PACKER TEST IN HOLE P1

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 6.0 - 11.0 (WEATHERED MARL)

6.7
2.2
4.5

PROJECT: VOGTLE JOB NO: 9510-001

DATE: TUE MAY 15, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 7.5 (AT HOLE 621) FEET HOLE SIZE: 4 1/2"

GAGE HEIGHT (AGS): 4.5 FEET TOP OF SWIVEL AT 2.75' ABOVE G.L.

REMARKS: PACKER BURST AFTER 5 MIN. NO WATER TAKE

TIME (MINUTES)		FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
2:25	0	52000.0		10
2:30	5	52000.0	0	—

PACKER TEST IN HOLE P-1

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 11.0 - 31.0 MARL

PROJECT: VOGTLE JOB NO: 9510-001

DATE: MAY 16, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 7.5 AT 621 FEET HOLE SIZE: 4 1/2" BIT

GAGE HEIGHT (AGS): 4.5 FEET TOP OF SWIVEL AT 2.75' ABOVE G.L.

REMARKS: NO TAKE

TIME (MINUTES)		FLOW METER READING (C.F.)	FLOW RATE (CFM)	PRESSURE (PSI)
9:18	0	52000.0		10
9:23	5	✓	0	10
9:25	0	52000.0	–	20
9:30	5	✓	0	20

PACKER TEST IN HOLE P.1

DOUBLE ☐ SINGLE ☐ INTERVAL TESTED: 33.0 - 48.0 LOWER SAND

PROJECT: VOGTLE JOB NO: 9510-001

DATE: WED MAY 16, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 7.5 (AT 621) FEET HOLE SIZE: 8"

GAGE HEIGHT (AGS): 4.5 FEET TOP OF SWIVEL AT 3.75' ABOVE G.L.

REMARKS: CEMENTED SAND LAYER APPROX 38'-36', PLACED 4" ID STL CASING TO BOTTOM OF HOLE, WASHED AND TREMIED GRAVEL TO 3.0' ABOVE BOTTOM OF MARL. PULLED CASING, SET PACKER 1' ABOVE TOP OF GRAVEL.

TIME (MINUTES)		FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
1:03	0	52000.0	—	10
1:07	~~5~~ 4	✓	0	
1:08	0	52000.0	—	20
9	1	3.1	3.1	✓
1:10	2	5.5	2.4	✓
1:11	3	7.6	2.1	✓
1:12	4	9.1	1.5	
1:13	5	10.1	1.0	
1:14	6	10.8	0.7	
1:16	8	11.8	0.5	
1:18	10	12.0	0.1	
1:20	12	12.1	0.05	
1:22	14	12.1	~~0.05~~ 0	
1:24	16	12.7	OK ~~0.3~~ ~~0.6~~	
1:26	18	12.8	0.05	
1:28	20	12.8	0.0	

CALCULATION SHEET

DATE _____

DESIGN BY R.C. KISER DATE 5/17/79 CHECKED BY _____ SHEET NO. 1 OF 1

PROJECT VOGTLE JOB NO. 9510-001

SUBJECT E-19 TEST P-1A 15' E. OF P1 ~~CALCULATION NO.~~ INTERVAL 0-6' UPPER MARL FILE NO. _____

(1) DEPTH FROM BASE TO GROUND SURFACE: 1.33' FEED LINE FROM BGL TO G.L.

(2) DEPTH TO BOTTOM OF HOLE: 6.0'

(3) DEPTH TO TOP OF GRAVEL PACK: G.L

(4) DEPTH OF SAND (2)-(3): 6.0

(5) DEPTH TO WATER SURFACE IN HOLE: 0 G.W LEVEL 7.5' (AT HOLE 621)

(6) DEPTH OF WATER IN WELL (2)-(5): 6.0

(7) VOLUME OF GRAVEL PLACED IN HOLE: 3.4 5 GAL BUCKETS = 2.3 FT 3

(8) AVERAGE RADIUS OF WELL:

$$r = \left(\frac{V}{\pi h}\right)^{1/2} = \left(\frac{2.3\ FT^2}{(3.14)(6.0)(FT)}\right)^{1/2} = \left(\frac{2.3\ FT^2}{18.8}\right)^{1/2} = .35\ FT = 4.2'' \text{ (DIAM = 8.4" AVG)}$$

TIME		WATER LEVEL IN BRL (FEET)				
CLOCK	ACCUM	READ	DIFF	ACCUM	VOL (FT³)*	
7:45 A	-	2.60	-	-		18° C 5/17/79
8:45	60	2.56	.04	.04'		18° C
9:45	120	2.53	.03	.07'		19° C
10:45	180	2.50	.03	.10'		20° C
11:45	240	2.46	.04	.14'		22° C
12:45	300	2.43	.03	.17'		24° C
1:45	360	2.39	.04	.21'		25° C
2:45	420	2.36	.03	.24'		27° C
3:45	480	2.34	.02	.26'		27° C
4:45	540	2.31	.03	.29'		28° C
7:45 A	1440	1.91	.40	.69'		16° C 5/18/79
10:45	1620	1.81	.10	.79'		20° C
12:45	1740	1.77	.04	.83'	2.29	23° C

* .23 FT³/INCH OF BBL. (BARREL IS 22.5 INCHES DIAMETER)

PACKER TEST IN HOLE

DOUBLE ☐ SINGLE ☐ INTERVAL TESTED: 5.0 - 30.0 MARL

PROJECT: VOGTLE JOB NO: 9510-001

DATE: TH MAY 17, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 11.9 FEET HOLE SIZE: 5½

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 3.75' ABOVE G.L.

REMARKS: AFTER 3.5 MINUTES OF TESTING AT 40 PSI, HOLE BEGAN TO TAKE WATER AT HIGH RATE (~20 CFM); BACKED PRESSURE OFF TO 20 PSI AND GOT 0 TAKE IN 5 MINUTES, HOWEVER, WATER METER WAS NOT WORKING DURING "NO TAKE" PERIOD. ALSO DEVELOPED "SPRING" 15' BEHIND RIG.

TIME ( )		FLOW METER READING ( )	FLOW RATE (CFM)	PRESSURE (PSI)
2:25	0	520270.0		
	1	70.9	0.9	20
	2	70.9	~~0.0~~ 0.0	20
	3	71.0	0.1	
	4	71.0	~~0.0~~ 0.0	
	5	71.0	0.0	
2:31	0	71.2	—	
	1	71.3	0.1	30
	2	71.5	0.2	✓
	3	72.0	0.5	✓
	4	72.1	0.1	
	5	72.5	0.4 3gpm	
	6	72.7	0.2	
	8	73.1	0.2	
	10	73.3	0.1	
	12	73.6	0.15	
	14	73.6	0	
	16	73.6	0	Avg = .12 cfm/.91
1:47	0	74.0	? —	40
	4	295.2	!	

PACKER TEST IN HOLE P-2

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 30.0 - 50.0 LOWER SAND

PROJECT: VOGTLE JOB NO: 9510-001

DATE: TH MAY 17, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 11.9 FEET HOLE SIZE: 5½

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 5.75' ABOVE G.L.

