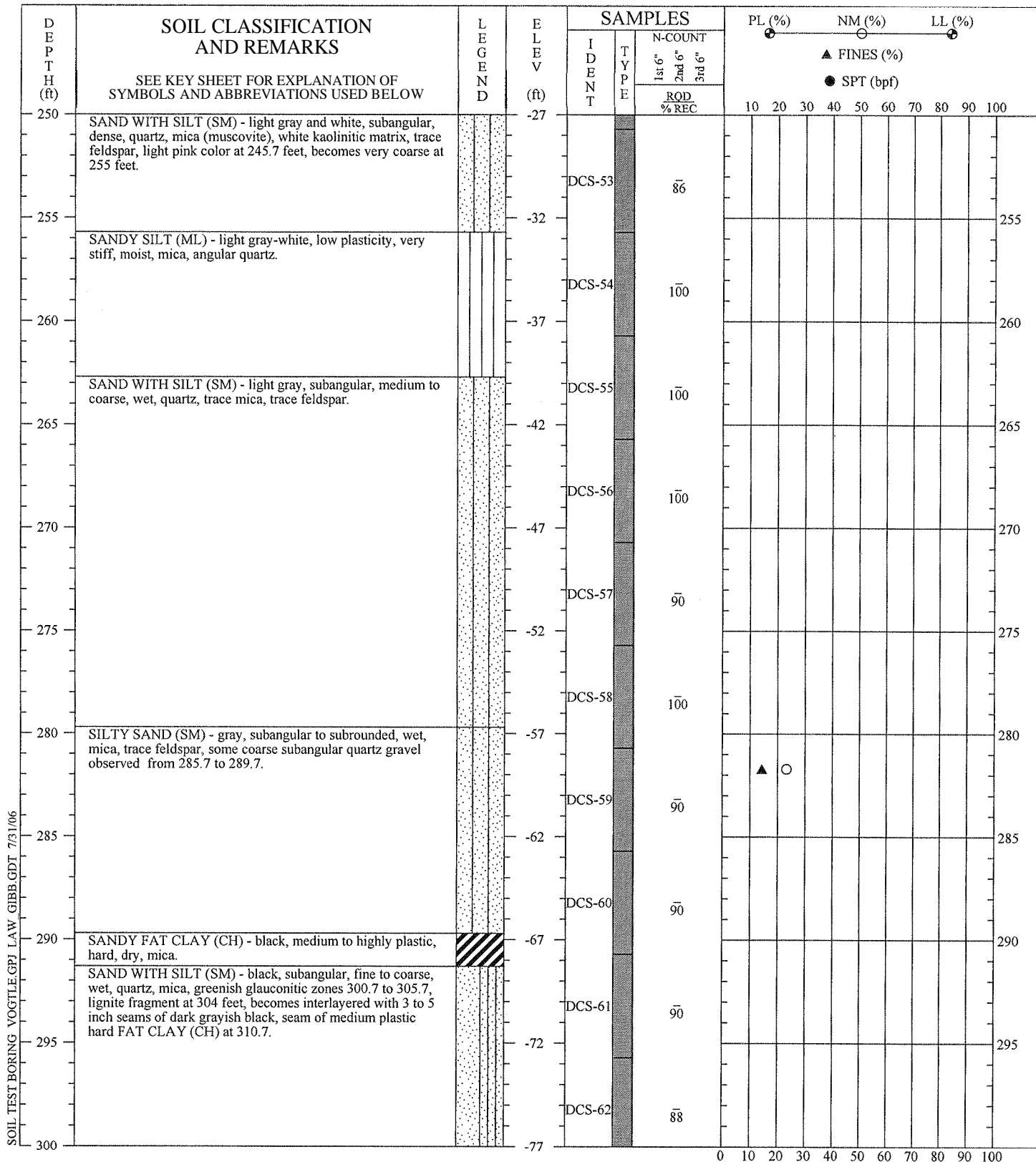
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**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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### SOIL TEST BORING RECORD

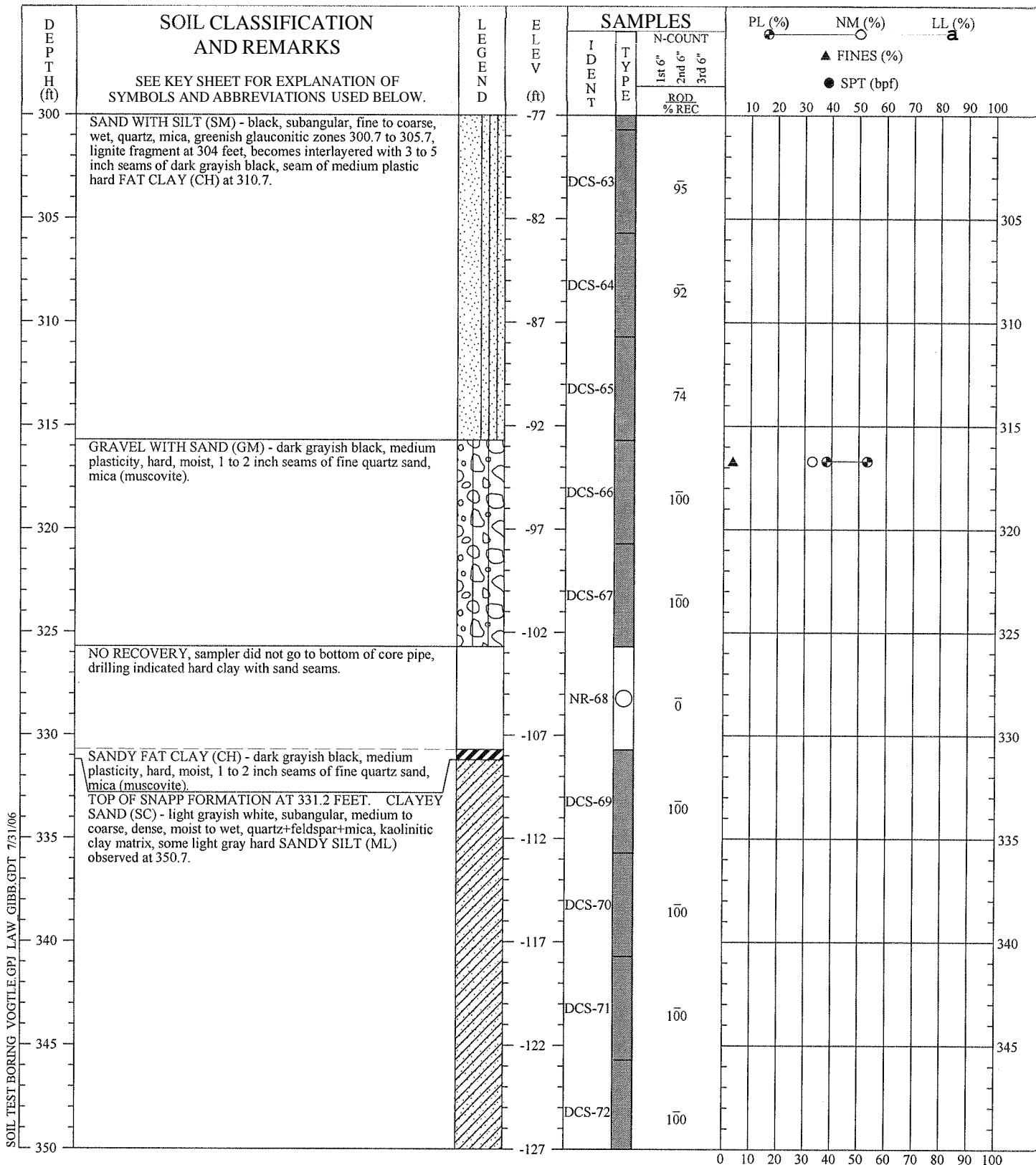
BORING NO.: B-1003  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 1, 2005  
 PROJECT NO.: 6141-05-0227

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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
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METHOD: Christensen Wire I i  
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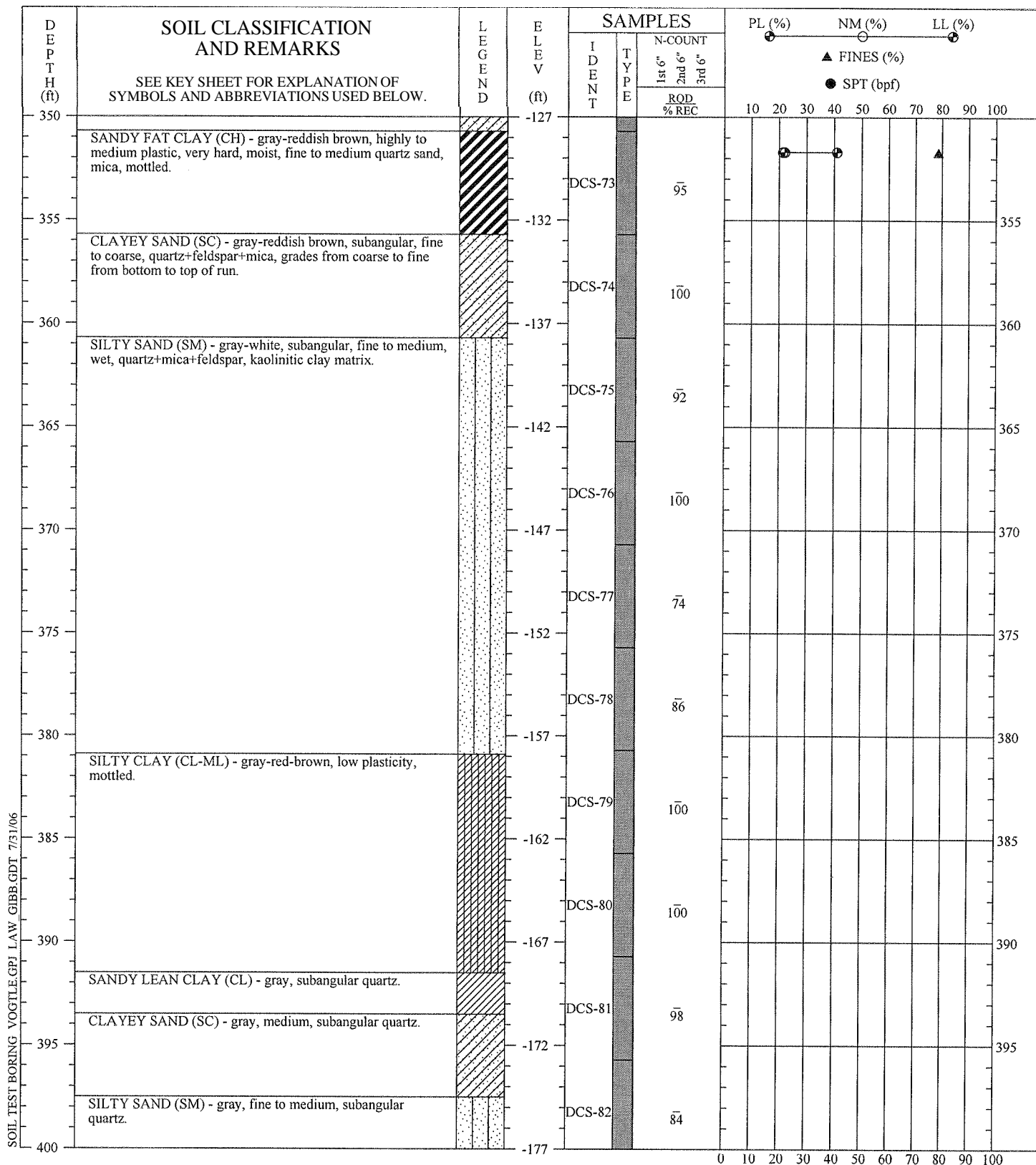
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DRILLER:	GRAVES DRILLING (STEVE RODGERS)
EQUIPMENT:	Speedstar Quickdrill 275/Gardner Denver 15W
METHOD	Christensen Wire Line
HOLE DIA.:	6 inches
REMARKS:	Plant Grid: N 7974.36, E 7889.85 +HCL denotes a visible reaction with Hydrochloric Acid (HCL). -HCL denotes no visible reaction with HCL

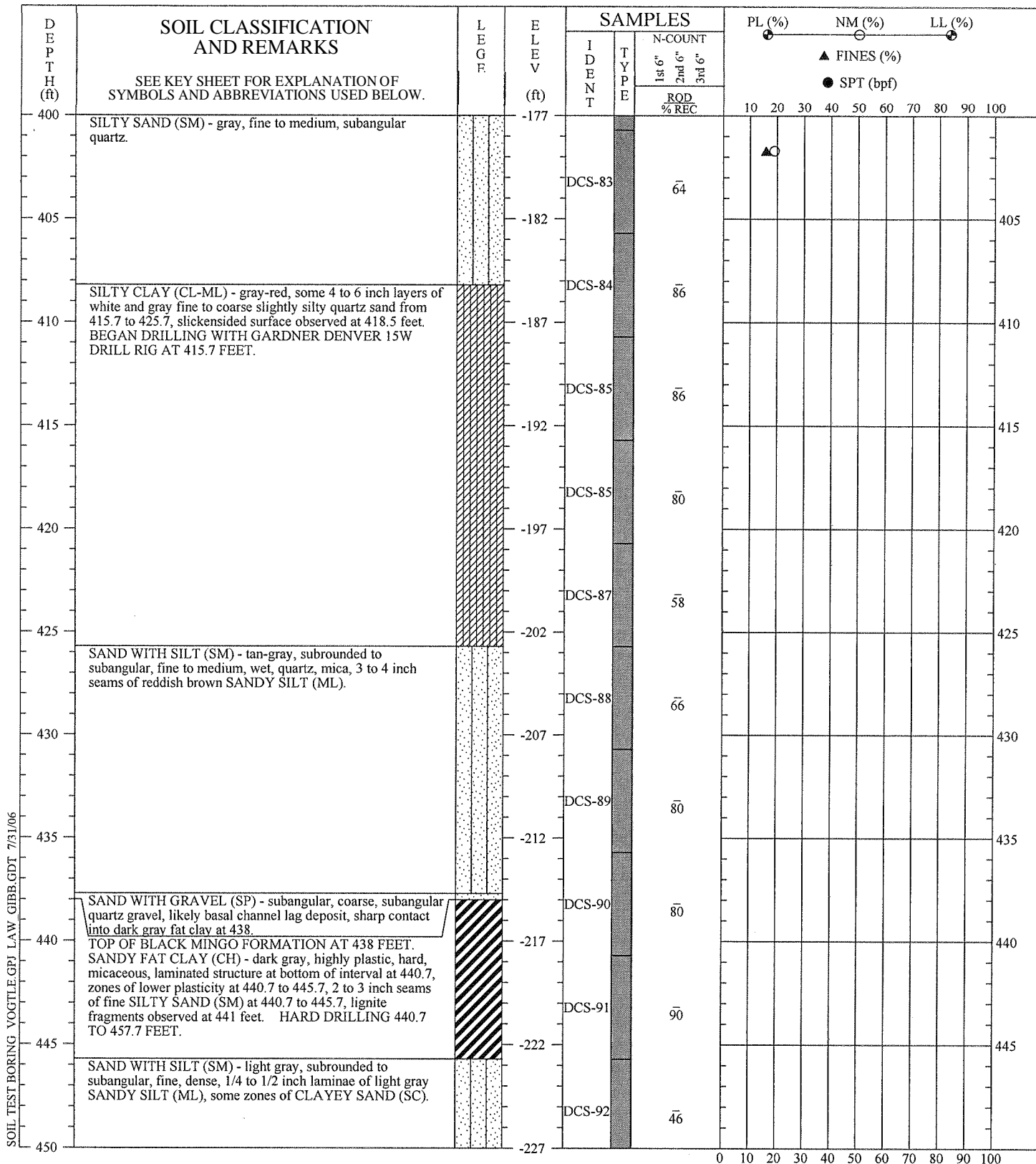
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**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227 **PAGE 8 OF**

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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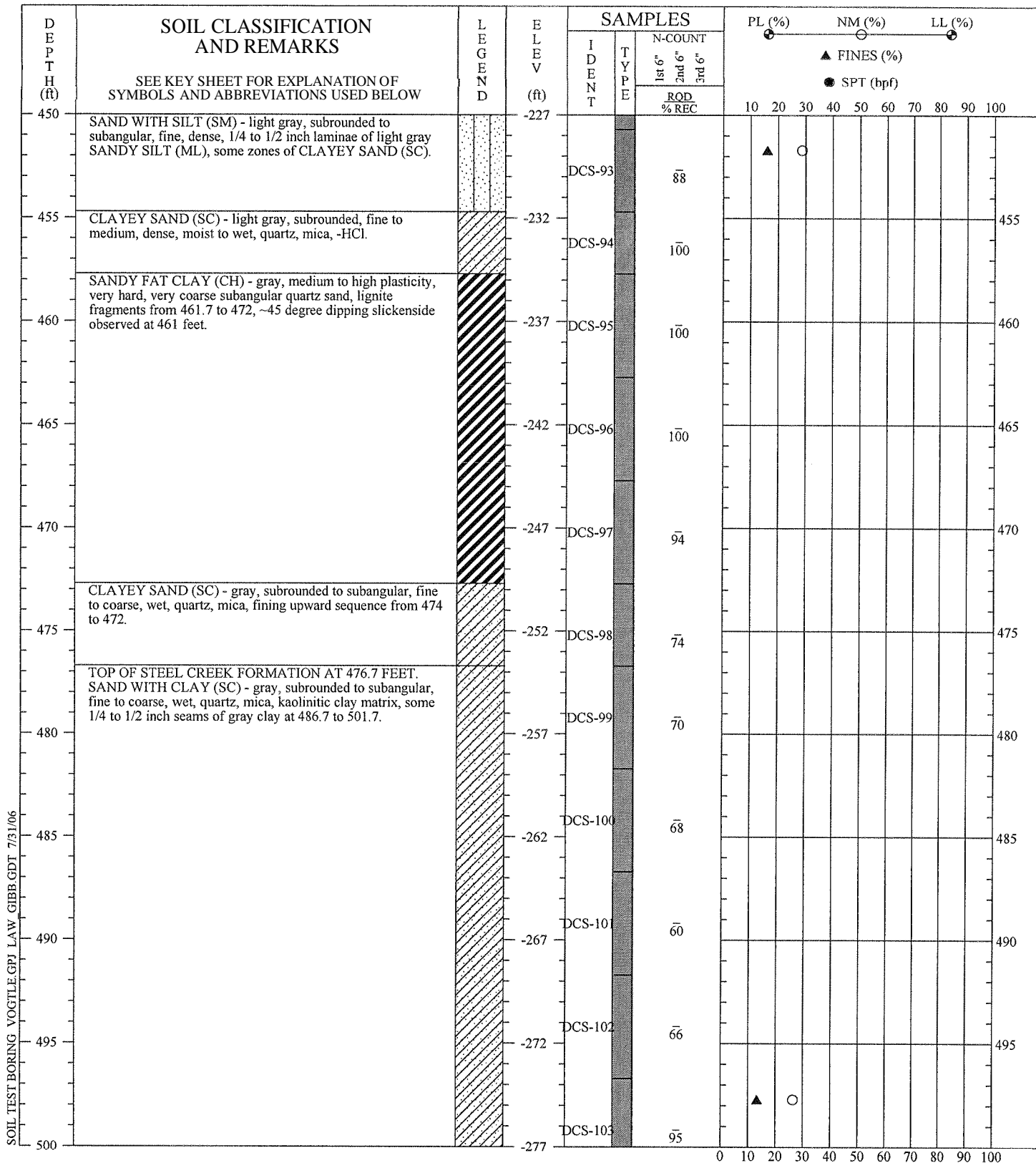
### SOIL TEST BORING RECORD

