Volume 4

INDIANTOWN COGENERATION PROJECT

Site Certification Application

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- Soil Boring Logs
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SOIL BORING LOGS

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 2	B-101

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Car Dumper	N 5931; E 7830	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-31-90	7-31-90	Ardaman & Associates	CME 45	4 in	50.5	0.0	50.5

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	18		31.8	▽ 3.5/28.3 WS ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE "N" BLOWS % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5		6	1	2	4		31.8			1	Gray & gray/black, very loose, medium SAND, trace roots (SP)	
SS	1.5		6	6	3	3		30.3			2	Black, loose fine SAND with silt, trace roots (SM)	
SS	1.5		7	3	3	4		27.3			3	Grades dark brown- no roots	
SS	1.5		8	3	4	4			5		4	Gray/brown, loose, medium SAND, with silt (SP-SM)	
SS	1.5		13	3	2	11					5	Becomes black, medium to dense, medium to fine	
SS	1.5		19	7	7	12					6		
SS	1.5		30	10	15	15			10		7		
SS	1.5	1.0	20	10	11	9					8		Begin drilling with mud
SS	1.5	0.5	13	5	7	6					9		
SS	1.5	1.0	10	4	4	6					10		
									15				
								14.8					
SS	1.5	0.8	7	3	3	4			20		11	Light brown, loose, fine SAND, trace silt (SP)	
SS	1.5	0.0	6	5	4	2		6.8	25		12		
												Gray to light gray, dense, silty, medium to fine SAND, slightly cemented, trace shell fragments (SM to SP)	
SS	1.5	1.5	49	22	26	23			30		13		
												Becomes light gray, with shell fragments, trace silt and black peppering (SP)	
SS	1.5	1.0	38	12	16	22					14		Alot of shell slough-in

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Car Dumper

HOLE NO.: B-101

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 2	B-101

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
												Less shell from 38 (trace shell fragments)	
SS	1.5	1.0	42	10	19	23			40		15		
SS	1.5		50	14	21	29			45		16		
SS	1.5		44	19	25	19		-18.7	50		17		
												End of boring Observation well set	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Car Dumper

HOLE NO. B-101

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 4	B-102

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Waste Pond	N 6997; E 9074	Vertical	-----

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
8-1-90	8-2-90	Ardaman & Associates	CME 45	4 in	145.5	0.0	145.5

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	34		34.5	▽ 2.0/32.5 ws ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5		8	1	4	4		34.5			1	Gray/brown, loose, medium to fine SAND, trace silt and roots (SP-SM)	
SS	1.5	1.0	11	3	5	6		33.0			2	Light gray, medium, medium SAND, trace silt (SP-SM)	
SS	1.5	2.0	20	7	8	12					3	Grades light brown with depth	Large root in spoon tip
SS	1.5	2.0	79	20	29	50/1"		30.5	5		4	Dark brown to black, medium to extremely dense, silty, fine SAND, trace large root fragments (SM)	Driller notes hard pan
SS	1.5	1.0	36	23	19	17					5		
SS	1.5	1.0	16	9	9	7					6	Less silt from 7.5 (with silt)	
SS	1.5	1.0	11	4	5	6		25.5	10		7	Brown, medium, medium to fine SAND, trace silt (SP)	
SS	1.5	1.0	13	4	7	6					8		
SS	1.5	1.0	12	4	5	7					9	Becomes light gray/brown, with silt lenses	
SS	1.5	0.5	14	4	6	8					10	Becomes finer, no lenses	
									15				
SS	1.5	0.8	32	8	15	17			20		11		
SS	1.5	0.0	21	11	10	11			25		12		
								8.0				Gray, medium, fine to medium SAND, with shell fragments, trace clay (SM)	Driller notes soft at 26.5
SS	1.5	1.5	12	9	5	7			30		13		
													Driller notes harder at 33
SS	1.5	1.0	29	24	22	7					14		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Waste Pond

HOLE NO.: B-102

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 4	B-102

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								-3.5					
SS	1.5	1.0	43	12	16	27			40		15	Gray, dense, fine SAND, with black peppering, trace shell fragments (SP)	
SS	1.5	1.0	40	13	18	22			45		16		
SS	1.5	1.0	36	10	14	22			50		17		
SS	1.5	1.0	43	20	21	22			55		18		
SS	1.5	0.7	33	10	11	22			60		19		
SS	1.5	1.2	34	15	16	18			65		20		
SS	1.5	1.5	27	10	13	14			70		21	Less shell with depth	
								-37.5					
SS	1.5	1.5	16	3	5	11		-40.5			22	Gray, very stiff, silty CLAY, trace shell fragments (CL)	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Waste Pond

HOLE NO.: B-102

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	3 OF 4	B-102

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
												Gray, medium, silty, fine to medium silty SAND, trace clay and shell (SM)	
								-43.5					
												Gray, very soft, sandy CLAY, with silt and shell fragments (CL)	
SS	1.5			wor	18						23		
								-46.0	80				
SS	1.5	2.0	14	5	6	8					24	Gray, medium, clayey, fine SAND, with silt and shell (SC)	
								-48.5					
												Gray, medium, silty, fine to medium SAND, with silt and shell fragments, slightly cemented (SM)	
SS	1.5	1.5	22	22	12	10			85		25		
								-53.5					
												Gray, medium SHELL FRAGMENTS & fine SAND, with silt	
SS	1.5	1.0	11	11	6	5			90		26		
								-57.5					
												Gray, dense, clayey, fine SAND, with silt and shell fragments (SC)	
									95				Sample depth disturbed while drilling thru cave-in
SS	1.5	2.0	36	12	12	24					27		
								-63.5					
												Gray, dense, fine SAND, with silt, trace clay and black peppering (SM)	
SS	1.5	1.5	37	16	18	19			100		28		
SS	1.5	1.0	38	18	21	17			105		29	no clay from 104	
SS	1.5	1.0	27	15	14	13			110		30	less shell from 109	
SS	1.5	1.5	23	wor	9	14					31	Becomes clayey (SC)	go to 10 ft samples

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Waste Pond**

HOLE NO. **B-102**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	4 OF 4	B-102

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
									120				
SS	1.5	2.0	37	8	13	24			125		32	More clay from 124, grading to sandy CLAY	
								-95.5	130			Gray, medium to dense, silty, medium to coarse SAND, with clay, trace shell, slightly cemented (SM)	
SS	1.5	1.5	13	wor	7	6			135		33		
									140				
SS	1.5		41	15	19	22		-111.0	145		34		
												End of boring @ 145.5 Observation well set	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Waste Pond**

HOLE NO. **B-102**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 3	B-104

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Covered Storage	N 5955; E 8921	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-30-90	7-31-90	Ardaman & Associates	CME 45	4 in	75.5	0.0	75.5

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	22		32.9	▽ 2.0/30.9 ws ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								32.9					
SS	1.5		6	1	3	3					1	Gray and black, loose, silty, fine SAND, with silt, trace roots (SM)	
SS	1.5		13	4	6	7					2	Grades to black and brown, very loose to medium, no roots	
SS	1.5		8	6	4	4					3		
SS	1.5		6	3	3	3			5		4		
SS	1.5		2	2	1	1					5		
SS	1.5		5	2	2	3					6		
SS	1.5		13	4	6	7			10		7		
SS	1.5	1.5	14	7	8	6		20.9			8		
SS	1.5	1.0	7	2	3	4					9	Light brown to gray/brown, loose, fine SAND, trace silt (SP)	
SS	1.5	0.0	6	2	3	3					10		
									15			Becomes gray/brown	
SS	1.5										11		
									20				
								10.9				Gray, loose, silty, fine SAND, trace clay (SM)	
SS	1.5		2	wor	1	1			25		12		(24-27) sampled in one drive
SS	1.5	2.0	8	1	3	5		6.4					
								4.9				Gray, loose, sandy SILT, with shell fragments (ML)	
SS	1.5	1.5	7	1	2	5			30		13	Gray, loose, silty, fine SAND and SHELL FRAGMENTS, cemented	
								0.9				Gray to gray/brown, very dense, fine SAND, with silt, trace shell fragments and black peppering (SM)	
SS	1.5	1.5	79	19	32	47					14		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Covered Storage

HOLE NO.: B-104

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 3	B-104

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.4	1.0	83	21	33	50/5"			40		15		
SS	1.5		54	10	20	34			45		16	Less silt (trace silt) (SP)	
SS	1.5	1.2	61	15	24	37			50		17		
SS	1.5	1.0	60	19	30	30			55		18		
												Becomes light gray with more shell	
SS	1.5	1.0	51	20	29	22			60		19		
												Grades medium, no silt or shell	
SS	1.5	1.2	108	34	52	56			65		20		
								-35.1				Green/gray, medium, sandy CLAY, with silt, trace shell	
SS	1.5	2.0	8	wor	3	3	5		70		21	(CL) Grades to slightly varved silty CLAY	
SS	1.5		7	3	4	3					22		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Covered Storage**

HOLE NO.: **B-104**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	3 OF 3	B-104

SAMP. TYPE AND DIAM.	SAMP. ADV. / LEN CORE	SAMPLE REC. / CORE REC.	SAMPLE BLOWS "N" / % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								-42.6				Green/gray, medium, silty CLAY, slightly varved (CL)	
												End of boring @ 75.5 Grouted upon completion	

SS = SPLIT SPOON; ST = SHELBY TUBE;
D = DENNISON; P = PITCHER; O = OTHER

SITE: Covered Storage

HOLE NO. B-104

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 3	B-107

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Cooling Towers	N 6935; E 9908	Vertical	-----

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-30-90	7-30-90	Ardaman & Associates	CME 45	4 in	75.5	0.0	75.5

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	22		34.8	▽ 2.0/32.8 ws ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5		6	1	2	4		34.8			1	Gray & brown, loose, medium SAND, with silt, trace roots (SM)	
SS	1.5		11	4	7	4		33.3			2	Dark brown to black, medium to very dense, fine to medium SAND, with silt (SP-SM)	
SS	1.5		22	4	7	15					3		
SS	1.5	1.0	49	16	22	27			5		4	Becomes silty with cemented lenses	
SS	1.5	1.0	43	17	17	26					5		
SS	1.5	1.5	54	20	26	29					6	No cementation	
SS	1.5	1.0	34	15	18	16			10		7		
SS	1.5	1.0	27	10	12	15					8	Grades to light brown , less silt with depth (SP)	
SS	1.5	1.0	20	8	9	11					9		
SS	1.5	1.0	19	6	9	10					10	Becomes gray/brown, fine	
									15				
SS	1.5	1.0	15	7	8	7					11	Lense of clayey SAND at 19 (SC)	
									20			Becomes light brown	
SS	1.5	1.0	12	3	5	7					12		
									25				
								7.8				Gray, very loose, silty, fine SAND (SM)	
SS	1.5	1.0	4	2	2	2			30		13		
SS	1.5	1.0	8	wor	3	5					14		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Cooling Towers

HOLE NO.: B-107

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 3	B-107

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
												With large shell fragments, trace clay	
								-3.2				Gray, very dense SHELL FRAGMENTS & fine SAND, slightly cemented	
SS	1.4	1.0	83	13	31	52		-4.7			15		
									40			Gray, dense to very dense fine SAND, trace silt, black peppering (SP)	
SS	1.5		42	19	23	19					16		
									45				
SS	1.5		65	19	30	35					17		
									50				
SS	1.5		43	9	21	22					18	Trace shell fragments, more fragments with depth	
									55				
SS	1.5		28	12	12	16					19		
									60			Becomes medium	
SS	1.5	1.0	76	20	44	32					20		
									65			Becomes very dense	
SS	1.5		75	24	31	44					21		
									70				
								-37.2				Gray, very stiff, silty CLAY, with medium sand lenses (CL)	
SS	1.5		19	6	8	11					22		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Cooling Towers

HOLE NO. B-107

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	3 OF 3	B-107

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								-40.7				Gray CLAY, with sand lenses (CL)	
												End of boring @ 75.5 Grouted upon completion	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Cooling Towers**

HOLE NO.: **B-107**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 2	B-108

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Power Block	N 6175; E 9604	Vertical	-----

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-24-90	7-25-90	Ardaman & Associates	CME 45	4 in	75.0	0.0	75.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	22		33.6	▽ 4.0/29.6 ws ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								33.6					
SS	1.5		8	1	3	5					1	Gray/black, loose, medium to fine SAND, trace silt and roots (SP)	
SS	1.5		17	5	7	10		31.1			2		
SS	1.5		15	8	7	8					3	Light gray/black, medium, silty, fine SAND (SP-SM)	Driller notes hard pan
SS	1.5	1.0	14	3	5	9			5		4	Grades dark brown	
SS	1.5	1.0	18	8	8	10					5	More silt, with silt lenses More silt with depth	
SS	1.5	1.5	11	5	6	5					6	Grades to SM, trace roots and peat	
SS	1.5	1.0	18	9	10	8			10		7	Less silt (SM)	
SS	1.5	1.0	9	2	4	5					8	Becomes light brown	
SS	1.5	1.0	11	3	5	6					9		
SS	1.5	1.0	7	3	3	4					10		
									15				
SS	1.5	1.0	13	5	7	8					11		
									20			Less silt (SM/SP)	
SS	1.5	1.0	20	6	9	11					12		
									25				
								5.6					
SS	1.5	1.0	9	wor	12	9					13	Dark gray, loose, silty, fine SAND, trace shell fragments and cemented particles (SM)	Driller notes soft @ 28
									30				
												Becomes gray/brown, dense, with shell fragments and cemented particles	
SS	1.5	1.0	46	12	17	29					14		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Power Block

HOLE NO.: B-108

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 2	B-108

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE "N" BLOWS % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								-4.4				Gray, very dense, medium SAND, with silt and shell fragments (SM)	
SS	1.5	1.0	70	27	30	40			40		15		
												Less silt and shell with depth (SM/SP)	
SS	1.5		50	29	50/5"				45		16		
SS	1.5		78	29	40	38			50		17		
SS	1.5		63	19	31	32			55		18		
												More silt and shell, dense (SM)	
SS	1.5		45	18	23	22			60		19		
SS	1.5	1.0	54	18	23	31			65		20		
SS	1.5		26	9	8	18			70		21	Becomes medium, with silt lenses	
								-38.4				Gray, hard, silty CLAY, with shell fragments (CH)	
SS	1.5		22	4	10	12		-41.4			22	End of boring @ 75 Grouted upon completion	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Power Block**

HOLE NO.: **B-108**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 2	B-110

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Power Block	N 6849; E 10079	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-27-90	7-27-90	Ardaman & Associates	CME 45	4 in	74.4	0.0	74.4

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	22		33.9	▽ 3.0/30.9 ws ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE "N" BLOWS % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5		5	1	2	3		33.9			1	Gray & gray/brown, loose, fine to medium SAND, trace roots (SP)	
SS	1.5	1.5	15	4	5	10		32.4			2	Black, medium to dense, silty, fine to medium SAND (SM)	
SS	1.5	1.5	44	16	20	24					3	Becomes orange/brown	
SS	1.5	1.0	12	4	7	5		29.4	5		4	Black, medium to dense, medium SAND with silt and gray fine sand lenses (SP-SM)	
SS	1.5	1.5	37	12	18	19					5	Becomes dark brown, no lenses	
SS	1.5	1.0	20	10	11	9					6	Grades to brown, less silt (with silt)	
SS	1.5	1.0	23	7	11	12		24.9			7	Gray/brown medium fine SAND, trace silt (SP)	
SS	1.5	1.0	24	6	13	11			10		8	Becomes light brown, medium	
SS	1.5	1.0	16	5	7	9					9		
SS	1.5	1.0	11	5	5	6					10	Becomes gray/brown to gray	
									15				
SS	1.5	1.5	17	8	9	8					11		
									20			Becomes light brown, medium to loose	
SS	1.5		11	4	4	7					12		
									25				
SS	1.5		4	2	1	3					13		
									30				
								1.9				Dark gray, very loose, silty, fine SAND (SM)	
SS	2.5	2.0	1	2	wor	1					14		Sampler driven extra 1 ft

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Power Block

HOLE NO.: B-110

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-3	SHEET 2 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.93 ft 8/13/90 START 13:00 8/6/90 FINISH 8/8/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	29-31	S-12	1.2	20-14-18-22 (32)	SAND, (SP), very fine-fine, moderate-well sorted, light olive gray (5 Y 5/2) predominantly quartz, ~20% black phosphorite grains, 10-20% shell and limestone fragments		
35	34-36	S-13	1.0	20-30-50/5" (80)	As Above, trace shell		
40	39-41	S-14	0.6	25-40-50/5" (90)	As Above		
45	44-46	S-15	1.4	24-25-24-32 (49)	SAND, (SW), very fine-medium grained, poor-moderate sorted, light olive gray (5 Y 5/2) predominantly quartz, ~20% black phosphorite, angular-subrounded, ~20% pelecypod shell fragments, trace greenish gray (5 G 6/1) clay lens at 46' bls		
50	49-51	S-16	1.2	18-28-38-28 (66)	As Above		
55	54-56	S-17	2.0	15-12-16-9 (28)	SHELLY SAND, (SW), very fine-medium grained, poorly sorted, light olive gray (5 Y 5/2) quartz. Shell is 50% of sample, predominantly pelecypods, some gastropods, pale yellowish orange (10 YR 8/6) to white (N9)		

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 2	B-110

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5	1.0	73	25	36	37			40		15	Becomes gray, very dense to extremely dense, with silt	
SS	1.5	1.0	78	24	34	44			45		16		
SS	1.5	1.0	98	24	48	50/5			50		17		
SS	1.5	1.0	4	2	1	3			55		18	Becomes very loose	Driller notes soft @ 53
								-24.1				Light gray, dense to very dense SAND, with shell fragments, trace silt (SP)	
SS	1.5	1.0	32	13	17	15			60		19		
SS	1.5	1.5	70	23	27	43			65		20		
								-34.1				Light gray, very dense, silty, medium SAND, trace shell fragments (SM)	
SS	1.5	1.2	73	24	40	33			70		21		
								-38.1				Light gray, extremely dense, medium SAND, trace shell fragments (SP)	
SS	0.9	2.0	50	33	50/5"			-40.1			22		
												End of Boring at 74.4' Grouted upon completion	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Power Block**

HOLE NO.: **B-110**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 4	B-115

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Power Block	N 6170; E 10249	Vertical	-----

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-20-90	7-23-90	Ardaman & Associates	CME 45	4 in	150.0	0.0	150.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	38		34.2	▽ 3.8/30.4 ws ▼ /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5		4	1	2	2		34.2			1	Dark gray/brown, very loose, silty SAND (SM)	
SS	1.5		10	4	5	5					2	Becomes black, loose to medium	
SS	1.5		11	5	6	5		29.7 ▽			3		
SS	1.5	1.5	7	4	4	3			5		4	Dark brown, loose to medium, medium SAND (SP)	
SS	1.5	2.0	14	2	3	11					5		
SS	1.5	1.5	22	15	10	12					6		
SS	1.5	1.5	26	9	11	15			10		7	Grades to dark brown and black, medium to dense	
SS	1.5	1.5	36	6	16	20					8		
SS	1.5	1.2	30	6	13	17					9		
SS	1.5	1.0	16	6	8	8		20.2			10	Grades to orange/brown	
									15			Gray/brown, medium, fine SAND & SILT (SM/ML)	
SS	1.5	1.5	9	5	4	5			20		11	Less silt, becomes (SP)	
SS	1.5	2.0	6	3	3	3			25		12		
SS	1.5		3	2	1	3			30		13	More silt	(29-32) sampled in one drive
SS	1.5	2.0	9	4	5	4						Becomes light brown and gray mottled	
								1.2				Dark gray, very loose, silty, fine to medium SAND, trace silt (SP-SM)	
SS	1.5	1.8	6	4	3	3					14		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Power Block

HOLE NO.: B-115

BORING LOG

PROJECT: INDIANTOWN COGENERATION | JOB NO.: 20524 | SHEET NO.: 2 OF 4 | HOLE NO.: B-115

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5	1.5	55	15	25	30			40		15	Becomes light gray, very dense	
SS	1.5	1.2	68	21	26	42			45		16	More silt, becomes SAND & SILT (SM/ML)	
								-13.8				Gray very dense medium SAND, trace silt (SP/SM)	
SS	1.5	2.0	58	16	26	32			50		17		
SS	1.5	1.0	54	18	26	29			55		18		
												Becomes medium, with silt (SM)	Driller notes softer at 58
SS	1.5	1.5	14	5	6	8			60		19		
												Becomes very dense, trace shell fragments	
SS	1.5	1.5	51	18	21	30			65		20		
												Less silt (trace silt) (SP)	
SS	1.5	1.0	57	24	30	27			70		21		
												More shell fragments	
SS	1.5	1.0	100	45	50	50					22		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Power Block

HOLE NO.: B-115

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	3 OF 4	B-115

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								-43.8					
SS	1.5	1.0	17	9	7	10			80		23	Gray/brown, medium, silty, fine to medium SAND, with shell fragments and round fine gravel, slightly cemented (SM)	
								-47.8					
SS	1.5		31	13	15	16			85		24	Gray dense, silty, fine to medium SAND, with shell fragments, trace clay (SM)	
SS	1.5		32	17	26	26			90		25	Shell fragments larger with depth	
	1.5		43	18	19	24			95		26		
SS	1.5		56	28	28	28			100		27		
SS	1.5		32	12	16	16			105		28		
SS	1.5	1.5	15	7	7	8			110		29	Becomes medium	
SS	1.5	2.0	14	5	6	8					30	Light gray, less shell	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Power Block**

HOLE NO. **B-115**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	4 OF 4	B-115

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5	2.0	20	6	8	12			120		31	Trace cemented particles, trace shell fragments	
SS	1.5	2.0	30	7	10	20			125		32	Becomes dense	
SS	1.5	1.5	19	6	8	11			130		33	Becomes medium	
SS	1.5	1.5	60	24	24	36			135		34	Becomes very dense, trace clay	
SS	1.5	2.0	27	14	14	13			140		35	Becomes medium to very dense, fine to medium, mostly cemented	
SS	1.5		54	8	22	32			145		36		
								-111.8				Light gray, hard, silty CLAY, with fine slightly cemented sand (CL)	
SS	1.5		33	7	10	23		-115.8	150		37	End of boring @ 150 Grouted upon completion	

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Power Block**

HOLE NO. **B-115**

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	1 OF 2	B-116

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Power Block	N 6497; E 10503	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
7-19-90	7-19-90	Ardaman & Associates	CME 45	4 in	75.0	0.0	75.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
0.0/0	0	22		34.8	▽ 1.5/33.3 ws /	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30in	none	Scott Newhouse

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5		7	1	3	4		34.8			1	Gray, loose to medium, fine SAND, trace roots (SP)	
SS	1.5		11	4	6	5					2		
SS	1.5		12	5	6	6					3		
SS	1.5		20	4	8	12		29.3	5		4		
SS	1.5		22	9	11	11					5	Dark brown to gray, medium to very dense, silty, fine SAND (SM)	
SS	1.5		86	3	36	50					6		Driller notes hardpan
SS	1.5		85	25	35	50			10		7		
SS	1.5		42	25	21	21					8	Becomes dark orange/brown	
SS	1.5		24	6	10	14		22.8			9	Light gray/brown, medium to dense, fine SAND, little silt (SP)	
SS	1.5		38	13	18	20					10		
									15				
SS	1.5		32	11	15	17			20		11		
SS	1.5		24	8	10	14			25		12		
SS	1.5		16	4	9	7		5.3			13		
									30			Dark gray, medium, silty, fine SAND, with clay lenses (SM)	
SS	1.5		16	7	8	8					14		

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: Power Block

HOLE NO.: B-116

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
INDIANTOWN COGENERATION	20524	2 OF 2	B-116

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE "N" BLOWS % CORE RECOVERY	STANDARD PENETRATION TESTS 1st 6"	2nd 6"	3rd 6"	4th 6"	ELEV.	DEPTH	GRAPHICS	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								-3.2					
												Gray, medium, fine SAND, trace silt (SP)	
SS	1.4		40	19	19	21			40		15		
								-9.2					
SS	1.5		100	35	50	50/5			45		16	Gray, medium to extremely dense, silty, fine SAND (SM)	
SS	1.5		56	25	21	35			50		17		
SS	1.5		20	8	10	10			55		18		
												Less silt (SP)	
SS	1.5		26	10	13	13			60		19		
												With shell fragments and black peppering	
SS	1.5		51	20	21	30			65		20		
SS	1.5		43	25	18	25			70		21		
								-37.2					
												Gray, extremely dense, silty, fine SAND, trace shell fragments, slightly cemented (SM)	
SS	1.4		106	45	56	50/5					22	End of boring @ 74.9 Grouted upon completion	
								-40.1					

SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER

SITE: **Power Block**

HOLE NO.: **B-116**

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-1	SHEET 1 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Northeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE START 14:30 8/13/90 FINISH 8/15/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-1.5	S-1	ND	1-3-6 (9)	SAND, (SP), very fine-fine grained, moderately sorted, light gray (N7), quartz, subangular-subrounded, ~20% roots, organics		
	1.5-3.0	S-2	ND	5-7-7 (14)	SAND, (SP), fine-medium grained, moderate-well sorted, pinkish gray (5 YR 8/1) to white, quartz, organics		
	3-4.5	S-3	ND	7-8-9 (17)	SAND, (SW), very fine-medium grained, poor-moderately sorted, pale yellowish brown (10 YR 6/2), quartz, organics		
5	4.5-6	S-4	ND	8-23-45 (68)	HARDPAN & SAND, (SM), very fine grained, somewhat silty, dusky yellowish brown (10 YR 2/2), quartz		
	6-7.5	S-5	ND	8-8-6 (14)	As Above, no hardpan		
	7.5-9	S-6	ND	4-5-5 (10)	SAND, (SP), fine-medium grained, moderately sorted slightly silty, moderate brown (5 YR 4/4), quartz		
10	9-10.5	S-7	ND	2-2-3 (5)	As Above		
	10.5-12	S-8	0.8	2-3-5 (8)	SAND, (SP), fine-grained, well sorted, moderate yellowish brown (10 YR 5/4), subrounded-rounded, predominantly quartz, trace black phosphorite grains		
	12-13.5	S-9	1.0	4-5-8 (13)	As Above, moderate brown (5 YR 3/4), fine-coarse grained, poor-moderately sorted		
	13.5-15	S-10	1.5	7-9-19 (28)	As Above, rounded-well rounded		
15							
	19-20.5	S-11	1.2	5-7-12 (19)	SAND, (SP), fine-grained, well sorted, light brown (5 YR 5/4), subangular-rounded, quartz, trace black phosphorite grains		
20							
	24-25.5	S-12	1.2	7-6-7 (13)	SAND, (SP), very fine-fine grained, moderately-well sorted, light olive gray (5 Y 5/2), quartz, trace silty stringers, subrounded-rounded		
25							
	29-30.5	S-13	1.0	15-10-15 (25)	CEMENTED SAND AND SHELL, medium light gray (N6), 30% coralline material, pelecypod shell fragments, poorly consolidated limestone fragments		Harder drilling at 28.5'

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-1	SHEET 2 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Northeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE _____ START 14:30 8/13/90 FINISH 8/15/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
35	34-35.5	S-14	1.2	8-7-5 (12)	SHELLY SAND, (SW), very fine grained, somewhat silty, yellowish gray (5 Y 7/2), ~10% very fine black phosphorite. ~40-50% pelecypod shells and fragments. Trace limestone fragments. Trace various gastropods		
40	39-40.5	S-15	1.0	7-34-7 (41)	As Above		
45	44-45.5	S-16	1.2	18-34-45 (79)	SHELLY SILTY SAND, (SM), very fine grained, light olive gray (5 Y 5/2), ~20% shell (pelecypods, trace gastropods) predominantly quartz, ~30% black phosphorite grains		
50	49-50.5	S-17	0.8	31-50/5" (81)	SILTY SAND, (SM), very fine grained, medium light gray (N6). ~15% pelecypod shell fragments grading to none. Predominantly quartz, ~30% black phosphorite grains		
55	54-55.5	S-18	1.0	11-13-18 (31)	As Above		
	59-60.5	S-19	1.2	13-16-22 (38)	SHELLY SAND, (SP), very fine grained, moderate-well sorted, light olive gray (5 Y 5/2). Predominantly quartz. ~20% to very fine black phosphorite. ~20% pelecypod shells and fragments (fine-coarse grained) subangular-subrounded		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-1	SHEET 3 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Northeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE START 14:30 8/13/90 FINISH 8/15/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
65	64-65.5	S-20	0.5	17-19-22 (41)	As Above		
70	69-70.5	S-21	1.0	14-12-9 (21)	SANDY SHELL HASH, light olive gray (5 Y 6/1), predominantly pale yellowish orange (10 YR 8/6) pelecypod shells and fragments, poor-moderately sorted (fine-coarse grained shell). 10% medium light gray shell fragments. ~20-30% very fine sand, predominantly quartz, ~10% black phosphorite.		
75	74-75.5	S-22	1.2	13-33-50/5" (83)	SILTY SAND, (SM), very fine grained, light olive gray (5 Y 5/2), trace fine shell fragments, trace-medium quartz grains, ~10% black phosphorite grains		
80	79-80.5	S-23	2.0	2-3-5 (8)	SANDY SHELLY CLAY, (SC), low plasticity, greenish gray (5 GY 6/1), ~15% pelecypod and indistinguishable shell fragments		Attempted Shelby tube Pushed 1.5' No Recovery
85	84-85.5	S-24	ND	10-9-9 (18)	SHELLY SAND, (SW), very fine-medium grained, poor-moderately sorted, light olive gray (5 Y 6/1) to yellowish gray (5 Y 8/1). 40% carbonate shell fragments, 60% quartz sand. Trace poorly cemented sand.		Harder drilling at 87' to 89'
	89-90.5	S-25	1.4	11-10-13 (23)	As Above, slightly silty		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-1	SHEET 4 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Northeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE ____ START 14:30 8/13/90 FINISH 8/15/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
95	94-95.5	S-26	1.4	16-14-11 (25)	SHELLY SILTY SAND, (SM), very fine grained, greenish gray (5 GY 6/1), 10-20% black phosphorite grains, ~25% coarse shell (pelecypod) fragments		
100	99-100.5	S-27	1.4	20-26-26 (52)	As Above		
105	104-105.5	S-28	1.4	28-26-23 (49)	SHELLY SAND, (SW), very fine-medium grained, poor-moderately sorted, light olive gray (5 Y 6/1) to yellowish gray (5 Y 8/1) for shell fraction, subangular-subrounded sand grains, predominantly quartz, ~20% shell fragments, ~10% black phosphorite grains		
110	109-110.5	S-29	1.2	16-18-17 (35)	SHELLY SILTY SAND, (SM), very fine grained, light olive gray (5 Y 6/1) to yellowish gray (5 Y 8/1), subangular-subrounded sand grains. Predominantly quartz, ~20% pelecypod shell fragments, ~10% black phosphorite grains		
115	114-115.5	S-30	1.4	7-9-10 (19)	SHELLY CLAYEY SAND, (SC), very fine grained, low plasticity, light olive gray (5 Y 6/1) to greenish gray (5 GY 6/1), ~20% pelecypod shell fragments, ~10% black phosphorite grains		
	119-120.5	S-31	1.6	6-11-12 (23)	As Above, less clay, more silt		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-1	SHEET 5 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Northeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE _____ START 14:30 8/13/90 FINISH 8/15/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
125	124-125.5	S-32	1.8	8-16-24 (40)	SILTY CLAY, (CL), low plasticity, greenish gray (5 GY 6/1), ~10% shell fragments, trace cemented silt and shell. Trace black phosphorite, very fine grained		
130	129-130.5	S-33	1.8	9-18-28 (46)	As Above		
135	134-135.5	S-34	1.8	6-5-12 (17)	CLAYEY SHELLY SILT, (ML), low plasticity, light greenish gray (5 GY 8/1), ~30% medium-coarse shells and fragments, ~10% very fine black phosphorite		
140	139-140.5	S-35	1.4	14-12-19 (31)	As Above		
145	144-145.5	S-36	1.6	6-13-11 (24)	As Above, some cemented sand		
	149-150.5	S-37	1.6	15-12-19 (31)	As Above END OF BORING		Boring cemented with neat cement from bottom to land surface.

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-2	SHEET 1 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southwest Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.15 ft 8/13/90 START 12:30 8/9/90 FINISH 8/10/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-1.5	S-1	1.0	1-3-5 (8)	SAND, (SP), fine-medium grained, light brownish gray (5 YR 6/1), quartz, organics, roots, dry		
	1.5-3.0	S-2	1.2	4-6-7 (13)	SAND, (SP), very fine-fine grained, some silt, moderate-well sorted, quartz, moist		
	3-4.5	S-3 S-4	1.2	7-8-8 (16)	SAND, (SP), fine-medium grained, light brownish gray (5 YR 6/1), quartz, wet		
5	4.5-6	S-5	1.0	5-10-9 (19)	SAND, (SP), very fine-fine grained, some silt, moderately sorted, quartz, wet		
	6-7.5	S-6	1.0	2-3-4 (7)	SAND, (SP), fine-medium grained, light brownish gray (5 YR 6/1), quartz, moderate-well sorted		
	7.5-9	S-7	1.2	5-6-8 (14)	SAND, (SW), very fine-medium grained, moderately sorted, dusky brown (5 YR 2/2), quartz		
10	9-10.5	S-8	0.8	2-4-5 (9)	SAND, (SP), fine-medium, moderate-well sorted, moderate brown (5 YR 3/4), quartz		
	10.5-12	S-9	0.8	3-3-4 (7)	SAND, (SP), fine-medium grained, well sorted, pale yellowish brown (10 YR 6/2), quartz, subangular-subrounded		
	12-13.5	S-10	0.6	4-4-5 (9)	SAND, (SP), fine-medium grained, moderate-well sorted, grayish brown (5 YR 3/2), quartz, trace silt		
	13.5-15	S-11	0.6	5-8-8 (16)	SAND, (SP), medium grained, well sorted, yellowish gray (5 Y 7/2), quartz, subangular-rounded		
15							
20	19-20.5	S-12	1.0	4-5-5 (10)	SAND, (SP), fine-medium grained, well sorted, pale brown (5 YR 5/2), quartz		
25	24-25.5	S-13	2.0	3-2-2 (4)	SILTY SAND, (SM), very fine grained, brownish gray (5 YR 4/1), quartz		
	29-30.5	S-14	2.0	3-1-1 (2)	SILTY SAND, (SM), very fine grained, medium dark gray (N4), quartz		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-2	SHEET 2 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southwest Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.15 ft 8/13/90 START 12:30 8/9/90 FINISH 8/10/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
35	34-35.5	S-15	1.2	3-4-5 (9)	SAND, (SP), very fine-fine grained, moderate-well sorted, olive gray (5 Y 4/1), slightly silty, quartz		
40	39-40.5	S-16	1.0	17-19-19 (38)	SAND, (SP), very fine grained, well sorted, medium light gray (N6). Predominantly quartz, ~25% black phoshorite (very fine)		
45	44-45.5	S-17	1.0	6-5-7 (12)	SAND, (SP), very fine-fine grained, moderate-well sorted,medium light gray (N6). Predominantly quartz, ~25% very fine black phosphorite		
50	49-50.5	S-18	1.2	17-23-22 (45)	SHELLY SAND, (SP), very fine-fine grained, moderate-well sorted, medium light gray (N6). ~30% grayish orange pink (5 YR 7/2) pelecypod shell fragments, fine-coarse fragments. Predominantly quartz, 25% very fine black phosphorite		
55	54-55.5	S-19	1.2	19-18-18 (36)	As Above, with thin, low-plasticity clay lenses		
	59-60.5	S-20	2.0	24-27-29 (56)	SHELLY SAND, (SP), fine grained, well sorted, light brownish gray (5 YR 6/1) quartz, trace black phosphorite		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-2	SHEET 3 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southwest Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.15 ft 8/13/90 START 12:30 8/9/90 FINISH 8/10/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
65	64-65.5	S-21	1.0	12-15-21 (36)	SHELLY SAND, (SW), fine-coarse grained, poorly sorted, light olive gray (5 Y 6/1) to light bluish gray (5 B 7/1). Subangular-rounded. ~30% pelecypod shell fragments (fine-medium). Trace-little fine-medium black phosphorite		
70	69-70.5	S-22	1.0	12-13-13 (26)	SANDY SHELL HASH, predominantly pelecypod shells and fragments, pinkish gray (5 YR 8/1) to light olive gray (5 Y 6/1). Sand fraction (20%) is fine-coarse grained quartz. Trace black phosphorite		
75	74-75.5	S-23	0.8	13-16-18 (34)	As Above		
80	79-80.5	S-24	0.8	18-25-22 (47)	SHELLY SAND, (SW), fine-grained moderate-well sorted, light olive gray (5 Y 6/1) to pinkish gray (5 YR 8/1) for shell fragments. Predominantly pelecypod, trace gastropod fragments, fine grained		
85	84-85.5	S-25	0.8	18-15-15 (30)	SHELLY SILTY SAND, (SM), very fine grained, light olive gray (5 Y 6/1) to pinkish gray (5 YR 8/1) for shells. 10-20% moderately cemented sandstone fragments. Trace clay. Trace-little black phoshorite		
	89-90.5	S-26	0.6	19-26-27 (53)	As Above, less shell, no cemented sands		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-2	SHEET 4 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southwest Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.15 ft 8/13/90 START 12:30 8/9/90 FINISH 8/10/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
95	94-95.5	S-27	1.4	20-23-20 (43)	As Above, cemented sands (~15%)		
100	99-100.5	S-28	1.0	16-9-10 (19)	As Above, no cemented sands		
105	104-105.5	S-29	1.0	18-15-17 (32)	SILTY SAND, (SM), very fine grained, some clay (20%), low plasticity, greenish gray (5 GY 6/1), ~10-15% shell fragments		
110	109-110.5	S-30	1.8	6-13-14 (27)	As Above, <10% shell fragments		
115	114-115.5	S-31	2.0	7-8-15 (23)	SILTY CLAY, (CL), low plasticity, greenish gray (5 GY 6/1), 10-20% cemented sand, trace pelecypod shell fragments, trace black phosphorite		
	119-120.5	S-32	1.8	7-9-17 (26)	As Above, no cemented sand		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-2	SHEET 5 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southwest Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.15 ft 8/13/90 START 12:30 8/9/90 FINISH 8/10/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
125	124-125.5	S-33	0.5	5-5-6 (11)	SANDSTONE, (SS), poorly cemented, some clay, light olive gray (5 Y 6/1),~10% shell fragments		Drill rod chatter at 126'
130	129-130.5	S-34	1.2	20-26-13 (39)	As Above		
135	134-135.5	S-35	1.8	15-36-40 (76)	SILTY CLAY, (CL), low plasticity, light olive gray (5 Y 6/1), trace poorly cemented sand; very dense		
140	139-140.5	S-36	1.6	22-27-31 (58)	CLAYEY SANDSTONE (SS), poorly cemented, yellowish gray (5 Y 8/1), poorly cemented, dark gray (N3) phosphate-replaced shell fragments		Drill rod chatter at 141' to 143'
145	144-145.5	S-37	1.8	8-13-12 (25)	As Above, more clay, less cemented sand		Boring cemented with neat cement from bottom to land surface.
	149-150.5	S-38	ND	ND	As Above END OF BORING		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-3	SHEET 1 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.93 ft 8/13/90 START 13:00 8/6/90 FINISH 8/8/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-2	S-1	ND	2-3-4-4 (7)	SAND, (SW), very fine-medium grained poor-moderately sorted, light olive gray (5 Y 6/1) quartz, roots and organics		
	2-4	S-2 S-3	ND	7-13-13-20 (26)	SAND, (SW), very fine grained, black, very organic rich, hard pan		
5	4-6	S-4	ND	10-11-10-10 (21)	As Above, dark reddish brown (10 YR 3/4). Not as well cemented.		
	6-8	S-5	ND	4-5-5-5 (10)	SAND, (SW), fine-coarse grained, poorly sorted, yellowish gray (5 Y 7/2), quartz composition		
	8-10	S-6	ND	9-9-10-11 (19)	As Above		
10	10-12	S-7	ND	5-6-6-7 (12)	SILTY SAND, (SM), very fine grained, moderate-well sorted, yellowish gray (5 Y 7/2), predominantly quartz, trace black phosphorite		
	12-14	S-8	ND	5-7-6-8 (13)	As Above		
15	14-16	S-9	1.0	3-5-2-1 (7)	SAND, (SP), very fine-fine grained, well sorted, light olive gray (5 Y 6/1), predominantly quartz, trace black phosphorite, slightly silty		
20	19-21	S-10	1.2	2-50/5" (52)	SILTY SAND, (SM), very fine-fine grained, moderately sorted, light gray (N7) to light olive gray (5 Y 6/1), thin clay lens @ 20' bls. Cemented shell and sand at 20.5' bls		Drill rods chatter at 21'
25	24-26	S-11	1.8	48-48-19-47 (67)	SANDY SHELLY LIMESTONE, (LI), moderately friable (especially shelly material), medium light gray (N6) to pinkish gray (5 YR 8/1) for the shells (predominantly pelecypods) trace gastropods		As above

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-3	SHEET 3 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.93 ft 8/13/90 START 13:00 8/6/90 FINISH 8/8/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	59-61	S-18	0.8	16-18-35-50/5" (53)	SAND, (SP), very fine-fine grained, moderate-well sorted, yellowish gray (5 Y 7/2) predominantly quartz, 10-20% black phosphorite, ~10% shell fragments		
65	64-66	S-19	1.0	30-40-39-39 (79)	As Above		
70	69-71	S-20	1.0	5-4-6-8 (10)	SILTY SHELLY CLAY, (CL), low plasticity, greenish gray (5 GY 6/1), abundant (30-40%) pelecypod shells (up to 1-inch dia) and fragments		
	71-73.5	ST-1	2.5	NA			Pushed Shelby tube 6" drove 2'
75	74-76	S-21	0.5	18-38-33-30 (71)	SAND, (SP), very fine-fine grained, moderate-well sorted, greenish gray (5 GY 6/1), predominantly quartz, ~10-20% black phosphorite, ~10% shell fragments		
80	79-81	S-22	1.2	23-26-33-45 (59)	As Above, more shell (~20%)		
85	84-86	S-23	1.8	17-15-13-17 (28)	SANDY SHELL HASH, predominantly pelecypods, some gastropods, greenish gray (5 GY 6/1) very fine sand with trace-little (~10%) black phosphorite, shells predominantly pinkish gray (5 YR 8/1)		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-3	SHEET 4 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.93 ft. 8/13/90 START 13:00 8/6/90 FINISH 8/8/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	89-91	S-24	1.6	13-13-18-16 (31)	SHELLY SILTY SAND, (SM), very fine grained, light bluish gray (5 B 7/1), predominantly pinkish gray (5 YR 8/1) to white (N9) pelecypod shells and fragments, ~10% very fine black phosphorite		
95	94-96	S-25	1.8	20-22-20-25 (42)	SHELLY SAND, (SW), very fine grained, quartz sand, greenish gray (5 GY 6/1), ~40% fine to coarse pelecypod, gastropod shell fragments, trace silt		
100	99-101	S-26	1.6	19-20-19-21 (39)	As Above		
105	104-106	S-27	1.2	10-10-10-19 (20)	As Above, more silt (10-20%)		
110	109-111	S-28	2.0	6-7-17-21 (24)	SILTY SAND, (SM), very fine grained, greenish gray (5 GY 6/1), quartz, $CaCO_3$, and trace black phosphorite grains, angular-subrounded, trace-little (10%) pelecypod shells and fragments. Trace clay		
115	114-116	S-29	2.0	11-19-21-35 (40)	CLAYEY SHELLY SAND, (SC), very fine grained, low plasticity, abundant (30-40%) white (N9) coarse pelecypod shells and fragments		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-3	SHEET 5 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Southeast Corner of Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 5.93 ft 8/13/90 START 13:00 8/6/90 FINISH 8/8/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	119-121	S-30	2.0	11-25-35-30 (60)	SILTY CLAY, (CL), low plasticity, greenish gray (5 GY 6/1), trace shell fragments		
125	124-126	S-31	1.8	14-12-16-25 (28)	As Above, more pelecypod shells and fragments (~20%)		
130	129-131	S-32	1.6	18-19-30-39 (49)	CLAYEY SAND AND SANDSTONE, (SC-SS), low plasticity, moderately-highly friable, greenish gray (5 GY 6/1), ~10% shell fragments-partially cemented. Trace-little black phosphorite (very fine grained) in matrix		
135	134-136	S-33	1.8	11-16-36-39 (52)	SILTY CLAYEY SAND, (SC), very fine grained, low plasticity, greenish gray (5 GY 6/1), ~10% shell fragments, trace cemented sand		
140	139-141	S-34	1.4	11-10-27-37 (37)	SILTY CLAY, (CL), low plasticity, very fine grained, pale olive (10 Y 6/2) ~10% shell fragments, trace cemented sand		
145	144-146	S-35	1.4	23-21-12-10 (33)	CLAYEY SAND & SANDSTONE, (SC-SS), low plasticity, moderately-highly friable, greenish gray (5 GY 6/1), ~10% shell fragments-partially cemented. Trace-little black phosphorite (very fine grained) in matrix		
	149-151	S-36	2.0	12-27-50/5" (77)	SILTY SAND, (SM), very fine grained, well sorted, low plasticity, light olive (10 Y 5/4) 10% black phosphorite, predominantly quartz, trace clay END OF BORING		Boring abandoned with neat cement from bottom to land surface.

