CY-06-002

Attachment 1
Monitoring Well Construction Diagrams

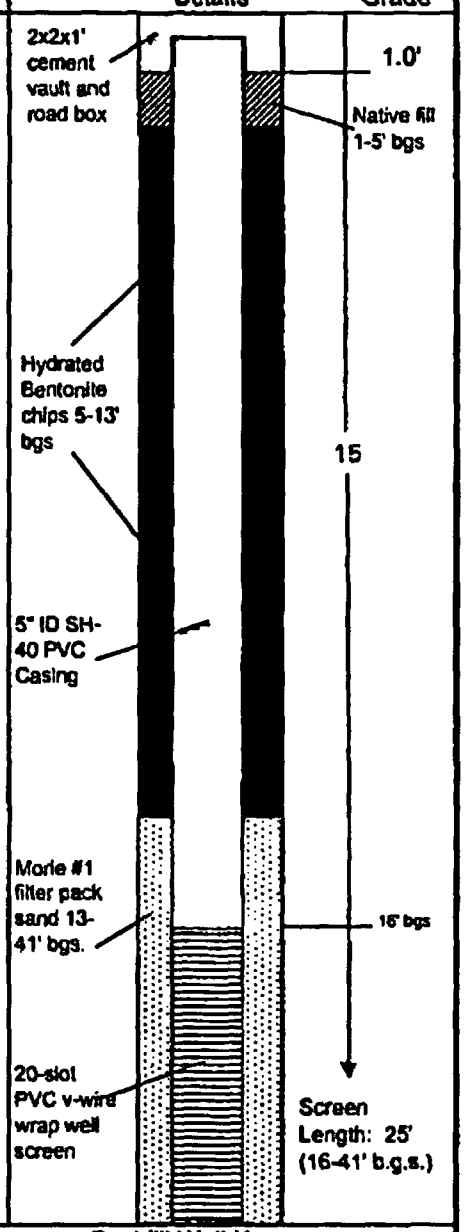
January 2006

CYAPCO CY Decommissioning Project	Subsurface Log	Hole No.: AT-1 Sheet: 1 of 4	Date started: 9/7/2004 Date Finished: 9/9/2004

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: 8 1/4" hollow stem auger (cut and wash, 4 inch inside diameter casing at depth below 32) Sampling method: Split spoon (140 lb hammer)		
Project No.: P. Manager: Charles Miller	Drilling Co.: ADT Geologist: Matt Darois	Driller: Marty Harrington D. Helper: Eric Ramey Drill Rig: B-59 and F-10	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
	1	4-6'	4			Light brown m to f sand fill, no odor, dry.
			6			
			7			
			14			
6				13	1.4'	
	2	6-8'	20			6-7': same as above. 7-8' f to m dark brown silty sand, trace m gravel. Buried A/B horizon (native fill), no odor, dry.
			21			
			32			
			41			
8				53	1.35'	
	3	8-10'	25			8-9.7': 1" of black organics rich sand at aprox 8'. Fine to vf red-brown silty sand with trace m-f gravel. 2 medium size amphibolite gneiss cobbles from 9-9.5', moist, no odor. 9.7-10': abrupt change in lithology to a light brown m to f sand, trace silt, poorly sorted, slight iron staining at the lithologic contact, slightly moist, no odor.
			24			
			37			
			54			
				61	1.4'	
10						
	4	10-12'	22			light brown-red m to f sand, coarser and more sorted than above. Coarse gravel fragments at 10.3', dry, no odor.
			37			
			57			
			31			
12				94	1.3'	
	5	12-14'	11			Red-brown m to fine sand, well sorted, trace rounded medium gravel, dry, no odor, very loose (similar to above).
			11			
			12			
			12			
16				23	1.4	
	6	14-16'	12			Same as above.
			10			
			12			
			11			
				22	1.2	

Well Details



Sample Types:
S=Split Spoon: 2" dia. T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Concrete, Sand, Native Fill, Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

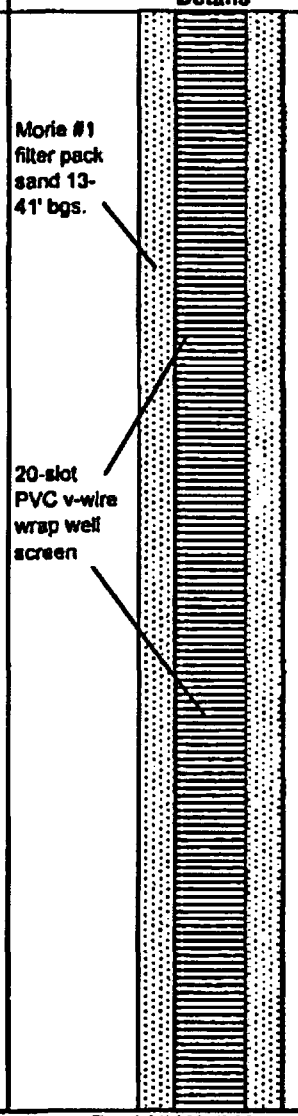
N = ASTM D1586

CYAPCO CY Decommissioning Project	Subsurface Log	Hole No.: AT-1 Sheet: 2 of 4	Date started: 9/7/2004 Date Finished: 9/9/2004

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: 8 1/4" hollow stem auger (cut and wash, 4 inch inside diameter casing at depth below 32) Sampling method: Split spoon (140 lb hammer)		
Project No.: P. Manager: Charles Miller	Drilling Co.: ADT Geologist: Matt Darois	Driller: Marty Harrington D. Helper: Eric Ramey Drill Rig: B-59 and F-10	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
	7	16-18'	5			Similar to above, bottom 0.25' of spoon is wet, sub angular m to f gravel lodged in tip of shoe.
			7			
			7			
			10			
18				14	1.25'	
	8	18-20'	14			Gray-brown m to fine sand, sand is micacious (abundant feldspar frags.), trace sub angular fine gravel, saturated, no odor.
			6			
			4			
			5			
20				10	1.1'	
	9	20-22'	2			Gray m to f sand, well sorted, less feldspar mica than above, saturated, no odor.
			2			
			5			
			6			
22				7	1.0'	
	10	22-24'	15			Same as above.
			10			
			12			
			15			
24				22	1.2'	
	11	24-26'	16			Same as above, Bottom 0.1' f to m red to light brown sand, trace silt, wet, no odor.
			26			
			21			
			20			
26				47	1.8'	
	12	26-28'	7			red-brown fine sand, firm, well sorted, wet, no odor.
			22			
			33			
			34			
28				55	1.6'	
	13	28-30'	4			Red-brown fine sand, less firm than above, well sorted, no coarser grained materials in sample.
			15			
			20			
			16			
				35	1.5'	

Well Details



Sample Types:
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Backfill Well Key
Concrete
Native Fill
Sand
Bentonite

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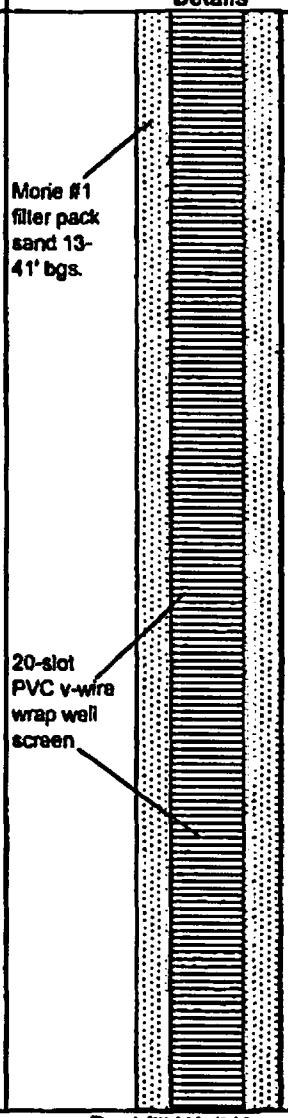
CYAPCO CY Decommissioning Project	Subsurface Log	Hole No.: AT-1 Sheet: 3 of 4	Date started: 9/7/2004 Date Finished: 9/9/2004

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: 8 1/4" hollow stem auger (cut and wash, 4 inch inside diameter casing at depth below 32) Sampling method: Split spoon (140 lb hammer)	

Project No.: P. Manager: Charles Miller	Drilling Co.: ADT Geologist: Matt Darois	Driller: Marty Harrington D. Helper: Eric Ramey Drill Rig: B-59 and F-10	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
	14	30-32'	5			Same as above.
			12			
			23			
			33			
32				35	1.5'	
						Flowing sands at aprox. 30' b.g.s. sand locked the 4.25" augers. The augers were removed from the boring and drilling was advanced using drive and wash inside 4" temp casing.
	15	32-34'	15			m to f red-brown sand , firm, trace fine subangular gravel, trace silt. Less sorted than above, no odor.
			23			
			26			
			28			
34'				49	1.1'	
	16	34-36'	18			f to m red-brown sand, some silt, some m to f rounded sub angular gravel (basalt frags.), no odor, angular sand stone coarse gravel frag in top of spoon @ apron 34' bgs, firm.
			25			
			29			
			41			
36'				54	1.15'	
	17	36-38'	16			f to m red-brown sand, some silt, trace fine sub angular gravel, trace rounded gravel, sorted to poorly sorted, less firm than above, no odor.
			18			
			21			
			21			
38'				39	1.0'	
	18	38-40'	17			f to m silty red brown sand, some fine subangular gravel, poorly sorted, no odor. Gravel consists of basalt, red sandstone and quartz-albite frags.
			18			
			16			
			17			
40'				34	1.25'	

Well Details



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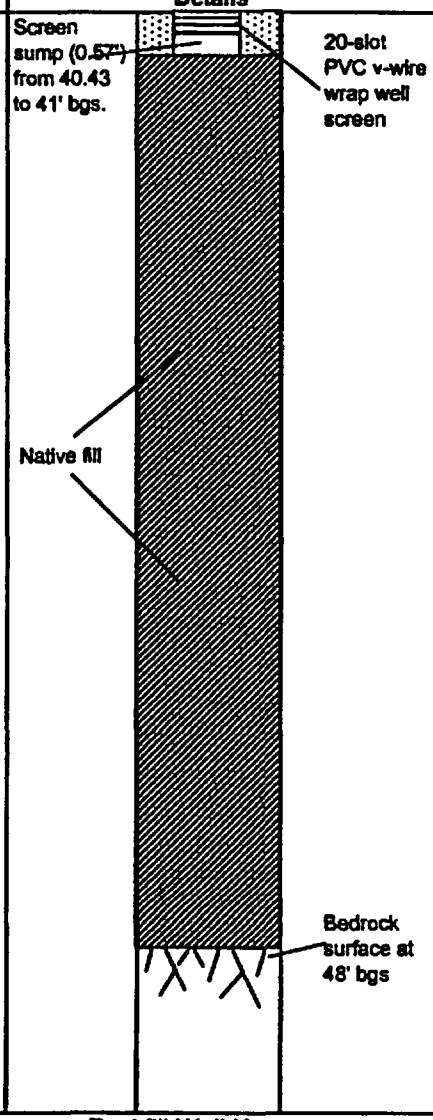
CYAPCO CY Decommissioning Project	Subsurface Log	Hole No.: AT-1 Sheet: 4 of 4	Date started: 9/7/2004 Date Finished: 9/9/2004

Client: Connecticut Yankee Location: Haddam CT.	Drilling method:	8 1/4" hollow stem auger (cut and wash, 4 inch inside diameter casing at depth below 32)	
	Sampling method:	Split spoon (140 lb hammer)	

Project No.: P. Manager: Charles Miller	Drilling Co.: ADT Geologist: Matt Darois	Driller: Marty Harrington D. Helper: Eric Ramey Drill Rig: B-59 and F-10	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
	19	40-42'	10			Top 0.65' of spoon (40-41.5') silty f red-brown sand, dry. Bottom 0.5' of spoon: Abrupt change in lithology to Till, brown to Dark brown moist, abundant rounded to subangular coarse sand and fine gravel consisting of weathered gneiss and basalt frags, till is loose consisting of more course grained materials than fines, fine fraction of till is dark brown to black in color. Dark color material in till fines may be organic silts/clays.
			15			
			24			
			19			
42				39	1.15'	
	20	42-44'	26			42-43.6' bgs: same as above. Bottom of spoon transitions to a brown sandy silt some angular to subangular f to m gravel, some clay. 43.6-44' bgs: glacio-fluvial deposits consisting of 1-2" lenses of brown sandy silty, some angular to subangular f to m gravel, some clay (20-30% clayey silt) and red clayey silt (25-35% clay) lenses 1 -2" thick with trace subangular medium gravel. Gravel within glacio-fluvial deposits are predominately gneiss frags, material is firm to dense, moist evidence of redox and iron staining throughout sample.
			25			
			32			
			26			
44				57	1.1'	
	21	44-46'	25			Till, light brown to olive brown sandy dense till. Abundant angular to subangular m to c gravel, abundant m cobbles, gravel and cobble fraction consists of quartz-albite and gneiss frags throughout sample. 0.1' lens of red clayey silt at aprox 44.5' bgs embedded in till, moist, till is mottled with evidence of Redox and iron staining.
			32			
			59			
			70			
46'				91	1.1	
	22	46-48'	57			Top of spoon: Till, light gray to olive-brown till and weathered rock, abundant coarse gravel and cobble frags consisting of gneiss and albite-quartz, 0.1' layer of red-brown clayey silt at aprox 47' above albite-quartz cobble/weathered rock frag. Sample may be weathered bedrock with more resistant rock remaining as gravel and cobble frags. The matrix of the finer grained materials consists of biotite, quartz and albite (pegmatite) indicative of the regional bedrock formation. Sample is dense, moist. Refusal at 48' bgs.
			53			
			62			
			100/3"			
48'				115	1.25	

Well Details



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Backfill Well Key
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Project GROUNDWATER MONITORING

Boring No. MW-100D & S

Page 1 of 1

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) MARCH 23-24, 1998

Elevation D-16.69', S-16.67' Depth D-39.5', S-10.5' Ground Water Depth S-2.54 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0	SS1	8/15 13/8	18	Gray-brown F SAND, little f gravel, trace silt, mist	SAND FILL	Curb box, concrete; Bent; Sand
2						
4						
6	SS2		17	Brown F SAND, trace c sand, trace f gravel, wet	4" casing and roller bit to 10.5 ft (both borings)	2", 10-slot, Sch 40, PVC screen
8					Top of Rock 100S	2", sch. 40, PVC riser
10					Top of Rock 100D	
12	Rock Core Run 1	12.75 minutes	47	Dark gray amphibole and biotite gneiss with talc on foliation partings	BEDROCK	Grout
14						
16	Rock Core Run 2	25.5 minutes	60	Same as Run 1. Notice graphite film on drilling water.	BEDROCK	
18						Bent
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-100D & S

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Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) MARCH 23-24, 1998

Elevation D-16.69', S-16.67' Depth D-39.5', S-10.5' Ground Water Depth S-2.54 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	Rock Core Run 3	23 minutes	64	Dark gray amphibole and biotite gneiss, minor talc and garnet. 9 iron-stained fractures	BEDROCK	Benton.
22						Sand
24						
	Rock Core Run 4	22.5 minutes	60	Same as Run 3 with some coarse amphibole zones. Very few fractures.	BEDROCK	
26						2" Sch 40 PVC 10-slot screen
28						
30	Rock Core Run 5	24.25 minutes	60	Same as Run 3 with conformable pegmatite at 33.5' to 34.5'. Very few fractures.	BEDROCK	
32						
34						
	Rock Core Run 6	minutes	60	Same as Run 3. One solid core after 35'.	BEDROCK	
36						
38						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-101S

Page 1 of 1

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 19, 1998

Elevation S-20.86' Depth 18 ft Ground Water Depth 4.40 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0					First 4 feet of boring hand augered.	Curb box
2						Bent-onite
4					SAND FILL	2" Sch. 40 PVC Riser Pipe
6	Rock Core Run 1		58	Dark gray-green augite amphibolite Rubble to 5.1' (Soft zone while drilling) Horizontal fractures at 5.8', 6.2', 7.3', 9.4' Steep fracture at 5.3'. 5.9'. 6.3'	BEDROCK	
8						Sand
10	Rock Core Run 2		50	Dark gray-green augite amphibolite One horizontal fracture at 11.6'	BEDROCK	2" Sch 40 PVC 10-slot screen
12						
14						
16	Rock Core Run 3		46	Dark gray-green augite amphibolite Steep fractures at 15.6', 17.4'	BEDROCK	
18						
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-101D