BORING NO.: B-1003  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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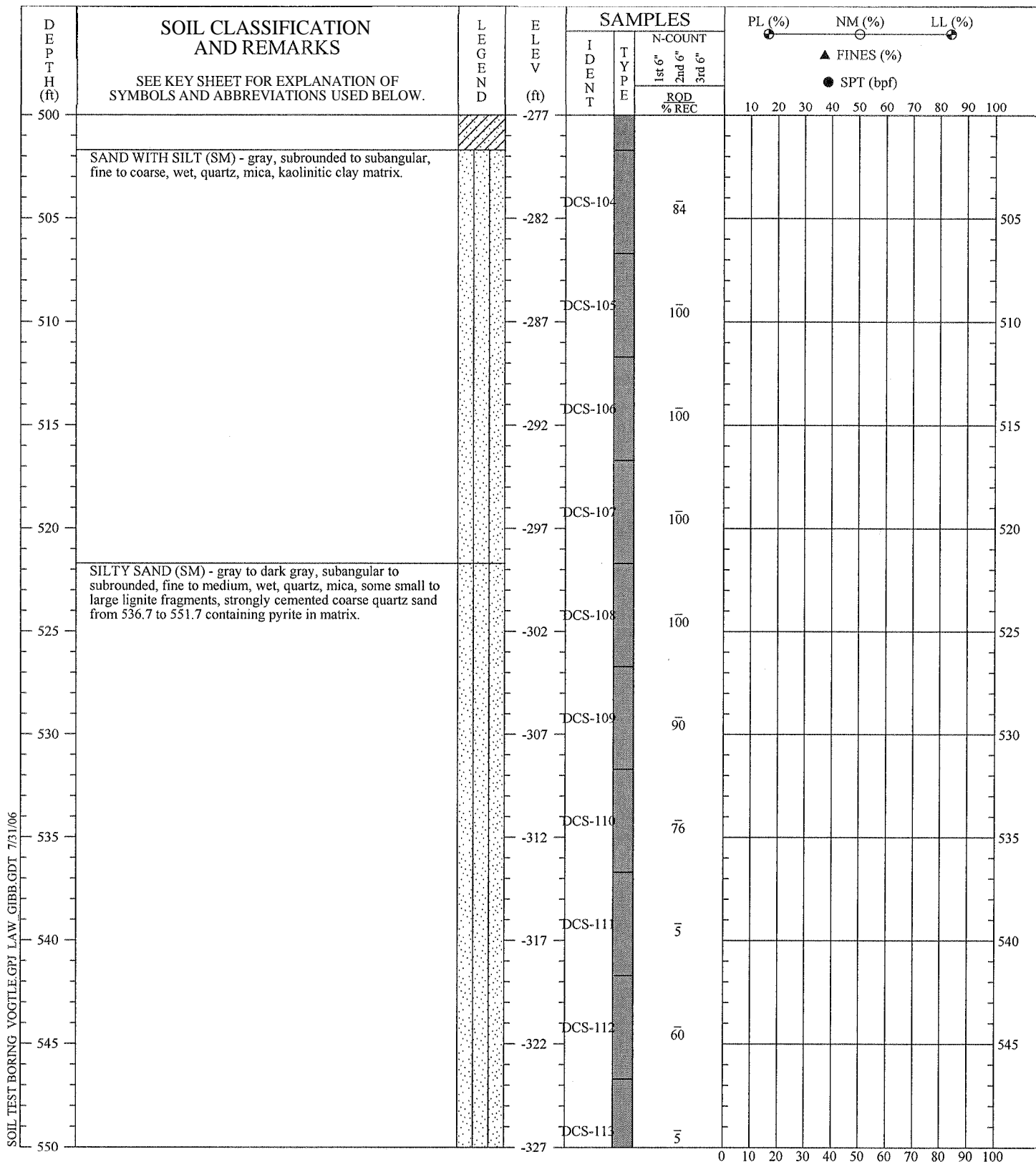
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BORING NO.: B-1003  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
METHOD: Christensen Wire Line  
HOLE DIA.: 6 inches  
REMARKS: Plant Grid: N 7974.36, E 7889.85  
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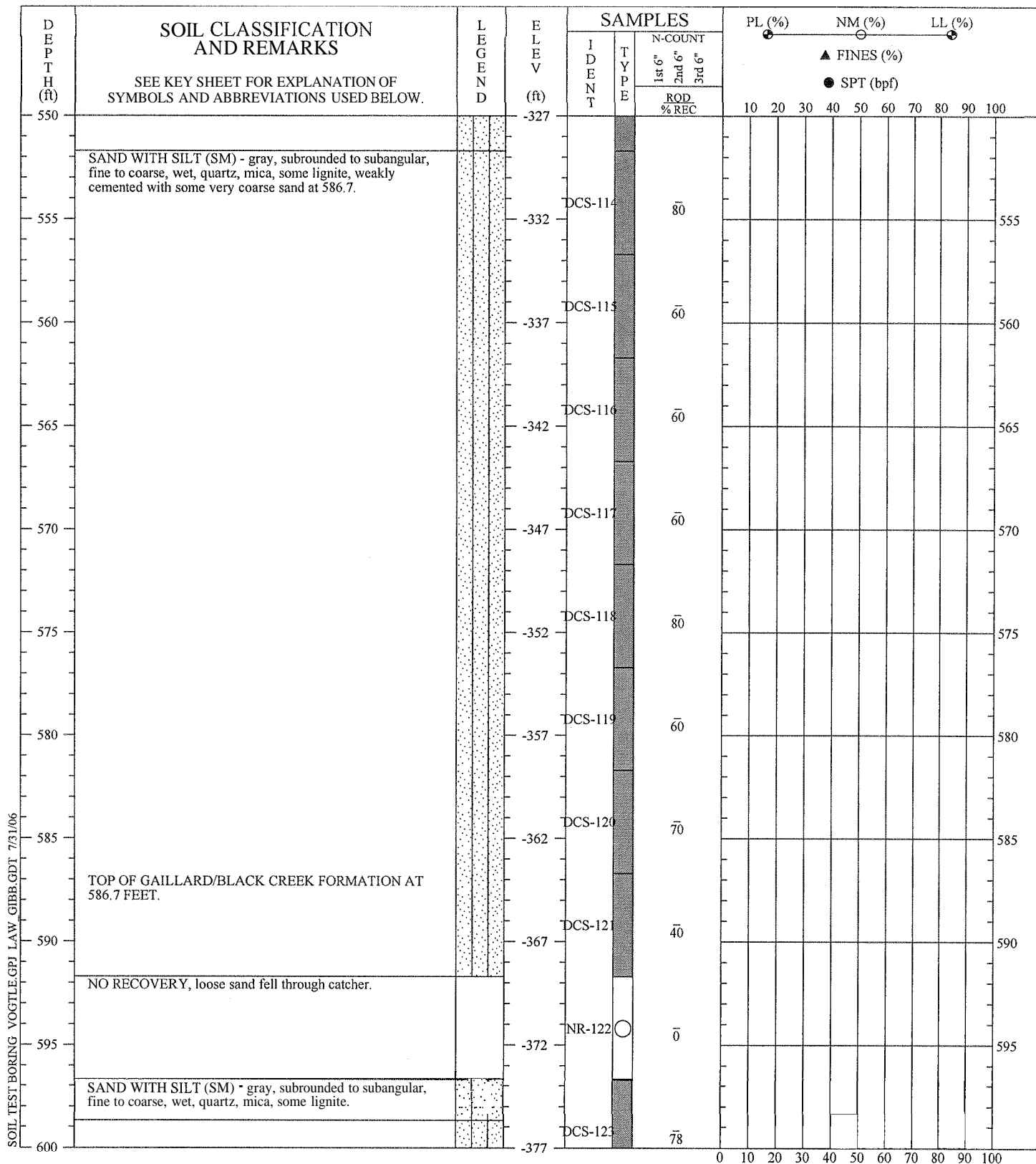
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**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
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**DRILLER:** RAVES DRILLING (STEVE RODGERS)  
**EQUIPMENT:** Speedstar Quickdrill 275/Gardner Denver 15W  
**METHOD:** Christensen Wire Line  
**HOLE DIA.:** 6 inches  
**REMARKS:** Plant Grid: N 7974.36, E 7889.85  
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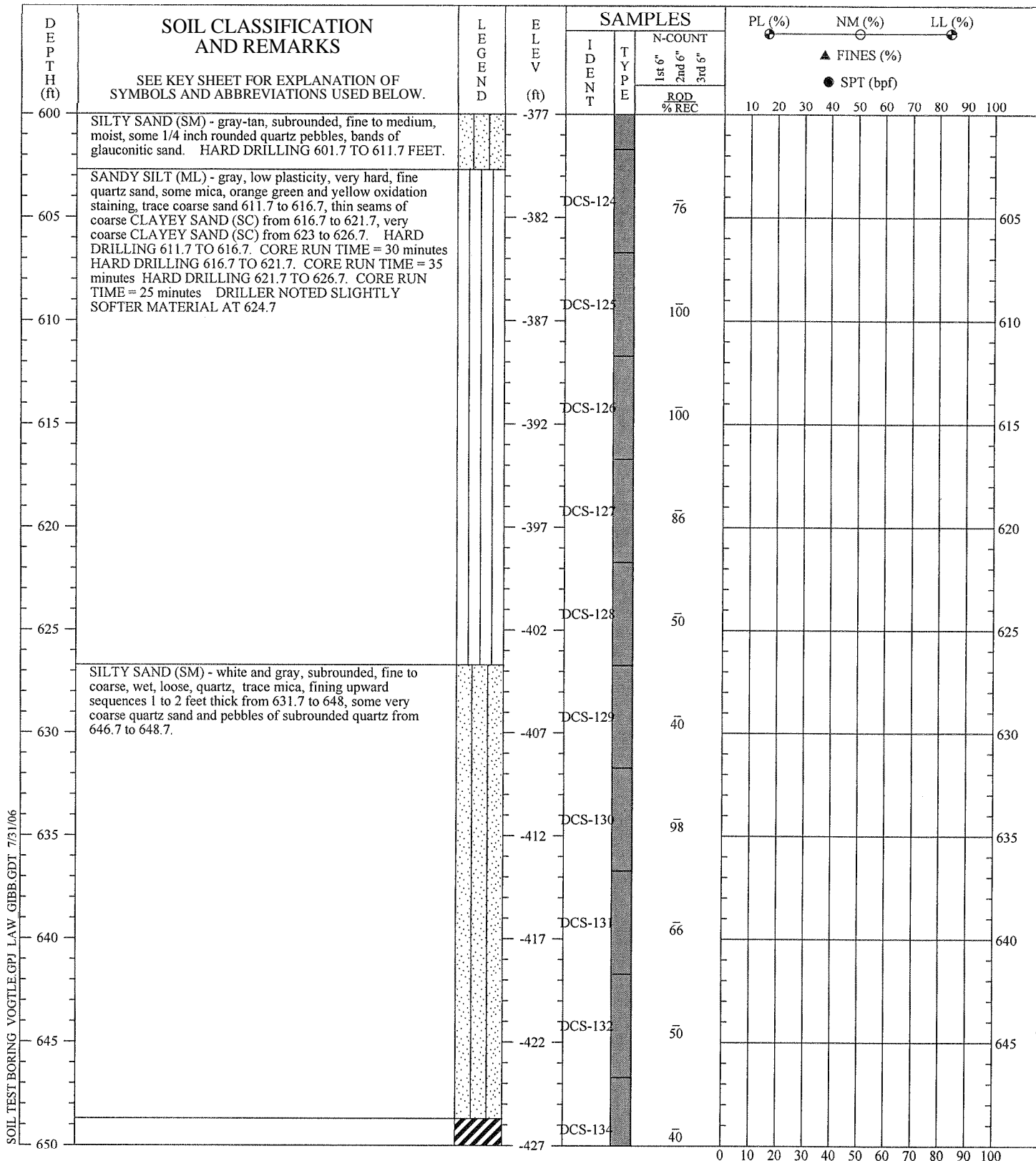
### SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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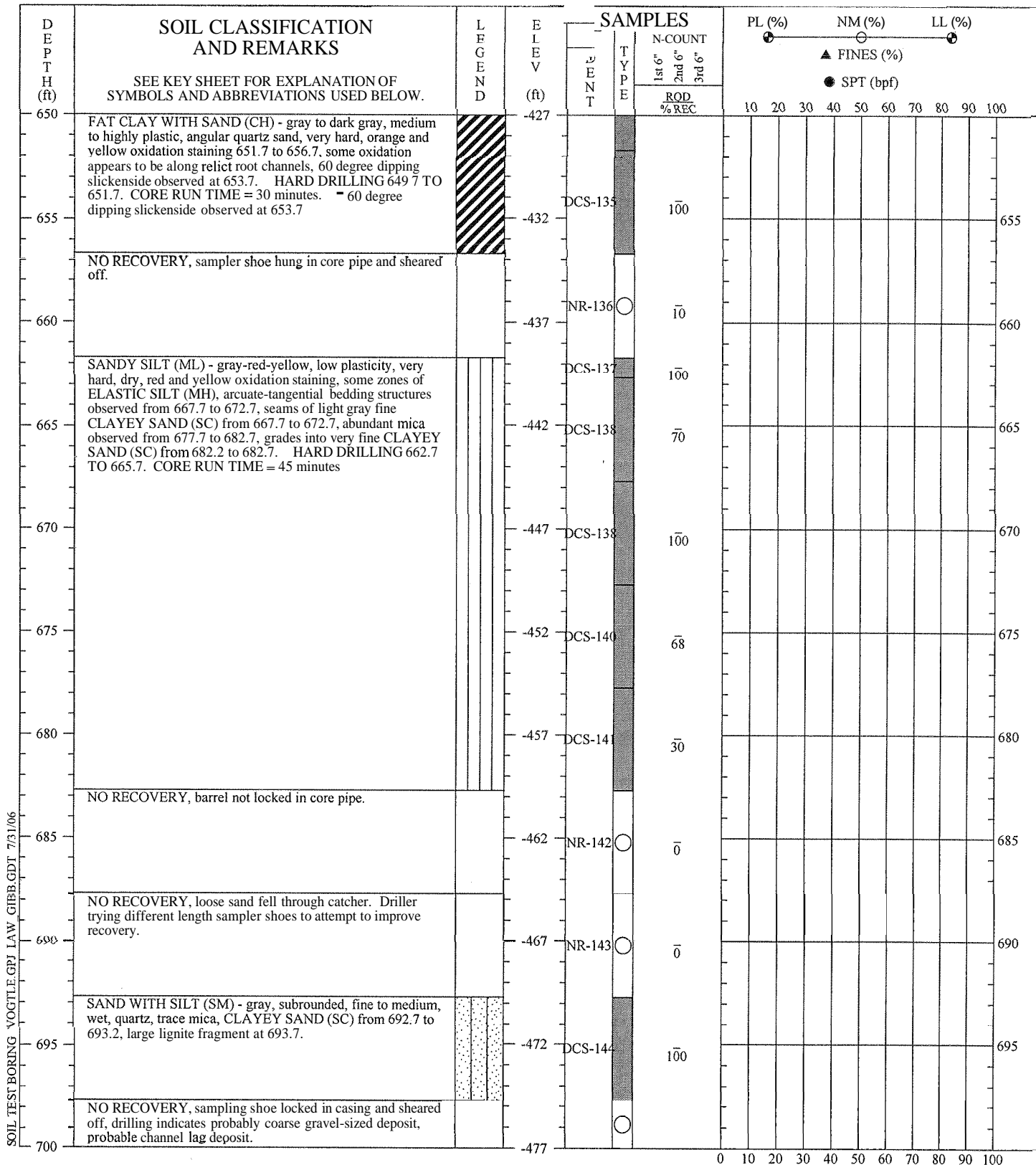
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**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
METHOD: Christensen Wire Line  
HOLE DIA.: 6 inches  
REMARKS: Plant Grid: N 7974.36, E 7889.85  
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### SOIL TEST BORING RECORD

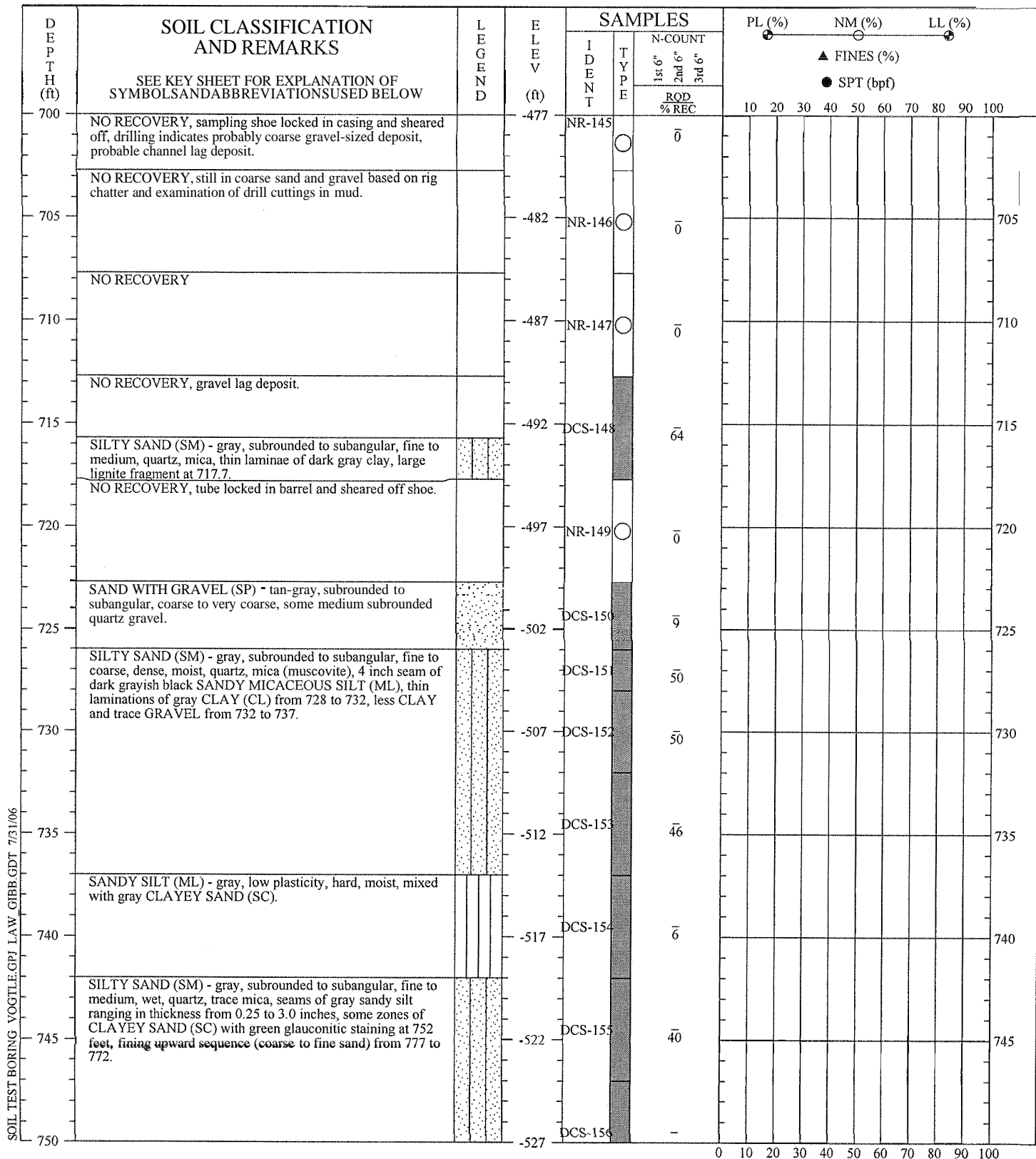
BORING NO.: B-1003  
PROJECT: ALWR - ESP  
LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
DRILLED: September 1, 2005  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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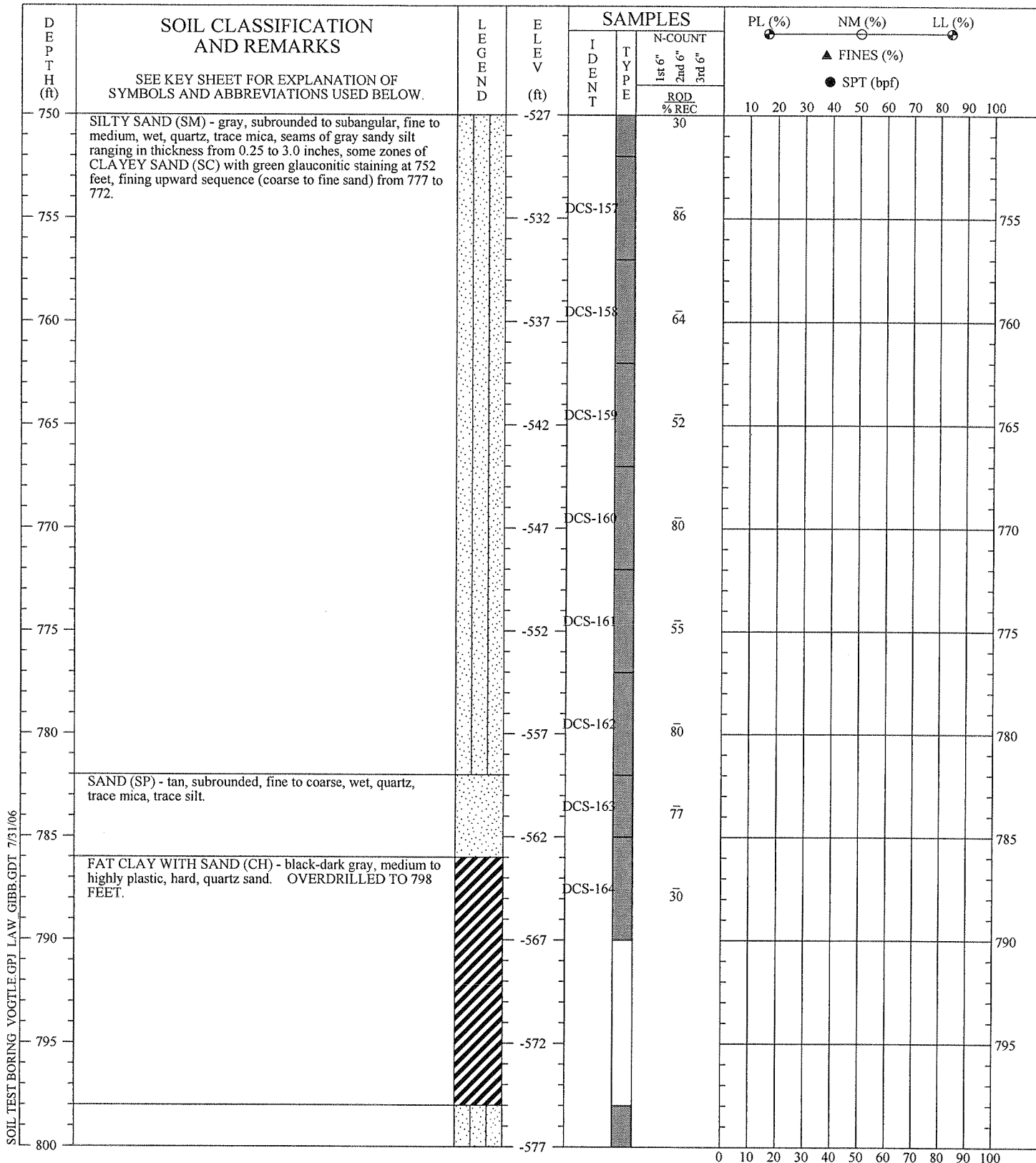
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 PROJECT: ALWR - ESP  
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
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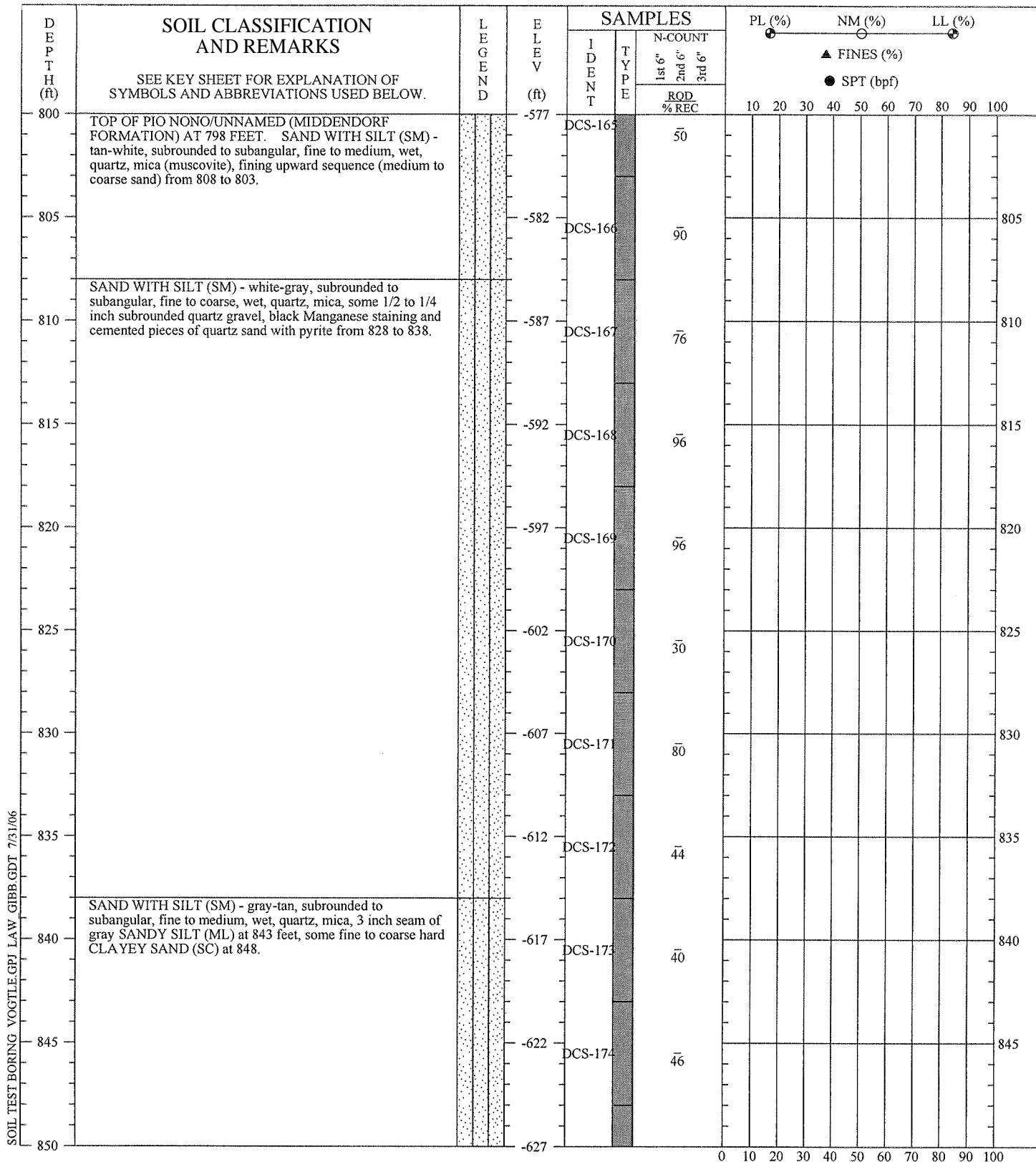
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**PROJECT:** ALWR - ESP  
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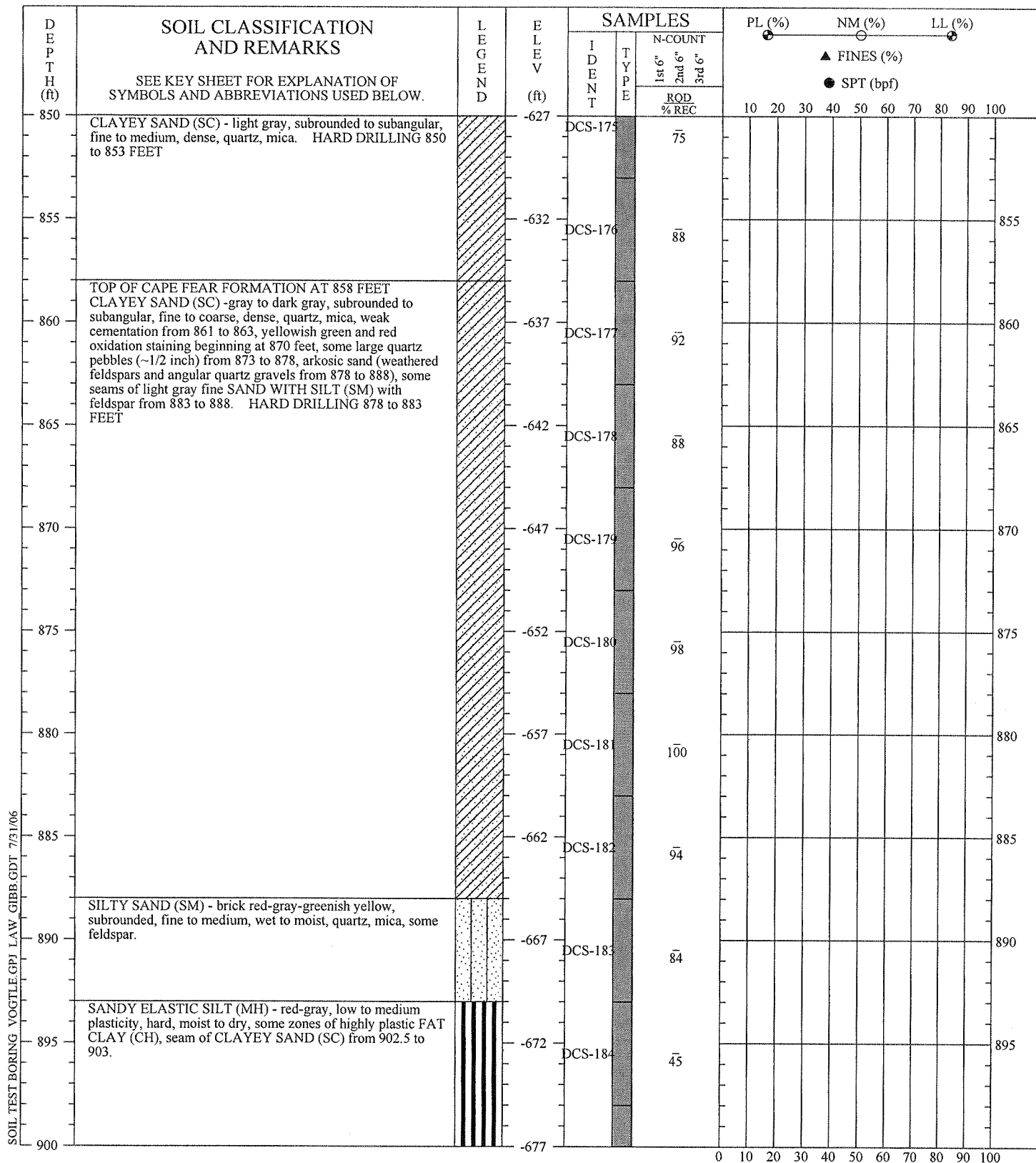
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DRILLER: GRAVES DRILLING (EVE RODGERS)  
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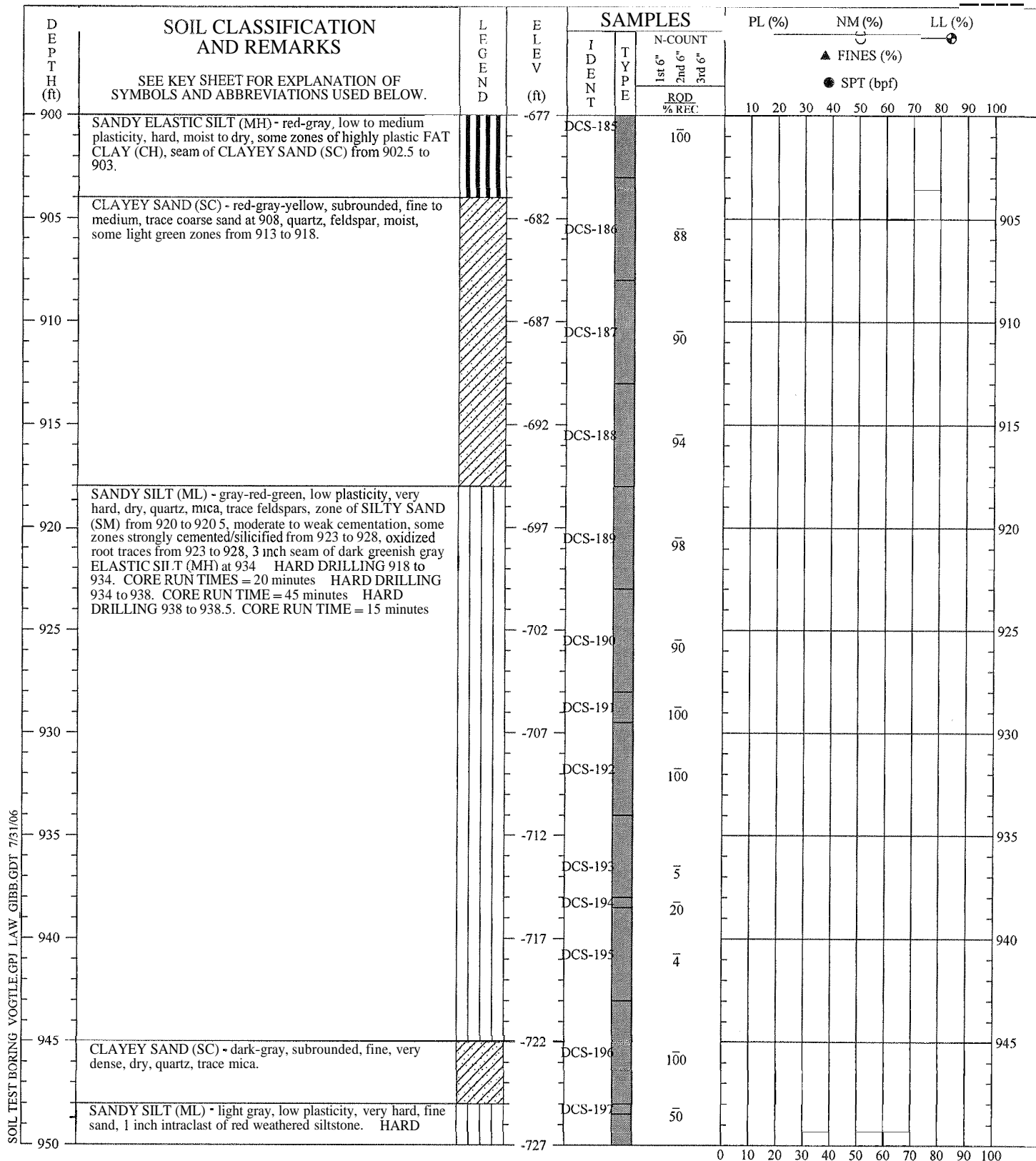
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DRILLER: GRAVES DRILLING (STEVE RODGERS)  
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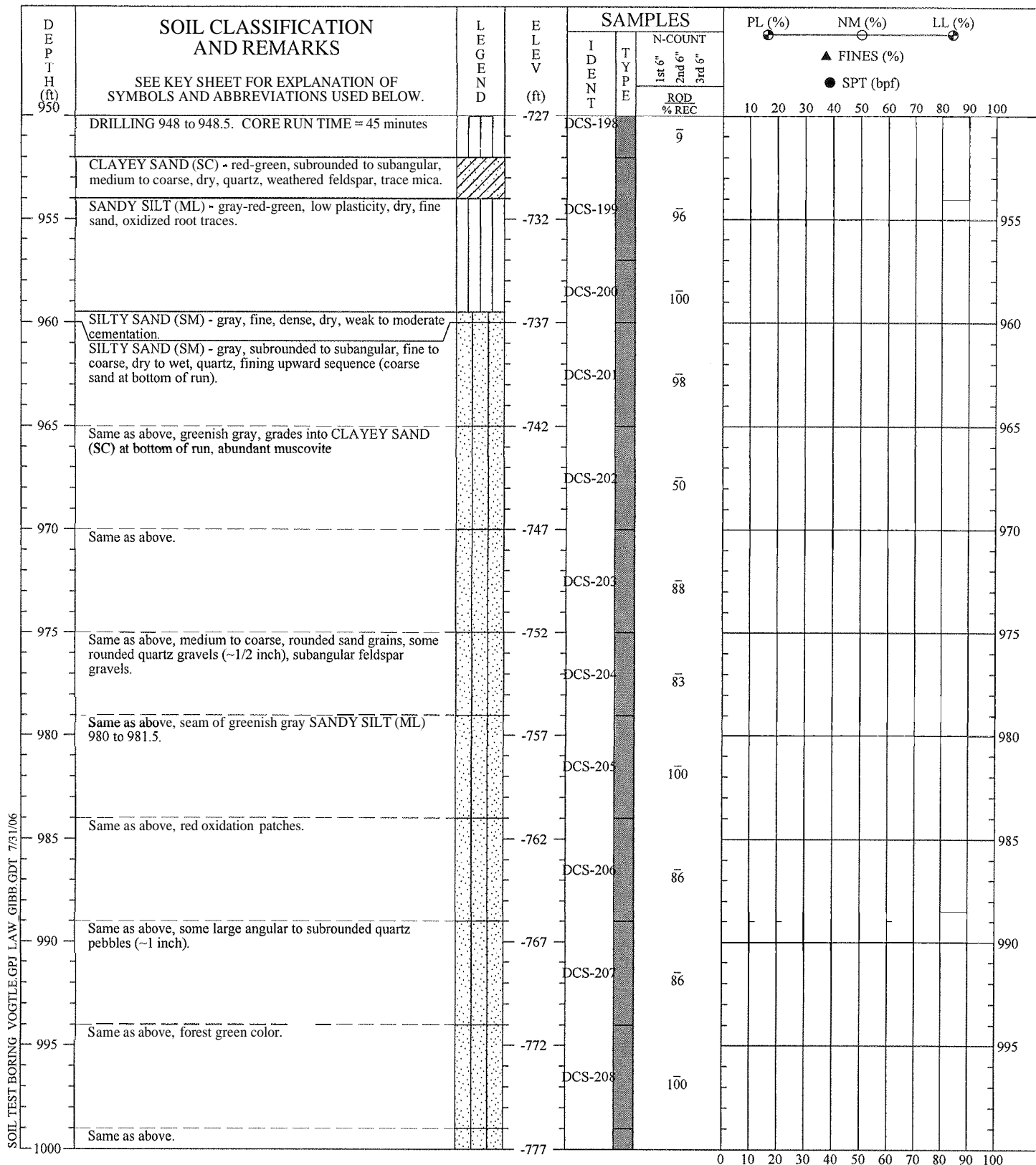
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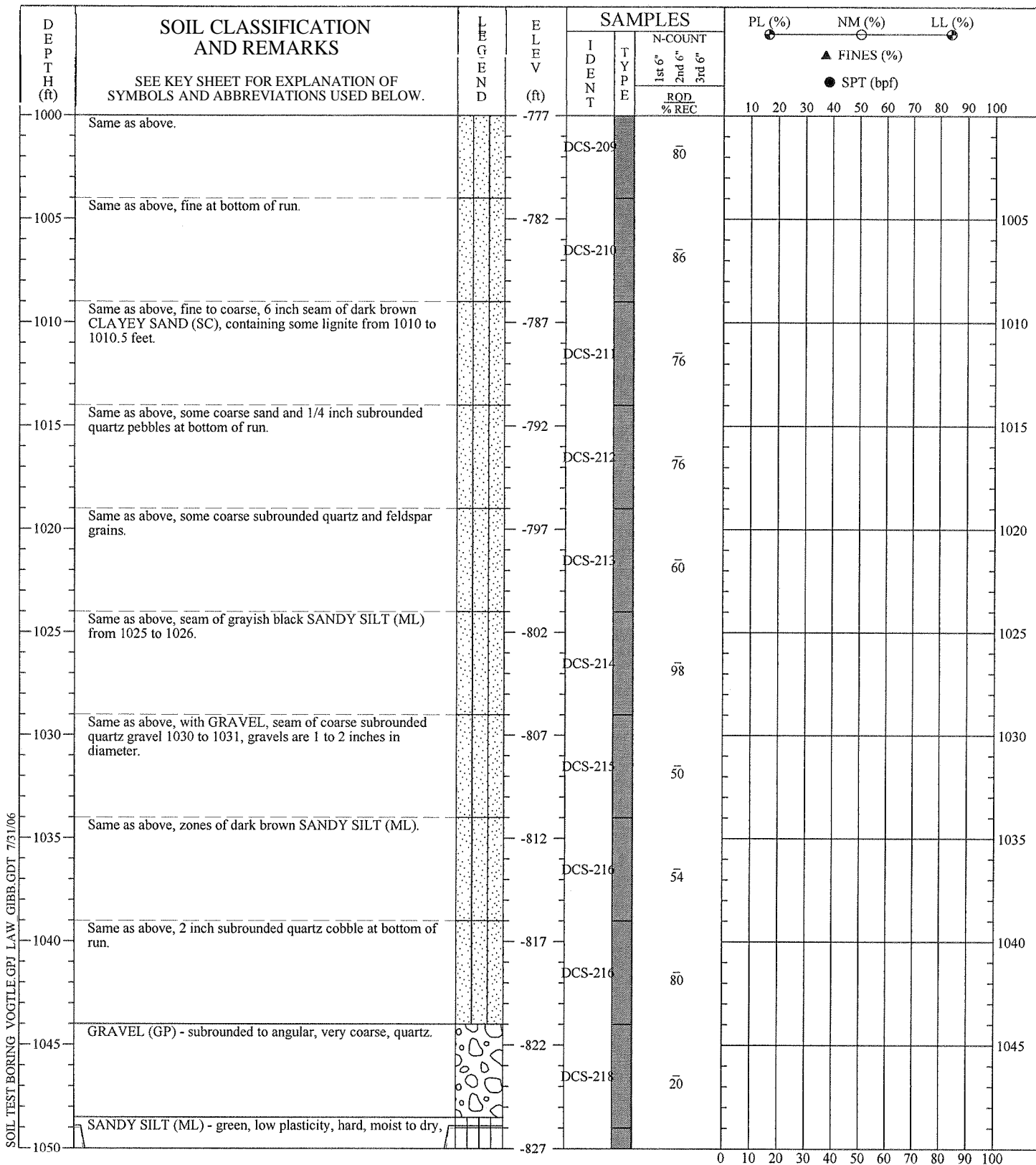
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**DRILLER:** GRAVES DRILLING (STEVE RODGERS)  
**EQUIPMENT:** Speedstar Quickdrill 275/Gardner Denver 15W  
**METHOD:** Christensen Wire Line  
**HOLE DIA.:** 6 inches  
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**MACTEC**