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PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-4	SHEET 1 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Proposed Power Block Area

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.65 8/13/90 START 1300 7/23/90 FINISH 1400 8/6/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	0-2	S-1	ND	2-2-3-4 (5)	SAND, (SP), very fine-fine grained, moderately sorted, light gray (N7), dry, organics and roots, quartz		
	2-4	S-2	ND	3-3-4-5 (7)	SAND, (SP), very fine-medium, moderately sorted, light gray (N7) to light olive gray (5Y 6/1), moist, quartz, trace organics, trace black phosphorite		
5	4-6	S-3	ND	4-4-6-8 (10)	SAND, (SP), very fine grained, moderately to well sorted, dusky brown (5 YR 2/2), heavy organics, some quartz, wet, slightly silty		
	6-8	S-4	ND	3-6-9-5 (15)	As Above, less organics		
	8-10	S-5	ND	9-21-21-23 (15)	As Above, some hardpan, predominantly quartz		
10	10-12	S-6	ND	4-4-8-9 (12)	SAND, (SP-SM), very fine grained, moderate-well sorted, somewhat silty, quartz, moderate brown (5 YR 4/4)		
	12-14	S-7 S-8	ND	8-9-14-16 (23)	SAND, (SP), fine-medium grained, moderate-well sorted, moderate yellowish brown, (10 YR 5/4), quartz, trace silt		
					As Above, yellowish gray (5 Y 7/2)		
15	14-16	S-9	1.6	8-8-8-9 (16)	SAND, (SP), fine-medium grained, moderately sorted, grayish orange (10 YR 7/4) quartz		
20	19-21	S-10	1.6	6-7-8-8 (15)	As Above		
25	24-26	S-11	1.6	7-8-8-9 (16)	SAND, (SP), very fine grained, well sorted, dusky yellow (5 Y 7/4) quartz		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-4	SHEET 2 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Proposed Power Block Area

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.65 ft 8/13/90 START 13:00 7/23/90 FINISH 7/27/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	29-31	S-12	2.0	3-2-2-2 (4)	SAND, (SP), very fine grained, well sorted, grayish olive (10 Y 4/2), quartz, slightly silty, subangular grains, very loose		Pushed Shelby tube from 31 to 33 feet. No recovery.
35	34-36	S-13	1.0	5-3-4-7 (7)	SILTY SAND, (SM), very fine-medium grained, poorly sorted, dark gray (N3) quartz, subangular grains, loose		
	36-38.6	ST-1		NA			Pushed Shelby tube from 36 to 38.6 feet. Very hard at 37 feet.
40	39-41	S-14	1.2	5-15-35-50/5" (50)	SAND, (SP), very fine-fine grained, moderate-well sorted, light olive gray (5 Y 6/1) to light brownish gray (5 YR 6/1), very clean, no silt. Quartz subangular grains. ~20% very fine black phosphorite, very dense.		
45	44-46	S-15	1.0	35-42-50/5" (72)	As Above		
50	49-51	S-16	0.5	36-50/5" (86)	As Above		
55	54-56	S-17	0.5	45-50/5" (95)	As Above		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-4	SHEET 3 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Proposed Power Block Area

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.65 ft 8/13/90 START 13:00 7/23/90 FINISH 7/27/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	59-61	S-18	0.75	45-25-14-11 (39)	As Above		
65	64-66	S-19	1.5	20-26-34-34 (60)	As Above, little-some (15%) pelecypod shell fragments (very brittle) pinkish gray (5 YR 8/1)		
70	69-71	S-20	1.2	31-41-21-20 (62)	As Above		
75	74-76	S-21	1.2	15-30-30-30 (60)	As Above		
80	79-81	S-22	1.6	47-50/5" (97)	As Above, less shell (~5%)		
85	84-86	S-23	1.6	25-21-20-16 (41)	As Above, some silt, more shell (25%)		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-4	SHEET 4 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Proposed Power Block Area

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.65 ft 8/13/90 START 13:00 7/23/90 FINISH 7/27/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	89-91	S-24	1.2	15-17-17-20 (34)	SANDY SHELL HASH, fine grained (~50% shell fragments). Greenish gray (5 GY 6/1) to pinkish gray (5 YR 8/1). Predominantly pelecypod with little gastropod shell fragments. Slightly silty quartz.		Gradual loss of drilling fluids (slight).
95	94-96	S-25	1.6	11-10-13-17 (23)	SILTY SHELL HASH, very fine grained large worm-like shells (>50% shell) (1/4" dia. by 2" long). Greenish gray (5 GY 6/1) to pinkish gray (5 YR 8/1). Some pelecypod shell hash. Moderately plastic silty sand. Trace cemented sand quartz.		
	96-98.5	ST-2	2.5	NA			Shelby tube sample obtained at 96' bls.
100	99-101	S-26	2.0	9-20-30-40 (50)	SHELLY SAND, very fine-medium grained, poor-moderately sorted, light olive gray (5 Y 6/1). Slightly silty, ~20% pelecypod, gastropod shell and shell fragments. Quartz.		
105	104-106	S-27	1.8	25-27-30-32 (57)	As Above, slightly more shell (~30%)		
110	109-111	S-28	1.9	20-21-22-22 (43)	As Above, less shell (15%), light olive gray (5 Y 6/1) to light bluish gray (5 B 7/1) slightly silty		
115	114-116	S-29	2.0	14-9-12-16 (21)	SILTY SHELLY SAND (marl?) very fine-fine grained, light olive gray (5Y 6/1), ~25% shell fragments, quartz		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-4	SHEET 5 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Proposed Power Block Area

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.65 ft 8/13/90 START 13:00 7/23/90 FINISH 7/27/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	119-121	S-30	2.0	11-12-21-21 (33)	As Above, slightly clayey		
125	124-126	S-31	2.0	8-20-33-41 (53)	CLAYEY SAND W/SHELL (SC), very fine grained, moderately plastic, light olive gray (5 Y6/1), ~15% shell fragments, quartz, very thin cemented sand layer at 126'		
130	129-131	S-32	2.0	7-9-21-50/4" (30)	SANDY CLAY, (SC), very fine grained moderately plastic, light olive gray (5 Y 6/1), 5-10% shell fragments, quartz, very dense at 131' bls		
135	134-136	ST-3	2.5	NA			Drove Shelby tube from 134 to 136.5 feet bls
140	139-141	S-33	2.0	25-25-30-40 (55)	CLAYEY SANDSTONE, (SS), very fine grained, poor-moderately consolidated, light greenish gray (5 GY 8/1), little-some shell fragments (~10%), very dense, clayey matrix low-moderate plasticity		
145	144-146	S-34	2.0	9-17-27-40 (44)	SANDY CLAY, (SC), very fine grained moderately plastic, light olive gray (5 Y 6/1), 5-10% shell fragments		Boring abandoned with neat cement from bottom to land surface.
					END OF BORING		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-5	SHEET 1 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Production Well Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.2 ft 8/13/90 START 10:15 7/30/90 FINISH 8/7/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
5	4-6	S-1 S-2	1.2	5-5-7-8 (12)	SAND, (SP), fine-coarse grained, moderately sorted, very light gray (N8), subangular-rounded, quartz, thin organic layer at 6' bls, medium dense		
10	9-11	S-3	1.2	9-9-10-10 (19)	SAND, (SP), fine-medium grained, moderate-well sorted, moderate brown (5 YR 4/4), subangular-rounded quartz, medium dense		
	11-13	S-4	2.0	10-7-8-7 (15)	As Above, yellowish gray (5 Y 7/2)		
	13-15	S-5	1.2	7-10-9-9 (19)	As Above		
15							
20	19-21	S-6	1.0	8-9-12-11 (21)	As Above, dusky yellow (5 Y 6/4)		
25	24-26	S-7	1.8	4-4-3-4 (7)	SAND, (SP), very fine grained, well sorted, olive gray (5 Y 4/1), subangular-subrounded, trace of silt, trace-little black phosphorite (very fine grained). Quartz, loose		
	26-29	ST-1	3.0	NA			Obtain Shelby tube from 26 to 29' bls

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-5	SHEET 2 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Production Well Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.2 ft 8/13/90 START 10:15 7/30/90 FINISH 8/7/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	29-31	S-8	1.2	WR-WR-10-11 (10)	SAND, (SM), very fine grained, well sorted, light gray (N7) quartz, somewhat silty, some pinkish gray shell fragments (25%), trace-little cemented sand fragments, quartz, loose		
35	34-36	S-9	1.8	16-21-29-28 (50)	SAND, (SP), very fine-medium grained, poor-moderately sorted, light olive gray (5 Y 6/1), quartz, ~20% gray sandstone fragments, ~20% pelecypod shell fragments, ~10% very fine grained black phosphorite, unconsolidated, dense		
40	39-41	S-10	1.2	25-38-50/5" (88)	SAND, (SP), very fine grained, well sorted, olive gray (5 Y 4/1) quartz, ~25% very fine grained black phosphorite, unconsolidated, trace shell fragments, angular-subrounded grains, very dense		Refusal. Rope breaks at end of hammer. Cut and tie new rope.
45	44-46	S-11	1.0	25-40-50/5" (90)	As Above		
50	49-51	S-12	1.2	27-36-36-33 (72)	As Above		
55	54-56	S-13	ND	18-16-25-50/5" (41)	As Above, dense		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-5	SHEET 3 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Production Well Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.2 ft 8/13/90 START 10:15 7/30/90 FINISH 8/7/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	59-61	S-14	ND	14-17-40-50/5" (57)	SAND, (SP), very fine grained, well sorted, olive gray (5 Y 4/1) and SHELL fragments (~30%) pelecypods pinkish gray (5 YR 8/1). Some (10-20%) cemented sand. Subangular-subrounded quartz, very fine black phosphorite sand grains, very dense		
65	64-66	S-15	0.6	22-35-44-47 (79)	SAND, (SP), very fine grained, well sorted olive gray (5 Y 4/1), subangular-subrounded, ~25% black phosphorite grains (very fine), quartz, very dense		
70	69-71	S-16	2.0	5-3-5-6 (8)	SILTY CLAY, (CL), low-moderate plasticity, dark greenish gray (5 GY 4/1), firm		
	71-74	ST-2	3.0	NA			Obtain Shelby tube sample at 71' bls
75	74-76	S-17	1.8	4-4-3-4 (7)	CLAYEY, SHELLY SILT, (ML), low-moderate plasticity, light olive gray (5 Y 5/2) very fine grained, 30-40% shell fragments (predominantly pelecypods, trace gastropods), firm		
80	79-81	S-18	1.8	22-23-30-31 (53)	SAND, (SP), fine-coarse grained, poorly sorted, angular-rounded, quartz predominant, ~25% black phosphorite grains, ~10% calcium carbonate and pelecypod shell fragments, trace silt, very dense		Drill rods chatter at 83' bls
85	84-86	S-19	1.6	10-12-14-20 (26)	SILTY SAND, (SM), very fine grained, well sorted, angular-rounded, greenish gray (5 GY 6/1), predominantly quartz, ~15-20% black phosphorite grains, ~5% calcium carbonate grains, ~5-10% large (1/2" dia) pelecypod shells, medium dense		

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PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-5	SHEET 4 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Production Well Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.2 ft 8/13/90 START 10:15 7/30/90 FINISH 8/7/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	89-91	S-20	1.6	11-16-20 (36)	As Above, less shell		
95	94-96	S-21	1.6	12-15-23-25 (38)	SHELLY SAND, (SW), fine-medium grained, poor-moderately sorted, subangular-subrounded, greenish gray (5 GY 6/1) quartz sand grains. Shell fragments (pelecypod, trace gastropod) constitute ~30% of sample. Trace black phosphorite, very fine grained. Medium dense.		
100	99-101	S-22	1.4	23-21-21-18 (42)	As Above, less shell		
105	104-106	S-23	1.8	14-15-15-14 (30)	SILTY SHELLY SAND, (SM), very fine-medium grained, poor-mod. sorted, subangular-rounded, greenish gray (5 GY 6/1) sand grains predominantly quartz composition with 10% very fine black phosphorite. Shell (~30% of sample) is predominantly fragments but large (1/2") pelecypod and gastropods also. Medium dense.		
110	109-111	S-24	1.8	12-12-12-12 (24)	SAND, (SP), very fine-fine grained, moderate-well sorted, angular-subrounded, light olive gray (5 Y 6/1), quartz grains predominant, ~10-20% fine shell fragments, medium dense, trace-little silt.		
115	114-116	S-25	0.5	8-11-24-26 (35)	As Above		

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PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-5	SHEET 5 OF 5

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Production Well Site, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 6.2 ft 8/13/90 START 10:15 7/30/90 FINISH 8/7/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	119-121	S-26	2.0	12-32-50/5" (82)	SANDY CLAY, (SC), low plasticity, greenish gray (5 GY 6/1) ~15% fine pelecypod shell fragments. Hard		
125	124-126	S-27	1.8	17-16-14-12 (30)	CLAYEY SAND, (SC), low plasticity, greenish gray (5 GY 6/1) ~20% fine-coarse pelecypod white shells and fragments. Trace-little (15%) cemented sand and shell. Very stiff		
130	129-131	S-28	2.0	12-15-20-30 (35)	As Above		
135	134-136	S-29	2.0	7-9-26-50/5" (35)	As Above		
140	139-141	S-30	2.0	10-22-45-41 (67)	SANDY CLAY (SC), low plasticity, greenish gray (5 GY 6/1) ~15% fine pelecypod shell fragments, hard, some cemented sand layers (thin)		
145	144-146	S-31	2.0	32-15-12-21 (27)	CLAYEY SAND & SANDSTONE, (SC-SS), low plasticity, very light gray (N8) moderate-very friable sandstone ~10% shell fragments in matrix. Trace-little (~15%) black phosphorite. Very stiff		
	149-151	S-32	2.0	9-17-40-42 (57)	SANDY CLAY, (SC), low-mod. plasticity, very light gray (N8), ~10% shell fragments. END OF BORING		Boring cemented with neat cement to ground surface.

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-6	SHEET 1 OF 2

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Pumping Test Location, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 7.04 ft 8/13/90 START 09:45 8/2/90 FINISH 12:00 8/3/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
							Drill with 4-1/2" tricone roller bit from 0 to 49' bls using Vari-Flo® biodegradable mud.
50	49-51	S-1	ND	28-33-46-60 (79)	SAND, (SP), very fine grained, well sorted, light olive gray (5 Y 6/1), subangular-subrounded, quartz and ~25% very fine black phosphorite, very dense		
55	54-56	S-2	ND	19-26-26-33 (52)	As Above, trace-little pelecypod shell fragments		
60	59-61	S-3 S-4	1.6	16-30-45-50/4" (75)	SHELLY SAND, (SW), very fine-coarse grained, poorly sorted, quartz w/20% very fine black phosphorite, pelecypod and some gastropod shells. SAND, (SP), very fine grained, well sorted, light olive gray (5 Y 6/1), very fine black phosphorite (~20%). Trace shell, quartz, very dense.		
65	64-66	S-5	1.0	19-20-33-45 (53)	As Above		
70	69-71	S-6	2.0	4-3-4-7 (7)	SILTY CLAY, (CL), low plasticity, dark greenish gray (5 GY 4/1), firm, trace shell fragments		

PROJECT NUMBER	BORING NUMBER	
SEF30619.A0	TB-6	SHEET 2 OF 2

SOIL BORING LOG

PROJECT Indiantown Cogeneration Facility LOCATION Pumping Test Location, Indiantown, FL

ELEVATION ~32 ft NGVD DRILLING CONTRACTOR Ardaman and Associates, West Palm Beach, FL

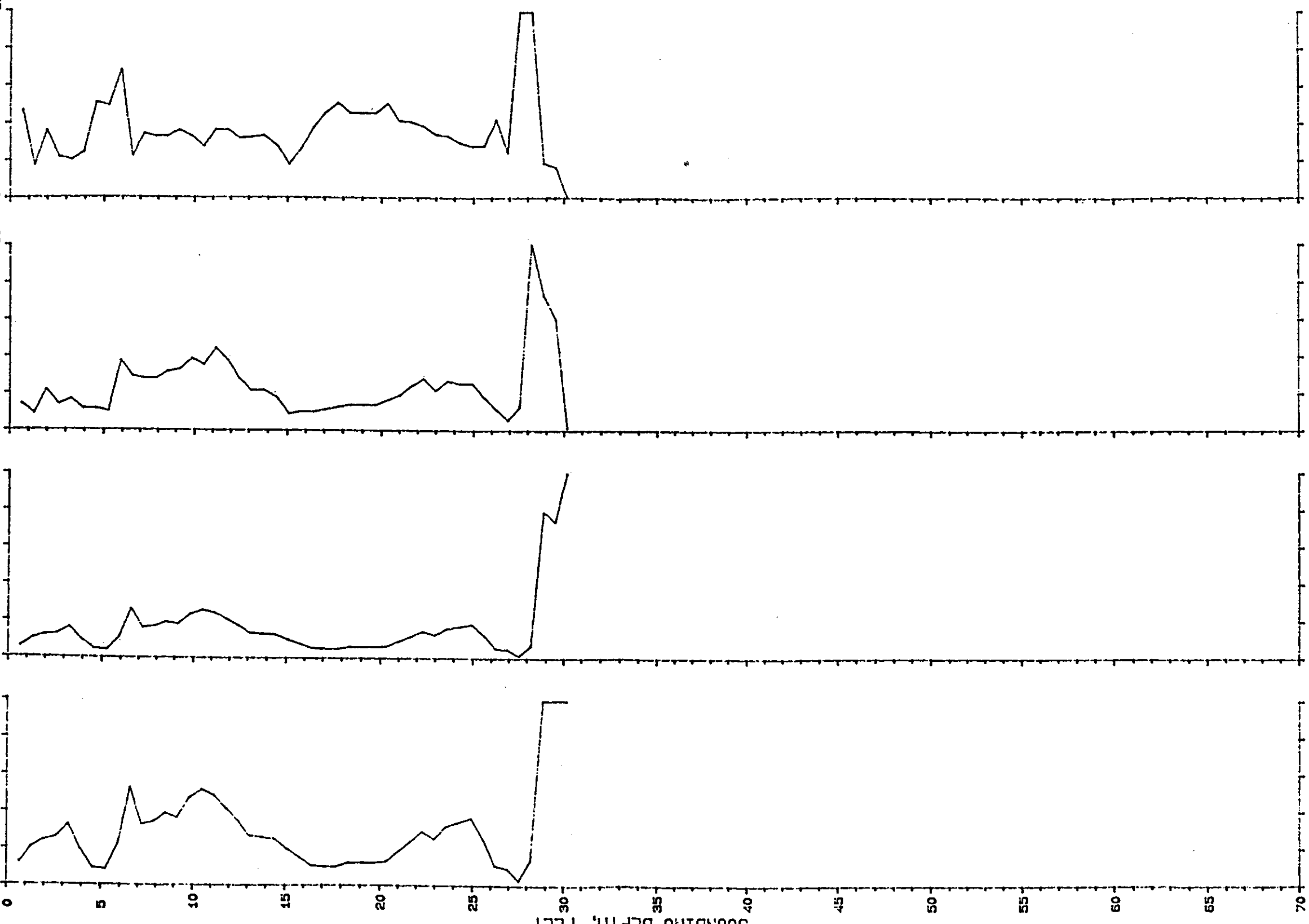
DRILLING METHOD AND EQUIPMENT CME 45 Rotary Rig with Split Spooning

WATER LEVEL AND DATE DTW = 7.04 ft 8/13/90 START 09:45 8/2/90 FINISH 12:00 8/3/90 LOGGER P. Kwiatkowski

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	74-76	S-1	2.0	4-5-5-7 (10)	CLAYEY SHELLY SILT, (ML), low-moderate plasticity, very fine grained, greenish gray (5 GY 6/1). ~30% shell fragments (pelecypods, trace gastropods), firm		
80	79-81	S-8	ND	9-13-22-35 (35)	SAND, (SP),fine-medium grained, moderately sorted, light olive gray (5 Y 6/1), trace silt, trace shell fragments, dense		
86	84-86	S-9	1.8	6-6-7-22 (13)	SILTY SAND, (SM), very fine grained, moderate-well sorted, greenish gray (5 GY 6/1), ~20% very fine grained black phosphorite, predominantly quartz, ~10% shell fragments		
90	89-91	S-10	1.6	15-19-23-19 (42)	SHELLY SAND, (SW), very fine grained w/coarse shell fragments (25%), poorly-moderately sorted, greenish gray (5 GY 6/1) sand predominantly quartz with ~15-20% very fine grained black phosphorite		
95	94-96	S-11	ND	11-13-20-18 (33)	As Above, more shell (~40%)		
100	99-101	S-12	1.6	20-22-20-20 (42)	As Above		
					END OF BORING		

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-103

PROJECT FILE NO.=90-5648 DATE TESTED=7-30-90



Indiantown Cogeneration Project Indiantown Cogeneration, L.P.	
CPT NO. B-103 INDIANTOWN COGENERATION PLANT INDIANTOWN, FLORIDA	
DRAWN BY:	CHECKED BY: / DATE:
FILE NO. 90-5648	APPROVED BY:

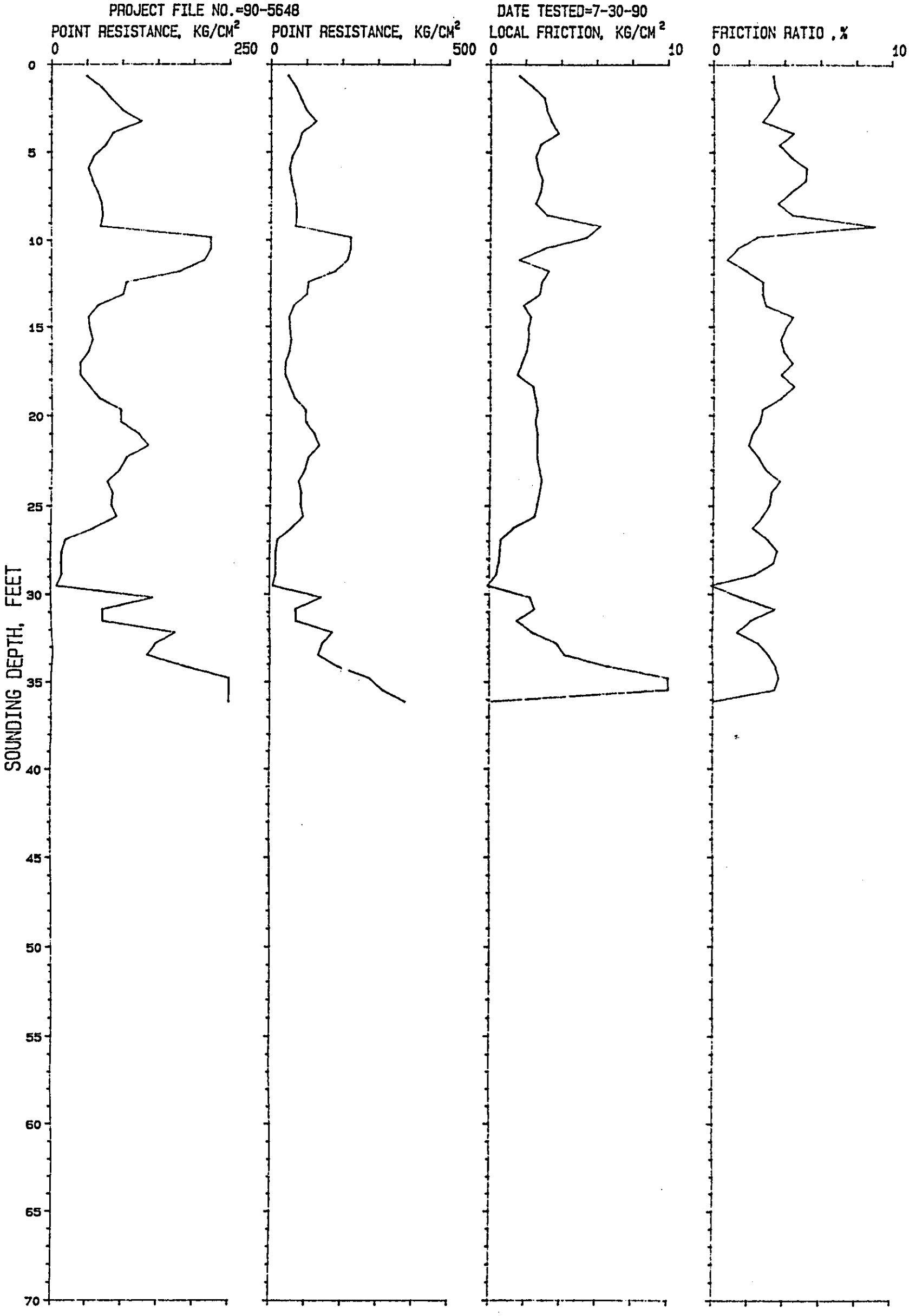
N24568

N24648

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-105

PROJECT FILE NO.=90-5648

DATE TESTED=7-30-90



Indiantown Cogeneration Project
Indiantown Cogeneration, L.P.

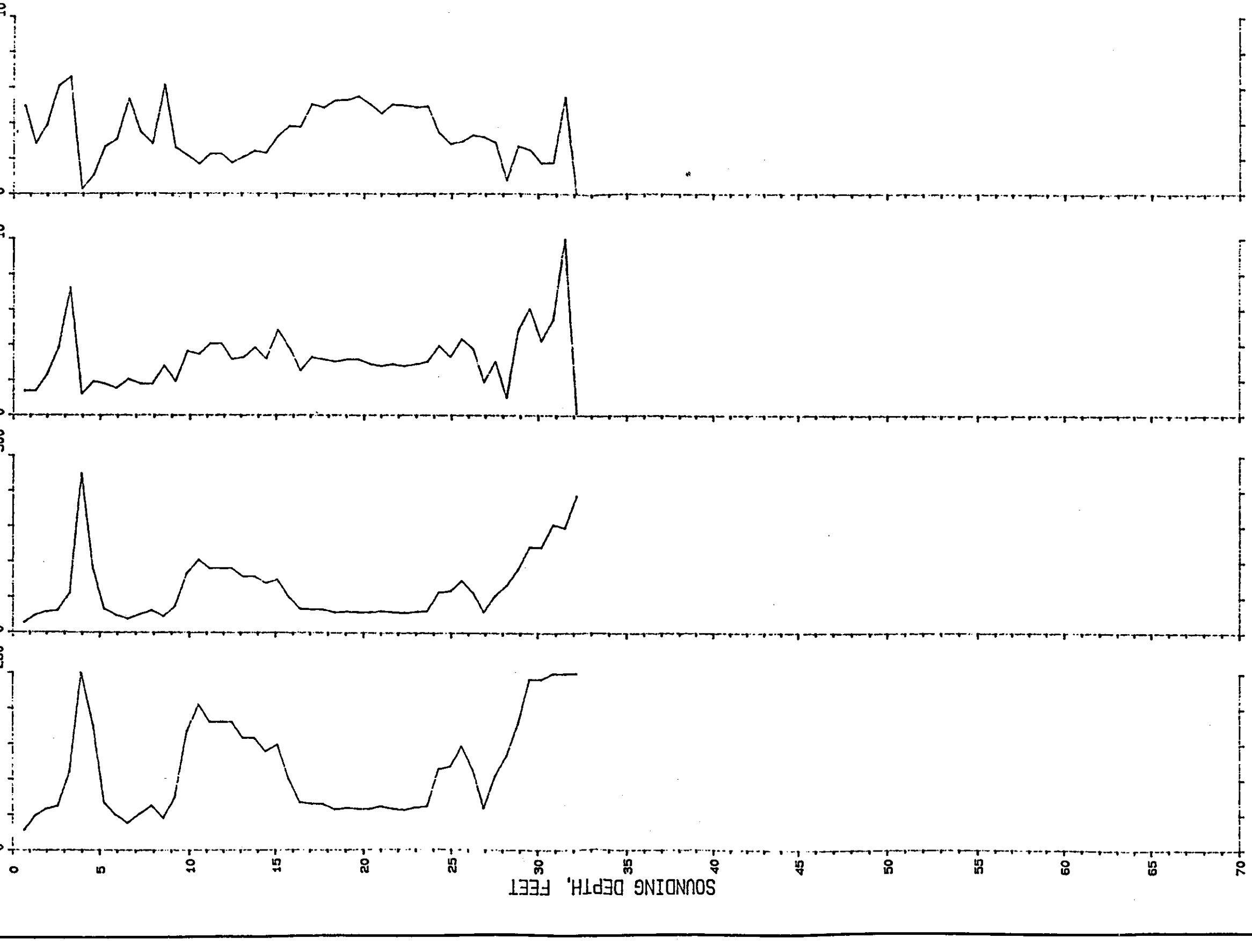
CPT NO. B-105
INDIANTOWN COGENERATION PLANT
INDIANTOWN, FLORIDA

DRAWN BY:	CHECKED BY:	DATE:
FILE NO. 90-5648	APPROVED BY:	

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-106

PROJECT FILE NO.=90-5648

DATE TESTED=7-31-90



Indiantown Cogeneration Project Indiantown Cogeneration, L.P.	
CPT NO. B-106 INDIANTOWN COGENERATION PLANT INDIANTOWN, FLORIDA	
DRAWN BY:	CHECKED BY: / DATE:
FILE NO. 90-5648	APPROVED BY:

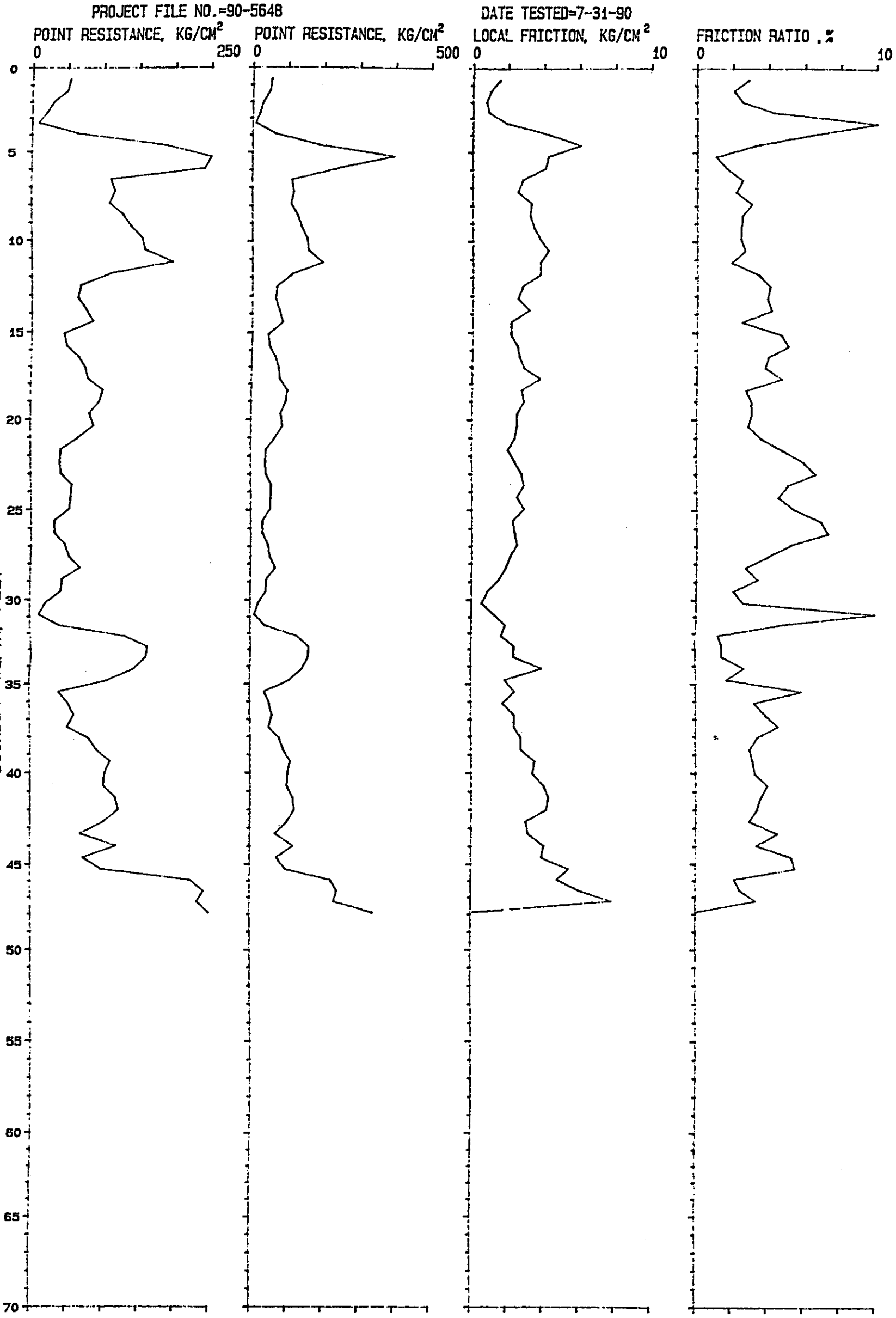
N24568

N2458

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-109

PROJECT FILE NO.=90-5648

DATE TESTED=7-31-90



Indiantown Cogeneration Project
Indiantown Cogeneration, L.P.

CPT NO. B-109

INDIANTOWN COGENERATION PLANT

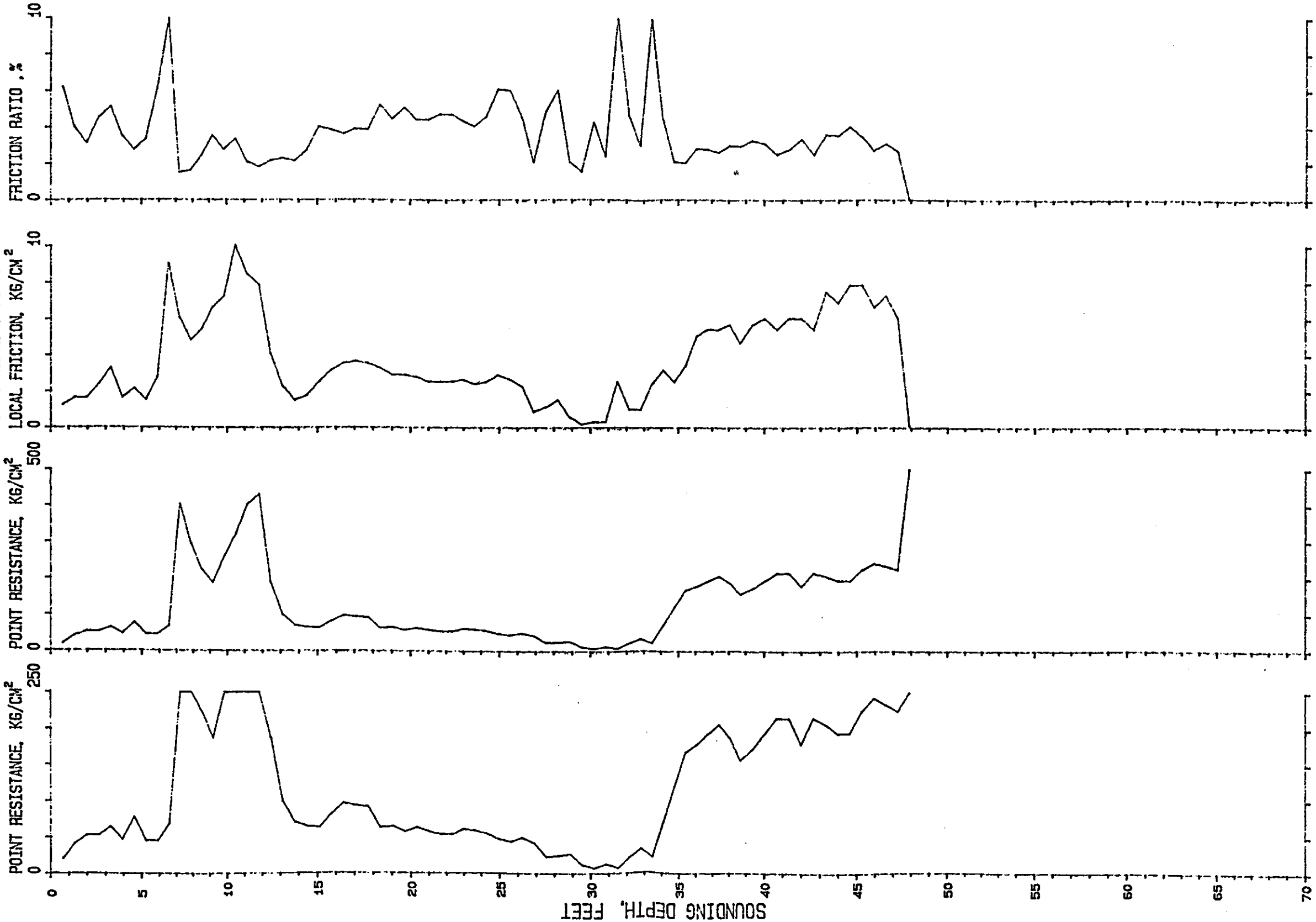
INDIANTOWN, FLORIDA

DRAWN BY:	CHECKED BY:	DATE:
FILE NO. 90-5648	APPROVED BY:	

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-111

PROJECT FILE NO.=90-5648

DATE TESTED=7-31-90



Indiantown Cogeneration Project
Indiantown Cogeneration, L.P.

CPT NO. B-111
INDIANTOWN COGENERATION PLANT
INDIANTOWN, FLORIDA

DRAWN BY:	CHECKED BY:	DATE:
FILE NO. 90-5648	APPROVED BY:	

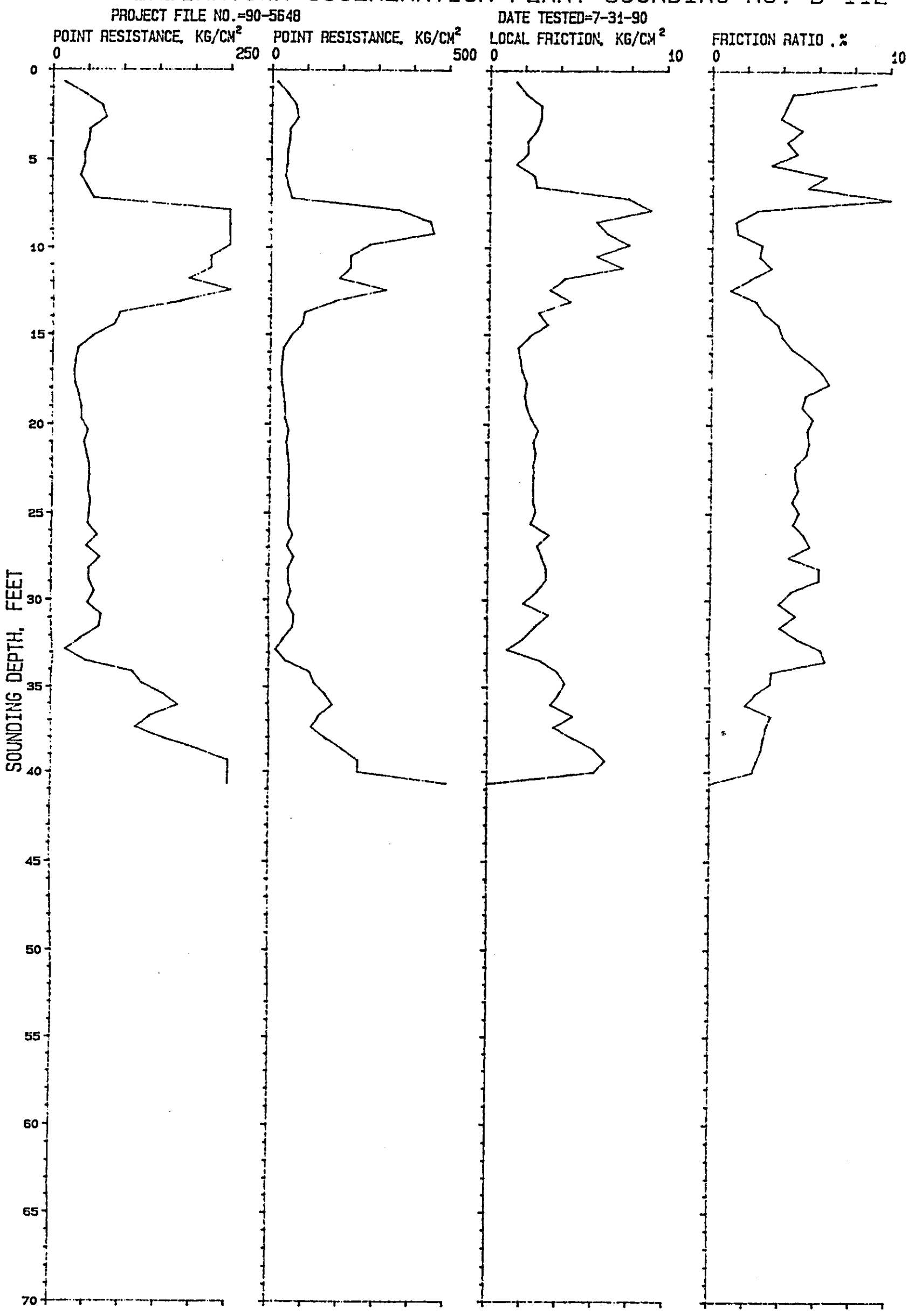
N24568

N2598

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-112

PROJECT FILE NO.=90-5648

DATE TESTED=7-31-90



Indiantown Cogeneration Project
Indiantown Cogeneration, L.P.

CPT NO. B-112

INDIANTOWN COGENERATION PLANT

INDIANTOWN, FLORIDA

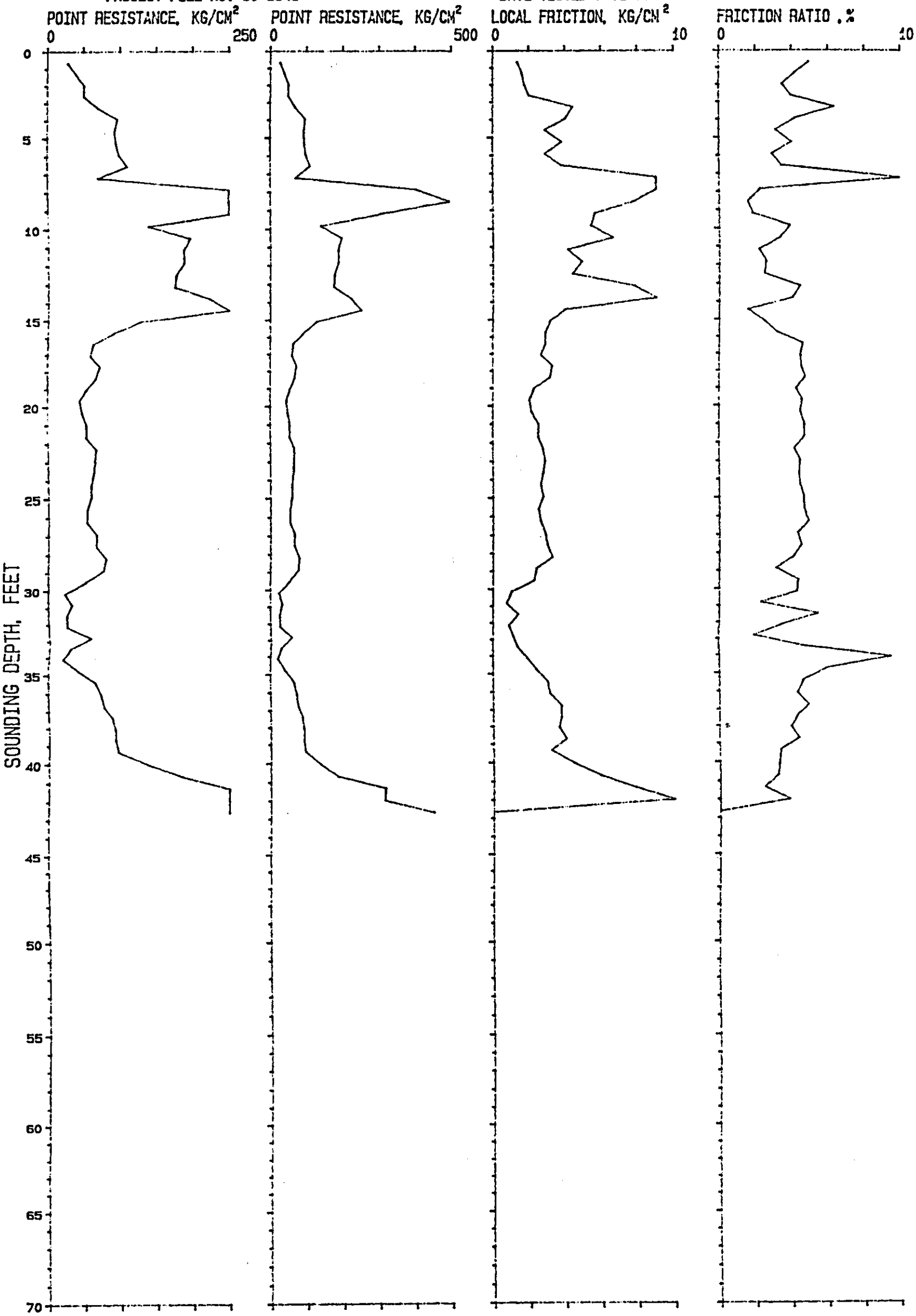
DRAWN BY:	CHECKED BY:	DATE:
FILE NO. 90-5648	APPROVED BY:	

N2568

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-113

PROJECT FILE NO.=90-5648

DATE TESTED=7-31-90



Indiantown Cogeneration Project
Indiantown Cogeneration, L.P.

CPT NO. B-113

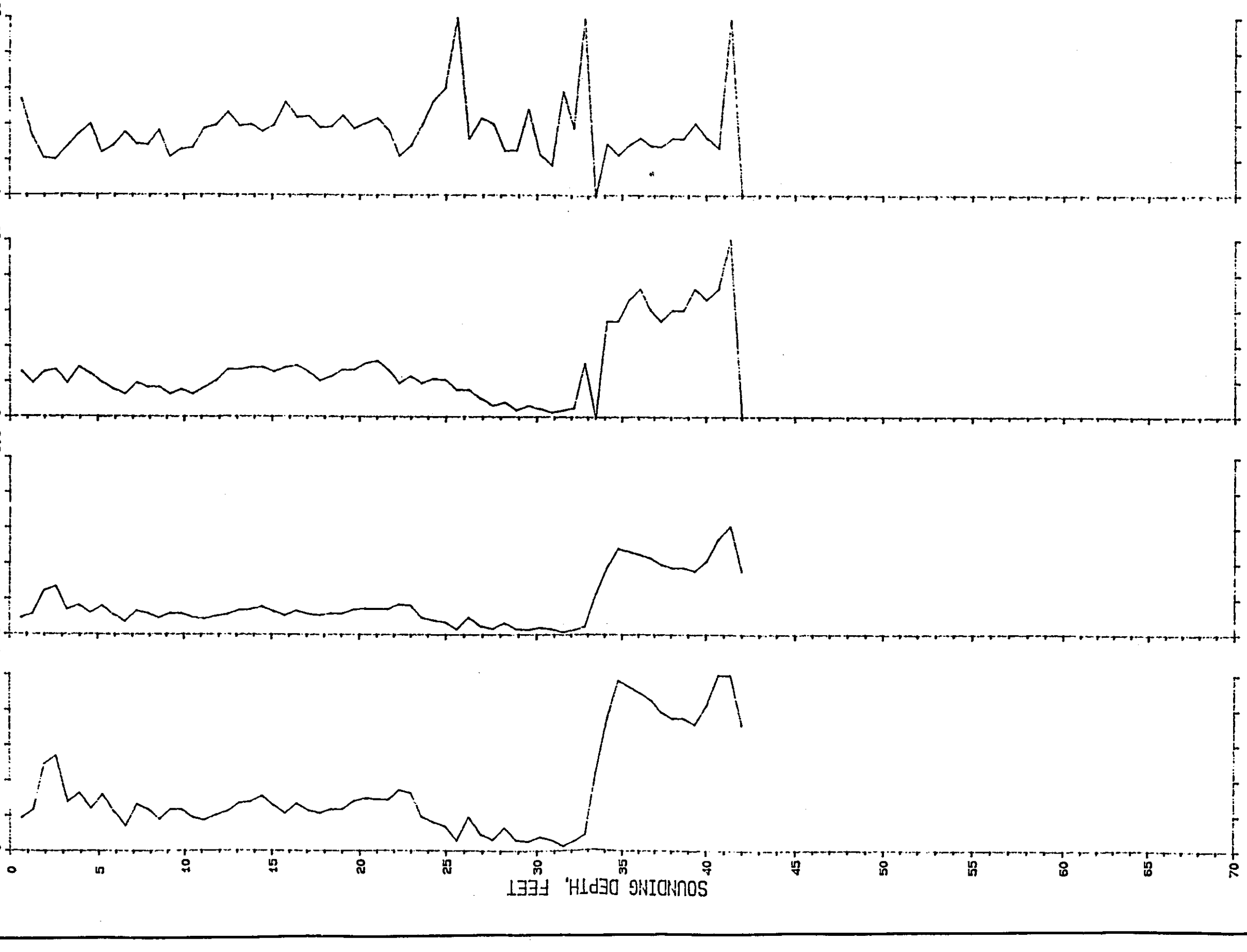
INDIANTOWN COGENERATION PLANT

INDIANTOWN, FLORIDA

DRAWN BY:	CHECKED BY:	DATE:
FILE NO. 90-5648	APPROVED BY:	

INDIANTOWN COGENERATION PLANT SOUNDING NO. B-114

PROJECT FILE NO.=90-5648
DATE TESTED=7-31-90



Indiantown Cogeneration Project Indiantown Cogeneration, L.P.	
CPT NO. B-114 INDIANTOWN COGENERATION PLANT INDIANTOWN, FLORIDA	
DRAWN BY:	CHECKED BY: DATE:
FILE NO. 90-5648	APPROVED BY:

N2456B

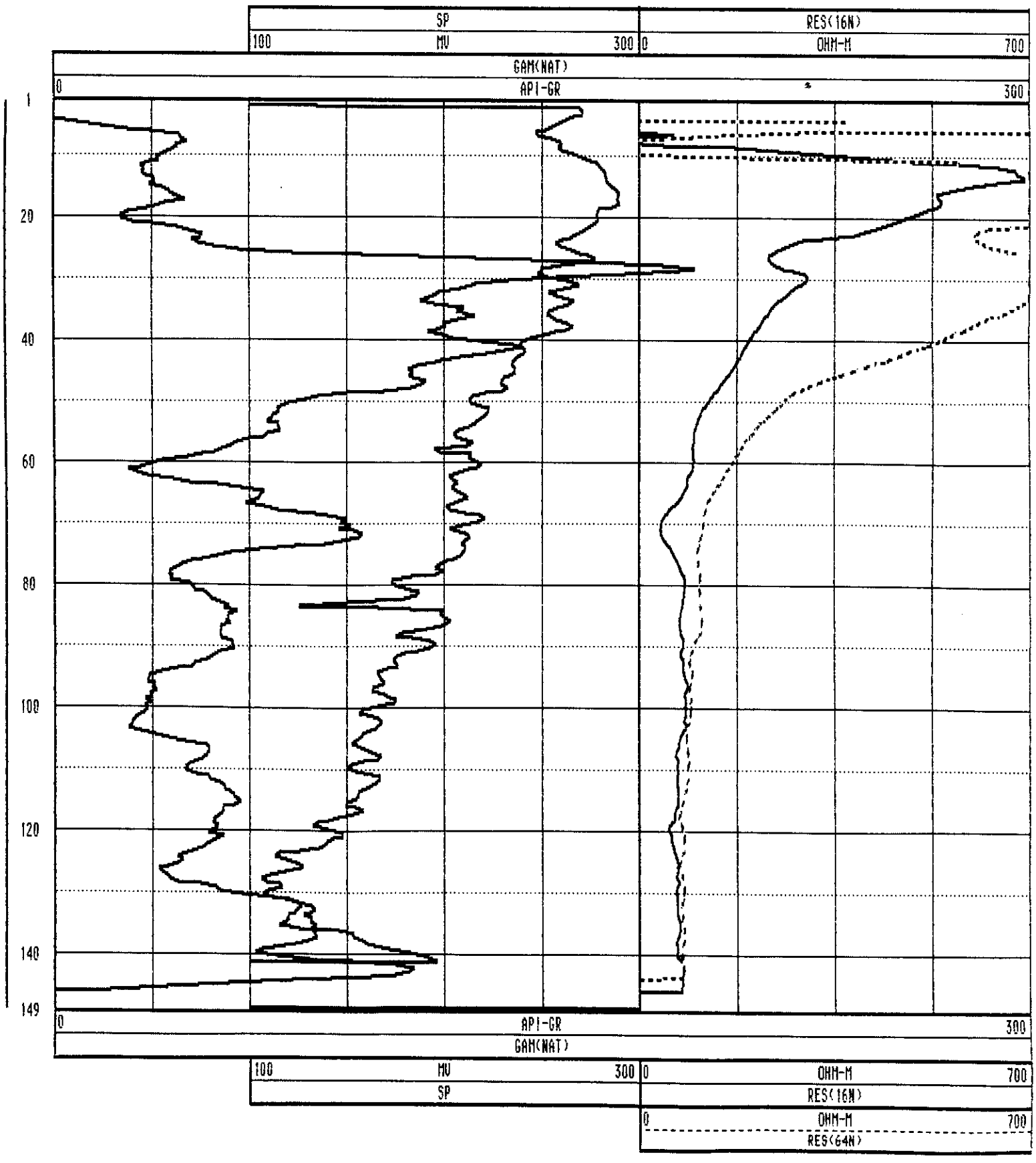
GEOPHYSICAL LOGS

LSN ELECTRIC GAMMA

POW-1 0043-0031

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: POW-1 0043-0031			GAMMA	
LOCATION/FIELD	: INDIANTOWN			LSN ELEC	
COUNTY	: MARTIN			CALIPER	
STATE	: FL				
SECTION	: 34	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 07/31/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 149.50	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 2.00	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	:	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: 9040A
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 3
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 7
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI



CALIPER

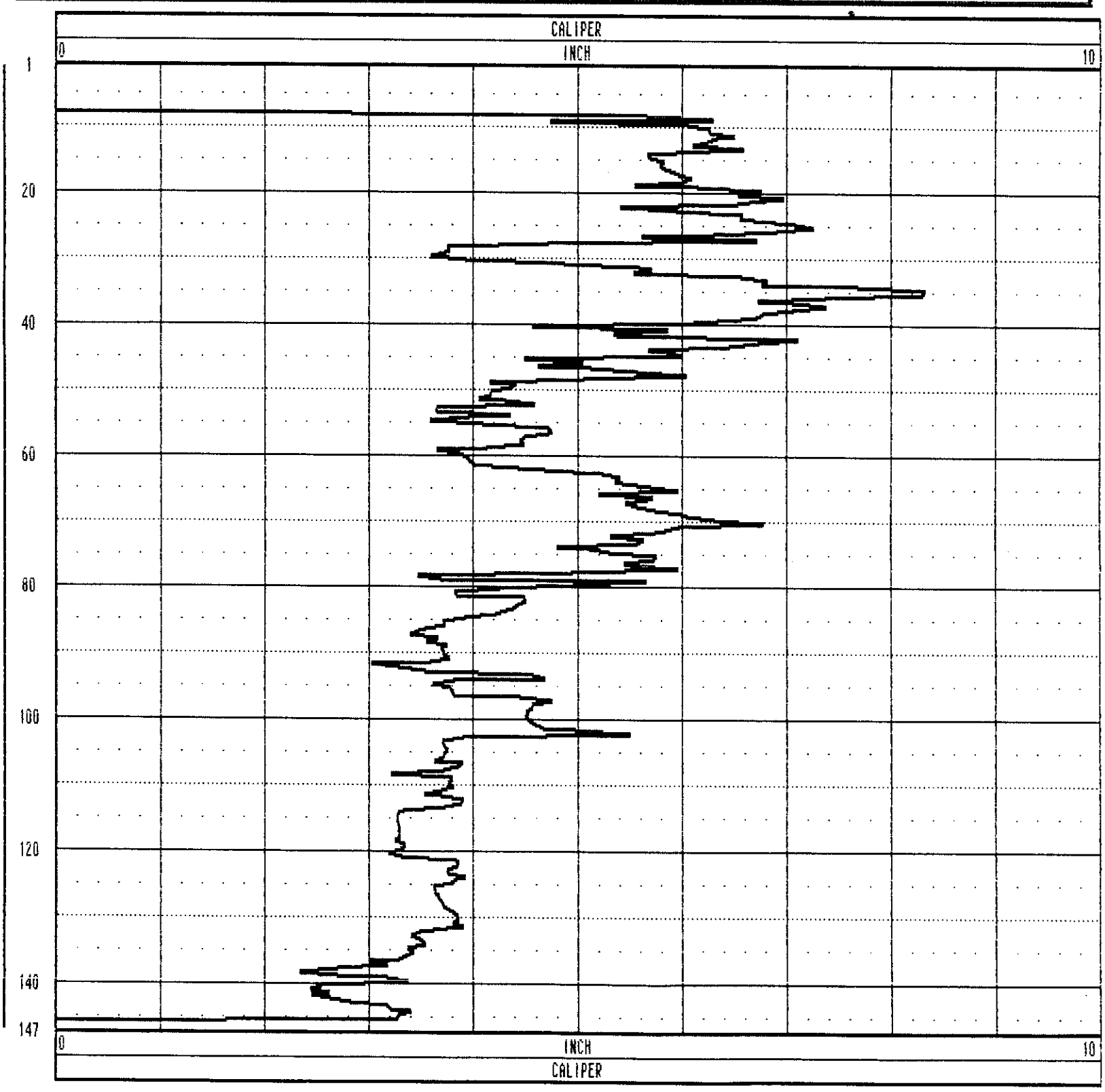
MW-1 0043-0034

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-1 0043-0034			GAMMA	
LOCATION/FIELD	: INDIANTOWN			SING PT	
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 34	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 08/15/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 147.50	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 1.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	: NA	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 3.87	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: CCAL3
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 4
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 6
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :

LOG PERFORMED ON A STATIC WELL

OBSERVER: DAVE SYNDER

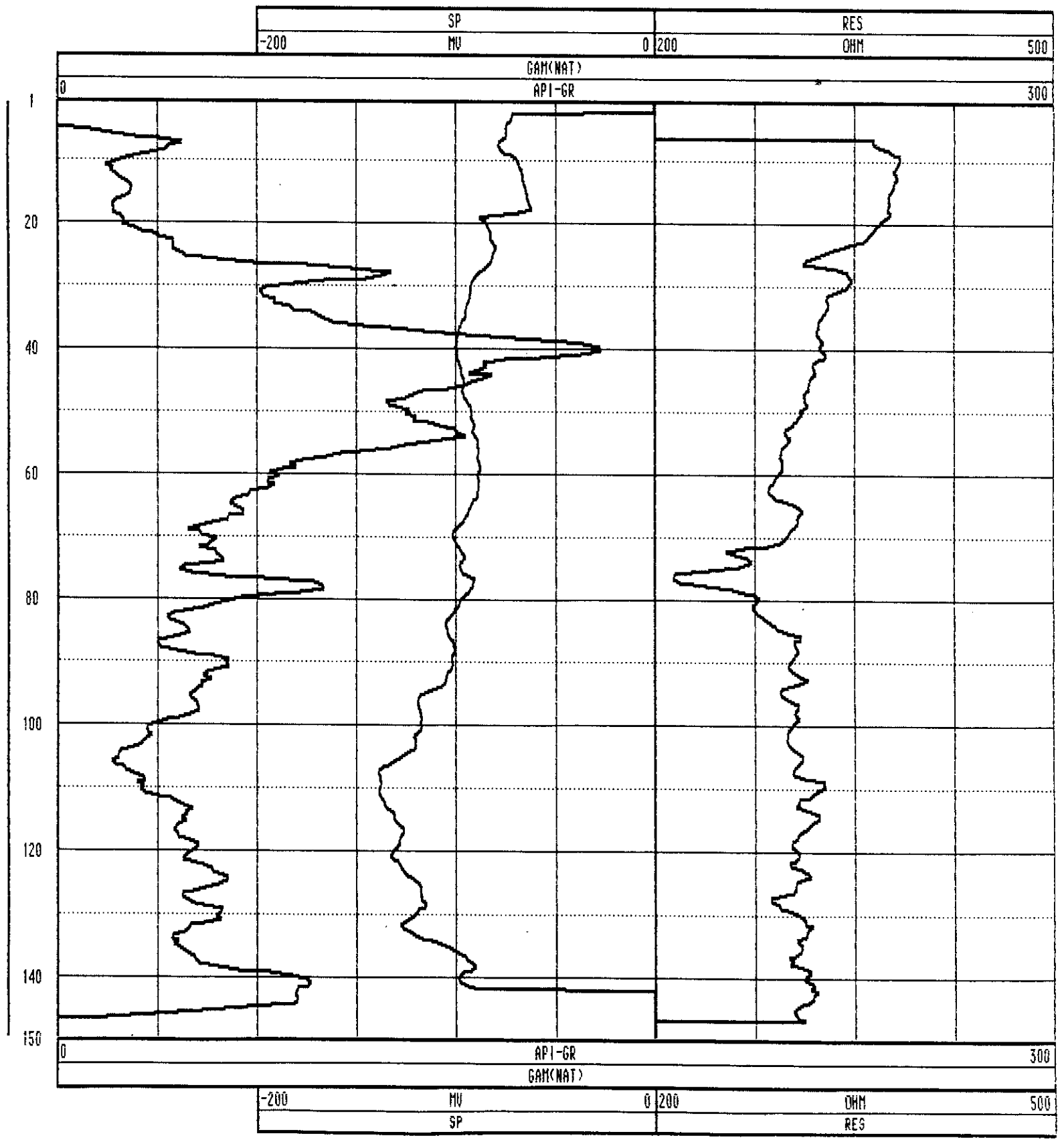


SINGLE POINT GAMMA

MW-1 0043-0034

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-1 0043-0034			CALIPER	
LOCATION/FIELD	: INDIANTOWN				
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 34	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 08/15/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 150.00	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 1.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	: NA	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 3.87	BOREHOLE FLUID	: MUD	FILE	: PROCESSED
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: 9040A
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 7
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 8
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: DAVE SYNDER



CALIPER

MW-2 0043-0033

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-2 0043-0033			GAMMA	
LOCATION/FIELD	: INDIANTOWN			SING PT	
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 34	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 08/10/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
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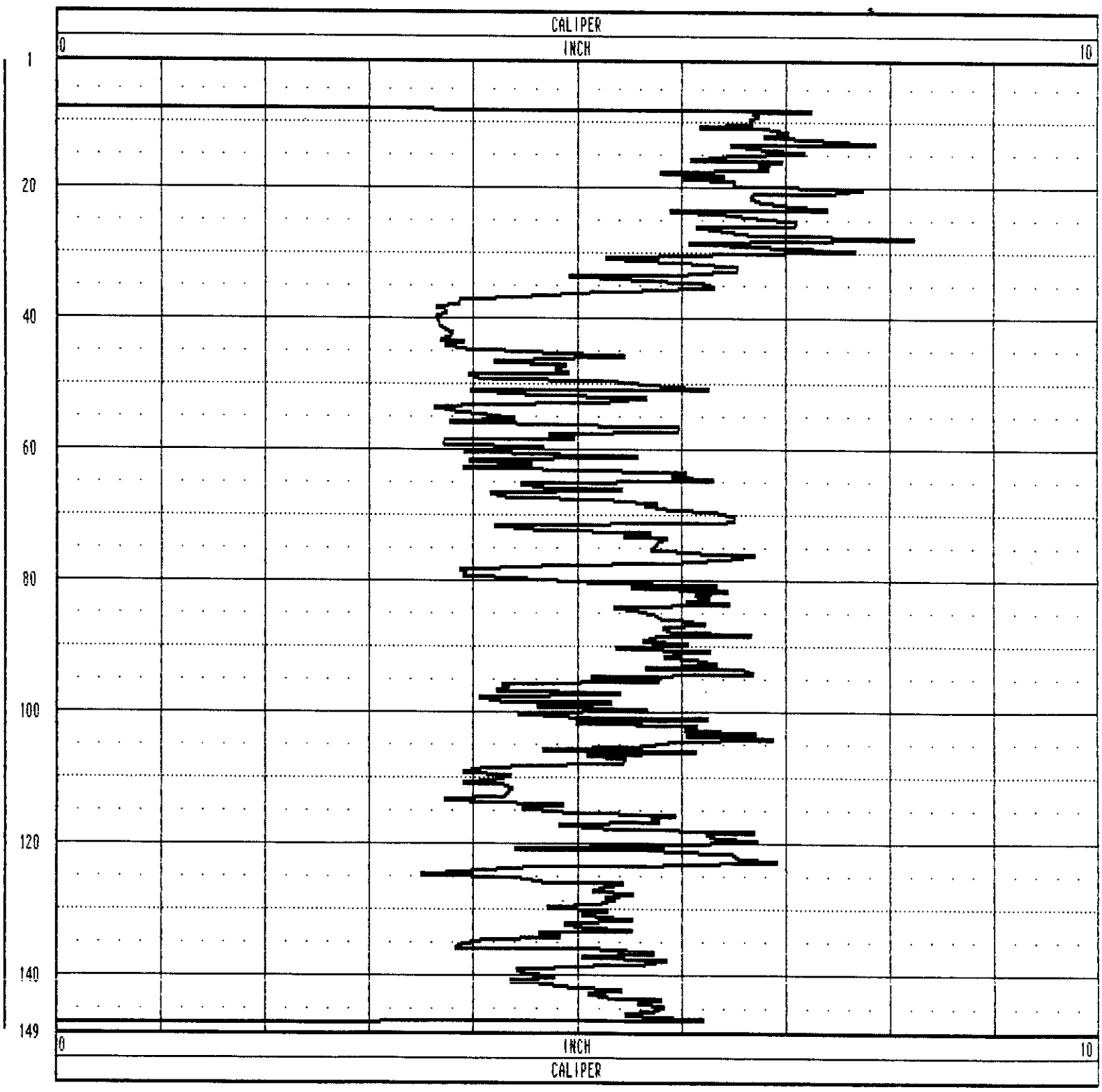
LOG TOP	: 1.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	: NA	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: CCAL3
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 0
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 6
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI

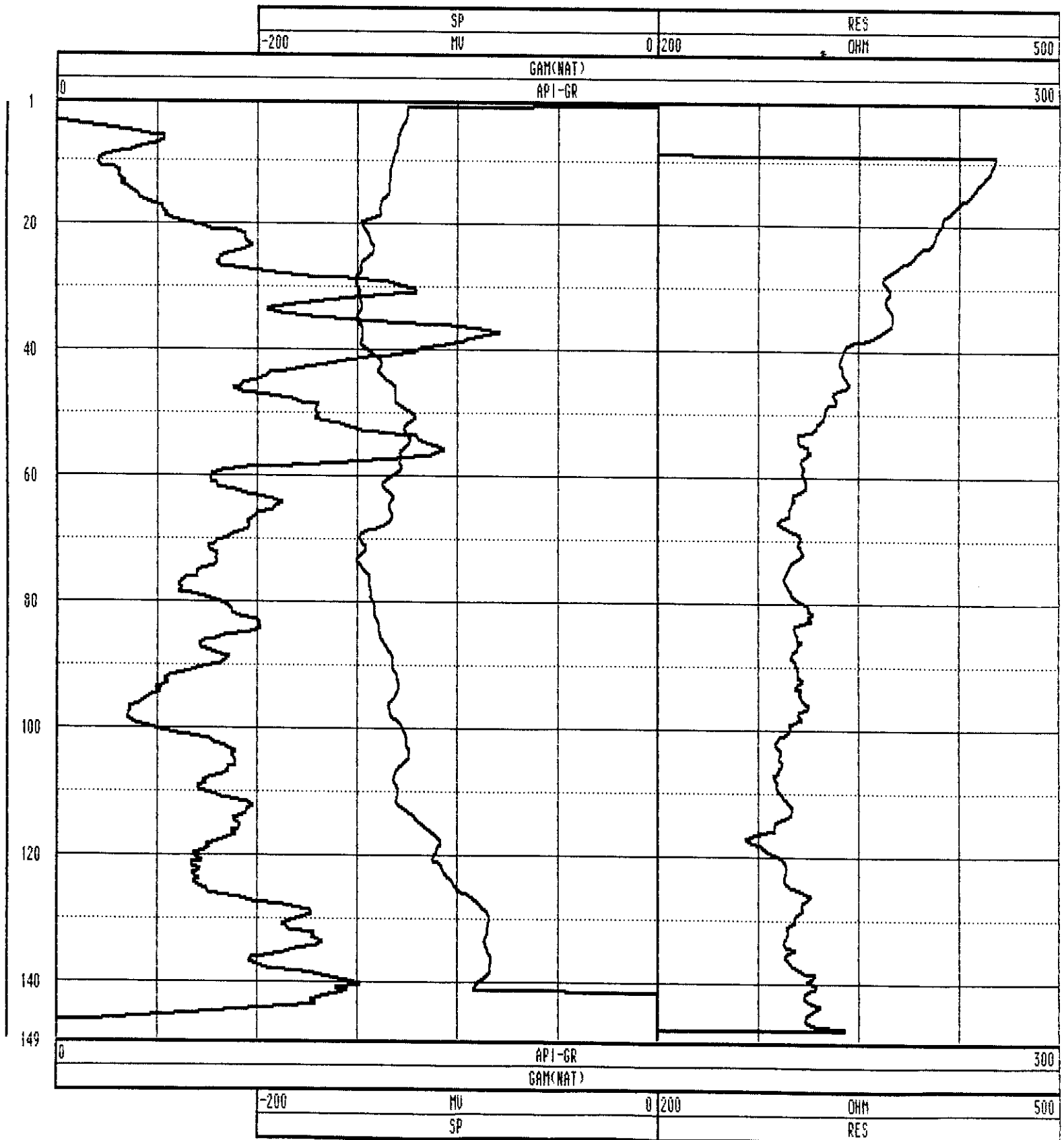


SINGLE POINT GAMMA

MW-2 0043-0033

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-2 0043-0033			CALIPER	
LOCATION/FIELD	: INDIANTOWN				
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 34	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 08/10/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 149.50	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 1.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	: NA	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: PROCESSED
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: 9040A
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 3
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 8
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI



CALIPER

MW-3 0043-0032

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-3 0043-0032			GAMMA	
LOCATION/FIELD	: INDIANTOWN			SING PT	
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 35	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 08/08/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
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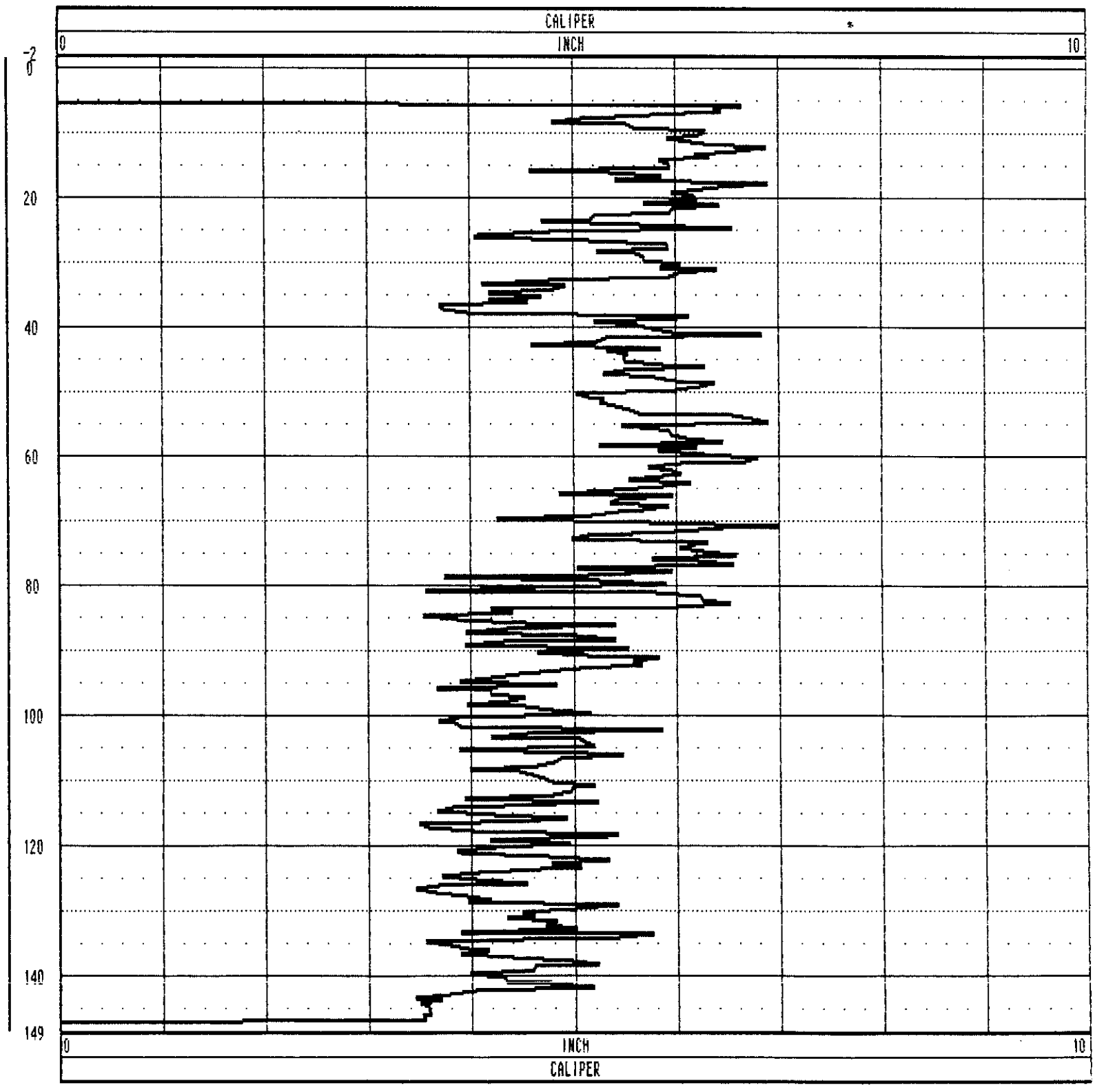
LOG TOP	: -1.00	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	: NA	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: CCAL3
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 4
FLUID DENSITY	: 1	MATRIX DELTA T	: NA	PLOT	: REPORT 6
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :

LOG PERFORMED ON A STATIC WELL

OBSERVER: PETER KWIATKOWSKI

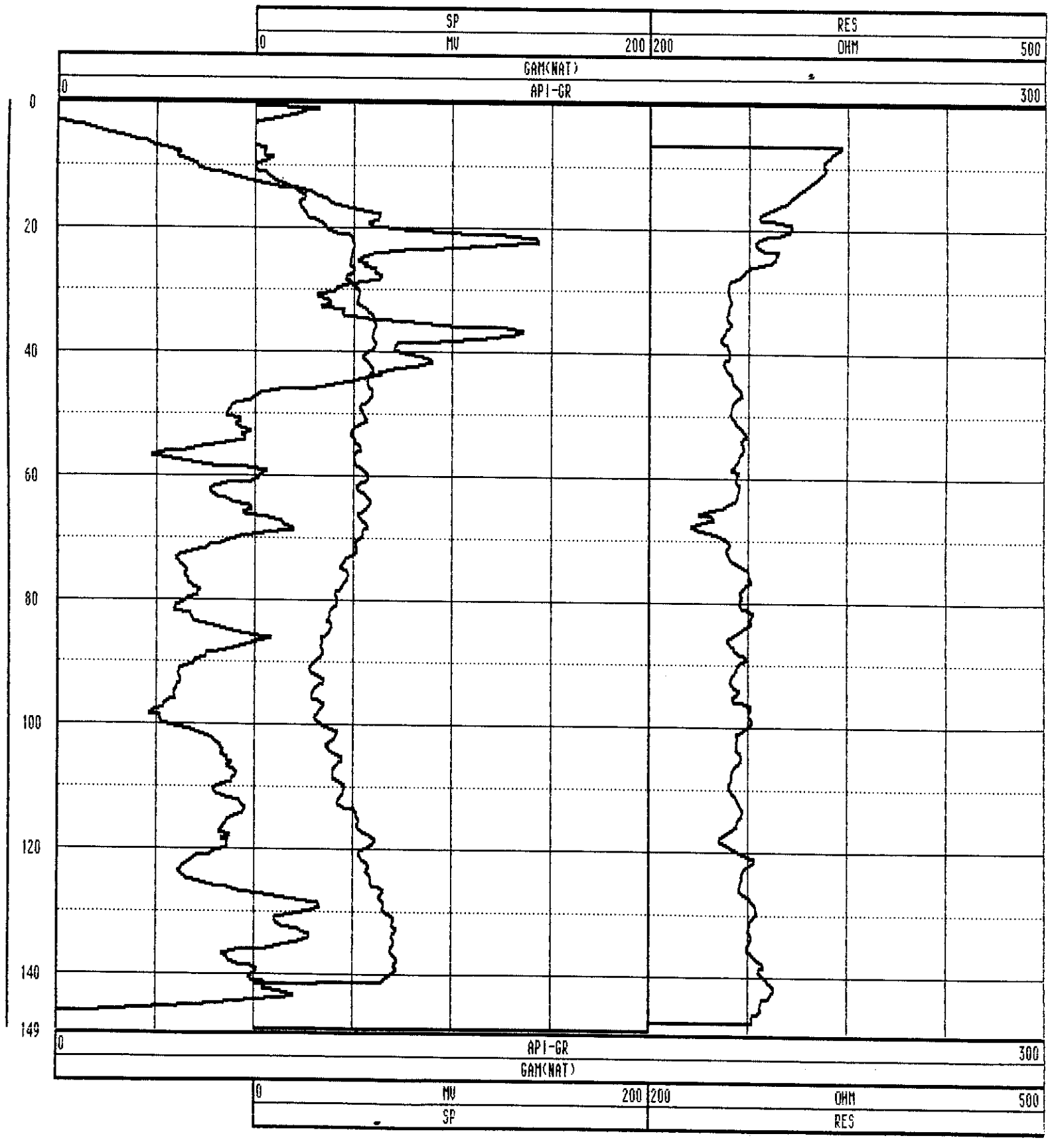


SINGLE POINT GAMMA

MW-3 0043-0032

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-3 0043-0032			CALIPER	
LOCATION/FIELD	: INDIANTOWN				
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 35	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 08/08/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 149.50	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 0.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	: NA	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: PROCESSED
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: 9040A
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 7
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 8
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI

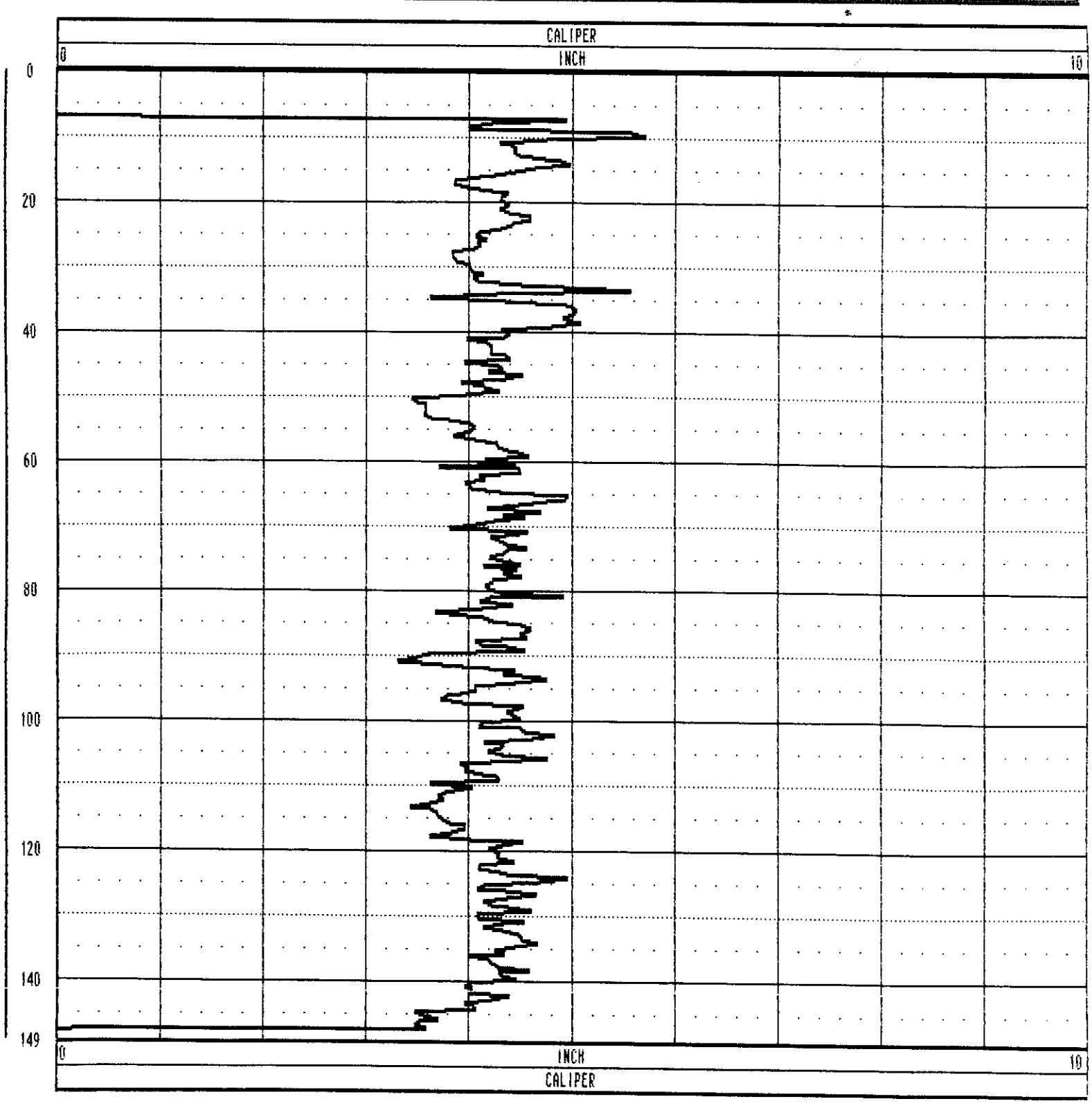


CALIPER

MW-4 0043-0030

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-4 0043-0030			GAMMA	
LOCATION/FIELD	: INDIANTOWN			LSN ELEC	
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 35	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 07/27/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 149.50	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 0.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	:	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: CCAL3
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 1
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 6
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI

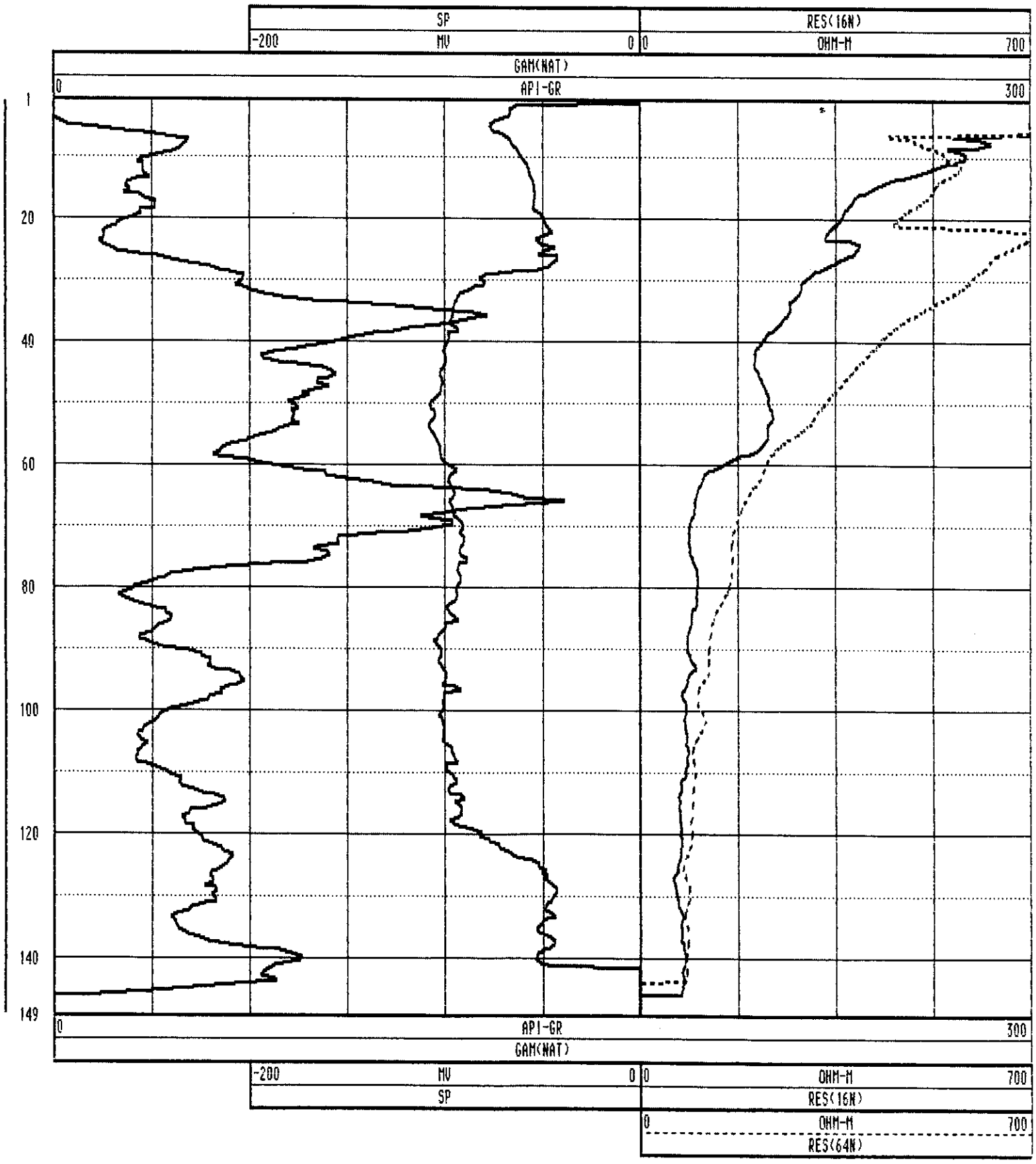


LSN ELECTRIC GAMMA

MW-4 0043-0030

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: MW-4 0043-0030			CALIPER	
LOCATION/FIELD	: INDIANTOWN				
COUNTY	: MARTIN				
STATE	: FL				
SECTION	: 35	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 07/27/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150 N	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 149.50	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 1.50	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	:	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: 9040A
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 0
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 7
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG PERFORMED ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI

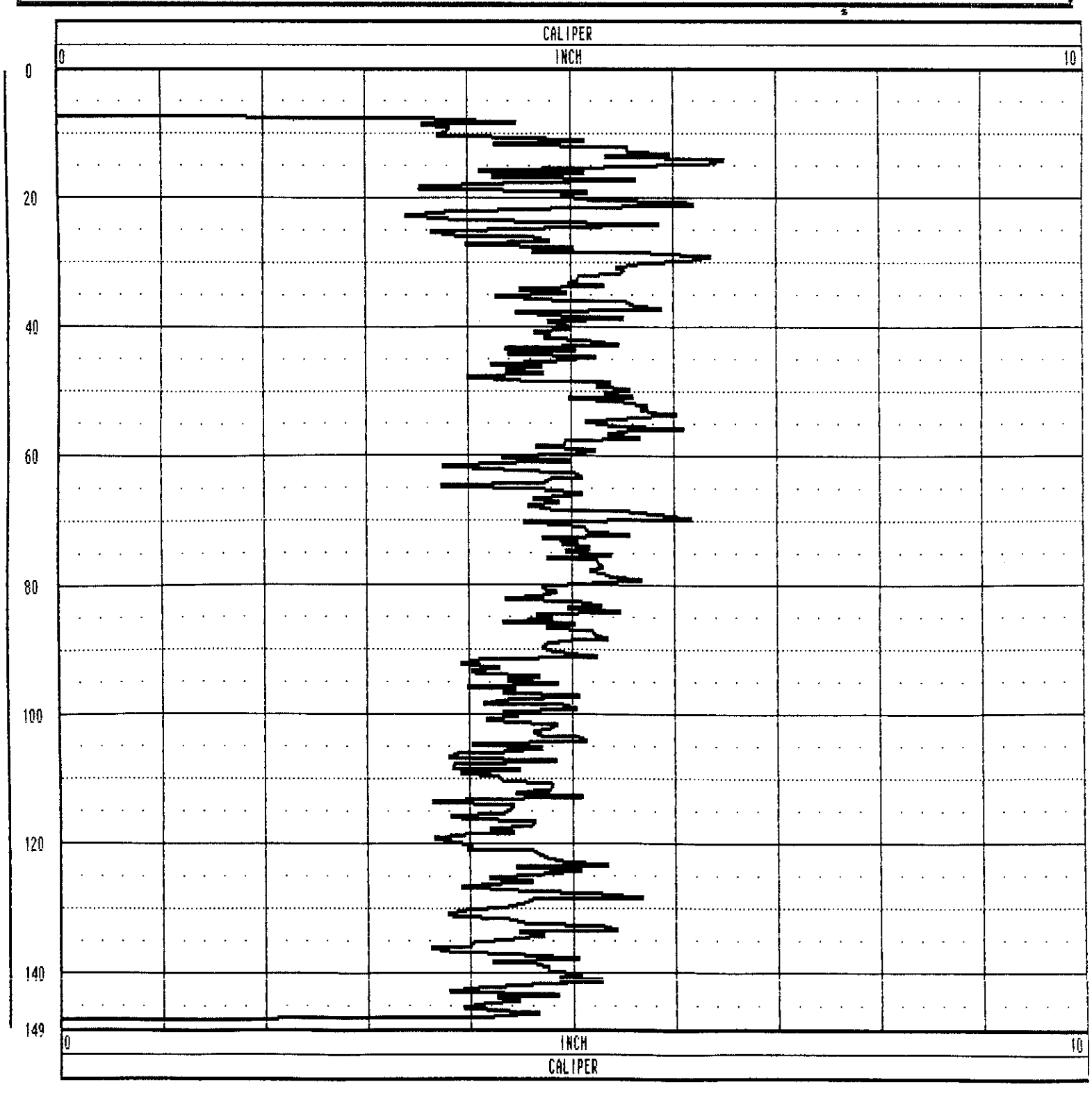


CALIPER

POW-1 0043-0031

COMPANY	: BECHTEL SEF30619.A0			OTHER SERVICES:	
WELL	: POW-1 0043-0031			GAMMA	
LOCATION/FIELD	: INDIANTOWN			LSN ELEC	
COUNTY	: MARTIN			CALIPER	
STATE	: FL				
SECTION	: 34	TOWNSHIP	: 39S	RANGE	: 38E
DATE	: 07/31/90	PERMANENT DATUM	: GL	ELEVATIONS	
DEPTH DRILLER	: 150	ELEV. PERM. DATUM	: 32'	KB	:
LOG BOTTOM	: 149.00	LOG MEASURED FROM	: GL	DF	:
LOG TOP	: 1.00	DRL MEASURED FROM	: GL	GL	: 32'
CASING DRILLER	: NA	LOGGING UNIT	: 1		
CASING TYPE	:	FIELD OFFICE	: DFB		
CASING THICKNESS	: NA	RECORDED BY	: C. DIGIACOMO		
BIT SIZE	: 4.5	BOREHOLE FLUID	: MUD	FILE	: ORIGINAL
MAGNETIC DECL.	: NA	RM	: NA	TYPE	: CCAL3
MATRIX DENSITY	: NA	RM TEMPERATURE	: NA	LOG	: 2
FLUID DENSITY	: NA	MATRIX DELTA T	: NA	PLOT	: REPORT 6
NEUTRON MATRIX	: SANDSTONE	FLUID DELTA T	: NA	THRESH	: 30000

REMARKS :
LOG ON A STATIC WELL
OBSERVER: PETER KWIATKOWSKI

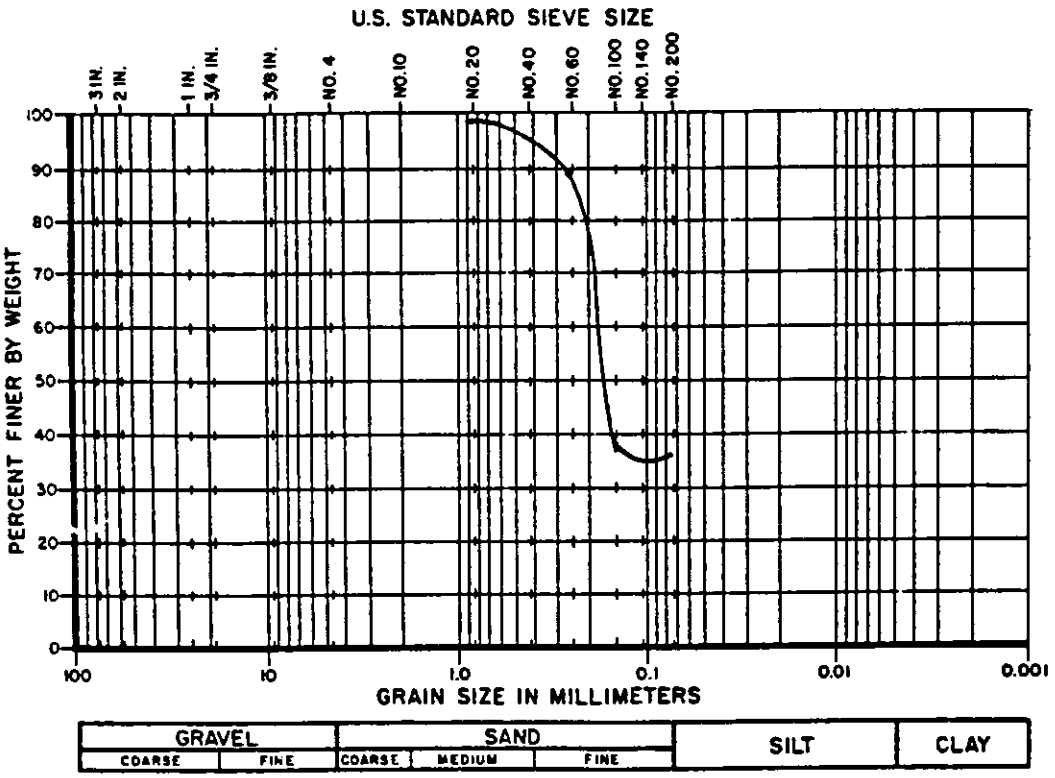


UNDISTURBED SAMPLE ANALYSIS

SHELBY TUBE TEST RESULTS

Boring No.	Depth (ft)	Sample Description	-200 %	M.C. %	LL %	PL %	PI	D.D. (pcf)	k (cm/sec)
MW-2	26.0 - 28.0	Dark gray fine sand with silt	12.0	22.3	-	-	-	97.4	1.9×10^{-6}
MW-3	71.0 - 73.5	Gray fine sand with silt and shell	14.4	21.1	-	-	-	101.8	4.5×10^{-6}
MW-4	36.0 - 38.5	Dark gray fine sand	3.0	21.1	-	-	-	105.5	1.0×10^{-3}
MW-4	96.0 - 98.5	Gray fine sand with silt and shell	10.6	23.2	-	-	-	105.9	8.0×10^{-6}
MW-4	134.0- 136.0	Greenish gray silty fine sand with shell and cemented sand	19.4	28.3	19.7	19.2	1	79.4	9.6×10^{-5}
POW-1	26.0 - 29.0	Dark gray fine sand with traces of clayey fine sand	8.8	24.2	-	-	-	95.2	6.8×10^{-4}
POW-1	71.0 - 74.0	Gray clay with traces of shell	93.7	41.1	74.7	23.3	51	82.1	1.7×10^{-8}

SIEVE ANALYSIS



TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-1	8	10.5-12.0 ft.		Brown fine sand	SP

GRAIN SIZE DISTRIBUTION

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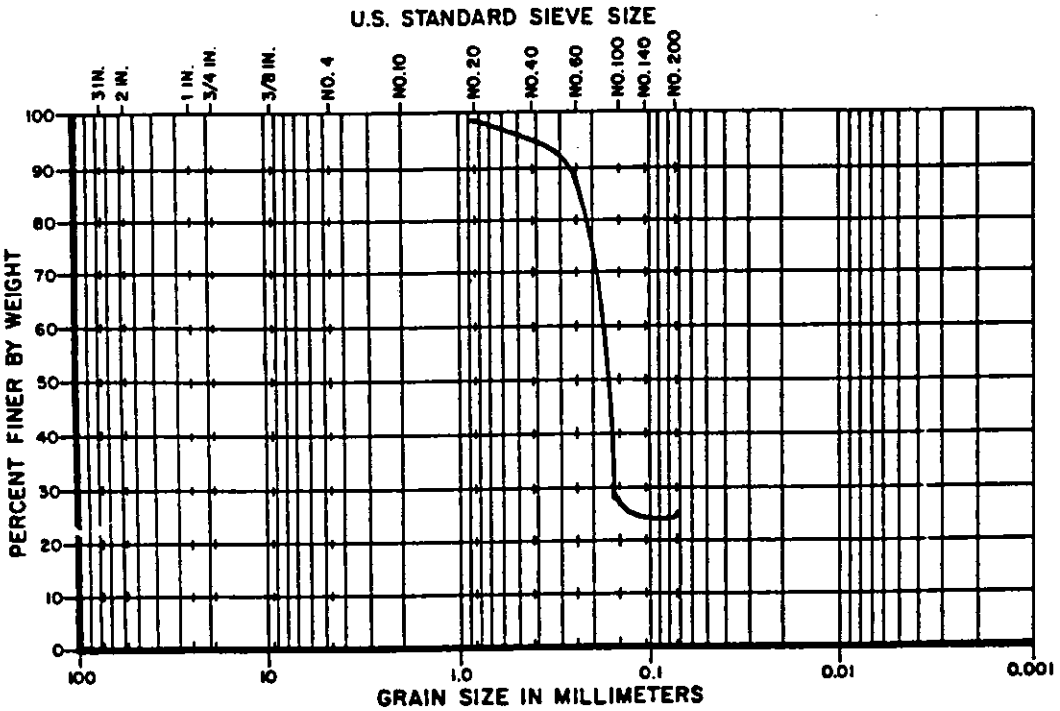

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-1	11	19.0-20.5 ft.		Brown silty fine sand	SM

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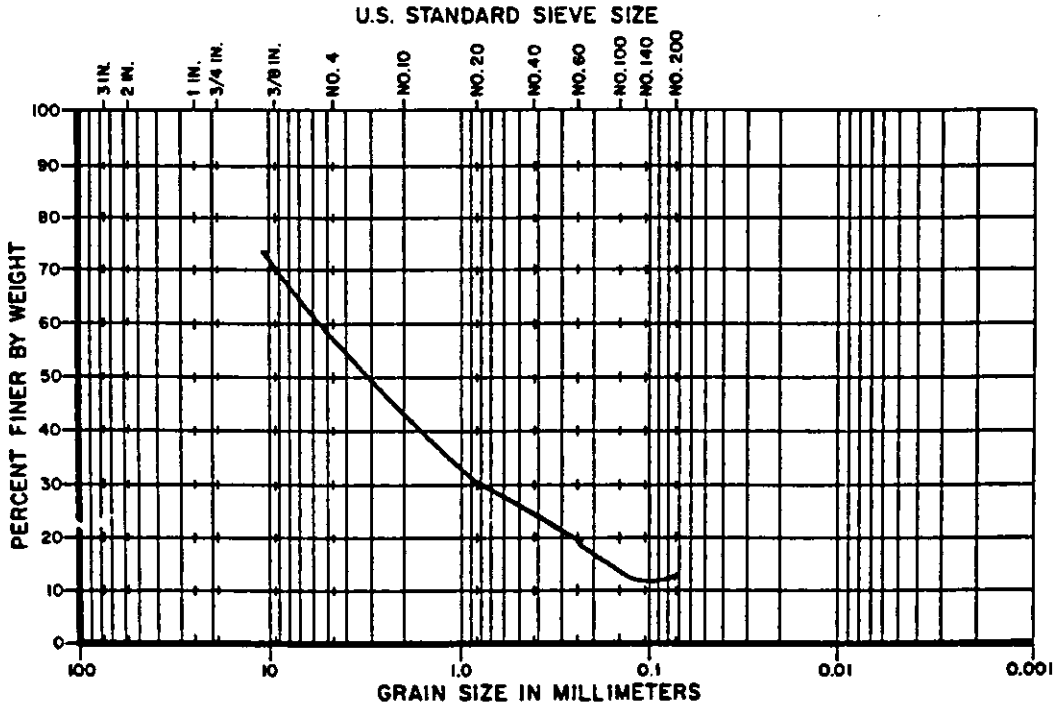

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-1	15	39.0-40.5 ft.		Gray fine sand with silt, shell, and cemented sand and phosphate	SP-SM

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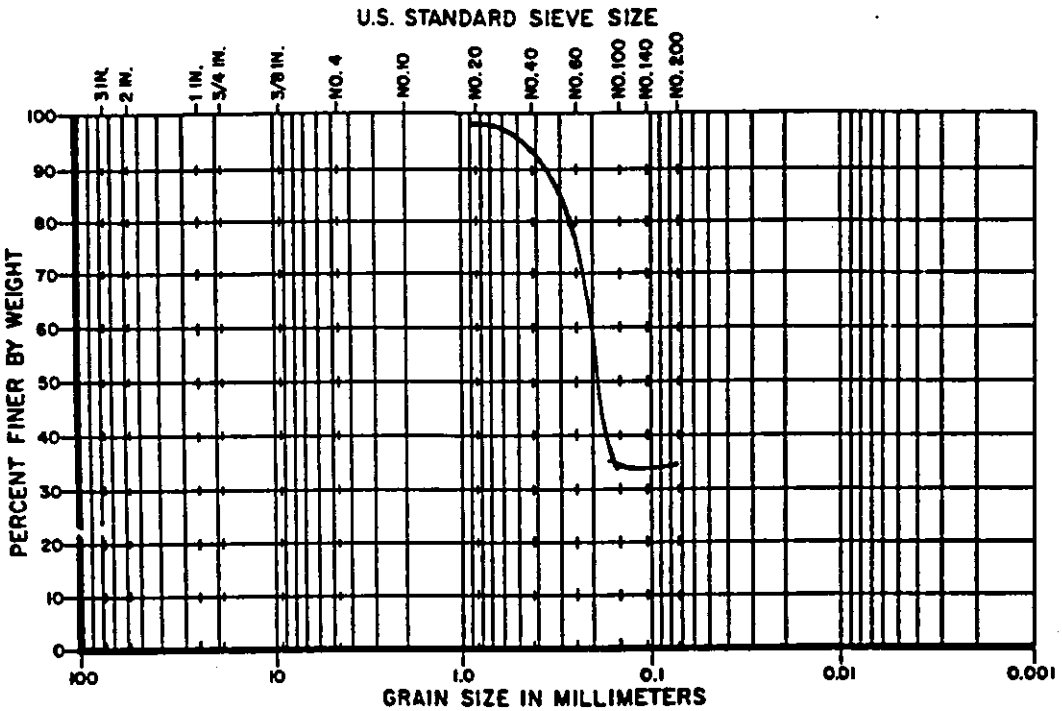

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-1	17	49.0-50.5 ft.		Grayish brown silty fine sand with shell and phosphate	SM

GRAIN SIZE DISTRIBUTION

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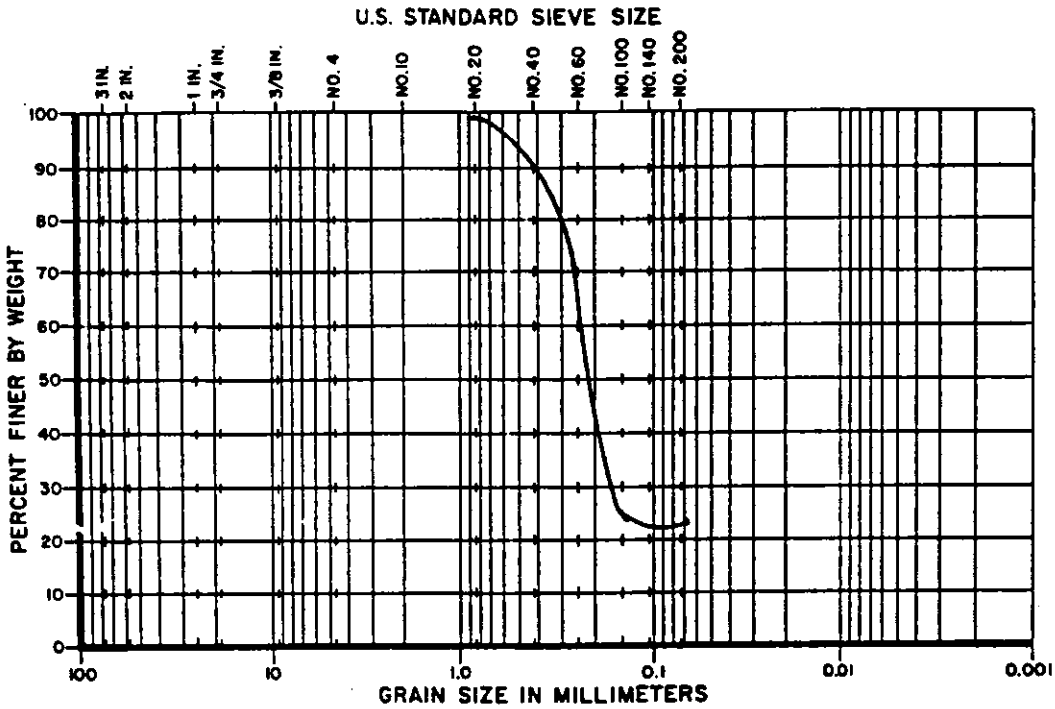

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-1	22	74.0-75.5 ft.		Gray silty fine sand with shell	SM

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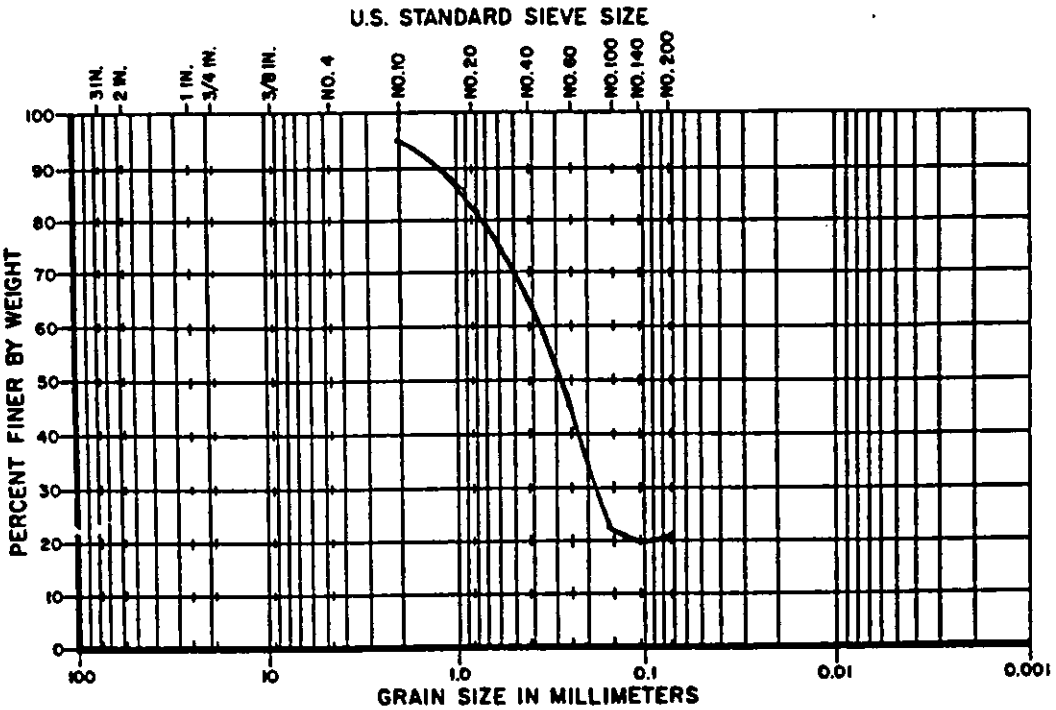

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-1	23	79.0-80.5 ft.		Greenish brown silty fine sand with shell	SM