Page 1 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 13, 17-19, 1998

Elevation D-20.86' Depth 49.7' Ground Water Depth 7.80 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0					First 2.5' of boring hand augered.	Curb box Con-crete
2						
4	Rock Core Run 1		42	Gray-green augite amphibolite with epidote alteration	BEDROCK	
6						
8	Rock Core Run 2		63	Gray-green augite amphibolite with epidote alteration Cross-cutting fractures w/rubble at 7.3' Horizontal fracs. at 8', 11.3' Steep fracs. at 8.7', 9.7', 10.9' Rubble zone at 10.1'	BEDROCK	2" Sch. 40 PVC Riser Pipe
10						
12	Rock Core Run 3		54	Gray-green augite amphibolite with epidote alteration Horizontal fracs. at 11.6', 12.5', 13.5', 16'	BEDROCK	Bent-onite
14						
16						
18	Rock Core Run 4		52	Gray-green augite amphibolite with epidote alteration Horizontal fracs. at 16.7', 17', 19.8'	BEDROCK	
20						

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Project GROUNDWATER MONITORING

Boring No. MW-101D

Page 2 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 13, 17-19, 1998

Elevation D-20.86' Depth 49.7' Ground Water Depth 7.80 ft PVC (3 /99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20						
22 24	Rock Core Run 5		60	Gray-green augite amphibolite Horizontal fracs. at 25.5' Subhorizontal fracs. at 22.9', 23.9' (at felsic vein w/pyrite), 24.3' Rubble zone at 25.9-26'	BEDROCK	
26 28 30	Rock Core Run 6		61.5	Gray-green augite amphibolite with felsic vein w/ pink mineral at 30-30.3' Subhorizontal fracs. at 26.5', 27.4', 29.6', 30.8'	BEDROCK	2" Sch 40 PVC riser pipe
32 34	Rock Core Run 7		62	Gray-green augite amphibolite Subhorizontal fracs. at 31.8', 32.7', 33.4', 34.7', 35.8'	BEDROCK	Bent-onite
36 38	Rock Core Run 8		62	Gray-green augite amphibolite Horizontal fracs. at 36.5', 36.6', 37.4', 39.2', 39.8', 40.3' Steep fracture at 40.2'	BEDROCK	Sand

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-101D

Page 3 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 13, 17-19, 1998

Elevation D-20.86' Depth 49.7' Ground Water Depth 7.80 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
40						
42	Rock Core Run 9		42	Gray-green augite amphibolite with felsic vein w/ epidote at 42.4' Horizontal fracs. at 41.3', 42', 43.3', 43.5'	BEDROCK	Sand
44						
46	Rock Core Run 10		60	Gray-green augite amphibolite with felsic veins at 46.2', 47', 49.3' Horizontal fracs. at 44.9', 46.2', 47', 48.8', 49.3'	BEDROCK	2" Sch 40 PVC 10-slot screen
48						
50						
52						
54						
56						
58						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-102D

Page 1 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 24-27, 1998

Elevation D-20.48' Depth 53 ft Ground Water Depth 11.20 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0					First 4 ft of boring hand augered.	Curb box
2					SAND FILL	
4						2" Sch. 40 PVC Riser Pipe
6						
8						
10	Rock Core Run 1		54	Gray-green augite amphibolite Horizontal fractures at 9.7', 9.9', 11.1', 12.7'	BEDROCK	
12						Bent-onite
14	Rock Core Run 2		62	Gray-green augite amphibolite Horizontal fractures at 15.2', 15.6', 16.4', 18.5'	BEDROCK	
16						
18	Core Run 3		61	Gray-green augite amphibolite Horizontal fractures at 18.9', 19.7'	BEDROCK	
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-102D

Page 2 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 24-27, 1998

Elevation D-20.48' Depth 53 ft Ground Water Depth 11.20 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	Rock Core Run 3		61	Gray-green augite amphibolite Horizontal fractures at 20.1', 21.6', 23.5' Steep fracture at 22.3'	BEDROCK	
22						
24	Rock Core Run 4		58	Gray-green augite amphibolite Horizontal fracs. at 24.2', 26.3', 27', 27.2', 27.9', 28.2' Steep fracs. at 25.2', 27.5', 28.3'	BEDROCK	
26						2" Sch 40 PVC riser pipe
28						
30	Rock Core Run 5		59	Gray-green augite amphibolite Horizontal fracs. at 29.5', 31.5', 32.8' Steep fracs. at 30', 30.3', 30.5', 31.6'	BEDROCK	
32						Bent-onite
34	Rock Core Run 6		37	Gray-green augite amphibolite, then fine-grained, light gray quartz, hornblende, garnet gneiss at 35' Horizontal fracs. at 33.3', 35.4' Steep fracs. at 34.8'	BEDROCK	
36	Rock Core Run 7		48	Gray-green augite amphibolite Horizontal fracs. at 36.2', 37', 37.6', 37.7', 38.2', 38.3'	BEDROCK	
38						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-102D

Page 3 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 24-27, 1998

Elevation D-20.48' Depth 53' Ground Water Depth 11.20 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
40 42	Rock Core Run 8		36	Light gray quartz, hornblende, biotite, garnet gneiss with biotite schist at 41.5-43', schist dips 80 degrees and is very soft and broken	BEDROCK	Bent-onite
44 46	Rock Core Run 9		63	Biotite schist to 44.5', then back to lt. gray quartz, hornblende, biotite, garnet gneiss, coarser grained 13 horizontal fractures	BEDROCK	Sand
48 50 52	Rock Core Run 10		61	Light gray quartz, hornblende, biotite, garnet gneiss 11 horizontal fractures	BEDROCK	2" Sch 40 PVC 10-slot screen
54 56 58						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-102S

Page 1 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) August 20, 1998

Elevation S-20.81' Depth 22.5 ft Ground Water Depth 8.32 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0					First 7.5' of boring drove casing to 5.2' and spun casing to bedrock at 7.5 fbg	Curb box
2						
4					SAND FILL	Bent-onite
6						
8	Rock Core Run 1		60	Dark gray-green augite amphibolite numerous fractures 9.8' then solid to end	BEDROCK	2" Sch. 40 PVC Riser Pipe
10						
12						Sand
14	Rock Core Run 2		60	Dark gray-green augite amphibolite Subhorizontal fracture at 13.1' Steep fracture set at 14.3-14.6'	BEDROCK	
16						2" Sch 40 PVC 10-slot screen
18	Rock Core Run 3		60	Dark gray-green augite amphibolite Horizontal fracs. at 17.9', 18', 19', 20.6' Subhorizontal fracs. at 19.2', 20.1', 22.3' Steep fracture at 20.4'	BEDROCK	
20						

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Project GROUNDWATER MONITORING

Boring No. MW-102S

Page 2 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) August 20, 1998

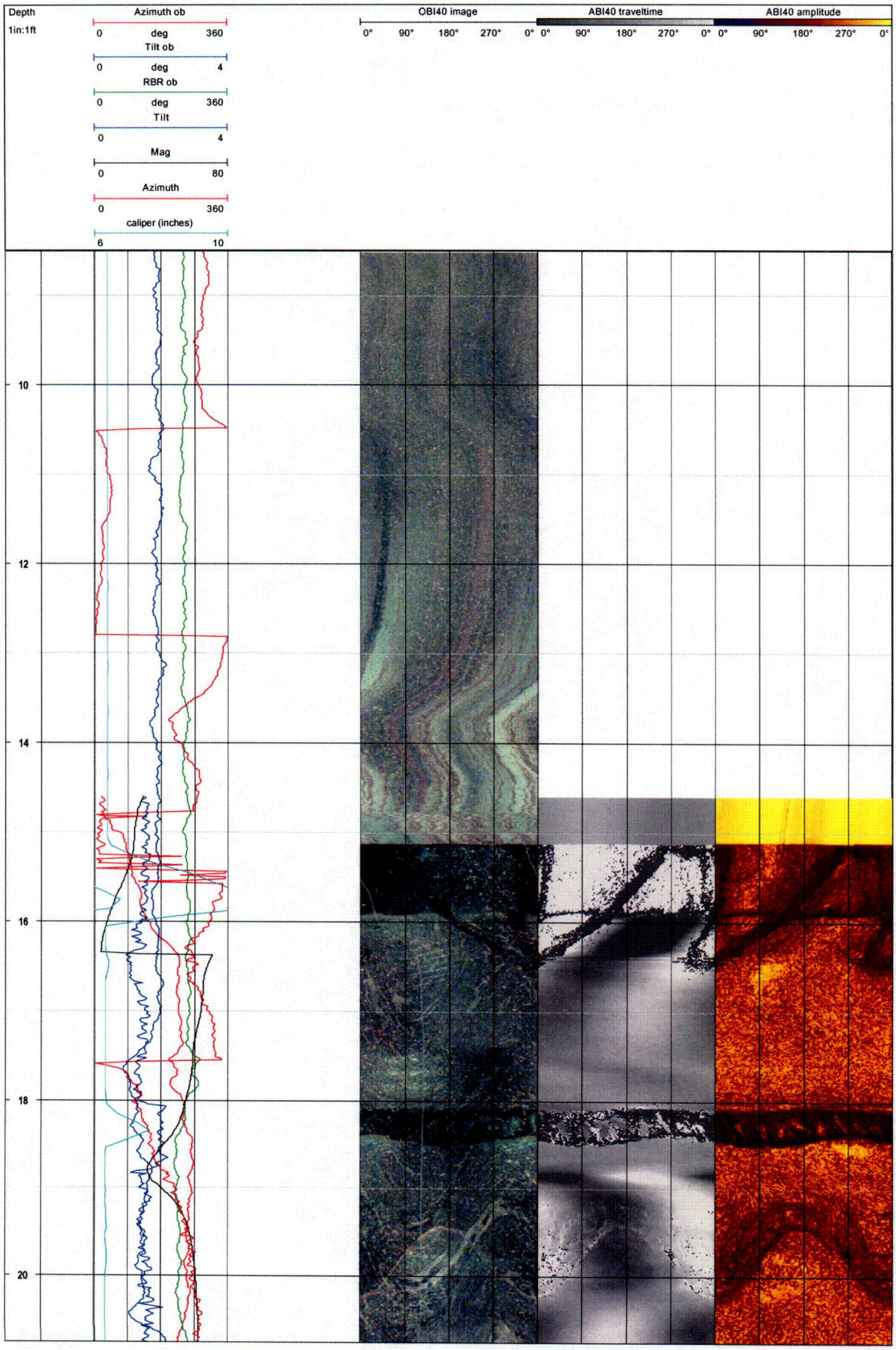
Elevation S-20.81' Depth 22.5 ft Ground Water Depth 8.32 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

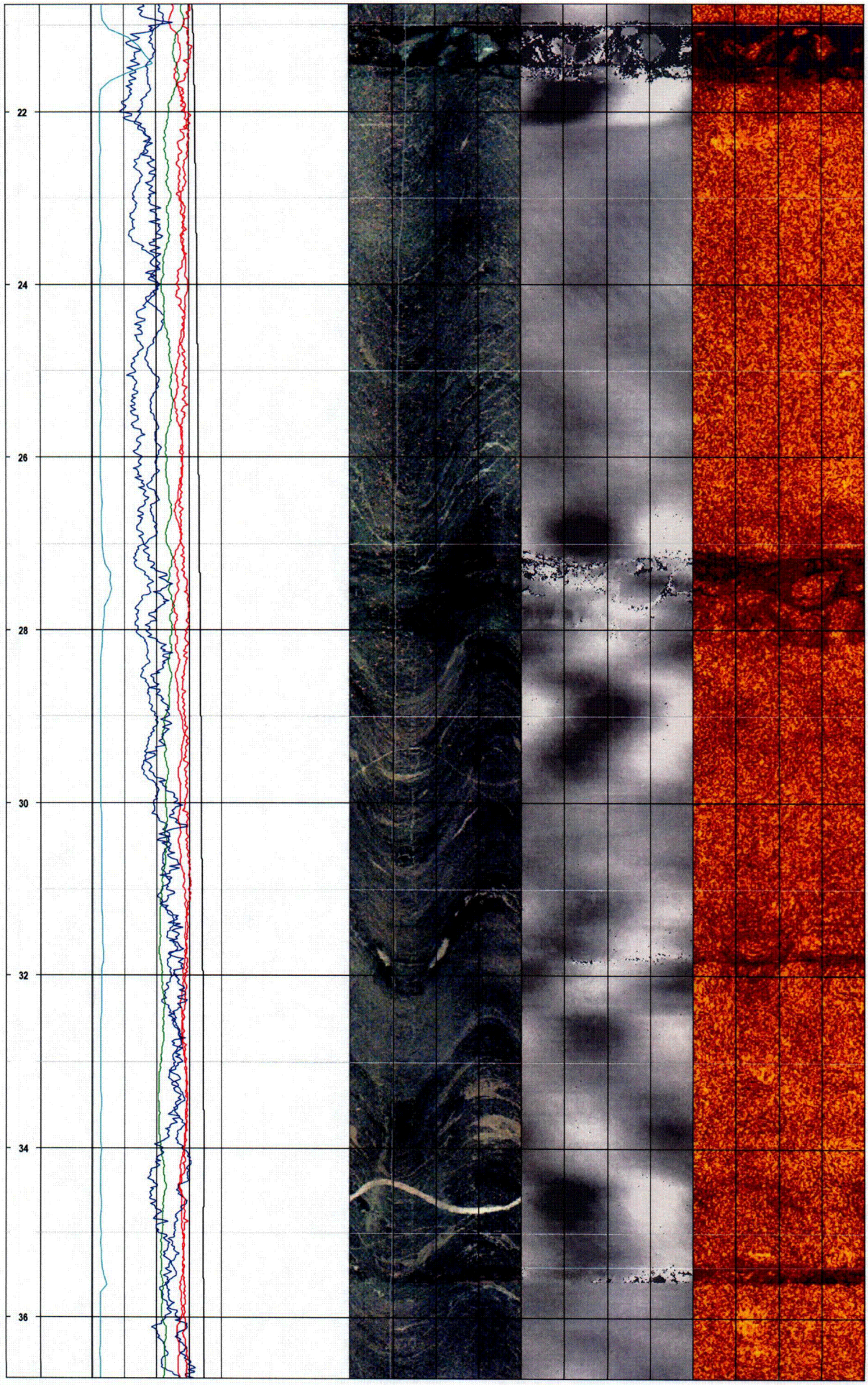
DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	Rock Core Run 3		60	Dark gray-green augite amphibolite Horizontal fracs. at 17.9', 18', 19', 20.6' Subhorizontal fracs. at 19.2', 20.1', 22.3' Steep fracture at 20.4'	BEDROCK	2" Sch 40 PVC 10-slot screen
22						
24						
26						
28						
30						
32						
34						
36						
38						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project - Well: CT Yankee/East Hampton, CT - MW-103A optical & acoustic televiewer logs