D E P T	SOIL CLASSIFICATION AND REMARKS  SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	L E G E N D	E L E V  (ft)	SAMPLES			PL (%)      NM (%)      LL (%)									
				I D E N T	T Y P E	N-COUNT 1st 6" 2nd 6" 3rd 6"	A FINES (%)									
							● SPT (bpf)									
						ROD % REC	10	20	30	40	50	60	70	80	90	100
1050	fine sand. TOP OF TRIASSIC BASIN AT 1048.9 SANDY SILT (ML) - red, low plasticity, hard, dry, fine sand, mica. SANDY SILT (ML) - red, low plasticity, hard, dry, fine sand, mica, 3 inch cobble of moderately hard gray and black fractured BIOTITE GNEISS at 1054.		-827	DCS-219		100										
1055	Same as above, medium to coarse SAND, likely weathered CONGLOMERATE, 1 inch clasts of weathered feldspar and BIOTITE GNEISS. SOIL CORING BIT REFUSAL AT 1057 FEET. SWITCHED TO DIAMOND ROCK CORE BIT AT 1057 FEET.		-832	DCS-220		100										1055
	Same as above, angular clasts of quartz, feldspar, and BIOTITE GNEISS.			RC-1		50										
1060	WEATHERED MUDSTONE which sampled as SANDY SILT (ML) - red, hard, non-plastic, dry, clasts of BIOTITE GNEISS with reddish oxidation.		-837	RC-2		20										1060
1065	WEATHERED CONGLOMERATE which sampled as GRAVEL WITH SILT AND SAND (GM) -red, medium to coarse gravel, fine to coarse sand, gravel consists of green highly weathered chloritic PHYLLITE, pink and white GRANITIC GNEISS, white and black BIOTITE GNEISS, quartz, some MUDSTONE AND SANDSTONE clasts, slickensided surface noted at 1066 feet, matrix consists of red SILT.		-842	RC-3		92										1065
1070	Same as above, clasts of BIOTITE GNEISS DRILLER NOTED HARDER ROCK AT 1070 CORING RATE FROM 1070 TO 1074 = 12 minutes per foot.		-847	RC-4		24 58										1070
1075	MUDSTONE - red, fine grained, $\epsilon$ u r hard, mnce sand. ENDED DRILLING ON 10/22/05. GEOPHYSICAL LOGGING PERFORMED BY GEOVISION ON 10/31/05 AND 10/41/05 LOGGING INCLUDED P-S SEISMIC SUSPENSION, NATURAL GAMMA, ELECTRICAL RESISTIVITY, CALIPER, AND DIRECTIONAL SURVEY. REAMED HOLE WITH 19 INCH ROLLER CONE BIT 1014105 THROUGH 1015105 TO 93 FEET SET AND GROUTED IN 14 INCH I D STEEL CASING ON 10/17/05 REAMED HOLE WITH 12 25 INCH ROLLER CONE BIT 10110105 THROUGH 10/21/05 SET AND GROUTED IN 6.5 INCH I D STEEL CASING ON 10/24/05		-852	RC-5		40 75										1075
1080	Same as above, red, soft to moderately hard, trace rounded quartz grains and mica (muscovite).		-857	RC-6		0 10										1080
1085	BRECCIA - red, highly weathered, soft, clasts range up to 2" in diameter and consist of subrounded to angular quartz, granitic gneiss, biotite gneiss, red mud matrix.		-862	RC-7		70 76										1085
1090	MUDSTONE - red, medium to moderately hard, trace rounded quartz grains, trace mica. BRECCIA - red-gray, weathered, soft to medium hard, clasts are 1/4 to 1" in diameter and generally consist of quartz, feldspar, biotite gneiss, and some greenish phyllite, bottom 1.5 feet is mostly clast supported, red mud matrix where present.															
1095	SANDSTONE - red, arkosic, soft to medium hard, fine to coarse from 1088 to 1092, contains quartz, feldspar, trace mica, grades into clast supported breccia at 1090.2.		-867	RC-8		84 100										1090
	BRECCIA - red and gray, medium hard to soft, coarse, clasts of gray and white biotite gneiss, quartz, and greenish phyllite.															
	SANDSTONE - red, medium to moderately hard, highly weathered at bottom of run.															
	BRECCIA - red, soft to medium hard, matrix supported, slightly conglomeratic, 1/4" to 1/2" clasts of quartz, feldspar, gneiss, and phyllite.		-872	RC-9		40 72										1095
	MUDSTONE - red, moderately hard, sandy zone at 1096.5 with angular quartz and feldspar grains, thin vein of gypsum or calcite at 1097.															
1100	BRECCIA - moderately to medium hard, matrix supported, large angular clasts of quartz and gneiss, sandy mudmatrix.		-877													

SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

DRILLER: GRAVES DRILLING (STEVE RODGERS)  
EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
METHOD: Christensen Wire Line  
HOLE DIA.: 6 inches  
REMARKS: Plant Grid: N 7974.36, E 7889.85  
+HCL denotes a visible reaction with Hydrochloric Acid  
(HCL), -HCL denotes no visible reaction with HCL

## SOIL TEST BORING RECORD

BORING NO.: B-1003  
PROJECT: ALWR - ESP  
LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
DRILLED: September 1, 2005  
PROJECT NO.: 6141-05-0227

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**MACTEC**

THIS RECORD IS A REASONABLE INTERPRETATION OF  
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INTERFACES BETWEEN STRATA ARE APPROXIMATE.  
TRANSITIONS BETWEEN STRATA MAY BE GRADUAL



D E P T H (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	L E G E N D	E L E V (ft)	SAMPLES			PL (%)      NM (%)      LL (%) ▲ FINES (%) ● SPT (bpf)									
				I D E N T	T Y P E	N-COUNT 1st 6" 2nd 6" 3rd 6"										
							ROD % REC									
1100	BRECCIA - moderately to medium hard, matrix supported, large angular clasts of quartz and gneiss, sandy mud matrix.	Δ Δ	-877	RC-10		10 15										
1105		Δ Δ	-882	RC-11		30 30										1105
		Δ Δ		RC-12		30 44										
1110	MUDSTONE - red, moderately hard, trace quartz sand.	A A	-887	RC-13		70 95										1110
1115	BRECCIA - highly weathered, soft, clasts of gneiss and quartz, matrix supported.	Δ Δ	-892	RC-14		33 66										1115
1120	SANDSTONE - red, arkosic, moderately hard, quartz, feldspar, trace mica, mud matrix.	Δ Δ	-897	RC-15		46 100										1120
1125	BRECCIA - red, highly weathered, soft to moderately hard, clast supported, matrix mostly sand sized, some mud matrix between sand grains, quartz, feldspar, phyllite, biotite gneiss, granitic gneiss, severely weathered zones at 1125 and 1128, grades into coarse sandstone at 1125 and 1127.	Δ Δ	-902	RC-16		68 98										1125
1130		Δ Δ	-907	RC-17		0 5										1130
1135	NO RECOVERY		-912	RC-18		0 0										1135
1140	NO RECOVERY		-917	RC-19		0 0										1140
1145	SANDSTONE - red and light green, medium hard, fine to medium grained, steeply dipping joints at 1145 and 1146 (approx. 60 degree dip), joints are filled with calcite or gypsum mineralization, joint at 1145 is offset approx. 1/2" by a cross-cutting horizontal joint, occasional angular clasts of quartz and biotite gneiss 1/2" to 1 1/2" diameter from 1147 to 1151, highly weathered zone from 1148 to 1150 which sampled as red SILTY SAND (SM).	Δ Δ	-922	RC-20		63 100										1145
1150		Δ Δ	-927	RC-21		52										

SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

### SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
 SUBSURFACE CONDITIONS AT THE EXPLORATION  
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**MACTEC**



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES			PL (%) NM (%) LL (%)		
				IDENT	TYPE	N-COUNT 1st 6" 2nd 6" 3rd 6"	▲ FINES (%)	● SPT (bpf)	
1200	1199, and 1199.3 to 1199.75. Same as above, zone of breccia 1201.5 to 1202.3, joints at 1201.7, 1202, 1202.3.		-977	RC-33		86 100			
1205	Same as above, moderately hard.		-982						1205
	BRECCIA - soft to moderately hard, highly weathered	△ △		RC-34		30 94			
1210		△ △	-987						1210
		△ △		RC-35		30 100			
1215		△ △	-992						1215
	SANDSTONE - red, hard, quartz, mica, feldspar, steeply dipping joint (approx. 65 degrees) at 1211.5, surface of joint slickensided.	△ △		RC-36		70 100			
1220	BRECCIA - highly weathered, soft to moderately hard (1220 to 1225), becomes hard and matrix supported from 1225 to 1230, angular clasts of quartz, gneiss, phyllite, mud and sandstone matrix.	△ △ △ △ A A	-997						1220
		A A		RC-37		25 100			
1225		△ △	-1002						1225
		△ △		RC-38		58 66			
1230	SANDSTONE - red moderately hard to hard, weathered joint at 1230.5 and 1232, occasional clasts of angular quartz (approx. 1" in size), badly weathered from 1233 to 1234.	△ △	-1007						1230
		△ △		RC-39		115 125			
1235	SANDSTONE - red, moderately hard to hard, zones of breccia at 1234.5, 1235, 1236 to 1237, and 1237 to 1239, breccia is mostly matrix supported.	△ △	-1012						1235
		△ △		RC-40		92 100			
1240	BRECCIA - moderately hard to hard, some zones of sandstone, steeply dipping (approx. 70 degrees) slickensided joint at 12415, slickensides appear as near horizontal grooves.	△ △	-1017						1240
		△ △		RC-41		86 86			
	SANDSTONE - reddish brown, moderately hard to hard, top 6" badly weathered, bottom 3" weathered, zones of matrix supported breccia at 1246 and 1247.5.	△ △	-1022						1245
		△ △		RC-42		73 98			
1250		△ △	-1027						

SOIL TEST BORING VOGTLE GPCPJ LAW JB GDT 7/31/06

DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

### SOIL TEST BORING RECORD

BORING NO.: B-1003  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 1, 2005  
 PROJECT NO.: 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
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DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES			PL (%)      NM (%)      LL (%)									
				IDENT	TYPE	N-COUNT 1st 6" 2nd 6" 3rd 6"	A FINES (%)									
							● SPT (bpf)									
							ROD % REC									
1250	BRECCIA - red, moderately hard to hard, matrix supported, sandy mud matrix, clasts of angular quartz, feldspar, phyllite, gneiss, and quartz monzonite, bottom 12" slightly weathered.	△ △	-1027	RC-43		78 100										
	Same as above.	△ △														
1255		△ △	-1032	RC-44		90 100										1255
	Same as above, bottom 1' weathered.	△ △														
		△ △		RC-45		40 100										
1260	Same as above, medium to moderately hard, clast supported breccia from 1260 to 1263, some weathered zones at top of run.	△ △	-1037													1260
		△ △		RC-46		74 100										
1265	Same as above, moderately hard, slightly weathered.	△ △	-1042													1265
	MUDDY SANDSTONE - red, fine to medium grained, moderately hard to hard, 45 degree dipping slickensided joint at 1266.5, greenish reduction staining on joint surface, 60 degree dipping joint at 1268 with reduction staining.	△ △		RC-47		85 100										
1270	BRECCIA - red, matrix supported, hard to moderately hard, vug with some calcite mineralization at 1269.	△ △	-1047													1270
	Same as above, with some sandstone, 30 degree dipping slickensided joint at 1270.5.	△ △														
	SANDSTONE - red, medium to moderately hard, fine to medium grained, quartz, feldspar, 2 60 degree dipping joints at 1272.5.	△ △		RC-48		68 96										
1275	BRECCIA - matrix supported, moderately hard, clasts of quartz, gneiss, and some hornblende gneiss with light green alteration.	△ △	-1052													1275
	Same as above, some zones of clast supported breccia, moderately weathered, highly fractured and weathered clast of gneiss approximately 6 inches at top of run.	△ △		RC-49		56 100										
1280	Same as above, red and gray, clasts of biotite gneiss, phyllite, and pinkish granitic gneiss.	△ △	-1057													1280
		△ △		RC-50		8 100										
1285	Same as above, medium to moderately hard, 45 degree dipping slickensided joint at 1285.5.	△ △	-1062													1285
	SANDY MUDSTONE - hard, red, breccia zone at 1288, trace quartz, mica, and feldspar, 45 degree dipping slickensided joint at 1288.5	△ △		RC-51		65 92										
1290		△ △	-1067													1290
	BRECCIA - hard, matrix supported, very steeply dipping quartz filled joints throughout.	△ △		RC-52		100 100										
1295	Same as above, zone of sandstone from 1298.5 to 1299.5, 45 degree dipping joint at 1295.5.	△ △	-1072													1295
		△ △		RC-53		65 92										
1300		△ △	-1077													

DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

### SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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**MACTEC**

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D E P T H (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	L E G E N D	E L E V (ft)	SAMPLES			PL (%)      NM (%)      LL (%) ▲ FINES (%) ● SPT (bpf)									
				I D E N T	T Y P E	N-COUNT 1st 6" 2nd 6" 3rd 6"										
							ROD % REC									
1300	Same as above, clast supported, very large clast of pink granitic gneiss at top of run.	△ △	-1077													
		△ △		RC-54		56 106										
1305	Same as above, matrix supported, red, moderately hard to hard, zones of sandstone, clasts of quartz, gneiss, and phyllite, 60 degree dipping joint with reduction staining at 1305.5.	△ △	-1082													1305
		△ △		RC-55		100 100										
1310	Same as above, hard.	△ △	-1087													1310
		△ △		RC-56		57 97										
	Same as above, sandstone from 1313.5 to 1316, hard.	△ △														
		△ △		RC-57		88 113										
1315		△ △	-1092													1315
	SANDSTONE - red, hard, zone of breccia at 1317, greenish reduction splotches at 1319 to 1320, 45 degree dipping joint at 1318, zone of breccia with quartz clasts from 1322 to 1324.	△ △		RC-58		100 100										
1320		△ △	-1097													1320
		△ △		RC-59		100 100										
1325	BRECCIA - red, matrix supported, hard, red mud matrix, angular clasts of quartz, granitic gneiss, and phyllite.	△ △	-1102													1325
		△ △		RC-60		45 45										
1330	Same as above, hard, some zones fractured.	△ △	-1107													1330
		△ △		RC-61		70 100										
	SANDSTONE - red, fine to medium, hard, trace mica, quartz and feldspar.	△ △														
1335		△ △	-1112	RC-62		93 100										1335
	BRECCIA - red, clast supported, hard, clasts of quartz, granitic gneiss, and phyllite.	△ △														
	Same as above, hard.	△ △		RC-63		100 100										
1340	CORING TERMINATED AT 1338 FEET 11/9/2005 GEOPHYSICAL LOGGING PERFORMED BY GEOVISION ON 11/10/05 and 11/11/05. LOGGING PERFORMED FROM 1054 feet to 1338 feet. LOGGING INCLUDED P-S SEISMIC SUSPENSION, NATURAL GAMMA, ELECTRICAL RESISTIVITY, and CALIPER. STEEL CAP WELDED IN PLACE ON 6" CASING STICKUP.	△ △	-1117													1340
1345			-1122													1345
1350			-1127													

SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

DRILLER: GRAVES DRILLING (STEVE RODGERS)  
 EQUIPMENT: Speedstar Quickdrill 275/Gardner Denver 15W  
 METHOD: Christensen Wire Line  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7974.36, E 7889.85  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