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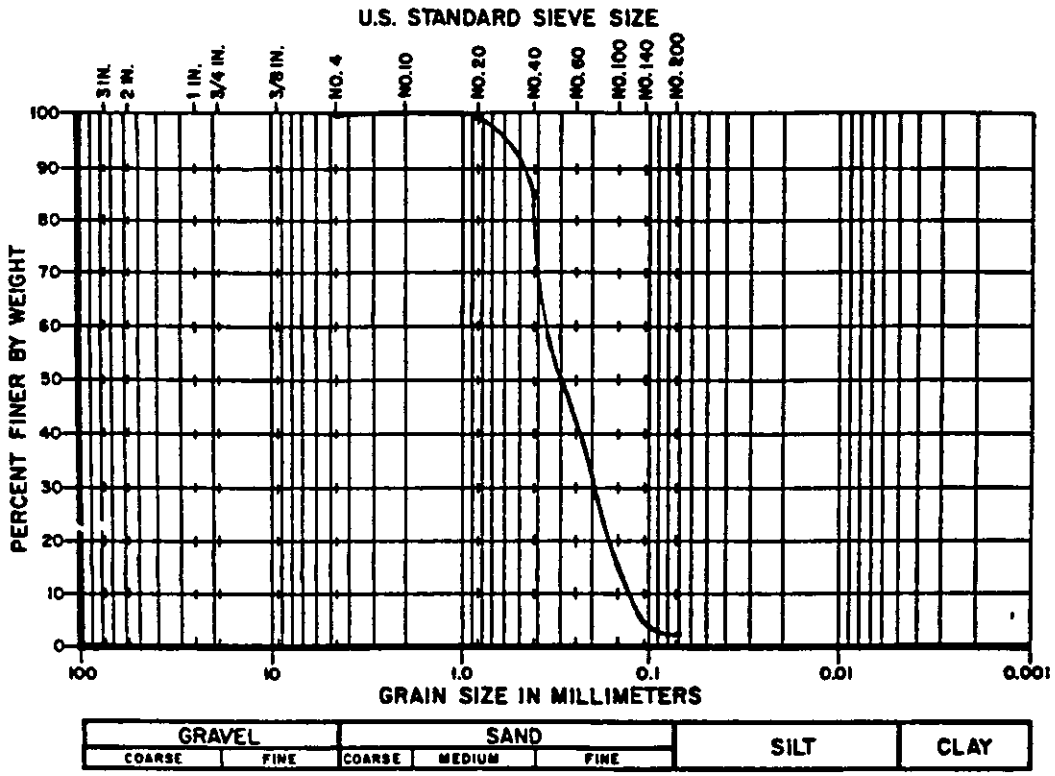

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	8	9.5-10.5 ft.		Dark orangish brown fine sand	SP

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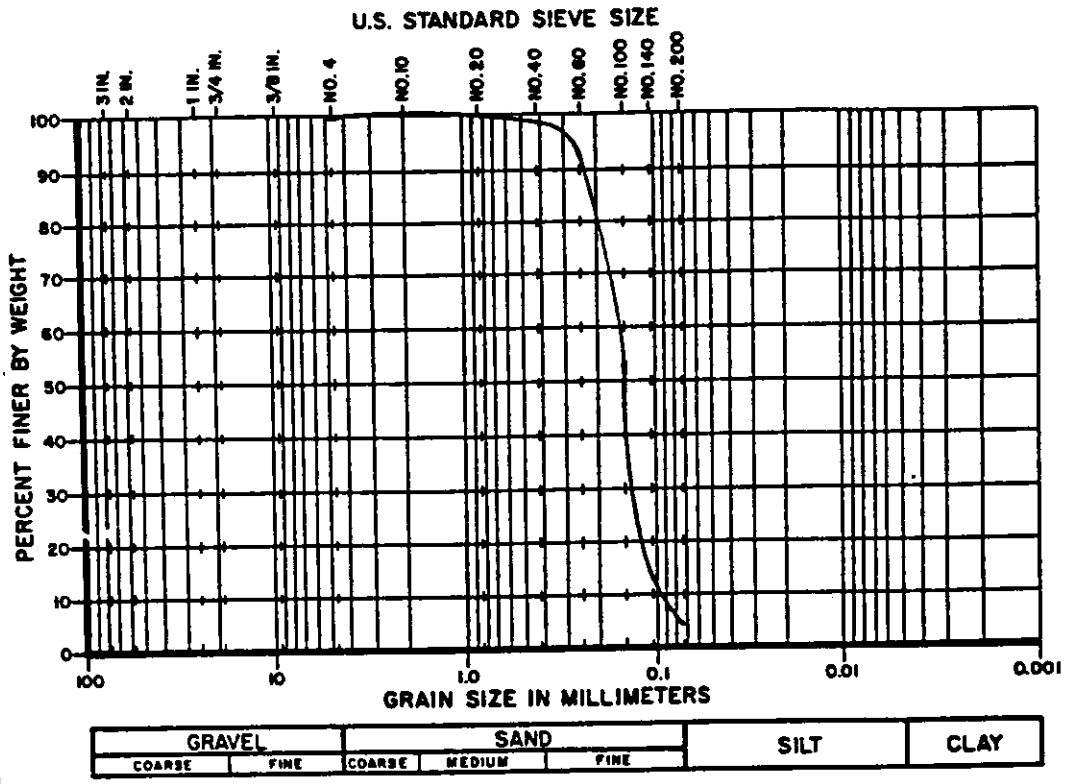

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	12	19.0-20.5 ft.		Brown fine sand	SP

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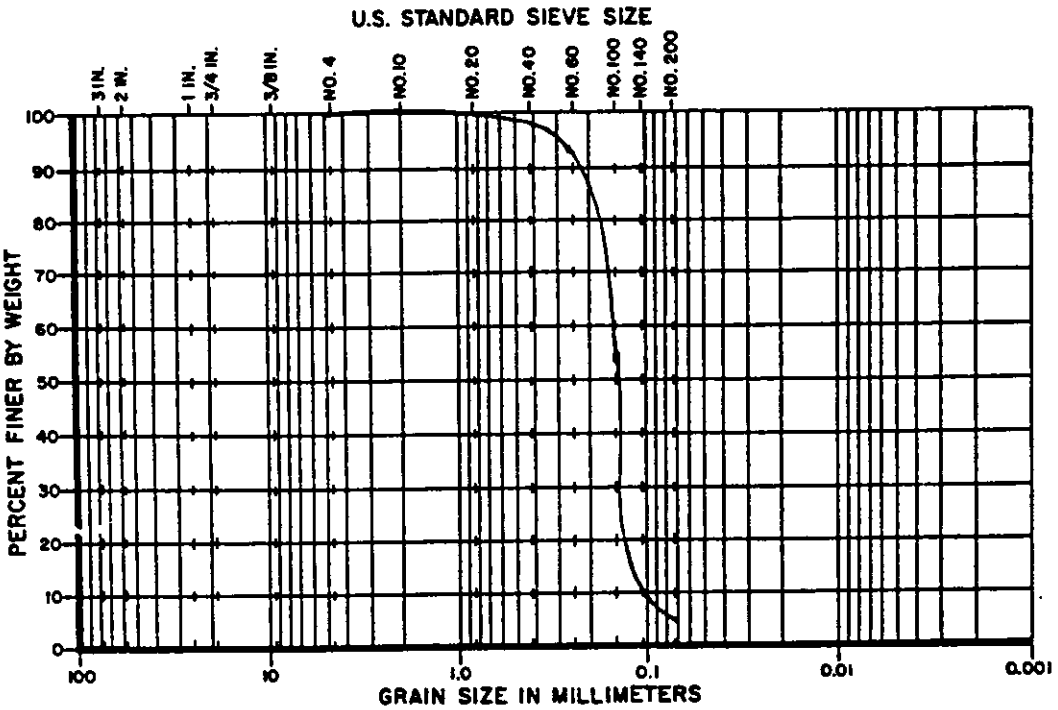

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	16	39.0-40.5 ft.		Gray fine sand with phosphate	SP

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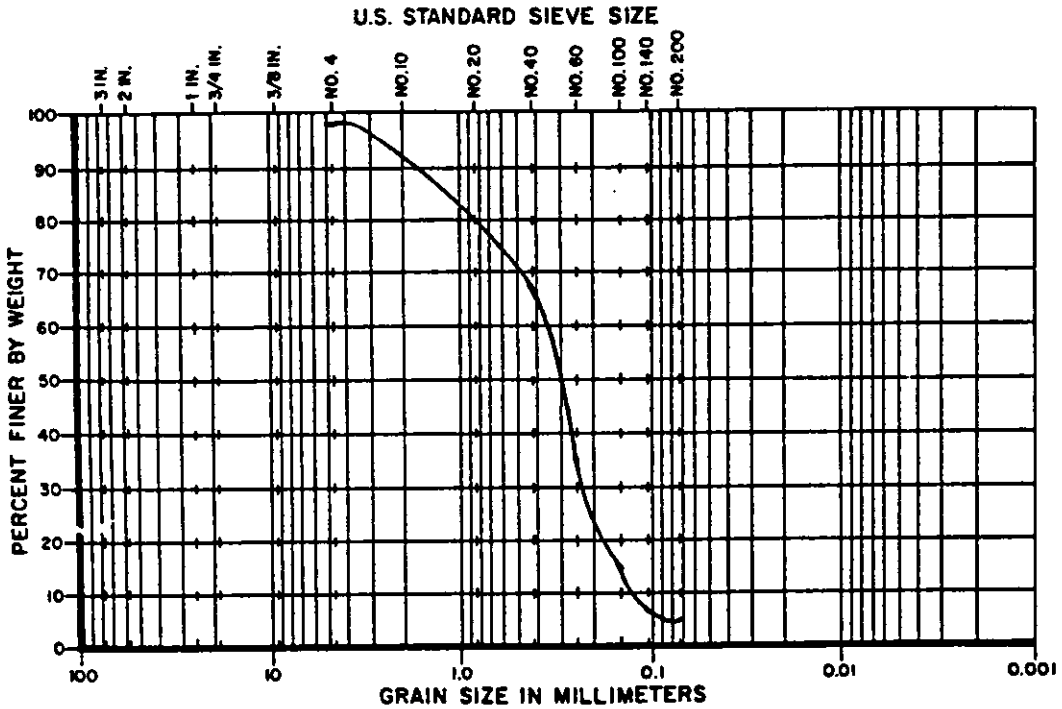

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	21	64.0-65.5 ft.		Grayish brown fine sand with silt, shell, and phosphate	SP-SM

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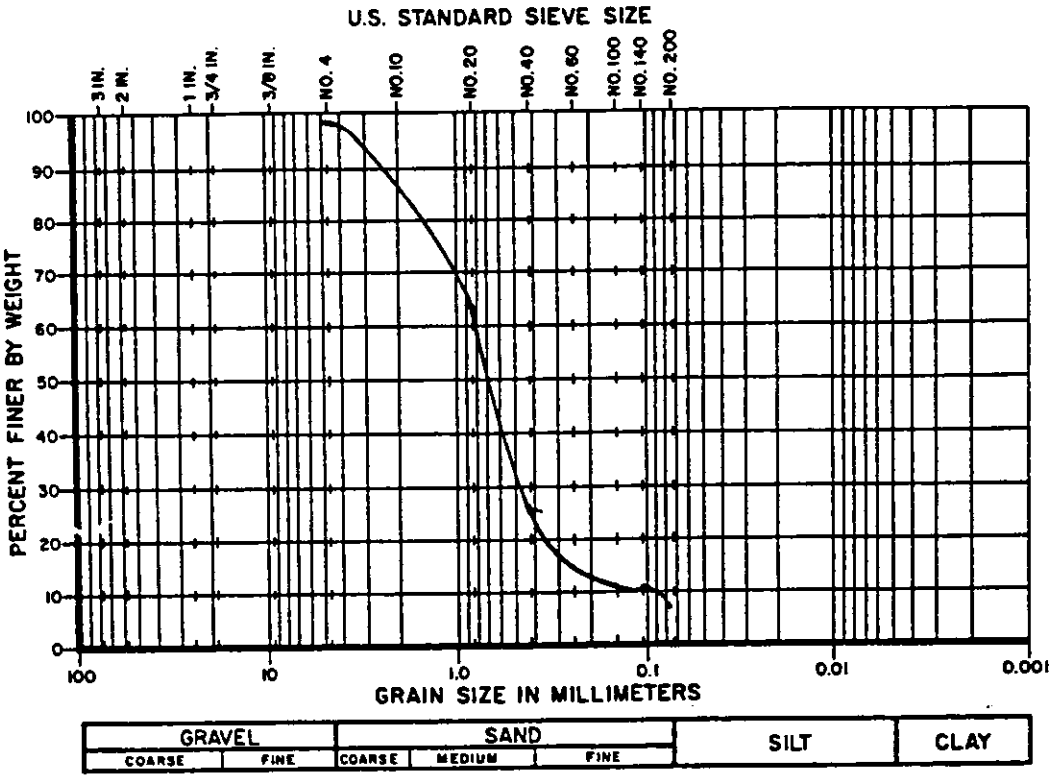

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	23	74.0-75.5		Grayish brown fine sand with silt, shell, and phosphate	SP-SM

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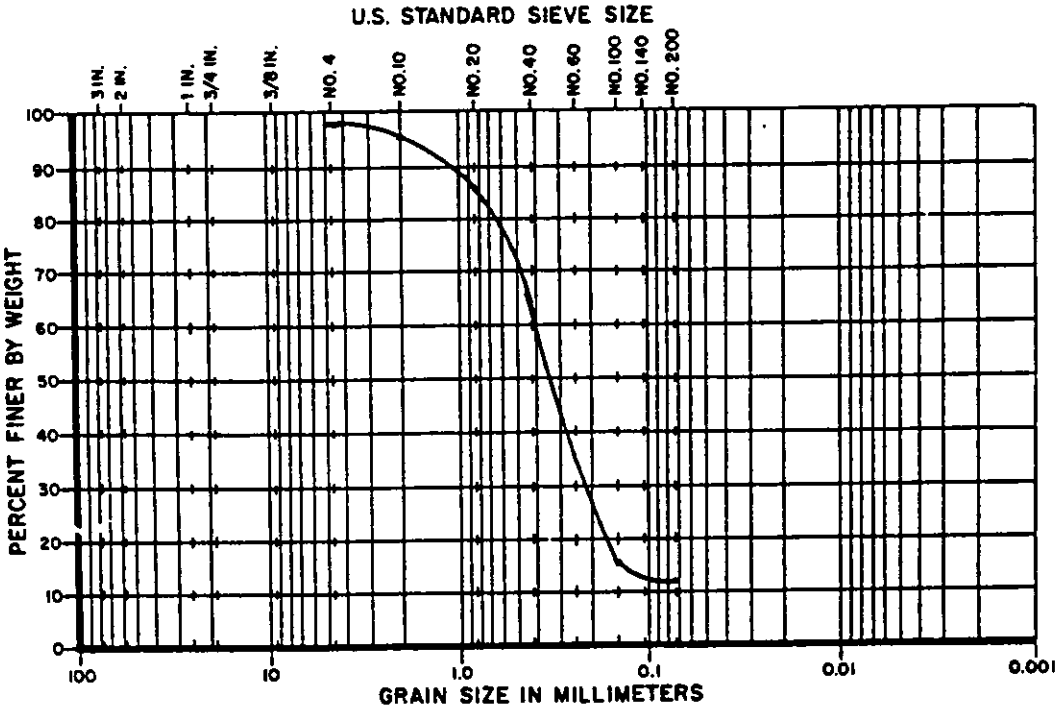

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	26	89.0-90.5 ft.		Grayish brown fine sand with silt, shell, cemented sand and phosphate	SP-SM

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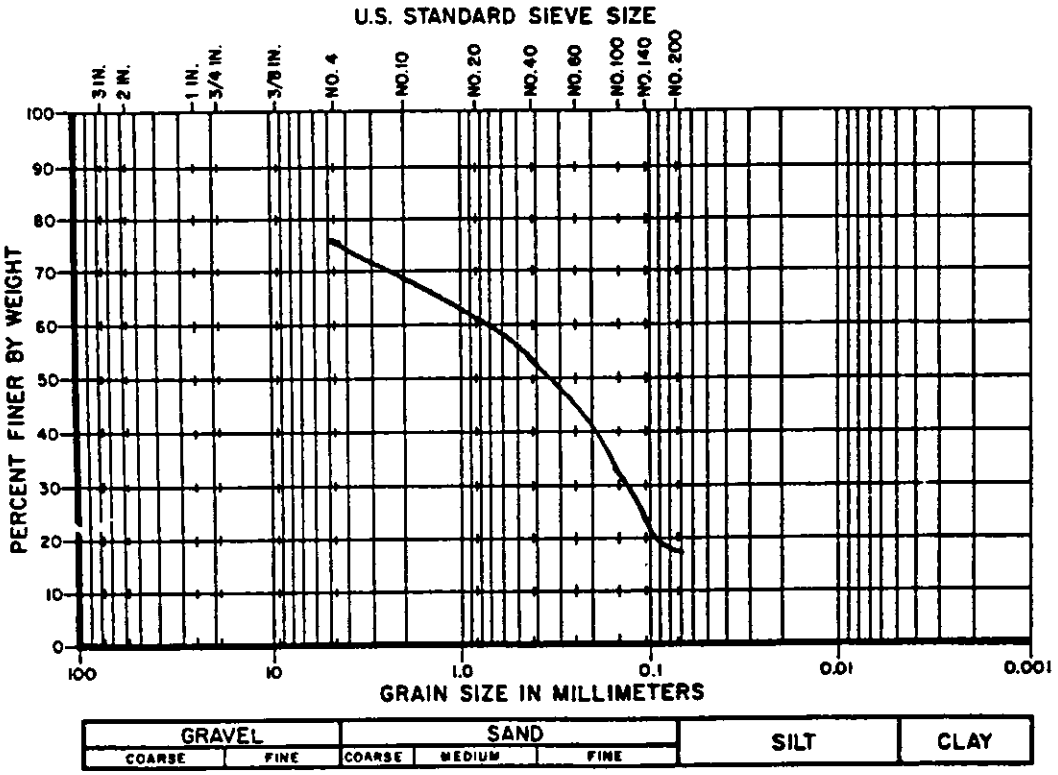

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	29	104.0-105.5ft		Gray silty fine sand with shell and phosphate	SP-SM

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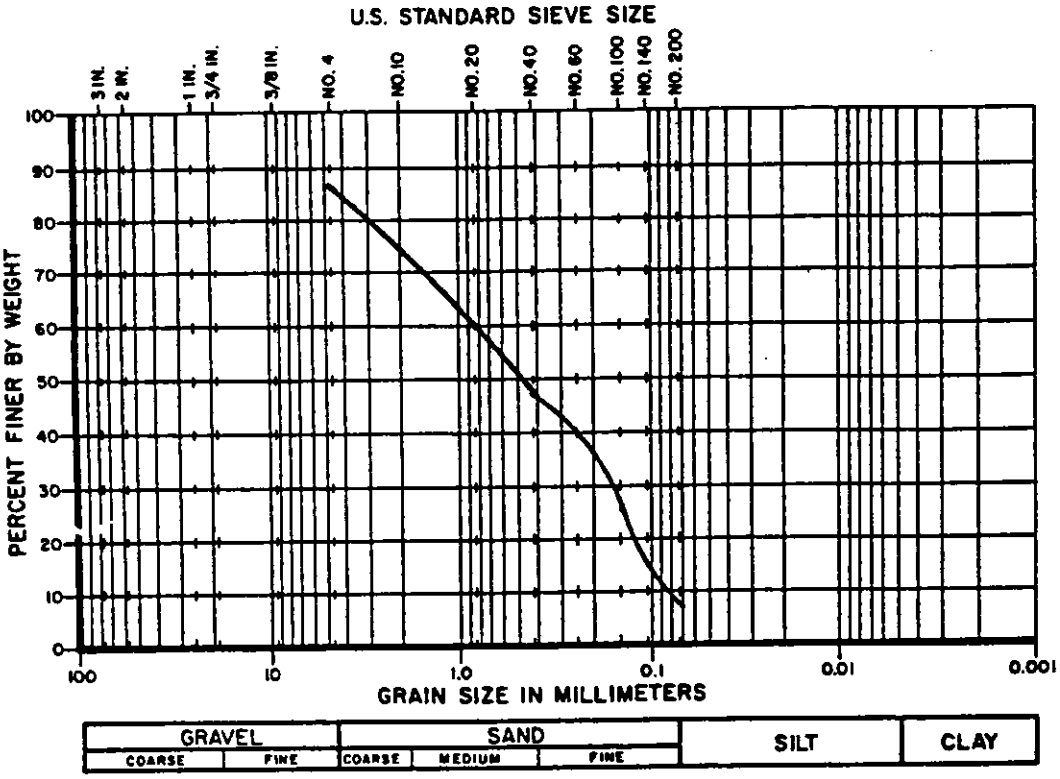

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	31	114.0-115.5ft		Greenish gray fine sand with silt, shell, and phosphate	SP-SM

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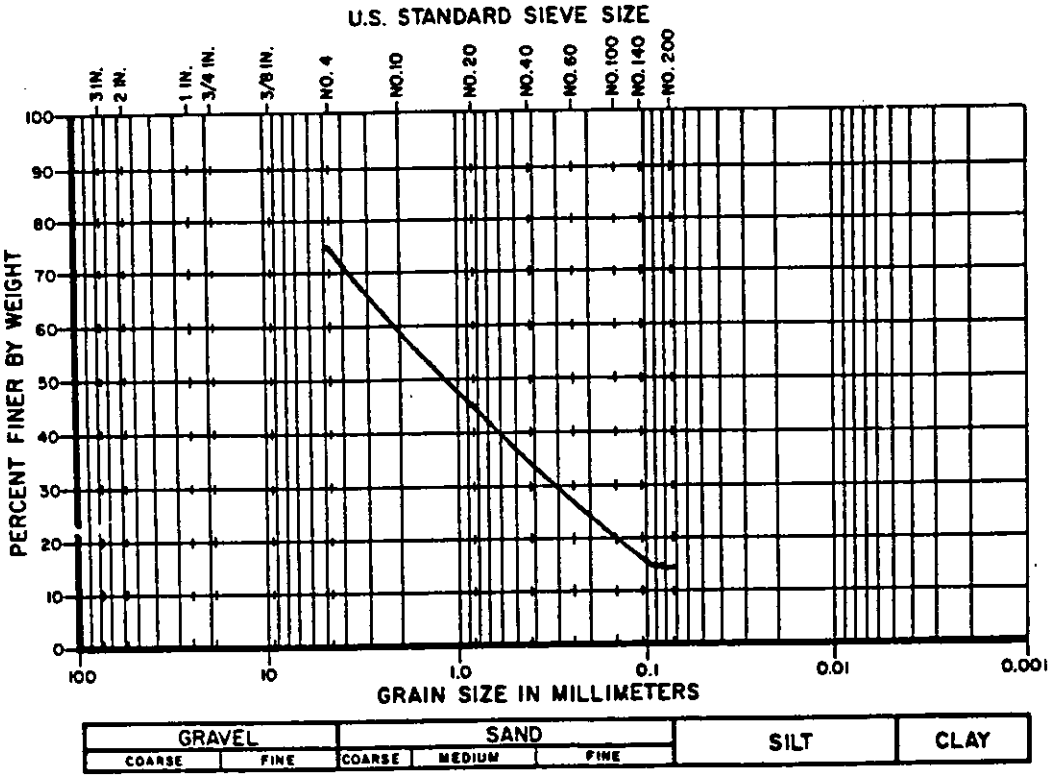

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-2	36	139.0-140.5		Grayish brown silty fine sand with cemented sand, shell and phosphate	SP-SM

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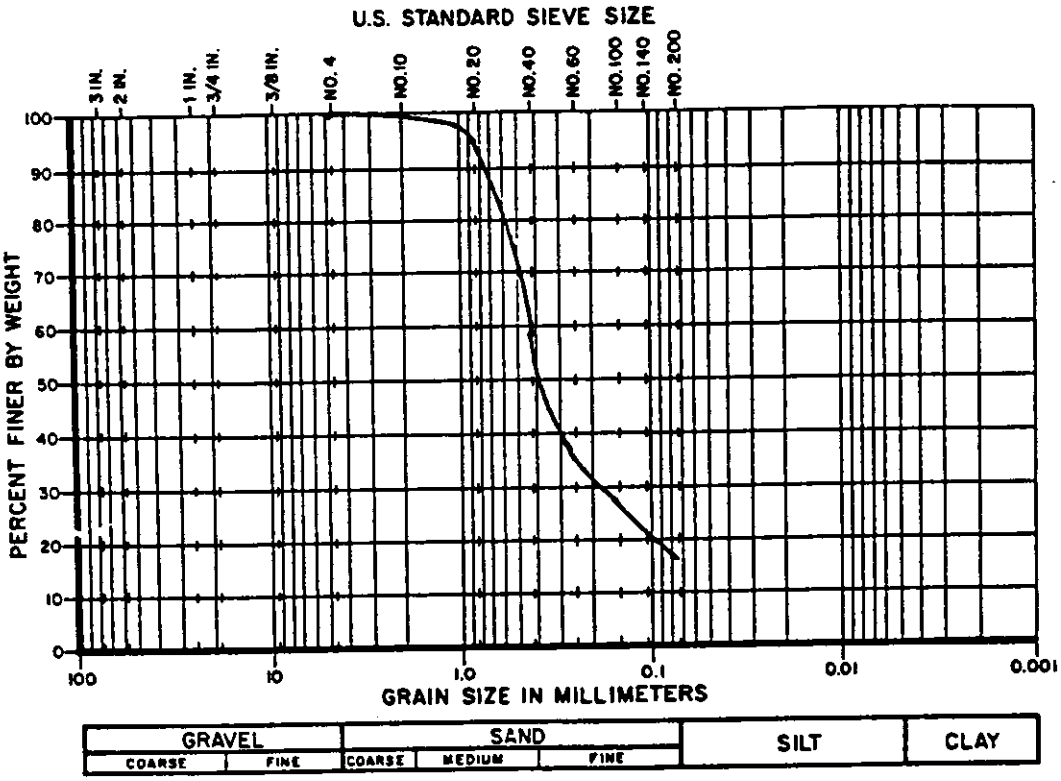

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	7	10.0-12.0 ft.		Brown silty fine sand	SM

GRAIN SIZE DISTRIBUTION

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INDIANTOWN, FLORIDA

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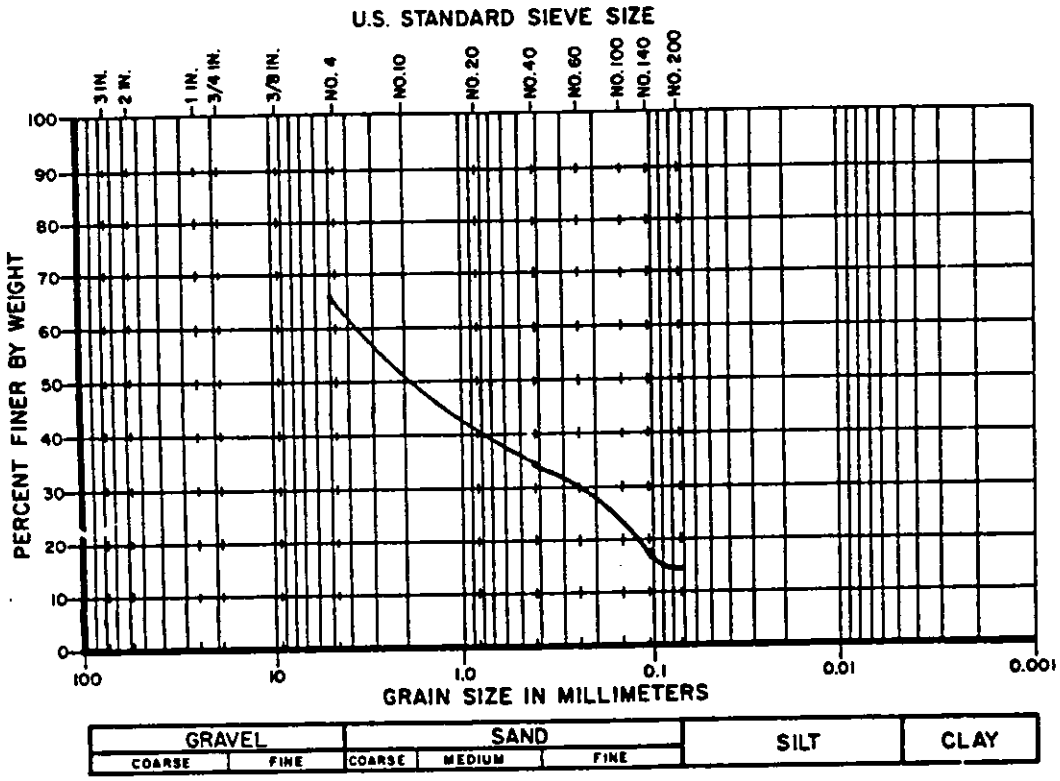

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	11	24.0-26.0 ft.		Gray silty broken shell with cemented sand and shell	SM

GRAIN SIZE DISTRIBUTION

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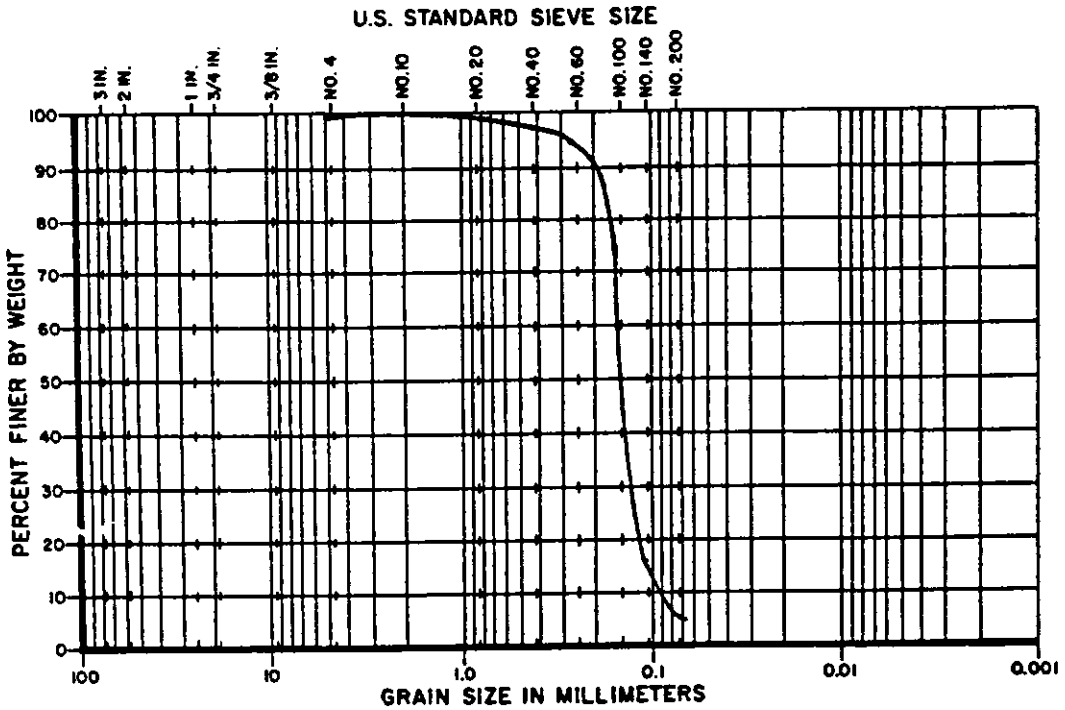

GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	13	34.0-36.0 ft.		Gray fine sand with silt	SP-SM

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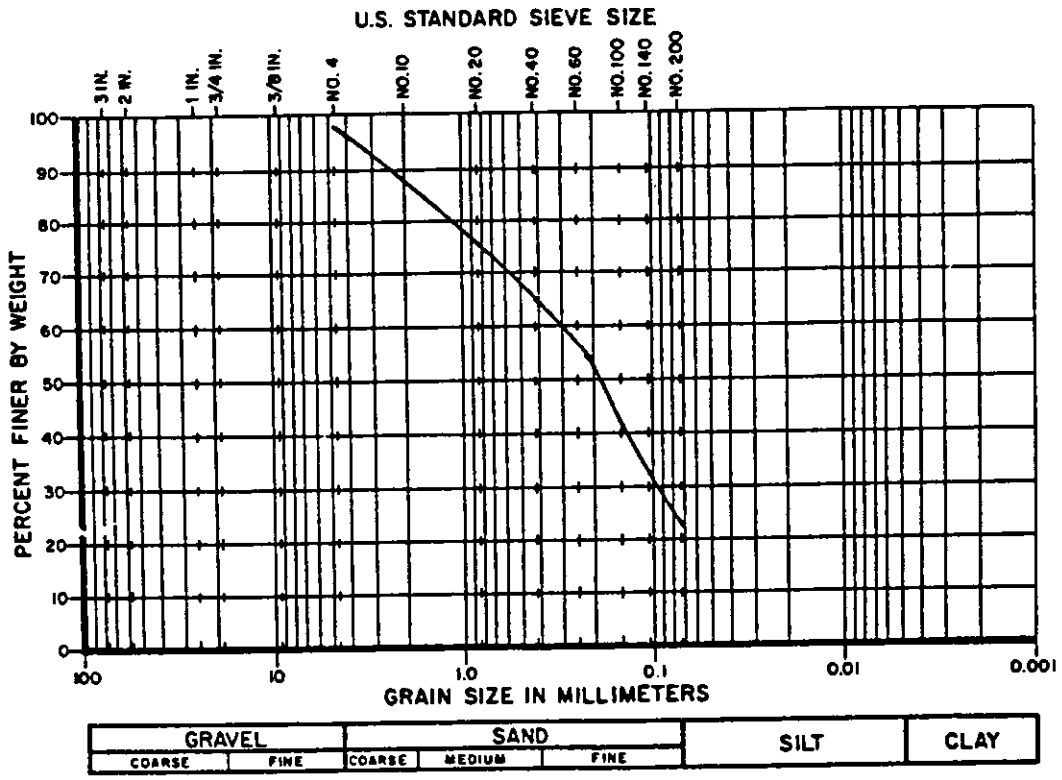

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	20	69.0-71.0		Gray silty fine sand with shell	SM

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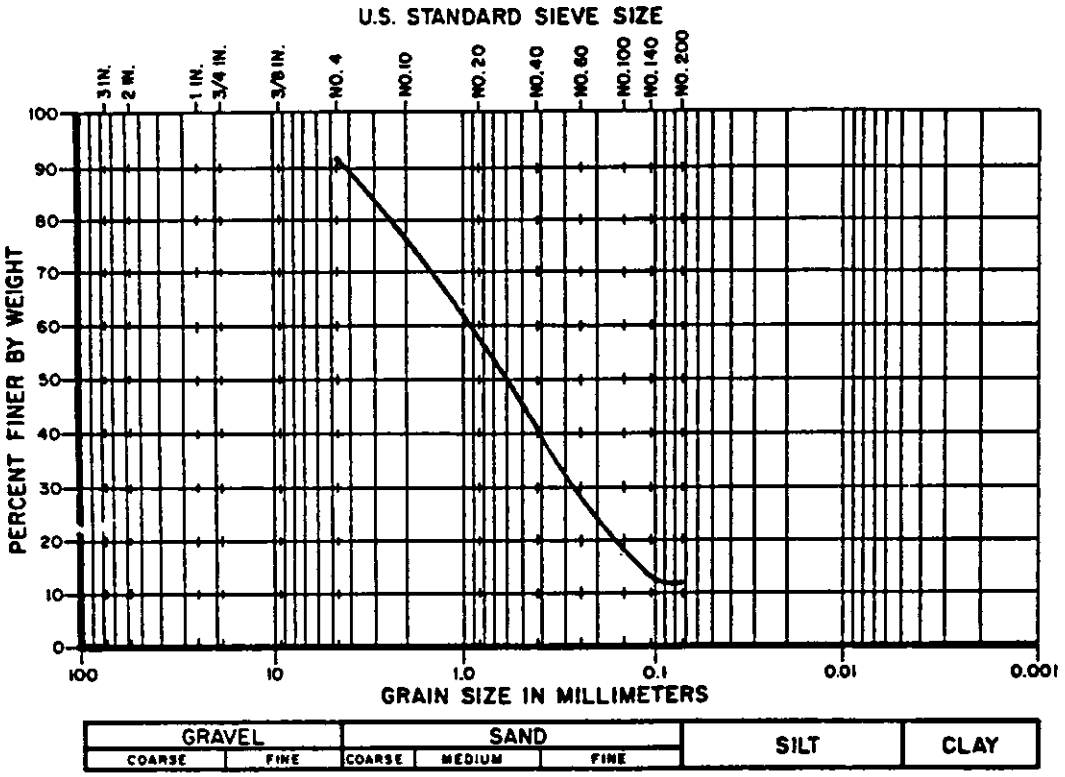

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	23	84.0-86.0 ft.		Gray fine sand with silt and shell fragments	SP-SM

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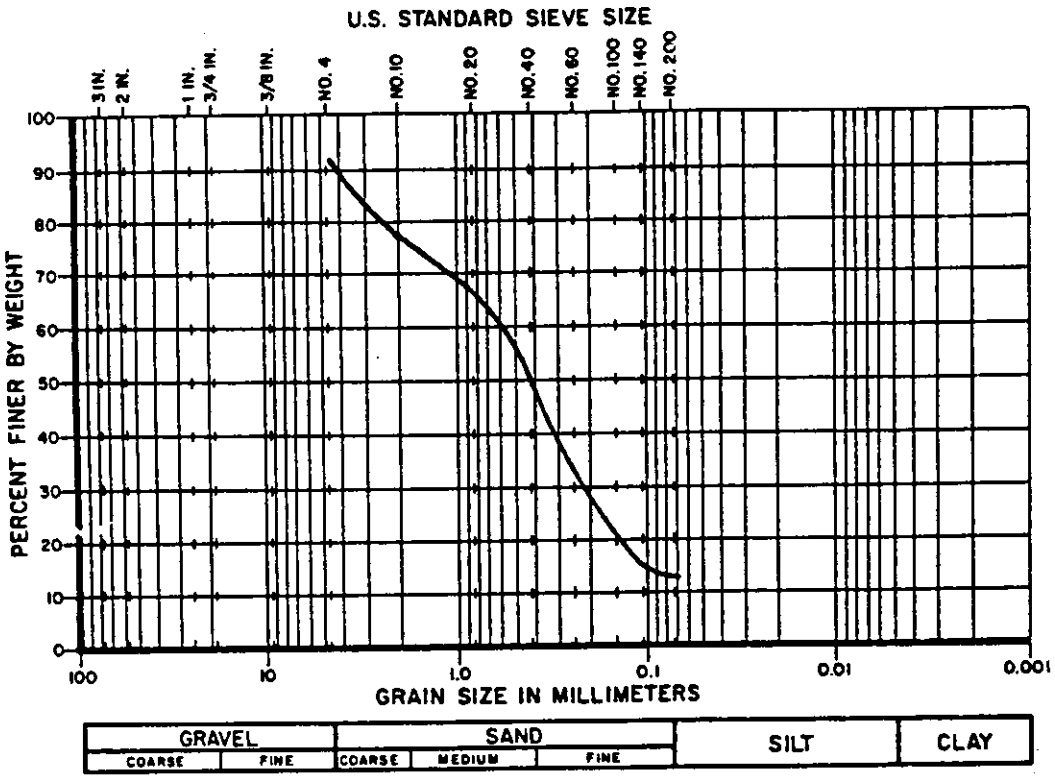

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	26	99.0-101.0 ft.		Gray fine sand with silt and shell fragments	SP-SM

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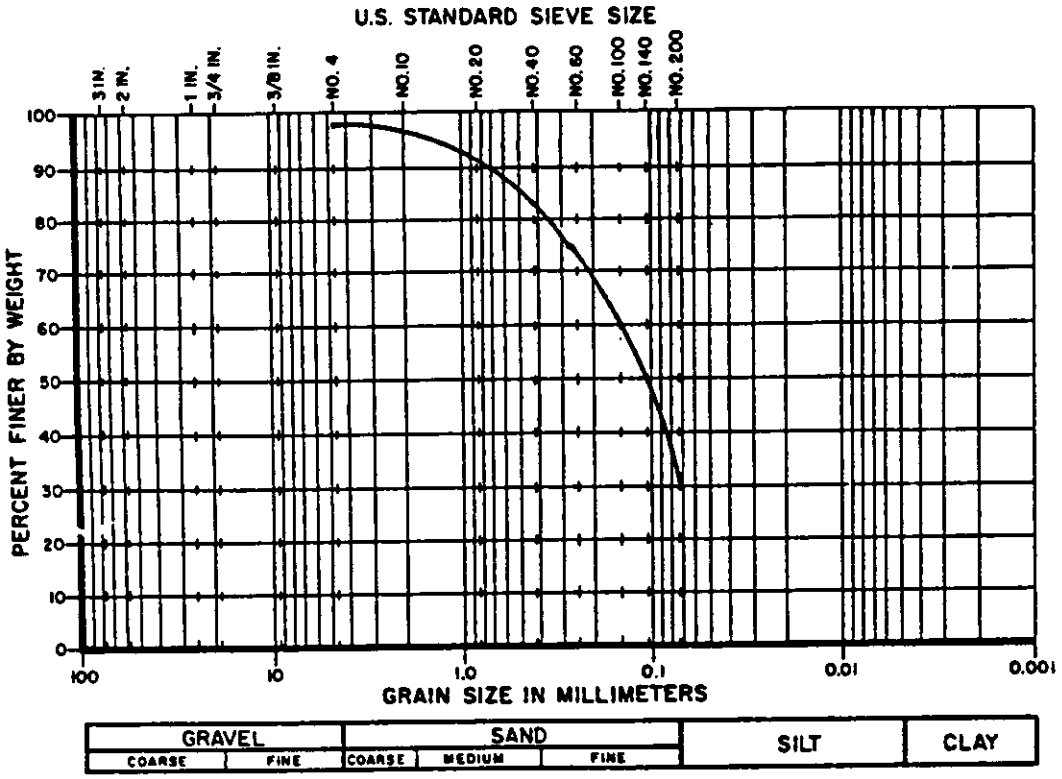

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	28	109.0-111.0 ft.		Greenish gray silty fine sand with shell	SM

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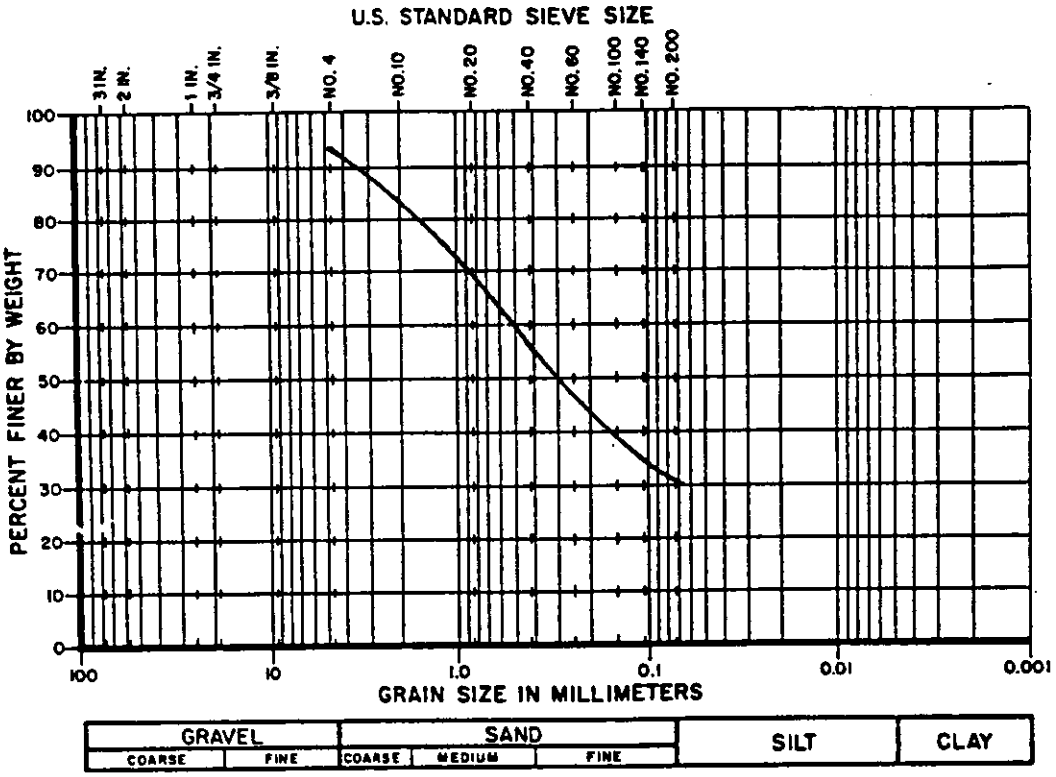

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	30	119.0-121.0 ft.		Greenish gray silty fine sand with shell fragments	SM

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INDIANTOWN COGENERATION PLANT

INDIANTOWN, FLORIDA

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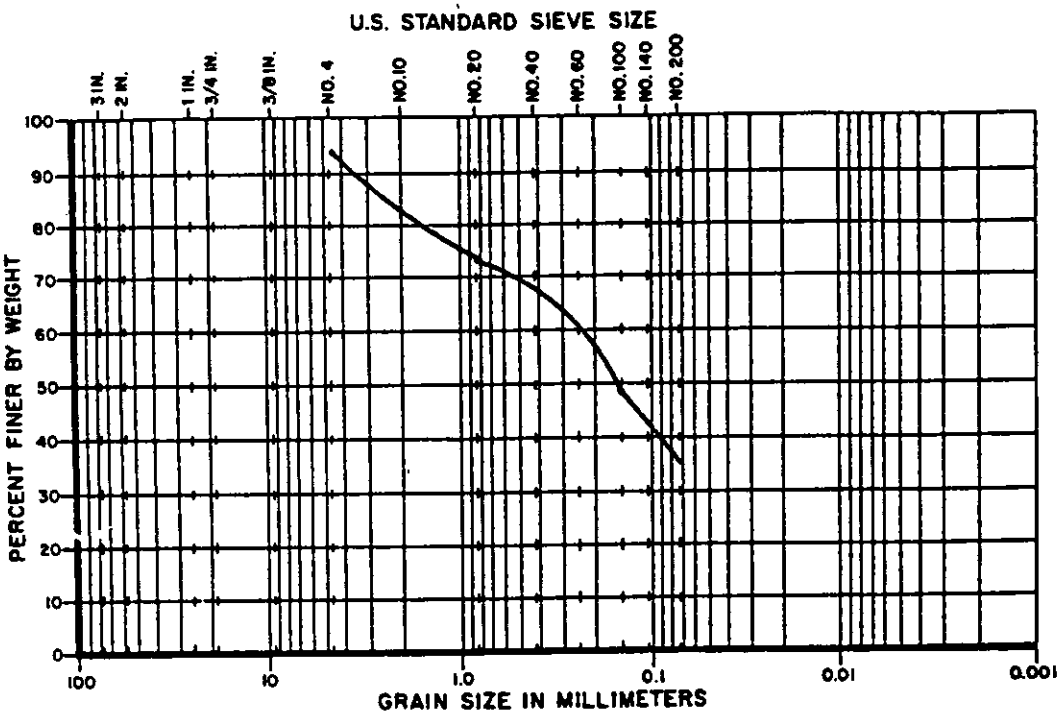

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-3	33	134.0-136.0 ft.		Greenish gray silty fine sand with shell and cemented sand	SM

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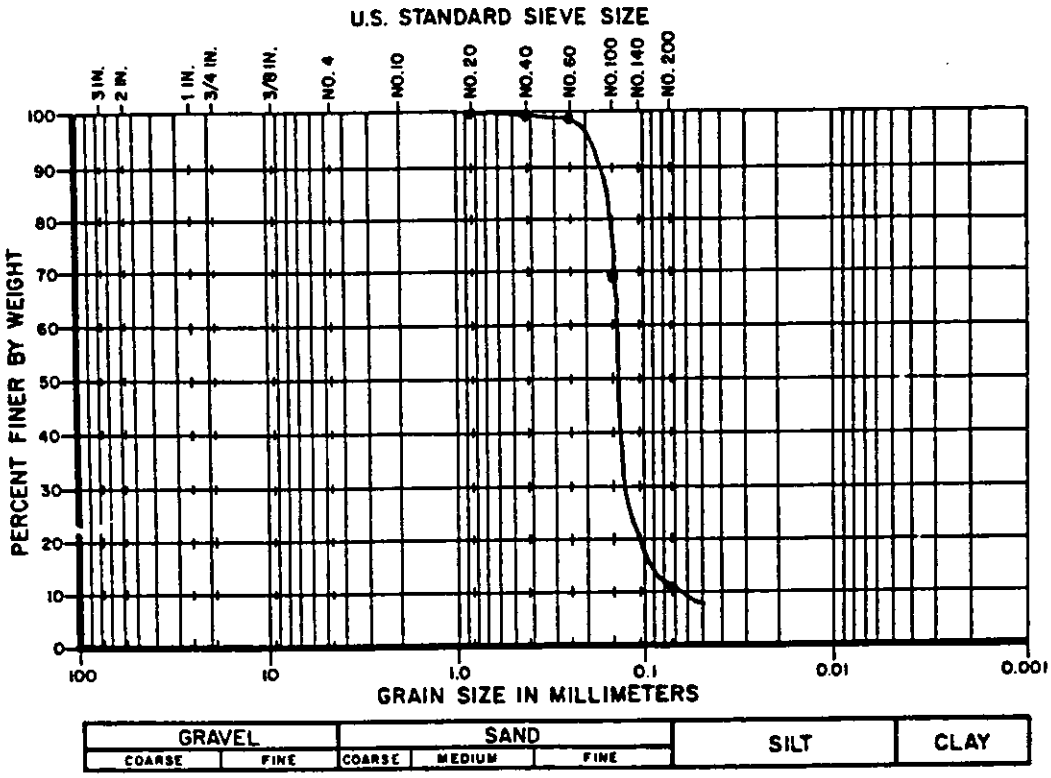

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-4	12	29.0-31.0 ft.		Grayish brown fine sand with silt	SP-SM

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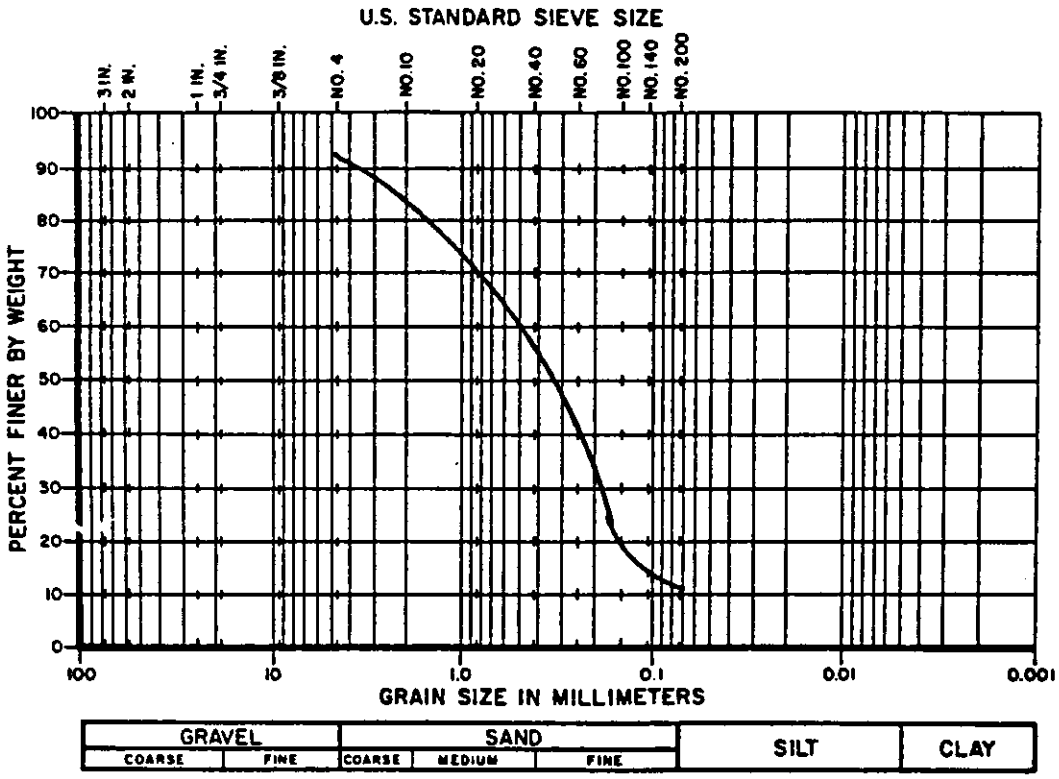