C-21



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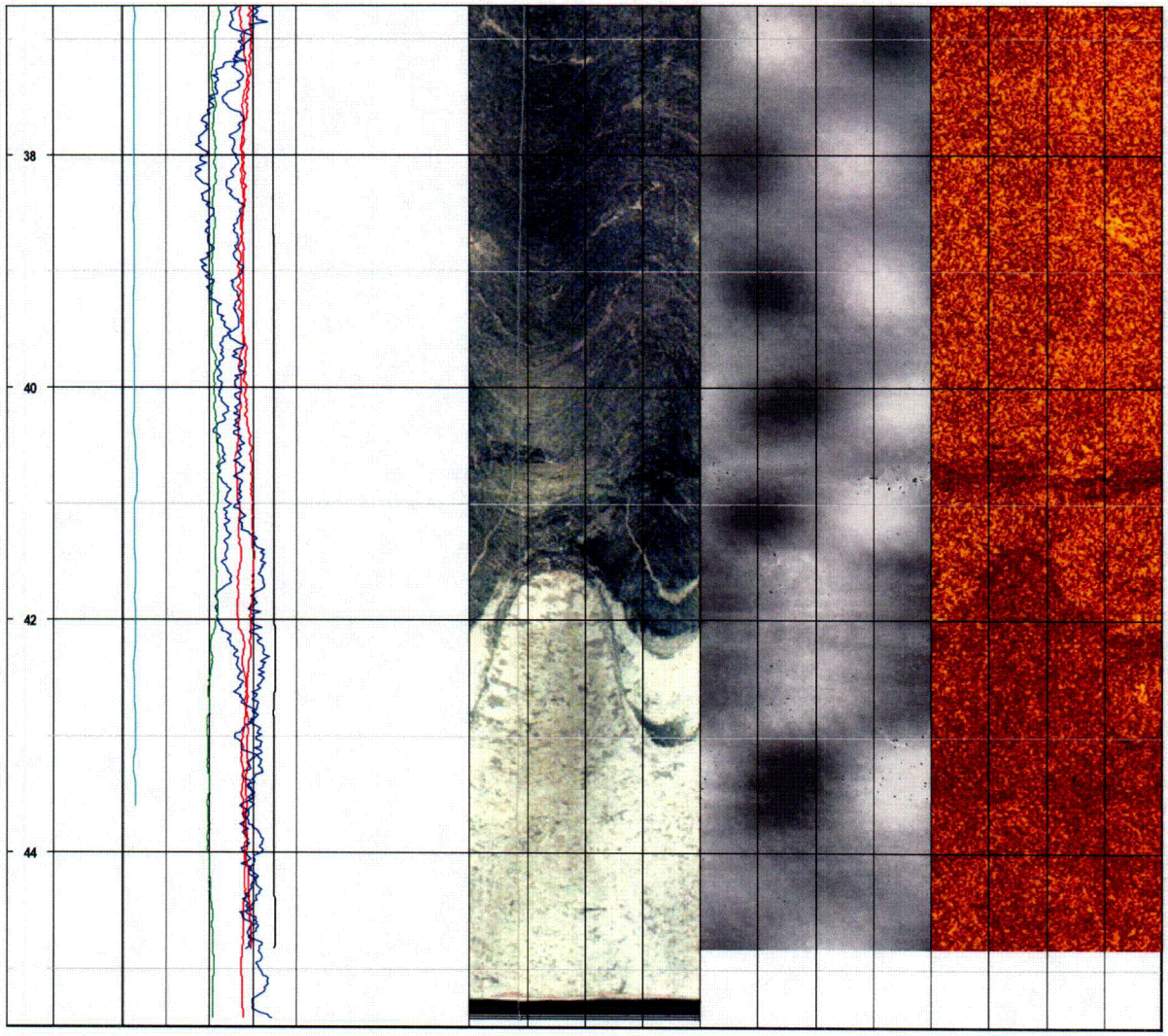
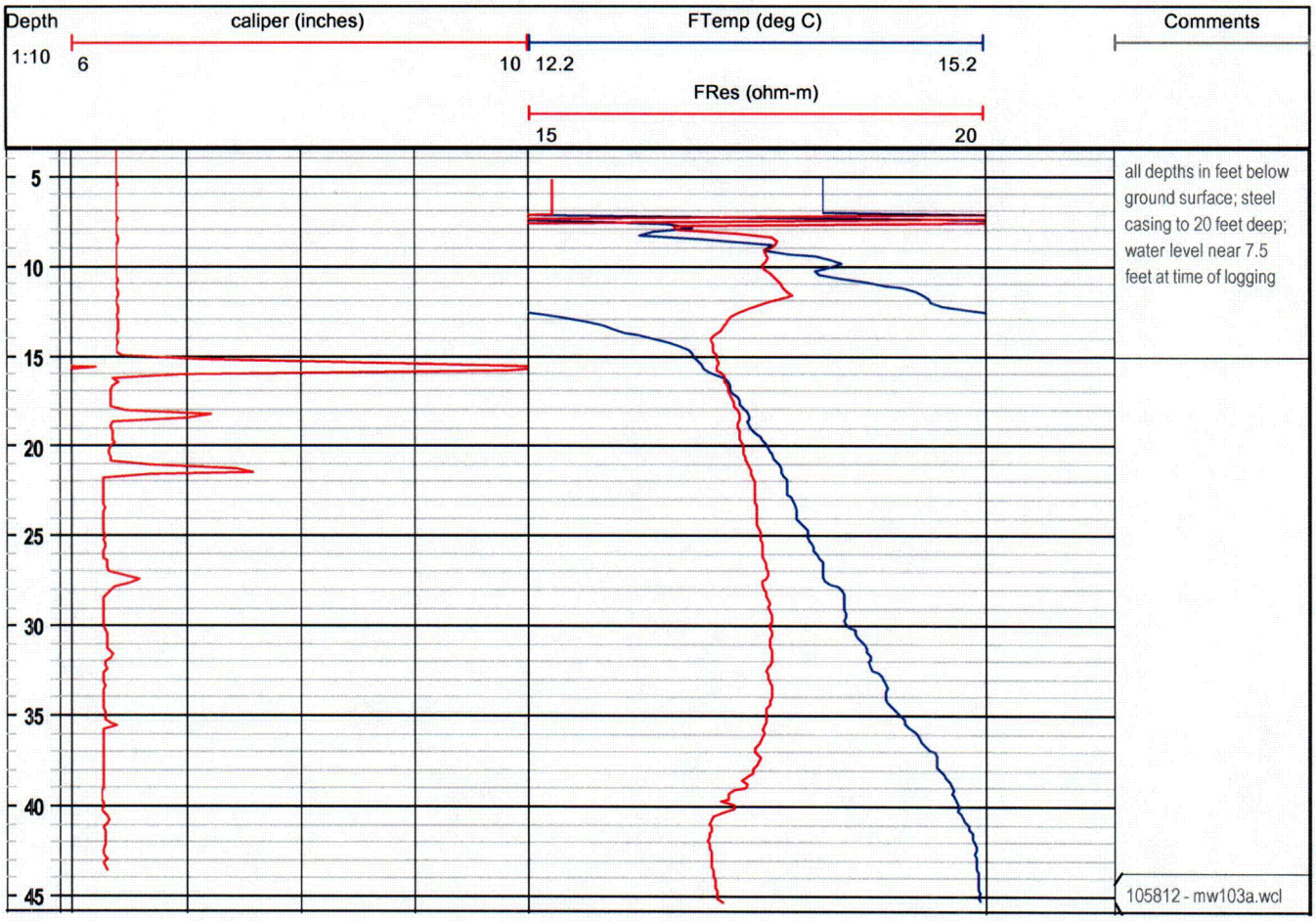


E-23

Project - Well: CT Yankee/East Hampton, CT - MW-103A conventional logs



C-24

CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-103A Sheet: 1 of 1	Date started: 12/13/2005 Date Finished: 12/23/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: D. Helper: Drill Rig: Versa Drill, Air Rotary Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 11' - engineered back-fill	
7							
						Bedrock encountered at 11' bgs	
14							
21							
28							
35							
42							
							TD = 45 ft bgs MW screened 34 to 44'bgs

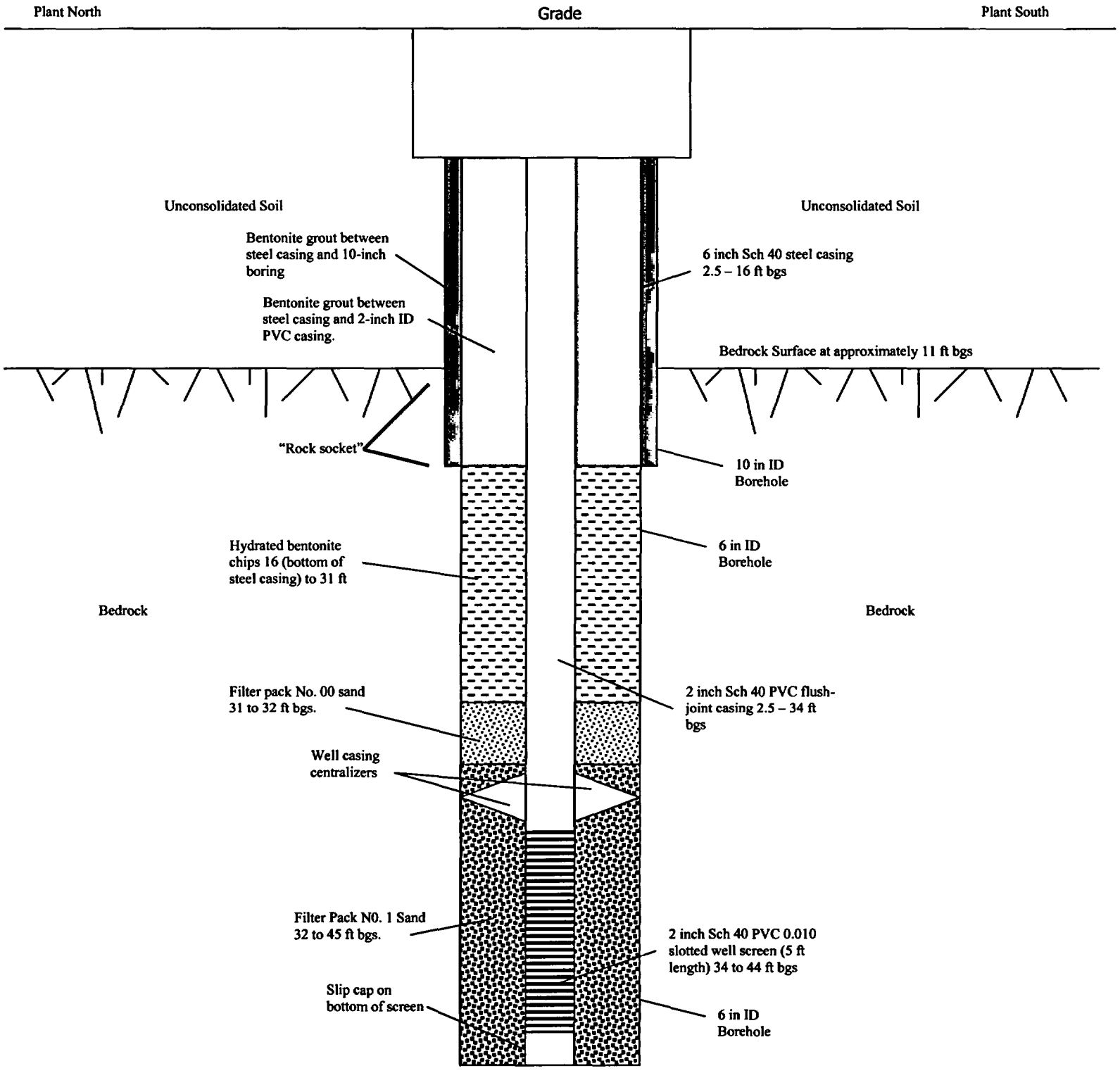
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

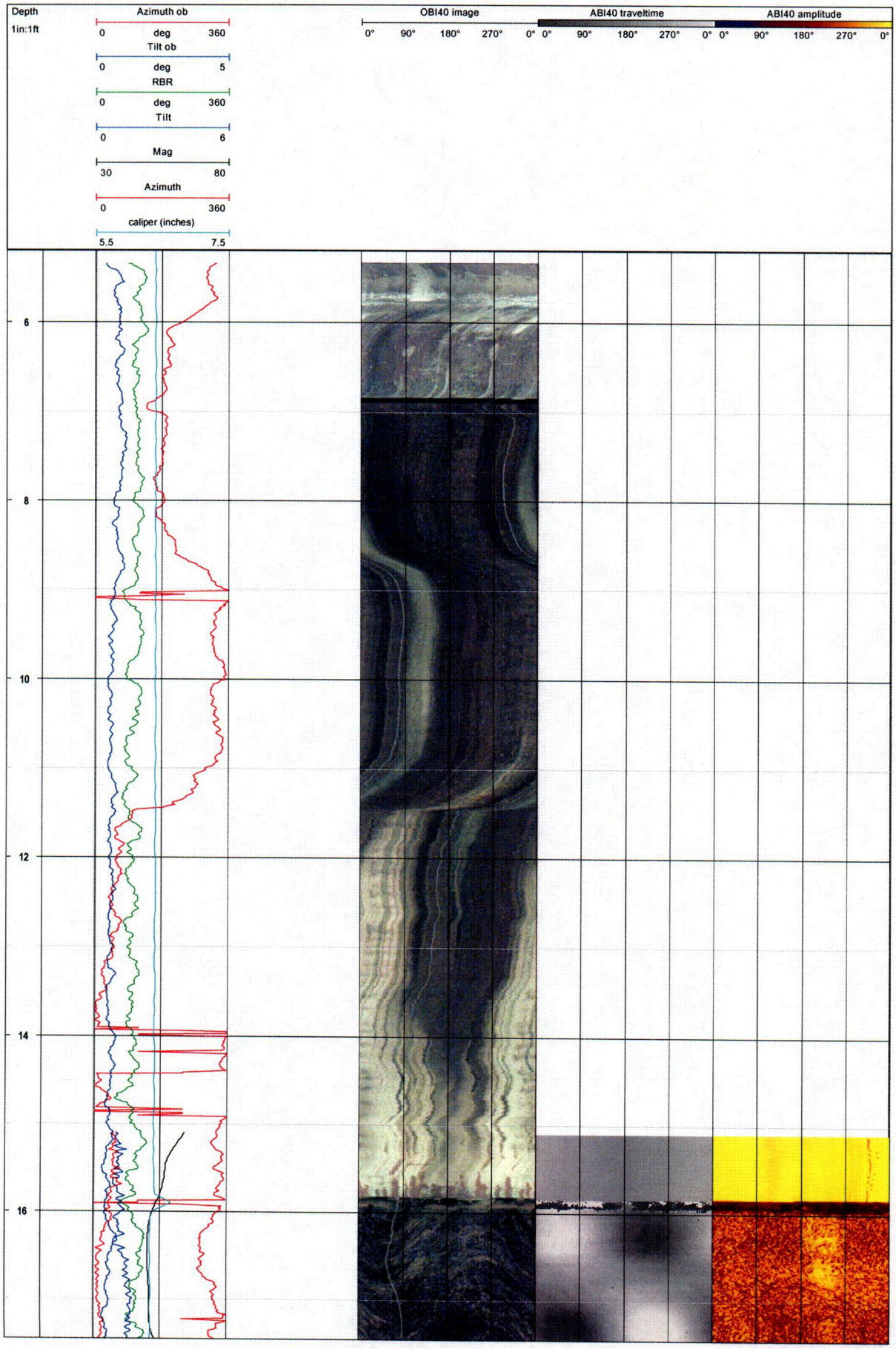
Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