REMARKS: TESTED OPEN HOLE; SOUNDED BOTTOM OF HOLE WITH DRILL RAL-
AFTER TEST TO MAKE SURE HOLE STAYED OPEN.

TIME (MINUTES)		FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
3:53	0	520400.0		20
3:54	1	401.5		
	2	402.1		
	3	402.6	0.5	
	4	403.0	0.4	
	5	403.2	0.2	
3:59½	0	403.8		
	1	404.4	0.6	30
	2	405.1	0.7	
	3	405.8	0.7	
	4	406.4	0.6	
	5	407.0	0.6	
	6	407.7	0.7	
	7	408.2	0.5	
4:07	0	410.0	–	40
	1	411.2	1.2	
	2	412.2	1.0	
	3	413.3	1.1	
	4	414.5	1.2	
	5	415.8	1.3	

PACKER TEST IN HOLE 1-6 PG 2 OF 6

DOUBLE ☐ SINGLE ☐ INTERVAL TESTED: _____

PROJECT: _____ JOB NO: _____

DATE: _____ TESTED BY: _____

GROUND WATER DEPTH: _____ FEET HOLE SIZE: _____

GAGE HEIGHT (AGS): _____ FEET

REMARKS: _____

TIME ( )	FLOW METER READING ( )	FLOW RATE (CFM)	PRESSURE (PSI)
6	416.9	1.1	
7	417.9	1.0	
8	419.0	1.1	
9	420.1	1.1	
10	421.2	1.1	

PACKER TEST IN HOLE P-3

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 6.0-7.1 UPPER SAND ?

PROJECT: VOGTLE JOB NO: 9510-001

DATE: MON MAY 14, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 2.7 (< 24 HR READING) FEET HOLE SIZE: 5½"

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 2.75' ABOVE G.L.

REMARKS: GROUND ELEV. = 107.8 ; PACKER IS 3.1 FT LGTH ; ATTEMPTED TO SET PACKER AT TOP OF HOLE BUT GROUND BULGED OUT ; TRIED TESTING LOWER 1 FT, BUT H_2O TAKE VERY SMALL, WILL TRY E-19 AFTER OTHER INTERVALS COMPLETED.

TIME (MINUTES)	FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
12:36 0	520033.3		10
12:41	33.8	0.1 CFM/MIN	10

DISREGARD

PACKER TEST IN HOLE P-3

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 7.1 - 17.0 "WEATHERED" MARL

PROJECT: VOGTLE JOB NO: 9510-001

DATE: MON MAY 14, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 2.7 (< 24 HR READING) FEET HOLE SIZE: 4 1/2" BIT

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 1.65 ABOVE G.L.

REMARKS: NO WATER TAKE AT ALL; TERMINATED AFTER 5 MIN AT 10 PSI AND 1 MIN AT 20 PSI

TIME (MINUTES)		FLOW METER READING ( )	FLOW RATE (CFM)	PRESSURE (PSI)
12:34	0	520040.0		10
12:39	5	✓	0	10
12:39	0	✓		20
12:40	1	✓	0	20

PACKER TEST IN HOLE P-3

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 17.0 - 37.0 MARL

PROJECT: VOGTLE JOB NO: 9510-001

DATE: MON MAY 14 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 2.7 (24 HR READING) FEET HOLE SIZE: 4½" BIT

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 1.75' ABOVE G.L.

REMARKS: NO TAKE - CONTINUED DRILLING TO 39.6 (BOTTOM OF MARL)

TIME (MINUTES)		FLOW METER READING (CFM)	FLOW RATE (CFM)	PRESSURE (PSI)
1:47	0	520060.7		20
1:49	2	✓	0	
1:50	0	520060.7		30
1:55	5	SAME	0	30

PACKER TEST IN HOLE

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 40.5 - 54.6 (LOWER SAND)

PROJECT: VOGTLE JOB NO: 9510-001

DATE: MON MAY 14, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 2.7 (< 24 HR READING) FEET HOLE SIZE: ~~4½" BIT~~ 5½" REAMER

GAGE HEIGHT (AGS): 0 FEET (2.8 TO TOP OF SWIVEL)

REMARKS: BOTTOM OF MARL AT 39.6; SET PACKER BOTTOM AT 41.0 TO GET GOOD BITE INTO WALL; ON FIRST TRY, HOLE BRIDGED AT 39.0. REAMED AND WASHED WITH 5½" BIT. PACKER STILL "TIGHT THRU" 39-40; TEST RESULTS QUESTIONABLE

TIME (MINUTES)		FLOW METER READING (CFM)	FLOW RATE (CFM)	PRESSURE (PSI)
4:25	0	5200 61.5		30
4:26	1	63.0	1.5 *	✓
4:27	2	63.5	0.5	✓
4:28	3	64.1	0.6	✓
4:29	4	64.6	0.5	✓
4:30	5	65.1	0.5	✓
4:32	7	66.6	0.75	✓
4:34	9	68.0	0.7	✓
4:36	11	69.2	0.6	✓
4:38	13	70.9	0.85	✓
4:40	15	72.5	0.8	✓
4:45	20	76.9	0.9	✓
4:50	25	80.5	0.7	✓
4:55	30	84.5	0.8	✓
			AVG. .77 CFM	

* OMIT

BECHTEL

CALCULATION SHEET

DATE _____

DESIGN BY R C KISER DATE BEGIN TU MAY 15 79 CHECKED BY _____ SHEET NO. 1

PROJECT VOGTLE JOB NO. 9510-001

SUBJECT E-19 TEST AT P3-A (15' NW OF P3) ~~CALCULATION~~ INTERVAL NO. UPPER MARL 0-6.5' FILE NO. _____

(1) DEPTH FROM BASE TO GROUND SURFACE: 1.25' (BASE IS FEED LINE TO BOB VALVE)

(2) DEPTH TO BOTTOM OF HOLE: 6.5'

(3) DEPTH TO TOP OF GRAVEL PACK: GROUND LEVEL

(4) DEPTH OF SAND (2)-(3): 6.5'

G.W. LEVEL 2.7' ? AT P.3

(5) DEPTH TO WATER SURFACE IN HOLE: GROUND LEVEL

(6) DEPTH OF WATER IN WELL (2)-(5): ~~0~~ 6.5'

5 x .1337 x 3.5 = 2.33 ft³

(7) VOLUME OF GRAVEL PLACED IN HOLE: 3.5 5-GAL BUCKETS = 2.3 FT³

(8) AVERAGE RADIUS OF WELL:

$$r = \left(\frac{V}{\pi h}\right)^{1/2} = \left(\frac{2.3\ FT^3}{(3.14)(6.5\ FT)}\right)^{1/2} = \left(\frac{2.3\ FT^2}{20.41}\right)^{1/2} = .34\ FT = \underline{4.1''}\ (DIAM. = 8.2'')$$