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-4	25	94.0-96.0 ft.		Gray fine sand with silt, shell, and cemented sand	SP-SM

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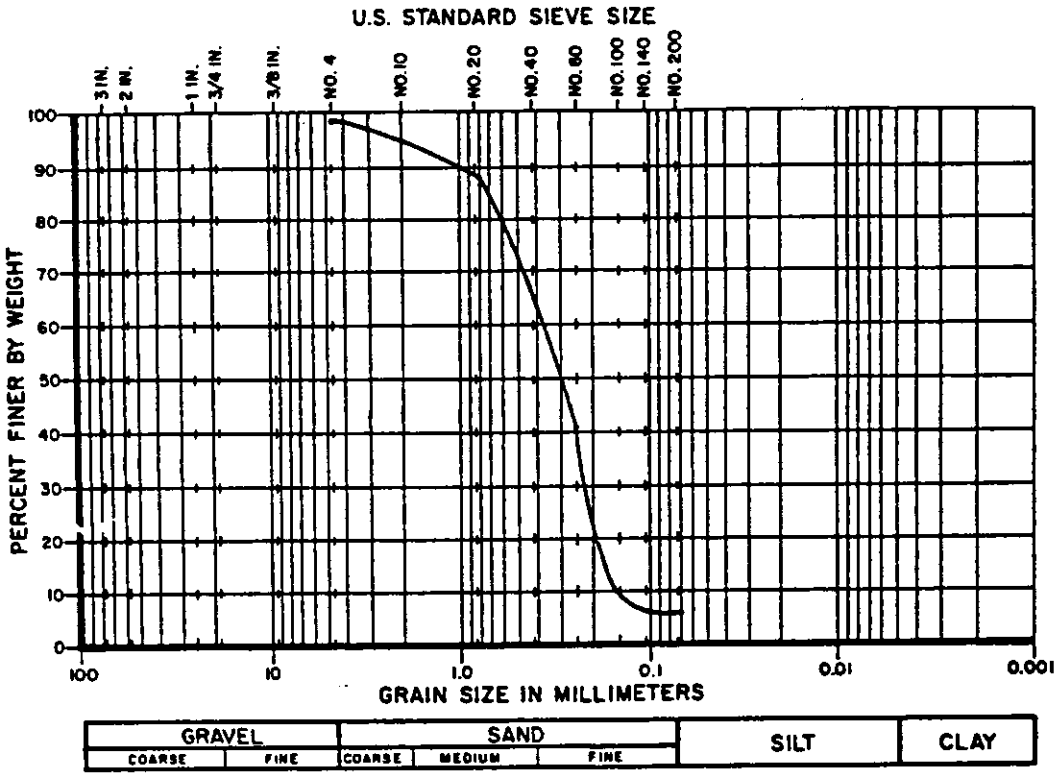

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-4	27	104.0-106.0 ft		Gray fine sand with silt, shell, and	
				cemented sand	SP-SM

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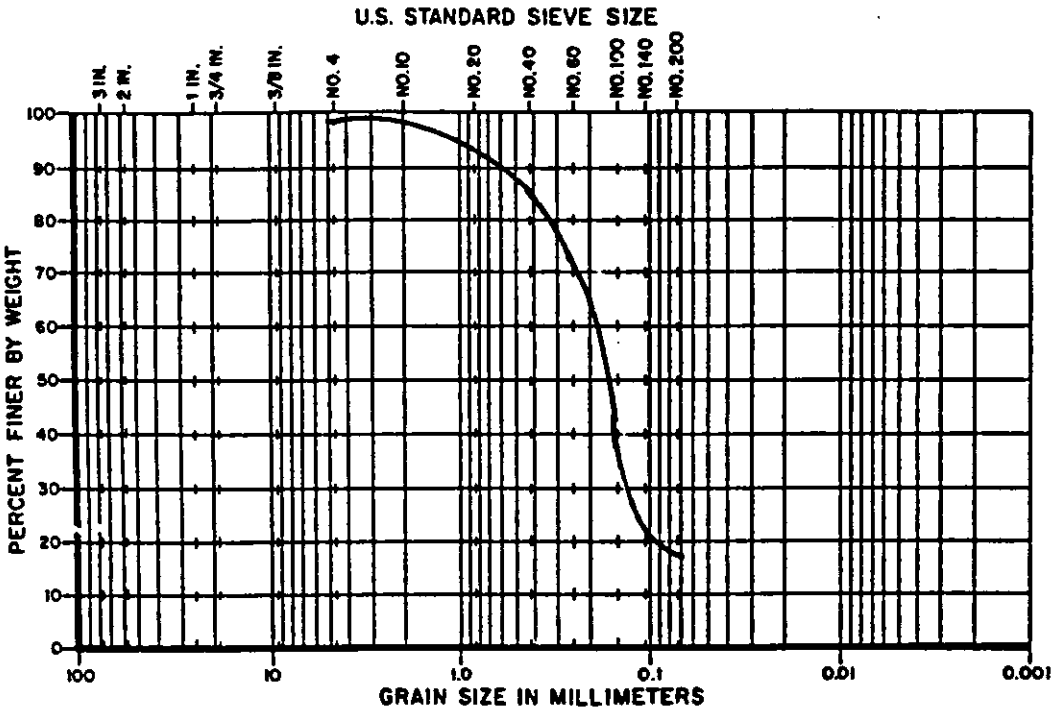

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-4	29	114.0-116.0		Gray silty fine sand with shell	SM

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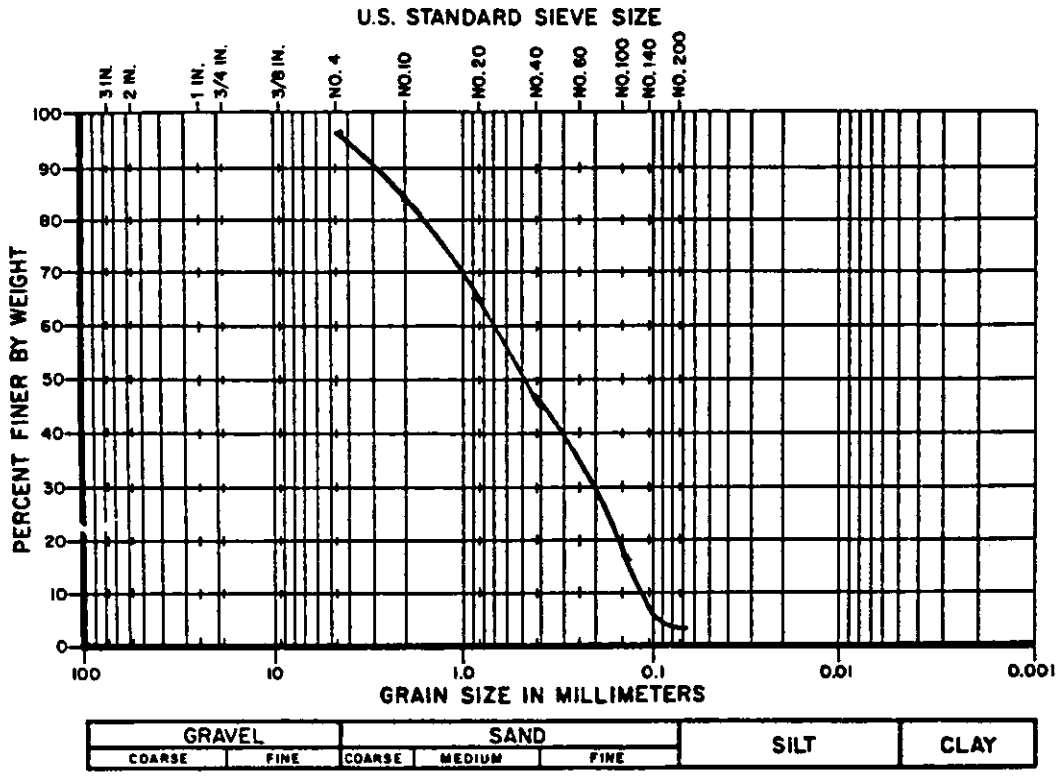

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-4	32	129.0-131.0 ft.		Greenish gray silty fine sand with cemented sand	SM

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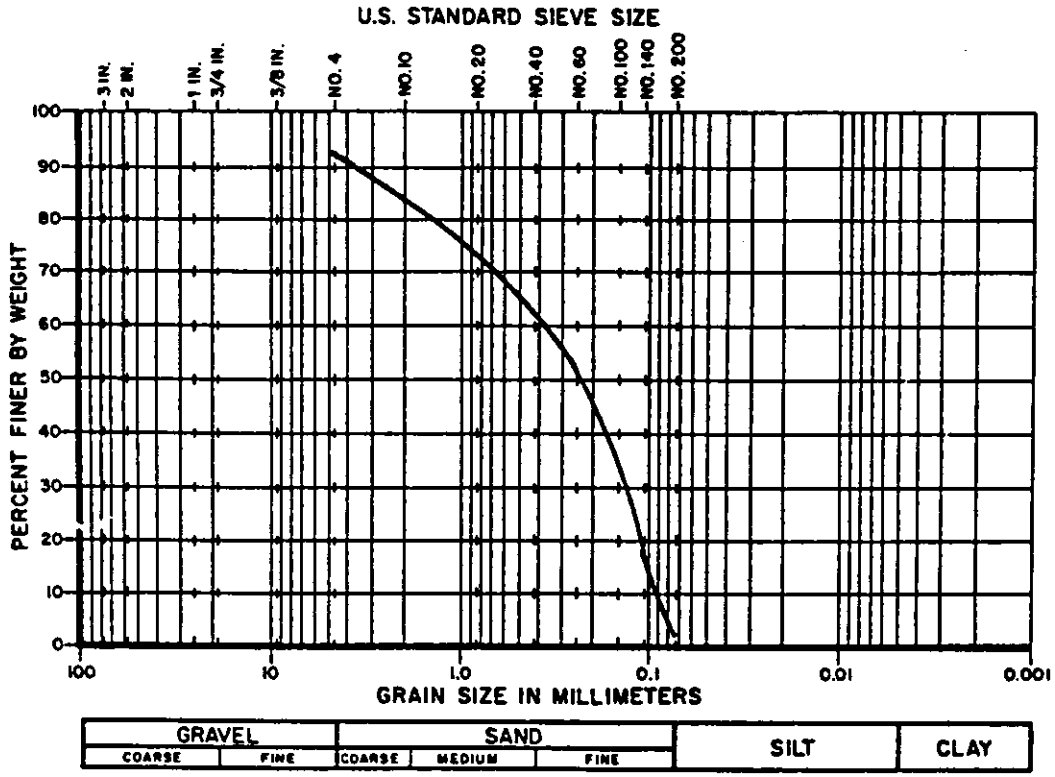

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
MW-4	34	144.0-146.0 ft		Greenish silty fine sand with cemented sand	SM

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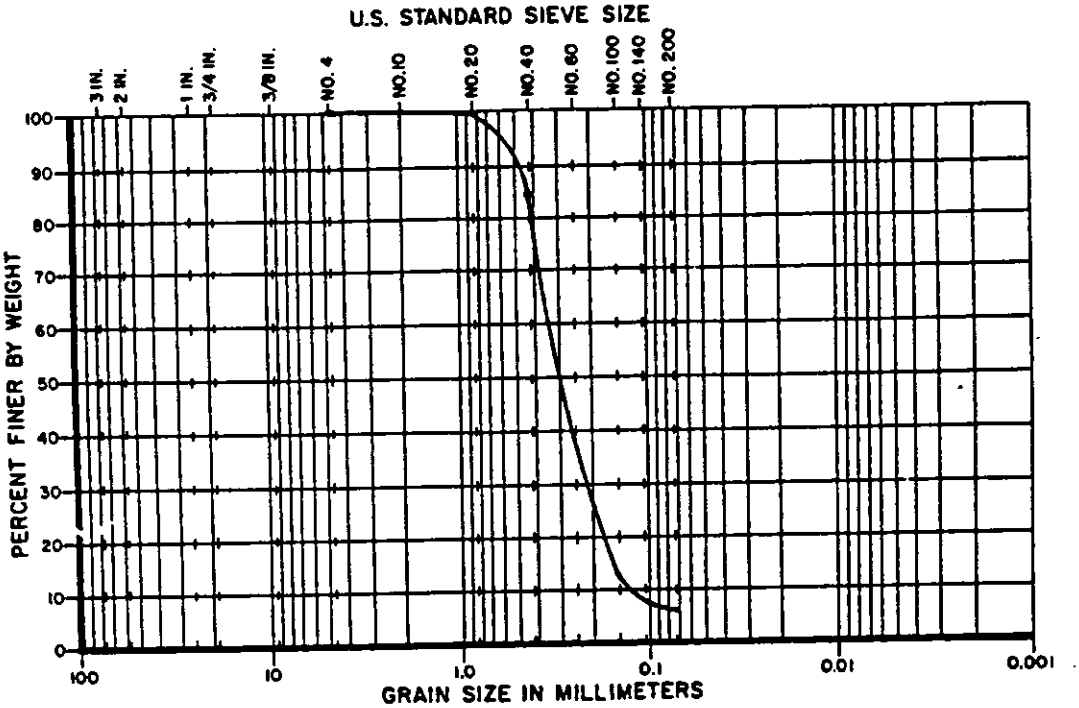

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	3	9.0-11.0 ft.		Dark reddish brown fine sand with silt	SP-SM

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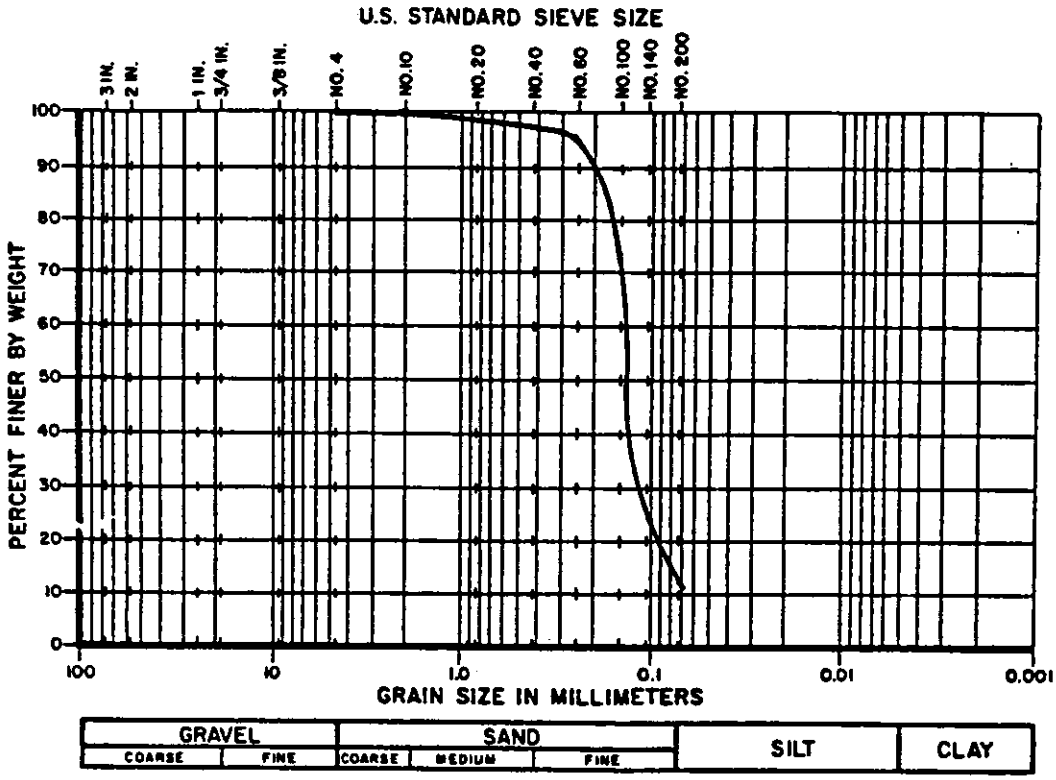

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	7	24.0-26.0 ft.		Dark gray fine sand with trace of clayey sand	SP-SC

GRAIN SIZE DISTRIBUTION

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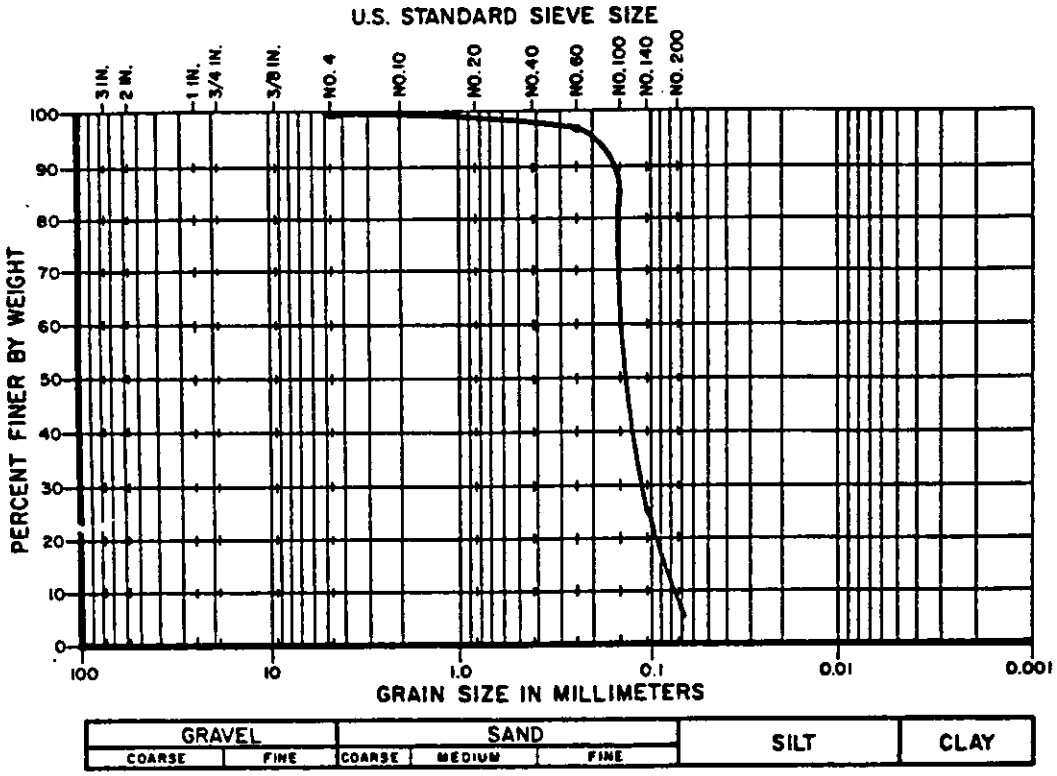

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	10	39.0-41.0 ft.		Gray fine sand with silt	SP-SM

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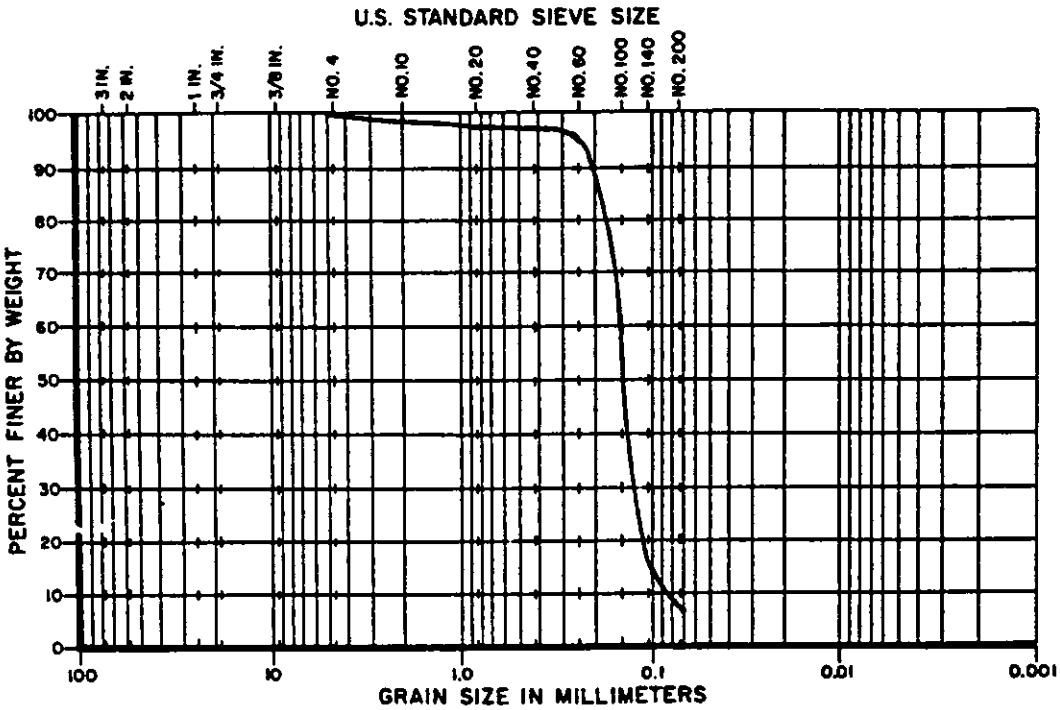

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	15	64.0-66.0 ft.		Gray sandy silt with shell fragment	ML

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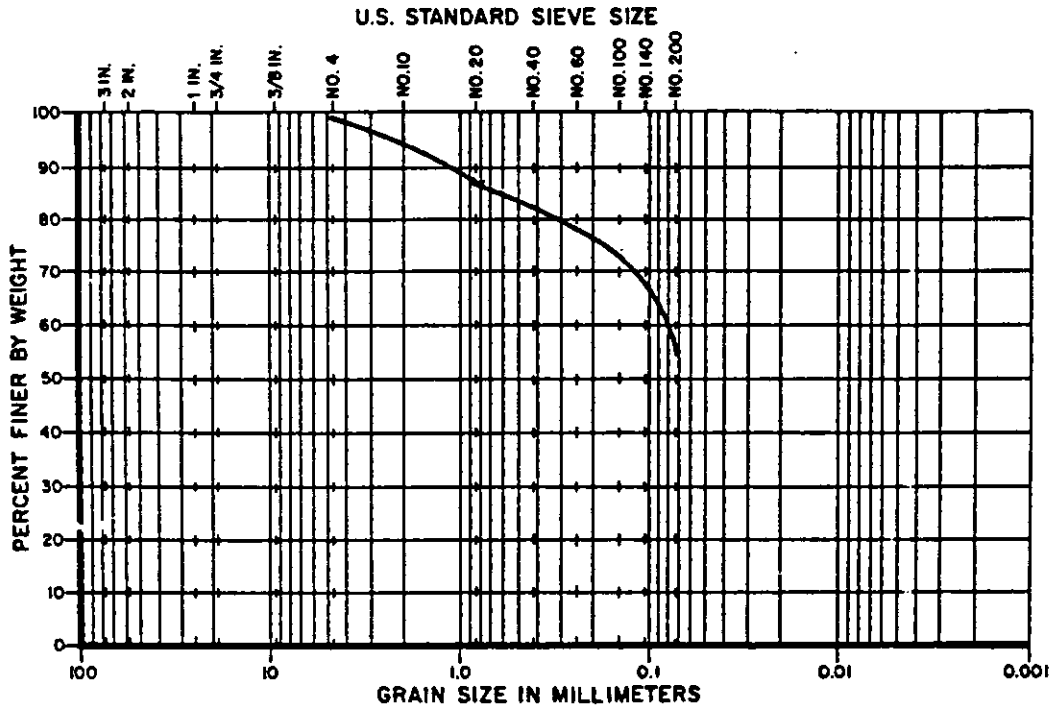

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	16	69.0-71.0 ft.		Gray clay with traces of shell	CH

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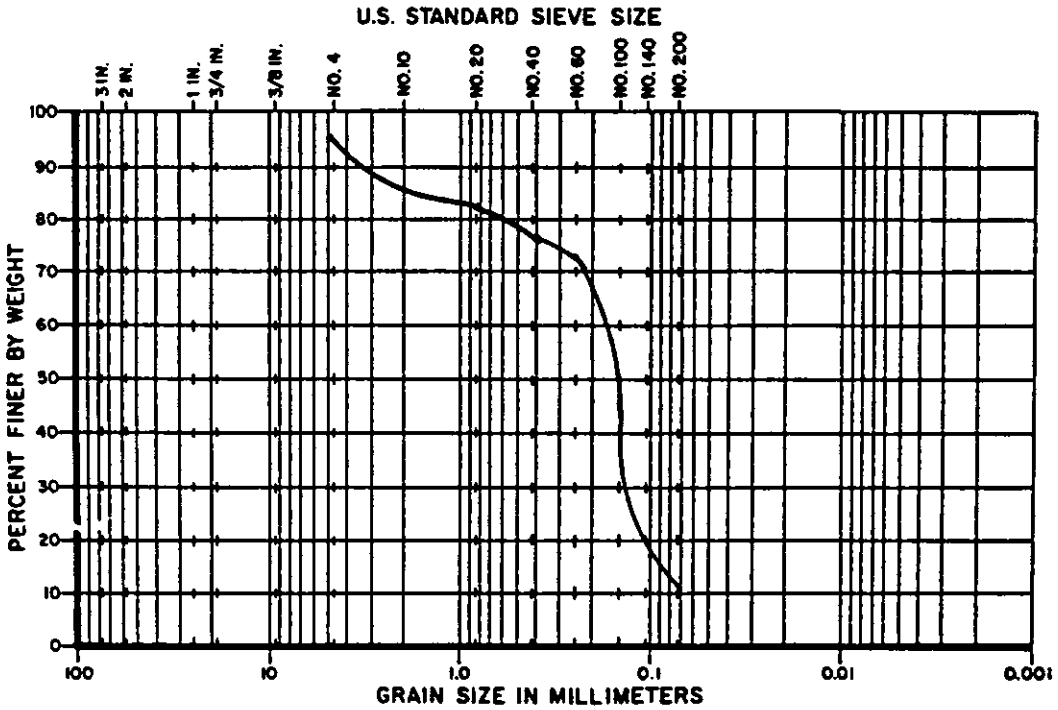

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	19	84.0-86.0 ft.		Greenish gray fine sand with silt and shell fragments	SP-SM

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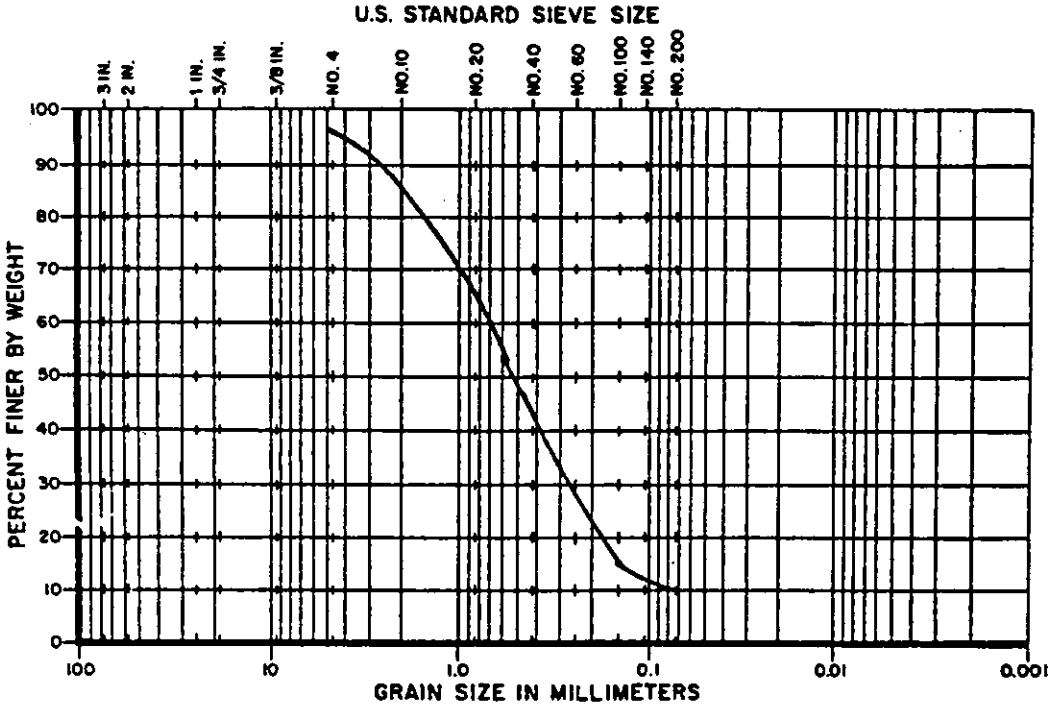

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	21	94.0-96.0 ft.		Gray fine sand with silt and shell fragment	SP-SM

GRAIN SIZE DISTRIBUTION

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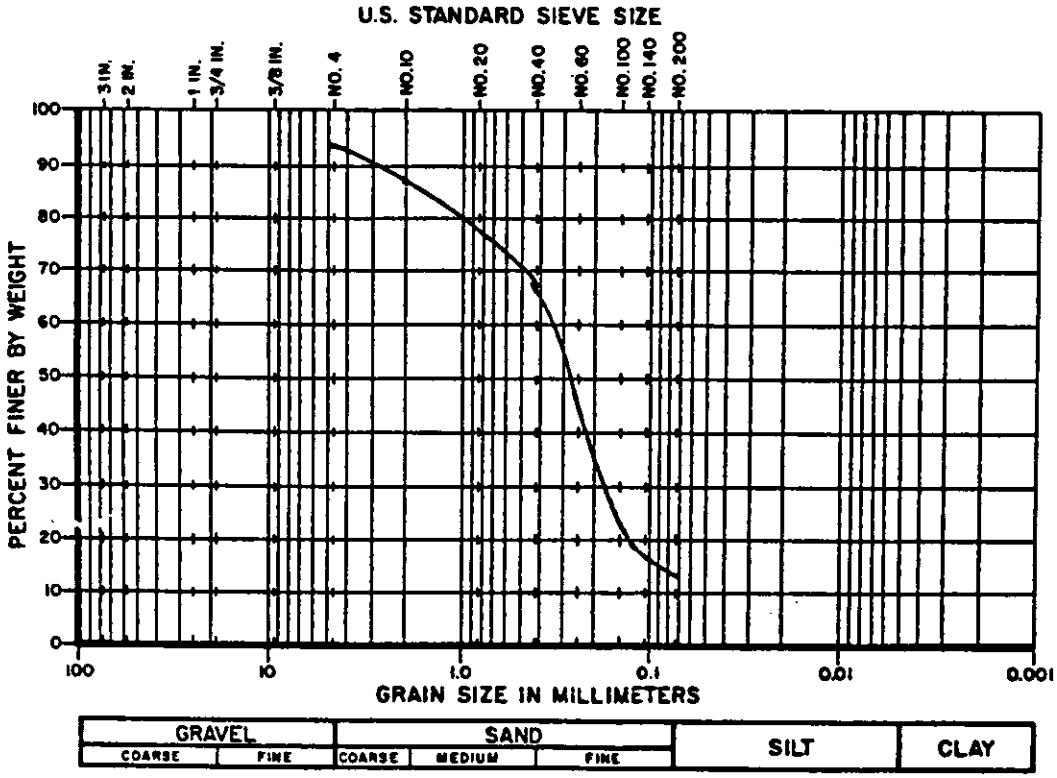

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	23	104.0-106.0 ft		Gray fine sand with silt and shell fragments	SP-SM

GRAIN SIZE DISTRIBUTION

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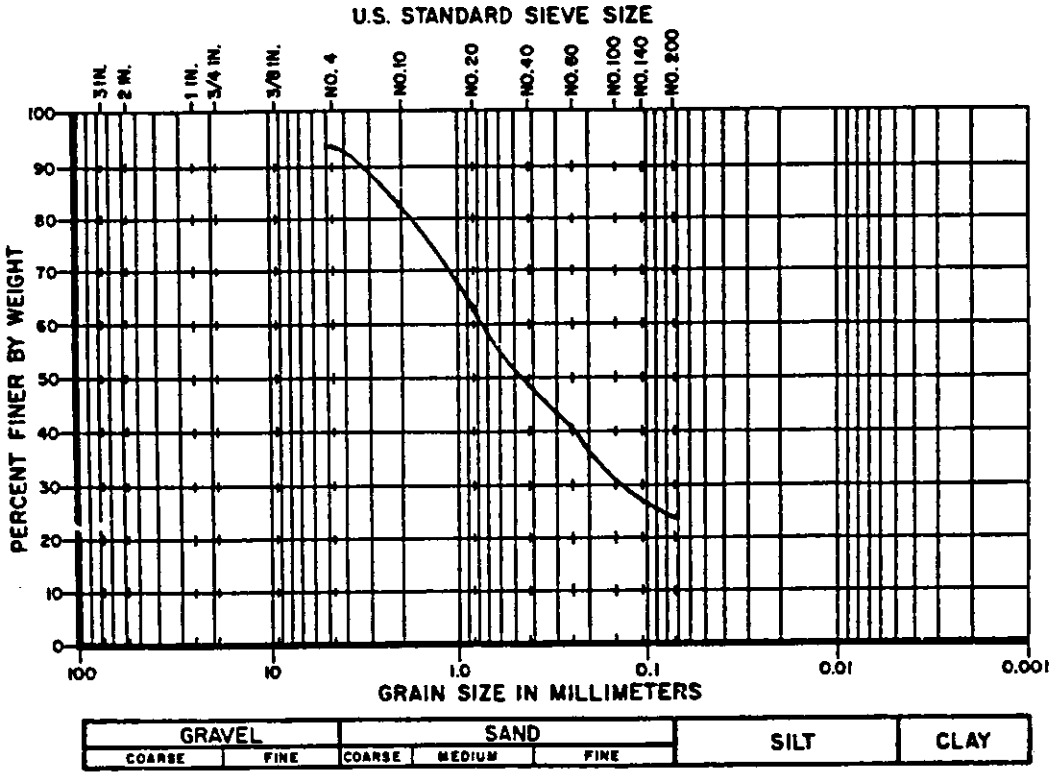
FORM NO. 1909 7/80



TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	27	124.0-126.0 ft.		Gray silty fine sand with shell and cemented shell	SM

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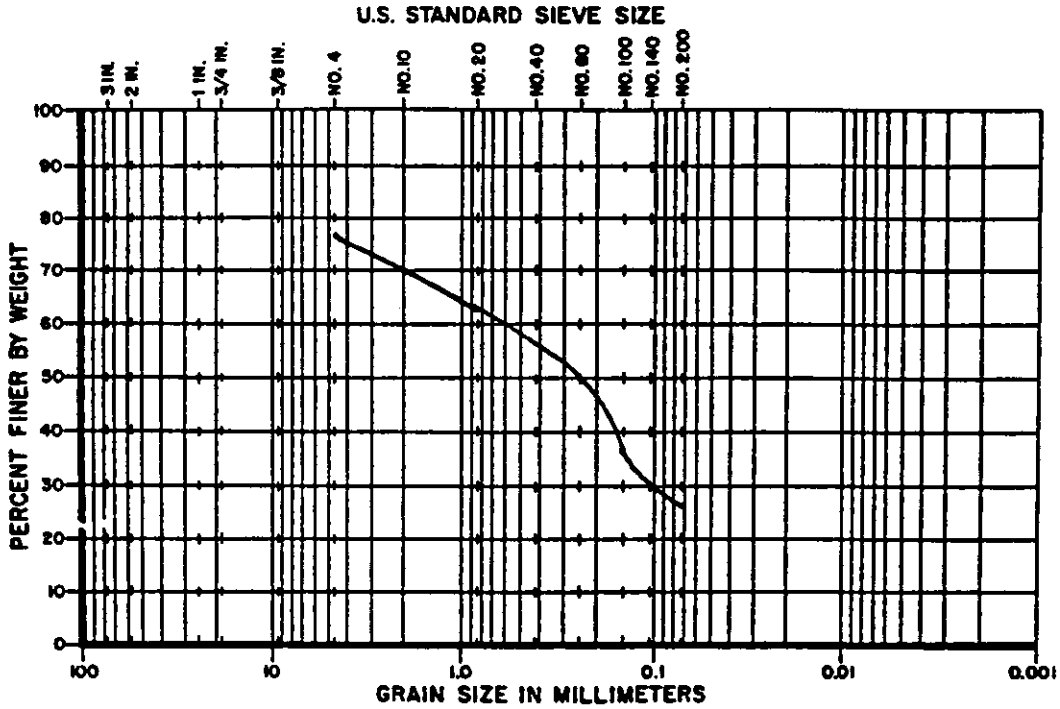

TEST HOLE NO.	SAMPLE NO.	DEPTH	SYMBOL	SAMPLE DESCRIPTION	UNIFIED CLASS.
POW-1	32	149.0-151.0 ft		Gray silty sand with shell and cemented sand	SM

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10.5.1.2 Subsurface Hydrologic Data for the Site (2.3.2.1)

- Well Construction Diagrams
- Pump Test Data
- Laboratory Results for Water Quality Sampling

WELL CONSTRUCTION DIAGRAMS

100

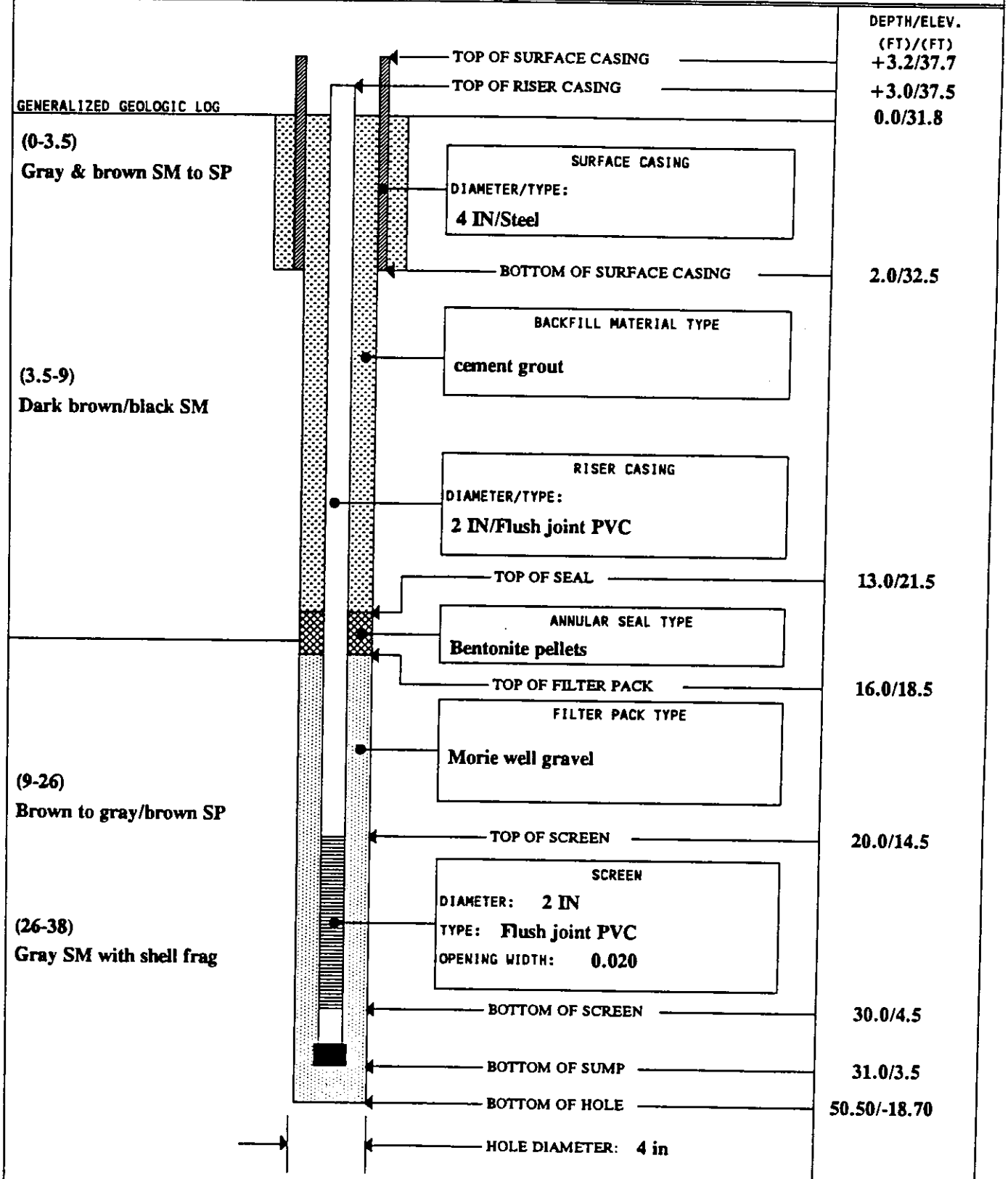
MONITORING WELL

PROJECT: INDIANTOWN COGENERATION

WELL NO.: B-101

JOB NO.	SITE	COORDINATES
20524	Car Dumper	N 5931; E 7830

BEGUN	COMPLETE	PREPARED BY	REFERENCE POINT FOR MEASUREMENTS
7/31/90	7/31/90	Scott Newhouse	Existing grade



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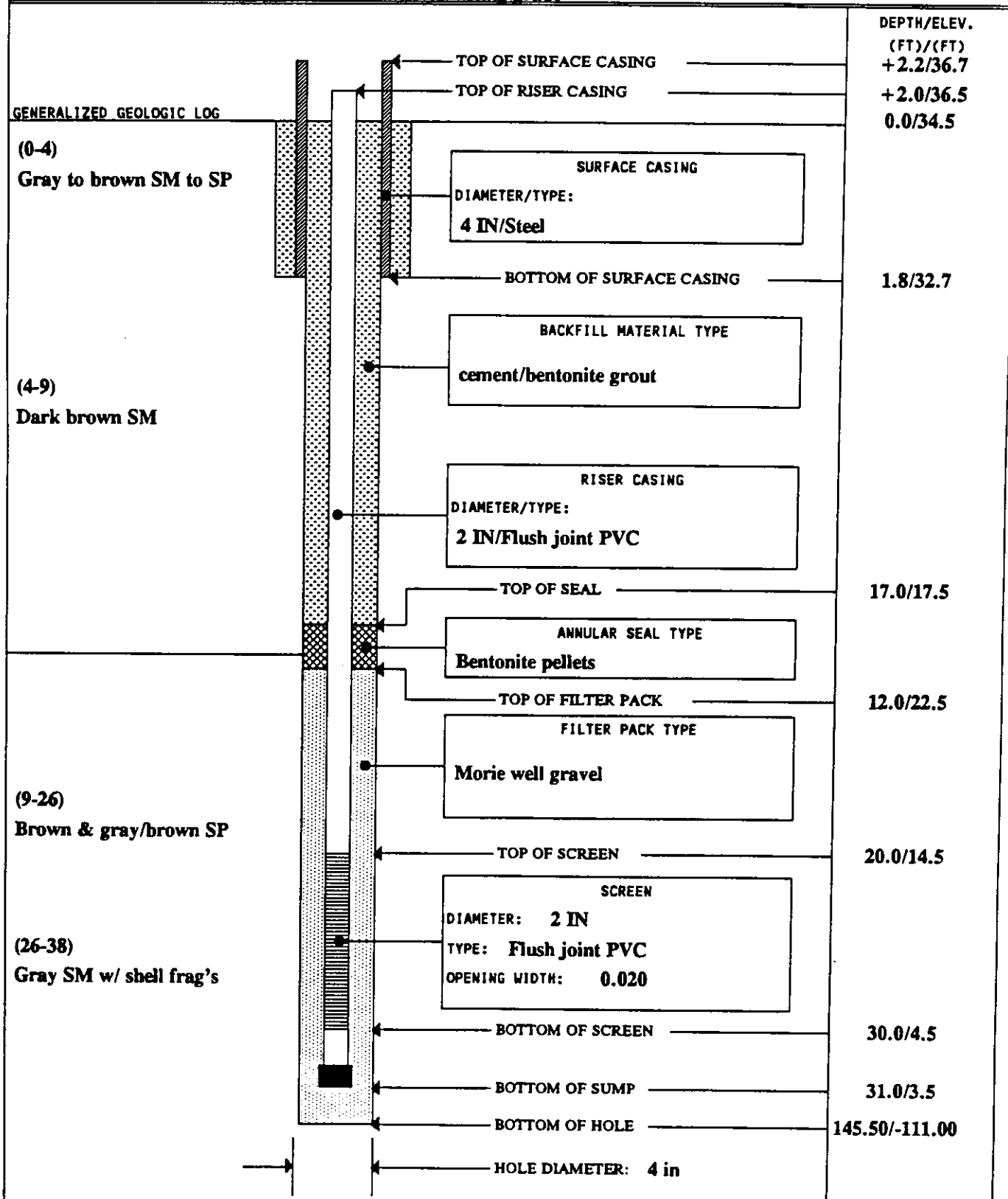
100

MONITORING WELL

PROJECT	WELL NO.
INDIANTOWN COGENERATION	B-102

JOB NO.	SITE	COORDINATES
20524	Waste Pond	N 6997; E 9074

BEGUN	COMPLETE	PREPARED BY	REFERENCE POINT FOR MEASUREMENTS
08/03/90	08/03/90	Scott Newhouse	Existing grade



0

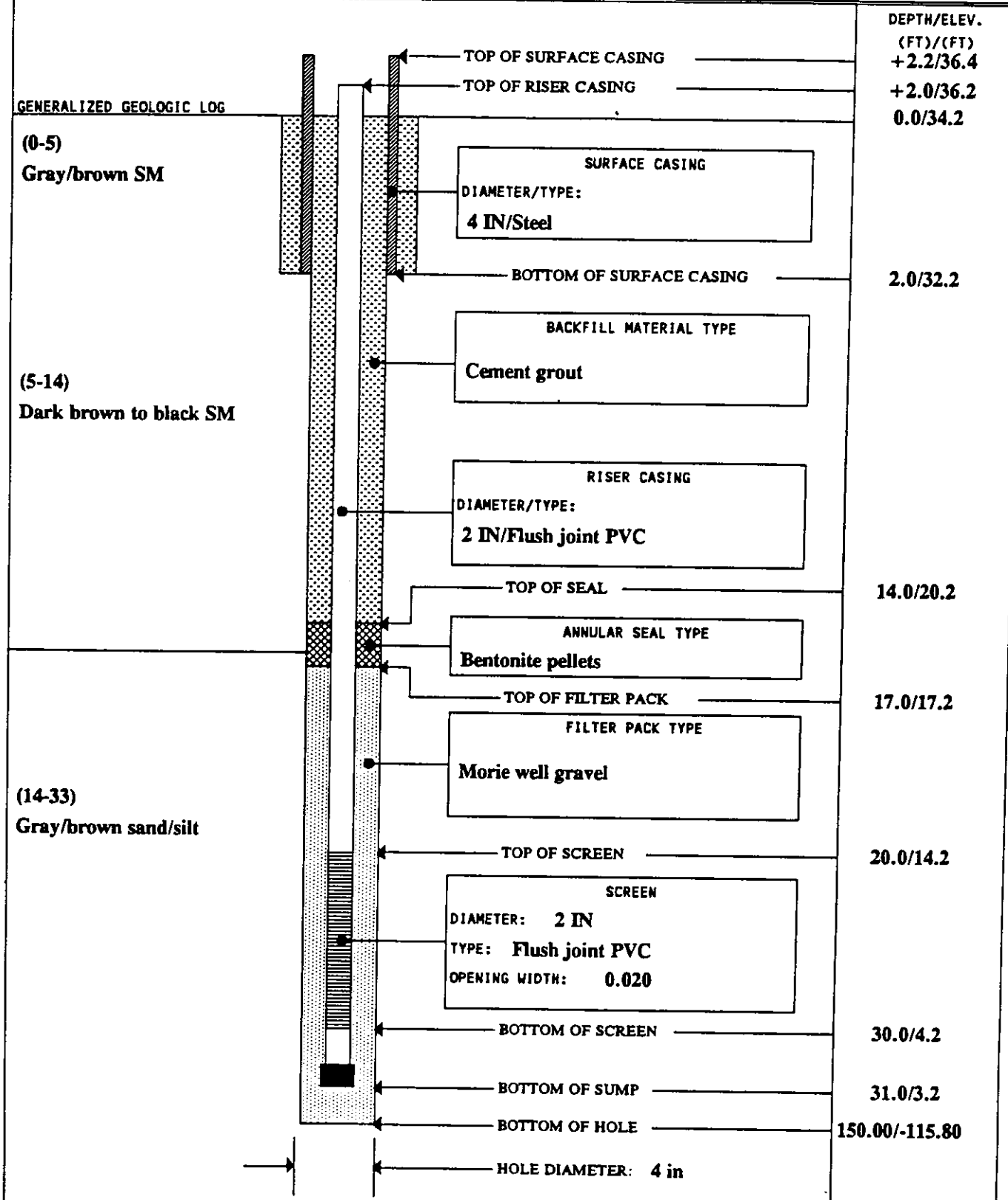
100

MONITORING WELL

PROJECT	WELL NO.
INDIANTOWN COGENERATION	B-115

JOB NO.	SITE	COORDINATES
20524	Power Block	N 6170; E 10249

BEGUN	COMPLETE	PREPARED BY	REFERENCE POINT FOR MEASUREMENTS
7/27/90	7/27/90	Scott Newhouse	Existing grade



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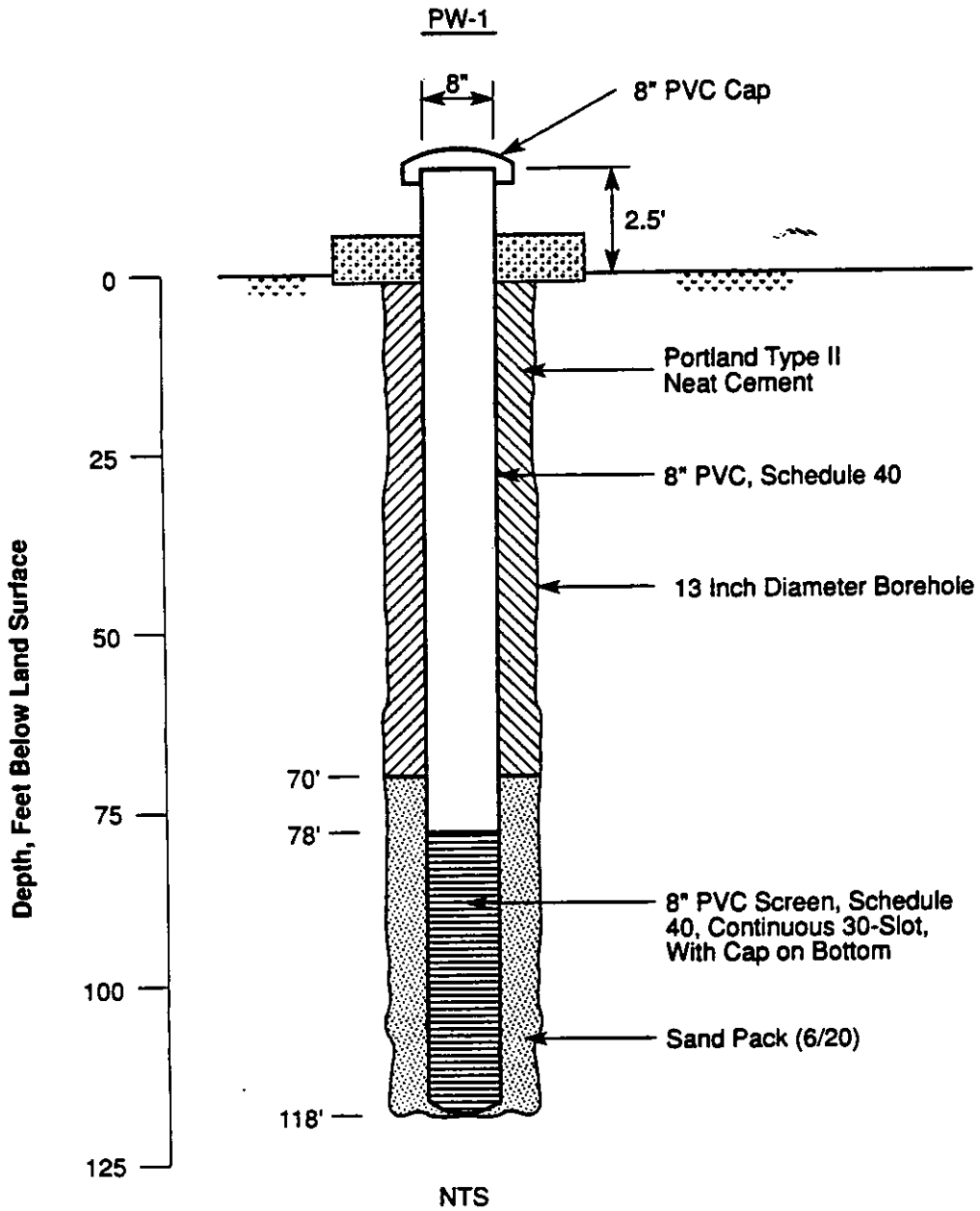


FIGURE 2.3.2-1A.
Test Well (PW-1) Construction Diagram.

