

**SEABROOK** UPDATED FSAR

APPENDIX 2F

GEOTECHNICAL REPORT - REACTOR BORINGS. JULY 1974

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

GEOTECHNICAL REPORT  
REACTOR BORINGS  
SEABROOK STATION, NEW HAMPSHIRE

Submitted to  
YANKEE ATOMIC ELECTRIC CO.

GEOTECHNICAL ENGINEERS INC.  
1017 Main Street  
Winchester, Massachusetts 01890

July 31, 1974

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6. Contoured Equal Area Upper Hemisphere Polar Projection to slickensided surfaces in Reactor 2; Borings E2-15, 16, 17, and 18



## 1.0 INTRODUCTION

### 1.1 Purpose

An excavation approximately 150 feet in diameter and 70 feet deep will be required for each of the two proposed reactors at **Seabrook** Station.

To design the side slopes of the excavation and to estimate the quantity of excavation, it is necessary to determine the frequency and orientation of fractures in the rock. For this purpose inclined borings were made around the perimeter of each of the two proposed excavations. The core was oriented and the orientation of joints, slickensided surfaces, and foliation was determined.

### 1.2 Scope

Four inclined borings were made around the perimeter of each proposed reactor excavation. The borings ranged in length from 165 to 169 feet, and in inclination from  $39^{\circ}$  to  $41.5^{\circ}$ , measured from vertical. (The bottom of a **165-foot-long** boring inclined at  $40^{\circ}$  is at a vertical difference in elevation of 126 feet below the ground surface.)

## 2.4 Orientation Data

Core was oriented from near the rock surface to the bottom of the hole, with three exceptions: Boring E2-11 in which orientation starts at 63 ft (inclined length) below the rock surface; Boring E2-17 in which orientation terminates at 65 ft (inclined length) in a borehole that was 165 ft long; and Boring E2-15 in which orientation terminates at 42 ft (inclined length) in a borehole that was 165 ft long.

Appendix II is a summary of all the orientation data, and Appendix III contains polar equal area stereo net projections for the features oriented in each borehole.

Fig. 1 is a plot of generalized dip and strike data for joints in each of the borings.

Fig. 2 is a plot of generalized dip and strike data for foliation. As shown on the individual boring logs in Appendix I, the rock at the two reactor sites does not exhibit much foliation.

Fig. 3 is a plot of generalized dip and strike data for slickensided surfaces.

Fig. 4 is a contoured plot of the projections of poles for 230 joints measured in the core from borings at Reactor 1; Fig. 5 is a contoured plot of the projections of poles for 93 joints in Reactor 2; and Fig. 6 is a contoured plot of the projections of poles for 114 slickensided surfaces in Reactor 2.

Fig. 4 shows that there are two dominant sets of fracture surfaces at Reactor No. 1 with strikes and dips roughly as follows (listed in order of decreasing frequency of occurrence):

N30E, 40NW  
N40E, 60SE

Figs. 5 and 6 show that there are three dominant sets of fracture surfaces at Reactor No. 2, with strikes and dips roughly as follows (listed in order of decreasing frequency of occurrence):

N30E, 30 NW  
N45E, 55SE  
N15W, 60 SW

## TABLES

TABLE 1

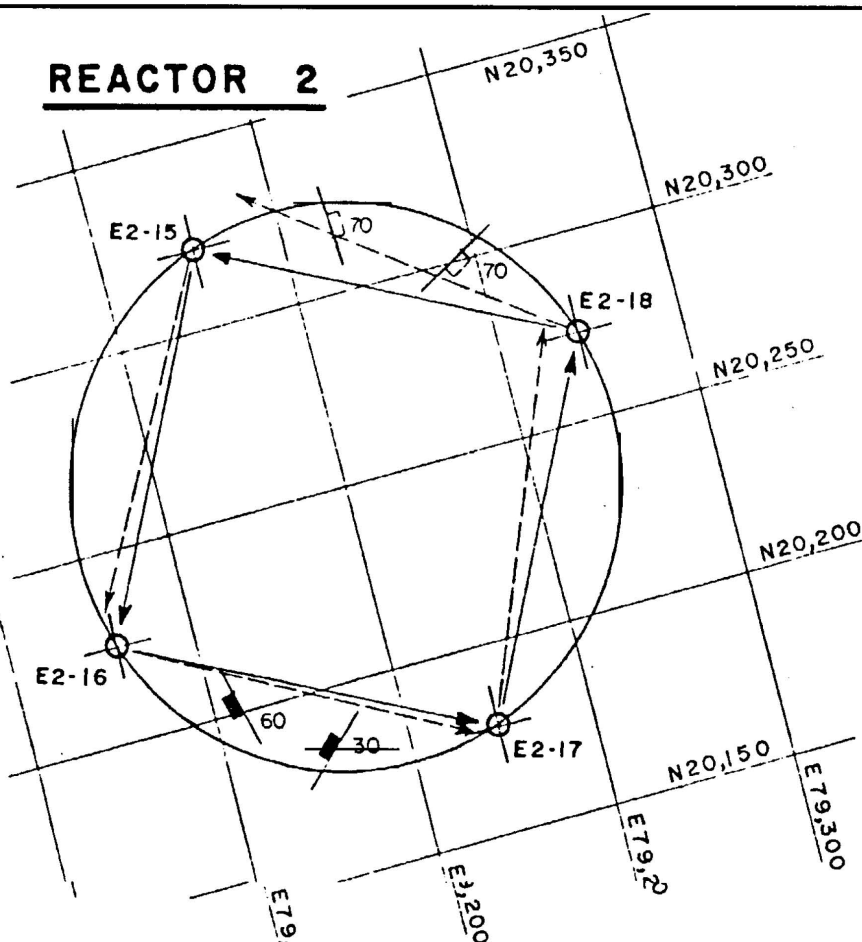
ZONES ORIENTED IN REACTOR BORINGS

<u>Reactor No.</u>	<u>Boring No.</u>	<u>Length of Boring*</u> (feet)	<u>Inclination of Boring Measured From Vertical</u>	<u>Length Oriented*</u> (feet)	<u>Vertical Depth to Top of Rock</u> (feet)
1	E2-11	168.0	40°	63-168	13.5
1	E2-12	165.7	41°	13.8-165.7	0.7
1	E2-13	169.0	41°	22-169	0.0
1	E2-14	166.0	41.5°	11-166	2.2
2	E2-15	165.0	41.5°	13.5-42	8.6
2	E2-16	165.1	41°	18-165	7.1
2	E2-17	165.0	41°	22-65	14.3
2	E2-18	168.0	39°	15.5-168	10.8

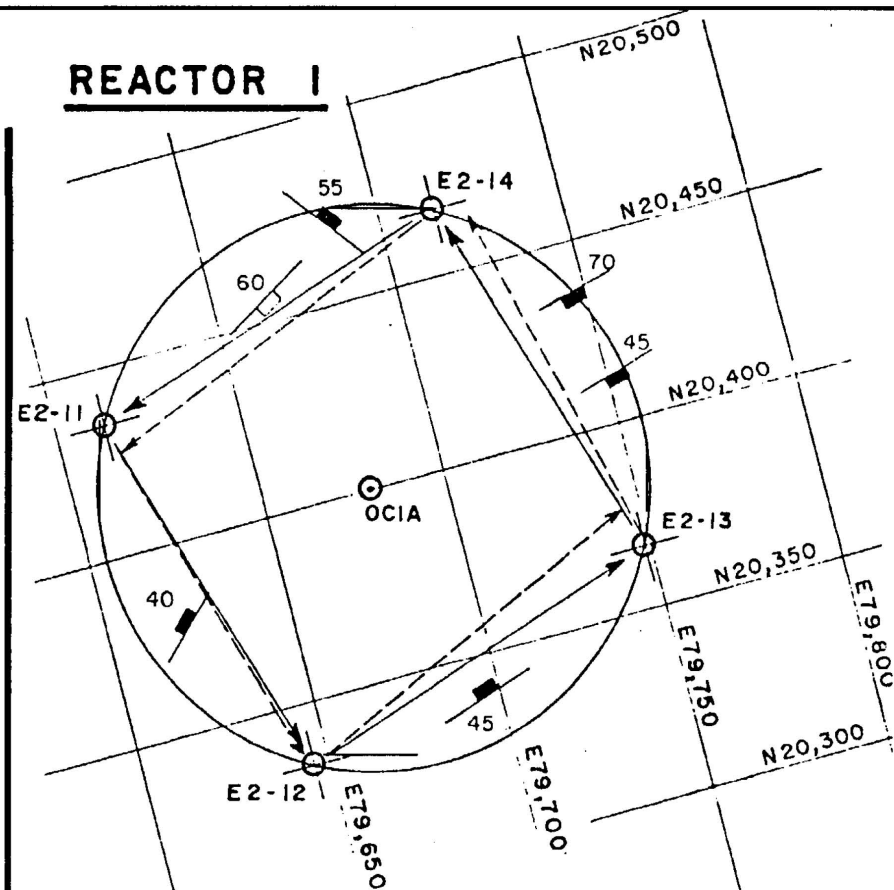
\*Measured along inclined axis of borehole.

