APPENDIX 2J

SAMPLE DESCRIPTIONS FOR BORINGS MADE IN NOVEMBER-DECEMBER 1972

(REFERENCE FSAR FIGURE 2.5-46)

The information contained in this appendix was not revised, but has been extracted from the original FSAR and is provided for historical information.

SAMPLE DESCRIPTIONS
FOR
BORINGS MADE NOVEMBER-DECEMBER, 1972

SEABROOK STATION

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

Submitted

to

YANKEE ATOMIC ELECTRIC

Project 7286

GEOTECHNICAL ENGINEERS, INC.
934 Main Street
Winchester, Massachusetts 01890

January 1973

NOTATION

w	water content of split-spoon sample received in the laboratory
PL	plastic limit
q_u(rec)	equivalent unconfined compressive strength based on penetrometer resistance measured in the laboratory on the split-spoon sample

NOTES

1. There are no borings corresponding to the following numbers: D1-2, D2-2, D2-6.
2. Logs of the rock cores are shown on separate sheets.
3. All samples taken with 2-inch split-spoon sampler.

BORING NO. Dl-1

SOIL DESCRIPTIONS

Ground Elevation: 9.8 ft

Depth to Water Level: 5.8 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 0.5	1	Dark brown leaves and root material.
1A	0.5- 2	2-2-3	Gray-brown slightly organic silty uniform fine to medium sand.
2	5- 6.5	40-17-39	Brown and red-brown silty gravelly sand. Widely graded; contains some fine-sandy silt pockets; grave up to ~ 25 mm in size.
3	10-11	16-20	Brown silty gravelly sand. Widely graded; angular to subrounded grains; contains ~ 20-30% gravel up to 28 mm in size and ~ 10-20% nonplastic fines; few gray lenses ~ 5 mm thick and several rusty-brown spots.
4	15-16.5	10-12-20	Light gray slightly silty and gravelly sand. Fine to coarse grained with a few gravel pieces up to 35 mm in size; angular to subrounded grains; ~ 5-10% silt.

BORING NO. D1-3
SOIL DESCRIPTIONS

Ground Elevation: 14.0 ft
Depth to Water Level: 2.0 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	0- 0.5	1	Dark brown fine-sandy organic silt. Nonplastic; contains some roots up to 0.5 mm diameter.
1A	0.5-1.5	3-4	Light brown sand. Fine to medium grained; uniform contains few black organic pieces < 0.5 mm in size; < 5% nonplastic fines.
2	5- 6.5	8-15-2:	Brown to rusty-brown sandy silty gravel. Widely graded; angular to subangular grains; contains ~ 30-40% nonplastic fines and ~ 20-30% sand; grave pieces up to 25 mm in size. w = 11.2%
3	10-11	43-150	Gray silty gravelly sand. Widely graded; angular grains; contains ~ 30-40% gravel up to 30 mm in size and ~ 20-30% slightly cohesvie fines.

BORING NO. D1-4
SOIL DESCRIPTIONS

Ground Elevation: 11.4 ft
Depth to Water Level: 2.0 ft bovc ground surface Project No. '7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	0- 0.5	1	Dark brown decomposed leaves.
1A	0.5-1.	3-3'	Light brown slightly gravelly silty sand. Widely graded; subangular grains; slightly plastic fines; gravel pieces up to ~ 20 mm in size.
2	5- 6.5	13-8-1!	Yellow-brown silty clay. Stiff; orange streaks throughout sample; occasional pockets of orange fine sand; some discoloration on freshly broken surface. w = 19.9%
3	8- 9.5	12-25-5	Brown slightly clayey gravelly fine sand. Subangular grains; red-brown fine sand at top of sample; contain gravel up to ~ 30 mm in size.
4	13-13.9	64-87/5	Gray gravelly silty sand. Widely graded; contains subangular gravel pieces up to ~ 25 mm in size; slightly plastic fines.
5	5.4-15.	25/1"-25/0"	No recovery.