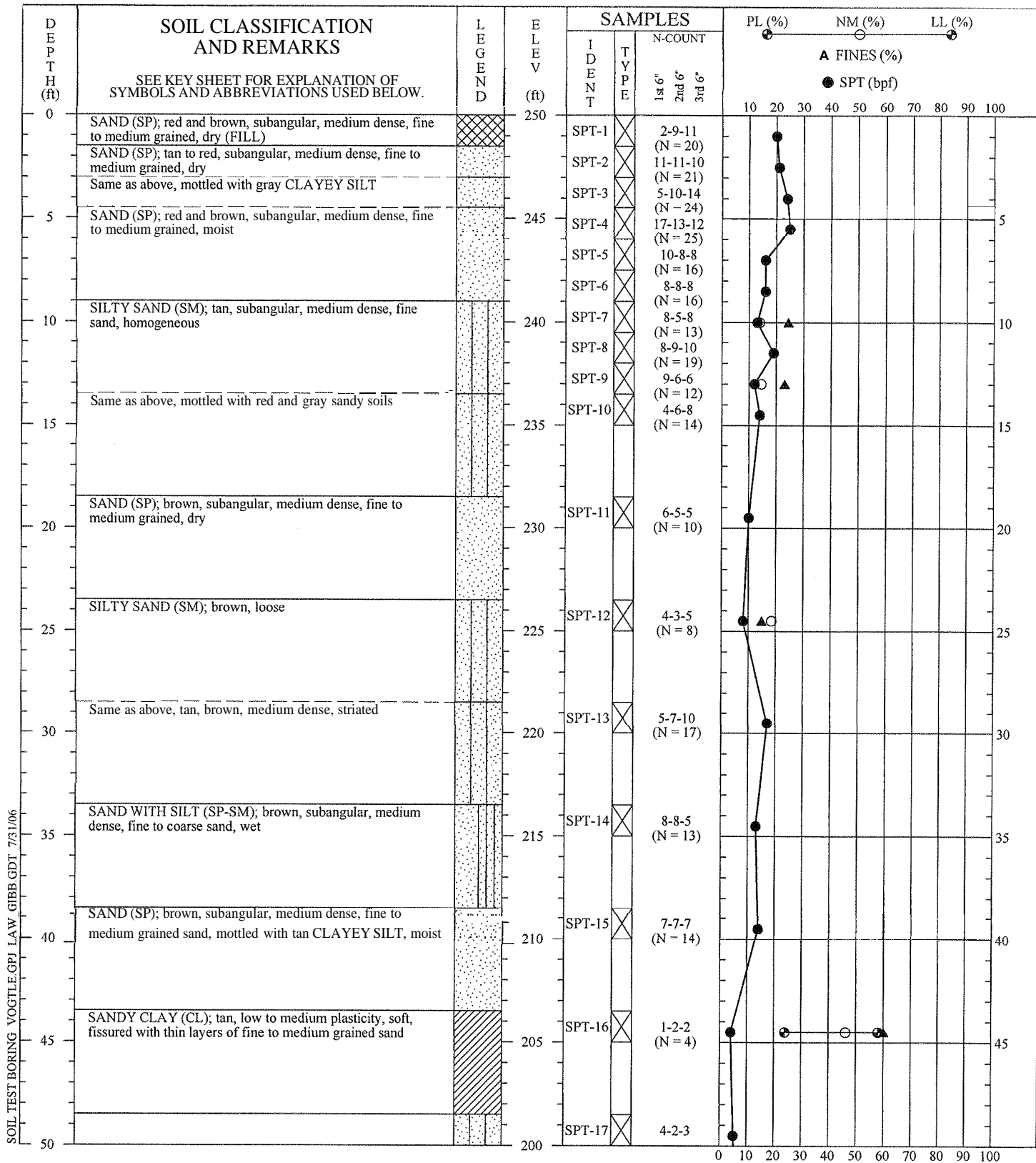
## SOIL TEST BORING RECORD

**BORING NO.:** B-1003  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

**MACTEC**



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7985.41, E 6131.44 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

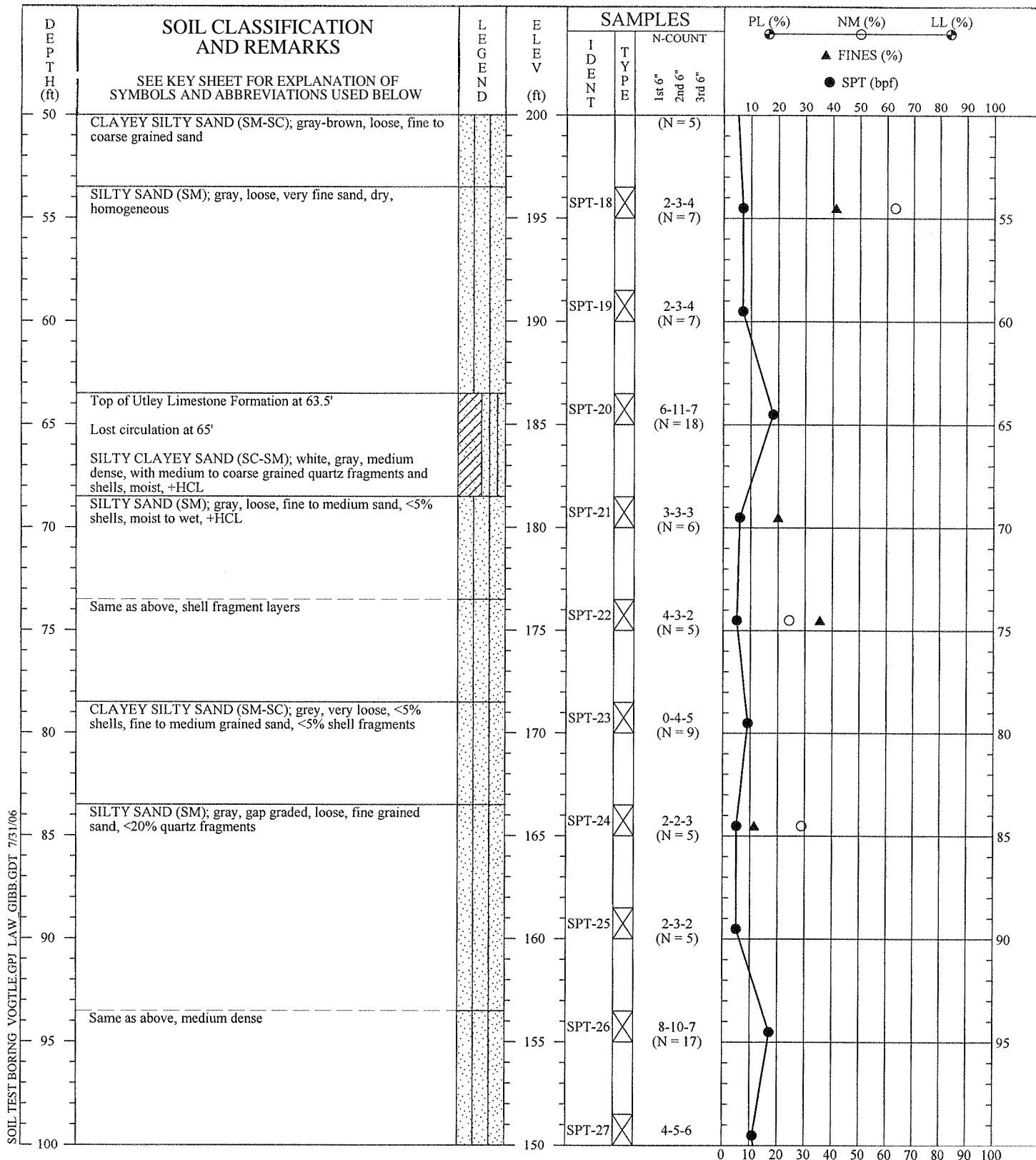
### SOIL TEST BORING RECORD

**BORING NO.:** B-1004  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 14, 2005  
**PROJECT NO.:** 6141-05-0227

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DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7985.41, E 6131.44 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

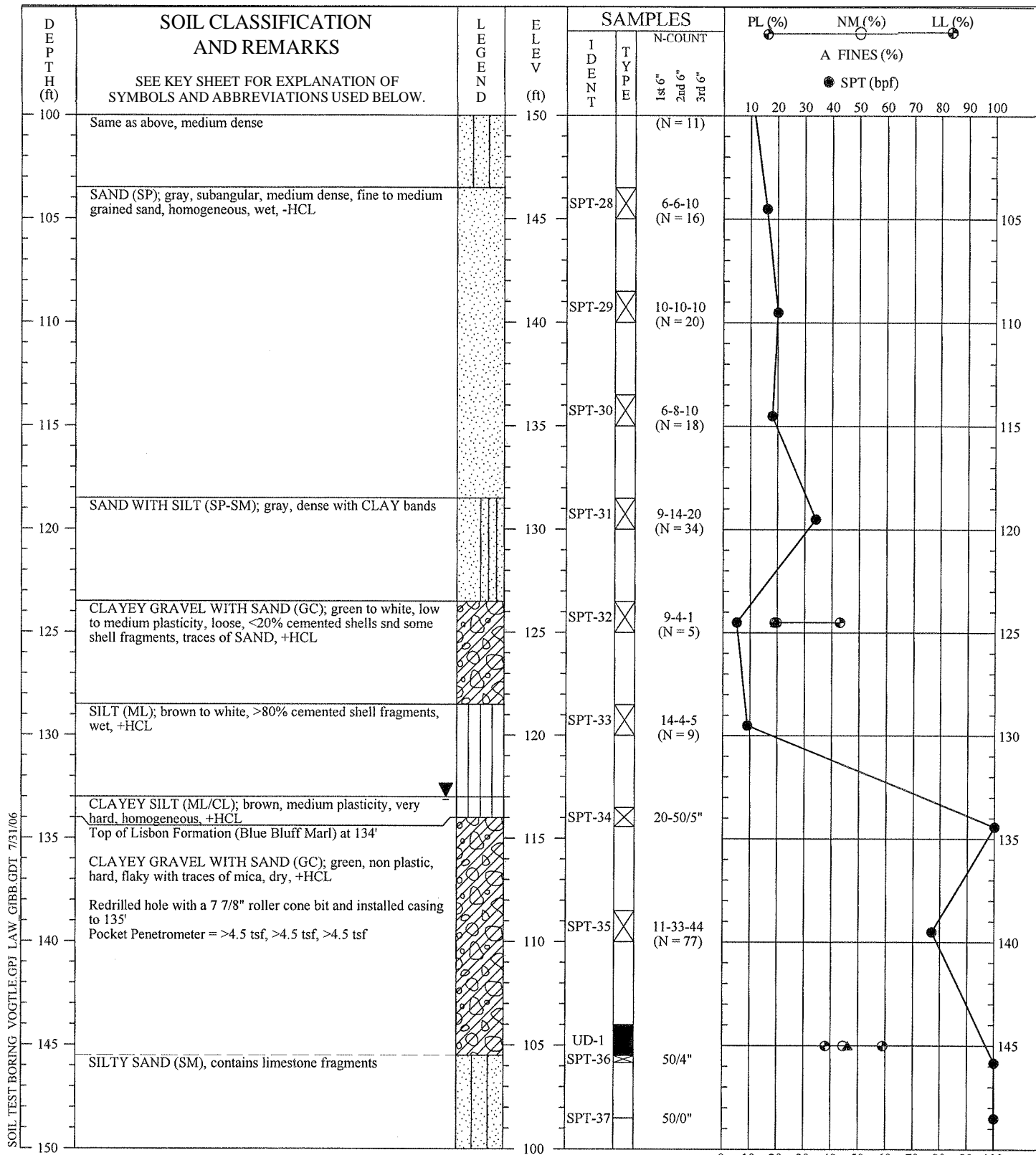
### SOIL TEST BORING RECORD

**BORING NO.:** B-1004  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 14, 2005  
**PROJECT NO.:** 6141-05-0227

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**DRILLER:** Jimmy Oglesby (MACTEC)  
**EQUIPMENT:** CME-75 (Auto-Hammer)  
**METHOD:** Rotary Wash with Mud  
**HOLE DIA.:** 4 inches  
**REMARKS:** Plant Grid: N 7985.41, E 6131.44 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

## SOIL TEST BORING RECORD

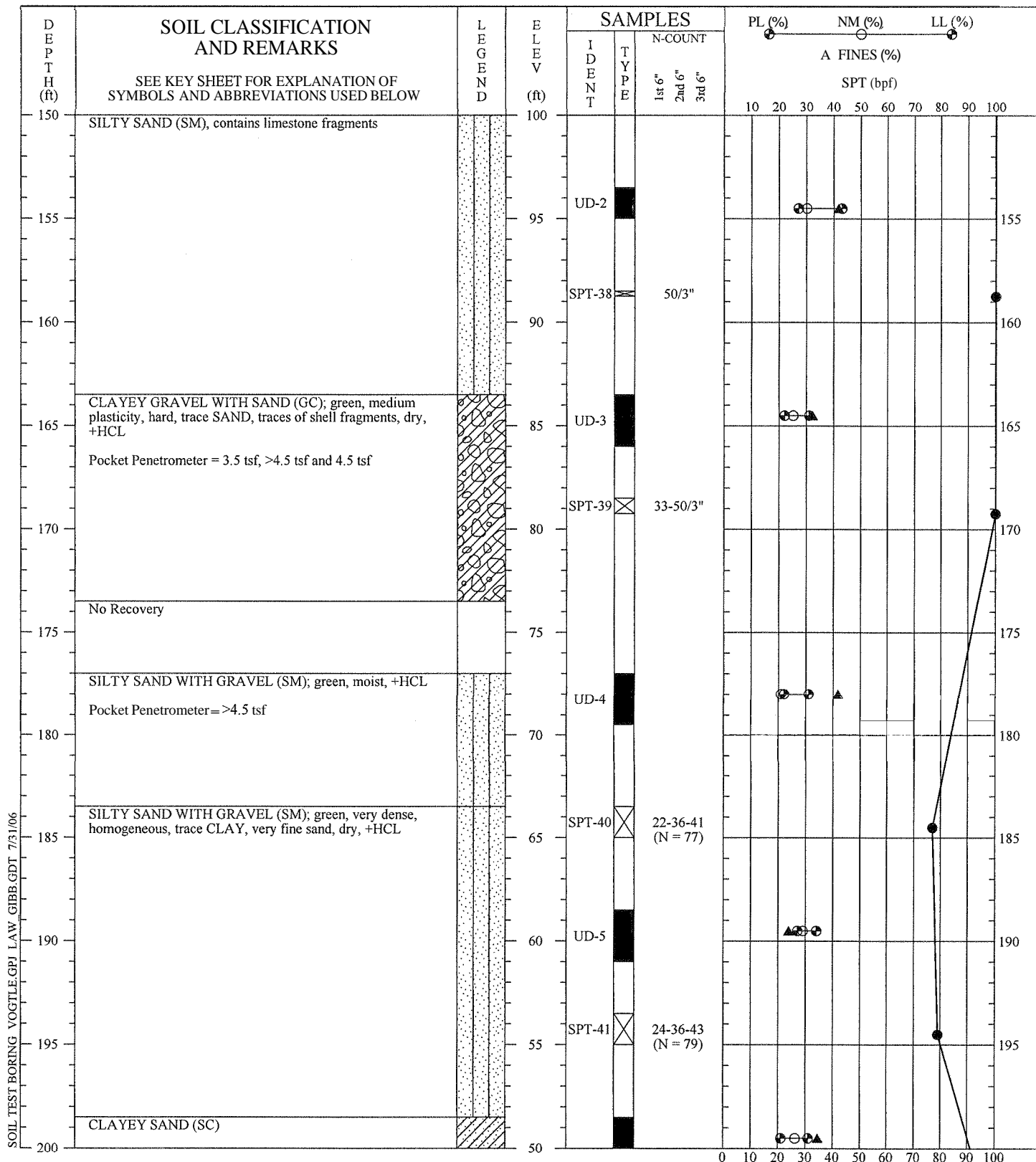
**BORING NO.:** B-1004  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 14, 2005  
**PROJECT NO.:** 6141-05-0227

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**DRILLER:** Jimmy Oglesby (MACTEC)  
**EQUIPMENT:** CME-75 (Auto-Hammer)  
**METHOD:** Rotary Wash with Mud  
**HOLE DIA.:** 4 inches  
**REMARKS:** Plant Grid: N 7985.41, E 6131.44 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

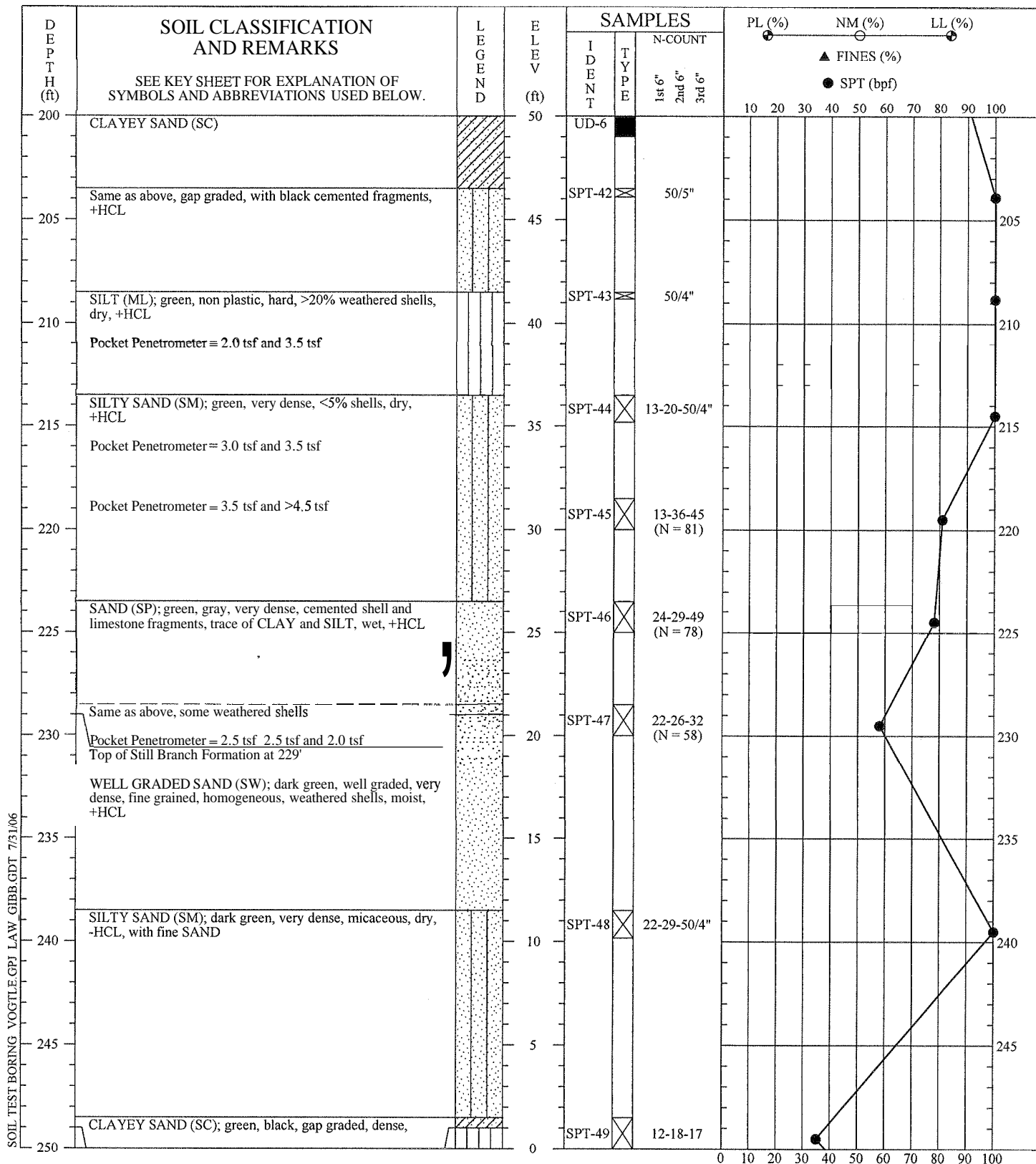
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DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
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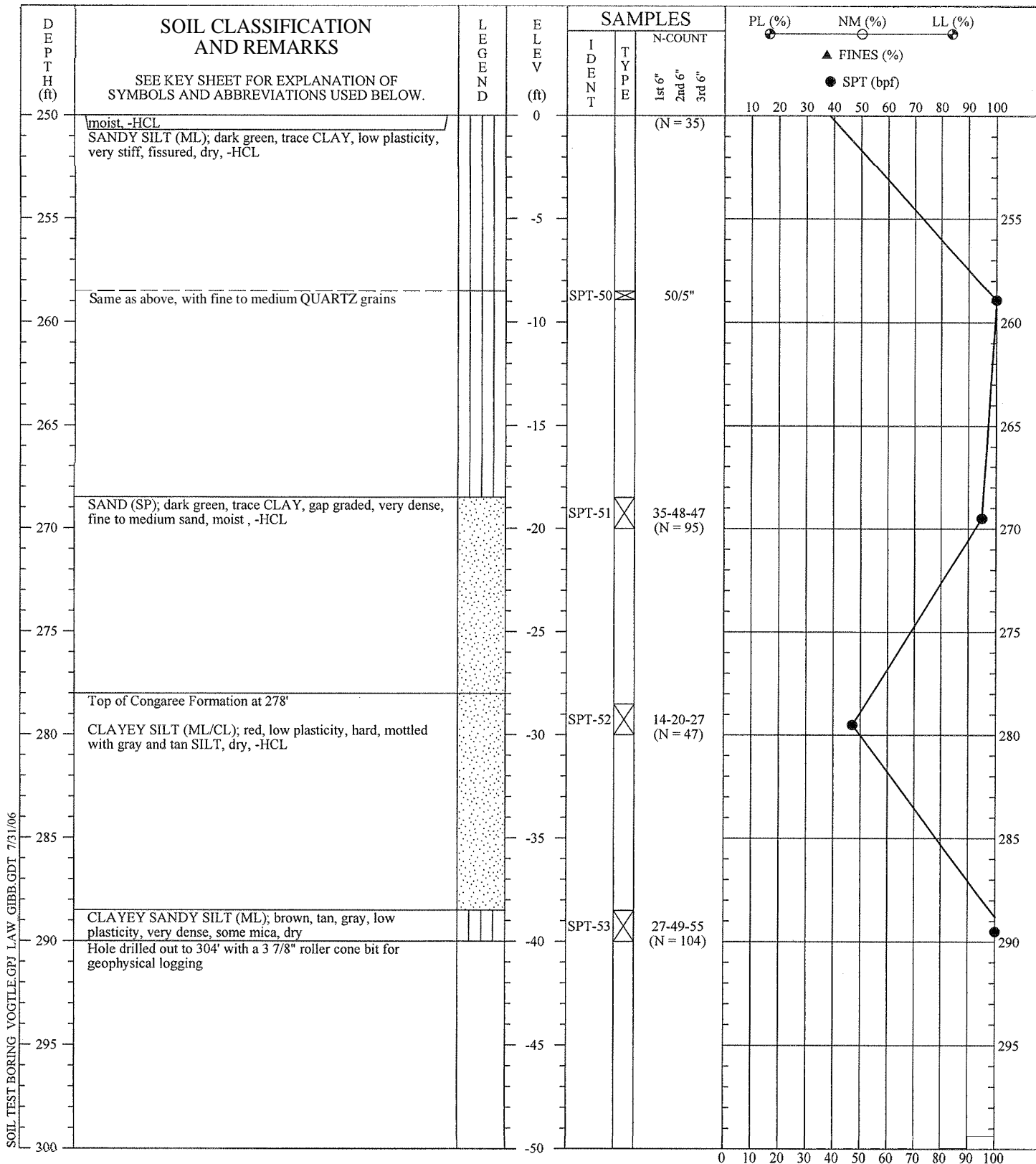
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**MACTEC**

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DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with d  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 4985.41, E 6131.44 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

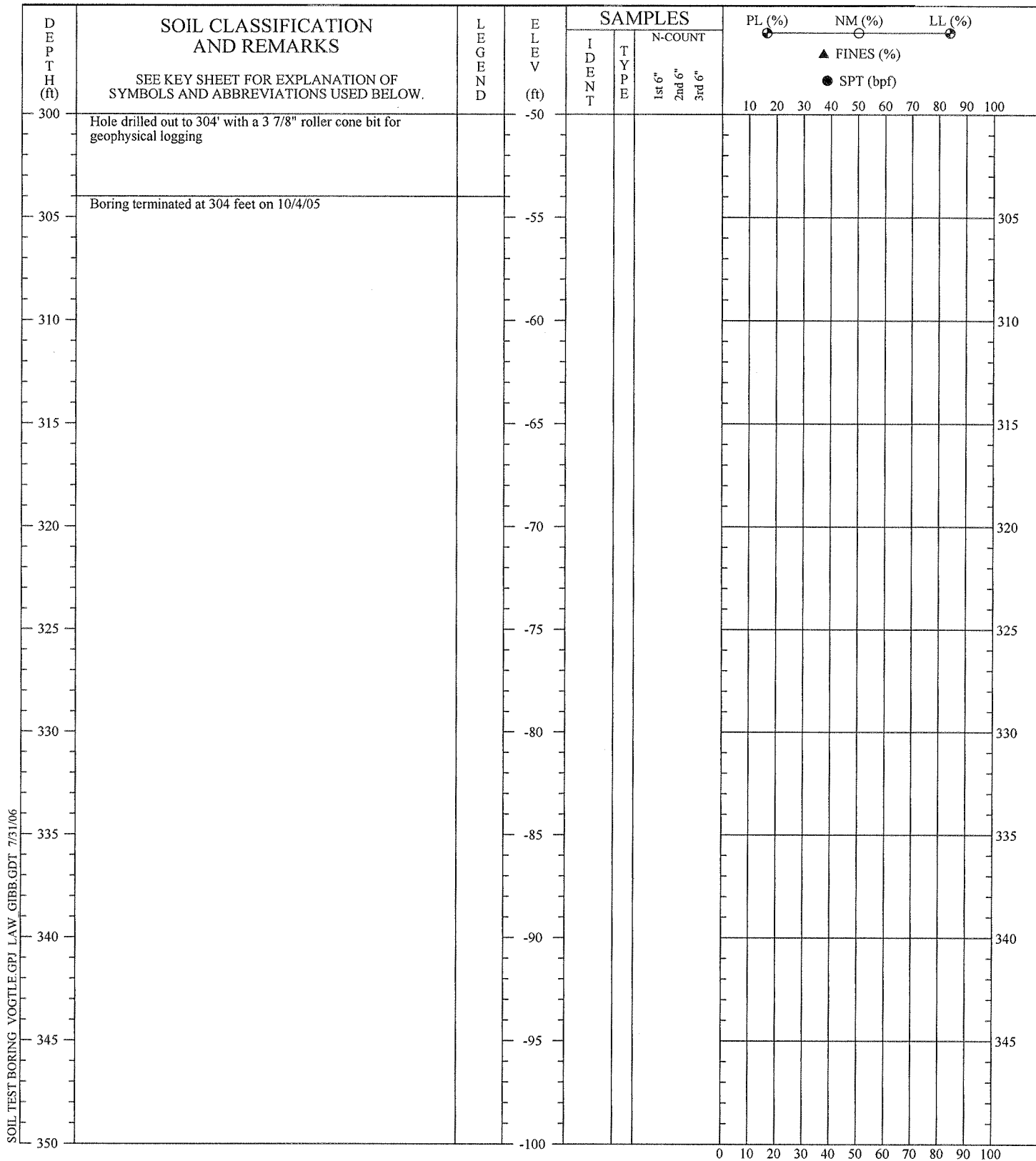
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 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 14, 2005  
 PROJECT NO.: 6141-05-0227