## FIGURES

## REACTOR 2



## REACTOR 1



— PROPOSED DIRECTION OF ANGLE BORINGS  
 - - - ACTUAL DIRECTION OF ANGLE BORINGS

NOTE: LENGTH OF ARROWS INDICATES PROJECTION OF HOLE TO HORIZONTAL

< 10 POINTS PER CLUSTER OF FEATURES

> 10 POINTS PER CLUSTER OF FEATURES

○ OVERCORE BORING

⊕ ANGLE BORING

N



YAN K EE ATOMIC

SEABROOK STATION

PLAN OF REACTOR SITES

SHOWING GENERALIZED DIP & STRIKE OF JOINTS

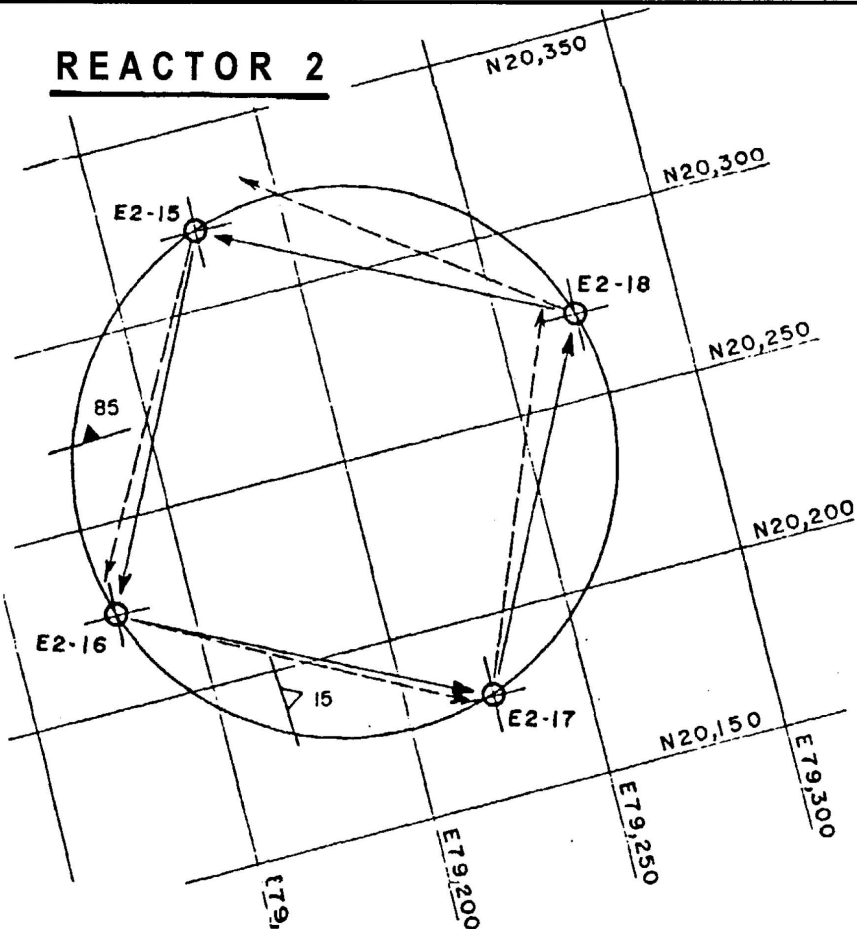
GEOTECHNICAL ENGINEERS, INC.  
 WINCHESTER, MASSACHUSETTS

PROJECT 7206

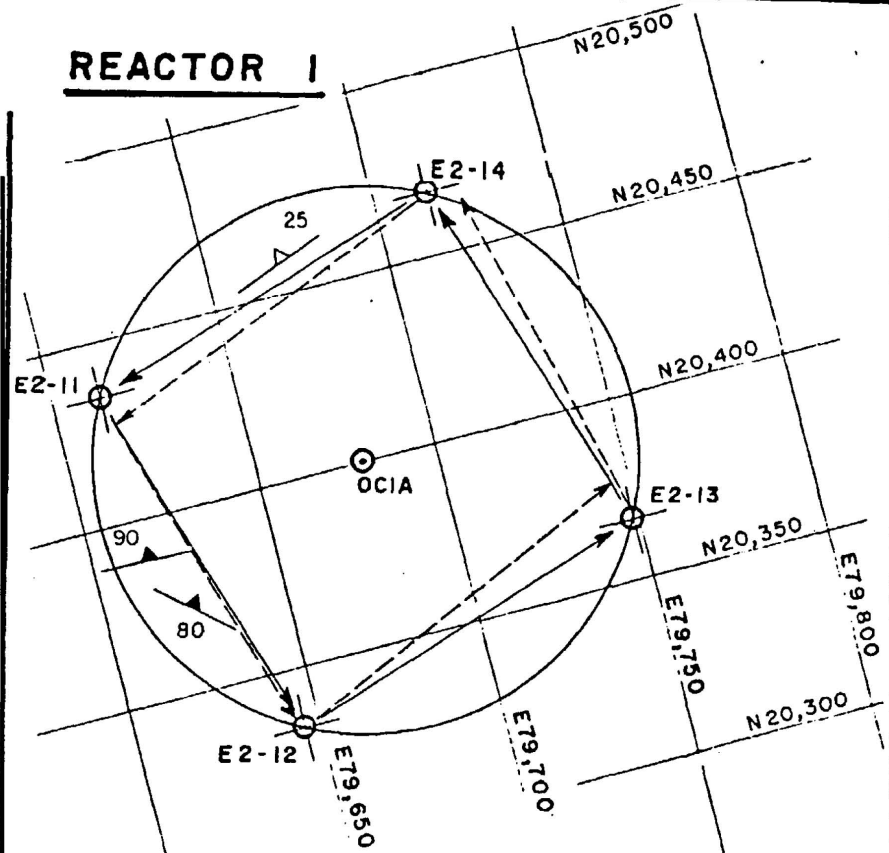
JULY 1974

FIG. 1

## REACTOR 2



## REACTOR 1



△ < 2 POINTS PER CLUSTER  
OF FEATURES

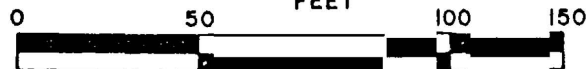
▲ > 2 POINTS PER CLUSTER  
OF FEATURES

○ OVERCORE BORING

⊕ ANGLE BORING

N

SCALE  
FEET



— PROPOSED DIRECTION OF ANGLE BORINGS  
- - - ACTUAL DIRECTION OF ANGLE BORINGS

NOTE: LENGTH OF ARROWS INDICATES PRO-  
JECTION OF HOLE TO HORIZONTAL.

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PLAN OF REACTOR SITES

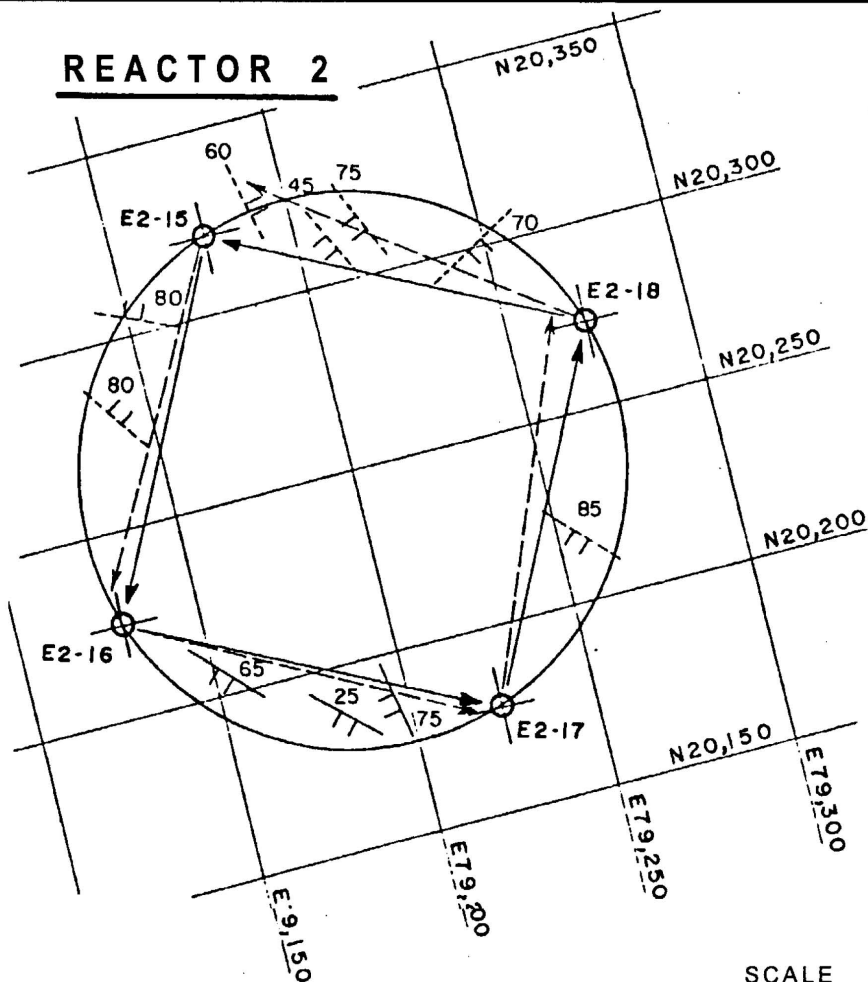
SHOWING GENERALIZED DIP & STRIKE  
OF FOLIATIONS

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WINCHESTER, MASSACHUSETTS

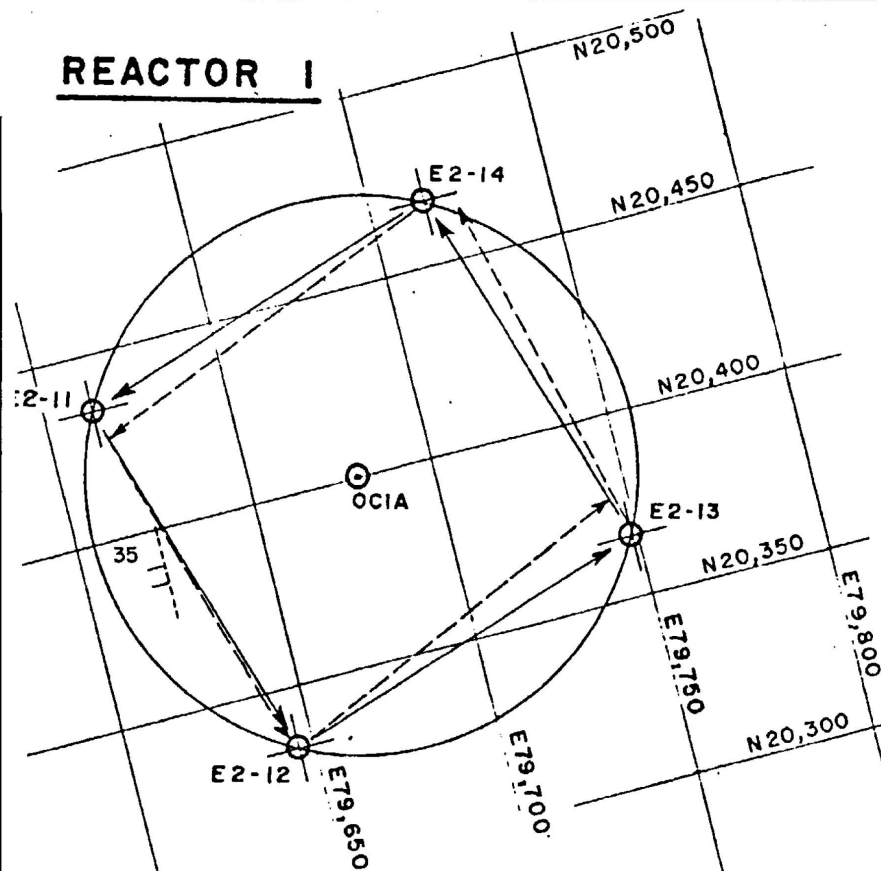
PROJECT 7286

JULY 1974 FIG. 2

## REACTOR 2



## REACTOR 1



— PROPOSED DIRECTION OF ANGLE BORINGS  
 - - - ACTUAL DIRECTION OF ANGLE BORINGS

NOTE: LENGTH OF ARROWS INDICATES PROJECTION OF HOLE TO HORIZONTAL.