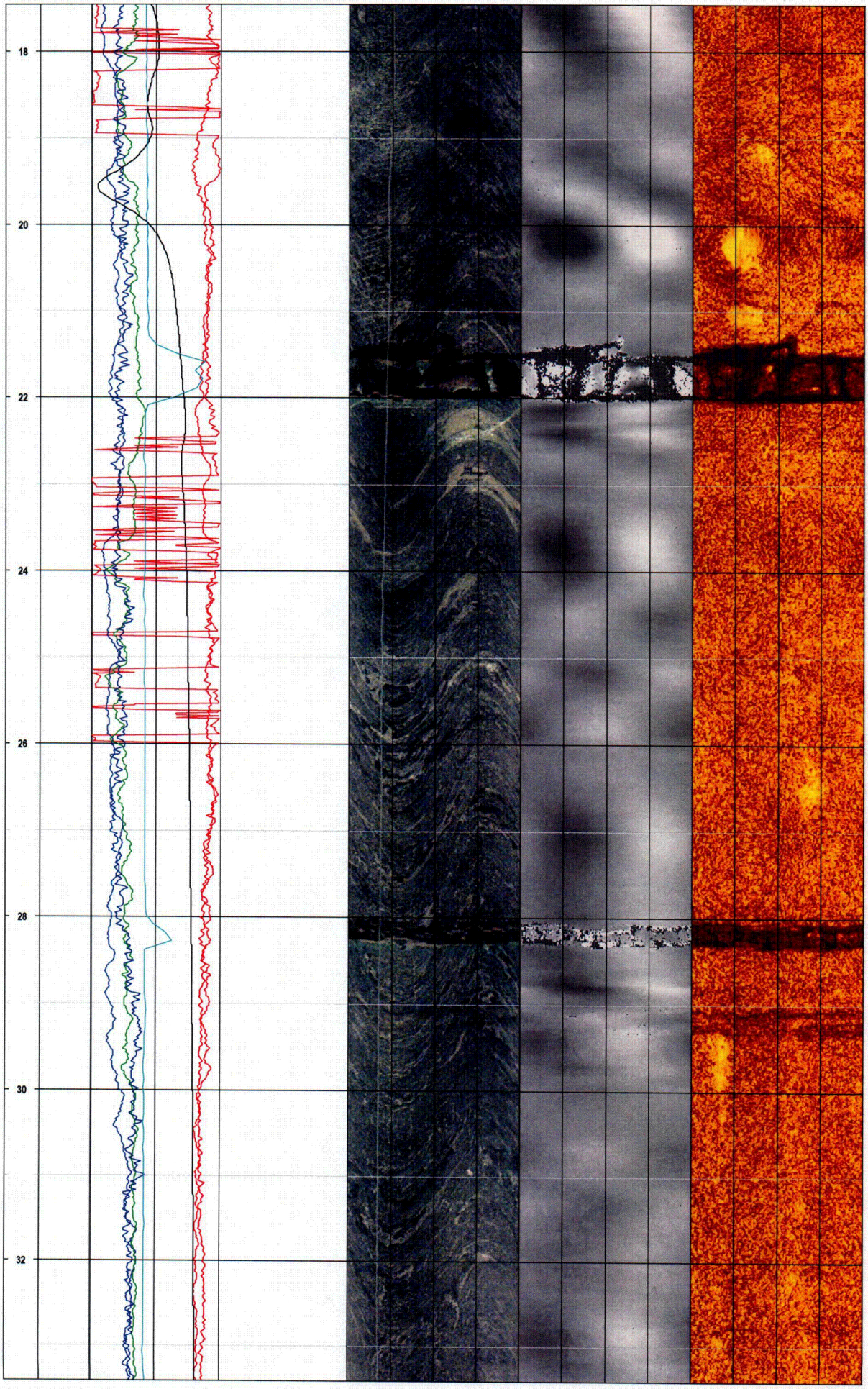
MW-103A Groundwater Monitoring Well Schematic
(not to scale)



Project - Well: CT Yankee/East Hampton, CT - MW-103B optical & acoustic televiewer logs



C-25



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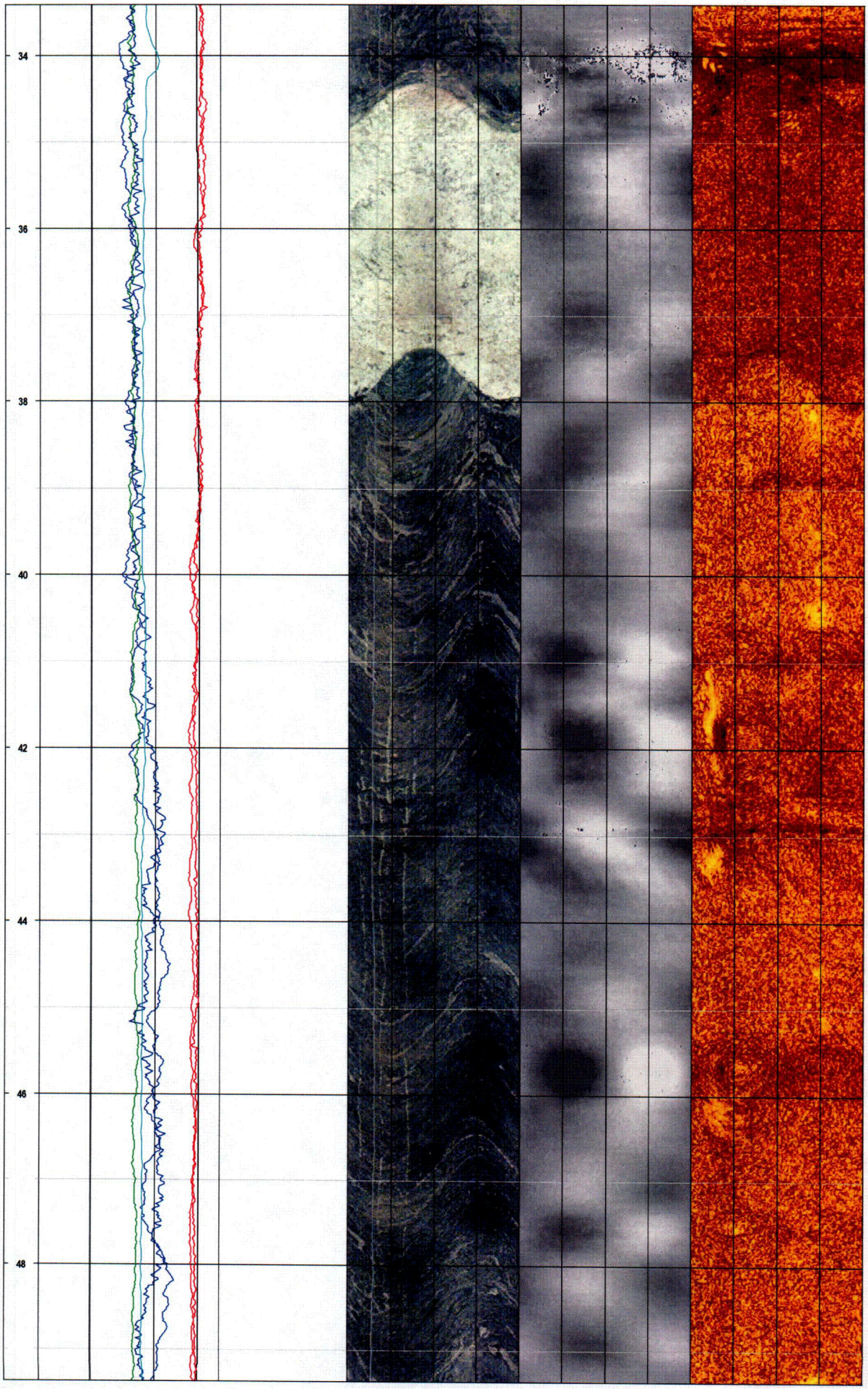
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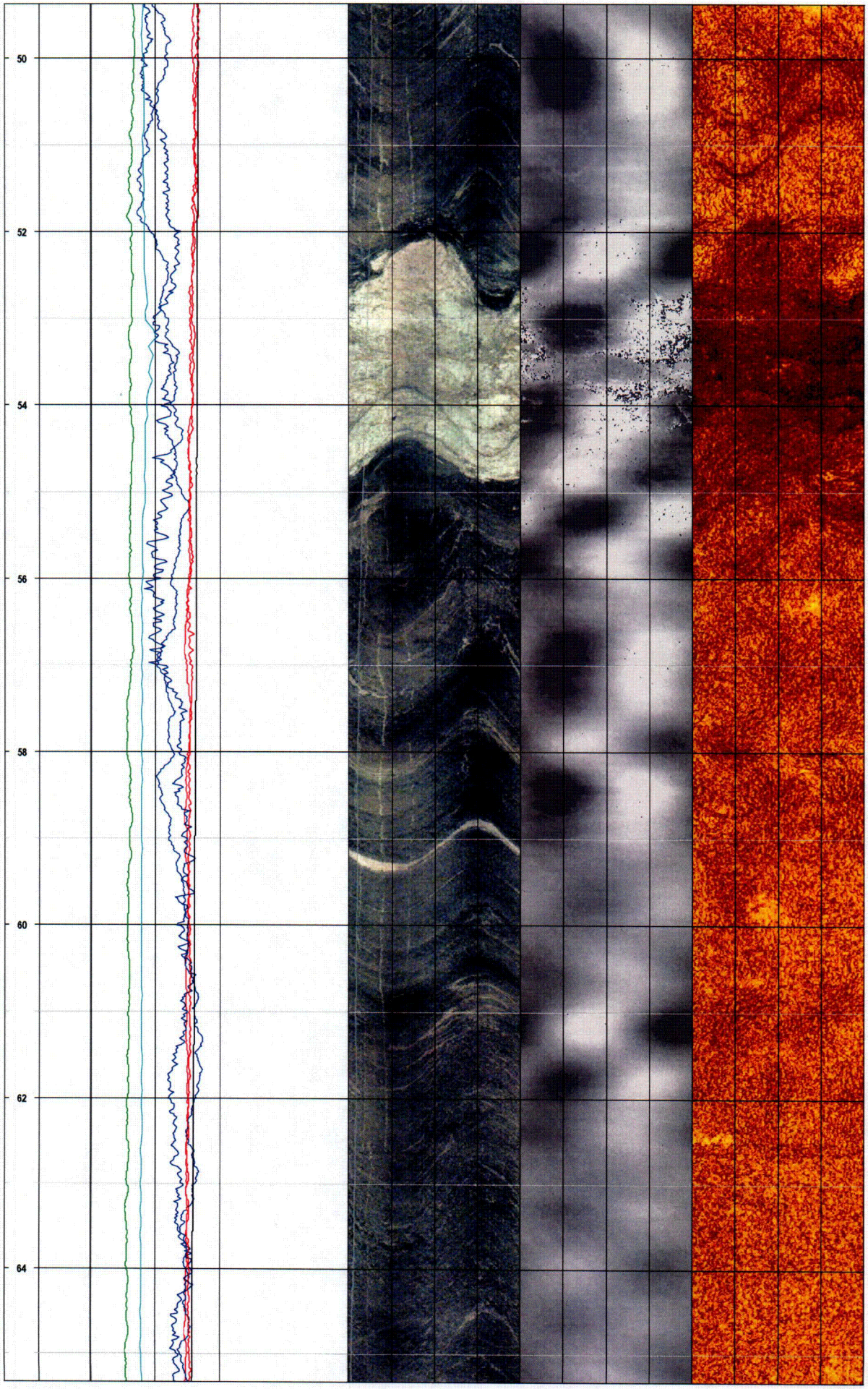
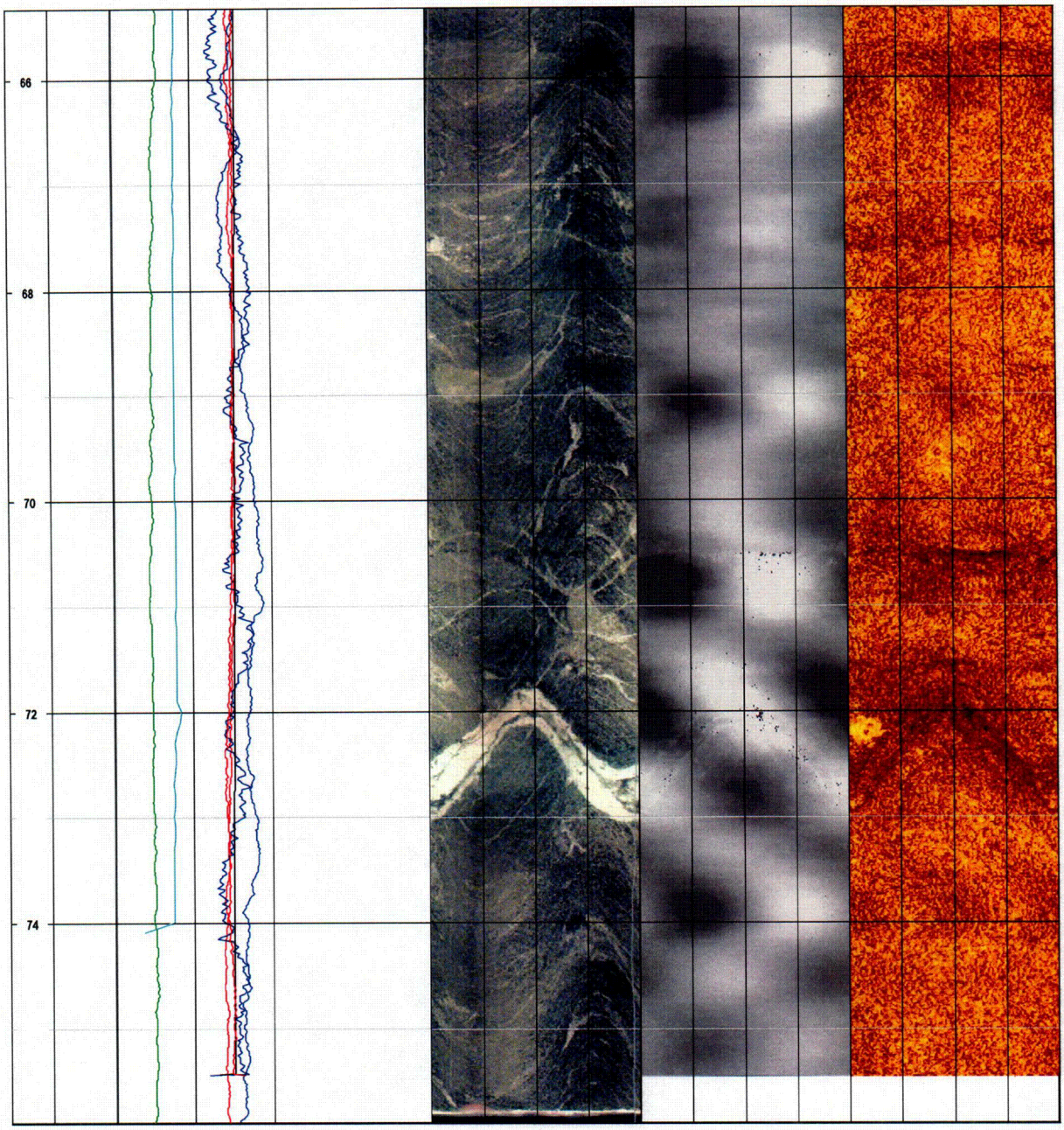
42
44
46
48



C-28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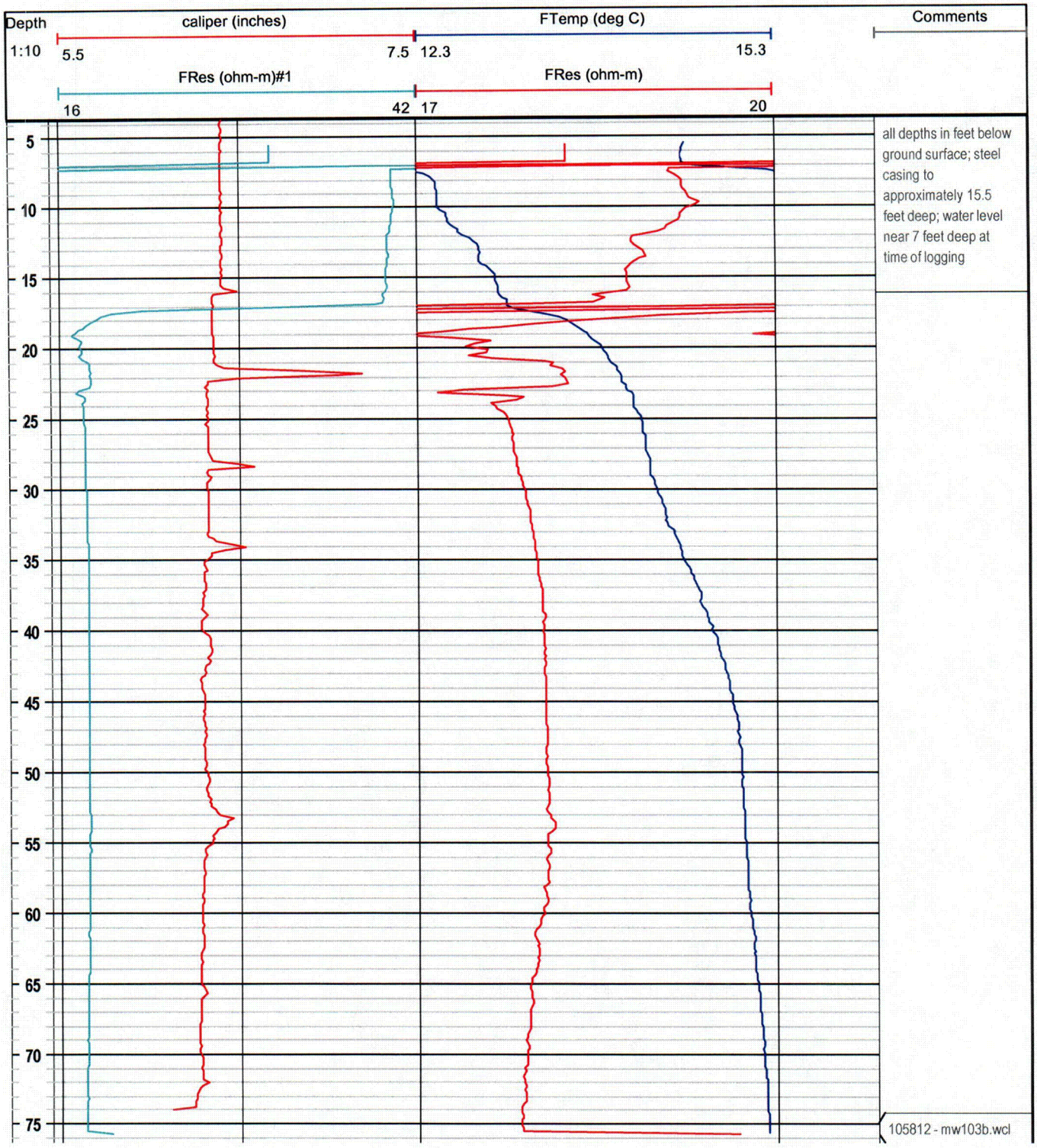
Project - Well: CT Yankee/East Hampton, CT - MW-103B conventional logs