BORING NO. D1-5
SOIL DESCRIPTIONS

Ground Elevation: 16.6 ft
Depth to Water Level: 2.8 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	0-1.5	1-1-2	Top is dark brown leaves and decomposed root materials. Bottom is brown silty sand. Sand is mostly fine-grained with a trace of medium and coarse grains.
2	1.5-3	1-2-10	Light brown slightly silty fine sand. Contains few medium sand grains and gravel pieces up to ~ 20 mm in size.
3	5-6.5	31-33-46	Brown slightly gravelly silty sand. Widely graded; subangular to subrounded grains; contains a pocket of weathered quartz; orange-brown staining on freshly broken gravel surfaces.
4	10-11.5	23-52-122	Brown gravelly silty sand. Widely graded; gravel is subangular to subrounded; iron oxide staining on freshly broken surfaces of gravel; gravel pieces range in size up to ~ 20 mm.
5	14-15.3	20-29-100/4"	Top is orange-brown silty fine to medium sand with a trace of coarse sand. Bottom is gray stratified sand: clayey silt and Clay. Layers are < 2 mm thick; contains some coarse sand and a few gravel pieces up to ~ 25 mm in size. w = 23.6%

BORING NO. D1 -6
SOIL DESCRIPTIONS

Ground Elevation: 19.2 ft
Depth to Water Level: 3 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1	1 - 1	Brown organic silty fine sand with small roots and leaves.
1A	1- 1.5	4	Light brown silty fine sand. Uniform; contains a few gravel pieces up to ~ 15 mm in size.
2	5- 6.1	24-124-46/1"	Light brown and red-brown gravelly silty sand. Widely graded; some iron staining on weathered gravel pieces up to ~ 20 mm in size.
3	0-11.5	1-56-11	Red-brown silty fine to coarse Hand. Generally angular grains; has appearance of weathered rock.

BORING NO. D1-7
SOIL DESCRIPTIONS

Ground Elevation: 14.3 ft
Depth to Water Level: 1.2 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-2-3	Brown sandy organic silt. Contains leaves and roots up to 8 mm diameter; some lighter brown silty sand pockets.
2	1.5- 3	2-3-4	Mottled brown, gray, and rusty-brown clayey silt. Very stiff; low plasticity and *toughness;* w slightly above PL; contains brown and rnsty-brown silty fine sand layers up to 40 mm thick; a few roots up to 2 mm diameter. q_u(rec) = 2.5 tsf w = 19.0%
3	5- 6.5	20-26-29	Most of sample is gray angular rock fragments up to 35 mm in size. One layer ~ 30 mm thick is brown to rusty-brown gravelly silty sand. Widely graded; angular grains; contains ~ 20-30% slightly cohesive fines and gravel up to 10 mm in size.
4	10-11	55-90	Brown and rusty-brown silty sandy gravel. Widely graded; angular grains; contains ~ 30-40% fine to coarse sand and ~ 10-20% nonplastic fines; gravel pieces up to 35 mm in size.
5	13-14.5	15-30-55	Gray sandy silty gravel, Widely graded; angular grains; contains ~ 20-25% slightly cohesvie fines and ~ 10% fine to coarse sand; gravel pieces up to 30 mm in size.

BORING NO. D1-8
SOIL DESCRIPTIONS

Ground Elevation: 15.9 ft
Depth To Water Level: 1.9 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-1-12	Top is dark brown fine-sandy organic silt containing *several* roots < 1 mm diameter; Bottom is brown and rusty-brown sandy silt containing many dark brown organic pieces < 0.5 mm in size.
2	5- 6.5	31-40-72	Brown slightly gravelly silty sand. Widely graded; angular to subrounded grains; contains ~ 30-40% nonplastic fines and ~ 10-15% gravel up to 35 mm in size; fast reaction to shaking test.
3	8.5- 9	127	Gray-brown silty gravelly sand. Widely graded; angular grains; contains ~ 30-40% gravel up to 25 mm in size and ~ 20-30% nonplastic fines.