SEF30619.A0

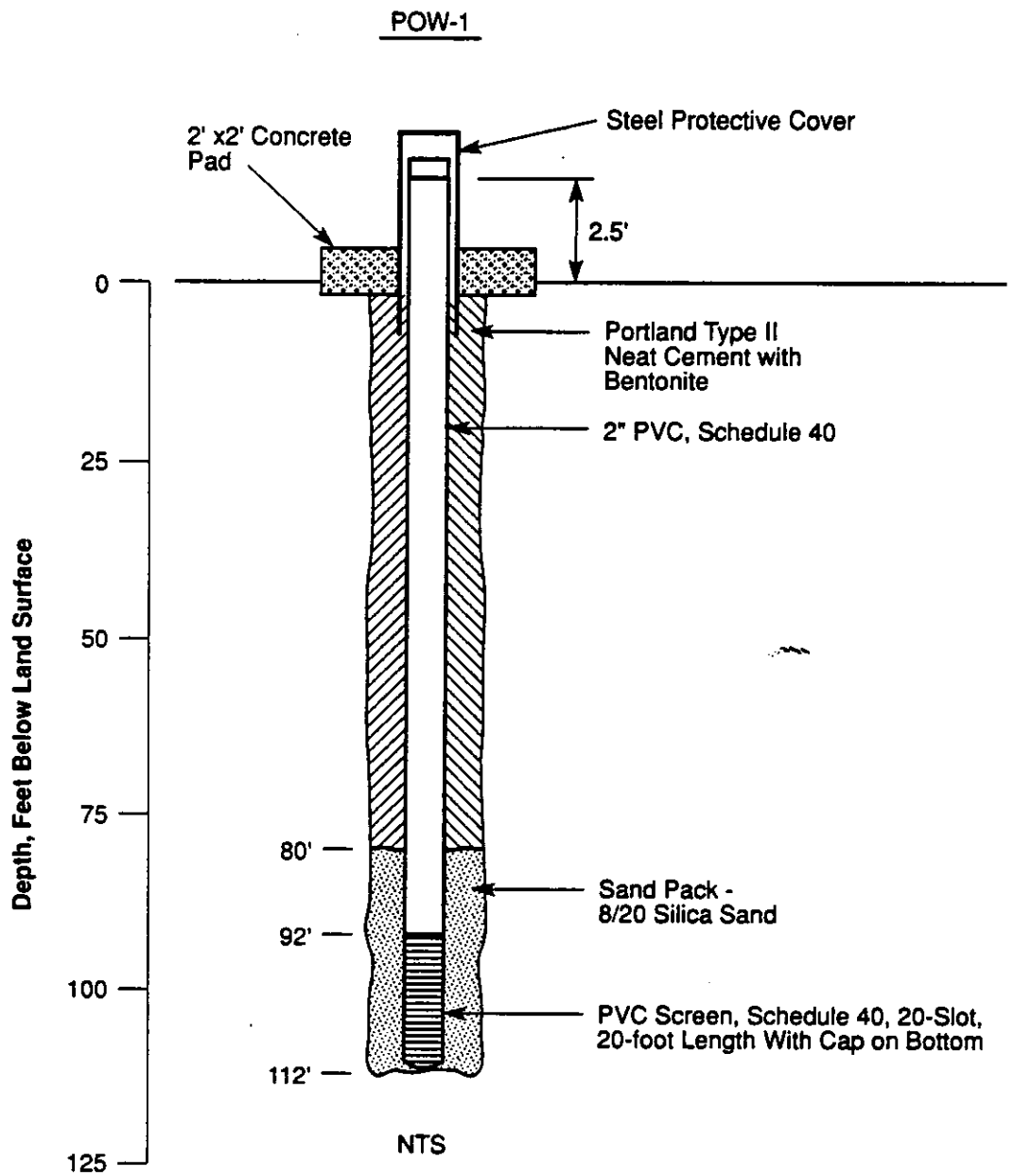


FIGURE 2.3.2-1B.
POW-1 Piezometer Construction Diagram.

SEF30619.A0

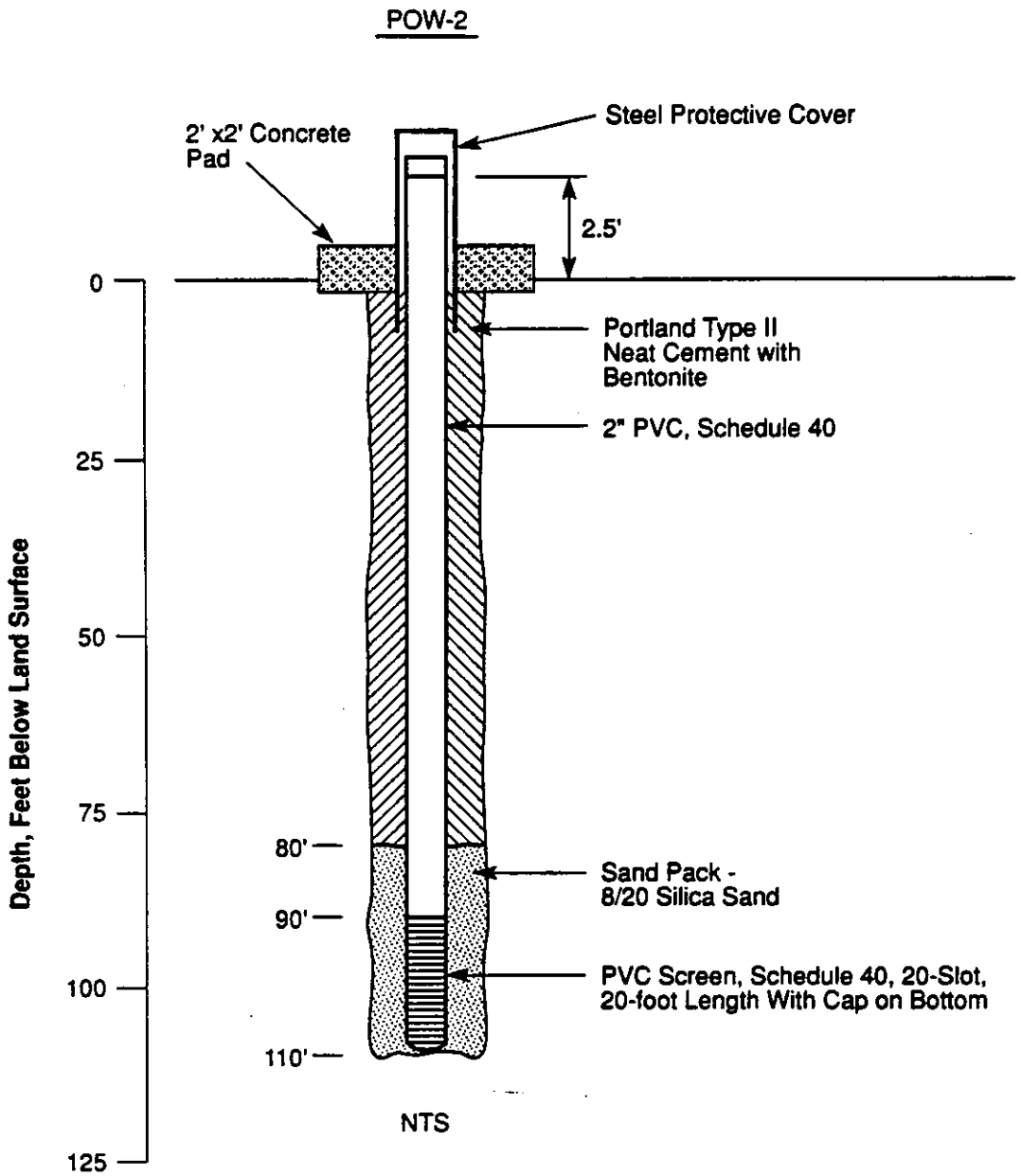


FIGURE 2.3.2-1C.
POW-2 Piezometer Construction Diagram.

F30619.A0

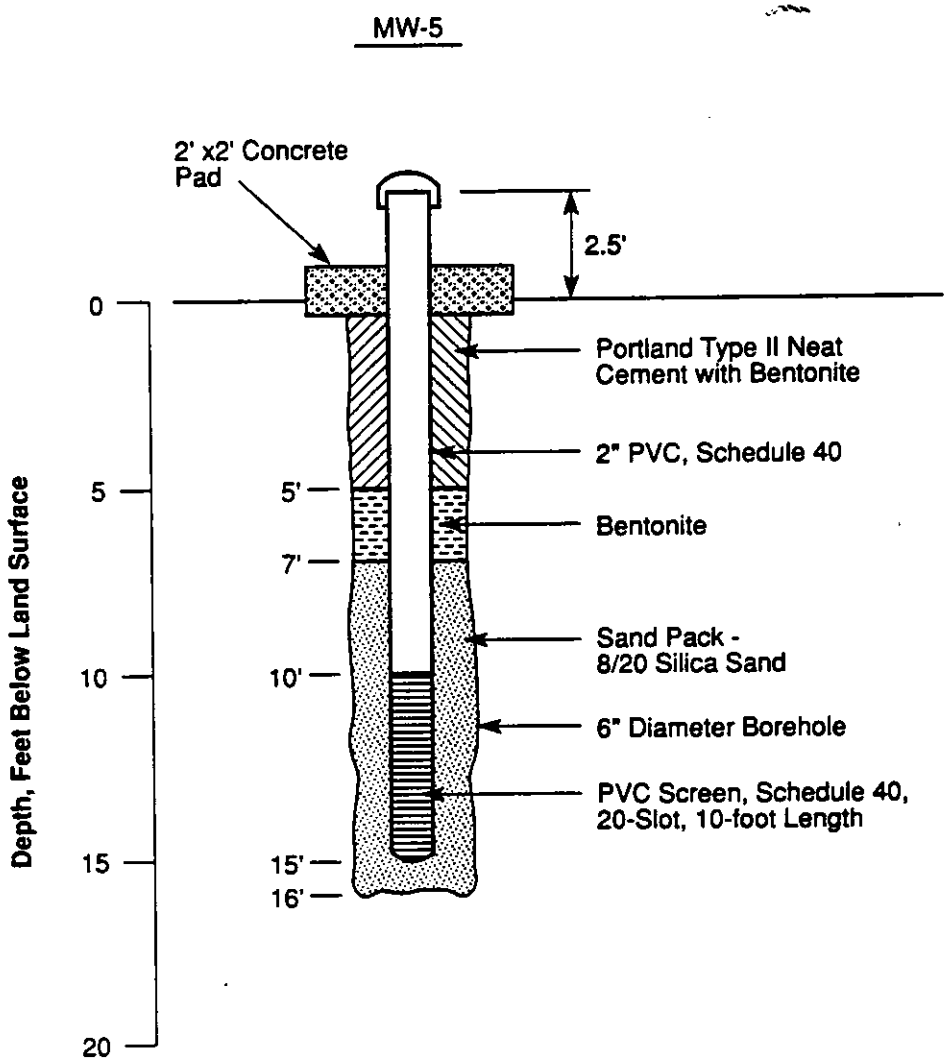


FIGURE 2.3.2-1D.
MW-5 Shallow Piezometer Construction Diagram.

SEF30619.A0

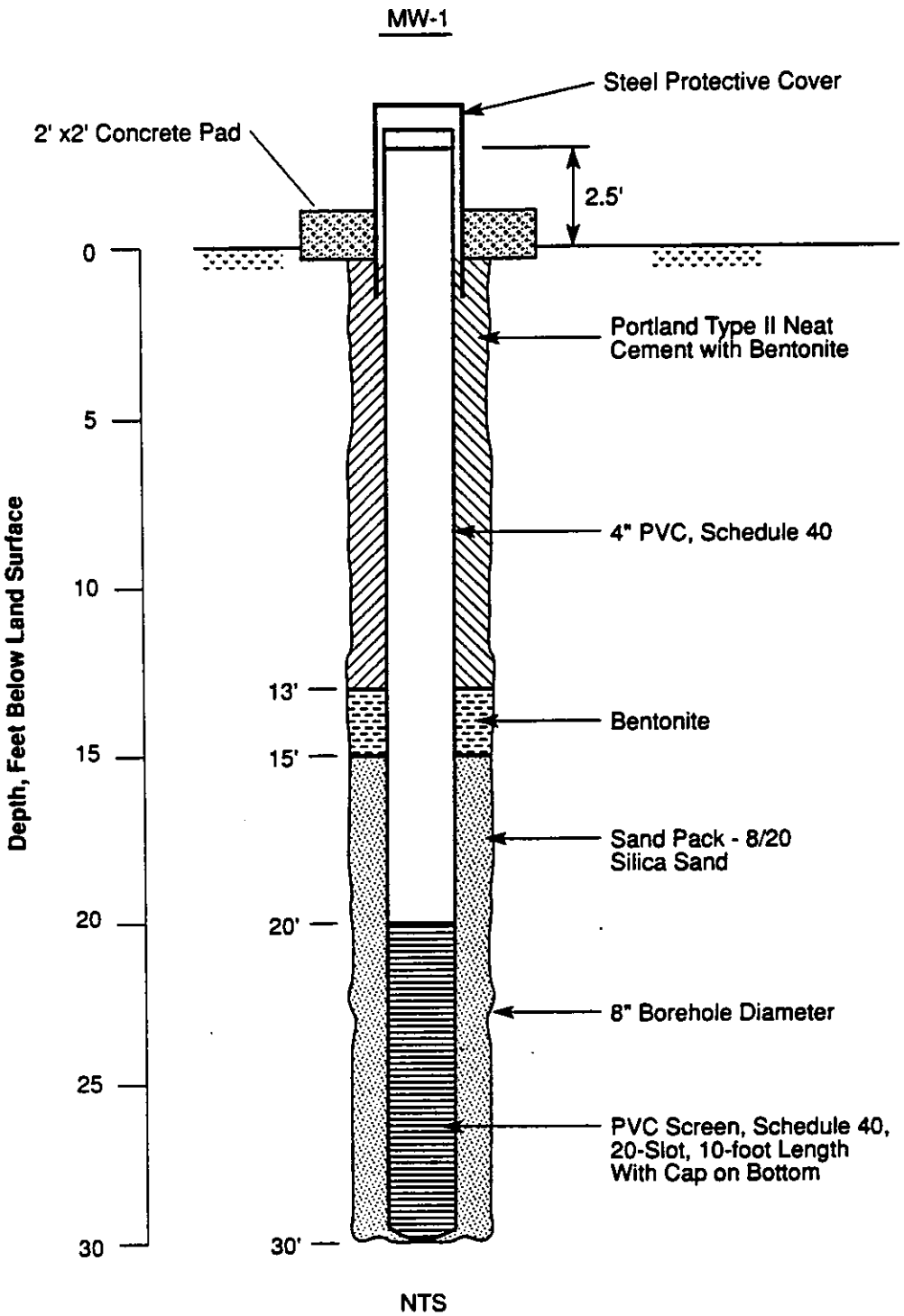


FIGURE 2.3.2-1E.
Monitor Well 1 (MW-1) Construction Diagram.

SEF30619.A0

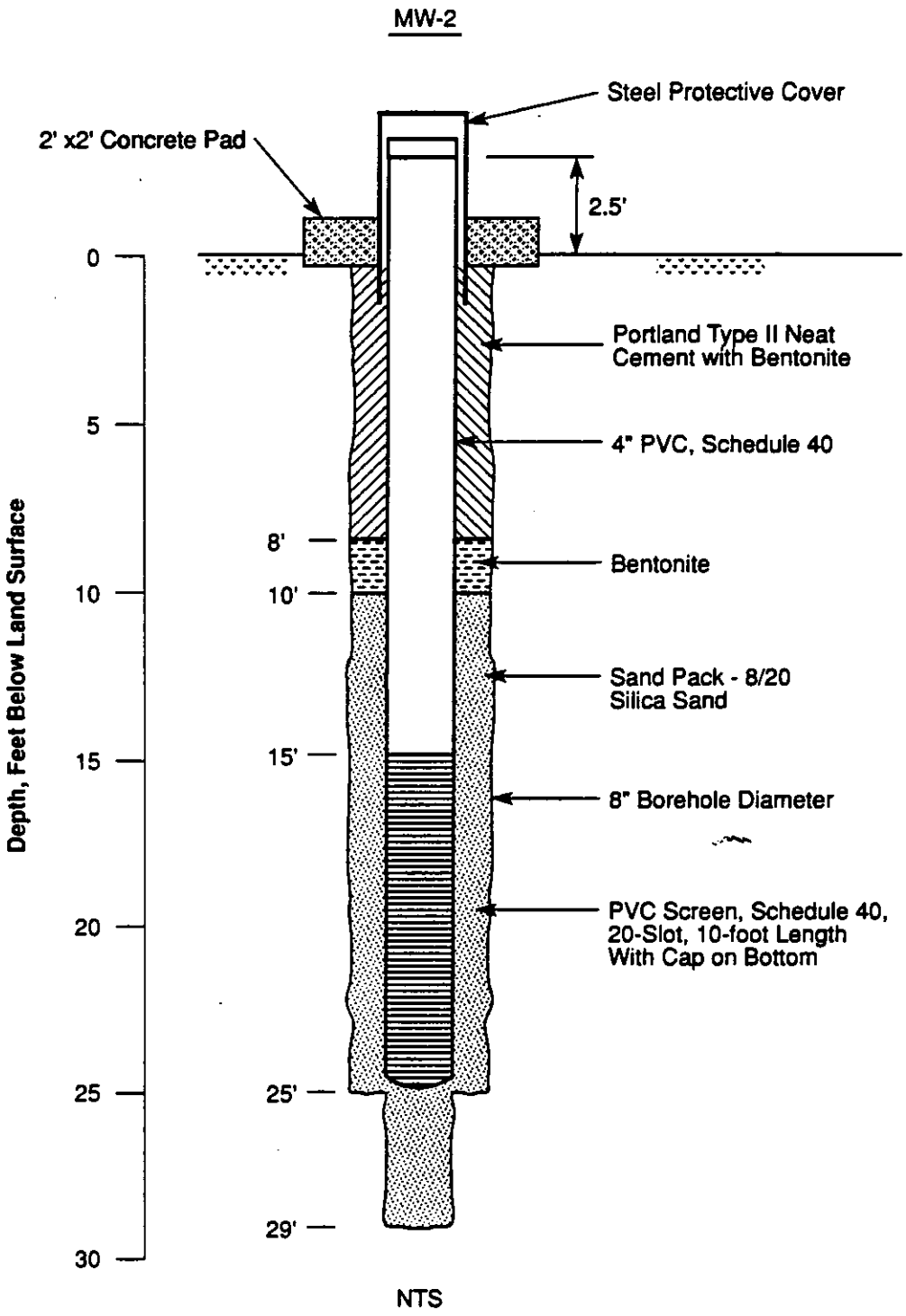


FIGURE 2.3.2-1F.
Monitor Well 2 (MW-2) Construction Diagram.

SEF30619.A0

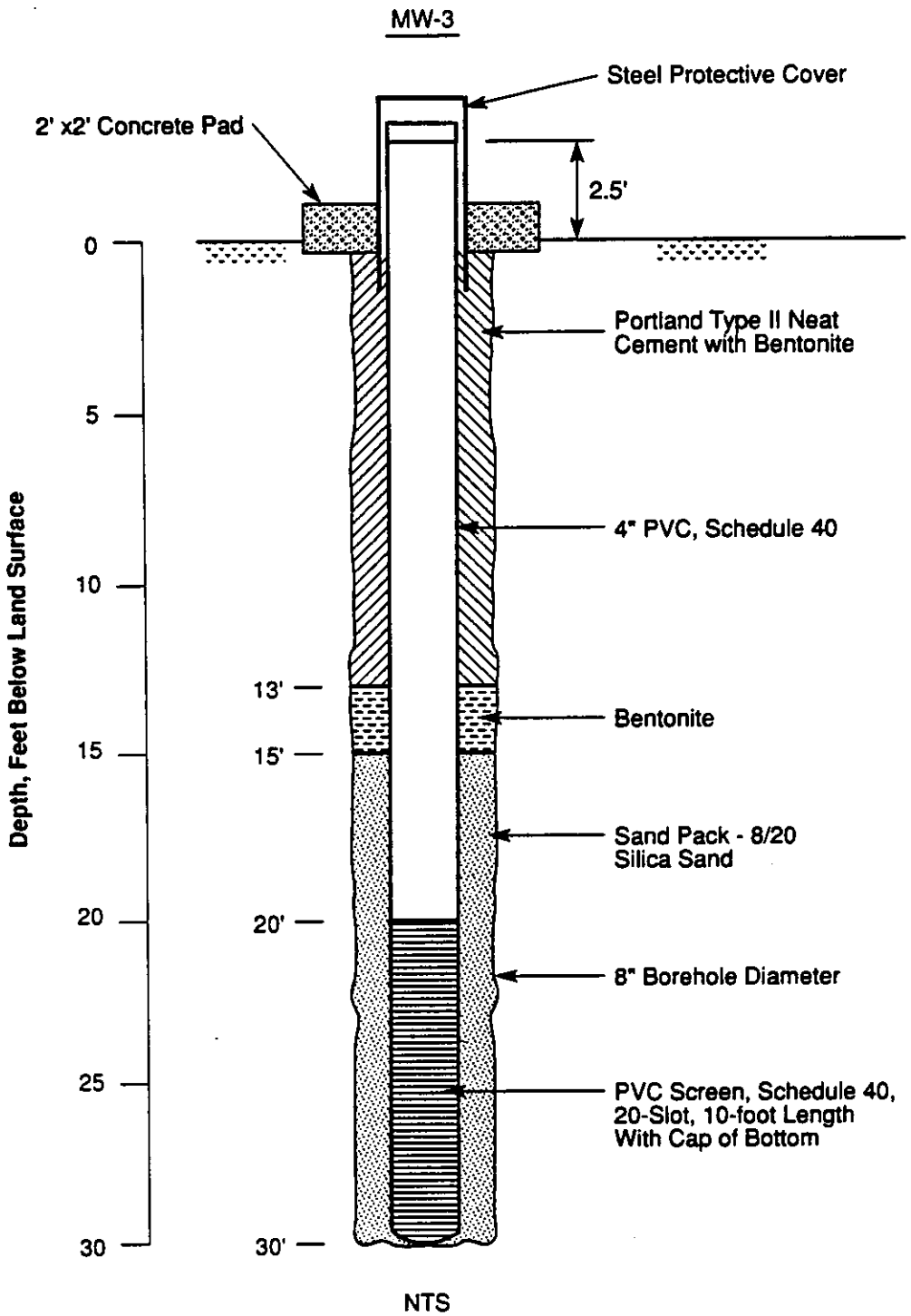


FIGURE 2.3.2-1G.
Monitor Well 3 (MW-3) Construction Diagram.

SEF30619.A0

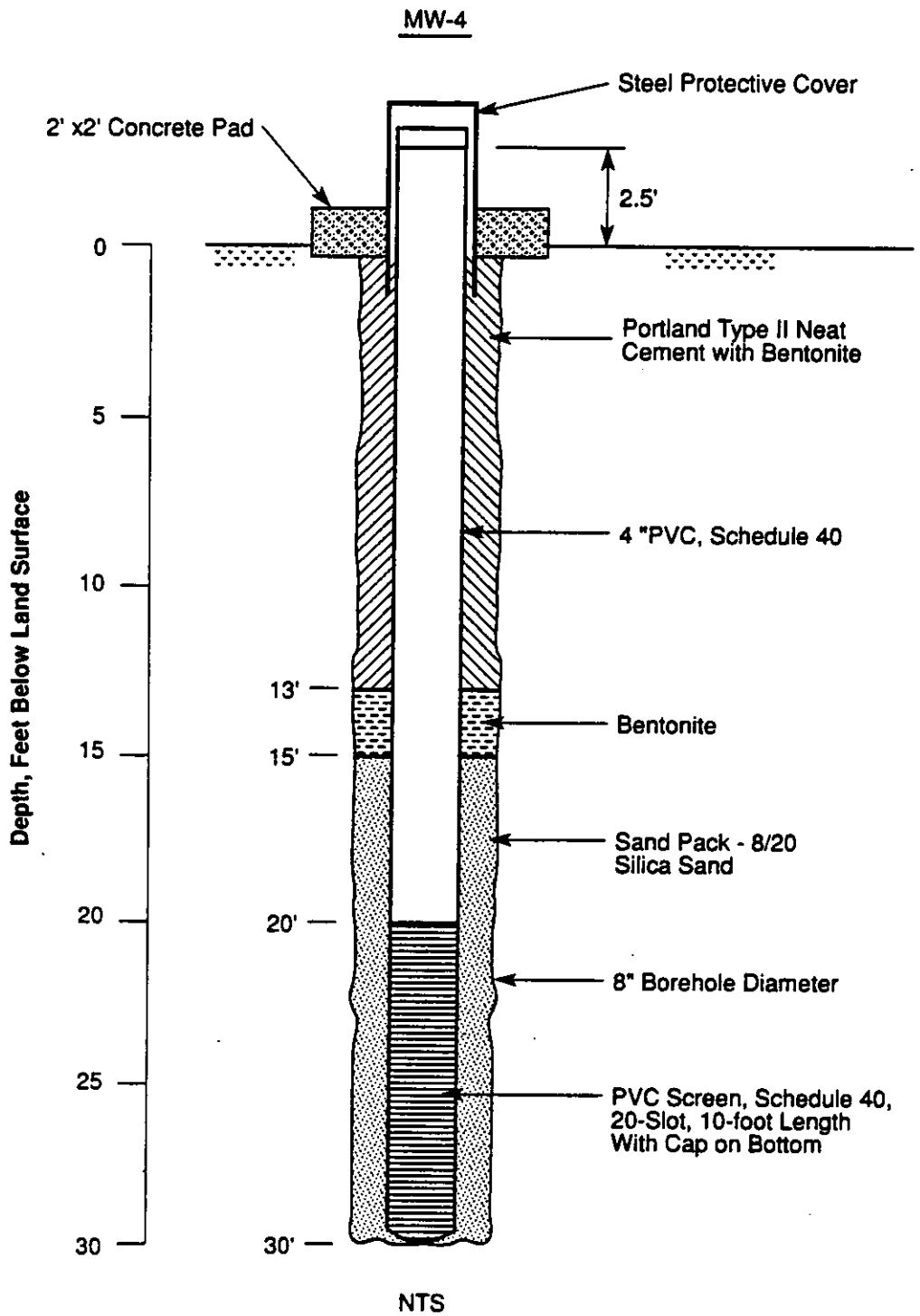


FIGURE 2.3.2-1H.
Monitor Well 4 (MW-4) Construction Diagram.

PUMP TEST DATA

SUBJECT Aquifer Test Analysis
Bechtel - Indiantown Cogeneration
Project: POW-1

BY P. Kwiatkowski DATE 8/23/90
SHEET NO. 1 OF 2
PROJECT NO. SEF 30619.A8

Walton (1962) Method for Leaky Aquifers

Type-Curve Match, Q = 150 gpm, r = 50 feet

$W(u, r/B) = 1$

$1/u = 1$

$s = 3.2$ ft

$t = 0.18$ min

$r/B = 0.025$

$$s = \frac{114.6\,Q}{T} W(u, r/B)$$

$$T = \frac{114.6\,Q}{s}(1) = \frac{(114.6)(150\ \text{gpm})}{3.2\ \text{ft}} = \boxed{5372\ \text{gpd/ft}}$$

$$S = \frac{T t u}{2693\, r^2} = \frac{(5372)(0.18)(1)}{2693\,(50)^2} = \boxed{1.4 \times 10^{-4}}$$

$$K'/b' = [T (r/B)^2]/r^2$$

$$K'/b' = \frac{(5372)(0.025)^2}{(50)^2} = \boxed{1.3 \times 10^{-3}\ \text{gpd/ft}^3/\text{ft}}$$

Cooper-Jacob Method

$\Delta s = 18.02 - 11.02 = 7.0$ ft

$t_o = 0.28$ minutes

$$T = \frac{264\,Q}{\Delta s} = \frac{(264)(150)}{7.0} = \boxed{5657\ \text{gpd/ft}}$$

$$S = \frac{T t_o}{4790\, r^2} = \frac{(5657)(0.28)}{4790\,(50)^2} = \boxed{1.32 \times 10^{-4}}$$

Walton (1962) Method for Leaky Aquifers

$Q = 150$ gpm
$r = 200$ feet
$W(u, r/B) = 1$
$1/u = 1$
$s = 3.6$ ft
$t = 3$ min
$r/B = 0.15$

$$s = \frac{114.6\ Q}{T} W(u, r/B)$$

$$T = \frac{114.6\ Q}{s} W(u, r/B) = \frac{(114.6)(150)}{3.6}(1) = \boxed{4775\ \text{gpd/ft}}$$

$$S = \frac{T t u}{2693\ r^2} = \frac{(4775)(3)(1)}{2693\ (200)^2} = \boxed{1.33 \times 10^{-4}}$$

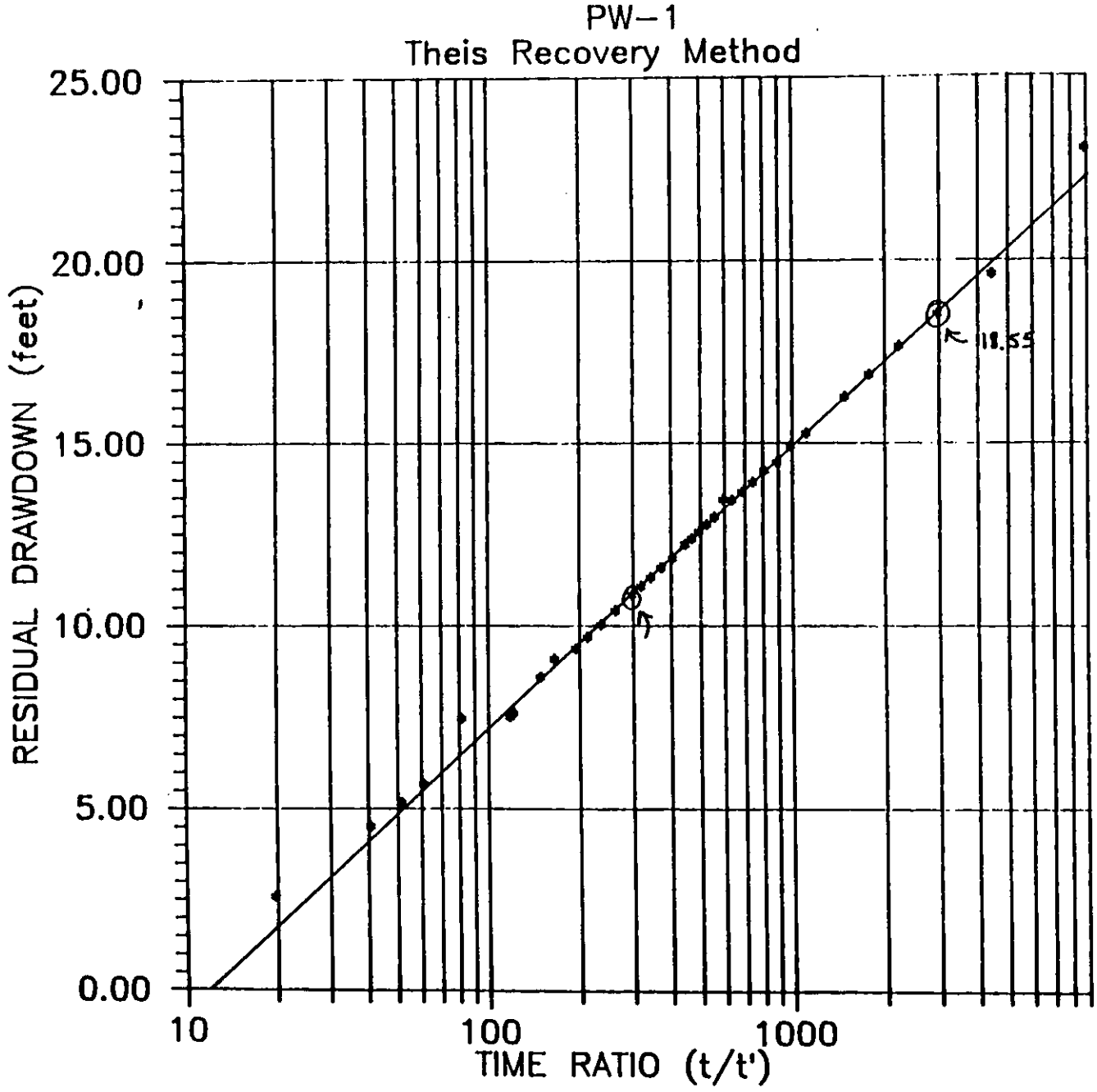
$$K'/b' = \left[T\ (r/B)^2\right] / r^2 = \frac{\left[4775\ (0.15)^2\right]}{(200)^2} = \boxed{2.69 \times 10^{-3}\ \text{gpd/}}$$

Cooper-Jacob Method

$\Delta s = 9.29 - 2.99 = 6.3$ ft
$t_o = 3.4$ min

$$T = \frac{264\ Q}{\Delta s} = \frac{(264)(150)}{6.3} = \boxed{6286\ \text{gpd/ft}}$$

$$S = \frac{T t_o}{4790\ r^2} = \frac{(6286)(3.4)}{4790\ (200)^2} = \boxed{1.11 \times 10^{-4}}$$



Theis Recovery Method

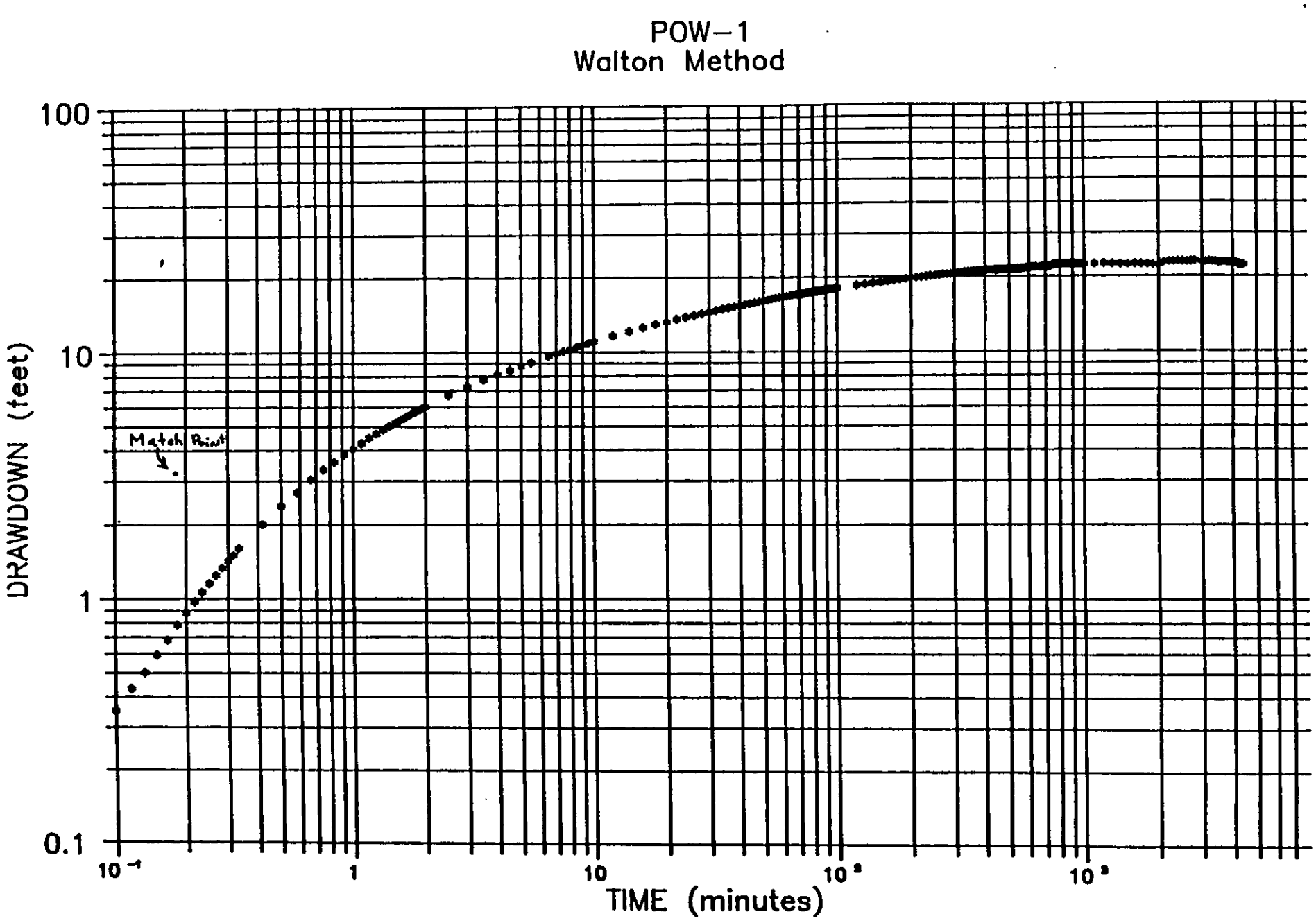
$Q = 150 \text{ gpm} = 28,877 \text{ ft}^3/\text{day}$

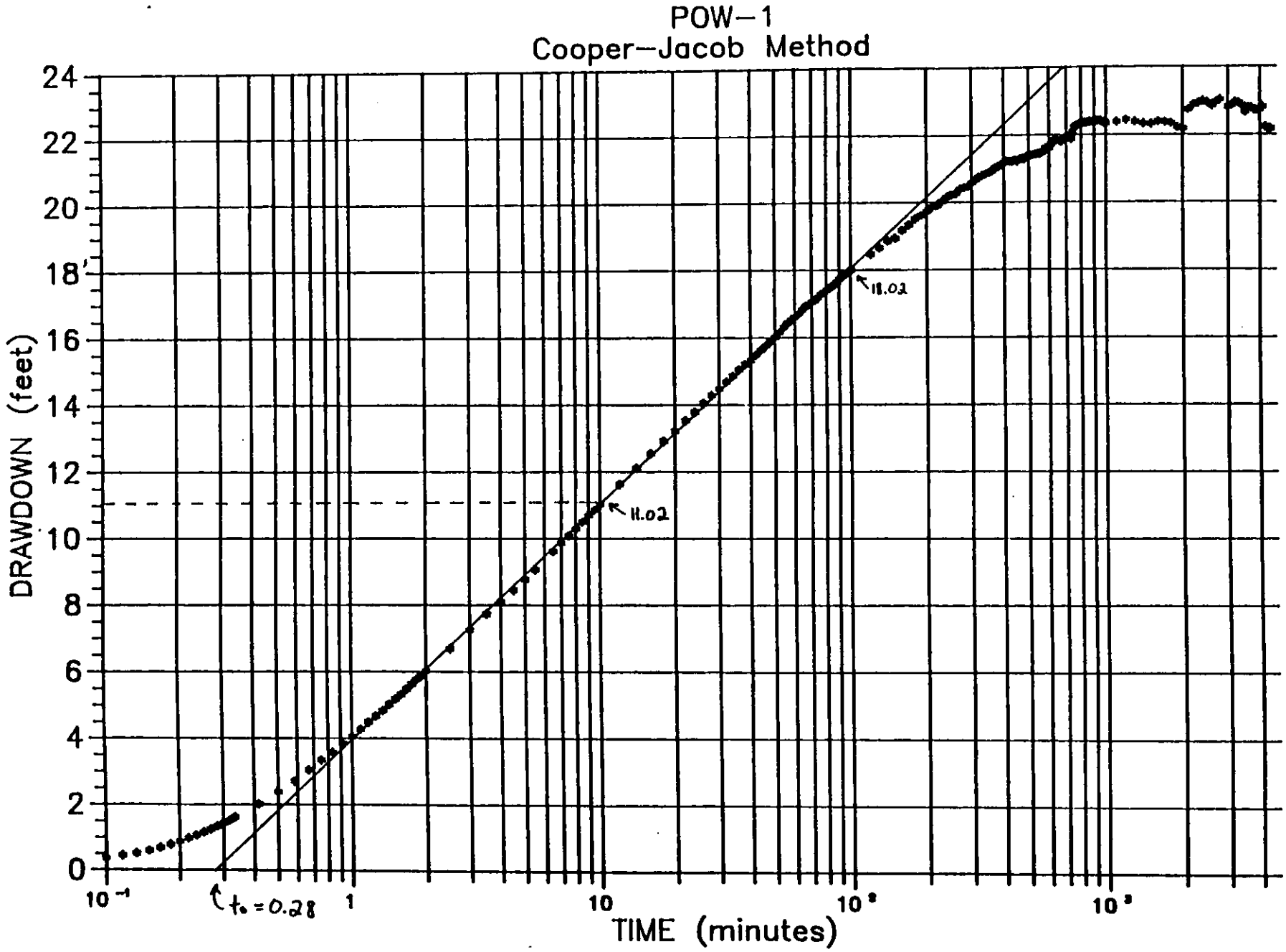
$s' = 18.55 - 11.0 = 7.55'$

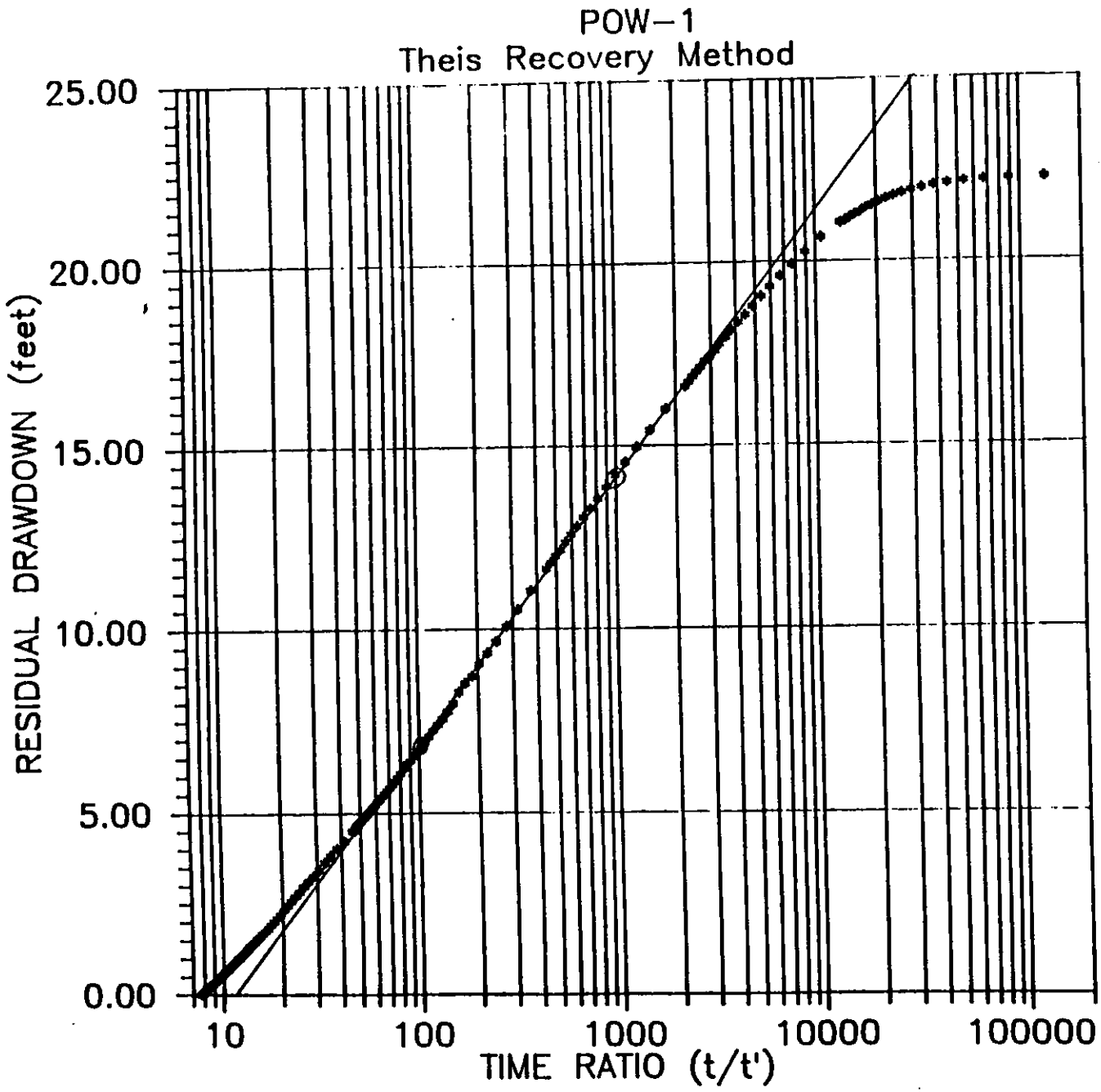
$T = \frac{2.3Q}{4\pi s} = \frac{2.3(28,877 \text{ ft}^3/\text{day})}{4\pi (7.55 \text{ ft})}$

$T = 700 \text{ ft}^2/\text{day}$

$T = 5236 \text{ gpd/ft}$


POW–1
Walton Method
100
10
1
0.1
DRAWDOWN (feet)
Match Point
10⁻¹
1
10
10²
10³
TIME (minutes)


POW–1
Cooper–Jacob Method
DRAWDOWN (feet)
TIME (minutes)
24
22
20
18
16
14
12
10
8
6
4
2
0
10⁻¹
1
10
10²
10³
t₀ = 0.28
11.02
11.02