TIME CLOCK	TIME ACCUM	WATER LEVEL IN BARREL (FT) READ	DIFF	ACCUM	VOL (FT³)*	
12:10 PM	—	2.59'	—	—	—	5/15/79 TEMP = 21° C
1:10	60	2.57'	.02'	.02'		
1:55	105	2.55'	.02'	.04'		
2:35	145	2.53'	.02'	.06'		
3:00	170	2.51'	.02'	.08'		
3:30	200	2.49'	.02'	.10		
* 7:30 AM		1.95	.54 ~~.44~~	.64 ~~.54~~		5/16/79 TEMP = 21° C
8:30		1.93	.02	.66 ~~.56~~		✓
9:30		1.88	.05	.71 ~~.61~~		22° C
10:30		1.85	.03	.74 ~~.64~~		23° C
11:30		1.82	.03	.77 ~~.67~~		25° C
12:30 PM	1460	1.79	.03	.80 ~~.70~~		26° C
01:30	1520	1.75	.04	.84 ~~.74~~		28° C
02:30	1580	1.71	.04	.88 ~~.78~~		29° C
03:30 pm	1640	1.67	.04	.92 ~~.82~~	~~4.11~~	30° C
07:00 AM		1.10	.57	1.49 ~~1.39~~	~~3.64~~	18° C

* .23 FT³/INCH OF BBL. (BARREL IS 22.5" DIAM)

PACKER TEST IN HOLE F-4

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 5-15 1.0-13.0 = Qal 13.0-15.0 U/MARL

PROJECT: VOGTLE JOB NO: 9510-001

DATE: FR MAY 18, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: _____ FEET HOLE SIZE: 5 1/2

GAGE HEIGHT (AGS): 0 FEET G.L.

REMARKS: UPPER 1-2 FT = BACKFILL SAND; SET PACKER AT 5' WITH THE INTENTION OF RUNNING A LOW PRESSURE PACKER TEST; HOWEVER THE Qal GAVE WAY AND THE PACKER BURST. WILL SET-UP F-19 ON FUTURE Qal TESTS

TIME (MINUTES)	FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)

PACKER TEST IN HOLE P-9 PAGE 1 OF 2

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 21.0 - 36.0° (LOWER SAND)

PROJECT: VOGTLE JOB NO: 9510-001

DATE: FR MAY 18, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 6.9 FEET HOLE SIZE: 5 1/2

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 2.75' ABOVE G.L.

REMARKS: TOP OF CEMENTED SAND = 21.6' TOP OF MARL 12.0'

TIME ( )	FLOW METER READING ( )	FLOW RATE (CFM)	PRESSURE (PSI)
11:15 0	400.0	—	20
1	400.8	0.8	
2	400.9	0.1	
3	401.0	0.1	
4	401.1	0.1	
5	401.2	0.1	
6	401.2	0.	
8	401.2	0	
10	401.2	0	
11:25 1/2 0	402.1	—	30
1	402.2	0.1	
2	402.7	~~0.2~~ 0.5	
3	402.9	0.2	
4	402.9	0	
5	403.1	0.2	
6	403.2	0.1	
8	403.5	~~0.3~~ 0.15	
10	403.7	~~0.2~~ 0.1	

PACKER TEST IN HOLE

PAGE 2 OF 2

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: _____

PROJECT: _____ JOB NO: _____

DATE: _____ TESTED BY: _____

GROUND WATER DEPTH: 6.9 FEET HOLE SIZE: _____

GAGE HEIGHT (AGS): _____ FEET

REMARKS: AT 50 PSI, WATER METER "TOOK OFF" — TOO FAST FOR NORMAL TEST; ONLY SMALL AMT LEAKED AROUND PACKER, BUT TAKE WAS MUCH FOR NORMAL FORMATION ∴ TEST TERMINATED.

TIME (_____)	FLOW METER READING (_____)	FLOW RATE (CFM)	PRESSURE (PSI)
12:36 0	404.0	—	40
1	404.6	0.6	
2	404.9	0.3	
3	405.1	0.2	
4	405.4	0.3	
5	405.7	0.3	
6	406.0	0.3	
8	406.2	~~0.2~~ 0.1	
10	406.9	~~0.7~~ 0.35	
0	409.0	?	50
1	424.5		

BECHTEL

CALCULATION SHEET

DATE _____

DESIGN BY R.C. KISER DATE 5/18/79 CHECKED BY _____ SHEET NO. 1

PROJECT VOGTLE INTAKE STRUCTURE PERM. TESTS JOB NO. 9510-001

SUBJECT E-19, P-4A ~~CALCULATION NO.~~ INTERVAL 0-7.5' FILE NO. _____

UPPER ALLUVIUM

G.W. DEPTH = 6.9' (AT P-4)

(1) DEPTH FROM BASE TO GROUND SURFACE: 1.25'

(2) DEPTH TO BOTTOM OF HOLE: 7.5'

(3) DEPTH TO TOP OF GRAVEL PACK: GR. LEVEL

(4) DEPTH OF SAND (2)-(3): 7.5'

(5) DEPTH TO WATER SURFACE IN HOLE: 0

(6) DEPTH OF WATER IN WELL (2)-(5): 7.5'

(7) VOLUME OF GRAVEL PLACED IN HOLE: 19 GALLON = 2.5 FT³

(8) AVERAGE RADIUS OF WELL:

$$r = \left(\frac{V}{\pi h}\right)^{1/2} \quad \left(\frac{2.5\ F^3}{(3.14)(6.65)}\right)^{1/2} = (.12)^{1/2} = .35\ FT = 4.2''$$

TIME CLOCK	ACCUM	READ	DIFF	ACCUM	VOL (FT³)*	
1:00 PM	–	2.70	–	–		25 °C START H2O FROM TEUCI
1:05	5	2.68	.02	.02		
1:10	10	2.65	.03	.05		
1:15	15	2.62	.03	.08		
1:20	20	2.59	.03	.11		
1:25	25	2.57	.02	.13		
1:30	30	2.54	.03	.16		
1:40	40	2.49	.05	.21		
1:50	50	2.44	.05	.26		
2:00	60	2.39	.05	.31		25°C
2:10	70	2.33	.06	.37		
2:20	80	2.28	.05	.42		
2:30	90	2.23	.05	.47		
2:45	105	2.15	.08	.55		
3:00	120	2.07	.08	.63		27°C
3:15	135	1.99	.08	.71		
3:30	150	1.92	.07	.78	2.15	

k = 1060.8 FT/YR

* .23 FT³/INCH OF BBL.

PACKER TEST IN HOLE 1-5

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 6.0 - 12.0 (UPPER MARL)

PROJECT: VOGTLE JOB NO: 9510-001

DATE: THU MAY 17, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 11.3 FEET HOLE SIZE: 5½

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL 2.75' ABOVE G.L.

REMARKS: "SPRING" DEVELOPED ~15' FROM HOLE AT 20 PSI; REDUCED PRESSURE TO 10 PSI; FLOW DECREASED BUT CONTINUED THRU 5 MINUTE TEST; CAUSE: (1) POSSIBLE THIN LAYER OF ALLUVIUM, OR (2) BACKFILL SAND DEEPER THAN ORIGINALLY THOUGHT; VERIFIED THAT CAUSE = ALLUVIUM, BY DIGGING (CONT BELOW)

TIME (_____)		FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
9:20	0	520010.0	?	20
	1	38.0		
	2	64.0		
	3	95.0		
9:24	0	123.0	?	10
	1	140.0		
	2	160.0		
	3	178.0		
	4	198.0		
	5	218.0		

THRU BACKFILL SAND WITH POST HOLE DIGGER; FOUND ORIGINAL GROUND SURFACE AT 1.2' DEPTH. SINCE PACKER WAS SET AT 6.0', IT APPEARS THAT ALLUVIUM EXTENDS FROM ~1.2' TO AT LEAST 6'-8' DEPTH, POSSIBLY MORE, BUT NO DEEPER THAN 12.0' (TOP OF MARL); NOTE: THIS Qal IS PROBABLY GULLY WASH RATHER THAN SAVANNAH RIVER Qal.