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-103B Sheet: 1 of 1	Date started: 12/13/2005 Date Finished: 12/23/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 11' - engineered back-fill	
						Bedrock encountered at 11' bgs	
15							
30							
45							
60							
75							
							TD = 76'bgs MW screened from 66 to 76'bgs
90							

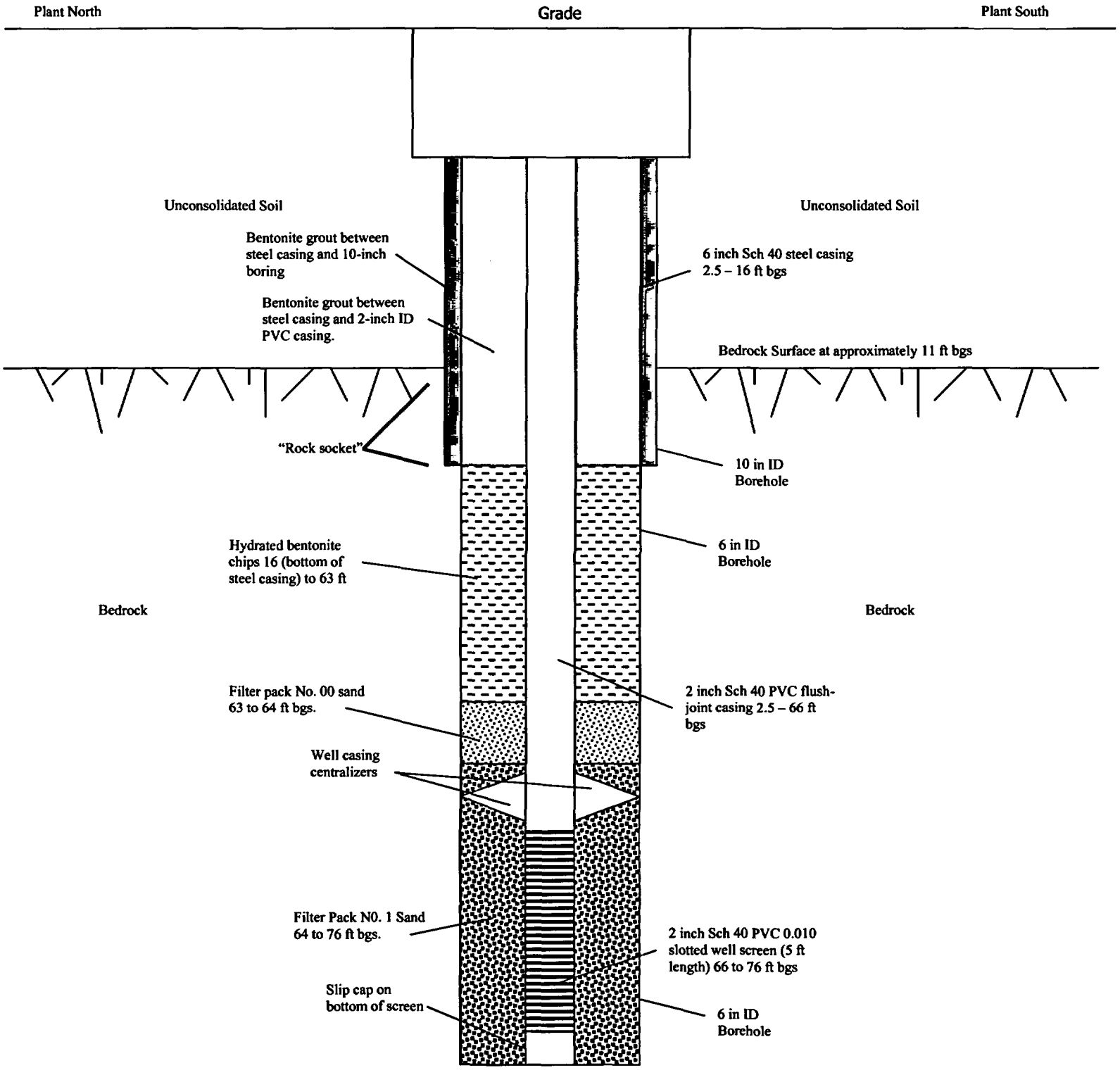
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-103B Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MWR-103D Sheet: 1 of 1	Date started: 12/06/2005 Date Finished: 12/06/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: D. Helper: Drill Rig: Versa Drill, Air Rotary Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 8' - Engineered backfill material	
						8.7 to 12.7' - Pegmatite, augite and smokey quartz (silica-rich pegmatite)	bedrock at 8 ft bgs
10						12.7 to 16' - Amphibolite	10.7' FX with iron-oxide staining & rock flower
						16' to 17.9' - Amphibolite Gneiss	FX at Pegmatite/Amphibolite contact
						17.9' to 18.9' - Granulite/Amphibolite (FX at 18.5 with iron-oxide staining), pyrite-rich inclusions throughout	15' "mud-filled" FX with iron-oxide staining
20						18.9 to 20.7' - Amphibolite Gneiss	21.5' FX with Fe-oxide staining & mud-filling
						20.7 to 21.5' - Amphibolte/Granulite	21.9' FX with mud-coating & Fe-oxide staining
						21.5 to 27.7' - Amphibolite Gneiss	30.7' FX w/ little Fe-oxide staining
						27.7 to 30.4' - Amphibolite/Granulite (at 30' FX filled w/ granulite; 30.5' FX with slight Fe-oxide staining & filled with granulite)	35.7' FX (pegmatite/Amphibolite contact); some Fe-oxide staining, mud-fill material, abundant vugs, secondary porosity
30						30.4 to 32.1' Amphibolite Gneiss	
						32.1 to 32.8' - Amphibolite	
						32.8 to 35.7' - Silica-rich Pegmatite with garnet & albite	
						35.7 to 36.7' - Amphibolite with abundant pyrite	
40						36.7 to 48.7' - Amphibolite Augite Gneiss (abundant augite, feldspars, no FXs or apparent water-bearing zones)	
						48.7 to 58.7' - Amphibolite Gneiss	
50							
							51.5' FX with slight evidence of "mud filling", very sm. Aperture
							52.7' FX, same as above
							FX, 1mm, little staining &/or mud fill material
60							TD = 58.7'
							MW Screened 48.5 to 58.5

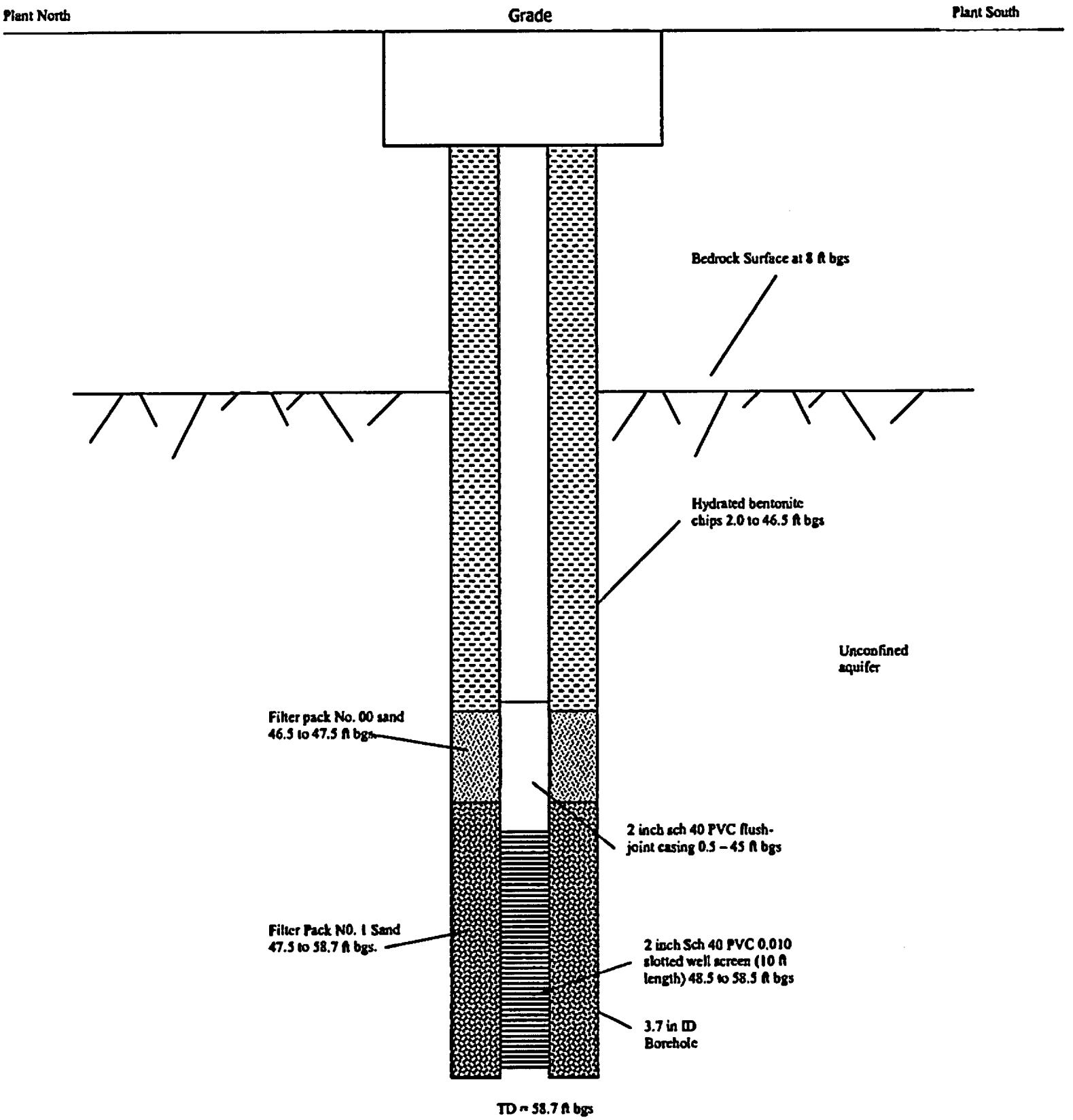
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement, Sand, Cement, Native Fill, Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MWR-103D Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MWR-103S Sheet: 1 of 1	Date started: 12/06/2005 Date Finished: 12/06/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 8' - Engineered backfill material	
7							
						8 to 11' - Pegmatite (silica-rich with pyrite)	bedrock at 8 ft bgs
						11 to 24' - Amphibolite Gneiss	11' FX w/ no staining &/or mud-fill material
14							11.2' FX at Pegmatite/gneiss contact, abundant Fe-oxide staining
							13' major FX, lost circulation @ FX Fe-oxide staining & clay-fill material
21							14' major FX, lg aperture w/ Fe-oxide staining, clay-fill, red-brown
							15.1' FX, Fe-oxide staining, clay-fill, dark brown/red
28							21.2' horizontal FX set, Fe-oxide staining
							TD = 24 ft bgs
							MW Screened from 14 to 24'bgs
35							
42							

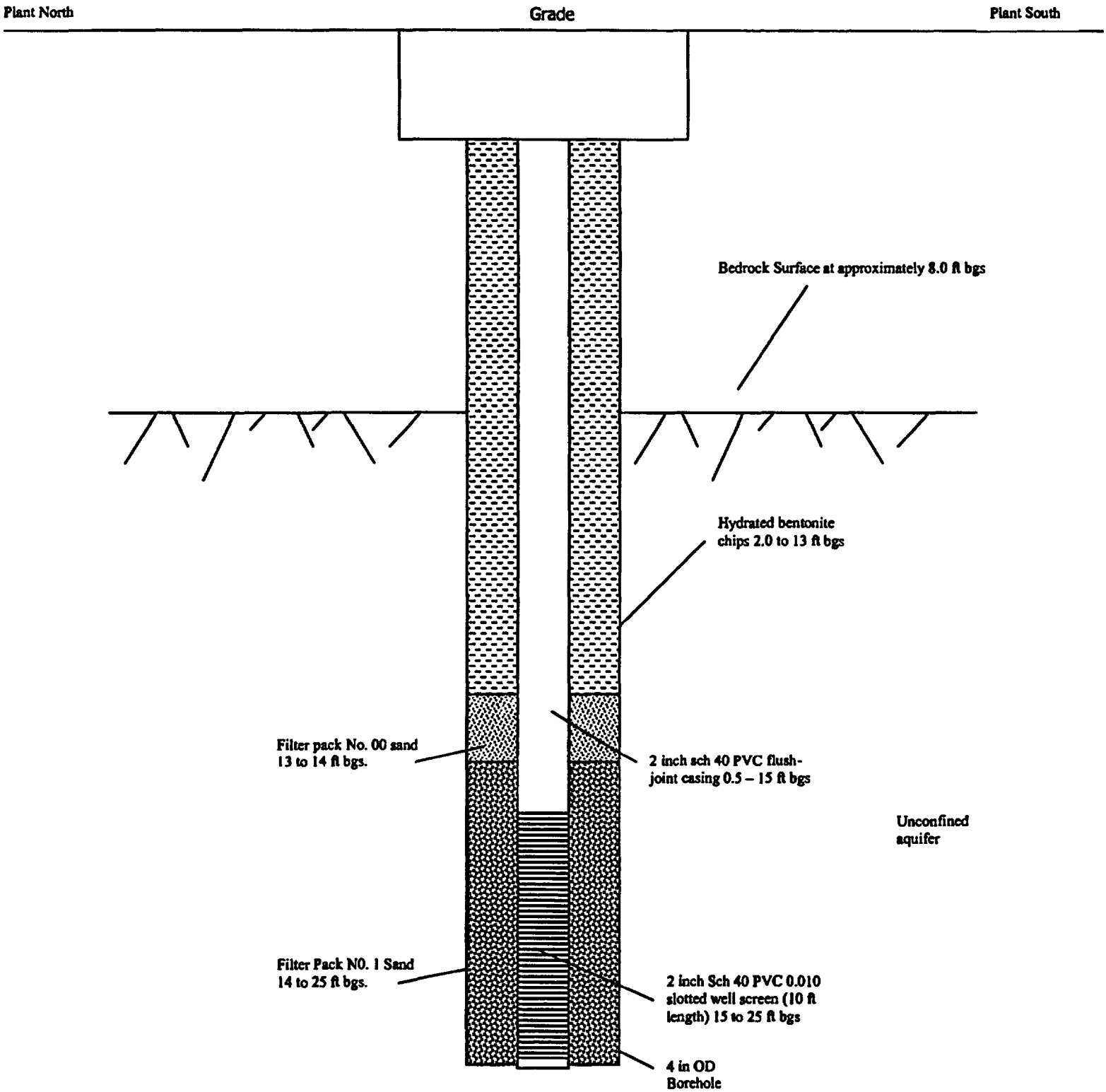
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MWR-103S Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MWR-105D Sheet: 1 of 1	Date started: 9/20/2005 Date Finished:

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Marty Harrington D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather: Cloudy, Mild

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						see geologic log/soil description for MW-105D	
9.5							
19							
28.5							
38							
47.5							
57							
							TD = 57'bgs MW screened from 47 to 57'bgs

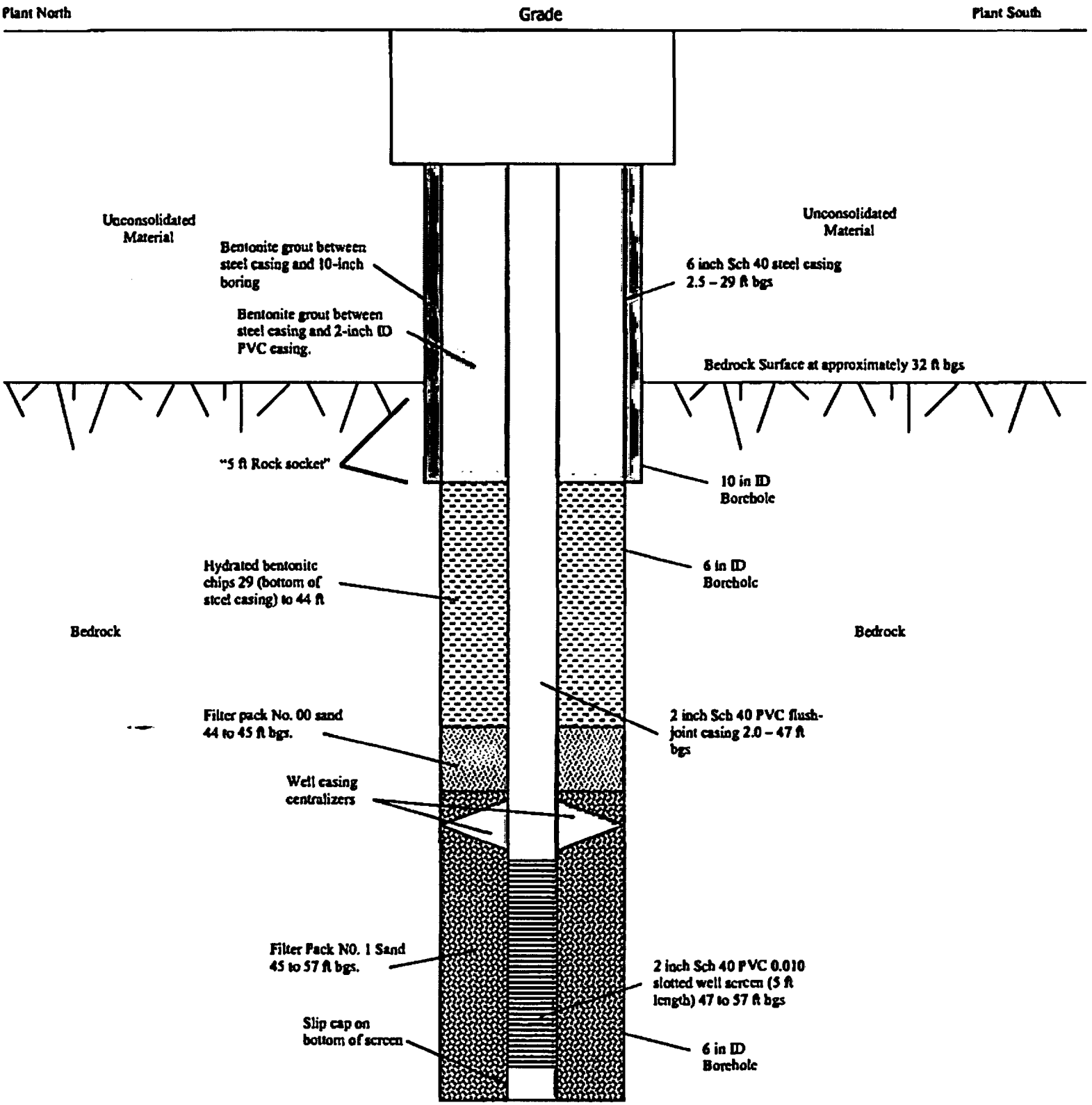
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MWR-105D Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MWR-105S Sheet: 1 of 1	Date started: Date Finished:

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA		
Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Marty Harrington D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather: Sunny, Hot

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Sample Description	Well Details
						Soil Description	Comments
4						entire borehole to the total depth of 24'bgs is engineered back-fill	
8							
12							
16							
20							
24							
							TD = 24'bgs MW is screened from 19 to 24'bgs

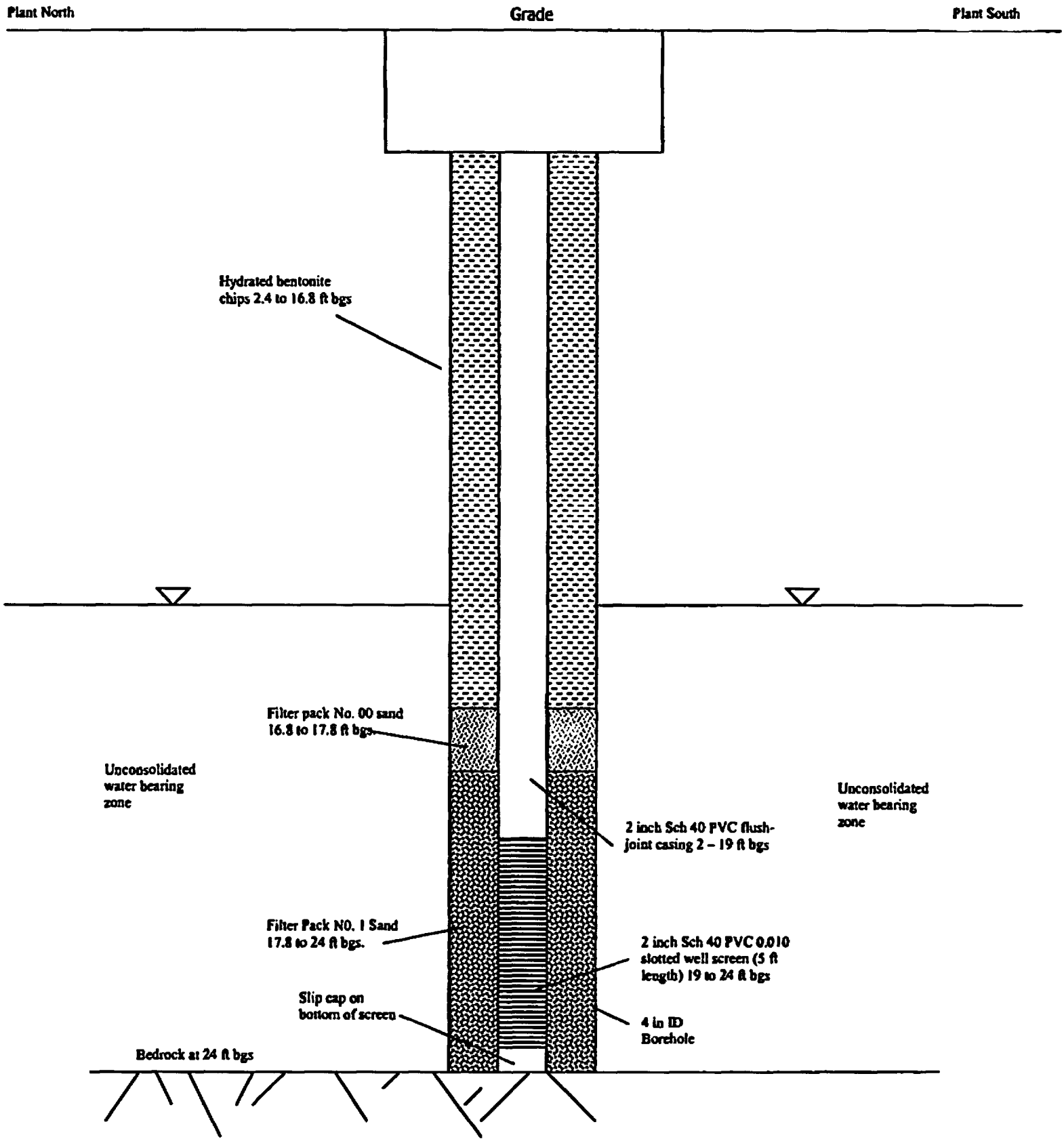
Sample Types:
S=Split Spoon: _____
R= Rock Core: _____
O = _____

Cement

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

N = ASTM D1586

MWR-105S Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MWR-106D Sheet: 1 of 1	Date started: 9/14/2005 Date Finished: 9/14/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Marty Harrington D. Helper: Drill Rig: Versa Drill, Air Rotary Weather: Hot, Sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						see geologic log/soil description for MW-106D	
10							
20							
30							
40							
50							
60							TD = 55'bgs MW screened from 45 to 55'bgs

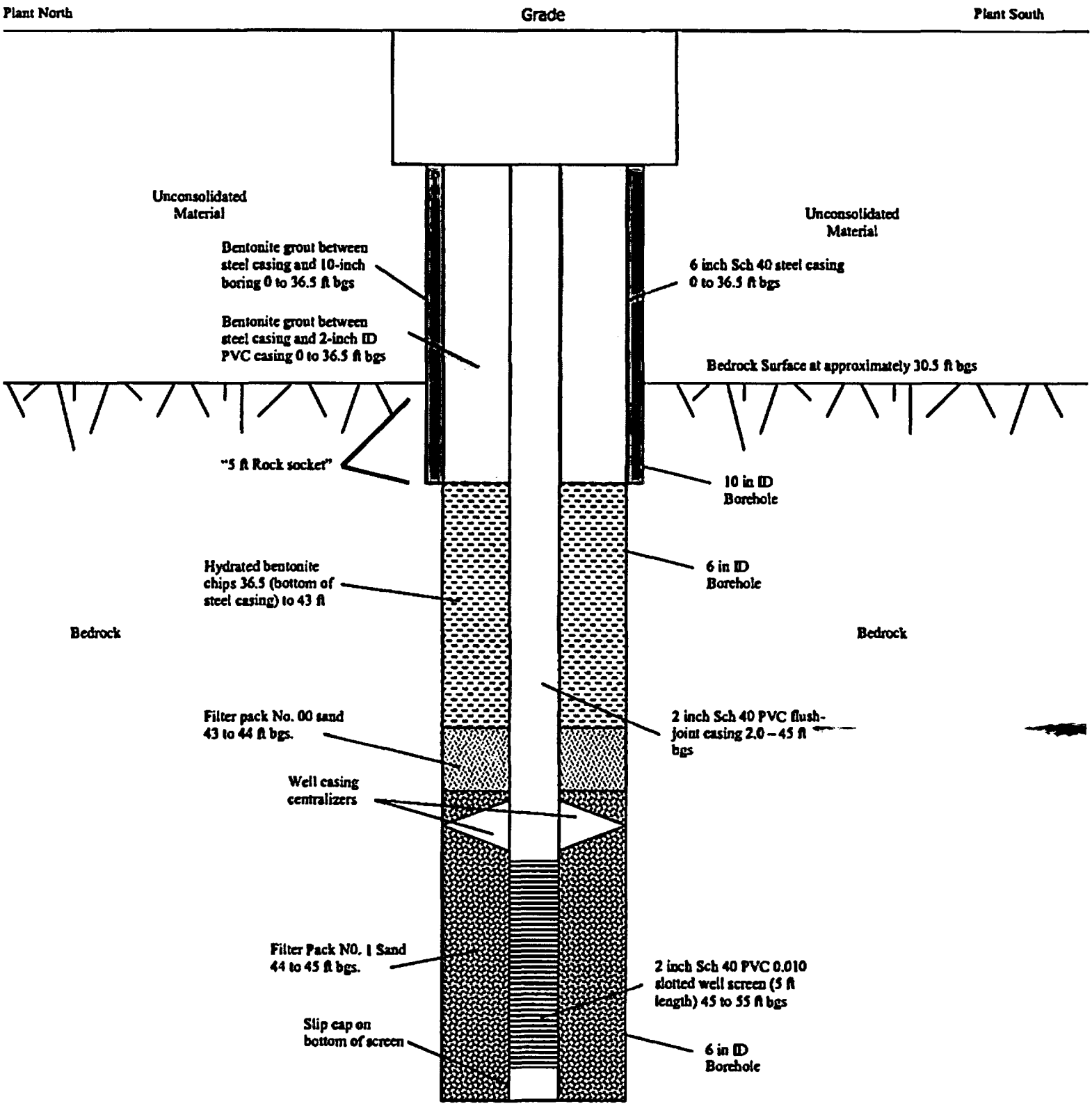
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MWR-106D Groundwater Monitoring Well Schematic
(not to scale)



Project GROUNDWATER MONITORING

Boring No. MW-106S

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Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JULY 2, 1998

Elevation S-20.76' Depth 24.8 ft Ground Water Depth 10.73 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0					Remove old well and drill to bedrock surface at 14.5 ft.	Curb box, concrete
2						
4					SAND FILL	Bentonite
6						
8						2", sch. 40, PVC riser pipe
10						
12					GRAVELLY SAND	
14						Sand
16	Rock Core Run 1		60	Dark gray-green augite amphibolite with epidote alteration. Fractures at 15.25', 17.24'	BEDROCK	2", 10-slot, Sch 40, PVC screen
18						
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-106S

Page 2 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JULY 2, 1998

Elevation S-20.76' Depth 24.8 ft Ground Water Depth 10.73 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	Rock Core Run2	2	60	Same as Run 1. Several tight but black-weathered fractures	BEDROCK	Sand 2" Sch 40 PVC 10-slot screen
22						
24						
26						
28						
30						
32						
34						
36						
38						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-107S & D

Page 1 of 5

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 4-10, 1998

Elevation D-20.73', S-20.73' Depth D-100', S-25' Ground Water Depth S-12.79 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0					First 4' of both borings hand augered	Curb box Concrete; Curb box Concrete
2						
4	SS1		24	Tan F-C SAND, tr silt, tr f gravel, damp	SAND FILL	Grout; 2" Sch. 40 PVC Riser Pipe
6						
8						2" Sch. 40 PVC Riser Pipe; Bent.
10	SS2		24	Red-brown F SAND, tr silt, tr f-c gravel, moist to wet	SAND/FILL	
12						Sand
14	SS3		13	Brown, laminated F-C SAND, tr f gravel, saturated	GRAVELLY SAND	2" Sch. 40 10-slot PVC Well Screen
16						
18					Hard drilling-GRAVEL	
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-107S & D

Page 2 of 5

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JUNE 10-11, 29, 1998

Elevation D-20.73', S-20.73' Depth D-100', S-25' Ground Water Depth S-12.79 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	SS4		12	Mottled dark green & red-brown F-C GRAVEL, some c sand, ltl m sand, tr silt, saturated	GRAVELLY SAND	2" Sch. 40 10-slot PVC Well Screen
22						Bent.
24						
	SS5		10	Red-brown, laminated F SAND & SILT, trace clay, saturated	RED FINE SAND	
26						
28						Grout
30	SS6		14	Thin layers and laminae of tan C SAND and red-brown F SAND & SILT, saturated	RED FINE SAND	2" Sch. 40 PVC Well Riser Pipe
32						
34						
	SS7		14	Layered, red-brown F-M SAND, tr silt, saturated	RED FINE SAND	
36						
38						
40						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-107S & D

Page 3 of 5

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 4-6, 10, 1998

Elevation D-20.73', S-20.73' Depth D-100', S-25' Ground Water Depth S-12.79 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
40	SS8		18	Red-brown, layered F-M SAND & SILT, saturated	RED FINE SAND	
42						
44						
46	SS9		15	Red-brown F SAND & SILT, tr m-c sand, saturated	RED FINE SAND	2" Sch. 40 PVC Well Riser
48						
50	SS10		14	Red-brown SILT & F SAND, tr green m sand to f gravel layers, saturated	RED FINE SAND	
52						
54					Hard drilling & gravel wash	Grout
56	SS11		15	Olive-brown F-M SAND, ltl f-c gravel & c sand, trace silt, wet	BROWN SAND	
58						
60						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-107S & D