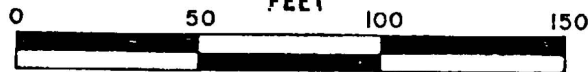
-J- > 8 POINTS PER CLUSTER OF FEATURES

○ OVERCORE BORING

⊕ ANGLE BORING

N

SCALE  
 FEET



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SEABROOK STATION

PLAN OF REACTOR SITES

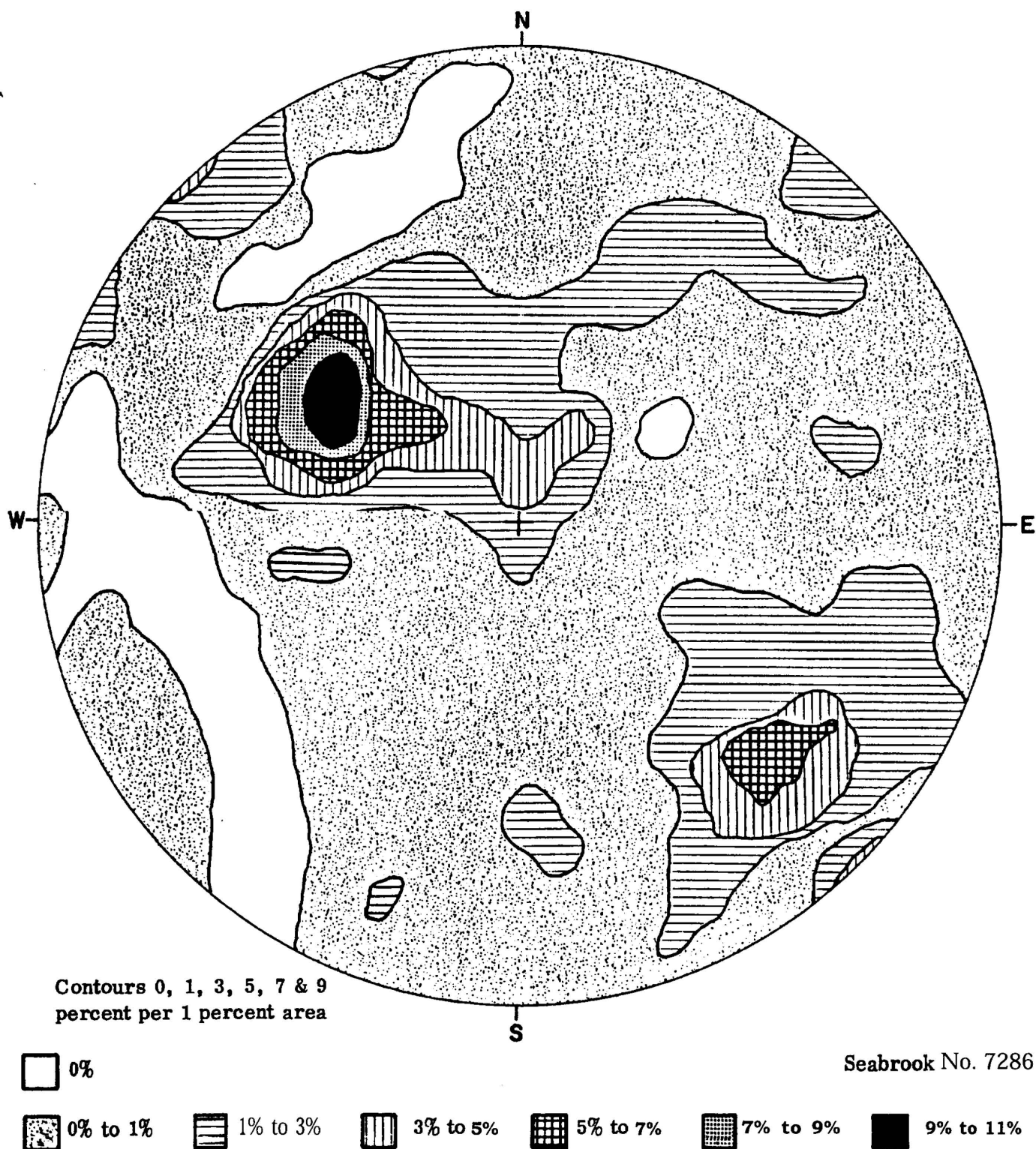
SHOWING GENERALIZED DIP & STRIKE  
 OF SLICKENSIDED SURFACES

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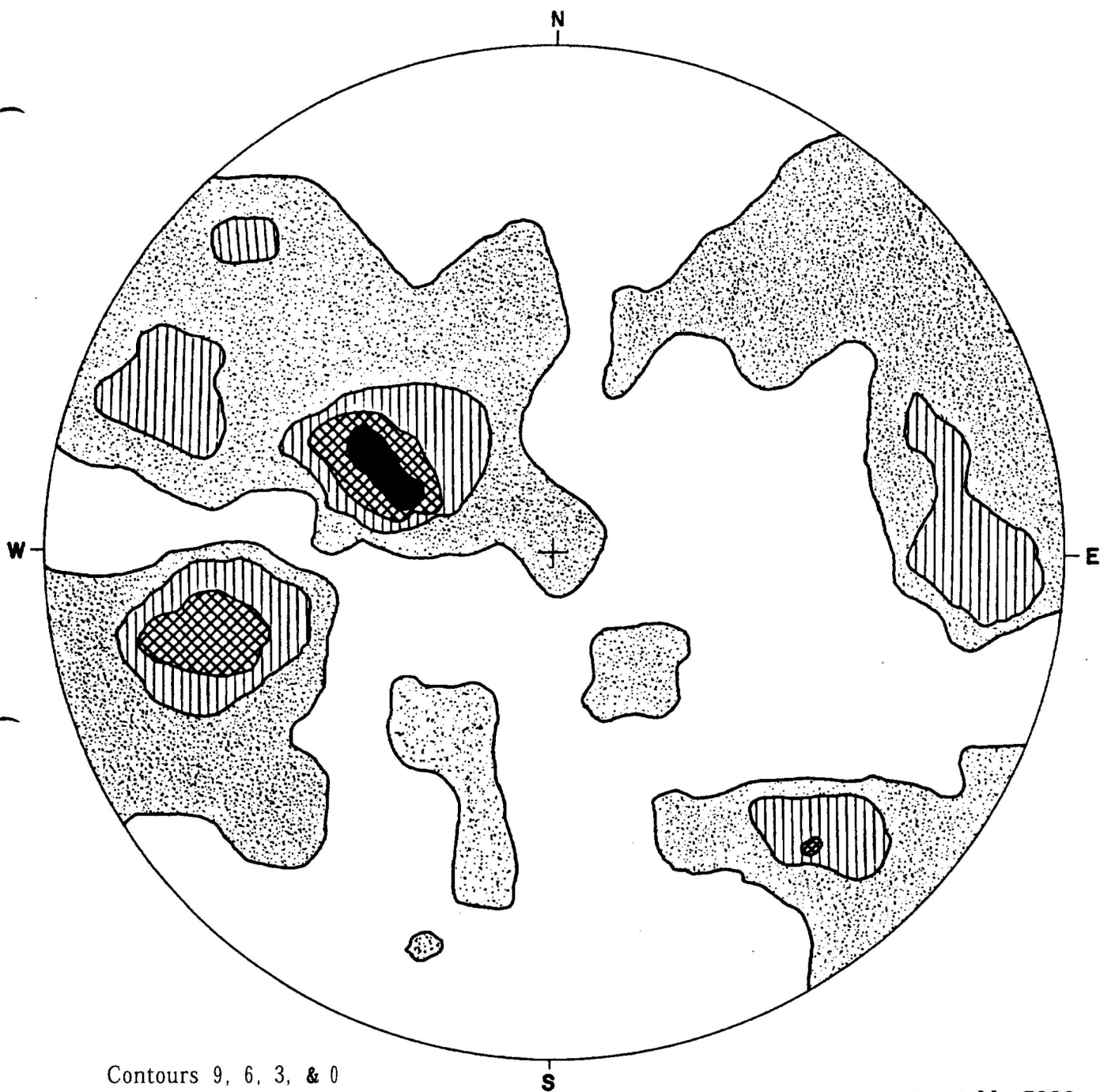
JULY 1974 FIG. 3





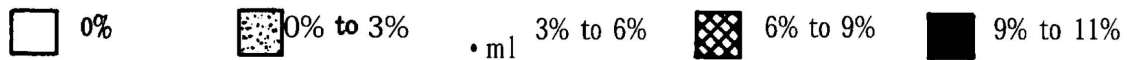
Contoured Equal Area Upper Hemisphere Polar Projection of Poles to 230 Joints In Reactor 1;  
 Borings E2-11, 12, 13 & 14