Theis Recovery Method

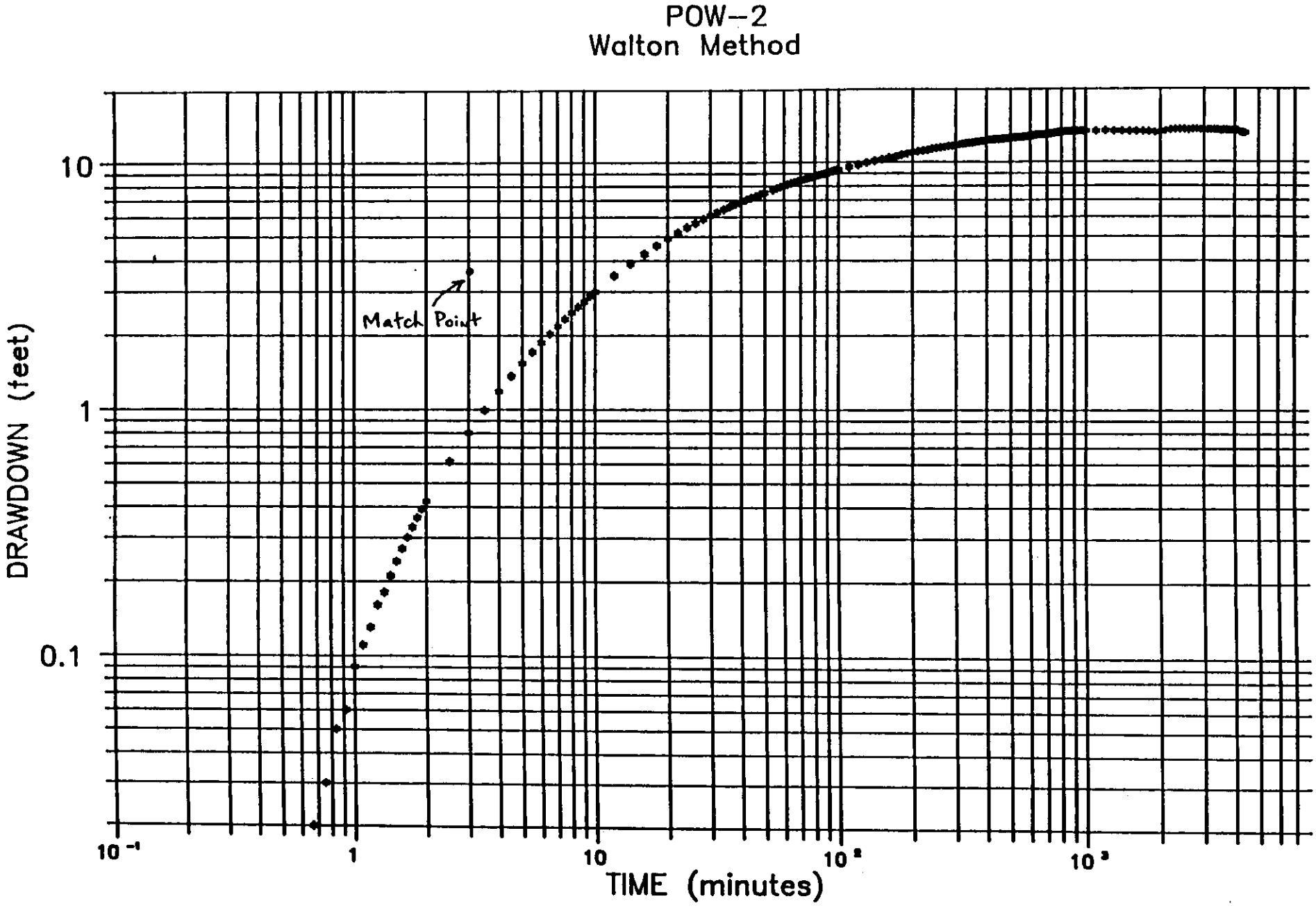
$Q = 150\ gpm = 28{,}877\ ft^3/day$

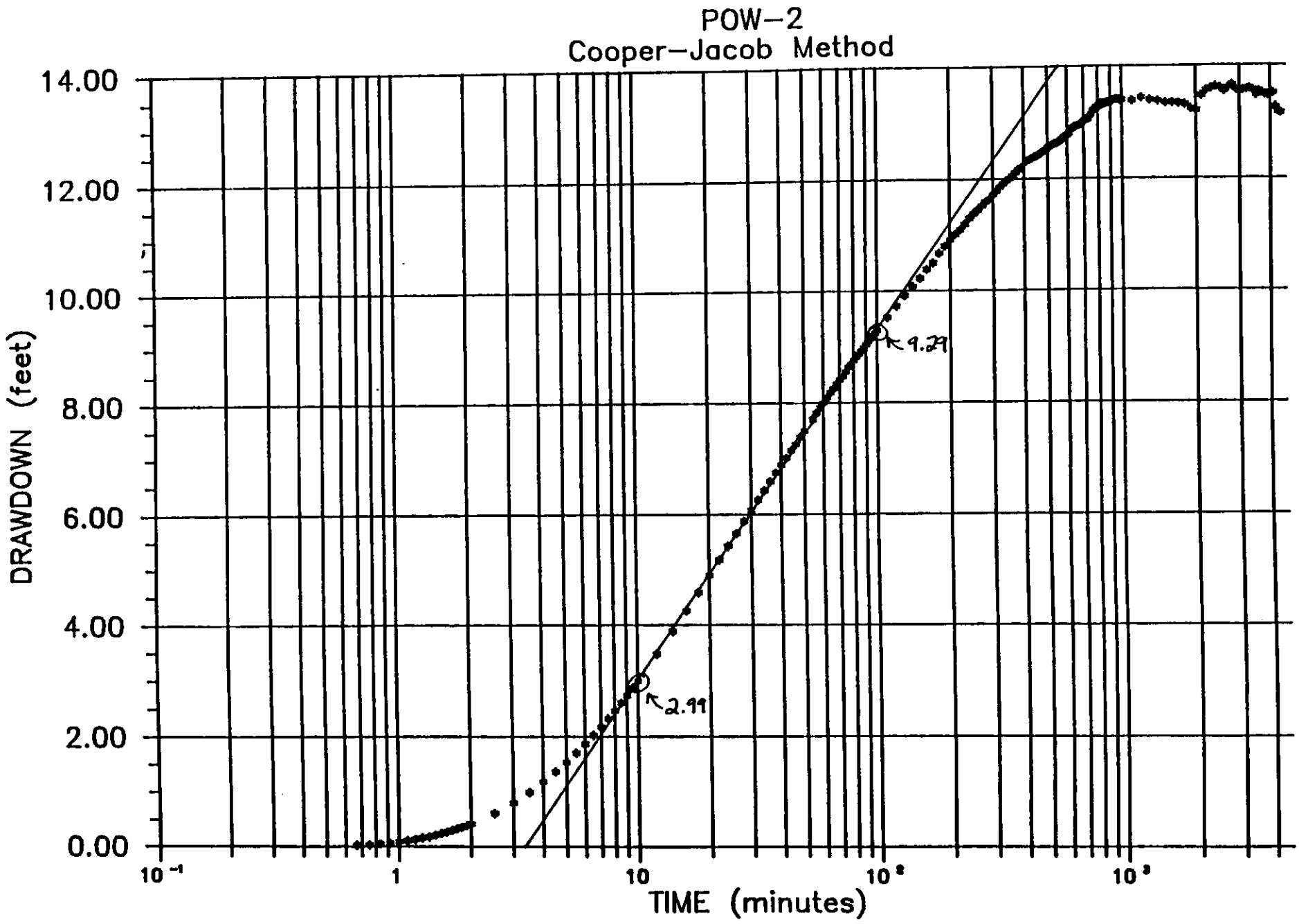
$s' = 14.20 - 6.75 = 7.45'$

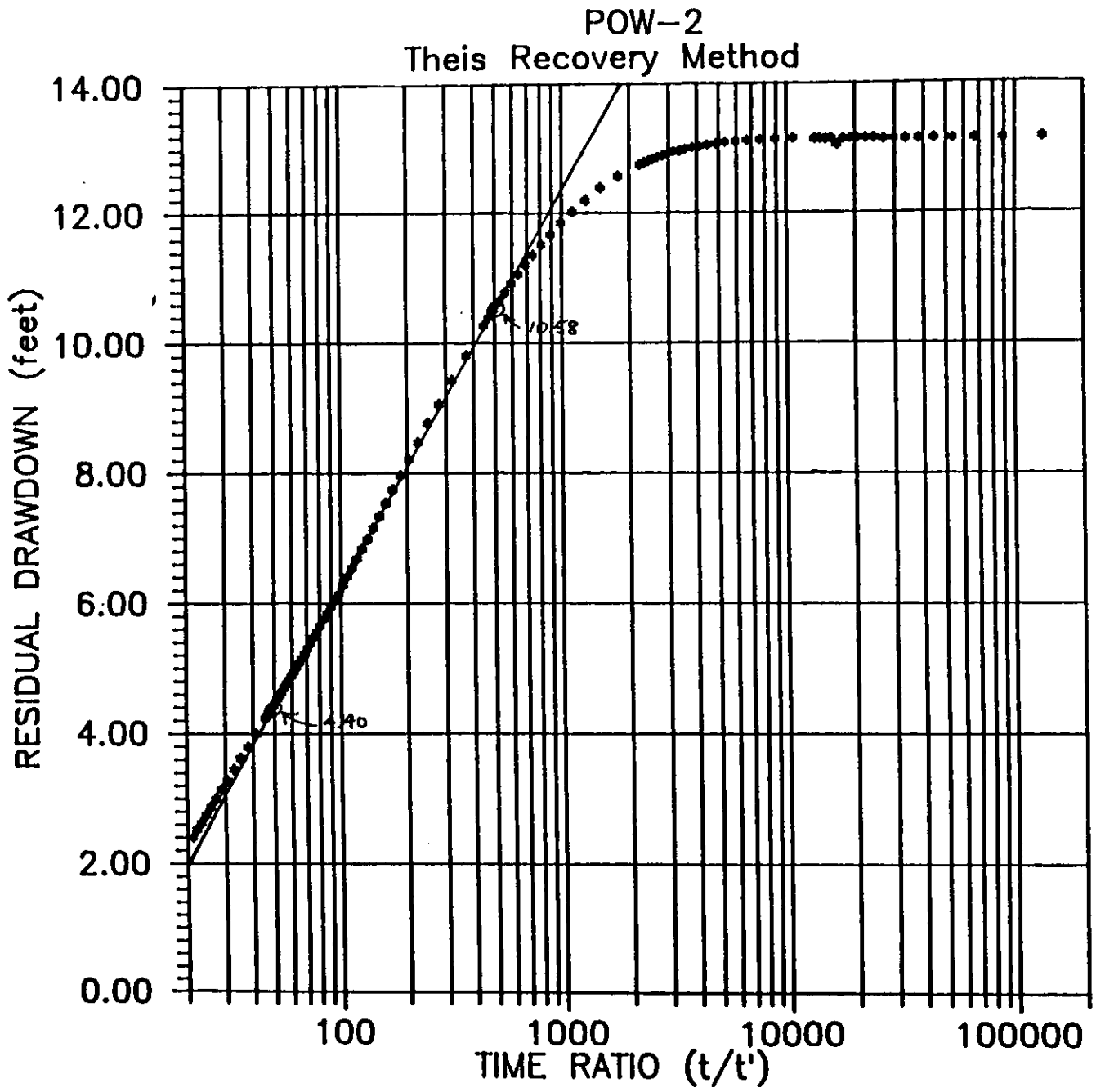
$T = \frac{2.3Q}{4\pi s'} = \frac{2.3(28{,}877\ ft^3/day)}{4\pi(7.45\ ft)}$

$T = 709.4\ ft^2/day$

$T = 5306\ gpd/ft$


POW–2
Walton Method
DRAWDOWN (feet)
10
1
0.1
Match Point
10⁻¹
1
10
10²
10³
TIME (minutes)


POW-2
Cooper-Jacob Method
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
DRAWDOWN (feet)
9.29
2.99
10⁻¹
1
10
10²
10³
TIME (minutes)



Theis Recovery Method

$Q = 150\ gpm = 28,877\ ft^3/day$

$s' = 10.58 - 4.4 = 6.18$

$$T = \frac{2.3Q}{4\pi s'} = \frac{2.3(28,877\ ft^3/day)}{4\pi(6.18)}$$

$T = 855.2\ ft^2/day$

$T = 6397\ gpd/ft$

BECHTEL – INDIANTOWN COGENERATION PROJECT
WELL: PW–1
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 6.09 FEET

t' (minutes)	t (minutes)	t/t'	DTW (feet)	s' (feet)
0.5	4417.5	8835.00	29.1	23.01
1	4418	4418.00	25.7	19.61
1.5	4418.5	2945.67	24.62	18.53
2	4419	2209.50	23.74	17.65
2.5	4419.5	1767.80	22.96	16.87
3	4420	1473.33	22.35	16.26
4	4421	1105.25	21.35	15.26
4.5	4421.5	982.56	21	14.91
5	4422	884.40	20.55	14.46
5.5	4422.5	804.09	20.32	14.23
6	4423	737.17	20	13.91
6.5	4423.5	680.54	19.73	13.64
7	4424	632.00	19.51	13.42
7.5	4424.5	589.93	19.52	13.43
8	4425	553.13	19.04	12.95
8.5	4425.5	520.65	18.84	12.75
9	4426	491.78	18.65	12.56
9.5	4426.5	465.95	18.45	12.36
10	4427	442.70	18.3	12.21
11	4428	402.55	17.91	11.82
12	4429	369.08	17.65	11.56
13	4430	340.77	17.38	11.29
14	4431	316.50	17.14	11.05
15	4432	295.47	16.91	10.82
17	4434	260.82	16.48	10.39
19	4436	233.47	16.1	10.01
21	4438	211.33	15.76	9.67
23	4440	193.04	15.45	9.36
27	4444	164.59	15.16	9.07
30	4447	148.23	14.68	8.59
37	4454	120.38	13.69	7.6
38	4455	117.24	13.6	7.51
55	4472	81.31	13.55	7.46
74	4491	60.69	11.75	5.66
88	4505	51.19	11.25	5.16
112	4529	40.44	10.6	4.51
238	4655	19.56	8.65	2.56

BECHTEL - INDIANTOWN COGENERATION PROJECT
WELL: POW-2
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 7.04 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
0.0333	4417.0333	132643.64	13.15
0.05	4417.05	88341.00	13.14
0.0666	4417.0666	66322.32	13.14
0.0833	4417.0833	53026.21	13.14
0.1	4417.1	44171.00	13.14
0.1166	4417.1166	37882.65	13.14
0.1333	4417.1333	33136.78	13.14
0.15	4417.15	29447.67	13.14
0.1666	4417.1666	26513.61	13.14
0.1833	4417.1833	24098.11	13.15
0.2	4417.2	22086.00	13.15
0.2166	4417.2166	20393.43	13.15
0.2333	4417.2333	18933.70	13.15
0.25	4417.25	17669.00	13.14
0.2666	4417.2666	16568.89	13.05
0.2833	4417.2833	15592.25	13.15
0.3	4417.3	14724.33	13.13
0.3166	4417.3166	13952.36	13.14
0.3333	4417.3333	13253.33	13.14
0.4167	4417.4167	10600.95	13.15
0.5	4417.5	8835.00	13.14
0.5833	4417.5833	7573.43	13.13
0.6667	4417.6667	6626.17	13.12
0.75	4417.75	5890.33	13.1
0.8333	4417.8333	5301.61	13.09
0.9167	4417.9167	4819.37	13.07
1	4418	4418.00	13.05
1.0833	4418.0833	4078.36	13.03
1.1667	4418.1667	3786.89	13.01
1.25	4418.25	3534.60	12.99
1.3333	4418.3333	3313.83	12.96
1.4166	4418.4166	3119.03	12.95
1.5	4418.5	2945.67	12.92
1.5833	4418.5833	2790.74	12.88
1.6667	4418.6667	2651.15	12.86
1.75	4418.75	2525.00	12.83
1.8333	4418.8333	2410.32	12.8
1.9167	4418.9167	2305.48	12.77

BECHTEL – INDIANTOWN COGENERATION PROJECT
WELL: POW-2
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 7.04 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
2	4419	2209.50	12.74
2.5	4419.5	1767.80	12.56
3	4420	1473.33	12.38
3.5	4420.5	1263.00	12.19
4	4421	1105.25	12.01
4.5	4421.5	982.56	11.84
5	4422	884.40	11.66
5.5	4422.5	804.09	11.51
6	4423	737.17	11.35
6.5	4423.5	680.54	11.2
7	4424	632.00	11.05
7.5	4424.5	589.93	10.91
8	4425	553.13	10.77
8.5	4425.5	520.65	10.64
9	4426	491.78	10.51
9.5	4426.5	465.95	10.39
10	4427	442.70	10.26
12	4429	369.08	9.8
14	4431	316.50	9.42
16	4433	277.06	9.05
18	4435	246.39	8.75
20	4437	221.85	8.46
22	4439	201.77	8.2
24	4441	185.04	7.96
26	4443	170.88	7.74
28	4445	158.75	7.53
30	4447	148.23	7.33
32	4449	139.03	7.15
34	4451	130.91	6.98
36	4453	123.69	6.83
38	4455	117.24	6.68
40	4457	111.43	6.54
42	4459	106.17	6.41
44	4461	101.39	6.28
46	4463	97.02	6.14
48	4465	93.02	6.05
50	4467	89.34	5.94
52	4469	85.94	5.84
54	4471	82.80	5.75

BECHTEL - INDIANTOWN COGENERATION PROJECT
WELL: POW-2
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 7.04 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
56	4473	79.88	5.65
58	4475	77.16	5.55
60	4477	74.62	5.47
62	4479	72.24	5.38
64	4481	70.02	5.3
66	4483	67.92	5.22
68	4485	65.96	5.15
70	4487	64.10	5.08
72	4489	62.35	5.01
74	4491	60.69	4.94
76	4493	59.12	4.88
78	4495	57.63	4.81
80	4497	56.21	4.75
82	4499	54.87	4.69
84	4501	53.58	4.63
86	4503	52.36	4.58
88	4505	51.19	4.53
90	4507	50.08	4.47
92	4509	49.01	4.42
94	4511	47.99	4.36
96	4513	47.01	4.32
98	4515	46.07	4.27
100	4517	45.17	4.22
110	4527	41.15	3.98
120	4537	37.81	3.79
130	4547	34.98	3.61
140	4557	32.55	3.44
150	4567	30.45	3.27
160	4577	28.61	3.13
170	4587	26.98	2.99
180	4597	25.54	2.86
190	4607	24.25	2.74
200	4617	23.09	2.62
210	4627	22.03	2.52
220	4637	21.08	2.4

BECHTEL – INDIANTOWN COGENERATION PROJECT
WELL: POW-1
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 6.2 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
0.0333	4417.0333	132643.64	22.22
0.05	4417.05	88341.00	22.2
0.0666	4417.0666	66322.32	22.17
0.0833	4417.0833	53026.21	22.13
0.1	4417.1	44171.00	22.08
0.1166	4417.1166	37882.65	22.03
0.1333	4417.1333	33136.78	21.96
0.15	4417.15	29447.67	21.9
0.1666	4417.1666	26513.61	21.83
0.1833	4417.1833	24098.11	21.75
0.2	4417.2	22086.00	21.68
0.2166	4417.2166	20393.43	21.59
0.2333	4417.2333	18933.70	21.51
0.25	4417.25	17669.00	21.44
0.2666	4417.2666	16568.89	21.33
0.2833	4417.2833	15592.25	21.26
0.3	4417.3	14724.33	21.18
0.3166	4417.3166	13952.36	21.09
0.3333	4417.3333	13253.33	21.04
0.4167	4417.4167	10600.95	20.64
0.5	4417.5	8835.00	20.25
0.5833	4417.5833	7573.43	19.91
0.6667	4417.6667	6626.17	19.59
0.75	4417.75	5890.33	19.3
0.8333	4417.8333	5301.61	19.04
0.9167	4417.9167	4819.37	18.77
1	4418	4418.00	18.54
1.0833	4418.0833	4078.36	18.34
1.1667	4418.1667	3786.89	18.13
1.25	4418.25	3534.60	17.94
1.3333	4418.3333	3313.83	17.76
1.4166	4418.4166	3119.03	17.58
1.5	4418.5	2945.67	17.41

BECHTEL – INDIANTOWN COGENERATION PROJECT
WELL: POW-1
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 6.2 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
1.5833	4418.5833	2790.74	17.29
1.6667	4418.6667	2651.15	17.12
1.75	4418.75	2525.00	16.99
1.8333	4418.8333	2410.32	16.86
1.9167	4418.9167	2305.48	16.72
2	4419	2209.50	16.59
2.5	4419.5	1767.80	15.98
3	4420	1473.33	15.4
3.5	4420.5	1263.00	14.94
4	4421	1105.25	14.53
4.5	4421.5	982.56	14.17
5	4422	884.40	13.85
5.5	4422.5	804.09	13.52
6	4423	737.17	13.25
6.5	4423.5	680.54	13.01
7	4424	632.00	12.76
7.5	4424.5	589.93	12.54
8	4425	553.13	12.33
8.5	4425.5	520.65	12.11
9	4426	491.78	11.96
9.5	4426.5	465.95	11.78
10	4427	442.70	11.61
12	4429	369.08	11.02
14	4431	316.50	10.51
16	4433	277.06	10.06
18	4435	246.39	9.64
20	4437	221.85	9.34
22	4439	201.77	9.04
24	4441	185.04	8.71
26	4443	170.88	8.52
28	4445	158.75	8.28
30	4447	148.23	7.97
32	4449	139.03	7.76
34	4451	130.91	7.56

BECHTEL - INDIANTOWN COGENERATION PROJECT
WELL: POW-1
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 6.2 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
36	4453	123.69	7.4
38	4455	117.24	7.24
40	4457	111.43	7.08
42	4459	106.17	6.93
44	4461	101.39	6.79
46	4463	97.02	6.66
48	4465	93.02	6.53
50	4467	89.34	6.41
52	4469	85.94	6.34
54	4471	82.80	6.21
56	4473	79.88	6.07
58	4475	77.16	5.96
60	4477	74.62	5.86
62	4479	72.24	5.77
64	4481	70.02	5.68
66	4483	67.92	5.6
68	4485	65.96	5.52
70	4487	64.10	5.44
72	4489	62.35	5.36
74	4491	60.69	5.29
76	4493	59.12	5.21
78	4495	57.63	5.14
80	4497	56.21	5.07
82	4499	54.87	5.01
84	4501	53.58	4.95
86	4503	52.36	4.88
88	4505	51.19	4.85
90	4507	50.08	4.76
92	4509	49.01	4.71
94	4511	47.99	4.65
96	4513	47.01	4.59
98	4515	46.07	4.5
100	4517	45.17	4.49
110	4527	41.15	4.21

BECHTEL – INDIANTOWN COGENERATION PROJECT
WELL: POW–1
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 6.2 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
120	4537	37.81	4.01
130	4547	34.98	3.82
140	4557	32.55	3.64
150	4567	30.45	3.43
160	4577	28.61	3.27
170	4587	26.98	3.12
180	4597	25.54	2.98
190	4607	24.25	2.82
200	4617	23.09	2.7
210	4627	22.03	2.57
220	4637	21.08	2.45
230	4647	20.20	2.32
240	4657	19.40	2.2
250	4667	18.67	2.1
260	4677	17.99	2
270	4687	17.36	1.91
280	4697	16.78	1.82
290	4707	16.23	1.74
300	4717	15.72	1.67
310	4727	15.25	1.59
320	4737	14.80	1.52
330	4747	14.38	1.45
340	4757	13.99	1.39
350	4767	13.62	1.33
360	4777	13.27	1.26
370	4787	12.94	1.19
380	4797	12.62	1.14
390	4807	12.33	1.08
400	4817	12.04	1.02
410	4827	11.77	0.98
420	4837	11.52	0.92
430	4847	11.27	0.87
440	4857	11.04	0.82
450	4867	10.82	0.78

BECHTEL - INDIANTOWN COGENERATION PROJECT
WELL: POW-1
THEIS RECOVERY METHOD
PUMP ON: DATE: 8/13/90 TIME: 1015
PUMP OFF: DATE: 8/16/90 TIME: 1152
PUMPING DURATION: 4417 MINUTES
STATIC DEPTH TO WATER: 6.2 FEET

t' (minutes)	t (minutes)	t/t'	s' (feet)
460	4877	10.60	0.73
470	4887	10.40	0.68
480	4897	10.20	0.65
490	4907	10.01	0.6
500	4917	9.83	0.56
510	4927	9.66	0.51
520	4937	9.49	0.48
530	4947	9.33	0.44
540	4957	9.18	0.4
550	4967	9.03	0.36
560	4977	8.89	0.33
570	4987	8.75	0.3
580	4997	8.62	0.27
590	5007	8.49	0.23
600	5017	8.36	0.19
610	5027	8.24	0.16
620	5037	8.12	0.14
630	5047	8.01	0.11
640	5057	7.90	0.08
650	5067	7.80	0.05
660	5077	7.69	0.01

PROJECT NO. SEF 30619.A0

PUMPING TEST REPORT

WELL PW-1 (PUMPING)/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/(RECOVERY)

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-SCOPE

DISTANCE FROM PUMPED WELL —

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/(STOPPED) (MINUTES)	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	Residual DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
0				52.0			SHUT DOWN PUMP @ 1152
0.5				29.1			
1				25.7			
1.5				24.62			
2				23.74			
2.5				22.96			
3				22.35			
4				21.35			
4.5				21.00			
5				20.55			
5.5				20.32			
6				20.00			
6.5				19.73			
7				19.51			
7.5				19.52			
8				19.04			
8.5				18.84			
9				18.65			
9.5				18.495			
10				18.30			
11				17.91			
12				17.65			
13				17.38			

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL PW-1 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope

DISTANCE FROM PUMPED WELL -

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	Residual DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
14				17.14			
15				16.91			
17				16.98			
19				16.10			
21				15.76			
23				15.45			
25							
27				15.16			
30	Min			14.68			
12:29				13.69			
12:30				13.60			
12:47				13.58			
1:06				11.75			
1:20				11.25			
1:44				10.60			GO TO LUNCH @ 2:00
3:50				8.65			HEAVY RAIN AT 3:00

FORM 36

PUMPING TEST REPORT

PROJECT NO. SEF30619.A0

WELL DOW-1 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED Steel Tape

DISTANCE FROM PUMPED WELL 50'

M.P. FOR WL's TOC EL

PUMP ON: DATE TIME

PUMP OFF: DATE 5-16-90 TIME

COMMENTS JNL

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
11:43		30	1.30	28.70			Pumping @ ≈ 150 GPM
11:45		30	1.37	28.63			
11:46		30	1.30	28.70			
11:47		30	1.24	28.76			
11:48		30	1.20	28.80			
0			-	-			STOP PUMP, TIME = 0
.15			2.54	27.66			
1			4.94	25.06			
1.5			6.07	23.93			
2			6.97	23.03			
2.5		↓	7.59	22.41			
3		25	3.27	21.73			
4		25	3.93	21.07			
5		25	4.61	20.39			
6		25	5.25	19.75			
7		25	5.72	19.28			
8		20	1.16	18.84			
9		20	1.55	18.45			
10		20	1.90	18.10			
11		20	2.26	17.74			
12		20	2.51	17.49			
13		20	2.72	17.28			
14		20	3.00	17.00			

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL PW-1 PUMPING (OBSERVATION) WELL

TYPE OF DATA DRAWDOWN (RECOVERY)

PUMPED WELL NO. PW-1 RADIUS 4'

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED Wetted Tape

DISTANCE FROM PUMPED WELL 50 Feet

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015

PUMP OFF: DATE 8-16-90 TIME 1152

COMMENTS JAL

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
15	-	20	3.24	16.76			
16		20	3.45	16.55			
17		20	3.66	16.34			
18		18	1.86	16.14			
19		18	2.05	15.95			
20		18	2.20	15.80			
22		18	2.50	15.50			
24		18	2.78	15.22			
26		18	3.05	14.95			
28		18	3.28	14.72			
30		18	3.51	14.49			
32		16	1.70	14.30			
34		16	1.92	14.08			
35		16	2.01	13.99			
40		16	2.46	13.54			
45		15	1.84	13.16			
55		15	2.40	12.60			
75		15	3.32	11.68			
90		12	0.80	11.20			
115		12	1.42	10.58			
240		-	-	8.65			NA - SCALE
285		-	-	8.25			
327		-	-	7.85			

FORM 362

PROJECT NO. SEFJ0619.A0

PUMPING TEST REPORT

WELL POW-2 PUMPING (OBSERVATION) WELL

TYPE OF DATA DRAWDOWN (RECOVERY)

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED Wetted Tape

DISTANCE FROM PUMPED WELL 200 ft

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 9/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
1151 am 0		40	20.17	19.83			Static
0.5		40	19.82	20.18			
1.25		40	21.00	20.00			
2		40	20.30	19.70			
3		40	20.65	19.35			
4		40	21.00	19.00			
5		40	21.35	18.65			
6		40	21.67	18.33			
7		40	21.90	17.90			
8		40	22.25	17.75			
9		40	22.51	17.49			
10		40	22.73	17.27			
11		40	22.85	17.15			
12		40	23.17	16.83			
13		40	23.36	16.64			
14		40	23.64	16.36			
15		40	23.78	16.22			
17		40	24.06	15.94			
19		40	24.37	15.63			
21		40	24.84	15.16			
23		40	24.88	15.12			
25		40	25.12	14.88			
27		40	25.33	14.67			

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL POW-2 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED Wetted Tape

DISTANCE FROM PUMPED WELL 200 Ft

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
31		40	25.71	14.29			
33		40	25.88	14.12			
38		40	26.18	13.82			
41		40	26.49	13.51			
45		40	26.72	13.28			
59		40	27.43	12.57			
75		40	28.05 ~~28.05~~ POK	11.95			
90		40	28.50	11.50			
115		40	29.04	10.96			
240		–	–	9.31			-M-Scope (Heavy rain begins @ 3:00pm)
300		–	–	8.71			

POW-1 RECOVERY
SE1000B
Environmental Logger
08/20 11:16

Unit# 00490 Test# 1

INPUT 1: Level (F)

Reference	0.00
Scale factor	29.92
Offset	0.00

Step# 1 08/16 11:45

Elapsed Time	Value
0.0000	- 22.23
0.0033	- 22.23
0.0066	- 22.23
0.0099	- 22.23
0.0133	- 22.23
0.0166	- 22.23
0.0200	- 22.22
0.0233	- 22.22
0.0266	- 22.22
0.0300	- 22.22
0.0333	- 22.22
0.0500	- 22.20
0.0666	- 22.17
0.0833	- 22.13
0.1000	- 22.08
0.1166	- 22.03
0.1333	- 21.96
0.1500	- 21.90
0.1666	- 21.83
0.1833	- 21.75
0.2000	- 21.68
0.2166	- 21.59
0.2333	- 21.51
0.2500	- 21.44
0.2666	- 21.33
0.2833	- 21.26
0.3000	- 21.18
0.3166	- 21.09
0.3333	- 21.04
0.4167	- 20.64
0.5000	- 20.25
0.5833	- 19.91
0.6667	- 19.59
0.7500	- 19.30
0.8333	- 19.04
0.9167	- 18.77
1.0000	- 18.54

1.0833	- 18.34
1.1667	- 18.13
1.2500	- 17.94
1.3333	- 17.76
1.4166	- 17.58
1.5000	- 17.41
1.5833	- 17.29
1.6667	- 17.12
1.7500	- 16.99
1.8333	- 16.86
1.9167	- 16.72
2.0000	- 16.59
2.5000	- 15.98
3.0000	- 15.40
3.5000	- 14.94
4.0000	- 14.53
4.5000	- 14.17
5.0000	- 13.85
5.5000	- 13.52
6.0000	- 13.25
6.5000	- 13.01
7.0000	- 12.76
7.5000	- 12.54
8.0000	- 12.33
8.5000	- 12.11
9.0000	- 11.96
9.5000	- 11.78
10.0000	- 11.61
12.0000	- 11.02
14.0000	- 10.51
16.0000	- 10.06
18.0000	- 9.64
20.0000	- 9.34
22.0000	- 9.04
24.0000	- 8.71
26.0000	- 8.52
28.0000	- 8.28
30.0000	- 7.97
32.0000	- 7.76
34.0000	- 7.56
36.0000	- 7.40
38.0000	- 7.24
40.0000	- 7.08
42.0000	- 6.93
44.0000	- 6.79
46.0000	- 6.66
48.0000	- 6.53
50.0000	- 6.41
52.0000	- 6.34
54.0000	- 6.21
56.0000	- 6.07
58.0000	- 5.96
60.0000	- 5.86
62.0000	- 5.77

64.0000	-	5.68
66.0000	-	5.60
68.0000	-	5.52
70.0000	-	5.44
72.0000	-	5.36
74.0000	-	5.29
76.0000	-	5.21
78.0000	-	5.14
80.0000	-	5.07
82.0000	-	5.01
84.0000	-	4.95
86.0000	-	4.88
88.0000	-	4.85
90.0000	-	4.76
92.0000	-	4.71
94.0000	-	4.65
96.0000	-	4.59
98.0000	-	4.50
100.000	-	4.49
110.000	-	4.21
120.000	-	4.01
130.000	-	3.82
140.000	-	3.64
150.000	-	3.43
160.000	-	3.27
170.000	-	3.12
180.000	-	2.98
190.000	-	2.82
200.000	-	2.70
210.000	-	2.57
220.000	-	2.45
230.000	-	2.32
240.000	-	2.20
250.000	-	2.10
260.000	-	2.00
270.000	-	1.91
280.000	-	1.82
290.000	-	1.74
300.000	-	1.67
310.000	-	1.59
320.000	-	1.52
330.000	-	1.45
340.000	-	1.39
350.000	-	1.33
360.000	-	1.26
370.000	-	1.19
380.000	-	1.14
390.000	-	1.08
400.000	-	1.02
410.000	-	0.98
420.000	-	0.92
430.000	-	0.87
440.000	-	0.82
450.000	-	0.78

460.000	-	0.73
470.000	-	0.68
480.000	-	0.65
490.000	-	0.60
500.000	-	0.56
510.000	-	0.51
520.000	-	0.48
530.000	-	0.44
540.000	-	0.40
550.000	-	0.36
560.000	-	0.33
570.000	-	0.30
580.000	-	0.27
590.000	-	0.23
600.000	-	0.19
610.000	-	0.16
620.000	-	0.14
630.000	-	0.11
640.000	-	0.08
650.000	-	0.05
660.000	-	0.01
670.000		0.00
680.000		0.02
690.000		0.05
700.000		0.08
710.000		0.11
720.000		0.14
730.000		0.16
740.000		0.18
750.000		0.20
760.000		0.23
770.000		0.25
780.000		0.28
790.000		0.30
800.000		0.32
810.000		0.33
820.000		0.36
830.000		0.38
840.000		0.40
850.000		0.42
860.000		0.44
870.000		0.46
880.000		0.48
890.000		0.50
900.000		0.51
910.000		0.53
920.000		0.55
930.000		0.57
940.000		0.58
950.000		0.60
960.000		0.62
970.000		0.63
980.000		0.65
990.000		0.66

POW-2 RECOVERY
SE1000B
Environmental Logger
08/20 11:20

Unit# 00490 Test# 1

INPUT 2: Level (F)

Reference	0.00
Scale factor	10.01
Offset	0.01

Step# 1 08/16 11:45

Elapsed Time	Value
0.0000	- 13.14
0.0033	- 13.14
0.0066	- 13.14
0.0099	- 13.14
0.0133	- 13.14
0.0166	- 13.15
0.0200	- 13.15
0.0233	- 13.15
0.0266	- 13.15
0.0300	- 13.15
0.0333	- 13.15
0.0500	- 13.14
0.0666	- 13.14
0.0833	- 13.14
0.1000	- 13.14
0.1166	- 13.14
0.1333	- 13.14
0.1500	- 13.14
0.1666	- 13.14
0.1833	- 13.15
0.2000	- 13.15
0.2166	- 13.15
0.2333	- 13.15
0.2500	- 13.14
0.2666	- 13.05
0.2833	- 13.15
0.3000	- 13.13
0.3166	- 13.14
0.3333	- 13.14
0.4167	- 13.15
0.5000	- 13.14
0.5833	- 13.13
0.6667	- 13.12
0.7500	- 13.10
0.8333	- 13.09
0.9167	- 13.07
1.0000	- 13.05

1.0833	- 13.03
1.1667	- 13.01
1.2500	- 12.99
1.3333	- 12.96
1.4166	- 12.95
1.5000	- 12.92
1.5833	- 12.88
1.6667	- 12.86
1.7500	- 12.83
1.8333	- 12.80
1.9167	- 12.77
2.0000	- 12.74
2.5000	- 12.56
3.0000	- 12.38
3.5000	- 12.19
4.0000	- 12.01
4.5000	- 11.84
5.0000	- 11.66
5.5000	- 11.51
6.0000	- 11.35
6.5000	- 11.20
7.0000	- 11.05
7.5000	- 10.91
8.0000	- 10.77
8.5000	- 10.64
9.0000	- 10.51
9.5000	- 10.39
10.0000	- 10.26
12.0000	- 9.80
14.0000	- 9.42
16.0000	- 9.05
18.0000	- 8.75
20.0000	- 8.46
22.0000	- 8.20
24.0000	- 7.96
26.0000	- 7.74
28.0000	- 7.53
30.0000	- 7.33
32.0000	- 7.15
34.0000	- 6.98
36.0000	- 6.83
38.0000	- 6.68
40.0000	- 6.54
42.0000	- 6.41
44.0000	- 6.28
46.0000	- 6.14
48.0000	- 6.05
50.0000	- 5.94
52.0000	- 5.84
54.0000	- 5.75
56.0000	- 5.65
58.0000	- 5.55
60.0000	- 5.47
62.0000	- 5.38

64.0000	-	5.30
66.0000	-	5.22
68.0000	-	5.15
70.0000	-	5.08
72.0000	-	5.01
74.0000	-	4.94
76.0000	-	4.88
78.0000	-	4.81
80.0000	-	4.75
82.0000	-	4.69
84.0000	-	4.63
86.0000	-	4.58
88.0000	-	4.53
90.0000	-	4.47
92.0000	-	4.42
94.0000	-	4.36
96.0000	-	4.32
98.0000	-	4.27
100.000	-	4.22
110.000	-	3.98
120.000	-	3.79
130.000	-	3.61
140.000	-	3.44
150.000	-	3.27
160.000	-	3.13
170.000	-	2.99
180.000	-	2.86
190.000	-	2.74
200.000	-	2.62
210.000	-	2.52
220.000	-	2.40
230.000	-	7.86
240.000	-	7.87
250.000	-	7.91
260.000	-	7.87
270.000	-	7.91
280.000	-	7.91
290.000	-	7.90
300.000	-	7.89
310.000	-	7.91
320.000	-	7.90
330.000	-	7.90
340.000	-	7.90
350.000	-	7.89
360.000	-	7.91
370.000	-	7.90
380.000	-	7.92
390.000	-	7.90
400.000	-	7.90
410.000	-	7.91
420.000	-	7.92
430.000	-	7.91
440.000	-	7.93
450.000	-	7.91

PROJECT NO. SEF30619.A8

PUMPING TEST REPORT

WELL MW-5 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED Wetted Tape

DISTANCE FROM PUMPED WELL 200 Ft

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/14/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
11:52am 0		6	1.16	4.84 ~~5.84~~			
34		22	16.81	5.19			
39		23	17.80	5.20			
42		25	19.80	5.20			
240		—	—	5.11			M-Scope (Heavy rain begins 3:00pm)
300				4 94			

FORM 3

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL PW-1 (PUMPING) OBSERVATION WELL

TYPE OF DATA (DRAWDOWN) RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES 2 @ 150 gpm

HOW Q MEASURED Manometer with 4" X 3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL —

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING (START / STOPPED) (MINUTES)	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
0:10 0				6.09	0		static
0:15 1				31.2	25.11		
1.50				33.5	27.41		16" manometer
2:15				34.8	28.71		
2:45				35.9	29.81		
3:10				36.9	30.81		
4:10				37.62	31.53		
5 min				38.05	31.96		
6				38.75	32.66		14.5" manometer
7				39.35	33.26		
8				39.83	33.74		
9				40.40	34.31		
10				40.91	34.82		
12				41.25	35.16		
17				42.25	36.16		14.5" manometer
18				42.50	36.41		
20				42.80	36.71		
32				44.20	38.11		14.5" manometer
36				44.60	38.51		
40				44.65	38.56		
60				46.21	40.12		
70				46.58	40.49		
104				47.69	41.60		

PUMPING TEST REPORT

PROJECT NO. SEF30619.A0

WELL PW-1 (PUMPING/OBSERVATION WELL)

TYPE OF DATA (DRAWDOWN/RECOVERY)

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL -

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 10:15 am

PUMP OFF: DATE 8/16/90 TIME 11:52 am

COMMENTS

TIME SINCE PUMPING (START/STOPPED) (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
113				47.85	41.96		
160				49.03	42.94		
202				49.3	43.21		
232				49.7	43.61		
262				49.83	43.74		
322				50.2	44.11		
382				50.60	44.51		
442				50.53	44.44		
539				50.47	44.38		
8:45 pm 630				51.15	45.06		
9:49 pm 694				51.17	45.08		Manometer = 14"
1:43 pm 808				52.03	45.94		
1:00 AM 885				51.98	45.89		MANOMETER = 14.5"
2:00 AM 945				52.00	45.91		
3:00 AM 1005				51.68	45.59		manometer 14.5"
4:00 AM 1065				51.74	45.65		
5:00 AM 1125				51.73	45.64		manometer 14.0"
6:00 AM 1185				52.00	45.91		manometer 14.5"
7:00 AM 1245				52.03	45.94		
8:00 AM 1305				51.79	45.70		manometer 14.0"
9:36 AM 1401		70.00	18.02	51.98	45.89		14'0"
10:45 1470		70.00	18.40	51.60	45.51		19'0"
12:57 pm 1602				51.75	45.66		Ran From 12:15 - 12:30 19'0"

PUMPING TEST REPORT

PROJECT NO. SEF30619.A0

WELL PW-1 · (PUMPING)/OBSERVATION WELL

TYPE OF DATA (DRAWDOWN)/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~ 150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL —

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

	TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
2:00pm	1665				51.78	45.69		Getting Ready To Run very little.
3:00pm	1725				51.70	45.66		
3:59pm	1784				51.76	45.67		14"
4:59pm	1844				51.62	45.53		
7:22pm	1987				51.50	45.41		13 inches (DSI adjusts)
9:39pm	2124				53.06	46.97		14.5"
11:30pm	2235				53.17	47.08		
7:00am	2685				53.58	47.49		15¼" Rate up
9:58am	2863				53.21	47.12		15"
12:57pm	3042				53.13	47.04		15"
14:36pm	3141				—			Hard rain 1436 - 1458
1555	3220				53.17	47.08		15"
1901	3406				52.92	46.83		15"
2203	3588				52.79	46.70		
1/16/90 0100am	—				—			No reading
0408	3953				53.14	47.05		15"
0654	4119				53.20	47.11		15"
0952am	4297				51.64	45.55		14" (Orifice changed)
	4407				51.80			
	4409				51.90			
	4410				51.99			
	4411				52.00			

POW-1 DRAWDOWN
SE1000B
Environmental Logger
08/20 10:50

Unit# 00490 Test# 1

INPUT 1: Level (F)

Reference 0.00
Scale factor 29.92
Offset 0.00

Step# 0 08/13 10:07

Elapsed Time		Value
0.0000	-	0.00
0.0033	-	0.00
0.0066	-	0.01
0.0099	-	0.02
0.0133	-	0.03
0.0166	-	0.03
0.0200	-	0.04
0.0233	-	0.06
0.0266	-	0.07
0.0300	-	0.09
0.0333	-	0.10
0.0500	-	0.16
0.0666	-	0.22
0.0833	-	0.29
0.1000	-	0.35
0.1166	-	0.43
0.1333	-	0.50
0.1500	-	0.59
0.1666	-	0.68
0.1833	-	0.78
0.2000	-	0.87
0.2166	-	0.97
0.2333	-	1.06
0.2500	-	1.15
0.2666	-	1.24
0.2833	-	1.33
0.3000	-	1.42
0.3166	-	1.50
0.3333	-	1.60
0.4167	-	2.00
0.5000	-	2.37
0.5833	-	2.69
0.6667	-	3.03
0.7500	-	3.33
0.8333	-	3.57
0.9167	-	3.83
1.0000	-	4.04

1.0833	-	4.26
1.1667	-	4.48
1.2500	-	4.66
1.3333	-	4.83
1.4166	-	5.01
1.5000	-	5.17
1.5833	-	5.31
1.6667	-	5.47
1.7500	-	5.62
1.8333	-	5.76
1.9167	-	5.88
2.0000	-	6.02
2.5000	-	6.68
3.0000	-	7.24
3.5000	-	7.72
4.0000	-	8.10
4.5000	-	8.44
5.0000	-	8.76
5.5000	-	9.05
6.0000	-	9.35
6.5000	-	9.60
7.0000	-	9.85
7.5000	-	10.07
8.0000	-	10.28
8.5000	-	10.49
9.0000	-	10.68
9.5000	-	10.85
10.0000	-	11.02
12.0000	-	11.62
14.0000	-	12.11
16.0000	-	12.54
18.0000	-	12.91
20.0000	-	13.21
22.0000	-	13.53
24.0000	-	13.78
26.0000	-	14.04
28.0000	-	14.28
30.0000	-	14.47
32.0000	-	14.68
34.0000	-	14.85
36.0000	-	15.04
38.0000	-	15.20
40.0000	-	15.32
42.0000	-	15.48
44.0000	-	15.62
46.0000	-	15.75
48.0000	-	15.87
50.0000	-	16.00
52.0000	-	16.15
54.0000	-	16.30
56.0000	-	16.42
58.0000	-	16.52
60.0000	-	16.61
62.0000	-	16.70

64.0000	- 16.81
66.0000	- 16.92
68.0000	- 16.96
70.0000	- 17.04
72.0000	- 17.09
74.0000	- 17.18
76.0000	- 17.27
78.0000	- 17.32
80.0000	- 17.38
82.0000	- 17.45
84.0000	- 17.50
86.0000	- 17.57
88.0000	- 17.63
90.0000	- 17.72
92.0000	- 17.78
94.0000	- 17.84
96.0000	- 17.88
98.0000	- 17.94
100.000	- 17.99
110.000	- 18.24
120.000	- 18.46
130.000	- 18.65
140.000	- 18.85
150.000	- 18.93
160.000	- 19.16
170.000	- 19.32
180.000	- 19.50
190.000	- 19.61
200.000	- 19.72
210.000	- 19.84
220.000	- 19.90
230.000	- 20.02
240.000	- 20.15
250.000	- 20.21
260.000	- 20.26
270.000	- 20.38
280.000	- 20.42
290.000	- 20.47
300.000	- 20.57
310.000	- 20.66
320.000	- 20.74
330.000	- 20.79
340.000	- 20.83
350.000	- 20.87
360.000	- 20.92
370.000	- 21.01
380.000	- 21.05
390.000	- 21.11
400.000	- 21.17
410.000	- 21.21
420.000	- 21.21
430.000	- 21.20
440.000	- 21.24
450.000	- 21.20

460.000	- 21.27
470.000	- 21.28
480.000	- 21.26
490.000	- 21.35
500.000	- 21.37
510.000	- 21.39
520.000	- 21.41
530.000	- 21.42
540.000	- 21.43
550.000	- 21.43
560.000	- 21.46
570.000	- 21.51
580.000	- 21.60
590.000	- 21.59
600.000	- 21.60
610.000	- 21.69
620.000	- 21.80
630.000	- 21.81
640.000	- 21.84
650.000	- 21.81
660.000	- 21.80
670.000	- 21.78
680.000	- 21.85
690.000	- 21.90
700.000	- 21.93
710.000	- 21.94
720.000	- 21.92
730.000	- 21.86
740.000	- 22.08
750.000	- 22.21
760.000	- 22.26
770.000	- 22.29
780.000	- 22.30
790.000	- 22.33
800.000	- 22.31
810.000	- 22.35
820.000	- 22.37
830.000	- 22.36
840.000	- 22.36
850.000	- 22.37
860.000	- 22.39
870.000	- 22.37
880.000	- 22.38
890.000	- 22.38
900.000	- 22.36
910.000	- 22.38
920.000	- 22.42
930.000	- 22.42
940.000	- 22.42
950.000	- 22.42
960.000	- 22.38
970.000	- 22.38
980.000	- 22.35
990.000	- 22.37

```
  1000.00       - 22.32
  1100.00       - 22.38
  1200.00       - 22.44
  1300.00       - 22.38
  1400.00       - 22.33
  1500.00       - 22.32
  1600.00       - 22.39
  1700.00       - 22.37
  1800.00       - 22.34
  1900.00       - 22.22
  2000.00       - 22.18
  2100.00       - 22.75
  2200.00       - 22.88
  2300.00       - 22.93
  2400.00       - 23.00
  2500.00       - 22.95
  2600.00       - 22.86
  2700.00       - 22.97
  2800.00       - 23.04
  2900.00       - 22.87
  3000.00       - 22.82
  3100.00       - 22.87
  3200.00       - 22.96
  3300.00       - 22.94
  3400.00       - 22.87
  3500.00       - 22.67
  3600.00       - 22.81
  3700.00       - 22.80
  3800.00       - 22.73
  3900.00       - 22.73
  4000.00       - 22.74
  4100.00       - 22.82
  4200.00       - 22.22
  4300.00       - 22.18
  4400.00       - 22.17
END
```

POW-2 DRAWDOWN
SE1000B
Environmental Logger
08/20 10:59

Unit# 00490 Test# 1

INPUT 2: Level (F)

Reference	0.00
Scale factor	10.01
Offset	0.01

Step# 0 08/13 10:07

Elapsed Time	Value
0.0000	0.00
0.0033	0.00
0.0066	0.00
0.0099	0.00
0.0133	0.00
0.0166	0.00
0.0200	0.00
0.0233	0.00
0.0266	0.00
0.0300	0.00
0.0333	0.00
0.0500	0.00
0.0666	0.00
0.0833	0.00
0.1000	0.00
0.1166	0.00
0.1333	0.00
0.1500	0.00
0.1666	0.00
0.1833	0.00
0.2000	0.00
0.2166	0.00
0.2333	0.00
0.2500	0.00
0.2666	0.00
0.2833	0.00
0.3000	0.00
0.3166	0.00
0.3333	0.00
0.4167	0.00
0.5000	- 0.00
0.5833	- 0.01
0.6667	- 0.02
0.7500	- 0.03
0.8333	- 0.05
0.9167	- 0.06
1.0000	- 0.09

1.0833	-	0.11
1.1667	-	0.13
1.2500	-	0.16
1.3333	-	0.18
1.4166	-	0.21
1.5000	-	0.24
1.5833	-	0.27
1.6667	-	0.30
1.7500	-	0.33
1.8333	-	0.36
1.9167	-	0.39
2.0000	-	0.42
2.5000	-	0.61
3.0000	-	0.80
3.5000	-	0.99
4.0000	-	1.18
4.5000	-	1.36
5.0000	-	1.53
5.5000	-	1.70
6.0000	-	1.86
6.5000	-	2.02
7.0000	-	2.17
7.5000	-	2.32
8.0000	-	2.46
8.5000	-	2.60
9.0000	-	2.73
9.5000	-	2.87
10.0000	-	2.99
12.0000	-	3.47
14.0000	-	3.88
16.0000	-	4.25
18.0000	-	4.58
20.0000	-	4.89
22.0000	-	5.17
24.0000	-	5.42
26.0000	-	5.65
28.0000	-	5.87
30.0000	-	6.07
32.0000	-	6.25
34.0000	-	6.42
36.0000	-	6.58
38.0000	-	6.74
40.0000	-	6.88
42.0000	-	7.01
44.0000	-	7.14
46.0000	-	7.25
48.0000	-	7.38
50.0000	-	7.49
52.0000	-	7.60
54.0000	-	7.70
56.0000	-	7.81
58.0000	-	7.91
60.0000	-	8.00
62.0000	-	8.09

64.0000	-	8.18
66.0000	-	8.25
68.0000	-	8.33
70.0000	-	8.41
72.0000	-	8.47
74.0000	-	8.55
76.0000	-	8.63
78.0000	-	8.68
80.0000	-	8.75
82.0000	-	8.81
84.0000	-	8.86
86.0000	-	8.92
88.0000	-	8.97
90.0000	-	9.03
92.0000	-	9.09
94.0000	-	9.14
96.0000	-	9.20
98.0000	-	9.24
100.000	-	9.29
110.000	-	9.52
120.000	-	9.72
130.000	-	9.91
140.000	-	10.08
150.000	-	10.22
160.000	-	10.38
170.000	-	10.50
180.000	-	10.67
190.000	-	10.80
200.000	-	10.91
210.000	-	11.01
220.000	-	11.09
230.000	-	11.19
240.000	-	11.29
250.000	-	11.37
260.000	-	11.43
270.000	-	11.51
280.000	-	11.58
290.000	-	11.63
300.000	-	11.71
310.000	-	11.78
320.000	-	11.85
330.000	-	11.91
340.000	-	11.96
350.000	-	12.00
360.000	-	12.05
370.000	-	12.11
380.000	-	12.16
390.000	-	12.20
400.000	-	12.26
410.000	-	12.31
420.000	-	12.34
430.000	-	12.36
440.000	-	12.39
450.000	-	12.40

460.000 - 12.43
470.000 - 12.46
480.000 - 12.49
490.000 - 12.51
500.000 - 12.56
510.000 - 12.58
520.000 - 12.60
530.000 - 12.62
540.000 - 12.63
550.000 - 12.65
560.000 - 12.67
570.000 - 12.70
580.000 - 12.74
590.000 - 12.76
600.000 - 12.78
610.000 - 12.81
620.000 - 12.87
630.000 - 12.90
640.000 - 12.93
650.000 - 12.94
660.000 - 12.95
670.000 - 12.95
680.000 - 12.97
690.000 - 13.00
700.000 - 13.03
710.000 - 13.05
720.000 - 13.07
730.000 - 13.06
740.000 - 13.12
750.000 - 13.15
760.000 - 13.21
770.000 - 13.23
780.000 - 13.25
790.000 - 13.28
800.000 - 13.28
810.000 - 13.29
820.000 - 13.34
830.000 - 13.32
840.000 - 13.33
850.000 - 13.33
860.000 - 13.35
870.000 - 13.35
880.000 - 13.36
890.000 - 13.36
900.000 - 13.36
910.000 - 13.37
920.000 - 13.39
930.000 - 13.40
940.000 - 13.40
950.000 - 13.41
960.000 - 13.40
970.000 - 13.40
980.000 - 13.39
990.000 - 13.39

```
  1000.00       - 13.39
  1100.00       - 13.38
  1200.00       - 13.43
  1300.00       - 13.39
  1400.00       - 13.37
  1500.00       - 13.34
  1600.00       - 13.34
  1700.00       - 13.33
  1800.00       - 13.31
  1900.00       - 13.24
  2000.00       - 13.21
  2100.00       - 13.46
  2200.00       - 13.55
  2300.00       - 13.59
  2400.00       - 13.62
  2500.00       - 13.60
  2600.00       - 13.54
  2700.00       - 13.60
  2800.00       - 13.65
  2900.00       - 13.57
  3000.00       - 13.53
  3100.00       - 13.56
  3200.00       - 13.57
  3300.00       - 13.58
  3400.00       - 13.56
  3500.00       - 13.47
  3600.00       - 13.53
  3700.00       - 13.51
  3800.00       - 13.48
  3900.00       - 13.47
  4000.00       - 13.48
  4100.00       - 13.50
  4200.00       - 13.25
  4300.00       - 13.18
  4400.00       - 13.16
END
```