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Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 4-6, 10, 1998

Elevation D-20.73', S-20.73' Depth D-100' S-25' Ground Water Depth S-12.79 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (m)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
60	SS12		18	Tan, laminated F-M SAND, tr f-c gravel (including c mica flakes), saturated	BROWN SAND	
62						
64						
	SS13		19	Light brown M SAND, saturated	BROWN SAND	
66						
68						2" Sch. 40 PVC Well Riser
70	SS14		17	Light brown, laminated F-M SAND, saturated	BROWN SAND	
72						
74						Grout
76						
	SS15		18	Light brown, laminated F-M SAND, tr m gravel, saturated	BROWN SAND	
78						
80						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-107S & D

Page 5 of 5

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) AUGUST 4-6, 10, 1998

Elevation D-20.73', S-20.73' Depth D-100' S-25' Ground Water Depth S-12.79 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
80	SS16		24	Gray F-C SAND, ltl f-m gravel, tr silt, saturated	BROWN SAND	Grout
82						
84						Bent-onite
	SS17		5	Gray F-C GRAVEL & F-C SAND, tr silt, saturated	TILL/COBBLY GRAVEL	
86						2" Sch. 40 PVC Well Riser
88	Rock Core Run 1		64	Gray-green augite amphibolite. Numerous subhorizontal and steep stained fractures from 90.5-93.	BEDROCK	
90						Sand Pack
92						
94	Core Run 3		60	Same as Run 1 Four foliation parallel fractures dipping 65 degrees from 93-94.3.	BEDROCK	
96						2" Sch. 40 PVC 10-slot Well Screen
98	Core Run 3		24	Same as Run 1 Two foliation parallel fractures and one steeply dipping	BEDROCK	
100						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-108

Page 1 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) APRIL 8, 1998

Elevation S-10.30' Depth 27 ft Ground Water Depth 7.37 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0	SS1	10/10 9/11	17	Red-brown M-C SAND, little f-c gravel, trace silt, damp	SAND/FILL	Steel pipe & con-crete
2						
4					Gray cuttings @ 3'	2" Sch. 40 PVC Riser Pipe
6	SS2 ▽ 4/2003	8/8/8/7	19	Dark gray SILT, trace organics, laminated, damp	SILT	Grout
8						
10	SS3	7/8 18/13	20	Gray to red-brown F-C SAND, little f-c gravel, trace silt, saturated	GRAVELLY SAND	Bent-onite
12						
14						Sand
16	SS4	11/17 16/24	8	Red-brown F GRAVEL, little c sand, saturated	GRAVELLY SAND	
18						
20					Easier drilling after 18.5', F SAND	

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-108

Page 2 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) APRIL 8, 1998

Elevation S-10.30' Depth 27 ft Ground Water Depth 7.37 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	SS5	2/3/3/2	21	Red-brown F SAND, trace silt, saturated	RED FINE SAND	2" Sch. 40 Pvc 10-slot Well screen
22						
24						
26	SS6	3/5/5/5	22	Same as SS5	RED FINE SAND	Sand
28						
30						
32						
34						
36						
38						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-109S & D

Page 1 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JULY 28-30, AUG 3, 1998

Elevation D-20.81', S-20.80' Depth D-55', S-25' Ground Water Depth S-17.42 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec."	DESCRIPTION	NOTES	WELL SPECS.	
0					First 4' of both borings hand augered.	Stand pipe Con-crete	Stand pipe Con-crete
2							
4	SS1	27/25 25/26	22	Upper 10" - tan dk red-brown F-M SAND, sm f-m gravel and asphalt, damp Lower 12" - tan, laminated F-M SAND, tr f gravel, damp	SAND FILL		2" Sch. 40 PVC Riser Pipe
6							
8						2" Sch. 40 PVC Riser Pipe	Bent.
10	SS2	6/5/5/5	6	Tan C SAND & F GRAVEL, tr f-m sand, tr m gravel, wet	SAND FILL		
12							Sand
14						Bent.	
16	SS3	2/3/5/8	7	Red-brown M SAND, tr m gravel, saturated	GRAVELLY SAND		2" Sch. 40 10-slot PVC Well Screen
18							
20							

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-109S & D

Page 2 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JULY 28-30, AUG 3, 1998

Elevation D-20.81', S-20.80' Depth D-55', S-25' Ground Water Depth S-17.42 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	SS4	4/5/7/6	0	No recovery	GRAVELLY SAND	2" Sch. 40 10-slot PVC Well Screen
22						2" Sch. 40 PVC Well Riser Pipe
24						
26	SS5	6/8 8/13	10	Red-brown F-C SAND, tr f-c gravel, saturated	GRAVELLY SAND	
28						Bent.
30	SS6	10/10 30/74	13	Red-brown F-M SAND ltl f-c gravel, tr c sand, saturated	GRAVELLY SAND	
32						
34						
36	SS7	20/24 34/32	18	Olive-gray F SAND AND SILT, ltl c sand to m gravel, wet	TILL	
38						
40						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-109S & D

Page 3 of 3

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JULY 28-30, AUG 3, 1998

Elevation D-20.81, S-20.80' Depth D-55', S-25' Ground Water Depth S-17.42 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
40	SS8	15/28 73/23	13	Olive-gray F-C SAND & SILT, some f-c gravel, tr clay, wet	TILL	Bent-onite
42						
44	Core Run 1		60	Gray-green augite amphibolite Fracs. @ 43.5, 45, 46	BEDROCK	Sand
46						
48	Core Run 2		60	Gray-green augite amphibolite A few tight fractures	BEDROCK	2" Sch. 40 PVC 10-slot Well Screen
50						
52						
54	Core Run 3		30	Gray-green augite amphibolite No natural fractures	BEDROCK	
56						
58						
60						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-110S & D

Page 1 of 4

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JUNE 10-11, 29, 1998

Elevation D-20.18, S-20.08' Depth D-80', S-25' Ground Water Depth 19.74 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0						Stand pipe Con-crete / Stand pipe Con-crete
2						Grout
4	SS1	3/2/1/10	12	Upper 9" - tan F-M SAND, dry Lower 3" - Black SILT, some f-m sand, tr c sand to m gravel, damp	FILL	Grout / 2" Sch. 40 PVC Riser Pipe
6						
8						2" Sch. 40 PVC Riser Pipe / Bent.
10	SS2	18/24 25/20	12	Red-brown F-C SAND, some f-c gravel, trace silt, wet	GRAVELLY SAND	
12						Sand
14						
16	SS3	18/25 39/34	12	Same as SS2	GRAVELLY SAND	2" Sch. 40 10-slot PVC Well Screen
18						
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-110S & D

Page 2 of 4

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JUNE 10-11, 29, 1998

Elevation D-20.18', S-20.08' Depth D-80', S-25' Ground Water Depth 19.74 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	SS4	10/8/7/8	11	Red-brown C SAND, trace f gravel, trace f-m sand, trace silt, saturated	GRAVELLY SAND	2" Sch. 40 PVC Well Riser Pipe; 2" Sch. 40 10-slot PVC Well Screen
22						
24						
	SS5	8/8/7/9	16	Red-brown SILT, some f sand, trace clay, saturated	RED FINE SAND	
26						
28						Grout
30	SS6	8/8/7/9	6	Red-brown F SAND & SILT, saturated	RED FINE SAND	
32						
34						
	SS7		14	Same as SS6 with trace clay	RED FINE SAND	
36						
38						
40						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-110S & D

Page 3 of 4

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JUNE 10-11, 29, 1998

Elevation D-20.18', S-20.08' Depth D-80', S-25' Ground Water Depth 19.74 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
40	SS8	7/13 12/12	14	Red-brown F SAND, trace weatherd c gravel, trace silt, saturated	RED FINE SAND	2" Sch. 40 PVC Well Riser
42						
44						
	SS9	5/6/6/7	4	Red-brown F SAND, trace silt, saturated	RED FINE SAND	
46						
48						
50	SS10	7/6/6/5	10	Same as SS9 with trace m gravel	RED FINE SAND	Grout
52						
54						
	SS11	12/15 22/20	18	Olive-brown, laminated F SAND, trace silt, trace f gravel	BROWN SAND	
56						
58					TILL	
60						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-110S & D

Page 4 of 4

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) JUNE 10-11, 29, 1998

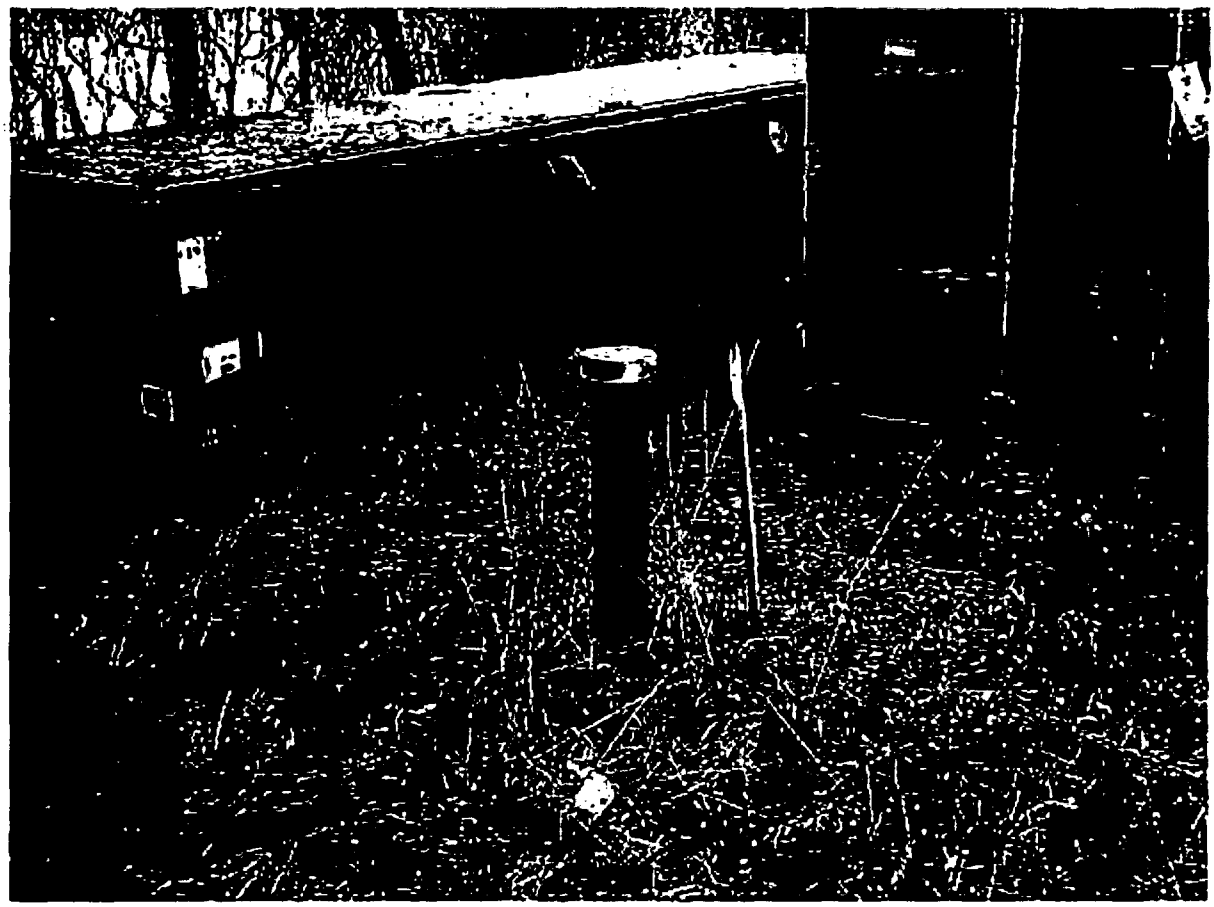
Elevation D-20.18', S-20.08' Depth D-80' S-25' Ground Water Depth 19.74 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
60	SS12	61/42 35/51	18	Red-brown C SAND & C GRAVEL, some medium sand, saturated	TILL	Grout
62						2" Sch. 40 PVC Well Riser
64						
66	Rock Core Run 1		59	Green-gray augite amphibolite	BEDROCK	Bent-onite
68						
70	Rock Core Run 2		60	Same as Run 1, with rubble zone bottom three inches	BEDROCK	2" Sch. 40 PVC 10-slot Well Screen
72						
74						
76	Rock Core Run 3		60	Same as Run 1	BEDROCK	Sand
78						
80						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Well ID:	**MW-112S**	***Depth to bedrock(ft):***	—
Well location:	**Industrial area**	***Measured Depth of well(ft from ground):***	—
Boring type:	—	***Difference in measured depth to installed depth***	—
Well installation depth(ft):	—	***Longitude:***	—
Boring depth(ft):	—	***Latitude:***	—
Installation date:	—	***Elevation(TOC):***	—



Wellhead conditions and comments: Good condition, no lock on lid

Project GROUNDWATER MONITORING

Boring No. MW-113

Page 1 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) April 6-7, 1998

Elevation S-11.49' Depth 27 ft Ground Water Depth 11.21 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0	SS1	8/10/8/9	18	Upper 6" - Brown F-C SAND & gray crushed GRAVEL, lower 12" - Dark gray SILT. damp	FILL & ALLUVIUM	Steel pipe & con-crete
2						
4						2" Sch. 40 PVC Riser Pipe
6	SS2	6/7 10/13	14	Red-brown F-C GRAVEL, little f-c sand, saturated	GRAVELLY SAND	Grout
8						
10	SS3	8/9/10/9	12	Red-brown C SAND & F GRAVEL, trace c gravel, saturated	GRAVELLY SAND	Bent-onite
12						
14						Sand
16	SS4	11/10 38/43	10	Red-brown F-C SAND & F-C GRAVEL, saturated	GRAVELLY SAND	
18					Easy drilling after 18' - RED FINE SAND	
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-113

Page 2 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) APRIL 6-7, 1998

Elevation S-11.49' Depth 27 ft Ground Water Depth 11.21 ft PVC (3/98)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (m)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	SS5	2/2/1/1	24	Brown F SAND, trace silt, saturated	RED FINE SAND	2" Sch. 40 PVC 10-slot Well Screen
22						
24						Sand pack
26	SS6	4/5/5/6	24	Same as SS5	RED FINE SAND	
28						
30						
32						
34						
36						
38						
40						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-117S

Page 1 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) DECEMBER 10, 1998

Elevation S-13.2' Depth 27 ft Ground Water Depth 9.60 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
0	SS1	1/3/4/5	20	Dark gray brown SILT, tr organic matter tr F sand, damp	DREDGE SPOILS (FILL)	Steel pipe & con-crete
2						
4						
6	SS2	3/3/ 10/13	24	Gray M-C SAND, tr silt, tr M damp gravel	ALLUVIUM	2" Sch. 40 PVC Riser Pipe
8						
10	SS3	15/15/ 14/16	24	Gray F-M SAND, ltl silt, tr organic, moist/wet	ALLUVIUM	Bent-onite
12						
14						Sand
16	SS3	8/9/ 12/14	12	Light-brown F-M SAND, wet	ALLUVIUM	
18						
20						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

Project GROUNDWATER MONITORING

Boring No. MW-117S

Page 2 of 2

Driller NEW ENGLAND BORING CONTRACTORS OF CT

Logged by HAROLD MORITZ (MALCOLM PIRNIE, INC.) Date(s) DECEMBER 10, 1998

Elevation S-13.2' Depth 27 ft Ground Water Depth 9.60 ft PVC (3/99)

Location CT YANKEE ATOMIC POWER STATION (AREA I)

DEPTH (ft)	No.	Blows/6"	Rec. "	DESCRIPTION	NOTES	WELL SPECS.
20	SS5	2/3/3/4	8	Dark gray SILT, some peat wet	ALLUVIUM	2" Sch. 40 PVC 10-slot Well Screen
22						
24						Sand pack
26	SS6	1/3/2/3	24	Dark gray F SAND, some silt, tr m sand, tr peat, saturated	ALLUVIUM	
28						
30						
32						
34						
36						
38						
40						

KEY: AND=50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C = coarse, M = medium, F = fine

CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MWR-122D Sheet: 1 of 1	Date started: 9/12/2005 Date Finished: 9/13/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Marty Harrington D. Helper: Shaw S & W Laborers Drill Rig: Versa Drill, Air Rotary Weather: Sunny, Warm