Fig. 4



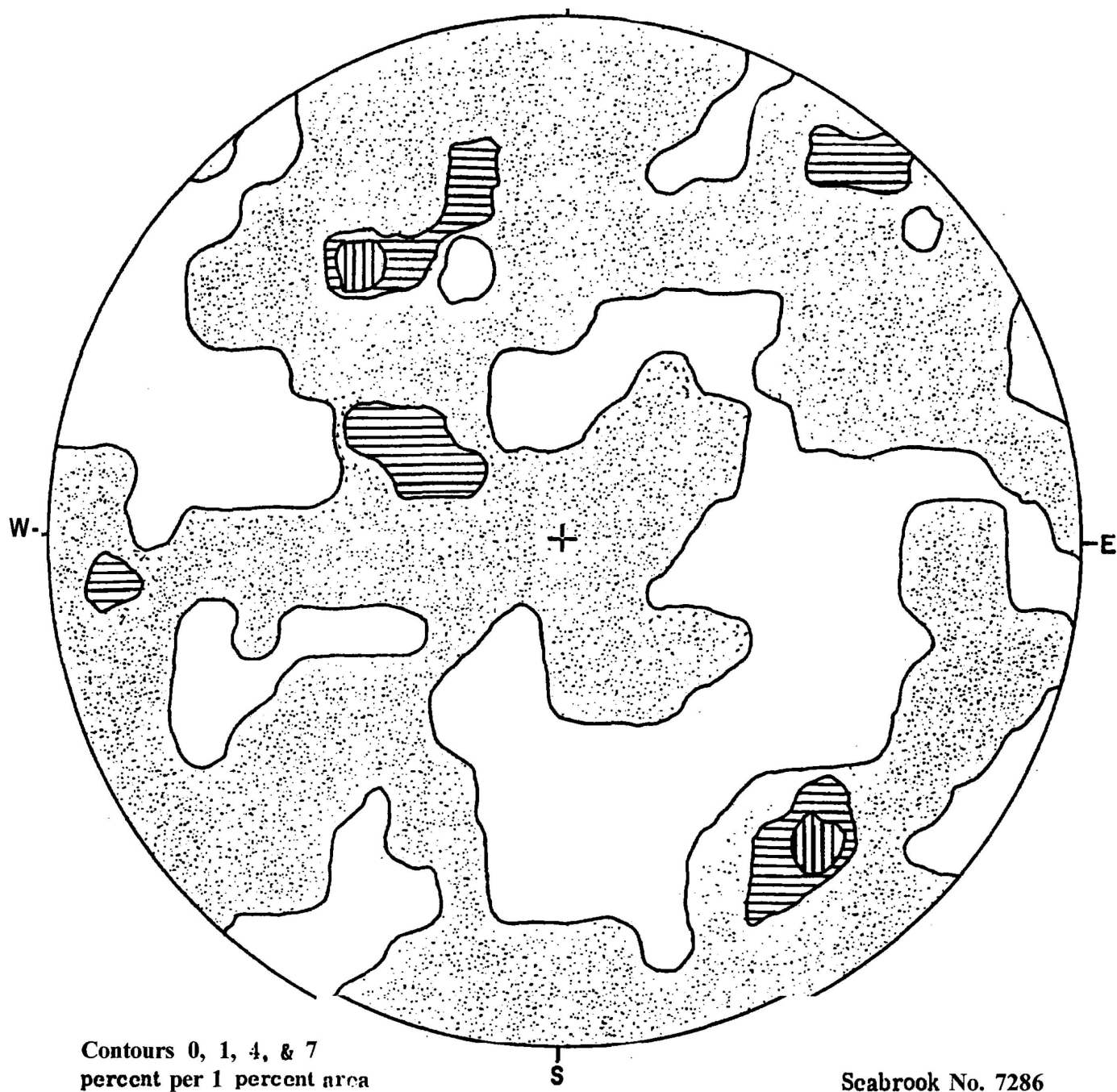
Contours 9, 6, 3, & 0  
percent per 1 percent area

Seabrook No. 7286



Contoured Equal Area Upper Hemisphere Polar Projection of Poles to 93 Joints In  
Reactor 2; Borings E2-15, 16, 17, 18.

Fig. 5



0%
  0% to 4%
  4% to 7%
  7% to 9%

Contoured Equal Area Upper Hemisphere Polar Projection of Plots to 114 Slickensided Surfaces in Reactor 2; Borings E2-15, 16, 17, & 18.

Fig. 6

## APPENDIX I

## APPENDIX I

### Boring Logs

Note: All holes are angle holes. Depths are measured along core axis. Inclinations of holes are measured from vertical.

BORING LOCATION <u>N20115, 129611, Plot No.</u>		INCLINATION <u>10°</u>		PLACING <u>STU</u>		DATE START/FINISH <u>June 20, 1971 / June 22, 1971</u>	
CASING ID <u>3 in.</u>		CORP SIZE <u>2 1/4 x 1 7/8 in.</u>		TOTAL DEPTH <u>168.6 ft</u>		DRILLED BY <u>American Drilling &amp; Boring Co., Inc., Canine</u>	
GROUND ELEV. (MSL) <u>25.0 ft</u>		DEPTH TO WATER DATE <u>7/1/71</u>		LOGGED BY <u>Soil &amp; Rock, Inc., J. R. Bond</u>			

EL. MSL	Depth	SAMPLE Type and No.	N or Rec.	RAT. OF ADV. min./ft.	WATER CONTENT %	OR RQD	PRESSURE TEST	STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	CORR. AREAS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
										Computed	Observed
25.0								S 7 Shicknap			
								TOP OF TILL			
	6.5	NN-1	100								
	10	NN-2	99								
		NQ-3	10								
		NQ-4	31								
	17.7	NQ-5	57					TOP OF ROCK			
	20								1.5' core lost	Fresh internally. Some minor rusty staining on joints and partings. Not chloritic.	Diorite. Medium fine grained, medium dark gray. Massive texture.
		NQ-6	76		51						
	30	NQ-7	100		43				Minor rusty		
	40	NQ-8	100		41				Minor rusty	Fresh and hard. Drills well. Most joints and partings are clean. Not chloritic.	Pegmatite Diorite. Predominantly medium-fine grained, medium dark gray with occasional medium coarse quartz diorite.
	50	NQ-9	100		41						
	60	NQ-10	100		74				Solid core	Fresh and hard. Drills very well. Joints and partings clean. Not chloritic. Most partings break across core.	Diorite. Fine to medium fine grained, medium dark gray. Massive texture.
		NQ-11	100		98			N21E, 13NW J			
	70	NQ-12	100		97			N15E, 60NW J			
	80	NQ-13	100		70			N131, 53NW J	Minor chlorite	Fresh and hard. Joints and partings generally clean. Some minor chlorite on joints and partings in diabase.	Diabase. Fine to medium-grained, dark greenish gray. Locally calcitic.
		NQ-14	100		00			N40E, 60NW J	Slight rusty		
	90	NQ-15	100		00			N15W, 62SW S			
	100	NQ-16	100		74			N17W, 19SW S			
		NQ-17	100		44			N11W, 40SW J			
	110	NQ-18	100		00			N65W, 55NE J	Write	Fresh and hard. Joints and partings generally clean. Diabase broken on calcite veining.	Diabase. Medium-fine grained, medium gray. Massive.
		NQ-19	100		00						
	120	NQ-20	100		85			N15E, 72NE J			
								N35E, 76NW J			
	130	NQ-21	100		00			N52E, 68NW J			
	140	NQ-22	100		42			N34E, 44NW J		Fresh and hard. Joints and partings clean. Not chloritic.	Diorite. Mixed fine-grained dark gray and medium-coarse grained medium gray. Gneissoid. Predominantly fine-grained.
		NQ-23	100		87			N27W, 72NE J			
	150	NQ-24	100		00			N65W, 55SW J			
	160	NQ-25	100		00			N25E, 90NW J		Fresh and hard. Drills well.	Diorite. Predominantly fine grained, medium dark gray. Gneissoid at top of section.
		NQ-26	100		00			N75E, 82NW S			
	170	NQ-27	100		17			N31E, 19NW J			
								N33E, 36NW J			
	180	NQ-28	100		00			N10E, 41NW J			
	190	NQ-29	10		6			N71W, 61NE S			
	200	NQ-30	94		95			N11E, 10NW J		Locally calcitic. Should be w.s. 2' core lost 34 11". Chips look OK.	
								N21E, 52NW J	slightly w.s. minor chlorite core lost		

**LEGEND**

N - Standard penetration resistance, blows/ft  
 Rec - Length recovered, length cored, ft  
 RQD - Length of sound core 4 in. and longer/length cored, %  
 S - Split spoon sample  
 U - Undisturbed samples

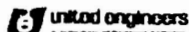
S - Shelly tube      N - Denham  
 F - Fixed plate      P - Pilcher  
 O - Osterberg      G - GEI

D - Drilling break      k - Coefficient of  
 w - Weathered, weathering      permeability

**NOTES**

1) - Washed through soil 0 - 0.5 ft. No samples taken.  
 2) - No clay present; therefore no water contents determined.

x - Oriented core

**SEABROOK STATION**  
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
 YANKEE ATOMIC ELECTRIC COMPANY  
  
 Date: July 11, 1971      Project 7286

PAGE 1 of 2

1/10 OF BORING 12-11

BORING LOCATION <u>N20315, E79611, Plant Site</u>				INCLINATION <u>16"</u>		BORING <u>SME</u>		DATE START/FINISH <u>June 26, 1971 / June 27, 1971</u>	
CASING ID <u>3 in.</u>				CORE SIZE <u>2-1/8" x 1-7/8 in.</u>		TOTAL DEPTH <u>164.0</u> ft		DRILLED BY <u>American Drilling &amp; Boring Co.; T. Canning</u>	
GROUND EL. (MSL) <u>27.0</u> ft				DEPTH TO WATER DATE <u>9.7</u> ft		LOGGED BY <u>Soil S. Coll. Rock - J. R. Reed</u>			

EL. MSL ft	Depth ft	SAMPLE Type and No.	N or Rec.	DATE OF ADV. min to	WATER CONTENT %	GRAVITY %	COMPOUND k	STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
										CONTINUED FROM PREVIOUS PAGE	
146		NQ-30	100		100			N27E, 32NW	Slight wx	Fresh and hard. Drills well. Partings are clean.	Diorite. Mixed fine and medium coarse grained textures. Locally gneissoid.
150		NQ-31	100		100			N26E, 28NW	Slight wx		
		NQ-32	100		100			N63W, 25NE	Solid core		
160		NQ-33	100		100			N18W, 71NE		Fresh and hard. Drills well. Joints and partings are clean.	Diorite. Predominantly fine, medium dark with patches of coarse quartz diorite.
164		NQ-31	97		81			N30E, 75NW			
								N70W, 13NE			
								BOTTOM OF BORING			

**LEGEND**

N - Standard penetration resistance, blows ft  
Rec - Length recovered length cored, %  
RQD - Length of sound core 4 in. and longer length cored, %  
S - Split spoon sample  
U - Undisturbed samples

S - Shelby tube      N - Denison  
F - Fixed piston      P - Pitcher  
O - Osterberg      G - GEI

D - Drilling break      k - Coefficient of permeability  
wx - Weathered, weathering