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SOIL TEST BORING VOGTLE.GPJ LAW GIBB.GDT 7/31/06

**DRILLER:** Jimmy Oglesby (MACTEC)  
**EQUIPMENT:** CME-75 (Auto-Hammer)  
**METHOD:** Rotary Wash with Mud  
**HOLE DIA.:** 4 inches  
**REMARKS:** Plant Grid: N 7985.41, E 6131.44 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/15/05

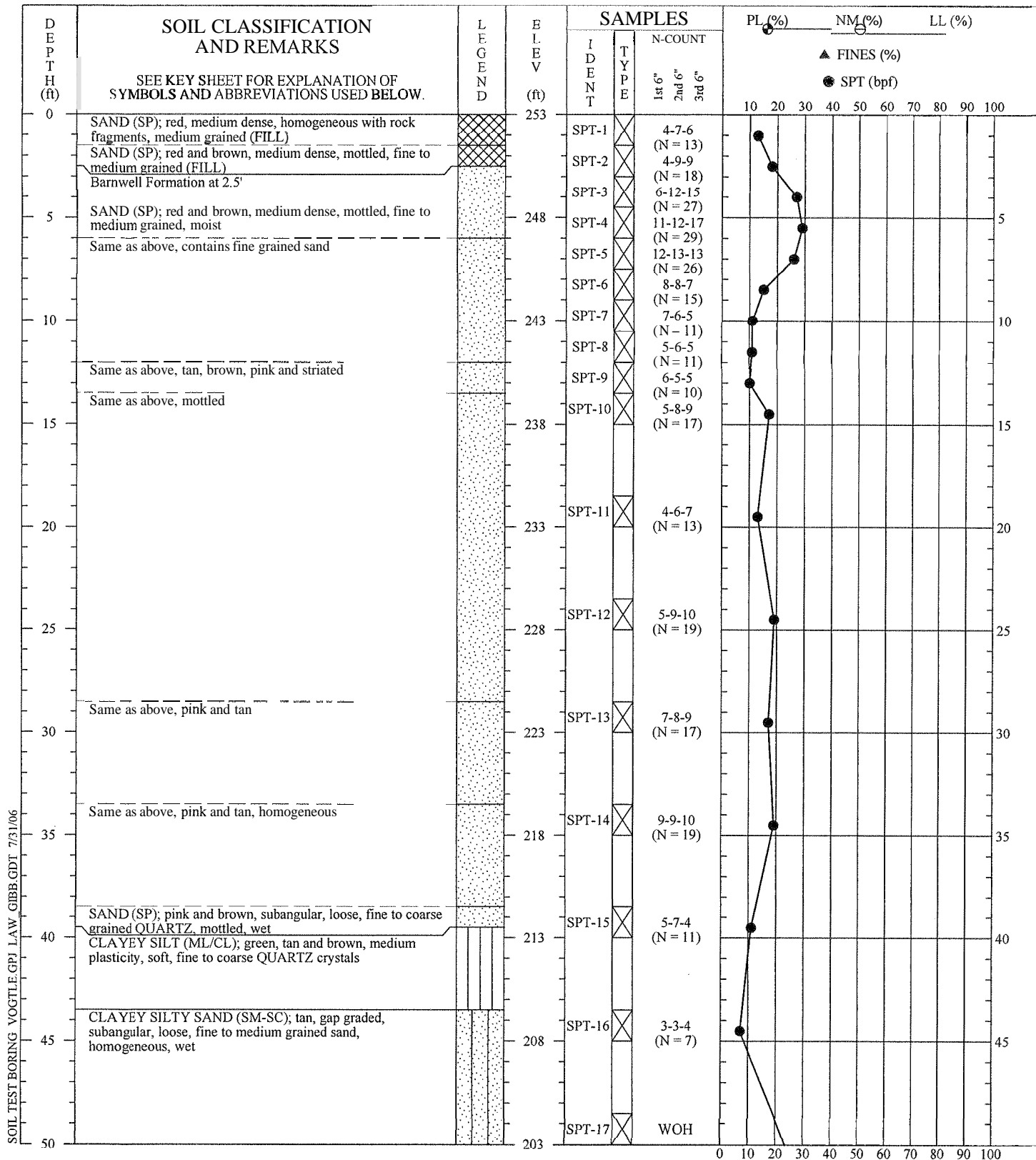
### SOIL TEST BORING RECORD

**BORING NO.:** B-1004  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 14, 2005  
**PROJECT NO.:** 6141-05-0227

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**MACTEC**



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8991.57, E 6155.35  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

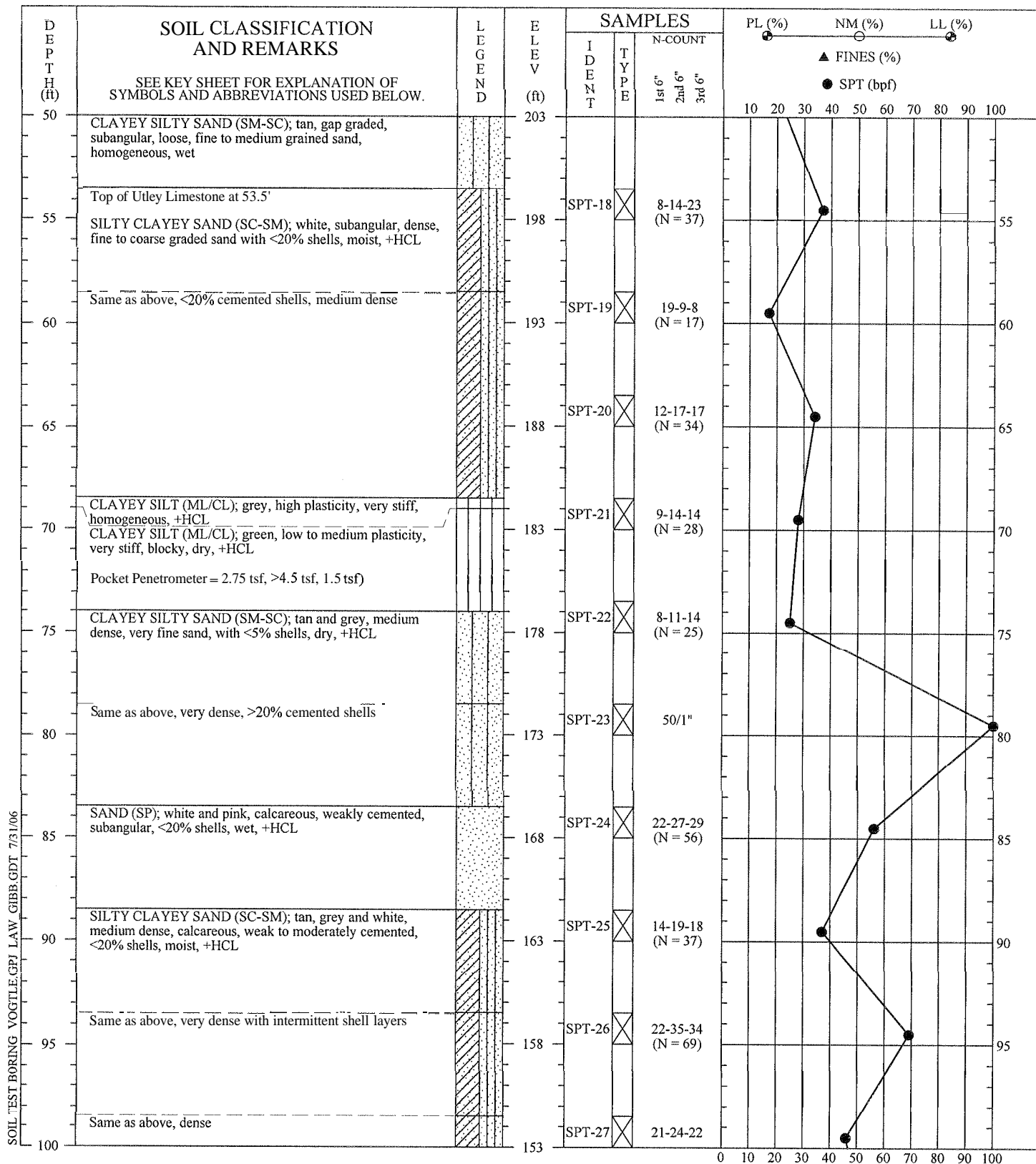
### SOIL TEST BORING RECORD

**BORING NO.:** B-1005  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 8, 2005  
**PROJECT NO.:** 6141-05-0227

PAGE 1 OF 4



THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8991.57, E 6155.35  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

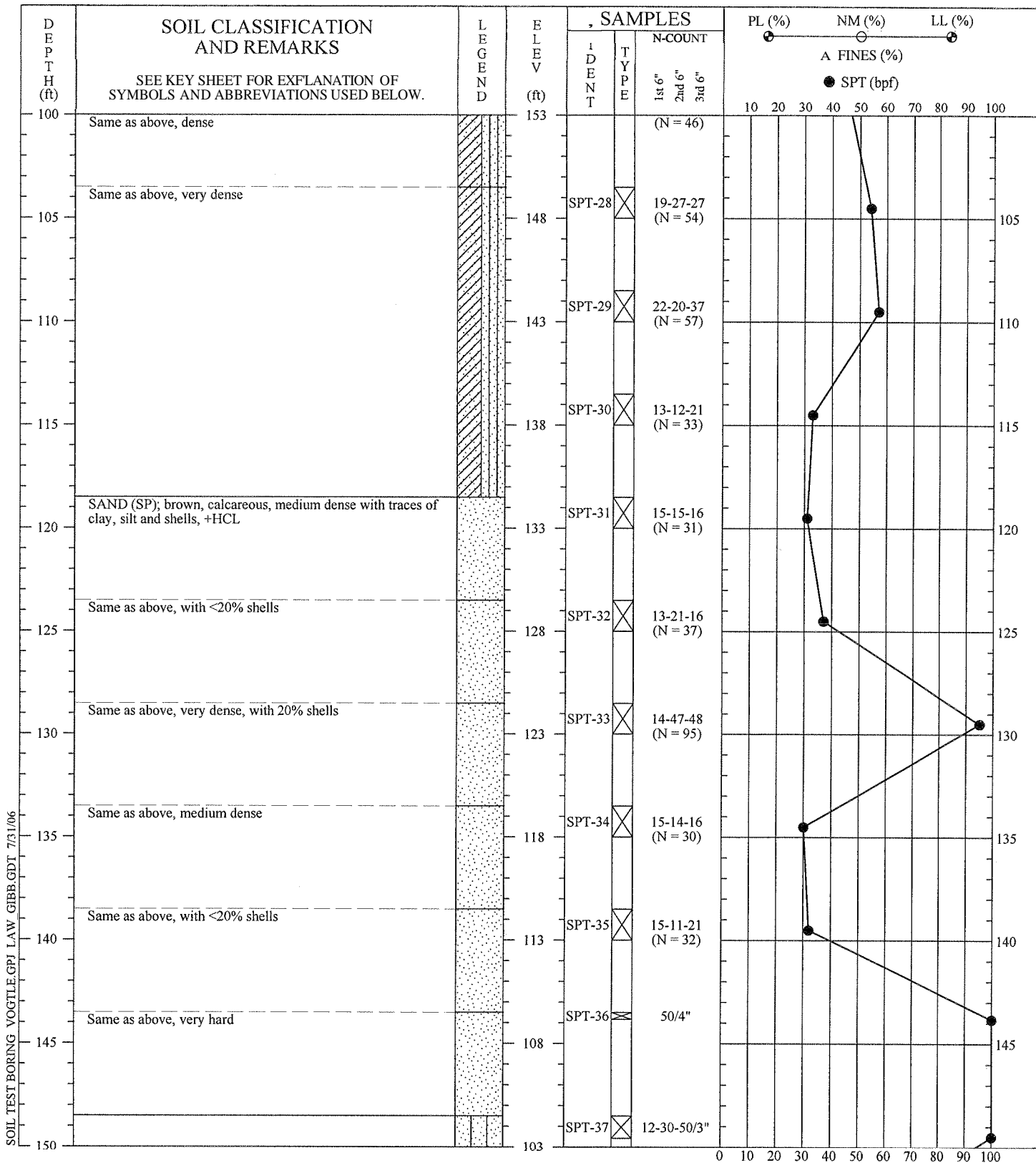
### SOIL TEST BORING RECORD

BORING NO.: B-1005  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 8, 2005  
 PROJECT NO.: 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8991.57, E 6155.35  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

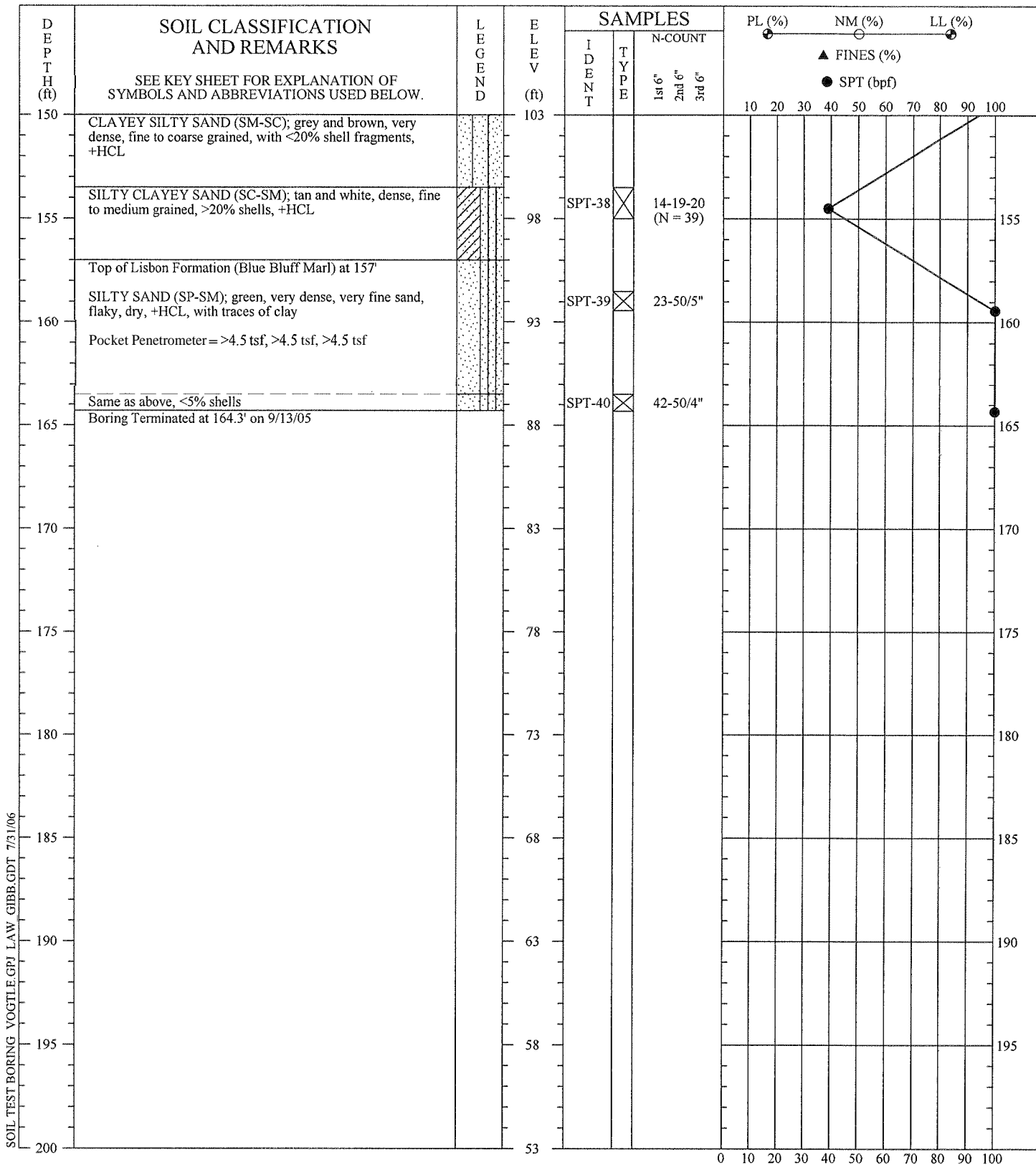
### SOIL TEST BORING RECORD

**BORING NO.:** B-1005  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, CA  
**DRILLED:** September 8, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8991.57, E 6155.35  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

### SOIL TEST BORING RECORD

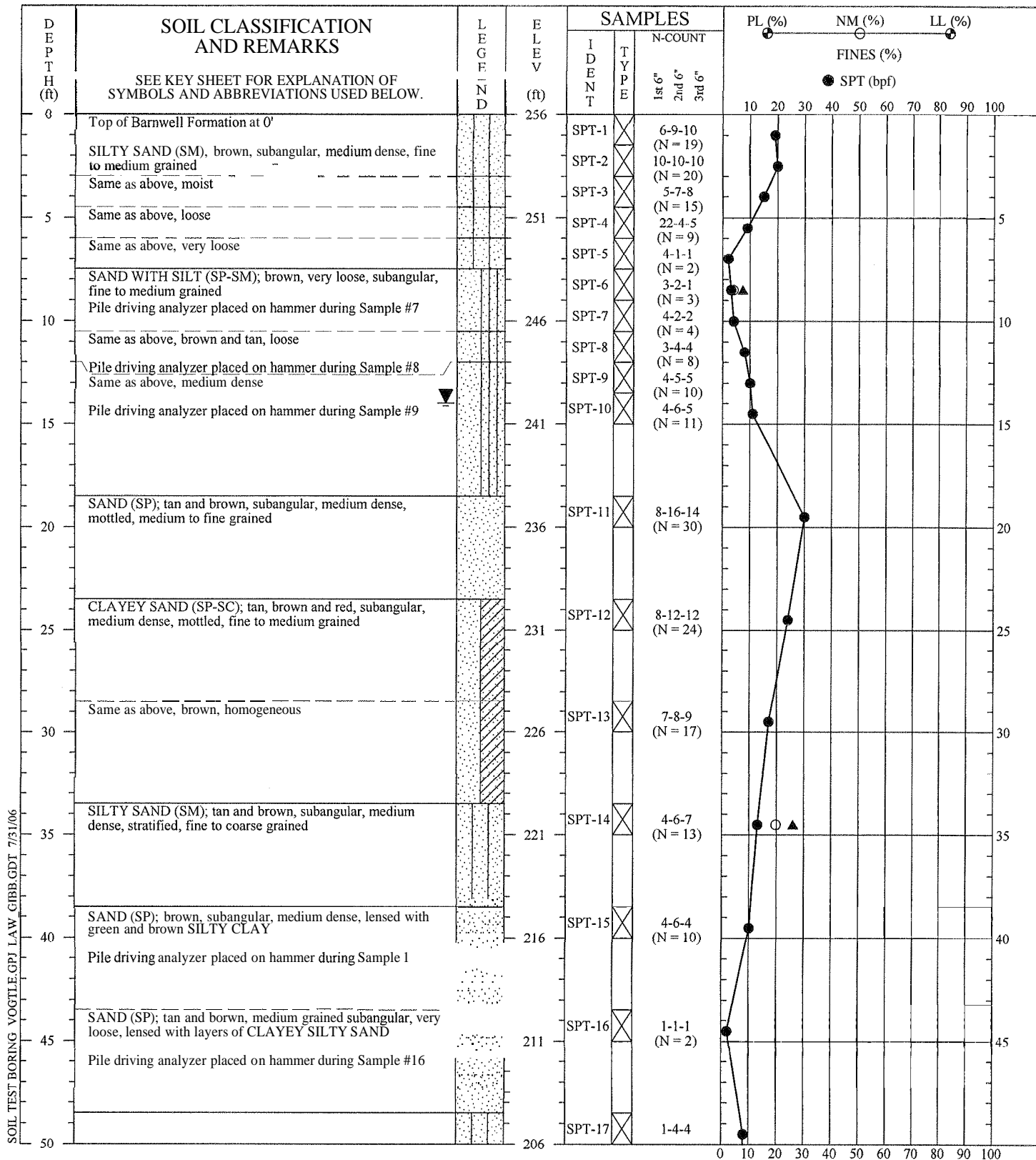
BORING NO.: B-1005  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 8, 2005  
 PROJECT NO.: 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8810.26, E 7342.90 +HCL denotes a visible reaction with Hydrochloric Acid (HCL). -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/7/05

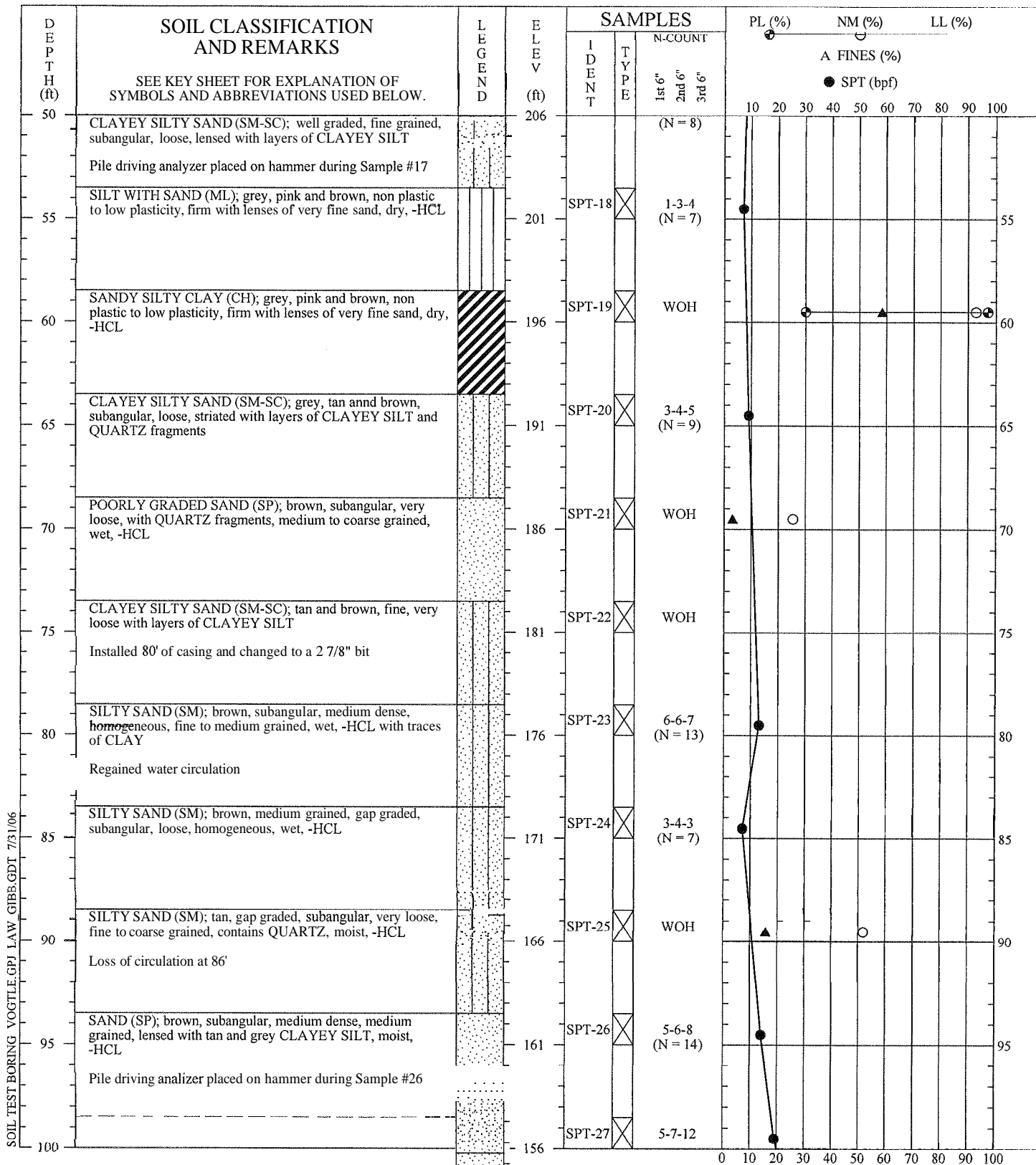
### SOIL TEST BORING RECORD

**BORING NO.:** B-1006  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 6, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8810.26, E 7342.90 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Waterdepth represents depth of water and mud as measured on 9/7/05