PACKER TEST IN HOLE P5

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 12.0-27.0 MARL + CEMENTED SAND

PROJECT: VOGTLE JOB NO: 9510-001

DATE: TH MAY 17, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 11.3 FEET HOLE SIZE: 5½

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL 1.75' ABOVE G.L.

REMARKS: ENCOUNTERED CEMENTED SAND AT 25.9'; CEMENTED SAND IS APPARENTLY IMPERMEABLE.

TIME (MINUTES)	FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
10:11 0	520240.0		20
1	✓	0	✓
2	✓	0	✓
3	✓	0	✓
4	✓	0	✓
5	✓	0	✓
0	✓		30
2	520240.1	~~0.1~~ 0.05	✓
4	✓	0	✓
5	✓	0	✓

PACKER TEST IN HOLE

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 29.0-54.0 LOWER SAND

PROJECT: VOGTLE JOB NO: 9510-001

DATE: TH MAY 17, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 11.3 FEET HOLE SIZE: 5 1/2

GAGE HEIGHT (AGS): 0 FEET TOP OF SWIVEL AT 4.75' ABOVE G.L.

REMARKS: TESTED WITHOUT GRAVEL PACK; HOLE STAYED OPEN

(DROPPED DRILL RODS TO B.O.H — NO RESISTANCE)

TIME (MINUTES)		FLOW METER READING (FT³)	FLOW RATE (CFM)	PRESSURE (PSI)
11:24	0	520240.0	—	
	1	41.5	1.5	20
	2	42.0	0.5	
	3	42.5	0.5	
	4	43.0	0.5	
	5	43.5	0.5	
11:30	0	44.0	—	30
	1	45.0	1.0	
	2	46.0	1.0	
	3	46.9	0.9	
	4	47.5	0.6	
	5	48.3	0.8	
11:36	0	250.0	—	40
	1	52.9	2.9	
	2	55.1	2.2	
	3	57.2	2.1	
	4	59.4	2.2	
	5	63.0	3.6 (?) SOME RETURN	

PACKER TEST IN HOLE P-6 E-10 OPEN END

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 24'

PROJECT: VOGTLE JOB NO: 9510-001

DATE: MO MAY 21, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: — FEET HOLE SIZE: 5 7/8

GAGE HEIGHT (AGS): 0 FEET

REMARKS: DRILLED TO 24' SET 4" ID CASING TO BOH; SET PACKER AT TOP OF CASING; TRIED "POUR-IN" (CONSTANT HEAD) (CH) TEST THRU CASING BUT WATER CAME UP AROUND ANNULUS; TRIED PULLING CASING BUT BOTTOM 10' DIDNT COME UP. NO FISHING TOOLS ON SITE. ABANDONED HOLE

TIME (MINUTES)	FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)

CALCULATION SHEET

DATE _____

DESIGN BY _____ DATE _____ CHECKED BY _____ SHEET NO. 1 OF 2

PROJECT P6A PERM - 0.8' - 4.0' UP. QAL SILTS/CLAYS JOB NO. _____

SUBJECT _____ CALCULATION NO. _____ FILE NO. _____

(1) DEPTH FROM BASE TO GROUND SURFACE: 1.4'

(2) DEPTH TO BOTTOM OF HOLE: 4.0

(3) DEPTH TO TOP OF GRAVEL PACK: GROUND LEVEL

(4) DEPTH OF SAND (2)-(3): 4.0'

(5) DEPTH TO WATER SURFACE IN HOLE: 0

(6) DEPTH OF WATER IN WELL (2)-(5): 4.0'

GW LEVEL
APPROX: 8.1' BASED ON P6-B, C, D.

(7) VOLUME OF GRAVEL PLACED IN HOLE: 3.1 BUCKETS = 2.1 FT³

(8) AVERAGE RADIUS OF WELL:

$$r = \left(\frac{V}{\pi h}\right)^{1/2} = \left(\frac{2.1 f^3}{3.14)\,4.0 f}\right) = (.17 f^2)^{1/2} = .41 \text{ ft}$$

TIME CLOCK	ACCUM	READ	DIFF	ACCUM	VOL (FT³)*	
8:12	0	2.75				FILL-UP TO CUT OFF
8:17½	5½	2.32	.43			
8:20	—	2.30	—	—	—	22° C
:25	5	2.20	0.10	0.10'		
:30	10	2.14	0.06	0.16'		
:35	15	2.08	0.06	0.22'		
:40	20	2.02	0.06	0.28'		
:45	25	1.95	0.07	0.35'		
:50	30	1.90	0.05	0.40'		
:55	35	1.85	0.05	0.45'		
9:00	40	1.79	0.06	0.51'		22° C
:10	50	1.69	0.10	0.61'		
:20	60	1.59	0.10	0.71		
:30	70	1.49	0.10	0.81		
:40	80	1.40	0.09	0.90		
:50	90	1.30	0.10	1.00		
10:00	100	1.22	0.08	1.08		22° C
15	115	1.10	0.12	1.20		
30	130	0.98	0.12	1.32		
45	145	0.87	0.11	1.43		
11:00	160	0.76	0.11	1.54		22°C
		2.00 **				

** RE-FILLED BARREL TO 2.0 FT

* .23 FT³/INCH OF BBL.

BECHTEL

CALCULATION SHEET

DATE

DESIGN BY DATE CHECKED BY SHEET NO. 2 OF 2

PROJECT P6-A JOB NO.

SUBJECT CALCULATION NO. FILE NO.

(1) DEPTH FROM BASE TO GROUND SURFACE:

(2) DEPTH TO BOTTOM OF HOLE:

(3) DEPTH TO TOP OF GRAVEL PACK:

(4) DEPTH OF SAND (2)-(3):

(5) DEPTH TO WATER SURFACE IN HOLE:

(6) DEPTH OF WATER IN WELL (2)-(5):

(7) VOLUME OF GRAVEL PLACED IN HOLE:

(8) AVERAGE RADIUS OF WELL:

$$r = \left(\frac{V}{\pi h}\right)^{1/2}$$

TIME CLOCK	ACCUM	READ	DIFF	ACCUM	VOL (FT³)*	
11:15	175	1.91	.09	1.63		
11:30	190	1.81	.10	1.73		
:45	205	1.71	.10	1.83		
12:00	220	1.61	.10	1.93		22°C
12:15	235	1.52	.09	2.02		
12:30	250	1.43	.09	2.11		
12:45	265	1.34	.09	2.20		
1:00	280	1.26	.08	2.28		
1:20	300	1.20	.06	2.34	6.46	

* .23 FT³/INCH OF BBL.