**NOTES**

**SEABROOK STATION**  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
YANKEE ATOMIC ELECTRIC COMPANY  
  
A Subsidiary of American Company

Date: July 11, 1971

PAGE 2 of 2

Project 7266

LOG OF BORING 12-11

BORING LOCATION N2034, F79612, Plant Site INCLINATION 11 DEARING N66E DATE START/FINISH June 10, 1971 / June 18, 1971  
 CASING ID 3 in. CORE SIZE 2-1/8 - 1-7/8 in. TOTAL DEPTH 165.5 ft DRILLED BY American Drilling & Boring Co. A. Whitaker  
 GROUND EL. (MSL) +71.5 ft DEPTH TO WATER DATE June 12, 1971 LOGGED BY Sgt. J. P. Bell, Rev. J. B. Hand

EL. MSU	SAMPLE	RAT. OF ADV. min/ft	WATER CONTENT or RqD	PRESSURE TEST	STRIKE, DIP	CORE	SOIL AND ROCK DESCRIPTIONS		
							(Weathering, defects, etc.)	(Type, texture, mineralogy, color, hardness, etc.)	
11.5	NX-1	100	2	16			Rusty	Fresh to slightly waxy internally. Joints and partings have rusty coatings. Not chloritic.	Diorite. Predominantly medium coarse grained, medium gray with occasional local fine-grained patches.
10	NX-2	95	3	0			Rusty		
	NX-3	100	3	16			Rusty		
	NX-4	100	3	25			Rusty		
20	NQ-5	81	3	13			Rusty		
	NQ-6	100	4	82			Slight wx	Fresh and hard. Partings show powdery or rusty staining. Not slickensided.	Diorite. Predominantly fine grained, medium dark gray. Locally coarse-grained and locally foliated.
	NQ-7	98	4	44			Minor rusty		
30	NQ-8	100	5	68			Slight wx		
	NQ-9	100	4	97			Minor rusty		
40	NQ-10	100	4	98			Extreme wx		
	NQ-11	100	5	89					
50	NQ-12	100	5	92					
	NQ-13	100	6	90					
60	NQ-14	98	16	80					
	NQ-15	100	20	100					
70	NQ-16	100	15	92					
	NQ-17	100	8	85					
80	NQ-18	100	8	92					
	NQ-19	100	6	83					
90	NQ-20	100	6	64					
	NQ-21	100	5	89					
100	NQ-22	100	6	25					
	NQ-23	100	6	90					
110	NQ-24	100	8	100					
	NQ-25	97	5	94					
120	NQ-26	100	4	90					
	NQ-27	97	5	75					
130	NQ-28	100	6	95					
	NQ-29	100	6	100					
140	NQ-30	94	6	94					
	NQ-31	95	6	75					

Rec - Length recovered/length cored, ft  
 RQD - Length of sound core 4 in. and longer/length cored, %  
 S - Split spoon sample  
 U - Undisturbed samples  
 S - Shelly tube  
 F - Fixed piston  
 O - Overberg  
 D - Drilling break  
 wx - Weathered, weathering

N - Denison  
 P - Pitcher  
 G - GEI  
 k - Coefficient of permeability

1 - Washed through #10 0-1 ft. No samples taken.  
 2 - This is only a partial list of dip and strike data.

**SEABROOK STATIO N**  
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
 YANKEE ATOMIC ELECTRIC COMPANY  
 united engineers  
 Date: July 11, 1971 Project 7286  
 PAGE 1 of 2 LOG OF BORING



BORING LOCATION <u>N2534, 175632, Plant Site</u>				INCLINATION <u>10°</u>		BEARING <u>N62E</u>		DATE START/FINISH <u>June 18, 1974</u> / <u>June 18, 1974</u>	
CASING ID <u>3 in.</u>		CORE SIZE <u>2-1/8 x 1-7/8 in.</u>		TOTAL DEPTH <u>165.5</u> ft		DRILLED BY <u>American Drilling &amp; Boring Co., Inc.</u>			
GROUND EL. (MSL) <u>172.5</u> ft		DEPTH TO WATER DATE <u>7.1</u>		W <u>June 17, 1974</u>		LOGGED BY <u>Salvatore, Frank; Hook, L. R. Hook</u>			

EL. MSL ft	SAMPLE		RAT. OF ADV. min/ft	WATER CONTENT or RQD		PRESSURE TEST		STRIKE, 100' F - Foliation J - Joint C - Contact R - Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS	
	Depth Type and No.	N or Rec.		%	Graphic	Min (psi)	Computed 10' k cm/sec			(Weathering, defects, etc.)	(Type, texture, mineralogy, color, hardness, etc.)
172.5										CONTINUED FROM PREVIOUS PAGE	
150	NQ-32	100	6	52				N25E, 37NW J	Driller mismatched	Fresh and hard. Drills very well. Joints and partings are clean. Not chloritic.	Diorite. Fine grained, medium dark gray. Massive texture.
100	NQ-33	100	6	100				N25E, 26NW J			
160	NQ-34	50	6	50					Solid core		
165.5	NQ-35	100	1	100					Solid core		
BOTTOM OF BORING											

**LEGEND**

N - Standard penetration resistance, blows/ft  
 Rec - Length recovered/length cored, %  
 RQD - Length of sound core 4 in. and longer/length cored, %  
 - Split spoon sample  
 - Undisturbed samples

S - Shelby tube    N - Deaton  
 F - Fixed piston    P - Pitcher  
 O - Osterberg    G - GFI

D - Drilling break    k - Coefficient of  
 W - Weathered, weathering    permeability

**NOTES**

**SEABROOK STATION**

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

YANKEE ATOMIC ELECTRIC COMPANY

**United Engineers**

A Subsidiary of Raytheon Corporation

Date: July 11, 1974      Project: 7288

PAGE 2 of 2      LOG OF BORING: Seabrook

**BORING LOCATION** N203°E, 1.7715; **PLANT SITE** INCULCATION 41°; **ORIGIN** N30W; **DATE START/FINISH** June 20, 1971 / July 1, 1971

**CASING ID** 3 in. **CORE SIZE** 1-7/8" - 2-1/4" in. **TOTAL DEPTH** 169.0 ft **DRILLED BY** American Drilling & Boring Co., A. Whittaker

**GROUNDWATER LEVEL** 30.5 ft **DEPTH TO WATER DATE** June 21, 1971 **LOGGED BY** S. L. K. 1961, R. J. J. H. 1961

FL. MSL	Depth	Type and No.	S or Rec.	NAT. OF ADV.	WATER CONTENT	Pressure	PRESSURE		STRIKE, DIP	F = Fault J = Joint C = Contact N = Bedding	SOIL AND ROCK DESCRIPTIONS	
							Graphical	Computed			(Weathering, defects, etc.)	(Type, texture, mineralogy, color, hardness, etc.)
10.5		NX-1	88	3.0	12							
		NX-2	72	1.0	0							
		NX-3	100	5.0	13							
10		NX-4	100	5.0	96							
		NX-5	100	4.0	85							
20		NX-6	100	4.0	100							
		NQ-7	75	5.0	46							
		NQ-8	93	7.0	13							
30		NQ-9	100	9.0	82							
		NQ-10	100	12.0	80							
40		NQ-11	100	14.0	100							
		NQ-12	100	15.0	83							
		NQ-13	100	16.0	100							
50		NQ-14	97	18.0	83							
		NQ-15	100	1.0	83							
60		NQ-16	100	5.0	88							
		NQ-17	100	6.0	92							
70		NQ-18	97	9.0	88							
		NQ-19	94	2.0	87							
80		NQ-20	97	5.0	83							
		NQ-21	100	8.0	97							
90		NQ-22	100	4.0	80							
		NQ-23	88	8.0	98							
100		NQ-24	90	8.0	93							
		NQ-25	90	8.0	88							
110		NQ-26	90	0.0	90							
		NQ-27	90	5.0	67							
120		NQ-28	90	6.0	75							
		NQ-29	97	4.0	63							
130		NQ-30	90	5.0	83							
		NQ-31	100	6.0	84							
140		NQ-32	88	6.0	75							
		NQ-33	88	6.0	50							

**NOTES**

- No clay samples present; therefore no water contents were determined.
- This is only a partial list of dip and strike data.

**SEABROOK STATION**  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
YANKEE ATOMIC ELECTRIC COMPANY  
United Engineers & Constructors, Inc.  
Date: July 16, 1971 Project 7286

BORING LOCATION <u>N20365, 179715</u>		INCLINATION <u>10°</u>		WEARING <u>N30W</u>		DATE START/FINISH <u>June 20, 1971 / July 3, 1971</u>	
CASING ID <u>3 in.</u>		CORE SIZE <u>1-7/8 - 2-1/8 in.</u>		TOTAL DEPTH <u>169.0</u> ft		DRILLED BY <u>American Drilling &amp; Boring Co., A. Whitaker</u>	
GROUND FL. (MSL) <u>10.5</u> ft		DEPTH TO WATER DATE <u>13.5</u> ft		LOGGED BY <u>Soil &amp; Rock, Inc., Rock &amp; L. R. Reed</u>			

E.L. MSL ft	Depth ft	SAMPLE Type No.	N or Rec.	RATH OF ADV. min ft	WATER CONTENT or RQD %	PRESSURE TEST Computed psi 10 <sup>-1</sup> cm/sec	STRIKE, DIP F - Follition J - Joint C - Contact B - Bolding	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
								Graphic	Core Breaks
							S - Stickenside	CONTINUED FROM PREVIOUS PAGE	
144		NQ-31	95	3.0	25		N22E, 45SE J	Slight wx	Fresh and hard. Some minor wx effects and rusty staining on joints.  Veining  Dioritic. Medium-grained medium gray. Somewhat porphyritic.
150		NQ-35	100	1.0	33		N16E, 69SE J	Rusty	
		NQ-36	100	6.0	85		N56E, 79NW J	Severe wx	
		NQ-37	100	7.0	83		N30E, 81SE J	Rusty stain	
		NQ-38	93	8.0	87		N38E, 46SE J	Rusty stain	
		NQ-39	93	8.0	87		N80E, 86SE J	Vuggy	
							N49E, 66SE J	Minor rusty	
							N55E, 63SE J	Slight wx	
							N67E, 76SE J	Slight wx	
BOTTOM OF BORING									

**LEGEND**

N - Standard penetration resistance, blown/ft  
 Rec - Length recovered/length cored, %  
 RQD - Length of sound core 4 in. and longer/length cored, %  
 S - Split spoon sample  
 U - Undisturbed samples