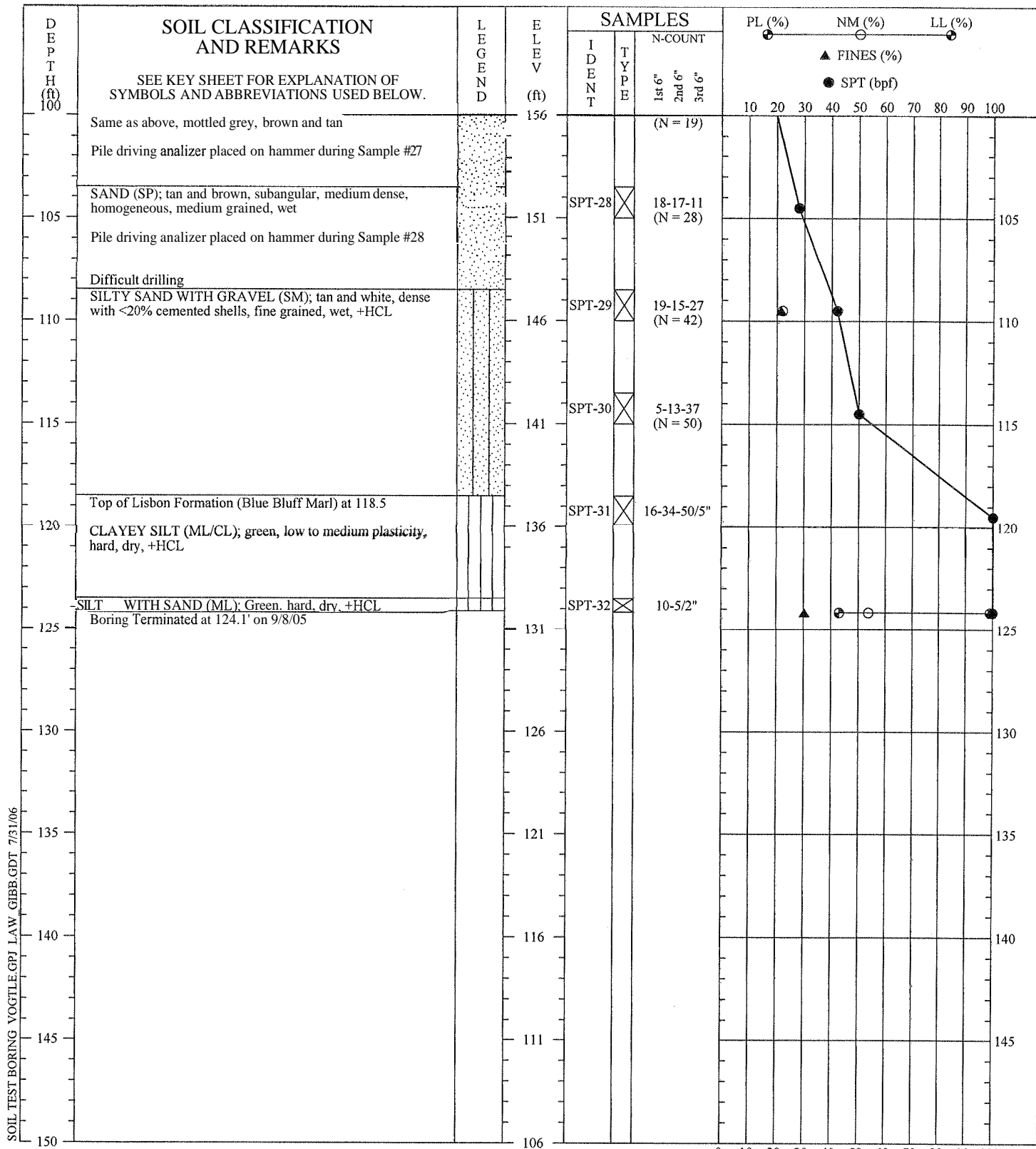
### SOIL TEST BORING RECORD

**BORING NO.:** B-1006  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 6, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8810.26, E 4342.90 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/7/05

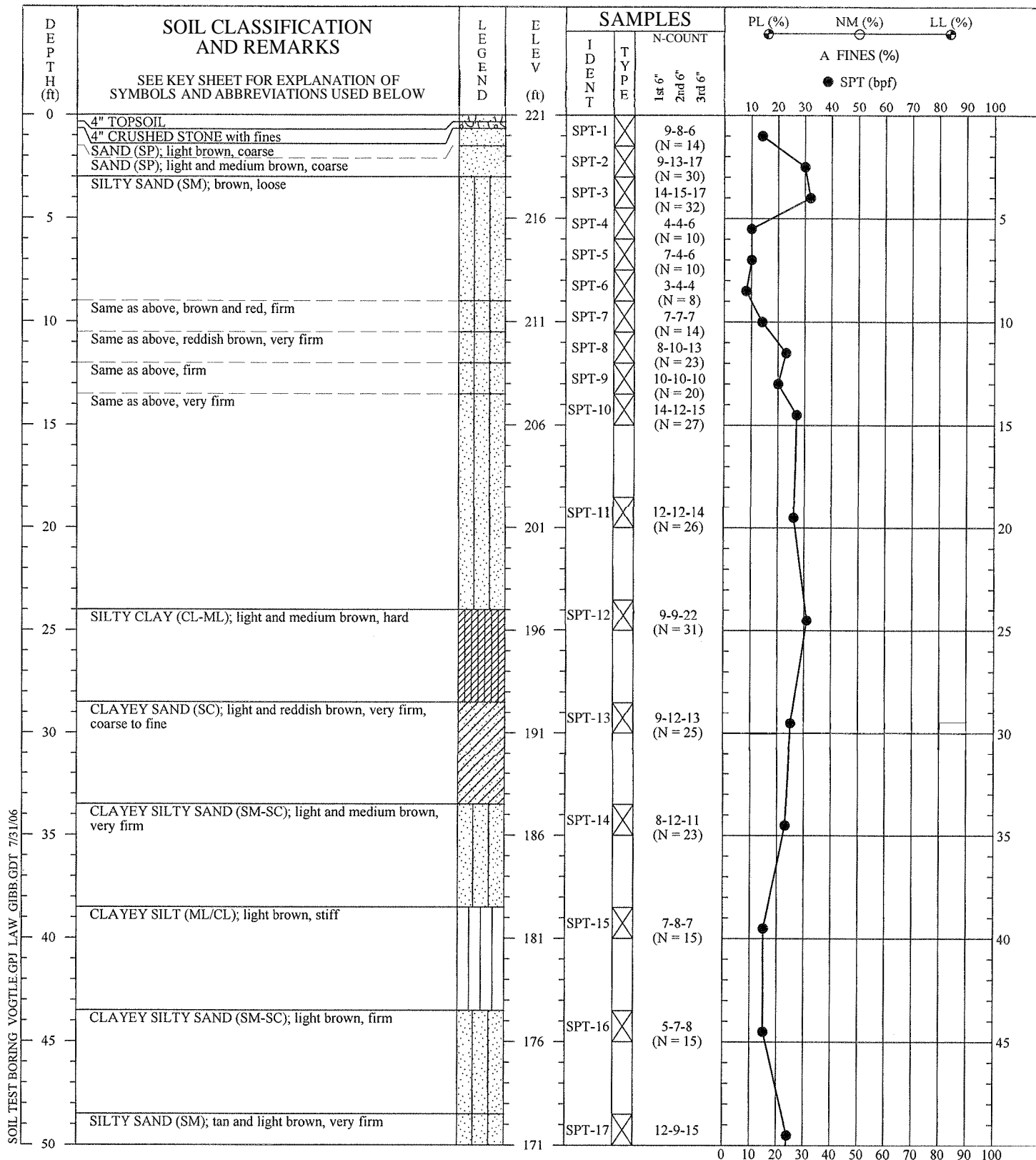
### SOIL TEST BORING RECORD

**BORING NO.:** B-1006  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 6, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL,



**DRILLER:** Robert Banks (MACTEC)  
**EQUIPMENT:** CME-55 (Auto-Hammer)  
**METHOD:** Rotary Wash with Mud  
**HOLE DIA.:** 4 inches  
**REMARKS:** Plant Grid: N 7662.29, E 7120.13 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 8/31/05

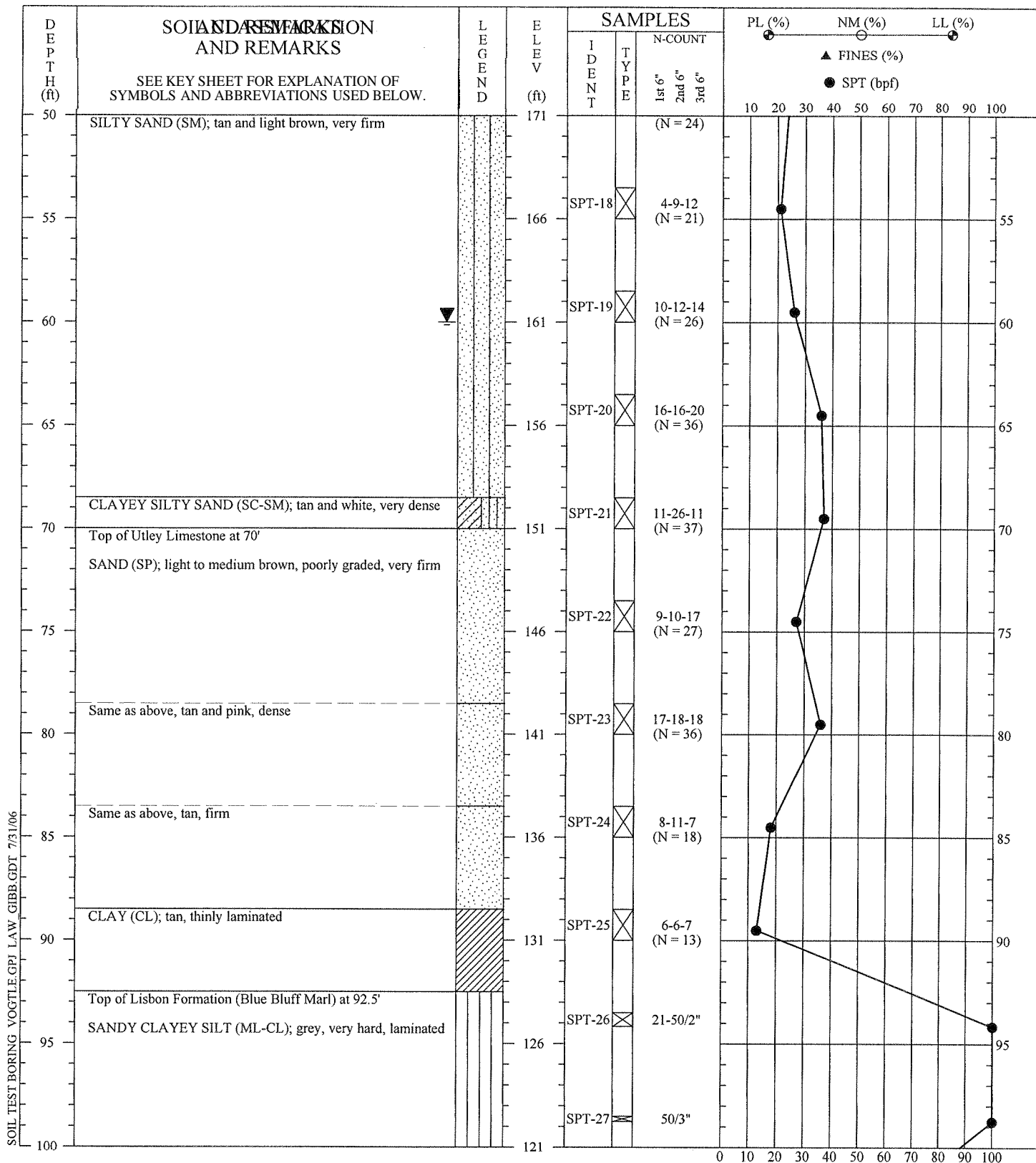
### SOIL TEST BORING RECORD

**BORING NO.:** B-1007  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** August 30, 2005  
**PROJECT NO.:** 6141-05-0227

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**MACTEC**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7662.29, E 7120.13 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 8/31/05

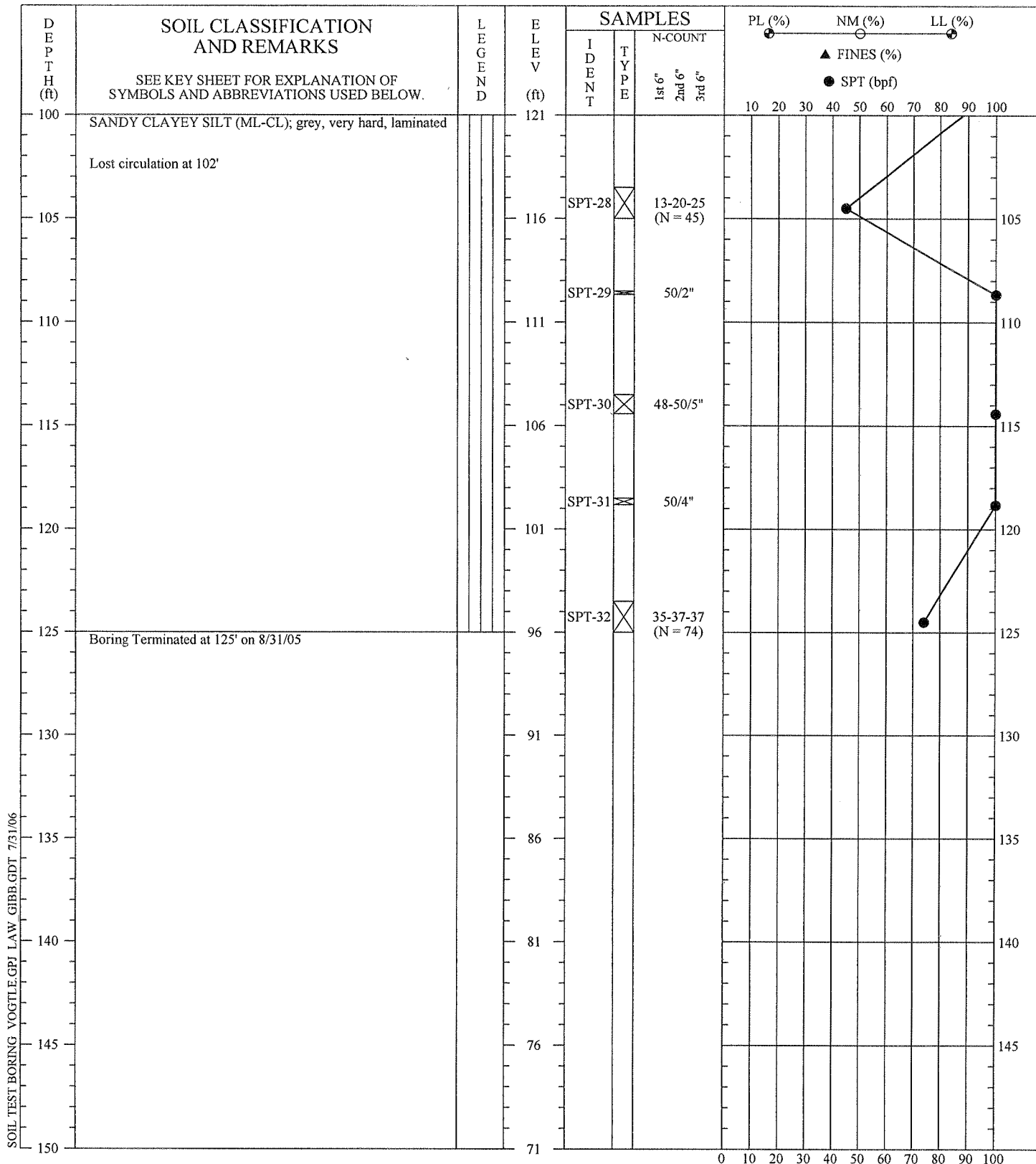
### SOIL TEST BORING RECORD

**BORING NO.:** B-1007  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** August 30, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7662.29, E 7120.13    +HCL denotes a visible reaction with Hydrochloric Acid (HCL). -HCL denotes no visible reaction with HCL    Water depth represents depth of water and mud as measured on 8131105

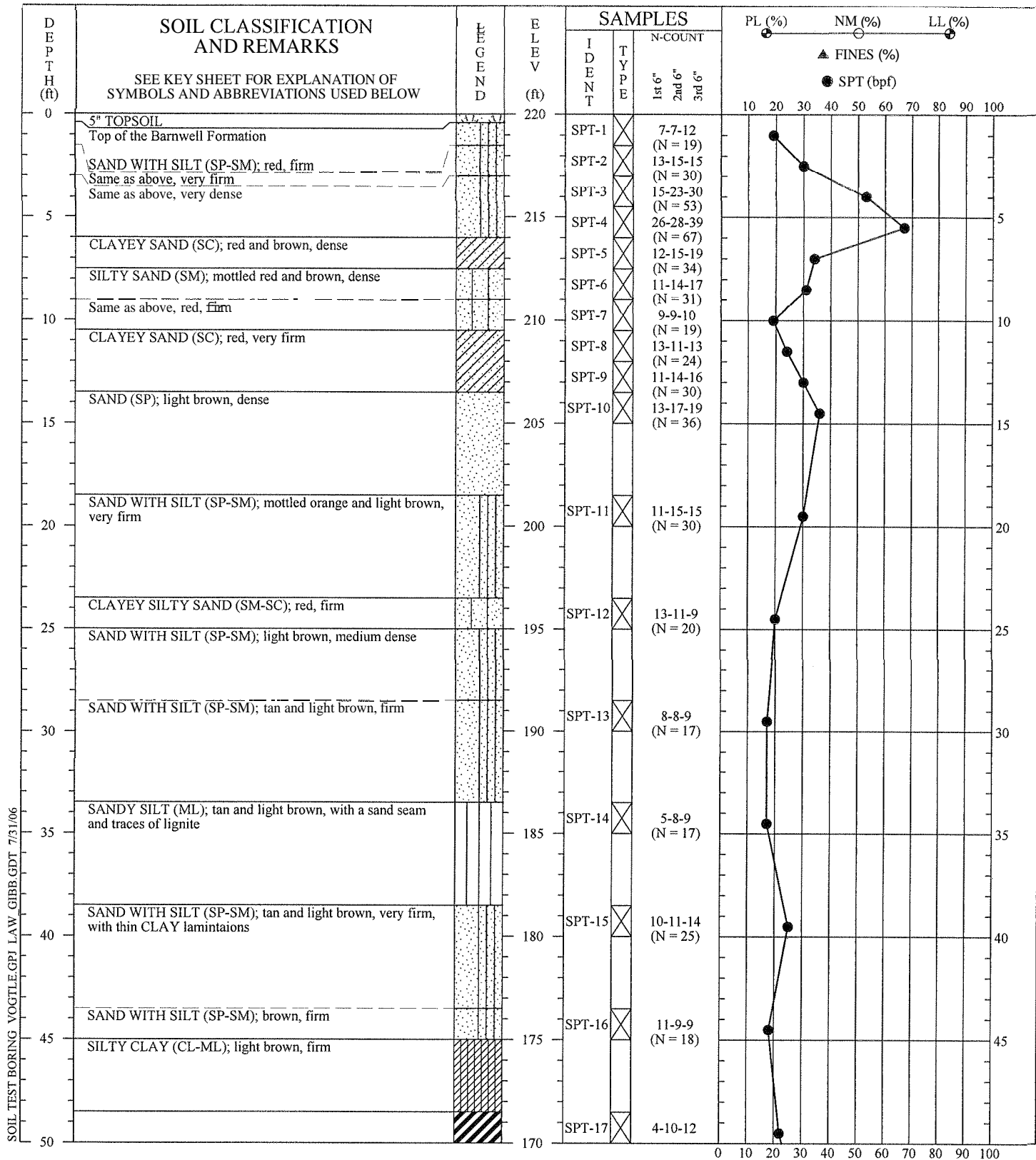
### SOIL TEST BORING RECORD

**BORING NO.:** B-1007  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOCTLE, BURKE COUNTY, GA  
**DRILLED:** August 30, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7670.93, E 7996.15 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/2/05

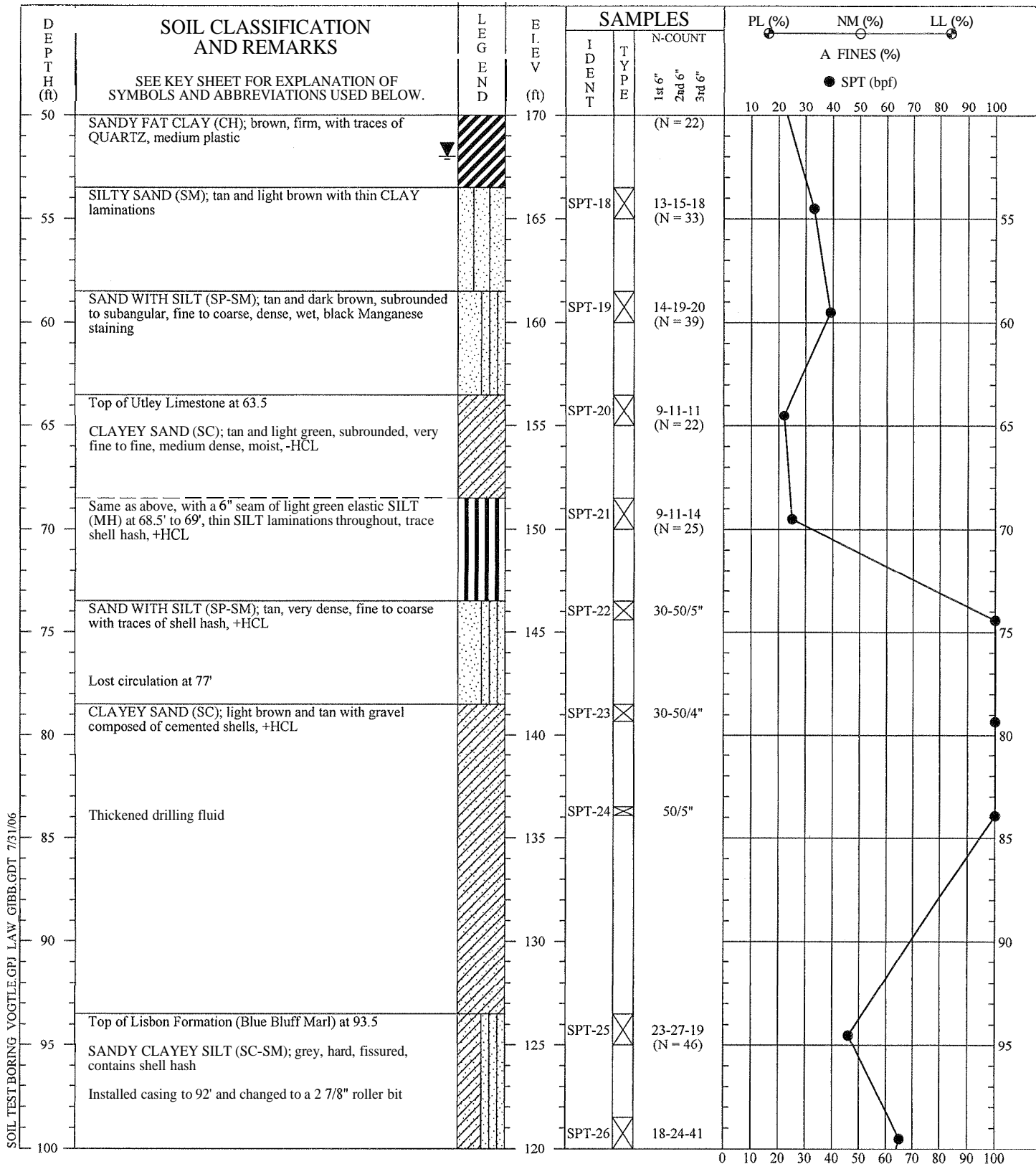
### SOIL TEST BORING RECORD

**BORING NO.:** B-1008  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

PAGE 1 OF 3

**MACTEC**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7670.93, E 7996.15 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with MCL Water depth represents depth of water and mud as measured on 9/2/05

### SOIL TEST BORING RECORD

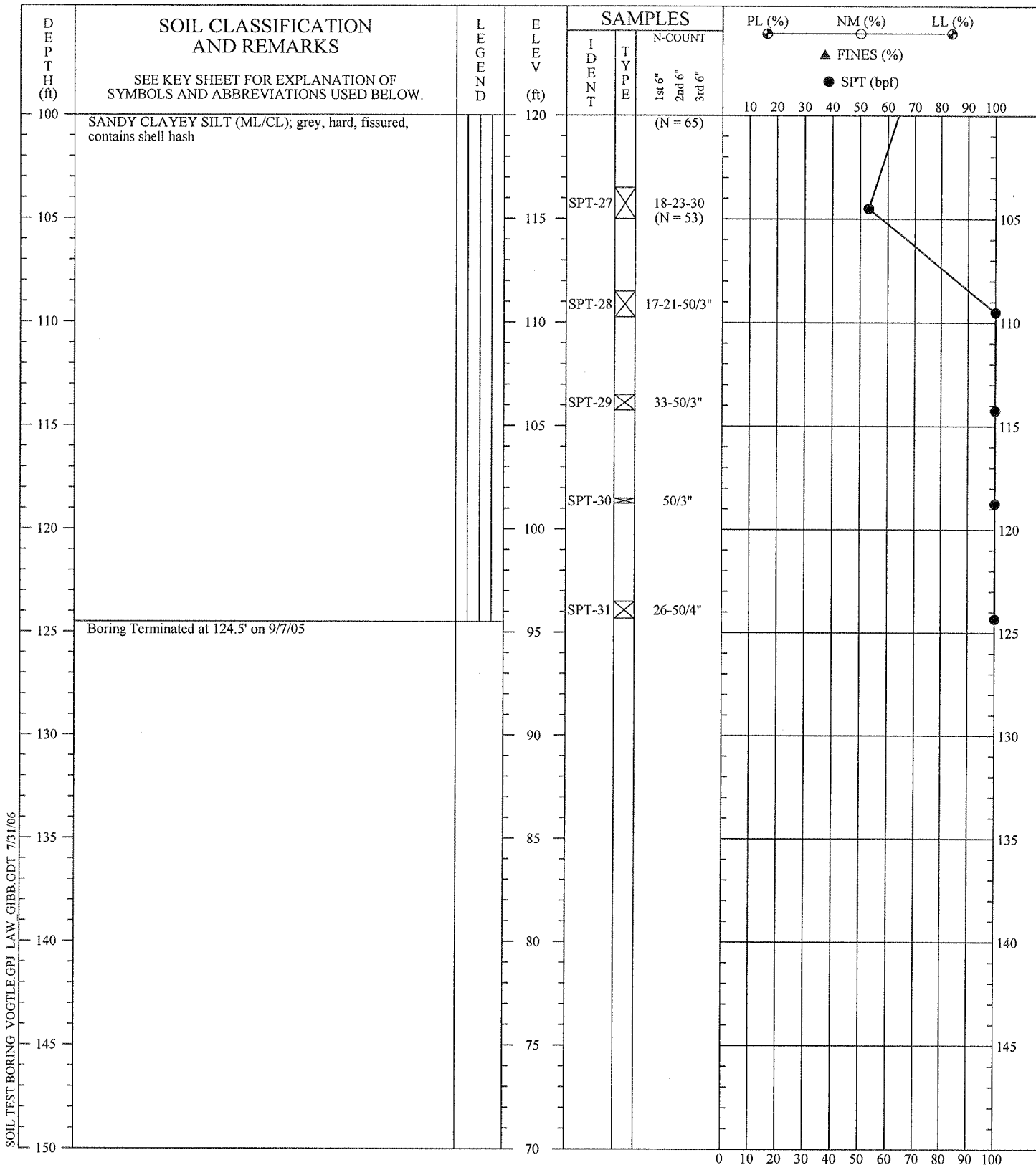
**BORING NO.:** B-1008  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary with mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 7670.93, E 7996.15 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/2/05