PACKER TEST IN HOLE PG-13

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 10.0 - 20.0

PROJECT: VOGTLE JOB NO: 9510-001

DATE: W MAY 23, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 9.4 FEET HOLE SIZE: 3 3/7"

GAGE HEIGHT (AGS): 0 FEET (TOP OF SWIVEL AT 1.75' ABOVE G.L.)

REMARKS: DRILLED 10', SET 10' OF THIN-WALL PVC (4" DIA.); CEMENTED IN PLACE WITH NEAT CEMENT; LET CURE OVERNIGHT; DRILLED TO 20'; FLUSHED WITH CLEAR WATER; TESTED AT 5 PSI; NOTE: HOLE SOUNDED TO 19.3' AFTER TEST → 0.7' OF SEDIMENT ON BOTTOM

TIME ( )	FLOW METER READING ( )	FLOW RATE (CFM)	PRESSURE (PSI)
	520472.0		
	~~520474.0~~	0	5
0	520528.8		
1	✓	0	5
2	✓	0	
3	✓	0	
11:00 0	500.0	—	5
1	524.0	24.0	
2	548.0	24.0	
3	572.1	24.1	
4	596.2	24.1	
5	620.0	23.8	
6	644.2	24.2	
7	668.2	24.0	
8	692.3	24.1	
9	716.1	23.8	
10	740.0	23.9	
15	858.8	23.8	
20	911.9	STOPPED FLOWING	?

PACKER TEST IN HOLE P-6C

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 20.0 - 30.0 (lower Sand)

PROJECT: VOGTLE JOB NO: 9510-001

DATE: W MAY 23, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 9.4 FEET HOLE SIZE: 3 7/8

GAGE HEIGHT (AGS): 0 FEET SWIVEL TOP AT 1.75' ABOVE G.L.

REMARKS: DRILLED 20', CEMENTED 20' OF THIN WALL PVC CASING; AFTER GROUT CURED, DRILLED ADDITIONAL 10 FT; SOUNDED HOLE AFTER TEST AND RODS DROPPED ONLY TO 20.5 FT. MAY CONSIDER THIS TEST OPEN END INSTEAD OF INTERVAL TEST.

TIME (_____)	FLOW METER READING (_____)	FLOW RATE (CFM)	PRESSURE (PSI)
12:38 0	925.0	-	5
1	940.2	15.2	
2	956.4	16.2	
3	972.5	16.1	
4	988.2	15.7	
5	1003.0	14.8	
6	1018.1	15.1	
7	1033.0	14.9	
8	1048.0	15.0	
9	1062.4	14.4	
10	1076.8	14.4	
11	1091.0	14.2	
12	1105.1	14.1	
13	1119.5	14.4	
14	1133.2	13.7	
15	1147.0	13.8	
17	1174.0	13.5	
19	1200.9	13.5	
21	1227.5	13.3	
23	1253.1	12.8	
25	1278.3	12.6	

PACKER TEST IN HOLE P-6D

DOUBLE ☐ SINGLE ☑ INTERVAL TESTED: 30.0 - 40.0 ALLUVIUM (Lower)

PROJECT: VOGTLE JOB NO: 9510-001

DATE: W MAY 23, 1979 TESTED BY: R.C. KISER

GROUND WATER DEPTH: 9.4 FEET HOLE SIZE: 3 7/8"

GAGE HEIGHT (AGS): 0 FEET SWIVEL HT = 1.75' ABOVE G.L.

REMARKS: DRILLED 30', SET & GROUTED 4" PVC CASING; AFTER GROUT CURED, DRILLED 10' TO 40' AND TESTED, SOUNDED HOLE AFTER TEST AND RODS DROPPED ONLY TO 30' 8" → MAY CONSIDER "OPEN END TEST"

TIME (MINUTES)	FLOW METER READING (FT^3)	FLOW RATE (CFM)	PRESSURE (PSI)
2:32 0	1310.0	—	5
1	1331.0	21.0	
2	1352.2	21.2	
3	1373.8	21.6	
4	1394.9	21.1	
5	1415.0	20.1	
6	1433.8	18.8	
7	1454.5	20.7	
8	1474.1	19.6	
9	1493.1	19.0	
* MISSED 10 11	1530.5	18.7	
12	1549.0	~~19.0~~ 18.5	
14	1584.0	17.5	
16	1616.8	16.4	
18	1647.7	15.5	
20	1674.0	13.2	

BECHTEL CORPORATION

SHEET 1 OF 1

DRILLERS **LOG OF DRILL HOLE**

HOLE NO. WELL 1

PROJECT VOGTLE N.P. DEWATER TESTS ANGLE FROM HORIZ 90° BEARING —

LOCATION _____ BEGUN 10-2-72 COMPLETED 10-3-72

OVERBURDEN _____ DEPTH DRILLED INTO ROCK _____ TOTAL DEPTH OF HOLE 94.0 Ft

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN _____

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 210 Ft. (TOPO) HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
Drilled 12¼" diam. hole. Bentonite used in drilling fluid.									0.0 – 20.0 Ft. CLAY: Brown, sandy.
							20		20.0 – 40.0 Ft CLAYEY SAND AND CLAY: Yellow
							40		
							60		56.0 – 72.0 Ft. SAND: White, with yellow and black interbedded clay.
6" casing set to 80 Ft. with slotted screen, 65-80 Ft.	65'								72.0 – 80.0 Ft. SAND: White, with shells.
Clean sand-gravel pack placed in annular space.	80'						80		80.0 – 94.0 Ft MARL: Green, clayey
							100		Total depth 94.0 Feet

Hole Size 12¼"

Hole No. WELL 1

Site VOGTLE DEWATERING TESTS

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. WELL 2

PROJECT VOGTLE N.P. DEWATER TESTS ANGLE FROM HORIZ VERTICAL BEARING

LOCATION BEGUN 9/12/76 COMPLETED

OVERBURDEN DEPTH DRILLED INTO ROCK TOTAL DEPTH OF HOLE

ELEV. WATER TABLE NO. CORE BOXES — NO. SAMPLES TAKEN —

CORE RECOVERY (%) — FEET — MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 225 (TOP) HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
Drilled 12¼" dia. hole Bentonite used in drilling fluid									0-15' SANDY CLAY, brown to red
							20		15'-56' CLAYEY SAND & CLAY, brown to yellow, interbedded
							40		
									56'-61' SAND, white, with shells.
							60		
Began losing circulation @ 55' (50% loss)	69'								61'-85' SHELL, white, hard, limestone, some clay and sand.
							80		
	85'								85'-87' MARL, green, clayey, dense
6" casing set to 85' with slotted screen, 69'-85' Clean sand-gravel pack placed in annular space.							100		B.O.H. — 87'