BORING NO, D1-9
SOIL DESCRIPTIONS

Ground Elevation: 20.8 ft
Depth to Water Ia I: 2.2 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	2-2-2	Light brown silty fine sand.

BORING NO. Dl-10
SOIL DESCRIPTIONS

Ground Elevation: 19.2 ft
Depth to Water Level: 5.5 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	2-2-3	Brown slightly organic sandy silt. Nonplastic; contains ~40-50% fine to medium sand and several root up to 1 mm diameter, many decomposed vegetation pieces < 1 mm in size; fast reaction to shaking test.
2	1.5- 3	3-4-5	Brown gravelly silty sand. Widely graded; grains ax angular to subangular; contains ~ 20-30% nonplastic fines and ~10-20% gravel up to 30 mm in size; fast reaction to shaking test.
3	7.5- 8	120	Similar to Sample No. 2, but more silty; some gray pockets or layers ~ 30 mm thick; contains several gray angular rock fragments at bottom.

BORING NO, DI-11
SOIL DESCRIPTIONS

Ground Elevation: 13.8 ft
Depth to Water Level: 1.2 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o-2	1-1-4-7	Top is dark brown peat with many roots up to 1 mm diameter. Bottom is brown sand. Fine grained; uniform; contains few black organic pieces < 1 mm in size; < 5% silt.
2	5- 6.5	7-10-12	Light gray silty sand. Fine grained; uniform; very fast reaction to shaking test; contains ~ 30-40% nonplastic fines; part of sample is silty gravelly sand containing gravel up to 28 mm in size; angular grains
3	10-11.5	27-30-44	Gray silty sand. Widely graded; angular to subrounded grains ; contains ~ 25-30% nonplastic fines; few gravel pieces up to 8 mm in size. w.= 7.5%

BORING NO. DI-12
SOIL DESCRIPTIONS

Ground Elevation: 23.9 ft
Depth to Water Level: 3.5 ft

Project No. 7268

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-1-3	Brown and dark brown slightly organic silty gravelly sand. Fine to medium grained; contains many pockets of dark brown organic sandy silt, and several roots up to 6 mm diameter; fines are nonplastic; contains several gravel pieces 10-27 mm in size.
2	5- 6.5	17-32-57	Brown gravelly silty sand.. Widely graded; angular to subangular grains; contains ~ 30-35% nonplastic fine; and ~ 20-30% gravel up to 30 mm in size; very fast reaction to shaking test.

BORING NO. **D2-1**
SOIL DESCRIPTIONS

Ground Elevation: **21.2 ft**
Depth to Water Level: **0.3 ft**

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	2-2-5	Brown slightly organic silty sand. 'Fine to medium **grained;** uniform; contains ~ **20-30%** nonplastic fines and roots up to 1 mm diameter; some black organic pieces < 0.5 mm **in** size.
2	**5-** 6	17-120	Mottled gray, brown, and rusty-brown gravelly silty **sand.** Widely graded; **subangular** to subrounded grains; **contains ~ 25-35%** nonplastic fines and **~ 15-25% gravel up to 20 mm in size. w = 10.5%**

BORING NO. D2-3
SOIL DESCRIPTIONS

Ground Elevation: 19.4 ft
Depth to Water Level: 2.0 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Dcecription
1	o- 0.5	1	Brown organic silty fine sand. Contains some leaves at top and few small roots.
IA	0.5- 2	3-4-4	Light brown silty fine to medium sand. Contains a few gravel piece6 up to ~ 20 mm in size; fines are nonplastic.
2	5.5-7.5	13-30-29-23	Light brown slightly gravelly very silty sand; sand is fine to coarse; few coarse gravel pieces are gray; contains some iron staining at bottom.
3	10-11.5	21-28-26	Stratified light brown and red-brown and gray silty sand. Contains a few gravel pieces up to ~ 20 mm in size.
4	15-16.5	38-32-31	Gray slightly gravelly very silty sand. Widely graded; few gravel pieces up to ~ 35 mm in size.
5	20-21.5	14-22-31	Similar to Sample No. 4, but fines are very slightly plastic.
6	25-25.2	35/3"	Similar to Sample No. 4, but fines are slightly plasti