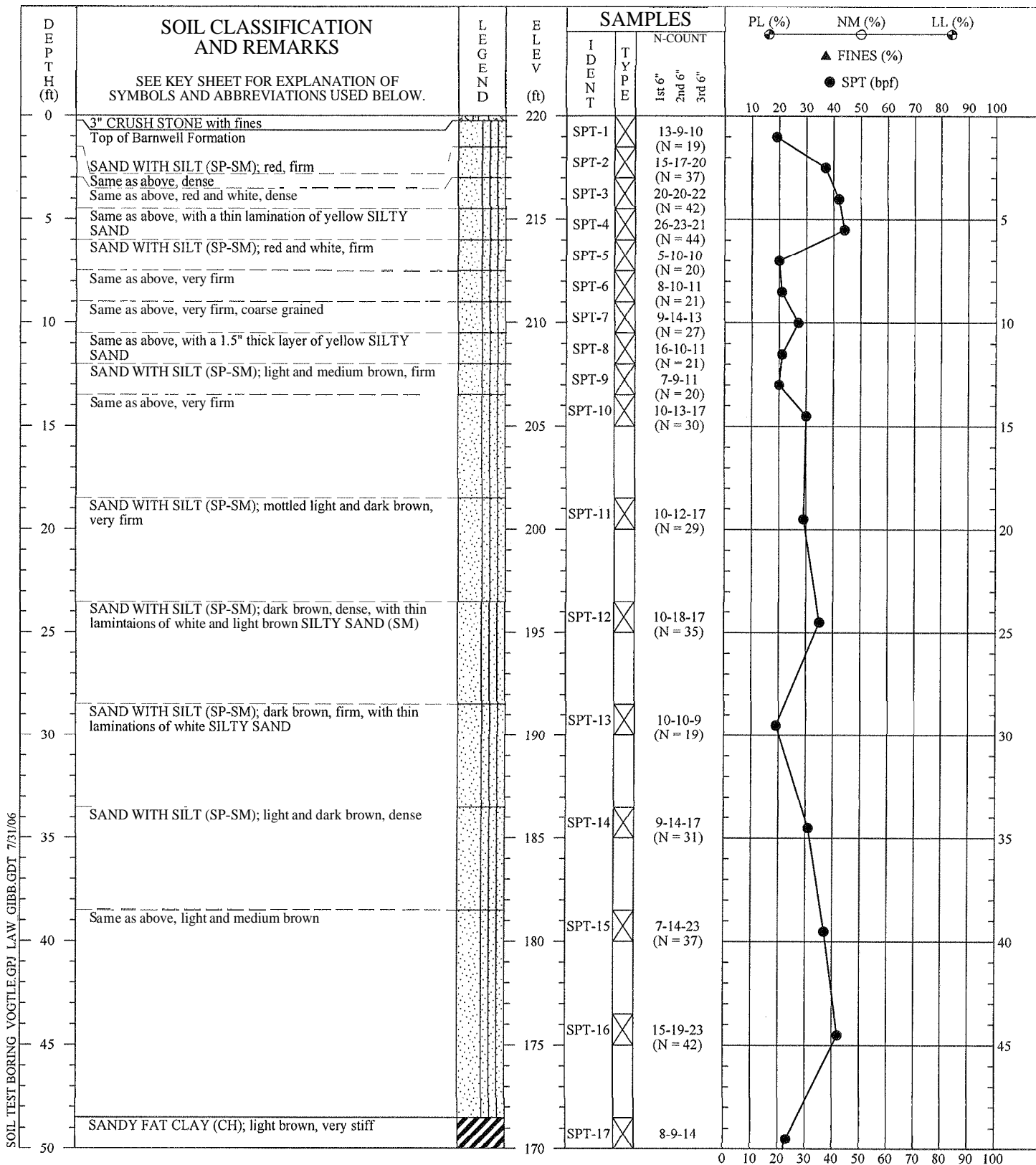
### SOIL TEST BORING RECORD

**BORING NO.:** B-1008  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005'  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

**MACTEC**



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with 4"  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 6000.54, E 6361.26  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

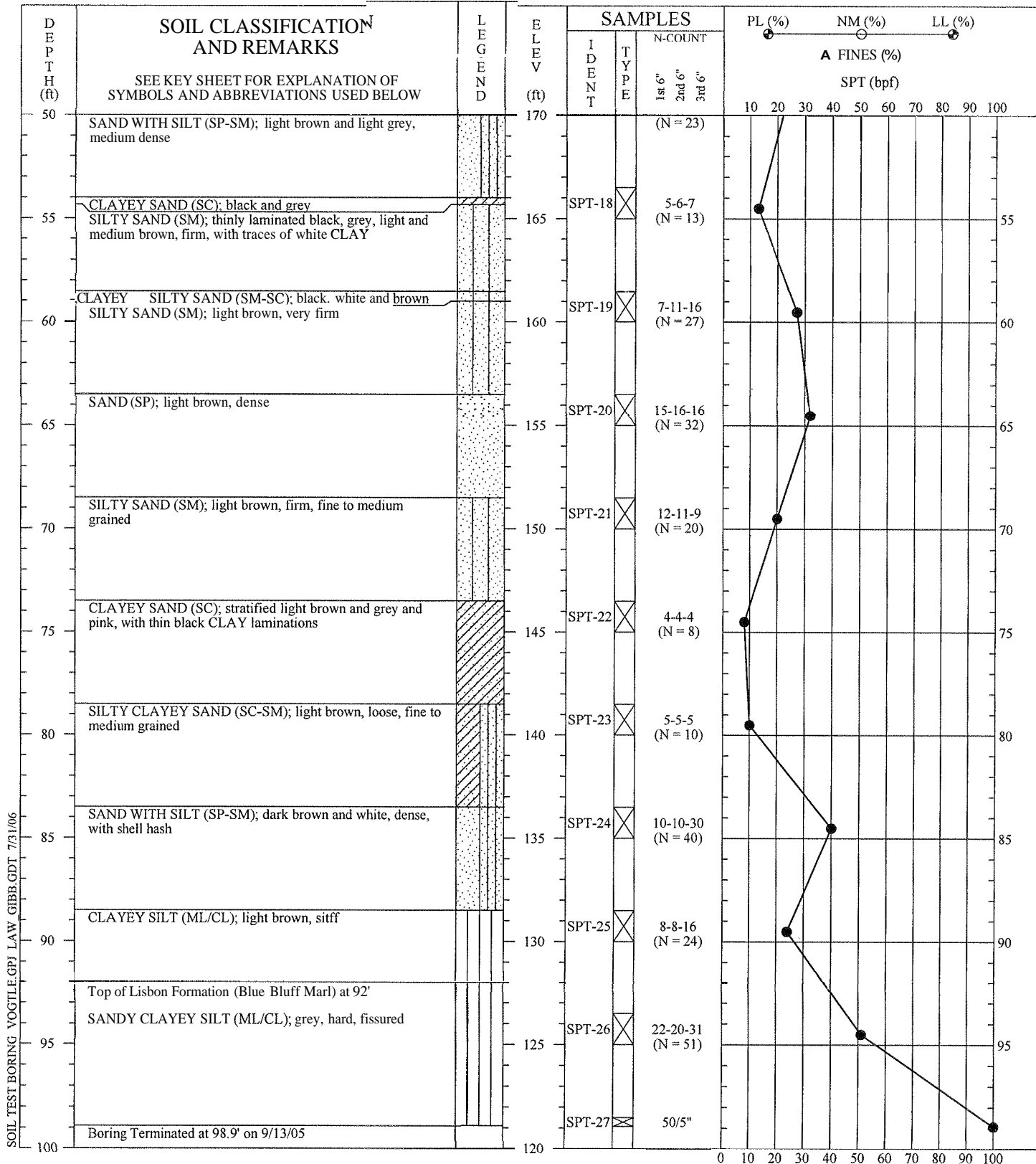
### SOIL TEST BORING RECORD

**BORING NO.:** B-1009  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 13, 2005  
**PROJECT NO.:** 6141-05-0227

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DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 6000.54, E 6361.26  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

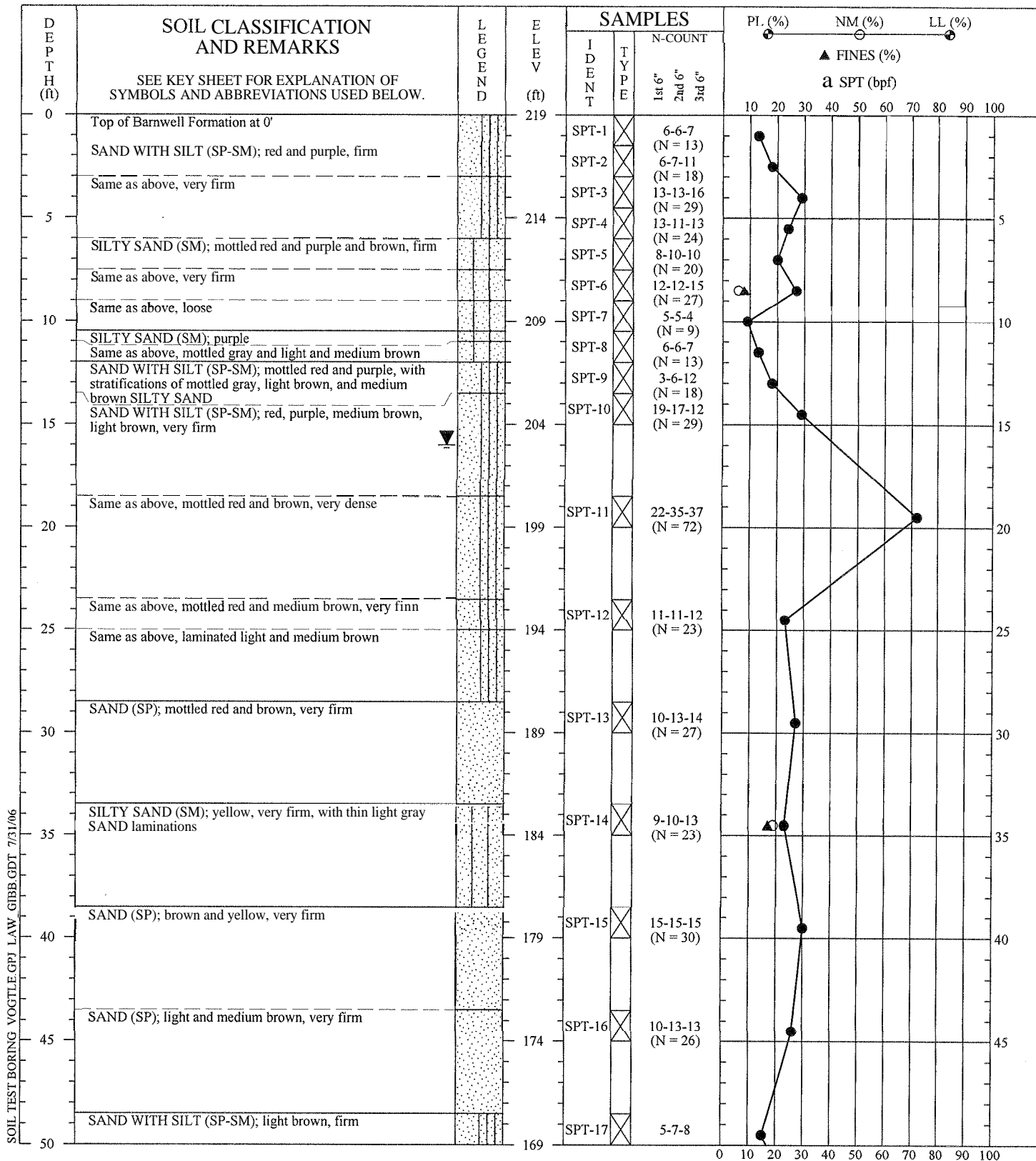
### SOIL TEST BORING RECORD

BORING NO.: B-1009  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 13, 2005  
 PROJECT NO.: 6141-05-0227

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 SUBSURFACE CONDITIONS AT THE EXPLORATION  
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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 6000.12, E 7279.68 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/9/05

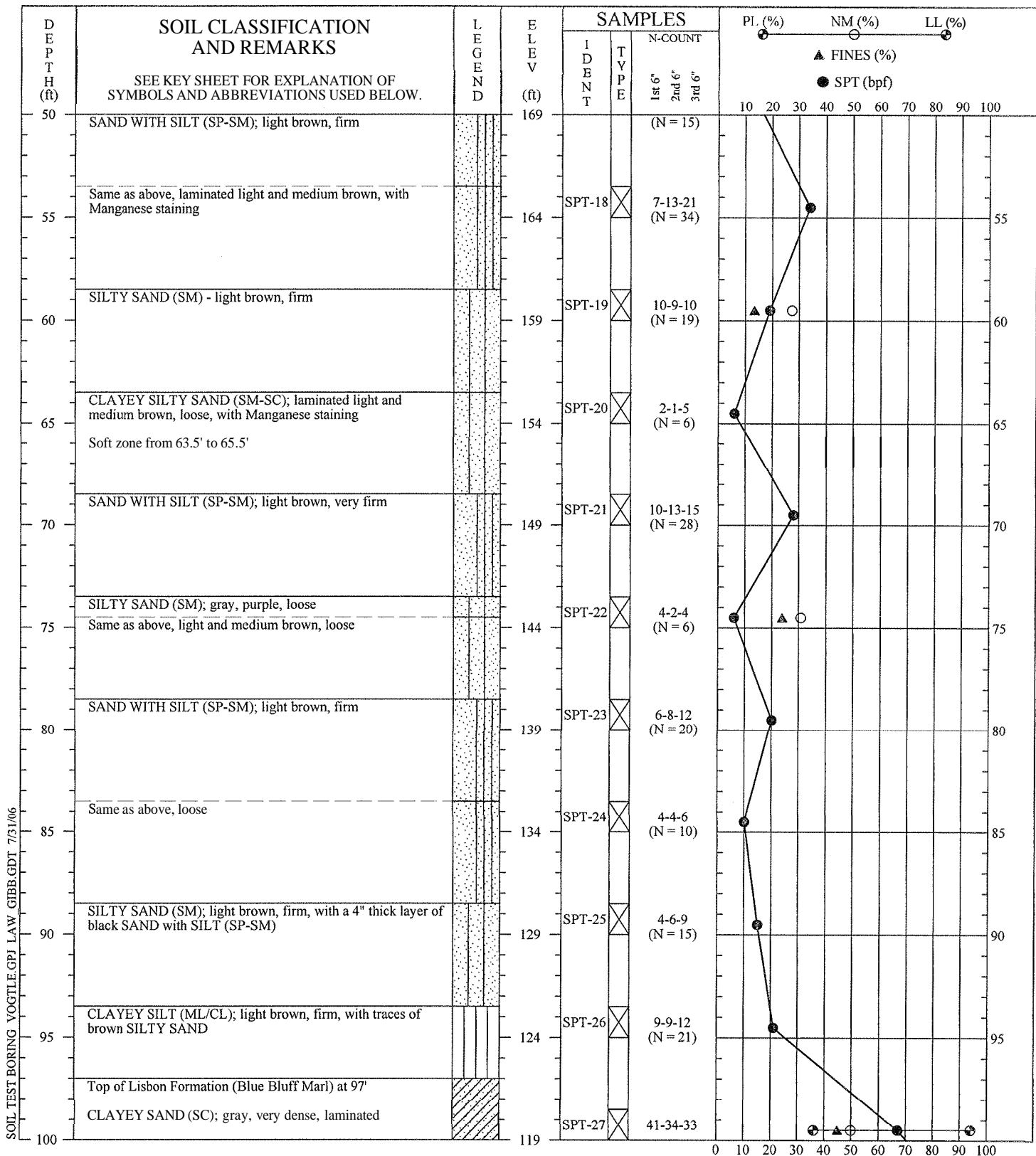
### SOIL TEST BORING RECORD

BORING NO.: B-1010  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 8, 2005  
 PROJECT NO.: 6141-05-0227

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**MACTEC**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



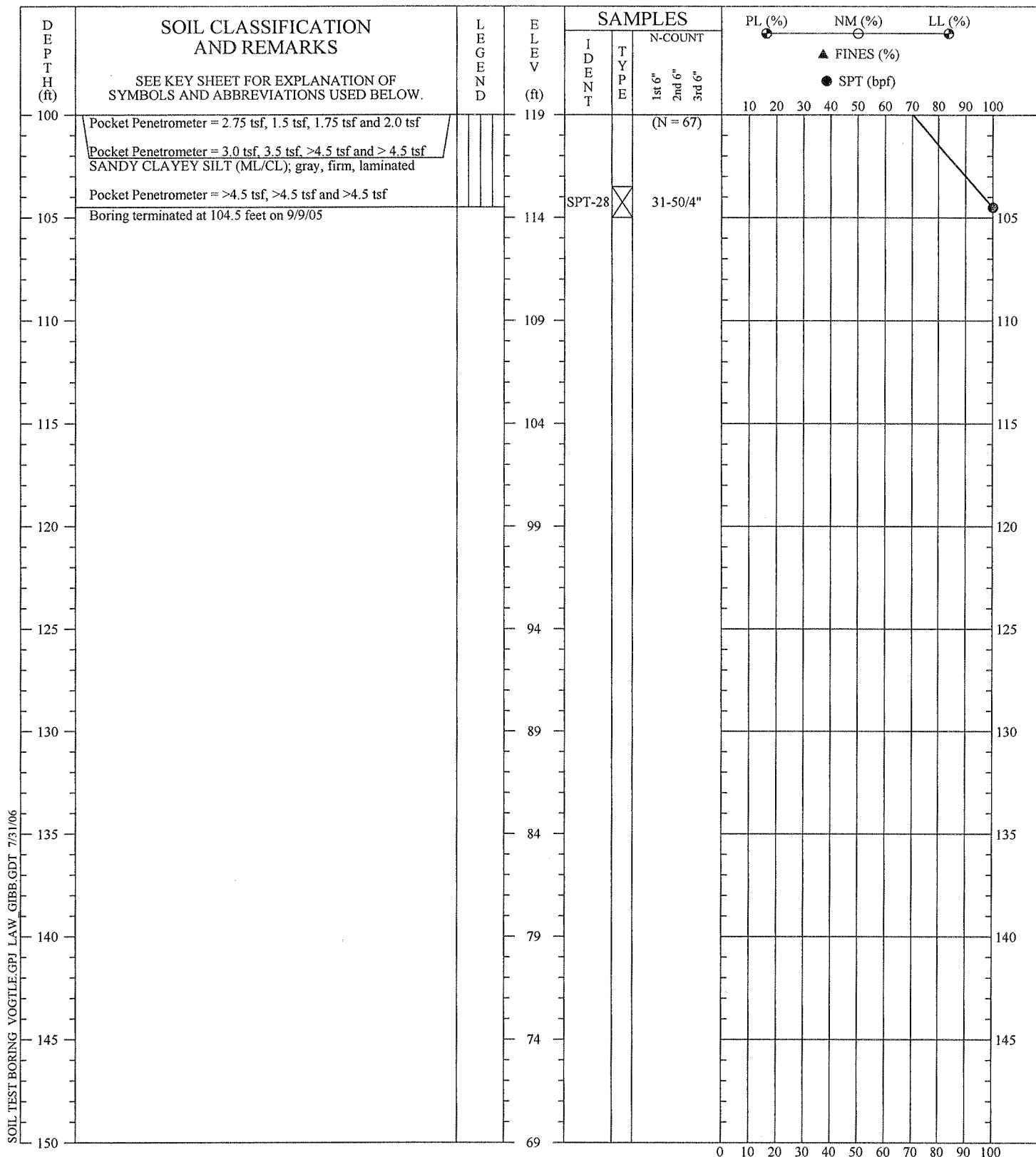
DRILLER: Robert Banks (MACTEC)  
EQUIPMENT: CME-55 (Auto-Hammer)  
METHOD: Rotary Wash with Mud  
HOLE DIA.: 4 inches  
REMARKS: Plant Grid: N 6000.12, E 7279.68 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/9/05

### SOIL TEST BORING RECORD

BORING NO.: B-1010  
PROJECT: ALWR - ESP  
LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
DRILLED: September 8, 2005  
PROJECT NO.: 6141-05-0227

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DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 6000.12, E 7279.68 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL Water depth represents depth of water and mud as measured on 9/9/05

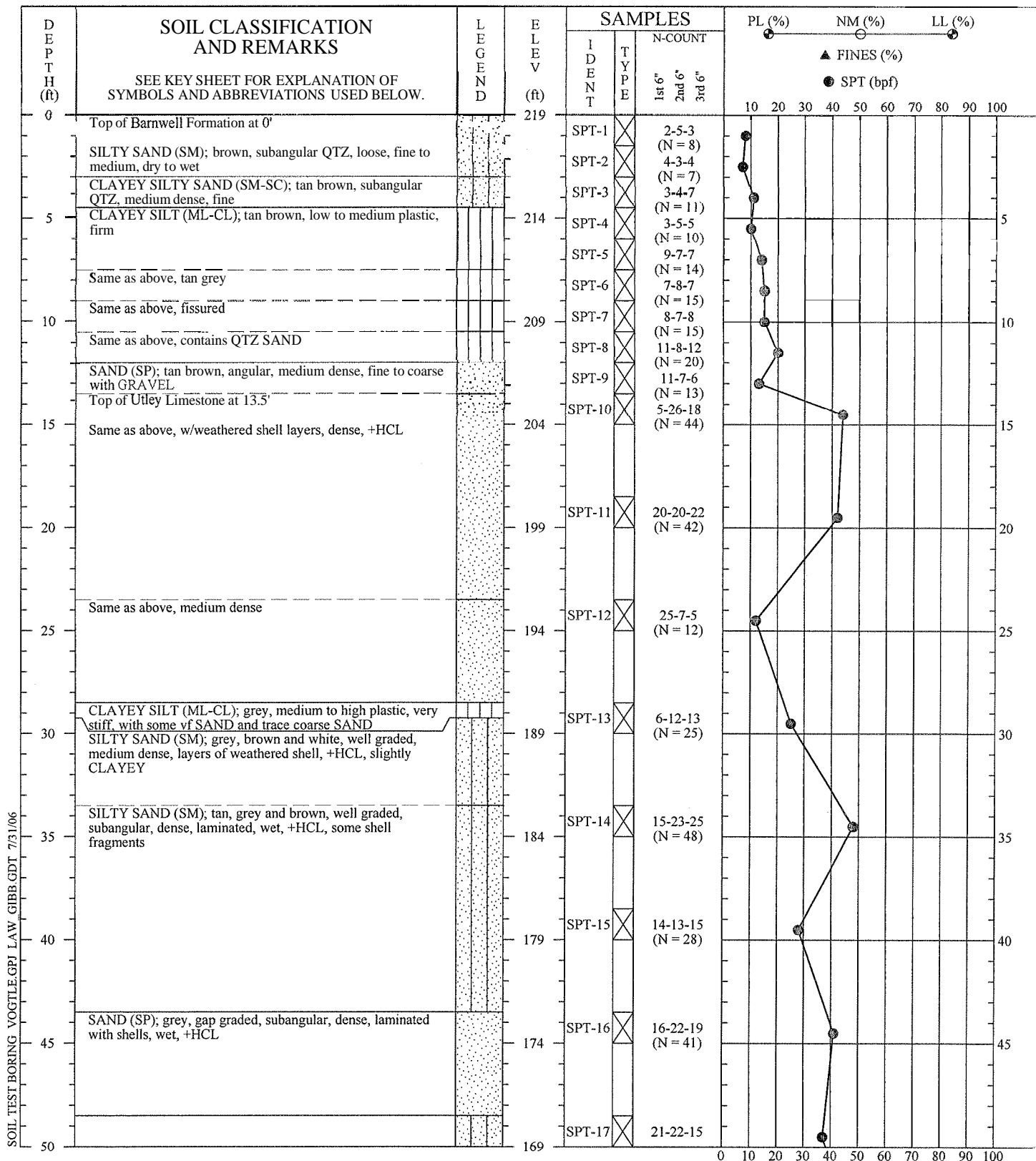
### SOIL TEST BORING RECORD

BOWING NO.: B-1010  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 8, 2005  
 PROJECT NO.: 6141-05-0227

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DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary W/ with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8741.13, E 8378.01  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