S - Shelby tube    N - Denison  
 F - Fixed piston    P - Pitcher  
 O - Osterberg    G - GEI

D - Drilling break    k - Coefficient of permeability  
 wx - Weathered, weathering

**NOTES**

**SEABROOK STATION**

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

YANKEE ATOMIC ELECTRIC COMPANY

**united engineers** a subsidiary of Parsons Corporation

Date: July 11, 1971      Project 7286

PAGE 2 of 2      LOG OF BORING 172-13

Boring Location <u>N2062, 172713</u> Plant Site										ISCLINATION <u>11.5</u>		BEARING <u>85W</u>		DATE START/FINISH <u>June 6, 1971</u> / <u>June 19, 1971</u>	
CASING ID <u>2 in.</u>		CORE SIZE <u>2-1/8 x 1-1/8</u>		TOTAL DEPTH <u>166.0</u> ft		DRILLED BY <u>American Drilling &amp; Boring Co., T. Canning</u>									
GROUND EL. (MSL) <u>29.9</u> ft		DEPTH TO WATER DATE <u>11.0</u> ft		LOGGED BY <u>Soil: K. L. Poll; Rock: J. R. Ryan</u>											
E.L. MSL ft	Depth ft	SAMPLE Type and No.	RAT OF ADV. min/ft	WATER CONTENT or RQD %	PRESSURE TEST psi	STRIKE, DIP F = Isolation J = Joint C = Contact R = Bedding S = Slackensided	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.)		(Type, texture, mineralogy, color, hardness, etc.)						
							Graphical	Computed k 10 <sup>-3</sup> cm/sec							
29.9															
						TOP OF ROCK									
	3.6	NX-1	100	3.8	21			Rusty staining	Generally fresh and hard internally. Joints and partings have thin minor rusty staining. Closely spaced joints and partings.	Diorite. Mixed fine-grained, dark gray diorite and medium to coarse quartz diorite.					
	10	NX-2	100	4.1	33			Succy							
		NQ-3	90	2.1	23	N65W, 13NW J		Minor rusty staining							
		NQ-4	93	1.8	27	N11E, 69SE J									
		NQ-5	90	2.4	30	N73W, 72NE J									
	20	NQ-6	73	2.6	17			Rusty staining	Subject to slight to moderate wx although generally hard between joints and partings. Rusty staining on joints. Not slickensided.	Diorite. Mixed coarse and fine.					
		NQ-7	68	2.7	11										
	30	NQ-8	100	4.5	11	N28E, 67SE J		Succy		Pegmatite. Quartz-feldspar. Light fannish and gray-white.					
		NQ-9	83	4.1	0										
		NQ-10	39	2.5	0										
	40	NQ-11	97	1.1	60										
		NQ-12	100	4.4	80	N22W, 53SE J		Fresh and hard. Partings clean.		Diorite. Mixed fine, dark gray and coarse quartz diorite.					
		NQ-13	100	5.2	92	N60W, 69NE J									
		NQ-14	100	6.2	87	N13E, 10SW J									
	50	NQ-15	98	5.5	92	N 3W, 67NE J		Fresh and hard. Drills well. Partings generally clean. Not slickensided.		Diorite. Mixed fine-grained, dark gray diorite in coarse-grained quartz diorite.					
		NQ-16	100	5.6	77	N57W, 41NE J									
		NQ-17	100	6.4	83	N10E, 35NW J		Moderate wx	Fresh and hard with thin local rusty stained areas and some local moderate wx. Not slickensided.	Diorite. Predominantly medium grained, spotted black matrix quartz diorite with some local fine grained, medium dark gray diorite.					
	60	NQ-18	100	6.3	65	N65W, 14NE J		Moderate wx							
		NQ-19	100	3.6	32	N60E, 12SE J		Minor rusty							
		NQ-20	100	1.8	71	N30E, 30NW J		Minor rusty							
	70	NQ-21	100	5.5	80	N15E, 85NW J		Rusty stain-moderate wx							
		NQ-22	97	1.8	62	N 5E, 49SE J		Slight wx							
		NQ-23	49	2.7	0	N60E, 55SE J		Rusty stain							
	80	NQ-24	100	5.0	14	East, 77E J		Slight wx	Fresh and hard. Partings subject to rusty stains. Not slickensided.	Diorite. Fine-grained, medium dark gray with small phenocryst spotting. Some thin fused veinlets.					
		NQ-25	95	5.3	81	N15W, 42SW J		Rusty stain							
		NQ-26	100	4.8	67	N10W, 87NE J									
	90	NQ-27	94	5.0	75	N 6E, 61SE J		Minor rusty							
		NQ-28	100	5.4	82	N11E, 77SE J		Minor rusty							
		NQ-29	94	5.7	85	N10E, 68SE S		Minor rusty							
	100	NQ-30	100	6.0	81	N10E, 68SE S		Minor rusty							
		NQ-31	100	5.4	100										
	110	NQ-32	94	6.7	94	N79E, 10NE J		Fresh and hard. Some minor wx effects on partings. No chlorite. Not slickensided.		Diorite. Fine-grained, dark gray with small phenocryst spotting. Contains pyrrhotite.					
		NQ-33	100	4.6	53	N75E, 18NW J		Slight wx							
		NQ-34	100	5.4	82	N73E, 16NW J		Pyrite							
	120	NQ-35	100	5.4	82	N26E, 30NW J									
		NQ-36	100	5.4	82	N50E, 62NE J									
	130	NQ-37	100	5.4	82	N20W, 67NE J									
		NQ-38	100	5.4	82	N22W, 58W J									
	140	NQ-39	100	5.7	85										
		NQ-40	100	6.0	81										
	150	NQ-41	100	5.4	100										
		NQ-42	94	6.7	94										
	160	NQ-43	100	4.6	53	N10E, 22NW J		Fresh and hard. Joints and partings are clean.		Diorite. Predominantly fine-grained medium dark gray with patches of medium coarse quartz diorite.					
		NQ-44	100	5.7	94	N55E, 69NE J									
	170	NQ-45	100	5.7	94	N63E, 72SE J									

**LEGEND**

N - Standard penetration resistance, blows/ft  
Rec - Length recovered/length cored, %  
RQD - Length of sound core 4 in. and longer/length cored, %  
S - Split spoon sample  
U - Undisturbed samples

S - Shelby tube    N - Denison  
F - Fixed piston    P - Pitcher  
O - Osterberg    G - GCI

D - Drilling break    k - Coefficient of permeability  
wx - Weathered, weathering

**NOTES**

1 - This is only a partial list of dip and strike data.

2 - No clay present, therefore no water contents were determined.

3 - Washed through roll 8-3 R. No samples taken.

x - Oriented core

**SEABROOK STATION**  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

YANKEE ATOMIC ELECTRIC COMPANY

**United Engineers**  
A Division of American Cyanamid

Date: July 2, 1971      Project: T286

PAGE 1 of 2      LOG OF BORING: 1-1

[illegible]

BORING LOCATION N26321, F75170, Plant Site				INCLINATION 41.5°		HEADING S10W		DATE START/FINISH June 3, 1971 / June 5, 1971	
CASING ID 3 in.		CORE SIZE 2-1/8 - 1-7/8 in.		TOTAL DEPTH 165.0 ft		DRILLED BY American Drilling & Boring, A. Whitaker			
GROUND ELEV. (MSL) 13.9 ft		DEPTH TO WATER DATE June 3, 1971		LOGGED BY Soil: K. G. B., Rock: J. R. B.					
E.L. MSL ft	SAMPLE Type and No.	RATIO OF ADV. min/ft	WATER CONTENT %	OR RQD %	PRESSURE TEST		STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)
					Gravimetric	Computed			
13.9	1)								
10									
11.5									
0	NQ-2	41	5.0	0			N85W, S0NE S		Generally fresh and hard internally. Some minor chlorite on joints and partings.
10	NQ-3	100	6.0	37			N71W, S0NE S		
20	NQ-4	100	6.0	8			N58E, 18NW S		
30	NQ-5	100	6.0	42			N75E, 42NW S		
40	NQ-6	100	3.0	18			N63E, 43NW S		
50	NQ-7	100	3.0	98			N88E, 42NW S		
60	NQ-8	100	3.0	57			N80E, 35E S		
70	NQ-9	100	3.0	57			N83E, 39NW S		
80	NQ-10	100	3.0	73			N50W, 45NE S		
90	NQ-11	100	4.0	67					
100	NQ-12	98	4.0	73					
110	NQ-13	100	1.0	73					
120	NQ-14	100	5.0	49					
130	NQ-15	100	3.0	72					
140	NQ-16	91	5.0	65					
150	NQ-17	100	4.0	40					
160	NQ-18	100	5.0	40					

**NOTES**

1) - Washed through soil # - 11.5 ft. No soil samples taken.

2) - This is only a partial list of dip and strike data. Orientation discontinued at 42 ft.

**SEABROOK STATION**

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

YANKEE ATOMIC ELECTRIC COMPANY

**United engineers**

Date: July 2, 1971      Project: 7286

PAGE: 1 of 2      LOG OF BORING: 17-15

<b>BORING LOCATION</b> N20321, E79179, 1st and 2nd Sts.				<b>INCLINATION</b> 11.5°		<b>BEARING</b> S16°W		<b>DATE START/FINISH</b> June 3, 1974 / June 5, 1974	
<b>CASING ID</b> 3 in.				<b>CORE SIZE</b> 2-1/4 - 1-7/8 in.		<b>TOTAL DEPTH</b> 165.0 ft		<b>DRIILLED BY</b> American Drilling & Boring, A. Whitaker	
<b>GROUND ELEVATION</b> 127.0 ft				<b>DEPTH TO WATER</b> 117.0 ft		<b>DATE</b> June 1, 1974		<b>LOGGED BY</b> Seal - R. T. B. B. - J. R. Rand	

EL. MSL ft	SAMPLE			RATE OF ADV. min./ft	WATER CONTENT %	ORIG. OR GROUND	PRESSURE TEST		STRIKE, DIP F - Friction J - Joint C - Contact B - Bedding S - Stickenside	CORE DRESS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)		
	Depth ft	Type and No.	N or Rec.				Graphical	Computed k in cm/sec					
140											CONTINUED FROM PREVIOUS PAGE		
130	128	Q-1	95	5.0	81						Minor chlorite	Fresh and hard. Drill well. Some minor smooth chlorite development on some joints or partings.	Metaquartzite (?) Fine-grained medium dark gray locally feldspathized. Local vague banding or foliation.
150	148	Q-2	104	5.0	76						Minor chlorite		
160	158	Q-2	101	3.0	75						Chlorite	Fresh and hard. Some thin chlorite on joints as shown.	Metaquartzite (?) Fine-grained, medium dark gray vaguely foliated.
165											Chlorite		
BOTTOM OF BORING													