Hole Size 12¼" DIA

Hole No. WELL 2

Site V.N.P. Dewatering Test

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. O.P. 1A

PROJECT VOGTLE DEWATERING TEST ANGLE FROM HORIZ 90 BEARING —

LOCATION 60' N. of WELL #1 BEGUN 9-27-72 COMPLETED 9-27-72

OVERBURDEN 0 DEPTH DRILLED INTO ROCK 82 TOTAL DEPTH OF HOLE 82

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN _____

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 210.42 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE WITH BENTONITE DRILL FLUID									0-20 FT. CLAY BROWN SANDY
							20		20-56 FT. CLAY AND SAND YELLOW
							40		
							60		56-72 FT. SAND WITH WHITE CLAY
	63'								
									72-78 FT. SAND LITTLE SHELL AND WHITE CLAY
	78'						80		78-82 FT MARL GREEN, CLAYEY
SET PIPE, SCREEN 63-78', 2" O.D. METAL PIPE, PLACED GRAVEL AND SAND IN ANNULAR SPACE									BOTTOM OF HOLE 82 FT

Hole Size 6 1/4"

Hole No. 1A

Site VOGTLE DEWATERING TESTS

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. 1B

PROJECT VOGTLE DEWATERING ANGLE FROM HORIZ 90 BEARING —

LOCATION 100 FT. N. of WELL #1 BEGUN _____ COMPLETED _____

OVERBURDEN _____ DEPTH DRILLED INTO ROCK 78 TOTAL DEPTH OF HOLE 78

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN _____

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 209.05 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE WITH BENTONITE MUD AS DRILL FLUID										0.0-20 FT CLAY BROWN, SANDY
							20			20-56 FT CLAY AND SAND YELLOW
							40			
							60			56-68 FT CLAY WHITE, LITTLE SAND
	63'									
										68-72 FT. SAND WHITE, CLAYEY
	78									72-78 FT. COQUINA CLAYEY, SHELLS
SET 78 FT. OF 2" CASING WITH SLOTTED SCREEN 78'-63' PLACED CLEAN SAND-GRAVEL PACK IN ANNULAR SPACE BACK-WASHED WITH CLEAN WATER							80			BOTTOM OF HOLE 78 FT.

Hole Size 6 1/4"

Hole No. 1B

Site VOGTLE DEWATERING SITE

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. 1C

PROJECT VOGTILE DEWATERING ANGLE FROM HORIZ 90 BEARING —

LOCATION 20' E. of WELL #1 BEGUN 9/28/72 COMPLETED 9/28/72

OVERBURDEN 0.0 DEPTH DRILLED INTO ROCK 82 TOTAL DEPTH OF HOLE 82

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN _____

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 211.34 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE WITH BENTONITE DRILL MUD										0.0-20 FT. CLAY BROWN, SANDY
							20			20-56 FT. CLAY AND SAND YELLOW
							40			
							60			56-72 FT. SAND AND CLAY WHITE
	65'									
	80'						80			72-80 FT. SAND WHITE, LITTLE SHELL AND CLAY
SET 80 FT OF 2" O.D. CASING, WITH SLOTTED SCREEN; 65-80' PLACED CLEAN SAND-GRAVEL IN ANNULAR SPACE							100			80-82 FT. MARL GREEN, CLAYEY
										BOTTOM OF HOLE 82 FT.

Hole Size 6 1/4"

Hole No. 1C

Site VOGTLE DEWATERING TESTS.

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. 1D

PROJECT VOGTLE DEWATERING TEST ANGLE FROM HORIZ 90 BEARING —

LOCATION 60' E. of WELL #1 BEGUN 9-29-72 COMPLETED 9-29-72

OVERBURDEN 0.0 DEPTH DRILLED INTO ROCK 82 TOTAL DEPTH OF HOLE 82

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN _____

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 210.45 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE, WITH BENTONITE DRILL MUD									0.0-20 FT CLAY BROWN, SANDY
							20		20-56 FT. CLAY AND SAND YELLOW
							40		
							60		56-73 FT SAND AND CLAY WHITE
	65'								
	80'						80		73-80 FT SAND, WHITE, LITTLE SHELL AND CLAY
									80-82 FT. MARL GREEN, CLAYEY
SET 80 FT OF 2" O.D PIPE, WITH SLOTTED SCREEN 65'-80', BACK-FLUSHED, PLACED CLEAN GRAVEL-SAND IN ANNULAR SPACE							100		BOTTOM OF HOLE 82.0 FT.

Hole Size 6 1/4"

Hole No. 1D

Site VOGTLE DEWATERI TESTS

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. O.P. 2A

PROJECT VOGTLE DEWATERING TESTS ANGLE FROM HORIZ 90 BEARING —

LOCATION 60 FT. E. OF WELL #2 BEGUN 9-21-72 COMPLETED 9-21-72

OVERBURDEN 0.0 DEPTH DRILLED INTO ROCK 87. TOTAL DEPTH OF HOLE 87.

ELEV. WATER TABLE ____ NO. CORE BOXES ____ NO. SAMPLES TAKEN —

CORE RECOVERY (%) ____ FEET ____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 219.2 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE. DRILLING FLUID BENTONITE MUD									0-15 FT. CLAY BROWN, SANDY
							20		15-56 FT. CLAY AND SAND YELLOW
							40		
LOST CIRC.							60		56-61 FT. SAND, SHELL, WHITE
									61-85 FT COQUINA WHITE, SHELLS
	70'						80		
	85'								85-87 FT. MARL, GREEN, CLAYEY
SET 85 FT. METAL PIPE, SCREEN 70'-85', FILLED ANNULAR SPACE WITH CLEAN SAND AND GRAVEL							100		BOTTOM OF HOLE 87 FT.

Hole Size 6 1/4"

Hole No. 2A

Site VOGTLE DEWATERI TEST

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. O.P. 2B

PROJECT VOGTLE DEWATERING TESTS ANGLE FROM HORIZ 90 BEARING —

LOCATION 100' E. of WELL # 2 BEGUN 9-25-72 COMPLETED 9-25-72

OVERBURDEN 0.0 DEPTH DRILLED INTO ROCK 87.0 TOTAL DEPTH OF HOLE 87.0 FT

ELEV. WATER TABLE ____ NO. CORE BOXES — NO. SAMPLES TAKEN —

CORE RECOVERY (%) ____ FEET ____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 217.95 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE DRILLING FLUID: BENTONITE MUD										0.0 TO 15.FT. CLAY BROWN, SANDY
							20			15-56 FT. SAND AND CLAY YELLOW
							40			
							60			56.0 TO 60.0 FT SAND, SHELLS
	69'									60.0 TO 84.0 FT. COQUINA WHITE, SHELLS
	84'						80			
										84-87 FT MARL, GREEN CLAYEY
SET 85 FEET 2" ID. PIPE, 15 FEET OF SCREEN 69'-84', FILLED ANNULAR SPACE WITH CLEAN GRAVEL AND SAND										BOTTOM OF HOLE 87 FEET