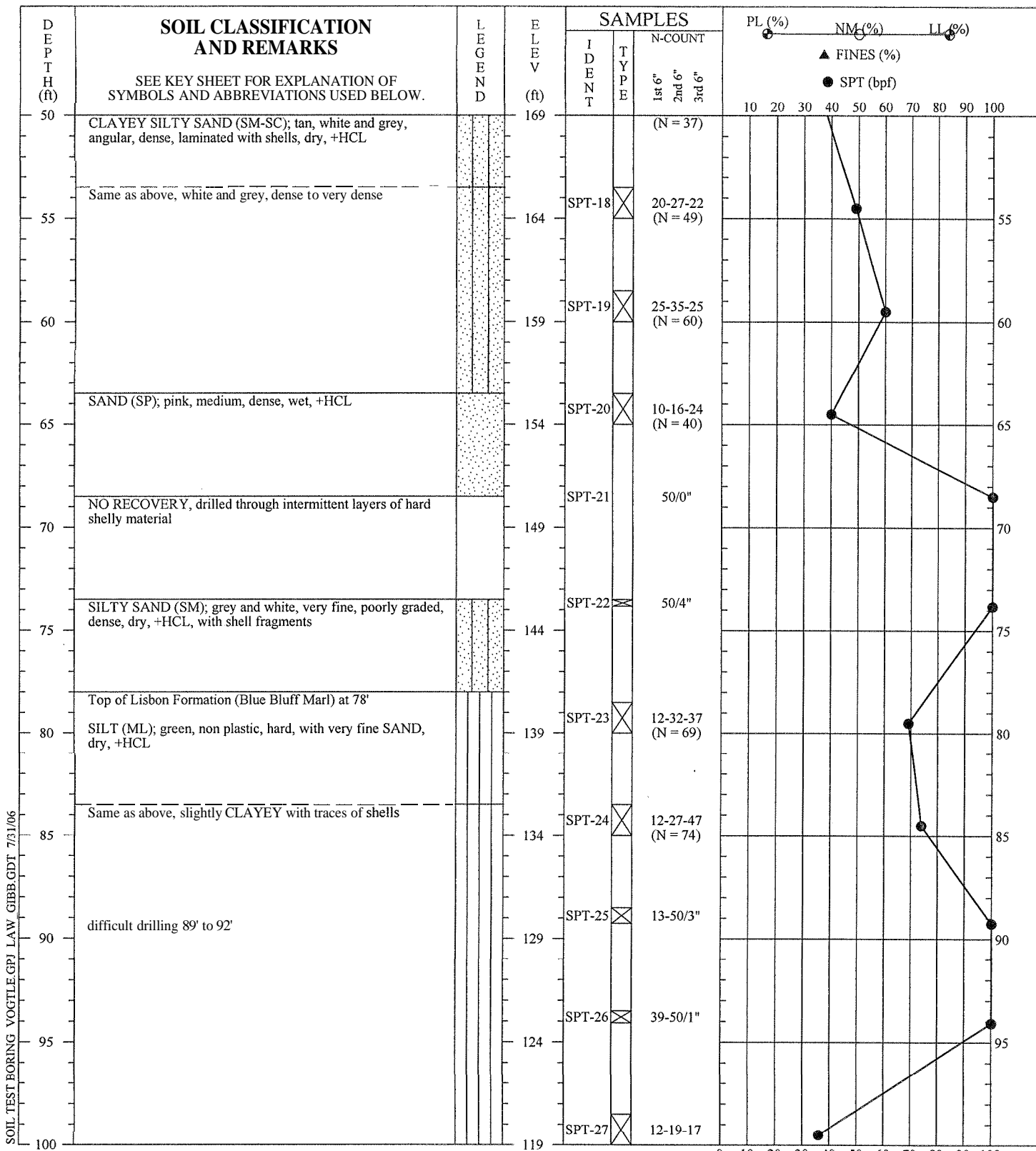
### SOIL TEST BORING RECORD

BORING NO.: B-1011  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 1, 2005  
 PROJECT NO.: 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
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DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8741.13, E 8378.01  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

### SOIL TEST BORING RECORD

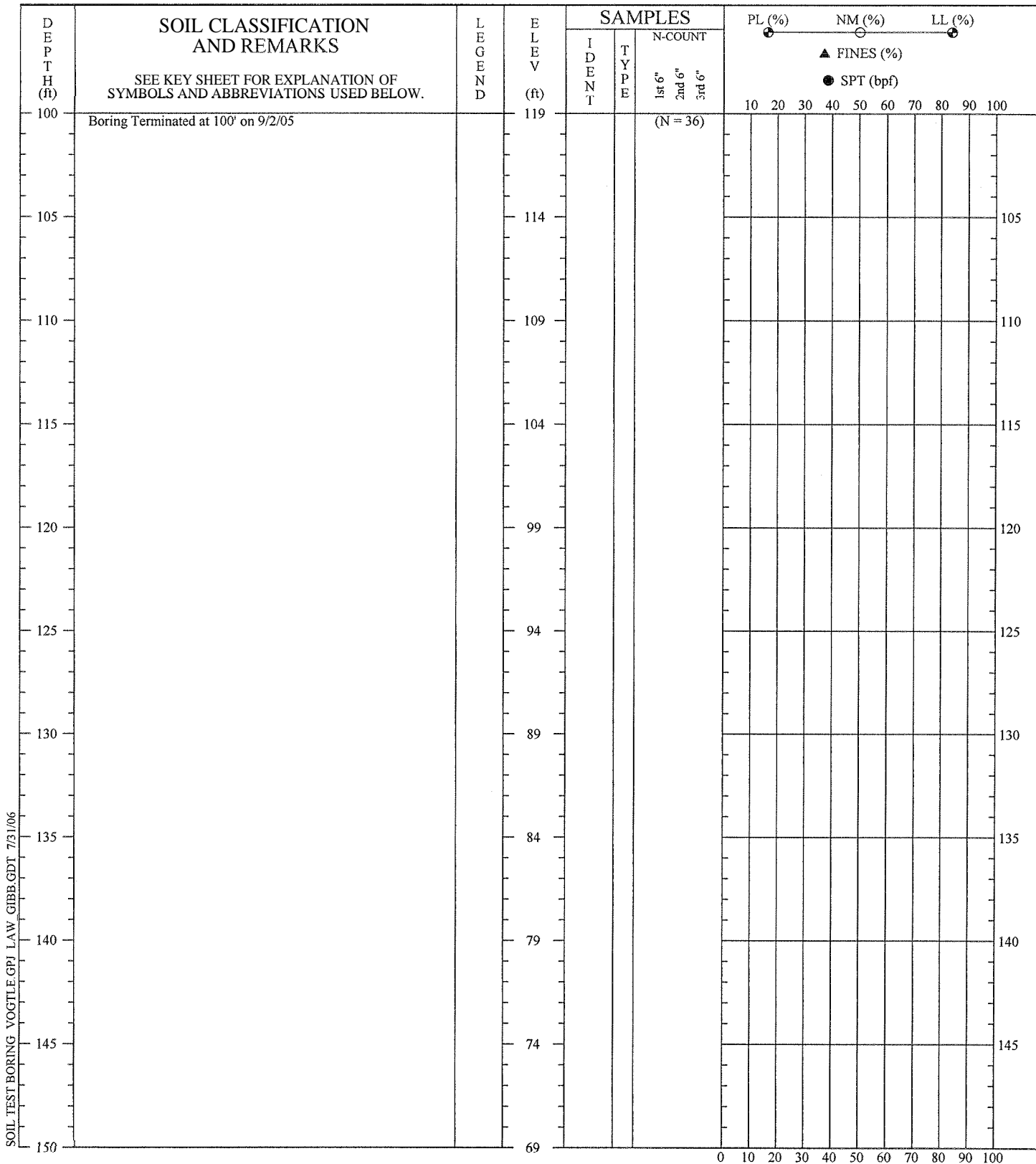
BORING NO.: B-1011  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 1, 2005  
 PROJECT NO.: 6141-05-0227

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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL







DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 8741.13, E 8378.01  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

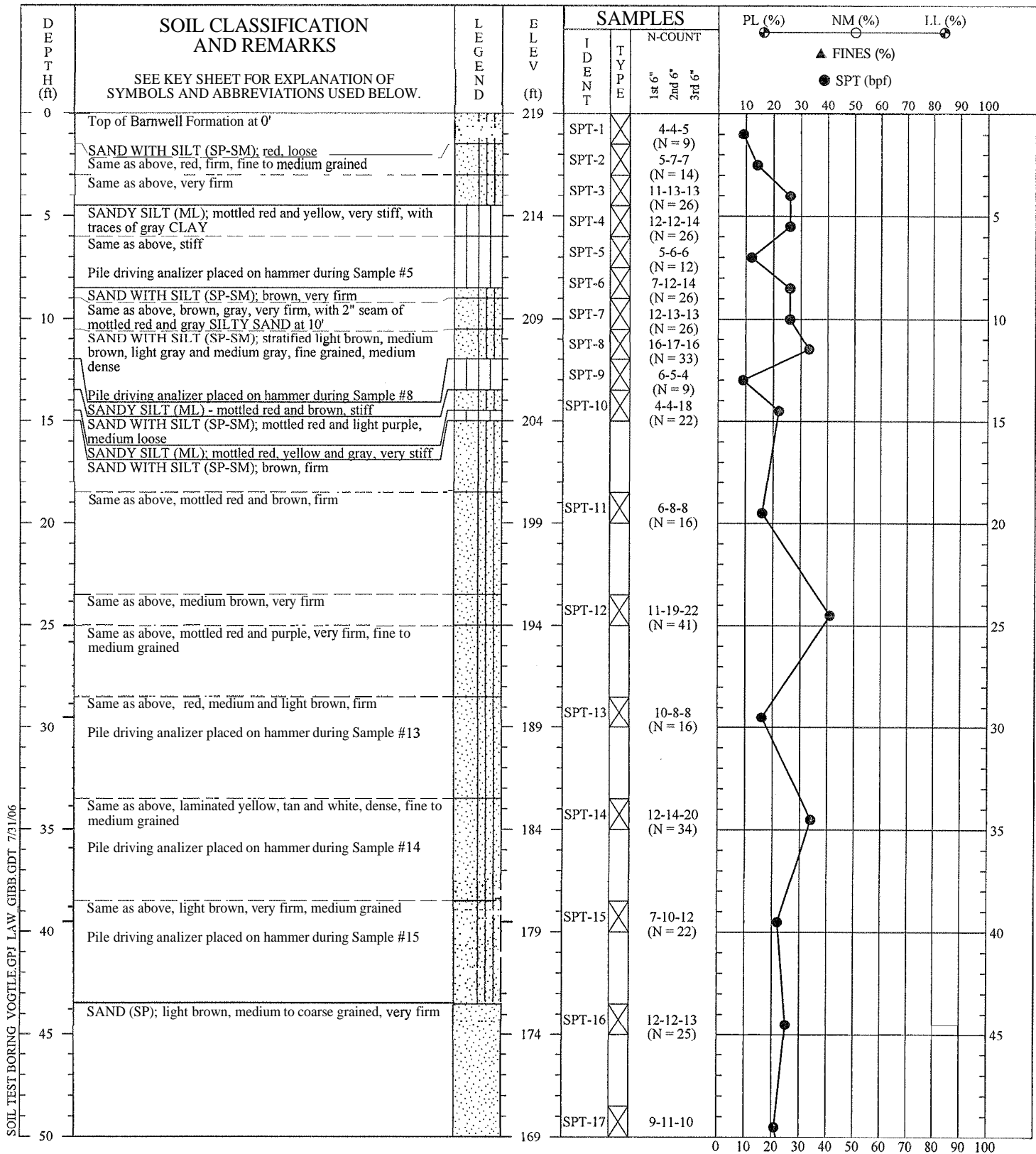
### SOIL TEST BORING RECORD

**BORING NO.:** B-1011  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 1, 2005  
**PROJECT NO.:** 6141-05-0227

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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 5976.08, E 8272.50  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

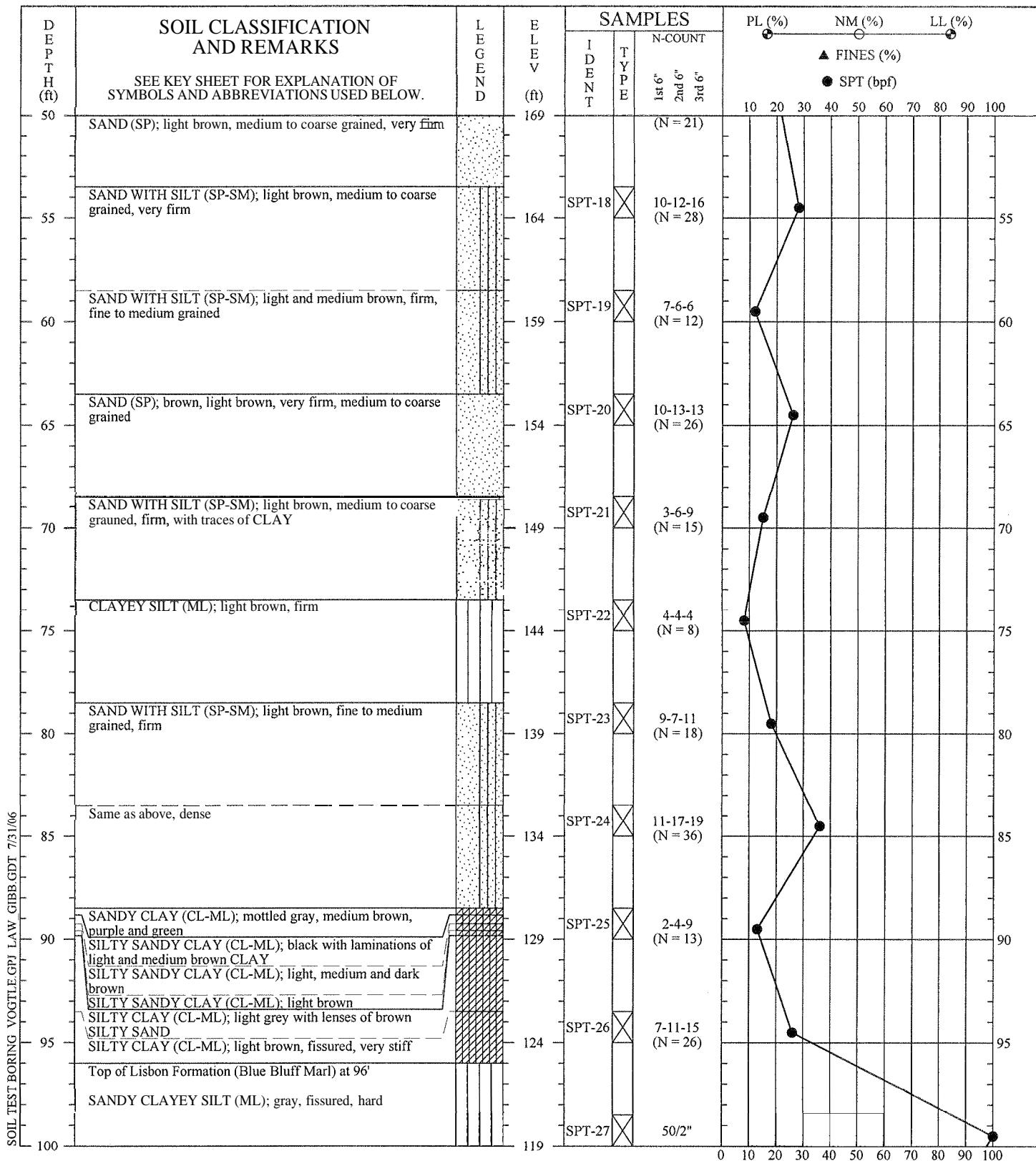
### SOIL TEST BORING RECORD

BORING NO.: B-1013  
 PROJECT: ALWR - ESP  
 LOCATION: PLANT VOGTLE, BURKE COUNTY, GA  
 DRILLED: September 7, 2005  
 PROJECT NO.: 6141-05-0227

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**MACTEC**

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DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 5976.08, E 8272.50  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL

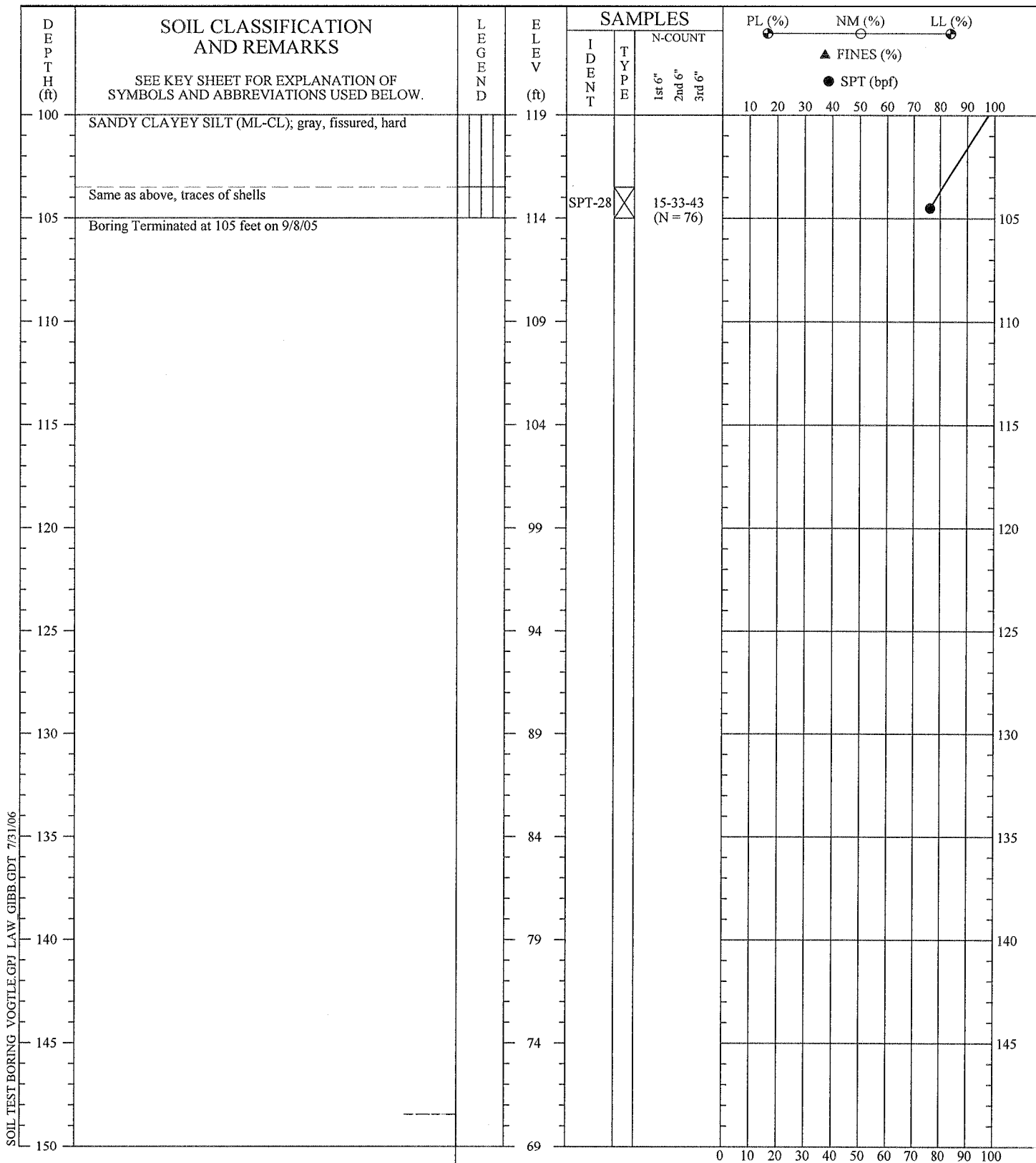
### SOIL TEST BORING RECORD

**BORING NO.:** B-1013  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 7, 2005  
**PROJECT NO.:** 6141-05-0227

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DRILLER: Robert Banks (MACTEC)  
 EQUIPMENT: CME-55 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 4 inches  
 REMARKS: Plant Grid: N 5976.08, E 8272.50  
 +HCL denotes a visible reaction with Hydrochloric Acid (HCL), -HCL denotes no visible reaction with HCL.

### SOIL TEST BORING RECORD

**BORING NO.:** B-1013  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** September 7, 2005  
**PROJECT NO.:** 6141-05-0227

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THIS RECORD IS A REASONABLE INTERPRETATION OF  
 SUBSURFACE CONDITIONS AT THE EXPLORATION  
 LOCATION. SUBSURFACE CONDITIONS AT OTHER  
 LOCATIONS AND AT OTHER TIMES MAY DIFFER.  
 INTERFACES BETWEEN STRATA ARE APPROXIMATE.  
 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS  SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)	SAMPLES			PL (%)      NM (%)      LL (%)		
				IDENT	TYPE	N-COUNT 1st 6"   2nd 6"   3rd 6"	▲ FINES (%) ● SPT (bpf)		
							10	20	30
0	This boring was created for P-S suspension logging. No material sampling was performed.		224						
5	Attempted to mud rotary to 60 feet.  Added 200 gallons of drilling fluid to fill hole for P-S suspension logging. Logged hole to a depth of 33 feet.		219						5
10			214						10
15			209						15
20			204						20
25			199						25
30			194						30
35			189						35
40			184						40
45			179						45
50	Loss of circulation		174						

DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7989.75, E 8179.26  
 Boring is offset 7 feet SSE from C-1005.

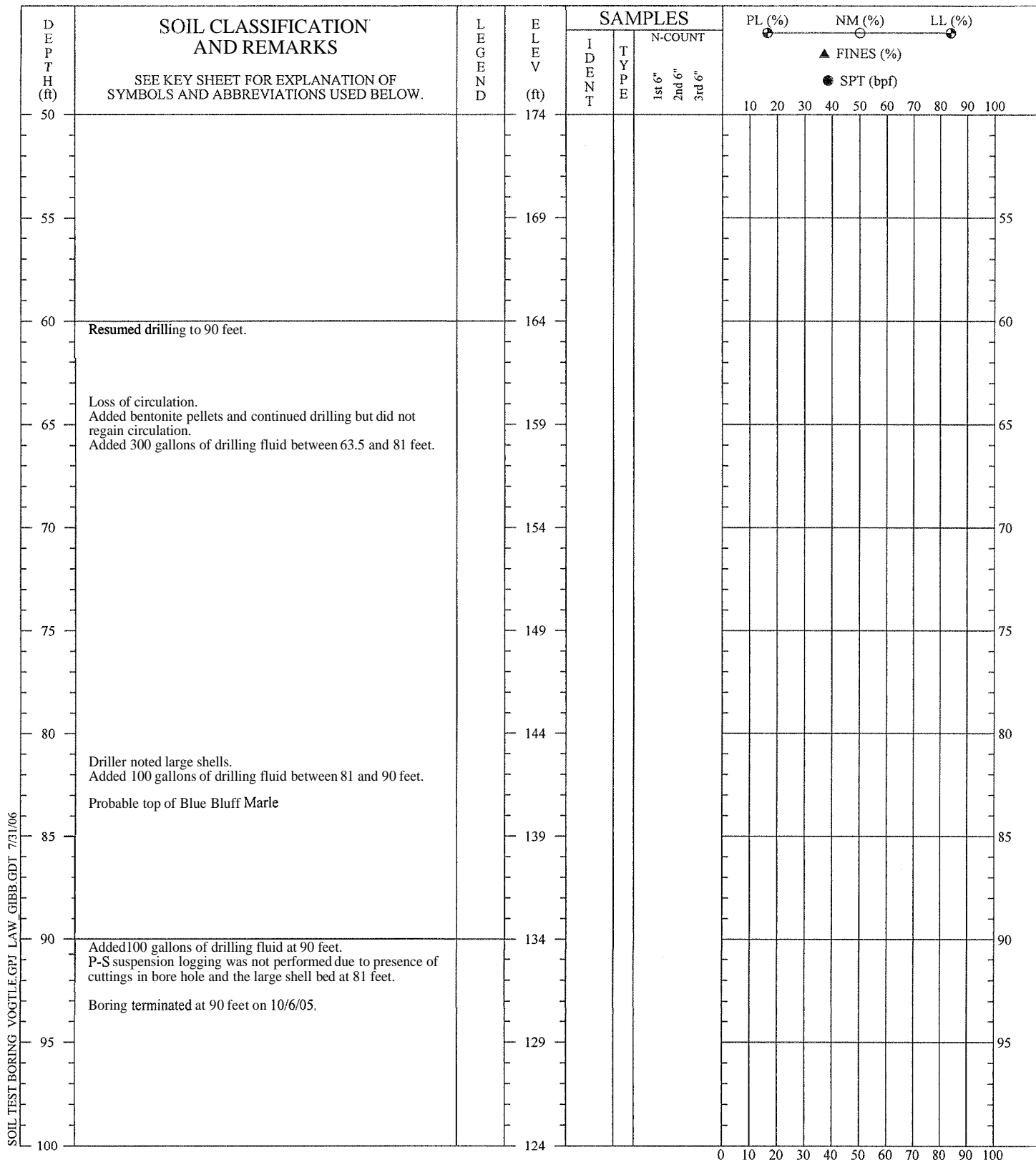
### SOIL TEST BORING RECORD

**BORING NO.:** C-1005A  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** October 6, 2005  
**PROJECT NO.:** 6141-05-0227

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 TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



DRILLER: Jimmy Oglesby (MACTEC)  
 EQUIPMENT: CME-75 (Auto-Hammer)  
 METHOD: Rotary Wash with Mud  
 HOLE DIA.: 6 inches  
 REMARKS: Plant Grid: N 7989.75, E 8179.26  
 Boring is offset 7 feet SSE from C-1005

### SOIL TEST BORING RECORD

**BORING NO.:** C-1005A  
**PROJECT:** ALWR - ESP  
**LOCATION:** PLANT VOGTLE, BURKE COUNTY, GA  
**DRILLED:** October 6, 2005  
**PROJECT NO.:** 6141-05-0227

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