**LEGEND**

N - Standard penetration resistance, blows/ft  
Rec - Length recovered/length cored, %  
RQD - Length of sound core 4 in. and longer/length cored, %  
S - Split spoon sample  
U - Undisturbed samples

S - Shelby tube    N - Denison  
F - Fixed piston    P - Pitcher  
O - Osterberg    G - GEI

D - Drilling break    k - Coefficient of permeability  
W - Weathered, weathering

**NOTES**

**SEABROOK STATION**  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
YANKEE ATOMIC ELECTRIC COMPANY  
  
Date: July 2, 1974    Project 7286

PAGE 2 of 2

LOG OF BORING 1215

[illegible]



BORING LOCATION <u>N20127, E70100, Plant Site</u>		INCLINATION <u>41</u>		BEARING <u>S78 E</u>		DATE START/FINISH <u>May 20, 1971</u> / <u>May 29, 1971</u>	
CASING ID <u>3 in.</u>		CORE SIZE <u>2-1/4" - 1-7/8 in.</u>		TOTAL DEPTH <u>165.2</u> ft		DRILLED BY <u>American Drilling &amp; Boring Co. - A. Whistler</u>	
GROUND EL. (MSL) <u>165.2</u> ft		DEPTH TO WATER DATE <u>May 29, 1971</u>		LOGGED BY <u>Soil. &amp; L. Poll. Dept. - E. B. Hunt</u>			

EL. MSL. ft	DEPTH ft	SAMPLE Type and No.	N or Rec.	RAIL OF ADV. min ft	WATER CONTENT or RQD	PRESSURE TEST	STRIKE, DIP	SOIL AND ROCK DESCRIPTIONS	
								(Weathering, defects, etc.)	(Type, texture, mineralogy, color, hardness, etc.)
-115.2		NQ-30	100	1.0	32		N101, 68NW S N82E, 77KW S	Minor chlorite	Unaltered
-150		NQ-31	100	1.0	82		N77W, 90SW S N81W, 56NE S	Pyrrhotite	Fresh and hard. Excellent drilling.
-120		NQ-32	100	4.0	92		N59W, 53NE S	Bleached	Discrete. Medium-fine grained, medium dark gray. Massive. Magnetic.
-165.2		NQ-33	100	1.0	100		N10W, 72SW S		Welded breccia
BOTTOM OF BORING									

**LEGEND**

N - Standard penetration resistance, blow-ft  
Rec - Length recovered length cored, %  
RQD - Length of sound core 4 in. and longer/length cored, %  
S - Split spoon sample      Groundwater  
U - Undisturbed samples

S - Shelby tube      N - Denison  
F - Fixed piston      P - Pitcher  
O - Osterberg      G - GCI

D - Drilling break      k - Coefficient of permeability  
W - Weathered, weathering

**NOTES**

**SEABROOK STATION**  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
YANKEE ATOMIC ELECTRIC COMPANY

**united engineers**  
INCORPORATED IN NEW HAMPSHIRE

Date: June 28, 1971      Project: 7286

PAGE 2 of 2      LOG OF BORING E2-16

BORING LOCATION <u>NS0117, F79221, Plant Site</u>				INCLINATION <u>41°</u>		BEARING <u>N6.5E</u>		DATE START <u>May 30, 1971</u> / FINISH <u>June 5, 1971</u>	
CASING ID <u>3 in.</u>				CORE SIZE <u>1.75 in.</u>		TOTAL DEPTH <u>165.0</u> ft		DRILLED BY <u>American Drilling &amp; Boring, T. Canning</u>	
GROUND ELEVATION <u>1.0</u> ft				DEPTH TO WATER <u>5.0</u> ft		DATE <u>June 5, 1971</u>		LOGGED BY <u>Ed. L. Doherty, Jr., J. R. Reed</u>	

EL. MSL. ft	SAMPLE		WATER CONSIST.	PRESSURE TEST	STRIKE, DIP	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)
	Depth ft	Type and No.					
135							
140							
145							
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970							
975							
980							
985							
990							
995							
1000							

**LEGEND**

N - Standard penetration resistance, blows/ft  
Rec - Length recovered/length cored, %  
RQD - Length of sound core 4 in. and longer/length cored, %  
S - Split spoon sample  
U - Undisturbed samples

S - Shelby tube    N - Denison  
F - Fixed piston    P - Pitcher  
O - Osterberg    G - GEI

D - Drilling break    k - Coefficient of permeability

\* - Weathered, weathering

**NOTES**

**SEABROOK STATION**  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
YANKEE ATOMIC ELECTRIC COMPANY

**United Engineers**  
A DIVISION OF THE UNITED ENGINEERS INC.

Date: July 3, 1971      Project: 7286

PAGE: 2 of 2      LOG OF BORING: F7-17

**BORING LOCATION** N20270, F79272 **Plant Site** **INCLINATION** 30° **BEARING** N65.5W **DATE START/FINISH** May 22, 1971 / May 24, 1971

**CASING ID** 3 in. **CORE SIZE** 1.75 in. **TOTAL DEPTH** 168.0 ft **DRILLED BY** American Drilling & Boring Co., T. Canine

**GROUND EL. (MSL)** 11.5 ft **DEPTH TO WATER DATE** 20 in. 0 May 24, 1971 **LOGGED BY** Soil - A. P. B. Rock - J. R. Rand

EL. MSL ft	SAMPLE Type and No.	N or Rec.	RAIL OF ADV. mm/ft	WATER CONTENT or RQD		PRESSURE TEST		SPLIT DIP F = Foliation J = Joint C = Contact R = Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)		
				%	Graphic	g/cc	10 <sup>-3</sup> cm/sec					
11.5												
10												
14.0												
20	NQ-1	100	1.7	23						Slight wx	Fresh. Some slight wx on closely spaced joints. Joints have minor chlorite coatings.	Diorite (?) Fine-grained medium dark gray. Looks somewhat like quartzite. Magnetic.
	NQ-2	100	2.0	0						Slight wx	Rock broken on close chlorite-coated joints. Minor to moderate chlorite on joints.	
	NQ-3	100	1.5	14						Powdery wx	Fresh, intermittent slight to moderate wx on joint zones. Some minor bleaching. Minor chips - moderate wx rust. Magnetic.	Mixed fine quartzose diorite. Medium dark gray. May be meta-quartzite (?) Rock is magnetic. Apparently disseminated pyrrhotite.
	NQ-4	100	2.1	10						Slight to moderate wx - stained		
	NQ-5	100	2.2	0						Slight wx		
	NQ-6	100	1.5	0						Minor chlorite	Fresh and hard. Not affected by wx. Joints and partings are not chloritoid. Minor powdery wx effects only on joints.	Fine-grained medium gray, locally foliated in medium coarse-grained, medium light gray quartz diorite (?)
	NQ-7	100	3.8	17						Slight rusty		
	NQ-8	100	3.9	53						Minor chlorite	Fresh and hard. Intermittently, some local slight to moderate wx. No rust.	Diorite. Mixed fine-grained medium-dark gray diorite and medium to medium coarse-grained diorite. Feldspars show saussurization. Magnetic.
	NQ-9	100	1.3	0						Slight wx		
	NQ-10	95	1.5	36						Chips - moderate wx		
	NQ-11	100	1.1	30						Slight chlorite	Chips - 2-2' core lost - rock looks OK. No chlorite 2' core lost. Chips-chlorite Chlorite Chips	Diorite. Fine-grained, medium dark gray. Locally medium-coarse grained, saussurized. Magnetic.
	NQ-12	100	2.7	67						Chips	Fresh and hard. Chlorite-coated joints 102.0' to 105.6'. Joints and partings generally fresh.	
	NQ-13	100	2.3	67						Chlorite	Fresh and hard. Drill well. No chlorite on joints. Joints and partings show only minor surface wx effects.	Diorite. Mixed fine-grained medium gray diorite and medium coarse-grained medium gray quartz diorite. Magnetic. Disseminated pyrrhotite. Local 1-2' feldspar porphyroblasts.
	NQ-14	98	2.6	67						Chlorite		
	NQ-15	100	3.5	53						Slight wx		
	NQ-16	100	2.9	62						Chips-chlorite		
	NQ-17	100	3.4	65						Chips		
	NQ-18	100	3.5	68						Chlorite		
	NQ-19	92	3.5	71						Chlorite		
	NQ-20	50	3.1	0						Chlorite		
	NQ-21	46	3.0	5						Chlorite		
	NQ-22	78	3.4	0						Chlorite		
	NQ-23	100	3.4	0						Chlorite		
	NQ-24	100	3.3	12						Chlorite		
	NQ-25	100	3.2	20						Chlorite		
	NQ-26	100	3.8	31						Chlorite		
	NQ-27	100	3.5	12						Chlorite		
	NQ-28	92	3.0	31						Chlorite		
	NQ-29	100	3.0	72						Chlorite		
	NQ-30	100	3.2	80						Chlorite		
	NQ-31	100	3.7	64						Chlorite		
	NQ-32	100	4.0	67						Chlorite		
	NQ-33	100	3.6	85								

BORING LOCATION		INCLINATION		BEARING		DATE START/FINISH				
S20270, 4 79277 Plant No.		39		N69.5W		May 22, 1971 / May 24, 1971				
CASING ID		CORE SIZE		TOTAL DEPTH		DRILLED BY				
3 in.		1-7/8 in.		168.0 ft		American Drilling & Boring Co., T. Canning				
GROUND ELEVATION		DEPTH TO WATER DATE				LOGGED BY				
114.0 ft		May 24, 1971				S. J. DeFuria, R. L. H. Reed				
EL. MSL ft	SAMPLE Depth Type No.	RATIO OF ADV. min/ft	WATER CONTENT %	OR RQD	PRESSURE TEST		STRIKE, DIP F = Friction J = Joint C = Contact B = Bedding	CODE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
					g/cm <sup>3</sup> pcf	Computed k cm/sec				
-100	NQ-3	100	5	87			130E, 28NW 3		Minor chlorite	Diabase. Fine-grained, medium dark gray. Massive. Magnetic.
-150	NQ-3	100	.0	25			113W, 66SE 3		Minor chlorite	
-160	NQ-4	97	A	80			10W, 86NE 5		Pyrite chloride	
-165	NQ-11	99	0	100			152E, 66NE 5		Pyrite	
-168							354, 72NE 8		Fresh and hard. Some chloride and pyrite on oints.	
							36W, 53SW 8		Pyrite	
							304, 67NE 4		Pyrite	
							47W, 52NW 1		Pyrite	
							BOTTOM OF BORING			