BORING NO. D2-4
SOIL DESCRIPTIONS

Ground Elevation: 16.7 ft
Depth to Water Level: 0.0

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-1-3	Top is dark brown decomposed roots and leaves. Bottom is red-brown slightly silty fine sand containing numerous mica flakes.
2	1.5- 3	3-6-11	Light brown slightly silty gravelly fine sand. Gravel pieces are subangular and range in size up to ~ 20 m ; contains numerous mica flakes.
3	5- 6.5	24-35-3:	Brown slightly gravelly silty fine sand. Contains some medium and coarse sand and few fine gravel pieces; one 25 mm size piece of subrounded quartz at top; occasional pockets of red-brown fine sand.
4	10-10.6	25-100/1	Gray slightly clayey gravelly sand. Widely graded; gravel pieces are subangular to subrounded. w = 9.1%
5	13-14.5	18-22-2	Similar to Sample No. 4; 50 mm size piece of gravel at bottom.
6	15-16.5	20-16-2	Gray moderately clayey gravelly sand. Widely graded; gravel fragments are subangular and range in size up to ~ 25 mm.
7	20-21.5	9-27-2'	Similar to Sample No. 6.

BORING NO. D2-5
SOIL DESCRIPTIONS

Ground Elevation: 16.5 ft
Depth to Water Level: 5.8 ft

Project No. 7268

Sample No.	Depth ft	Number of Blows per 6"	Dcecriptlon
1	o - 1.5	2-2-4	Rusty-brown silty sand. Fine grained; uniform; contains ~ 10-20% nonplastic fines; trace of black organic specks < 0.5 mm in size; some black organic sandy silt and roots at top.
2	5- 6.5	7-7-5	Brown sandy clayey silt. Very stiff; low plasticity; slow reaction to shaking test; friable @ PL; w slightly above PL; contains ~ 10-15% fine to coarse subangular sand; several rusty-brown weathered gravel pieces up to 8 mm in size. q_u(rec) = 3.5 tsf w = 17.4%

BORING NO. D2-7
SOIL DESCRIPTIONS

Ground Elevation: 16.7 ft
Depth to Water Level: 1.5 ft

Project No. 7268

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1/12"-2	Brown leaves and root material; changes to gray-brown organic silty fine sand with layers of brown organic silt.
2	1.5- 2	3	Brown organic silty fine sand.
2A	2- 3	13-12	Light brown silty fine sand; changing to gravelly silt: fine to coarse sand at bottom.
3	5- 6.5	13-16-21	Light brown and red-brown very silty fine sand. Contains a trace of coarse sand and a few gravel pieces up to ~ 35 mm in size; some iron staining.
4	10-11.5	40-81-200	Gray gravelly silty sand. Contains angular gravel fragments up to ~ 30 mm in size; bottom of sample is rock fragments.
5	15-16.5	18-52-47	Mottled gray and brown gravelly sandy clay. Contains some' coarse sand and gravel fragments up to ~ 35 mm in size. w = 29.6%
6	19-19.6	100-100/1"	Similar to Sample No. 5, but less clayey. w = 11.5%
7	24-24.5	250	Similar to Sample No. 5, but more gravelly. w = 12.4%

BORING NO. E1-1
SOIL DESCRIPTIONS

Ground Elevation: 28.9 ft
Depth to Water Level:

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
			No soil samples taken. (Bedrock at ground surface.)