Hole Size 6 in

Hole No. 2B

Site VOGTLE DEWATERING TESTS

BECHTEL CORPORATION

DRILLERS **LOG OF DRILL HOLE**

SHEET ____ OF ____

HOLE NO. DBS PT 2C

PROJECT VOGTLE N.P. DEWATER TESTS ANGLE FROM HORIZ VERTICAL BEARING ____

LOCATION 20' N OF WELL 2 BEGUN 9/18/72 COMPLETED 9/18/72

OVERBURDEN ____ DEPTH DRILLED INTO ROCK ____ TOTAL DEPTH OF HOLE ____

ELEV. WATER TABLE ____ NO. CORE BOXES ____ NO. SAMPLES TAKEN ____

CORE RECOVERY (%) ____ FEET ____ MODEL & MAKE OF DRILL ____

GROUND ELEV. ____ HOLE LOGGED BY ____ DRILLER ____

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
Drilled 6¼" dia. hole with Bentonite									0–15' SANDY CLAY, brown
									15'–56' CLAY & SAND, yellow, interbedded
							20		
							40		
100% loss of circulation after penetrating the shell zone.									56'–85' SAND, white, contains much shell material, hard
							60		
							80		
Set 85' of 2" dia. casing with slotted screen from 65'–85'									85'–87' MARL, green, clayey, dense
							100		
Placed clean sand-gravel pack in annular space.									
Back-washed with clean water									

Hole Size ____

Hole No. DBS PT 2C

Site V.N.P. Dewatering Tests

BECHTEL CORPORATION

DRILLERS LOG OF DRILL HOLE

SHEET 1 OF 1

HOLE NO. O.P.2D

PROJECT VOGTILE DEWATER TESTS ANGLE FROM HORIZ 90° BEARING —

LOCATION 60' N. of WELL # 2 BEGUN 9-19-72 COMPLETED 9-20-72

OVERBURDEN 0.0 DEPTH DRILLED INTO ROCK 82.0 FT. TOTAL DEPTH OF HOLE 89.0

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN _____

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL FAILING 1500

GROUND ELEV. 219.5 HOLE LOGGED BY DON RIVERS DRILLER DON RIVERS

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	SAMPLE DATA: BLOW COUNT	PENETRATION TOOL	HAMMER WT/LBS	HAMMER FALL-INCHES	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLED 6 1/4" DIAM. HOLE. BENTONITE USED AS DRILLING FLUID									0.0 - 15.0 FT. CLAY: BROWN, SANDY
							20		15.0 - 56.0 FT CLAY AND SAND: YELLOW
							40		
LOST CIRCULATION 60 FT.							60		56.0 - 85.0 FT. SAND: WHITE,
							80		
									85.0 - 89.0 FT. MARL: GREEN, CLAYEY
SET 85.' 2" PIPE, 70-85' SCREEN, GRAVEL PACK IN ANNULAR SPACE									BOTTOM OF HOLE 89.0 FT.

Hole Size 6 1/4

Hole No. 2D

Site VOGTILE DEWATERING TESTS

LOGS OF DRILL HOLES

WITH POROSITY DATA

BECHTEL

GEOLOGIC LOG OF DRILL HOLE

SHEET 1 OF 6

HOLE NO. 102

PROJECT Alvin W. Vogtle Site ANGLE FROM HORIZ 90° BEARING

LOCATION E 623,726.6 N 1,142,796.1 BEGUN 8-17-71 COMPLETED 8-19-71

OVERBURDEN DEPTH DRILLED INTO ROCK TOTAL DEPTH OF HOLE 200'

ELEV. WATER TABLE NO. CORE BOXES NO. SAMPLES TAKEN 39

CORE RECOVERY (%) FEET MODEL & MAKE OF DRILL CME 55

GROUND ELEV. 211.53 HOLE LOGGED BY S. Chaudhary DRILLER LETCO-Shealy

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
(Note: sample locations are approx.)						212				0-30.0'(approx.): SILTY SAND; Firm, red-brown, medium to fine-grained, trace of clay.
	Split Spoon		2-3-3 / 6		10		5		1	
	"		2-3-3 / 6		10	202	10		2	
	"		7-10-10 / 20		10		15		3	(SM/SC)
	"		8-11-16 / 27		9	192	20		4	
	"		5-18-25 / 43		13		25		5	25.0': Dense, brown.
	"		8-9-11 / 20		15	182	30		6	30.0-40.0' (Approx.): SAND; Firm, brown, medium to fine-grained, some clay.
	"		5-7-12 / 19		15				7	(SC)

Hole Size 4"

Hole No. 102

Site Unit #1

PROJECT Alvin W. Vogtle Site

SHEET 2 OF 6

HOLE NO 102

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
										35.0': Soft, sticky when wet. (SC)
	"		12-14-17 / 31		12	172	40		8	40.0-50.0'(Approx.): SILTY SAND; Dense, brown, medium to fine-grained, trace of clay.
	"		7-11-12 / 23		10		45		9	45.0': Red spots inside sample. (SM/SC)
	"		15-24-31 / 55		10	162	50		10	
	"		19-37-38 / 75		8		55		11	55.0': Very dense silty, medium to fine SAND.
										57.0-68.5': SILTY CLAY: Tan, fine sand.
	"		5,5,8 / 13		9	152	60		12	
* (Sample 15): In penetrating the third 6" segment, 2' penetration for 1 blow & then 10 blows for further 6".	"		3-8-12 / 20		10		65		13	63.5'-68.5'(Approx.): Firm, light gray & tan, very silty, plastic, with sand seams. (CL/ML)
	"		5-8-14 / 22			142	70		14	68.5-77.0':(Approx.): SILTY SAND; Firm, light gray & tan, medium to fine-grained, with some clay.
◀ 72.0': 100% water loss	"		3-4-*		6				15	(SM/SC)

Hole Size 4"

Hole No 102

Site Unit #1

PROJECT Alvin W. Vogtle Site

SHEET 3 OF 6

HOLE NO 102

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
Set casing 0'-72'										77.0-142.5': SILTY CLAY: Very stiff to hard, brown & gray (calcareous) occasional shells.
	"		100 / 2"		8	132	80		16	(CL-cal)
	"		13-20-59		20		85		17	83.5-88.5' (Approx.): Calcareous, plastic, very stiff to hard, gray.
	"		20-38-49 / 87		20	122	90		18	88.5-103.5' (Approx.): Very stiff to hard, gray, plastic, calcareous, with shell inclusions.
	"		100 / 5"		20		95		19	
	"		+100		20	112	100		20	
	"		+100		20		105		21	103.5'-142.5': Hard, gray, plastic, calcareous.
	"		22-30-63 / 93		20	102	110		22	
	"		+100						22A	115.0': Very hard.