## APPENDIX I I

Project Seabrook  
Project No. 7286

Boring No. E2-11

Ground Elevation (MSL) = + 25.0

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
66.1	N21E	43MW	X				
70.2	N15E	64NW	X				
74.0	N13E	53NW	X				
75.9	N67W	45NE	X				
76.0	N12W	50SW			X		
76.1	N80W	70NE			X		
77.0	N30W	69SW			X		
78.5	N86E	67NW	X				
81.1	N15W	62NW			X		
82.9	N39E	15NW			X		
83.0	N45E	84NW			X		
84.0	N17W	49sw			X		
85.1	N50E	7SE	X			X	Diabase over Diorite
87.0	N14W	40sw	X				
87.4	N65E	80NW	X				
88.5	N65W	55NE	X				
99.3	N45E	72SE				X	Diorite over Diabase
99.9	N30E	75NW			X		
100.6	N55E	76NW				X	Diabase over Diorite
103.1	N50W	25SW	X				
105.5	N52E	68NW	X				
108.1	N35E	45NW	X				
108.9	N85E	86NW		X			
110.9	N38E	48NW	X				
110.9	N10E	85SE	X				
111.0	N50E	81NW	X				
111.1	N50E	81NW	X				
111.2	N50E	81NW	X				
112.0	N27W	72NE	X				
113.1	N65E	90NW	X				
113.4	N50E	53NW	X				
113.5	N15W	55NE	X				
114.0	N65W	55SW		X			
121.5	N75E	90NW		X			
123.5	N75E	39NW		X			
124.8	N75E	82NW					
129.3	N34E	19NW	X				
129.8	N29E	40NW	X				
129.9	N82E	37NW	X				
131.1	N33E	36NW	X				
133.1	N15E	50NW	X				
133.1	N15E	50NW					
133.2	N30W	75NE					
133.5	N25E	37NW	X				
134.5	N40E	41NW	X				
135.2	N43E	80NW	X				

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Project Seabrook  
Project No. 7286

Boring No. E2-11

Ground Elevation (MSL) = + 25.0

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
137.5	N74W	61NE			X		
142.8	N44E	40NW	X				
143.3	N25E	40NW	X				
143.6	N47E	46NW	X				
143.8	N30E	45NW	X				
144.2	N25E	36NW	X				
144.8	N30E	45NW	X				
144.9	N20E	45NW	X				
145.4	N70W	80NE		X			
146.0	N31E	22NW	X				
147.4	N27E	32NW	X				
148.5	N70E	90NW		X			
149.6	N70W	71NE		X			
152.0	N26E	28NW	X				
154.4	N85E	70NW		X			
155.3	N63W	25NE		X			
158.2	N35E	41NW	X				
159.0	N18W	70NE	X				
161.0	N85W	16NE	X				
162.0	N30E	75NW	X				
163.1	N25E	45NW	X				
163.9	N70W	15NE	X				
164.8	N50W	43NE					

Boring No. E2-12Project Seabrook  
Project No. 7286Ground Elevation (MSL) = t 21.5Type of Feature

Feature Depth	Strike	Dip	Joint'	Foliation	Slickensided Surface	Contact	Remarks
19.2	N18E	43NW	x				
19.8	N17E	46NW	X				
20.2	Horizontal		X				
21.2	North	21w	X				
21.9	N35E	25SE		X			
23.0	N23W	39SW	X				
24.0	N17E	47NW	X				
24.4	N50E	61SE	X				
25.1	Horizontal		X				
25.8	N38W	73NE	X				
27.1	N73W	15NE	X				
29.0	N41W	67NE	X				
35.1	N23E	47NW	X				
40.0	N73W	82SW		X			
44.3	N63W	37SW	X				
48.9	N12E	67NW	X				
50.4	N63E	45NW	X				
53.3	N40E	46NW	X				
57.3	N38E	52NW	X				
59.4	N34E	43NW	X				
60.0	N8W	79NE	X				
61.5	N51E	37NW	X				
75.0	N26W	86NE	X				
77.0	N75W	55SW	X				
77.5	N9E	48NW	X				
77.6	N9E	48NW	X				
82.0	N19W	81 SW	X				
82.4	N41E	40NW	X				
83.0	N81E	55SE	X				
85.7	N26E	65NW	X				
89.0	N35E	45NW				X	Diabase Dikelet
89.1	N35E	45NW	X			X	Diabase Dikelet
103.9	N28W	43sw	X				
108.0	N26E	37NW	X				
111.9	N65W	67SW	X				
114.3	N36E	45NW	x				
119.5	N35E	44NW	X				
119.6	N35E	44NW	X				
119.7	N60E	22NW	X				
132.1	N15E	12NW	X				
133.0	N40E	43NW	X				
136.0	N45E	12NE	X				
143.1	N35E	42NW	X				
143.9	N55E	50SE		X			
144.9	N75E	73SE		X			
153.7	N25E	37NW	X				
156.8	N25E	26NW	X				



Project Seabrook  
Project No. 7286

Boring No. E2-13

Ground Elevation (MSL)  $\square$  + 30.5

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
23.6	N83E	28NW	X				
25.3	N40E	58SE	X				
28.7	N15E	75SE	X				
34.0	Horizontal		X				
34.5	N25E	12SE	X				
35.1	N30E	83SE	X				
35.7	N35E	22sw	X				
38.3	N32E	67SE	X				
39.2	N5W	31NE	X				
44.2	N65E	27NW	X				
49.5	N25E	67SE	X				
50.8	N34E	30SE	X				
50.9	N29E	51SE	X				
51.8	N55E	85SE					
52.5	N55E	11SE	X				
55.9	N28E	25NW	X				
62.8	N28E	64SE	X				
63.0	N32E	60SE	X				
64.3	N35E	66SE	X				
67.0	N79W	39sw	X				
70.5	N35W	63NE	X				
70.8	N40W	54NE	X				
76.8	N55E	7NW	X				
77.0	N50E	4NW	x				
77.3	N52E	22NW	X				
78.7	N53E	84SE	X				
81.2	N46E	86NW	X				
82.0	N67E	75SE	X				
83.8	N80E	30SE	X				
89.5	N83E	52SE	X				
90.3	East	58S	X				
98.8	N45E	21NW	X				
99.3	N51E	65SE	X				
100.6	N46E	58SE	X				
101.7	N23E	39sw	x				
102.8	N45E	87NW	X				
105.0	N15W	57NE	X				
108.4	N21E	88SE	x				
110.4	N35E	88SE	X				
112.5	North	36W	X				
115.3	N19E	86SE				X	Diabase over Diorite
117.3	N67W	83SW	X				
117.8	Horizontal		X				
118.2	N40E	N40E				X	Diorite over Diabase
118.3	N45W	N40E				X	Diabase over Diorite
120.1	N30E	N45W	X				

Project Seabrook  
Project No. 7286

Boring No. E2-13

Ground Elevation (MSL) = + 30.5

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
121.8	N30E	38SE	X				
123.0	N70E	23NW		X			
123.7	N80W	37NE	X				
125.0	N50W	30NE	X				
125.4	N44E	57SE	X				
128.0	N16W	44NE	X				
129.3	N68W	54NE	X				
131.3	N56E	83NW				X	Diorite over Diabase
131.6	N15W	19%	X				
131.7	N45E	76SE	X			X	Diabase over Diorite
132.8	N60E	44SE	X				
134.1	N45E	35SE	X				
135.0	N42E	37SE	X				
136.3	East	8NE	X				
136.8	N38E	73SE	X				
138.0	N50E	18NW	X				
139.3	N35E	43SE	X				
140.5	N31E	42SE	X				
142.4	N28E	30SE	X				
142.5	N40E	46NW	X				
145.0	N22E	45SE	X				
145.2	N22E	45SE	X				
149.7	N46E	63SE	X				
150.0	N34E	34SE	X				
150.5	N21E	73SE	X				
151.3	N56E	79NW	X				
151.7	N26E	48SE	X				
153.0	N30E	81SE	X				
154.7	N26E	78SE	X				
154.9	N38E	46SE	X				
157.4	N89E	86SE	X				
158.0	N75W	72SW	X				
159.9	N49E	66SE	X				
162.3	N55E	63SE	X				
163.7	N60E	70SE	X				
165.5	N67E	76SE	X				

Project Seabrook  
Project NO. 7286

Boring No. E2-14

Ground Elevation (MSL) = + 29.9

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
11.8	N65E	43NW	X				
12.0	N65W	77SW	X				
13.6	N83W	88NE	X				
13.8	N70W	42NE	X				
13.9	N70W	42NE	X				
14.5	N44E	69SE	X				
15.8	N37E	67SE	X				
16.5	N73W	72NE	X				
28.9	N28E	67SE	X				
29.0	N85E	26NW	X				
42.2	N22E	53SE	X				
43.2	N87E	37NW	X				
44.0	N60W	69NE	X				
46.0	N43E	40NW	X				
50.8	N3W	67NE	X				
51.8	N57W	71NE	X				
53.2	N57W	41NE	X				
58.9	N30E	35NW	X				
62.5	N65W	14NE	X				
63.8	N71W	52NE	X				
65.3	N50E	42SE	X				
65.4	N75E	38SE	X				
66.7	N42W	50NE	X				
67.0	N30E	30NW	X				
70.0	N45E	85NW				X	Diorite over Diabase
70.8	N30W	21NE	X				
72.9	N5E	49SE	X				
73.5	N43W	63NE	X				
74.6	N60E	55SE	X				
78.2	East	77s	X				
80.0	N15W	42SW	X				
80.2	N70E	12NW	X				
80.4	N49E	33NW	X				
81.2	N46W	87NE	X				
85.0	N34W	22SW	X				
87.5	N6E	64SE	X				
87.8	N48W	14NE	X				
88.2	N3W	39NE	X				
89.3	N11E	77SE	X				
89.6	N65E	86SE	X				
94.3	N10E	68SE					
94.6	N59E	59SE					
99.3	N78E	40SE	X				