PROJECT NO. SEF30619.A6

PUMPING TEST REPORT

WELL POW-2 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN)/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~ 150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL ~ 200 feet

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 10:15:15

PUMP OFF: DATE 8/ /90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	min	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
8:02am 0	0			7.04	0		static
24:15 14:00	14			10.95	3.91		
16	16			11.25	4.21		
22	22			12.17	5.13		
24	24			12.43	5.39		
25	25			12.54	5.50		
26	26			12.63	5.59		
27	27			12.77	5.73		
28	28			12.87	5.83		
29	29			12.98	5.94		
30	30			13.09	6.03		
46	46			14.30	7.26		
47	47			14.34	7.30		
50	50			14.51	7.47		
53	53			14.67	7.63		
55	55			14.77	7.73		
57	57			14.87	7.83		
1:13	73			15.54	8.50		
1:16	76			15.65	8.61		
1:41	101			16.35	9.31		
2:34	154			17.6	10.56		
3:27	207			18.2	11.16		
3:57	237			18:47	11.43		

PUMPING TEST REPORT

PROJECT NO. SEF30619.A0

WELL POW-2 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN) RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL 200 feet

M.P. FOR WL's TOC EL

PUMP ON: DATE 2/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES)			WATER LEVEL READINGS		DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
	hrs min	(min)	REFERENCE	MEASURE				
	4:27	267			18.66	11.62		
	4:57	297			18.89	11.85		
	5:27	327			19.05	12.01		
	5:57	357			19.20	12.16		
	6:27	387			19.37	12.37		
	6:57	417			19.53	12.49		
	7:30	450			19.60	12.56		
	9:04	544			19.72	12.68		
1:02pm	10:47	647			19.98	12.94		
9:58pm	11:43	703			20.08	13.04		
11:54pm		819			20.36	13.32		
1:14 AM		899			20.43	13.39		
2:08 AM		953			20.46	13.42		
3:03 AM		1010			20.42	13.38		
4:05 AM		1070			20.43	13.39		
5:05 AM		1130			20.44	13.40		
6:07 AM		1192			20.49	13.45		
7:04 AM		1249			20.49	13.44		
8:04 AM		1309			20.43	13.39		
9:45		1410	~~HOLD~~ 40.00	WET 19.62	20.38	13.34		
10:54		1479	40.00	19.61	20.39	13.35		
1:05 PM		1610			20.40	13.36		RAIN 12:10 - 12:35
2:05		1670			20.37	13.33		STARTED RAINING very little

FORM 3E

PUMPING TEST REPORT

PROJECT NO. SEF30619.A05

WELL POW-2 PUMPING/(OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN)/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL 200 ft

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING (START) STOPPED	(min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
8/14/90 3:10 pm	1735			20.37	13.33		
4:03 pm	1788			20.39	13.31		
5:04 pm	1849			20.32	13.28		
7:34 pm	1999			20.25	13.21		
9:46 pm	2131			20.56	13.52		Slight increase in flow rate
11:35 pm	2240			20.62	13.58		
8/15/90 7:04 am	2689			20.69	13.65		
10:02 am	2867			20.65	13.61		
1:01 pm	3046			20.63	13.59		
4:00 pm	3225			20.64	13.60		
7:06 pm	3411			20.52	13.48		
10:09 pm	3594			20.59	13.55		
8/16/90 1:00 am	3765			—			No reading
4:13 am	3958			20.52	13.48		
7:06 am	4125			20.56	13.52		
9:56 am	4301			20.25	13.21		

FORM 3(

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL MW-2 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/14/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/STOPPED MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
1:20am 0				5.15	0		Static
150				5.18	0.03		
506				5.19	0.04		

FORM 36:

PROJECT NO. SEF30619.A8

PUMPING TEST REPORT

WELL MW-3 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/14/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t' (min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
0		Hole	wet	5.93	0		Static
Hour Min 1:57	118			6.00	0.07		
3:38	218			6.03	0.10		
4:35	275			6.04	0.11		
5:34	334			6.04	0.11		
6:04	364			6.05	0.12		
7:04	424			6.09	0.16		
8:23	503			6.07	0.14		
Hr. Min 10:57	657			6.13	0.20		
11:50	710			6.14	0.21		Drizzle begins
	829			6.08	0.15		Heavy Rain
	908			5.99	0.06		Rain Subsides
	959			5.96	0.03		
	1016			5.89	-0.04		
	1075			5.84	-0.09		
	1134			5.80	-0.13		
	1196			5.78	-0.15		
	1253			5.76	-0.17		
	1314			5.74	-0.19		
9:55	1420	24.00	18.26	5.74	-0.19		
1:15	1620			5.68	-0.25		Rain 12:45 - 12:35
3:17	1742			5.71	-0.22		
5:09	1854			5.90	-0.03		

FORM 36

PROJECT NO. SEF 30619.A0

PUMPING TEST REPORT

WELL MW-3 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN) RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME

COMMENTS

	TIME SINCE PUMPING (START) STOPPED (MINUTES)	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
7:39 pm	2004				5.60	-0.33		
7:52 pm	2137				5.58	-0.35		
11:41 pm	2246				5.58	-0.35		
7:10 am	2695				5.54	-0.39		
10:10 am	2875				5.54	-0.39		
1:09 pm	3054				5.56	-0.37		
4:07 pm	3232				5.54	-0.39		
10 pm	3415				5.54	-0.39		
10:14 pm	3599				5.56	-0.37		
3/16/90 1:00 am	-				-			
4:08 am	3953				5.59	-0.34		
7:04 am	4129				5.44	-0.49		
10:03 am	4308				5.45	-0.48		

FORM 362

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL MW-4 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

	TIME SINCE PUMPING START/STOPPED (MINUTES)	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
9:31 am	0				6.65	0		Static
	125				6.70	0.05		
	186				6.70	0.05		
	281				6.76	0.11		
	371				6.80	0.15		
	431				6.84	0.19		
	511				6.82	0.17		
9:20pm	665				6.82	0.17		
10:15 pm	720				6.87	0.22		
12:11 am	836				6.72	0.07		Rain (Heavy)
:35am	920				6.59	-0.06		
:20 am	965				6.54	-0.11		
:16 am	1021				6.49	-0.16		
4:15 am	1080				6.45	-0.20		
5:14 AM	1139				6.43	-0.22		
6:16 AM	1201				6.41	-0.24		
7:12 AM	1257				6.39	-0.26		
8:13 AM	1318				6.38	-0.27		
10:00 am	1425		29.00	17.56	6.44	-0.21		
1:20	1625			-	6.38	-0.27		RAIN 12:15-12:35
3:21 pm	1746				6.37	-0.28		
5:14	1859				6.37	-0.28		
7:43 pm	2008				6.38	-0.27		

PROJECT NO. SEF30619.A5

PUMPING TEST REPORT

WELL MW-4 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN) RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

	TIME SINCE PUMPING (START) STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
9:58 pm	2143				6.35	-0.30		
11:47 pm	2252				6.37	-0.28		
8/15/90 7:17 am	2702				6.38	-0.27		
9:18 am	2883				6.39	-0.26		
1:22 pm	3067				6.40	-0.25		
4:18 pm	3244				6.32	-0.33		
7:13 pm	3418				6.39	-0.26		
:17 pm	3602				6.37	-0.28		
-/90 1:00 am	-				-	-		No reading
4:16 am	3961				6.32	-0.33		
7:12 am	4137				6.26	-0.39		
10:18 am	4323				6.28	-0.37		
				-				

FORM 36

PROJECT NO. SEF30619.26

PUMPING TEST REPORT

WELL MW-5 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN) / RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL 200 feet

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING (START) STOPPED (MINUTES	t (min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
1:03am 0	0			5.76	0		Static
15 min	15			5.71	-0.05		
23	23			5.72	-0.04		
48	48			5.71	-0.05		
58	58			5.71	-0.05		
1:14	74			5.71	-0.05		
1:42	102			5.71	-0.05		
2:35	155			5.76	0		
3:29	209			5.76	0		
3:59	239			5.78	0.02		
4:29	269			5.78	0.02		
4:59	299			5.74	-0.02		
5:29	329			5.75	-0.01		
5:59	359			5.75	-0.01		
6:29	389			5.77	0.01		
6:59	419			5.80	0.04		
7:31	451			5.80	0.04		
9:03	543			5.79	0.03		
7:04pm 10:49 (hour min)	649			5.81	0.05		
10:00pm 11:45	705			5.83	0.07		Heavy Rain begins
11:56pm	821			5.66	-0.10		
1:15AM	900			5.54	-0.22		LIGHT DRIZZLE
8:09 Am	954			5.48	-0.28		

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL MW-5 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL 200 ft

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

8/14/90	TIME SINCE PUMPING START/STOPPED (MINUTES)	t/t' (min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
3:07 AM		1012			5.42	-0.34		
4:06 AM		1071			5.37	-0.39		
5:06 AM		1131			5.34	-0.42		
6:08 AM		1193			5.32	-0.44		
7:05 AM		1250			5.30	-0.46		
8:05 AM		1310			5.29	-0.47		
9:46		1411	21.00	15.82	5.18	-0.58		
9:56		1481	21.00	15.67	5.33	-0.43		
1:10 PM		1615			5.25	-0.51		RAIN 12:15 - 12:30
2:07		1672			5.27	-0.49		RAINING very LITTLE.
3:12		1737			5.23	-0.53		
4:04		1789			5.20	-0.56		
5:05		1850			5.19	-0.57		
7:35 pm		2000			5.17	-0.59		
9:47 pm		2132			5.17	-0.59		
11:36 pm		2241			5.17	-0.59		

PROJECT NO. SEF30679.A6

PUMPING TEST REPORT

WELL MW-5 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~ 150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL 200 Feet

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	Date	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
8/15/90 0706	2691			5.18			
1003	2868			5.19			
1303	3048			5.26			
1601	3226			5.17			
1907	3412			5.14			
2209	3594			5.11			
8/16/90 0100							NO RECORDING
0414	3959			5.29			
0704	4129			5.14			
0958	4303			5.10			

FORM 36

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL OW-101 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN) RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME

COMMENTS

	TIME SINCE PUMPING START/ STOPPED (MINUTES)	t (min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
9:13am	0	0			5.65	0.00		Static
	hr min 2:22	142			5.71	0.06		
5:09	~~5:09~~	309			5.73	0.08		
	6:09	369			5.75	0.10		
	8:44	524			5.73	0.08		Rain begins @ hrs min 8:43 into test (brief)
9:41pm	hr min 11:26	686			5.77	0.12		
10:37pm	12:22	742			5.78	0.13		Steady Rain (Heavy)
7:27am		852			4.93	-0.72		RAIN SUBSIDED TO DRIZZLE
1:46 am		931			4.80	-0.85		
3:29 am		974			4.77	-0.88		
225 am		1030			4.76	-0.89		
5:22am		1088			4.76	-0.89		
5:22 AM		1147			4.78	-0.87		
5:24 AM		1209			4.78	-0.87		
7:21 AM		1266			4.79	-0.86		
9:20 AM		1325			4.82	-0.83		
10:14		1439	24.00	19.11	4.89	-0.76		
12:48		1593	24.00	19.29	4.71	-0.94		Rain 12:45 - 12:35
3:34		1759			4.76	-0.89		
5:31		1876		-	4.65	-1.00		
7:52pm		2017			4.67	-0.98		
								Road inaccessible to car

PROJECT NO. SEF30619.A6

PUMPING TEST REPORT

WELL OW-101 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"X3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t (min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
0726	2711			4.76	-0.89		
1025am	2890			4.79	-0.86		
1331	3076			4.87	-0.78		
1627	3252			4.72	-0.93		Rain 1430-1450
1921	3436			4.74	-0.91		
2289	3624			4.78	-0.87		
0100	—			—	—		No Reading
0425	3980			4.82	-0.83		
0722	4157			4.85	-0.80		
1029	4344			4.89	-0.76		

FORM 36

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL OW-102 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

	TIME SINCE PUMPING START/STOPPED (MINUTES)	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
8:59 am	0				6.85			Static
	2:13				6.90			
	5:41				6.95			
	6:33				7.0			
	8:53				7.01			
9:31 pm	11:16				7.07			
10:26 pm	12:11				7.08			Steady rain
12:38 am					6.84			
1:54 am					6.71			Rain stopped
2:36 am					6.66			
3:32 am					6.59			
4:30 am					6.55			
5:30 am					6.53			
6:30 am					6.50			
7:27 am					6.49			
8:26 am					6.49			
10.18			24:00	17.48	6.52			
12:39 pm			24:00	17.51	6.49			Rain 12:10 - 12:35
3:46					6.51			
5:41 pm					6.40			
7:58 pm					6.38			
9:07 pm					6.38			
11:55 pm					6.39			

PROJECT NO. SEF30619.AP

PUMPING TEST REPORT

WELL OW-102 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4" x 3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

TIME SINCE PUMPING START/ STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
0732				6.40			
1035				6.42			
1341				6.45			
1636				6.40			
1923				6.41			
2233				6.42			
0100							NO Reading
0437				6.41			
0733				6.38			
1039				6.40			

FORM-3(

CH2MHILL **PUMPING TEST REPORT**

PROJECT NO. SEF30619.A1

WELL OW-115 PUMPING (OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN) RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015am

PUMP OFF: DATE 8/16/90 TIME 1152am

COMMENTS

	TIME SINCE PUMPING (START) STOPPED (MINUTES	(min)	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAWDOWN (ft)	ADJUSTED DRAWDOWN (ft)	REMARKS
8:47am	0				5.63	0		
	127				5.63	0		
	190				5.64	0.01		
	224				5.65	0.02		
	374				5.66	0.03		
	434				5.7	0.07		
	513				5.68	0.05		
1:23 pm	668				5.70	0.07		
2:18 pm	723				5.71	0.08		
12:17am	842				5.70	0.07		
1:39 am	924				5.68	0.05		
2:22AM	967				5.64	0.01		
3:20 am	1025				5.52	-0.09		
4:17 AM	1082				5.45	-0.18		
5:16 AM	1141				5.29	-0.34		
6:18 AM	1203				5.22	-0.41		
7:15 AM	1260				5.19	-0.44		
8:15 AM	1320				5.17	-0.46		
10:06	1931		25.00	19.77	5.23	-0.40		
1:23pm	1628				5.19	-0.44		RAIN 12:45 - 12:55 PM
3:24	1749				5.21	-0.42		
5:18	1863				5.13	-0.50		
7:46pm	2011				5.10	-0.53		

PROJECT NO. SEF30619.A0

PUMPING TEST REPORT

WELL OW-115 PUMPING/(OBSERVATION) WELL

TYPE OF DATA (DRAWDOWN)/RECOVERY

PUMPED WELL NO. PW-1 RADIUS 4"

PUMPING RATES ~150 gpm

HOW Q MEASURED Manometer with 4"x3" orifice plate

HOW WL's MEASURED M-Scope, Wetted Tape

DISTANCE FROM PUMPED WELL

M.P. FOR WL's TOC EL

PUMP ON: DATE 8/13/90 TIME 1015 am

PUMP OFF: DATE 8/16/90 TIME 1152 am

COMMENTS

TIME SINCE PUMPING (START) STOPPED (MINUTES	t/t'	WATER LEVEL READINGS REFERENCE	WATER LEVEL READINGS MEASURE	DEPTH TO WATER (ft)	DRAW-DOWN (ft)	ADJUSTED DRAW-DOWN (ft)	REMARKS
2146				5.10	-0.53		
2255				5.10	-0.53		
2700				5.12	-0.51		
2881				5.13	-0.50		
3065				5.19	-0.44		
3241				5.21	-0.42		
3420				5.16	-0.47		
3604				5.18	-0.45		
-				-	-		No reading
3963				5.04	-0.59		
4141				4.95	-0.68		
4326				4.97	-0.66		
			-				

FORM 362

LABORATORY RESULTS FOR WATER QUALITY SAMPLING

Engineers
Planners
Economists
Scientists

August 31, 1990

SEF30619.A0 | AAD241

RE: PG&E/Bechtel laboratory samples

Dear Jeff Lehnen/GNV:

On August 17, 1990 the CH2M Hill Gainesville Laboratory received 7 water, grab samples with a request for analysis of selected parameters.

The analytical results are enclosed. No unusual difficulties were encountered in the analyses.
If you should have any questions concerning the results, please call Don Hash or Tom Emenhiser.

Sincerely,

Don Hash
Client Services

Enclosure(s):

cc: Pete Kwiatkowski/DF

CH2M HILL | Gainesville Environmental Laboratory | 7201 N.W. 11th Place, Gainesville, Florida 32605 | 904.331.2442 FAX 904.331.5320

CH2M HILL
Engineers
Planners
Economists
Scientists

REPORT OF ANALYSIS

Florida Certification: 82112; E82124

PG&E/Bechtel	C H 2 M Hill
Attention: Jeff Lehnen Address: GNV Copies to: Pete Kwiatkowski/DFB	Project No: SEF30619.A0 Received: 08/17/90 Reported: 08/31/90

Collected: 08/16/90 by Pete Kwiatkowski
Type: water, grab
Location: Indiantown Cogeneration Proj.

SAMPLE NUMBER	83679	83680	83681	83682	83683
SAMPLE DESCRIPTIONS	MW-3 08/17/90 9:50	MW-4 08/17/90 10:50	MW-1 08/17/90 11:00	MW-2 08/17/90 13:30	PW-1 08/16/90 11:00
GENERAL					
pH (Units)	6.95 08/20/90	5.45 08/20/90	6.40 08/20/90	4.85 08/20/90	7.15 08/20/90
Alkalinity, Total (as CaCO3)	280 08/27/90	<1.0 08/27/90	88.0 08/27/90	<1.0 08/27/90	280 08/27/90
Color (APHA)	50 08/20/90	50 08/20/90	60 08/20/90	90 08/20/90	10 08/20/90
Conductivity (umhos/cm)	783 08/28/90	141 08/28/90	370 08/28/90	125 08/28/90	567 08/28/90
Hardness, Total (as CaCO3)	336 08/30/90	30 08/30/90	122 08/30/90	38 08/30/90	340 08/30/90
Turbidity (NTU)	12.6 08/20/90	5.7 08/20/90	6.1 08/20/90	16.3 08/20/90	<0.2 08/20/90
SOLIDS					
Total Dissolved Solids	562 08/23/90	186 08/23/90	334 08/23/90	168 08/23/90	392 08/23/90
METALS					
Antimony - FL	<0.2 08/23/90	<0.2 08/23/90	<0.2 08/23/90	<0.2 08/23/90	<0.2 08/23/90
Arsenic - FU	<0.005	<0.005	<0.005	<0.005	<0.005

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested
NOTE: This report contains test data and no interpretation is intended or implied.

SAMPLE NUMBER	83679	83680	83681	83682	83683
SAMPLE DESCRIPTIONS	MW-3 08/17/90 9:50	MW-4 08/17/90 10:50	MW-1 08/17/90 11:00	MW-2 08/17/90 13:30	PW-1 08/16/90 11:00
Barium - FL	08/23/90 <0.2	08/23/90 <0.2	08/23/90 <0.2	08/23/90 <0.2	08/23/90 <0.2
Cadmium - FU	08/22/90 <0.0002	08/22/90 <0.0002	08/22/90 <0.0002	08/22/90 <0.0002	08/22/90 <0.0002
Calcium - FL	08/21/90 124	08/21/90 1.9	08/21/90 35.0	08/21/90 2.3	08/21/90 85.0
Chromium, Tot - FU	08/27/90 <0.002	08/27/90 <0.002	08/27/90 <0.002	08/27/90 <0.002	08/27/90 <0.002
Copper - FL	08/22/90 0.02	08/22/90 0.03	08/22/90 <0.02	08/22/90 <0.02	08/22/90 <0.02
Iron, Total - FL	08/27/90 2.7	08/27/90 1.6	08/27/90 0.96	08/27/90 2.0	08/27/90 <0.02
Lead - FU	08/21/90 <0.002	08/21/90 0.003	08/21/90 <0.002	08/21/90 <0.002	08/21/90 <0.002
Magnesium - FL	08/27/90 2.9	08/27/90 2.4	08/27/90 3.7	08/27/90 2.3	08/27/90 3.0
Manganese - FL	08/27/90 0.02	08/27/90 <0.01	08/27/90 <0.01	08/27/90 <0.01	08/27/90 <0.01
Mercury - CV	08/22/90 <0.0002	08/22/90 0.0004	08/22/90 <0.0002	08/22/90 <0.0002	08/22/90 <0.0002
Molybdenum - FL	08/21/90 <0.2	08/21/90 <0.2	08/21/90 <0.2	08/21/90 <0.2	08/21/90 <0.2
Potassium	08/29/90 0.79	08/21/90 0.31	08/21/90 1.30	08/21/90 0.49	08/21/90 1.66
Selenium	08/29/90 <0.005	08/29/90 <0.005	08/29/90 <0.005	08/29/90 <0.005	08/29/90 <0.005
Silica, React	08/29/90 10.6	08/29/90 8.2	08/29/90 8.9	08/29/90 9.1	08/29/90 17.2
Silver - FU	08/27/90 0.0012	08/27/90 0.0008	08/27/90 0.0006	08/27/90 <0.0005	08/27/90 0.0014
	08/30/90	08/30/90	08/30/90	08/30/90	08/30/90

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested
NOTE: This report contains test data and no interpretation is intended or implied.

SAMPLE NUMBER	83679	83680	83681	83682	83683
SAMPLE DESCRIPTIONS	MW-3 08/17/90 9:50	MW-4 08/17/90 10:50	MW-1 08/17/90 11:00	MW-2 08/17/90 13:30	PW-1 08/16/90 11:00
Sodium - FL	28.7 08/28/90	16.9 08/28/90	23.4 08/28/90	15.8 08/28/90	11.9 08/28/90
Strontium - FL	0.46 08/30/90	0.09 08/30/90	0.47 08/30/90	0.14 08/30/90	0.55 08/30/90
Vanadium - FL	<0.5 08/30/90	<0.5 08/30/90	<0.5 08/30/90	<0.5 08/30/90	<0.5 08/30/90
Zinc - FL	<0.01 08/27/90	<0.01 08/27/90	<0.01 08/27/90	<0.01 08/27/90	0.01 08/27/90
ANIONS					
Boron	0.039 08/24/90	0.028 08/24/90	0.025 08/24/90	0.029 08/24/90	0.025 08/24/90
Chloride	72.0 08/29/90	32.1 08/29/90	47.1 08/29/90	29.1 08/29/90	18.3 08/29/90
Fluoride	0.34 08/23/90	0.03 08/23/90	0.04 08/23/90	0.05 08/23/90	0.12 08/23/90
Sulfate	1.2 08/29/90	4.4 08/29/90	3.9 08/29/90	5.3 08/29/90	<1.0 08/29/90
NUTRIENTS					
Ammonia (as N)	1.89 08/22/90	0.19 08/22/90	0.86 08/22/90	0.32 08/22/90	0.52 08/22/90
Nitrate & Nitrite (as N)	<0.02 08/23/90	<0.02 08/23/90	<0.02 08/23/90	<0.02 08/23/90	<0.02 08/23/90
Total Phosphorus (as P)	1.18 08/29/90	0.10 08/27/90	0.09 08/27/90	0.18 08/27/90	0.35 08/27/90

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested

NOTE: This report contains test data and no interpretation is intended or implied.

PG&E/Bechtel	C H 2 M Hill
Attention: Jeff Lehnen Address: GNV Copies to: Pete Kwiatkowski/DFB	Project No: SEF30619.A0 Received: 08/17/90 Reported: 08/31/90
Collected: 08/16/90 by Pete Kwiatkowski Type: water, grab Location: Indiantown Cogeneration Proj.	

SAMPLE NUMBER	83684	83685
SAMPLE DESCRIPTIONS	Travel Blank 08/17/90	Laboratory Method Blank
GENERAL		
pH (Units)	n/r n/r	Not Applicable 08/20/90
Alkalinity, Total (as CaCO3)	n/r n/r	<1.0 08/27/90
Color (APHA)	n/r n/r	0 08/20/90
Conductivity (umhos/cm)	n/r n/r	<2.0 08/28/90
Hardness, Total (as CaCO3)	n/r n/r	<1.0 08/30/90
Turbidity (NTU)	n/r n/r	<0.2 08/20/90
SOLIDS		
Total Dissolved Solids	n/r n/r	<1.0 08/23/90
METALS		
Antimony - FL	<0.2 08/23/90	<0.2 08/23/90
Arsenic - FU	<0.005	<0.005

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested
NOTE: This report contains test data and no interpretation is intended or implied.

SAMPLE NUMBER	83684	83685
SAMPLE DESCRIPTIONS	Travel Blank 08/17/90	Laboratory Method Blank
Barium - FL	08/23/90 <0.2	08/23/90 <0.2
Cadmium - FU	08/22/90 <0.0002	08/22/90 <0.0002
Calcium - FL	08/21/90 <1.0	08/21/90 <1.0
Chromium, Tot - FU	08/27/90 <0.002	08/27/90 <0.002
Copper - FL	08/22/90 <0.02	08/22/90 <0.02
Iron, Total - FL	08/27/90 <0.02	08/27/90 <0.02
Lead - FU	08/21/90 0.011	08/21/90 <0.002
Magnesium - FL	08/27/90 <0.25	08/27/90 <0.25
Manganese - FL	08/27/90 <0.01	08/27/90 <0.01
Mercury - CV	08/22/90 <0.0002	08/22/90 <0.0002
Molybdenum - FL	08/21/90 <0.2	08/21/90 <0.2
Potassium	08/29/90 <0.15	08/29/90 <0.15
Selenium	08/29/90 <0.005	08/29/90 <0.005
Silica, React	08/29/90 n/r	08/29/90 <0.01
Silver - FU	n/r 0.0011	08/27/90 <0.0005
	08/30/90	08/30/90

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested

NOTE: This report contains test data and no interpretation is intended or implied.

SAMPLE NUMBER	83684	83685
SAMPLE DESCRIPTIONS	Travel Blank 08/17/90	Laboratory Method Blank
Sodium - FL	<0.5 08/28/90	<0.5 08/28/90
Strontium - FL	<0.05 08/30/90	<0.05 08/30/90
Vanadium - FL	<0.5 08/30/90	<0.5 08/30/90
Zinc - FL	<0.01 08/27/90	<0.01 08/27/90
ANIONS		
Boron	<0.015 08/24/90	<0.015 08/24/90
Chloride	n/r n/r	<1.0 08/29/90
Fluoride	n/r n/r	<0.01 08/23/90
Sulfate	n/r n/r	<1.0 08/29/90
NUTRIENTS		
Ammonia (as N)	n/r n/r	Not Applicable 08/22/90
Nitrate & Nitrite (as N)	n/r n/r	<0.02 08/23/90
Total Phosphorus (as P)	n/r n/r	<0.01 08/27/90

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested

NOTE: This report contains test data and no interpretation is intended or implied.

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August 30, 1990

SEF30619.A0

Mr. Don Hash
CH2M HILL/LGN
7201 N.W. 11th Place
Gainesville, FL 32605

RE: Analytical Data for PG & E/Bechtel, Laboratory No. 16619

Dear Mr. Hash:

On August 21, 1990, the CH2M Hill Montgomery Laboratory received five samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please inquire.

Sincerely,

Ward Dickens
Organics Division Manager

Enclosures

cc: Mr. Craig Vinson

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

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EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated quantitation limit. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

JX -- The compound was detected and quantitated below the Contract Required Quantitation Limit.

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CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

QC_BLANK -- Method Blank (may be followed by an S for soils run at a low level, W for waters, or SM for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16619

LMG Sample No.	LGN Sample No.	Sample Description			
16619001	83679	SAMPLE MW-3	08/17/90	0950	GRAB
16619002	83680	SAMPLE MW-4	08/17/90	1050	GRAB
16619003	83681	SAMPLE MW-1	08/17/90	1100	GRAB
16619004	83682	SAMPLE MW-2	08/17/90	1330	GRAB
16619005	83683	SAMPLE PW-1	08/16/90	1100	GRAB

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16619001
Client Sample ID: MW-3

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 08/21/90
Date Analyzed: 08/28/90
Dilution Factor: 1.0

SDWA PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
72-20-8	Endrin	0.02	U		
72-43-5	Methoxychlor	0.04	U		
8001-35-2	Toxaphene	0.5	U		
	Dibutylchlorendate - SS	106			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000001

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ORGANICS ANALYSIS DATA SHEET

aboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	16619002	Sample Matrix:	WATER	Date Analyzed:	08/28/90
Client Sample ID:	MW-4	Percent Moisture:		Dilution Factor:	1.0

SDWA PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
72-20-8	Endrin	0.02	U		
72-43-5	Methoxychlor	0.04	U		
8001-35-2	Toxaphene	0.5	U		
	Dibutylchlorendate - SS	105			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000002

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	16619003	Sample Matrix:	WATER	Date Analyzed:	08/28/90
Client Sample ID:	MW-1	Percent Moisture:		Dilution Factor:	1.0

SDWA PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
72-20-8	Endrin	0.02	U		
72-43-5	Methoxychlor	0.04	U		
8001-35-2	Toxaphene	0.5	U		
	Dibutylchlorendate - SS	110			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000003

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ORGANICS ANALYSIS DATA SHEET

aboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	16619004	Sample Matrix:	WATER	Date Analyzed:	08/28/90
Client Sample ID:	MW-2	Percent Moisture:		Dilution Factor:	1.0

SDWA PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
72-20-8	Endrin	0.02	U		
72-43-5	Methoxychlor	0.04	U		
8001-35-2	Toxaphene	0.5	U		
	Dibutylchlorendate - SS	82			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000004

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	16619005	Sample Matrix:	WATER	Date Analyzed:	08/28/90
Client Sample ID:	PW-1	Percent Moisture:		Dilution Factor:	1.0

SDWA PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
72-20-8	Endrin	0.02	U		
72-43-5	Methoxychlor	0.04	U		
8001-35-2	Toxaphene	0.5	U		
	Dibutylchlorendate - SS	94			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000005

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	W08210B1	Sample Matrix:	WATER	Date Analyzed:	08/28/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

SDWA PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
72-20-8	Endrin	0.02	U		
72-43-5	Methoxychlor	0.04	U		
8001-35-2	Toxaphene	0.5	U		
	Dibutylchlorendate - SS	114			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000006

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16619001
Client Sample ID: MW-3

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 08/21/90
Date Analyzed: 08/29/90
Dilution Factor: 1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
94-75-7	2,4-D	2.5	U		
93-72-1	Silvex	0.5	U		
	3,5-Dichlorobenzoic acid - SS	93			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000007

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	16619002	Sample Matrix:	WATER	Date Analyzed:	08/29/90
Client Sample ID:	MW-4	Percent Moisture:		Dilution Factor:	1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
94-75-7	2,4-D	2.5	U		
93-72-1	Silvex	0.5	U		
	3,5-Dichlorobenzoic acid - SS	96			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000008

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16619003
Client Sample ID: MW-1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 08/21/90
Date Analyzed: 08/29/90
Dilution Factor: 1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
94-75-7	2,4-D	2.5	U		
93-72-1	Silvex	0.5	U		
	3,5-Dichlorobenzoic acid - SS	86			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000009

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	16619004	Sample Matrix:	WATER	Date Analyzed:	08/29/90
Client Sample ID:	MW-2	Percent Moisture:		Dilution Factor:	1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
94-75-7	2,4-D	2.5	U		
93-72-1	Silvex	0.5	U		
	3,5-Dichlorobenzoic acid - SS	93			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

JWS

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

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Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16619005
Client Sample ID: PW-1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 08/21/90
Date Analyzed: 08/29/90
Dilution Factor: 1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
94-75-7	2,4-D	2.5	U		
93-72-1	Silvex	0.5	U		
	3,5-Dichlorobenzoic acid - SS	94			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000011

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CH2M HILL Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/21/90
Lab Sample ID:	W08210B1	Sample Matrix:	WATER	Date Analyzed:	08/29/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
94-75-7	2,4-D	2.5	U		
93-72-1	Silvex	0.5	U		

	3,5-Dichlorobenzoic acid - SS	92			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Form I

000012

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

Engineers
Planners
Economists
Scientists

Client: PG & E/BECHTEL/INDIANTOWN COGENERATION PROJ
Attention: JEFF LEHNEN
Address: CH2M HILL GAINESVILLE OFFICE

Sample Number: 83679-84
Date Received: 08/17/90

Dear Client:

The Gainesville Organics Laboratory received your samples with a request for analysis of selected parameters.

The analytical results are enclosed. No unusual difficulties were encountered in the analyses.

If you should have any questions concerning the results please contact us. Thank you.

Sincerely,

Don Hash
Client Services

CH2M HILL Gainesville Environmental Laboratory 7201 N.W. 11th Place, Gainesville, Florida 32605 904.331.2442 FAX 904.331.5320

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CH2M Hill Organics Laboratory

Analytical Report

Report Contents

Sample Information

Definitions of Reporting Qualifiers

Description of Analytical Methods

Sample Quantitation Reports including Surrogate Recoveries

QA/QC Package Including:

- Initial Calibration (*)
- Continuing Calibration (Daily Standard) (*)
- Quantitation Reports for Organic-Free Water Blanks
- Matrix Spike/Matrix Spike Duplicate (*)
- Surrogate Control Charts (*)
- Chromatograms (*)
- Copy of Chain-of-Custody

(*) Information provided where appliciable or when requested.

CH2M HILL
Gainesville
Environmental Laboratory
7201 N.W. 11th Place,
Gainesville, Florida 32605
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FAX 904.331.5320

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SAMPLE INFORMATION

Client:	PG & E/BECHTEL/INDIANTOWN COGENERATION PROJ
Attention:	JEFF LEHNEN
Address:	CH2M HILL GAINESVILLE OFFICE

Description:	WATER SAMPLES INDIANTOWN COGENERATION PROJ 601/602 ANALYSIS

Sample Number:	83679-84
Quantity:	6
Date Received:	08/17/90
Date Completed:	08/23/90
Date Reported:	08/31/90
Project Number:	SEF 30619.A0
Number of Pages:	15

The information shown in this report is test data only and no interpretation of this data is intended or implied.

State of Alabama Certification No.: 40080

State of Florida Certification No.: 82112, E82124

Respectfully submitted,

Tom Emenhiser
Laboratory Manager

CH2M HILL Gainesville Environmental Laboratory
7201 N.W. 11th Place, Gainesville, Florida 32605
904.331.2442
FAX 904.331.5320

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Definitions of Reporting Qualifiers

(U) Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the Detection Limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

(M) Matrix interference precludes achieving lower detection limit. The detection limit is determined by the largest peak in the sample, and the dilution is adjusted so that neither chemical nor electronic overload of the gas chromatography system takes place. Either condition could affect the reliability of peak identification and quantitation.

(F) Presence indicated but less than stated detection limit. In a diluted sample, a clearly defined peak was present at less than the stated detection limit.

(N) Sample contains non-target compounds. Many samples, especially "fuel" samples, often contain non-target compounds. This qualifier is used to alert the client to the presence of non-target compounds in samples that may not contain any of the listed "target" compounds.

Detection Limit = 1.0 ug/l for water samples and 1.0 ug/kg for soil and sediment samples unless noted otherwise.

Note: the minimum detection limit for methanol extracts of high-level soil and sediment samples is 50 ug/kg due to the effect of methanol on "purging efficiency."

CH2M HILL Gainesville Environmental Laboratory 7201 N.W. 11th Place, Gainesville, Florida 32605 904.331.2442 FAX 904.331.5320

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Analytical Methods

Purgeable Halocarbons in Water: EPA Method 601 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Water: EPA Method 602 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Halocarbons in Soil and Sediment: EPA Method 8010 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2H Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Soil: EPA Method 8020 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Trihalomethanes in Water: EPA Method 501.1 as described in the Federal Register, Vol. 44, No. 231, Appendix C, and CH2M Hill Volatiles SOP, October, 1988.

Ethylene Dibromide in Water: EPA Method 504 (1,2-dibromomethane and 1,2-dibromo-3-chloropropane in water by microextraction and gas chromatography).

Fuel Screening: Procedure for estimation of concentration and identification of "fuel" samples; used to assist in determination of required EPA methods for subsequent analysis. This methodology is not an established EPA procedure.

State of Alabama Certification Number: 40080

State of Florida Certification Numbers: 82112 and E82124

CH2M HILL Gainesville Environmental Laboratory 7201 N.W. 11th Place, Gainesville, Florida 32605 904.331.2442 FAX 904.331.5320

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83679	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	SS
Sampler:	PK	Column:	J & W DB-1	Date Reported:	8/24/90

Client Sample ID/Description: MW-3

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		104	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		96	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83680	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	SS
Sampler:	PK	Column:	J & W DB-1	Date Reported:	8/24/90

Client Sample ID/Description: MW-4

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		90	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		100	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83681	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	SS
Sampler:	PK	Column:	J & W DB-1	Date Reported:	8/24/90

Client Sample ID/Description: MW-1 (N)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		108	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		90	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83682	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	SS
Sampler:	PK	Column:	J & W DB-1	Date Reported:	8/24/90

Client Sample ID/Description: MW-2

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		98	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		92	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/16/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83683	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#1	Analyst:	SS
Sampler:	PK	Column:	J & W DB-624	Date Reported:	8/24/90

Client Sample ID/Description: PW-1

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
79-01-6	Trichloroethene	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
75-27-4	Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		100	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		94	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJ	Lab Sample Id:	83684	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/23/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	CJ
Sampler:	PW	Column:	J & W DB-1	Date Reported:	8/31/90

Client Sample ID/Description: TRAVEL BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		108	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		93	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 5/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/21/90
Project:	INDIANTOWN COGENERATION PROJ	Lab Sample Id:	2VB0821BH	Date Received:	N/A
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/21/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	CJ
Sampler:	N/A	Column:	J & W DB-1	Date Reported:	8/31/90

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		110	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		96	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/22/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	1VB0822A	Date Received:	N/A
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#1	Analyst:	SS
Sampler:	N/A	Column:	J & W DB-624	Date Reported:	8/24/90

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
79-01-6	Trichloroethene	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
75-27-4	Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		103	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		99	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 8/31/90

CH2M HILL

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	PG&E / BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/22/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	2VB0822AH	Date Received:	N/A
Proj No:	SEF 30619.A0	% Moisture	0.0	Date Extracted:	N/A
Method:	601/602	Dilution Factor:	1.0	Date Analyzed:	8/22/90
Matrix:	WATER	Instrument ID:	GC#2	Analyst:	SS
Sampler:	N/A	Column:	J & W DB-1	Date Reported:	8/24/90

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L
74-97-5	Bromochloromethane-SS		92	%rec
98-08-8	a,a,a-Trifluorotoluene-SS		94	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charles Jarman 8/31/90

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Client: PG & E/BECHTEL/INDIANTOWN COGENERATION PROJ
Attention: JEFF LEHNEN
Address: CH2M HILL GAINESVILLE OFFICE

Sample Number: 83679-84
Date Received: 08/17/90

Dear Client:

The Gainesville Organics Laboratory received your samples with a request for analysis of selected parameters.

The analytical results are enclosed. No unusual difficulties were encountered in the analyses.

If you should have any questions concerning the results please contact us. Thank you.

Sincerely,

Don Hash
Client Services

CH2M HILL Gainesville Environmental Laboratory 7201 N.W. 11th Place, Gainesville, Florida 32605 904.331.2442 FAX 904.331.5320

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CH2M Hill Organics Laboratory

Analytical Report

Report Contents

Sample Information

Definitions of Reporting Qualifiers

Description of Analytical Methods

Sample Quantitation Reports including Surrogate Recoveries

QA/QC Package Including:

- Initial Calibration (*)
- Continuing Calibration (Daily Standard) (*)
- Quantitation Reports for Organic-Free Water Blanks
- Matrix Spike/Matrix Spike Duplicate (*)
- Surrogate Control Charts (*)
- Chromatograms (*)
- Copy of Chain-of-Custody

(*) Information provided where appliciable or when requested.

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SAMPLE INFORMATION

Client: PG & E/BECHTEL/INDIANTOWN COGENERATION PROJ
Attention: JEFF LEHNEN
Address: CH2M HILL GAINESVILLE OFFICE

Description: WATER SAMPLES
INDIANTOWN COGENERATION PROJ.
504 (EDB) ANALYSIS

Sample Number: 83679-84
Quantity: 6
Date Received: 08/17/90
Date Completed: 08/21/90
Date Reported: 09/07/90
Project Number: SEF 30619.A0
Number of Pages: 12

The information shown in this report is test data only and no interpretation of this data is intended or implied.

State of Alabama Certification No.: 40080

State of Florida Certification No.: 82112, E82124

Respectfully submitted,

Tom Emenhiser
Laboratory Manager

CH2M HILL Gainesville Environmental Laboratory 7201 N.W. 11th Place, Gainesville, Florida 32605 904.331.2442 FAX 904.331.5320

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Definitions of Reporting Qualifiers

(U) Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the Detection Limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

(M) Matrix interference precludes achieving lower detection limit. The detection limit is determined by the largest peak in the sample, and the dilution is adjusted so that neither chemical nor electronic overload of the gas chromatography system takes place. Either condition could affect the reliability of peak identification and quantitation.

(F) Presence indicated but less than stated detection limit. In a diluted sample, a clearly defined peak was present at less than the stated detection limit.

(N) Sample contains non-target compounds. Many samples, especially "fuel" samples, often contain non-target compounds. This qualifier is used to alert the client to the presence of non-target compounds in samples that may not contain any of the listed "target" compounds.

Detection Limit = 1.0 ug/l for water samples and 1.0 ug/kg for soil and sediment samples unless noted otherwise.

Note: the minimum detection limit for methanol extracts of high-level soil and sediment samples is 50 ug/kg due to the effect of methanol on "purging efficiency."

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Analytical Methods

Purgeable Halocarbons in Water: EPA Method 601 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Water: EPA Method 602 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Halocarbons in Soil and Sediment: EPA Method 8010 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2H Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Soil: EPA Method 8020 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Trihalomethanes in Water: EPA Method 501.1 as described in the Federal Register, Vol. 44, No. 231, Appendix C, and CH2M Hill Volatiles SOP, October, 1988.

Ethylene Dibromide in Water: EPA Method 504 (1,2-dibromomethane and 1,2-dibromo-3-chloropropane in water by microextraction and gas chromatography).

Fuel Screening: Procedure for estimation of concentration and identification of "fuel" samples; used to assist in determination of required EPA methods for subsequent analysis. This methodology is not an established EPA procedure.

State of Alabama Certification Number: 40080

State of Florida Certification Numbers: 82112 and E82124

CH2M HILL | Gainesville Environmental Laboratory | 7201 N.W. 11th Place, Gainesville, Florida 32605 | 904.331.2442 FAX 904.331.5320

CH2M HILL

Report of Analytical Data - EDB and DBCP

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83679E	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.00	Date Extracted:	8/20/90
Method:	504	Dilution Factor:	1.00	Date Analyzed:	8/21/90
Matrix:	WATER	Instrument ID:	GC#3	Analyst:	JEH
Sampler:	N/A	Column:	J & W DB-624	Date Reported:	8/28/90

Client Sample ID/Description: MW-3

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
106-93-4	1,2-Dibromoethane	0.02	U	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.02	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane-SS		112	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Farman 9/7/90

CH2M HILL

Report of Analytical Data - EDB and DBCP

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83680E	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.00	Date Extracted:	8/20/90
Method:	504	Dilution Factor:	1.00	Date Analyzed:	8/21/90
Matrix:	WATER	Instrument ID:	GC#3	Analyst:	JEH
Sampler:	N/A	Column:	J & W DB-624	Date Reported:	8/28/90

Client Sample ID/Description: MW-4

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
106-93-4	1,2-Dibromoethane	0.02	U	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.02	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane-SS		109	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 9/7/90

CH2M HILL

Report of Analytical Data - EDB and DBCP

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83681E	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.00	Date Extracted:	8/20/90
Method:	504	Dilution Factor:	1.00	Date Analyzed:	8/21/90
Matrix:	WATER	Instrument ID:	GC#3	Analyst:	JEH
Sampler:	N/A	Column:	J & W DB-624	Date Reported:	8/28/90

Client Sample ID/Description: MW-1

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
106-93-4	1,2-Dibromoethane	0.02	U	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.02	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane-SS		110	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charles Farman 9/7/90

CH2M HILL

Report of Analytical Data - EDB and DBCP

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/17/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83682E	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.00	Date Extracted:	8/20/90
Method:	504	Dilution Factor:	1.00	Date Analyzed:	8/21/90
Matrix:	WATER	Instrument ID:	GC#3	Analyst:	JEH
Sampler:	N/A	Column:	J & W DB-624	Date Reported:	8/28/90

Client Sample ID/Description: MW-2

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
106-93-4	1,2-Dibromoethane	0.02	U	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.02	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane-SS		113	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charles Jarman 9/7/90

CH2M HILL

Report of Analytical Data - EDB and DBCP

Client:	PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled:	8/16/90
Project:	INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	83683E	Date Received:	8/17/90
Proj No:	SEF 30619.A0	% Moisture	0.00	Date Extracted:	8/20/90
Method:	504	Dilution Factor:	1.00	Date Analyzed:	8/21/90
Matrix:	WATER	Instrument ID:	GC#3	Analyst:	JEH
Sampler:	N/A	Column:	J & W DB-624	Date Reported:	8/28/90

Client Sample ID/Description: PW-1

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
106-93-4	1,2-Dibromoethane	0.02	U	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.02	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane-SS		103	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 9/7/90

CH2M HILL

Report of Analytical Data - EDB and DBCP

Client: PG & E/BECHTEL	Laboratory:	GAINESVILLE	Date Sampled: N/A
Project: INDIANTOWN COGENERATION PROJECT	Lab Sample Id:	3VB0821E	Date Received: N/A
Proj No: SEF 30619.A0	% Moisture	0.00	Date Extracted: 8/21/90
Method: 504	Dilution Factor:	1.00	Date Analyzed: 8/21/90
Matrix: WATER	Instrument ID:	GC#3	Analyst: JEH
Sampler: N/A	Column:	J & W DB-624	Date Reported: 8/28/90

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
106-93-4	1,2-Dibromoethane	0.02	U	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.02	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane-SS		114	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Chandi Jaman 9/7/90

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

10 LMG

PROJECT NUMBER: SEF 30619.A0
PROJECT NAME: Indiantown Cogeneration Proj
CLIENT NAME: PG+E/Bechtel
PROJECT MANAGER: Jeff Lehnen/GNV
COPY TO: Pete Kwiatkowski/DFB
REQUESTED COMP. DATE: 8/27/90
SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: EDB 504; Metals; See Attached List; 608; 615

FOR LAB USE ONLY
LAB# 16619
LAB#
PROJECT NO.
ACK | VERIFIED
QUOTE# | BS
NO. OF SAMP | PG | OF

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	EDB 504	Metals	See Attached List		608	615		LAB ID	REMARKS
MW-3	8/17/90	0950		X		MW-3	9					X	X	83679	001	See attached list for analyses
MW-4	"	1050		X		MW-4	9					X	X	80	002	
MW-1	"	1100		X		MW-1	9					X	X	81	003	
MW-2	"	13:30		X		MW-2	9					X	X	82	004	
PW-1	8-16-90	11:00		X		PW-1	9					X	X	83	005	
						TB	3							84		
														83685		

REMARKS: 10 Day TAT, No multiplier. Results to Don Hash. Due ~~8-27-90~~ 8-30-90 per. QC level 1. FedX Report To Don Hash

FOR LAB USE ONLY
LAB# 16619
PROJ# SEF 30619.A0
ACK ESSD/FCD VERIFIED 8/21/90
HAZWRAP/NEESA Y (N)
QC LEVEL (1) 2 3
COC yes | ICE
ANA REQ yes | TEMP
CUST SEAL NO | PH NA
SAMPLE COND. WATER

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Hydrologist	8/17/90	JEFF LEHNEN / P.M.	8-17-90 / 8:45 pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY: M Morgan	DATE/TIME 8-20-90 1440
RECEIVED BY:	DATE/TIME 8/21/90 0900	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME 8-17-90 8:47	SAMPLE SHIPPED VIA: UPS (BUS) FED-EX (HAND) OTHER ____	AIR BILL#

HAZWRAP/NEESA Y N
QC LEVEL (1) 2 3
COC y | ICE
ANA REQ y | TEMP
CUST SEAL no | Ph
SAMPLE COND. Cold/iced

REMARKS: 10-Day TAT per Tom Enenhiser 033 413 236 0 501

ENTERED INTO LIMS | COC REVIEWED

A8L32242 REV 6/89 FORM 34

000013

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME	CLIENT NAME	PROJECT MANAGER	COPY TO	REQUESTED COMP. DATE
SEF 30619.A0	Indiantown Cogeneration Proj	PG&E/Bechtel	Jeff Lehnen/GNV	Pete Kwiatkowski/DFB	8/27/90

CLIENT ADDRESS AND PHONE NUMBER:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

FOR LAB USE ONLY: LAB# AAD 241; LAB#; PROJECT NO.; ACK; VERIFIED; QUOTE#; BS; NO. OF SAMP; PG; OF

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	EDB 504	Metals	SEE ATTACHED LIST	601/602	624	625	LAB ID	REMARKS
MW-3	8/17/90	0950		X		MW-3	9	—	—			X	X	83679	See attached list for analyses
MW-4	"	1050		X		MW-4	9	—	—			X	X	80	
MW-1	"	1100		X		MW-1	9	—	—			X	X	81	
MW-2	"	13:30		X		MW-2	9	—	—			X	X	82	
PW-1	8-16-90	11:00		X		PW-1	9	—	—			X	X	83	Boron sent to ARB
						~~[illegible]~~ TB	3	metals + vo[illegible] only						84	
						method blank								83685	

No multiplier

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
[signature] Hydrologist	8/17/90	JEFF LEHNEN / P.M.	8-17-90 / 8:45 PM
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: [signature]	DATE/TIME 8-17-90 8:47	SAMPLE SHIPPED VIA: UPS BUS FED-EX (HAND) OTHER ____	AIR BILL#

HAZWRAP/NEESA Y N; QC LEVEL (1) 2 3; COC y; ICE; ANA REQ y; TEMP; CUST SEAL no; Ph; SAMPLE COND. good/iced

REMARKS: 10-Day TAT per Tom Emenhiser

ENTERED INTO LIMS ____ COC REVIEW ____