Hole Size 4" & 3"

Hole No 102

Site Unit #1

PROJECT Alvin W. Vogtle

SHEET 4 OF 6

HOLE NO 102

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
	"		12-29-47 / 76			92	120		23	
	"		+100				125		24	
	"		12-19-45		20	82	130		25	
	"		7-8-7 / 15				135		26	135.0': Stiff
						72	140		27	
	"		65 / 5		12		145		28	142.5-172.5' (Approx.): SILTY SAND; Gray, dense, medium to fine-grained, trace of clay. (SM/SC)
	"		29-36-42 / 78			62	150		29	150.0': Very dense, dark gray, slightly calcareous.
	"		85 / 6						30	

Hole Size 3"

Hole No. 102

Site Unit #1

PROJECT Alvin W. Vogtle Site

SHEET 5 OF 6

HOLE NO 102

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
	"		100/2"		2	52	160		31	(SM-SC)
	"		100/2"		2		165		32	
	"		69/6"			42	170		33	
										172.5-200.0': SILTY SAND; Very dense, dark gray, slightly calcareous, with trace of clay.
	"		45/2"				175		34	
										(SM)
	"		73/5"			32	180		35	
	"		100/5"				185		36	
	"		50/4"			22	190		37	
	"		50/4"						38	

Hole Size 3"

Hole No 102

Site Unit #1

PROJECT Alvin W. Vogtle Site

SHEET 6 OF 6

HOLE NO 102

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
							195			
	"		18 / 1/2'			12	200		39	
										BOH 200.0'

Hole Size 3"

Hole No 102

Site Unit #1

BECHTEL

SHEET 1 OF 5

GEOLOGIC LOG OF DRILL HOLE

HOLE NO. 102A

PROJECT Alvin W. Vogtle Site ANGLE FROM HORIZ 90° BEARING --

LOCATION Adjacent to 102 BEGUN 8-31-71 COMPLETED 9-2-71

OVERBURDEN _____ DEPTH DRILLED INTO ROCK _____ TOTAL DEPTH OF HOLE 177.0

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN 14

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL Acker

GROUND ELEV. 211.5 HOLE LOGGED BY _____ DRILLER LETCO-Ivey

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
5" Casing to 80'.						212				0.-1.0': TOPSOIL
										1.0-28.0': SAND; Red-brown, fine-grained, silty, firm.
	Denison	4"		24	15		5		1	
						202	10			
	"	"		24	16				2	(SM)
							15			
	"	"		18	16				3	15.0': Sand becomes firmer.
						192	20			
							25			
										28.0-58.0': SAND; Clayey, tan to brown to light-gray, slightly silty, with some sandy clay.
						182	30			
	"	"		18	15				4	(SC)

Hole Size 7-3/4"

Hole No. 102A

Site Units 1 & 2

PROJECT Alvin W. Vogtle Site

SHEET 2 OF 5

HOLE NO 102A

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
	"	4"		16	16				5	
						172	40			
							45			(SC)
						162	50			
							55			
									6	58.0-71.7': CLAY; Tan to light gray, firm, slightly silty.
	"	"		24	24	152	60			
	"	"		24	24		65		7	(CL)
						142	70			
	"	"		24	19				8	
										71.7-78.0': SAND; Tan to gray, silty, firm, shell, fragments.

Hole Size 7-3/4"

Hole No 102A

Site Units 1 & 2

PROJECT Alvin W. Vogtle Site

SHEET 3 OF 5

HOLE NO 102A

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n-BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
	"	4"		24	0					(SM)
Lost all drill mud at 77'										77-78' 1' void
	"	"		16	16				9	78.0-145.0': CLAY; Greenish gray, very hard, slightly silty.
At 80' switch to 4-1/2". Set 50' of 5" casing.						132	80			
							85			
	"	"		12	12				10	85.0': Slightly sandy.
						122	90			
										(CL)
							95			
						112	100			100.0': Slightly silty.
	"	"		24	9				11	
							105			
						102	110			
										(CL)

Hole Size 7-3/4" - 4-1/2"

Hole No 102A

Site Units 1 & 2

PROJECT Alvin W. Vogtle Site

SHEET 4 OF 5

HOLE NO 102A

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
						92	120			(CL)
							125			
	"	4"		24	24				12	
						82	130			
							135			(CL)
						72	140			140.0': Some shell fragments.
	"	"		24	24				13	
							145			145.0-177.0': SAND; Very dense, gray, silty.
						62	150			(SM)

Hole Size 4-1/2"

Hole No 102A

Site Units 1 & 2

PROJECT Alvin W. Vogtle Site

SHEET 5 OF 5

HOLE NO 102A

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
						52	160			
							165			(SM)
						42	170			
						37	175			
	"	4"		24	18				14	
										BOH 177.0'

Hole Size 4-1/2"

Hole No 102A

Site Units 1 & 2

BECHTEL

SHEET 1 OF 6

GEOLOGIC LOG OF DRILL HOLE

HOLE NO. 111

PROJECT Alvin W. Vogtle Site ANGLE FROM HORIZ 90° BEARING --

LOCATION E 623,726.39 N 1,143,256.11 BEGUN 8-15-71 COMPLETED 8-18-71

OVERBURDEN _____ DEPTH DRILLED INTO ROCK _____ TOTAL DEPTH OF HOLE 200.0

ELEV. WATER TABLE _____ NO. CORE BOXES _____ NO. SAMPLES TAKEN 39

CORE RECOVERY (%) _____ FEET _____ MODEL & MAKE OF DRILL CME

GROUND ELEV. 207.18 HOLE LOGGED BY G. T. LeFevre DRILLER LETCO-Ross

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG	SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION
						207				0.17.5': SILTY SAND; Red-brown, fine-grained, sub-angular loose. (SM)
	Split Spoon		2-2-2 / 4				5		1	
	"		5-7-4 / 11			197	10		2	8.5': Medium-dense.
	"		5-8-11 / 19				15		3	
	"		6-6-7 / 13			187	20		4	17.5-21.0': CLAYEY SAND; Red to orange-brown, fine to medium-grained, sub-angular, loose. (SC)
	"		7-8-9 / 17				25		5	21.0-55.0': CLAYEY SAND; Tan to light brown, fine to medium-grained, sub-angular, loose with silty clay lenses. (SC)
	"		3-4-5 / 9			177	30		6	28.5': Alternate layers of CLAYEY SAND, brown, fine-grained, & SILTY, SANDY CLAY, tan, fine-grained. (SC)
32.0': 100% water loss. Set NX casing to 37.0'.	"		6-5-6 / 11						7	

Hole Size 4"

Hole No. 111

Site Units 1 & 2

PROJECT Alvin W. Vogtle Site

SHEET 2 OF 6

HOLE NO 111

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	SAMPLE DATA: PENETRATION TOOL	TOOL SIZE	METHOD n - BLOWS	ADVANCE	RECOVERY	ELEVATION	DEPTH	LOG / SAMPLE	CLASSIFICATION AND PHYSICAL CONDITION.
	"		3-5-7 / 12			167	40	8	37.0': Tan to light brown, fine-grained. (SC)
									42.0': Less clayey. (SM/SC)
	"		5-10-11 / 21				45	9	
	"		9-12-13 / 25			137	50	10	48.5': Red-brown, slightly clayey, fine to medium-grained.
	"		3-4-5 / 9				55	11	55.0-63.0': SANDY CLAY; Light greenish-yellow, very fine-grained, soft.
	"		2-2-3 / 5			147	60	12	
63.0': 100% water loss.									63.5-65.0': SILTY CLAY; Light brown, soft, with very fine-grained sand.
	"		2-2-3 / 5				65	13	65.0-70.0': SILTY SAND; Tan, fine-grained, sub-angular, with shell fragments.
Set NX casing to 67.0'.									
	"		100 / 1			137	70	14	70.0-138.5': SILTY CLAY; Greenish-gray, stiff, calcareous, with shells & trace of sand.
	"		9-11-15 / 26					15	

Hole Size 4" - 2-15/16"

Hole No 111

Site Units 1 & 2