BORING NO. El-2
SOIL DESCRIPTIONS

Ground Elevation: 21.4 ft
Depth to Water Level: 3.8 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Dcecription
1	o- 1.5	3-14-6	Brown and dark brown slightly organic silty sand. Fine to medium grained; contains ~ 30 mm thick layer of sandy organic silt containing many small roots up to 3 mm diameter; contains a few angular gravel pieces up to 22 mm in size.
2	5- 6.5	19-31-54	Light brown silty sand. Fine to coarse grained; subangular; contains ~ 20-25% nonplastic fines; very fast reaction to shaking test; contains a few gravel up to 35 mm in size; some darker brown spots.

BORING NO. E1-3
SOIL DESCRIPTIONS

Ground Elevation: 15. 2 ft
Depth to Water Level: 0.3 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Dcecription
1	o- 1.5	1-1-1	Brown slightly organic silty sand. Fine to medium grained; contains ~ 10-20% nonplastic fines; contains a few small roots up to 1 mm diameter and a trace of black decomposed vegetation fibers; one ~ 50 mm thick layer at top is black sandy organic silt with small roots.
2	5- 6.5	8-8-7	Light brown sand. Fine to medium grained; uniform; < 5% silt; contains a few black organic specks < 0.5 mm in size.
3	10-11.5	12-12-15	Gray gravelly silty sand. Widely graded; grains are subangular to subrounded; contains ~ 30-40% slightly cohesive fines and ~ 10-15% gravel up to 30 mm in size; moderately fast reaction to shaking test. w = 9.8%
4	15-16.5	17-23-21	Similar to Sample No. 3. w = 11.4%

BORING NO. EI -4
SOIL DESCRIPTIONS

Ground Elevation: 20. 2 ft
Depth to Water Level: 3 . 0 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-1-1	No Recovery.

BORING NO. El-5
SOIL **DESCRIPTIONS**

Ground Elevation: 16.0 ft
Depth to Water Levels: 4.2 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Dcecription
1	0 - 1	**2-3**	Brown fine-sandy organic silt with leaves, several roots up to 3 mm diameter.
2	**1-** 2.5	5-7-10	Brown **sand.** Fine **grained;** uniform; contains **severa** black organic pieces < 1 mm in size; < 5% nonplastic fines; **contains** one 20 mm size gravel piece.
3	**5- 6.5**	**23-55-78**	Brown and gray silty gravel. Widely graded; **angula** grains; contains ~ 3C -40% slightly sandy brown silt between the gray gravel and rock fragments ranging in size up to 28 mm; the brown silt is nonplastic; ver fast reaction to shaking test.

BORING NO. E1-6
SOIL DESCRIPTIONS

Ground Elevation: 14.3 ft
Depth to Water Level: 1.3 ft

Project No. 7266

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-2-5	No Recovery. (Pushed gravel.)

BORING NO. E2-1
SOIL DESCRIPTIONS

Ground Elevation: 15.9 ft
Depth to Water Level: 6.0 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 2	1-1-7-19	Top is brown sandy organic silt containing roots up to 12 mm diameter. Bottom is light brown to gray-brown gravelly silty sand. Widely graded; generally angular grains; contains ~20-30% nonplastic fines and ~10-20% gravel up to 18 mm in size; several rusty-brown spots up to 10 mm in size.
2	5- 6.6	31-60-74	Similar to bottom portion of Sample No. 1, but slightly less silty and fewer rusty-brown spots.

BORING NO. **E2-2**
SOIL DESCRIPTIONS

Ground Elevation: 13.7 ft
Depth to Water Level: 0.1 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	o- 1.5	1-2-2	Top is dark brown peat. Highly decomposed; contain! several roots up to 0.5 mm diameter. Bottom is brown sand. Fine grained; uniform; contains < 5% nonplastic fines.
2	5- 6.5	6-7-9	Similar to bottom portion of Sample No. 1.
3	10-11.5	18-21-39	Gray silty gravelly sand. Widely graded; angular to subangular grains; contains ~ 30-40% gravel up to 34 mm in size and ~15-20% nonplastic fines.