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						see geologic log/soil description for MW-122D	
32.5							
65							
97.5							
130							
162.5							
195							TD = 195'bgs MW screened from 185 to 195

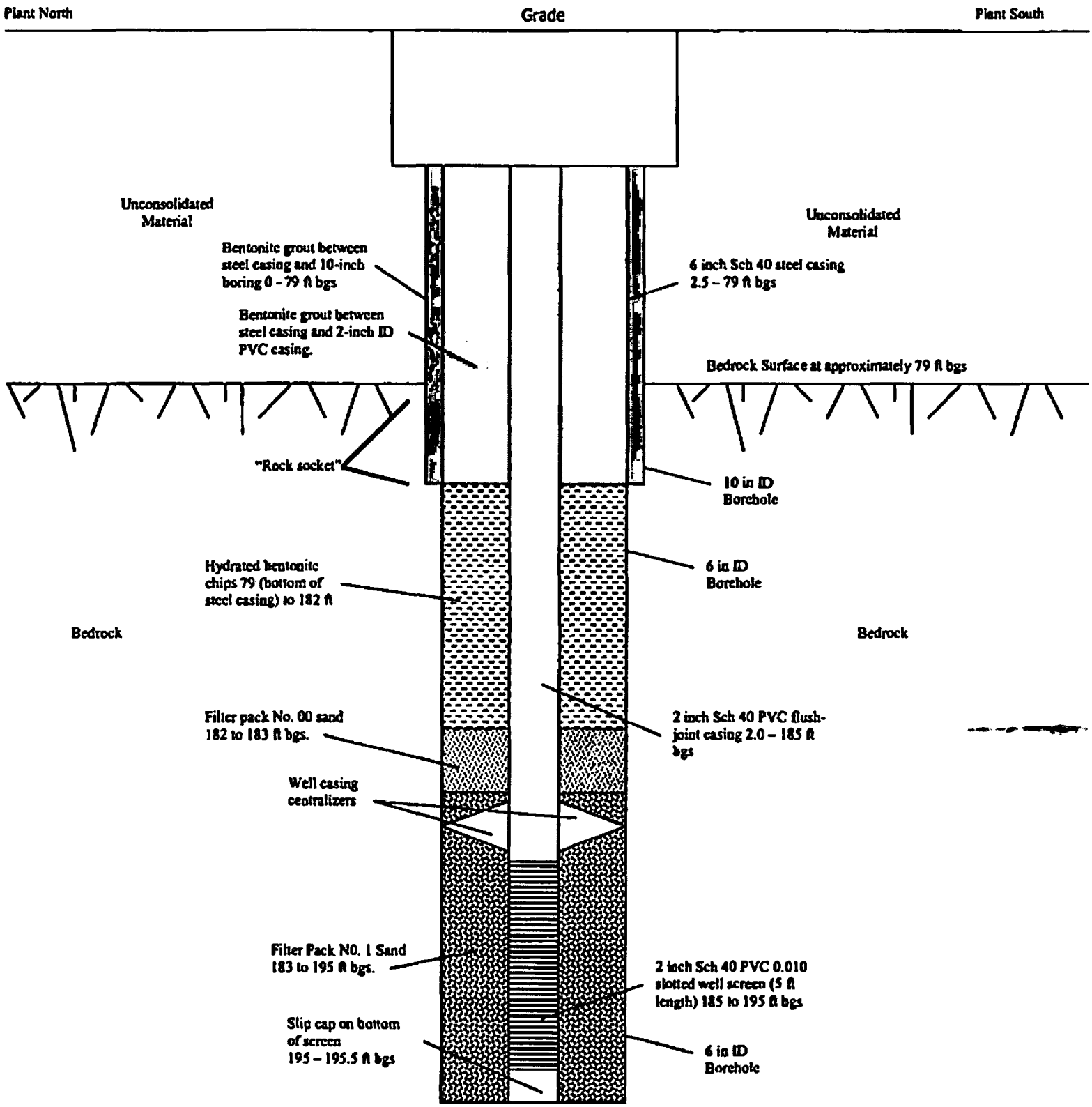
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MWR-122D Groundwater Monitoring Well Schematic
(not to scale)



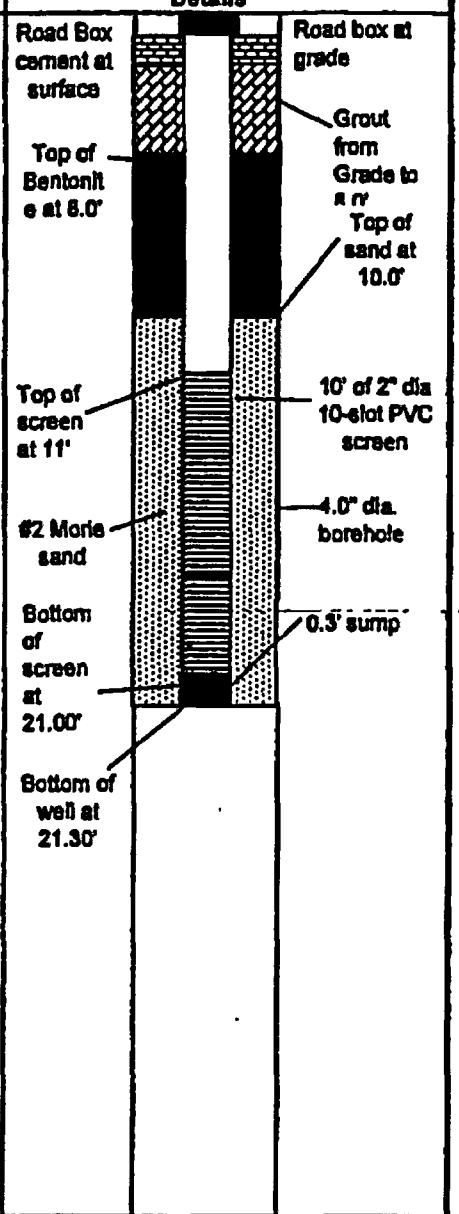
CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-122S Sheet: 1 of 1	Date started: 2/12/2003 Date Finished: 2/13/2003

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Cut and wash, 4 inch inside diameter casing Sampling method: Split spoon Hammer weight: 140lb	

Project No.: 24265 P. Manager: Alan Heter	Drilling Co.: ADT Geologist: Dave Scott	Driller: Eric Ramey D. Helper: Jeremy DeGraw Drill Rig: CME	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
						Sand, light brown top 4" fine; bottom 4" fine to course, loose no odor, moist.
						Sand, light brown, fine to very course, little fine gravel, sub rounded, loose, wet, no odor.
						Same as 14 - 16', Casing remained at 19'
21						

Well Details



Sample Types:

S=Split Spoon: 2" dia. T= Shelby Tube: _____

R= Rock Core: _____ O = _____

Backfill Well Key

Cement
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

[1] ASTM D1586

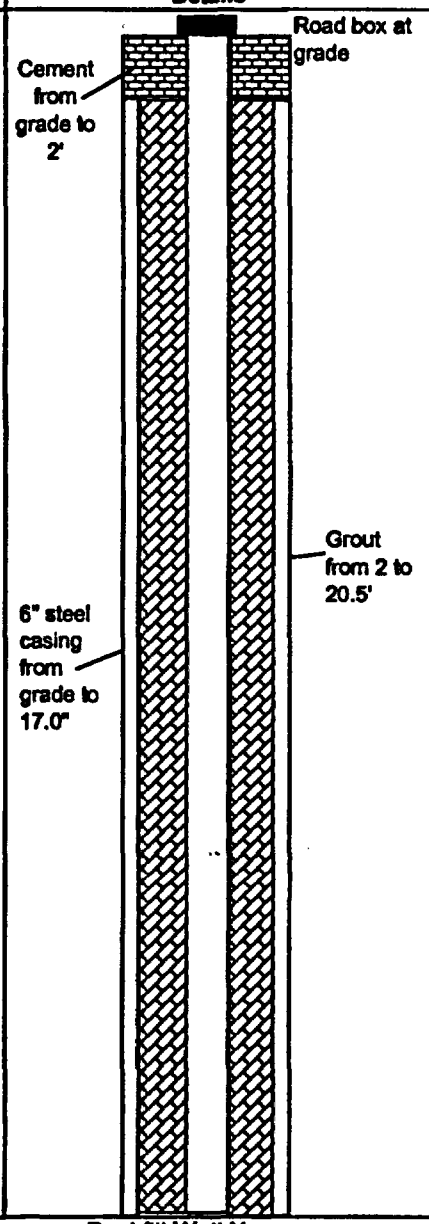
CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-123 Sheet: 1 of 2	Date started: 2/3/2003 Date Finished: 2/10/2003

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Cut and wash, 4 inch inside diameter casing Sampling method: Split spoon Hammer weight: 140lb	

Project No.: 24265 P. Manager: Alan Heter	Drilling Co.: ADT Geologist: Dave Scott	Driller: Eric Ramey D. Helper: Jeremy DeGraw Drill Rig: CME 75	Weather: P. Cloudy 20 degrees F

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
	1	5 - 7'	12			Top 6": sand, f to m, tr coarse, brown loose, no odor, Bottom 6": silt, dark brown to black, med dense, strong hydrocarbon odor, dry.
			21	41		
			20			
			14		12"	
	2	7 - 9'	10			Top 6": same silt as above, strong hydrocarbon odorm middle 10": very fine sand and silt, dark brown, no odor, medium dense, moist. Bottom 2": rock flower and medium gravel sized angular fragements of Amphibolite gneiss; no odor, dry.
			8	29		
			21			
			23		18	
10						
	3	9 - 11'	10			Very fine sand, olive brown, some silt, up to 1" stringers of fine brown sand no odor, moist granite gneiss cobble in tip; medium dense
			14	35		
			21			
			22		11	
	4	11 - 13'	18			Brown silt, trace very fine sand and fine sub angular gravel; no odor, wet; more sand with depth. medium dense.
			16			
			23			
			21	39	12	
	5	13 - 15'	9			Very fine to fine olive brown to medium brown, medium dense, some trace fine to medium gravel, sub angular, Possibly wet.
			12			
			22			
			35	34	12	
15						

Well Details



Sample Types:
S=Split Spoon: 2" dia.
R= Rock Core:
T= Shelby Tube:
O =

Backfill Well Key
Grout
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

N = ASTM D1586

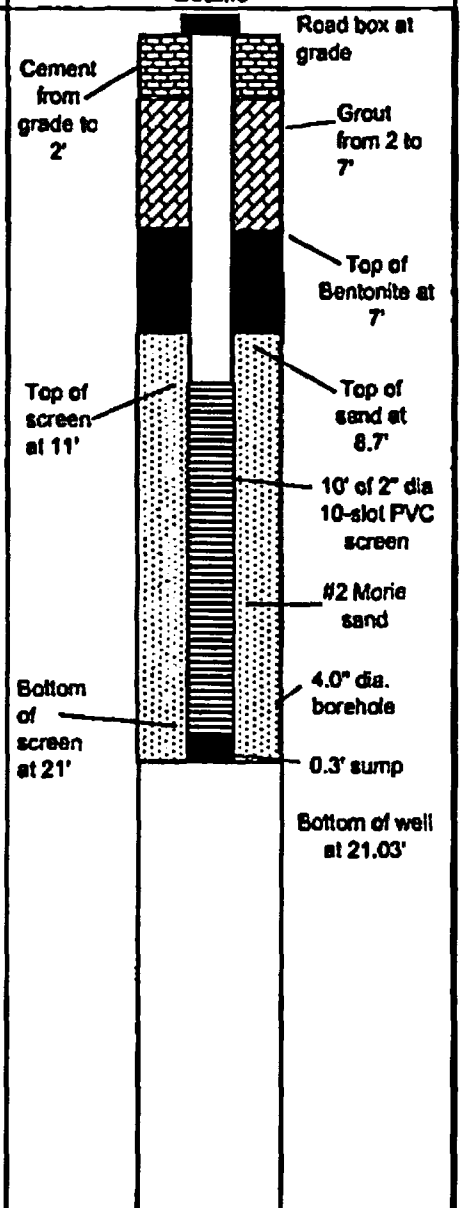
Bechtel Power Corp. CY Decommissioning Project	Subsurface Log	Hole No.: MW-124 Sheet: 1 of 1	Date started: 1/29/2003 Date Finished: 1/30/2003

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Cut and wash, 4 inch inside diameter casing Sampling method: Split spoon Hammer weight: 140lb	

Project No.: 24265 P. Manager: Alan Heter	Drilling Co.: ADT Geologist: Dave Scott	Driller: Eric Ramey D. Helper: Jeremy DeGraw Drill Rig: CME	Weather: P. Cloudy 20 degrees F

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
5						
	1	5 - 7'	4	12		Fine to medium sand, trace coarse, dry, brown, medium dense
			5			
			7			
			20		12"	
10						
	2	10 - 12'	14	38		Top 6": very fine sand and silt, brown Bottom 6": very fine sand and silt, dark brown, medium dense
			19			
			17			
			14		16"	
15						
	3	15 - 17	5	21		Fine sand, trace silt, red-brown, wet, medium dense
			7			
			14			
			17		12"	
20						
	4	20 - 22	44		12"	Top 6": sand fine to medium, red-brown, medium dense Bottom 6": Till, broken amphibolite rock in tip (bedrock), dense
			95			
			100/0.3			

Well Details



Sample Types:
S=Split Spoon: 2" dia. T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

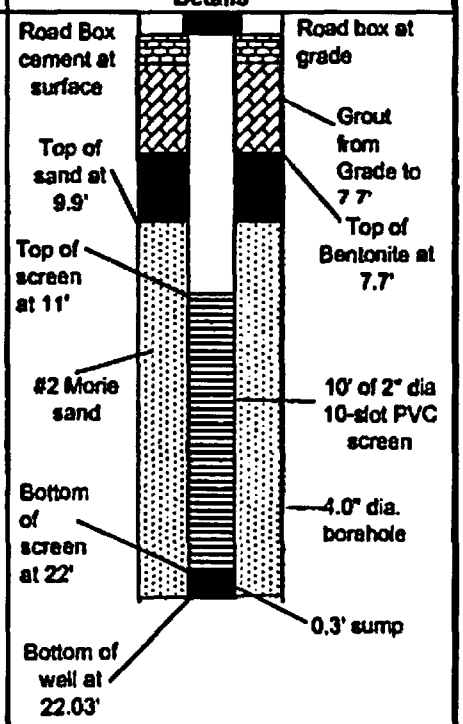
Bechtel Power Corp. CY Decommissioning Project	Subsurface Log	Hole No.: MW-125 Sheet: 1 of 1	Date started: 2/12/2003 Date Finished: 2/13/2003

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Cut and wash, 4 inch inside diameter casing Sampling method: Split spoon Hammer weight: 140lb	

Project No.: 24265 P. Manager: Alan Heter	Drilling Co.: ADT Geologist: Dave Scott	Driller: Eric Ramey D. Helper: Jeremy DeGraw Drill Rig: CME	Weather: Sunny 15 degrees F

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Sample Description
9						
	1	9 - 11'	2			Sand, light brown top 4" fine; bottom 4" fine to course, loose no odor, moist.
			2			
			2			
			1	4	8"	
14						
	2	14 - 16'	1			Sand, light brown, fine to very course, little fine gravel, sub rounded, loose, wet, no odor.
			1/12"			
			1		4"	
19						
	3	19 - 21'	1			
			1/1.5'		0"	
	4	21.5 - 23'	1/12"-Push		14"	Same as 14 - 16', Casing remained at 19'
24						
29						

Well Details



Sample Types:
S=Split Spoon: 2" dia. T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement, Sand, Cement, Native Fill, Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

N = ASTM D1586

CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-130 Sheet: 1 of 1	Date started: 8/3/2005 Date Finished: 8/3/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: N/A Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: Matt Darois	Driller: Eric Ramey D. Helper: Drill Rig: N/A	Weather: Sunny, Hot

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						entire borehole to the total depth of 30'bgs is engineered back-fill	Well was constructed as the PAB excavation was backfilled
5							
10							
15							
20							
25							
30							TD = 30' bgs well screened 20 - 30 ft bgs

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

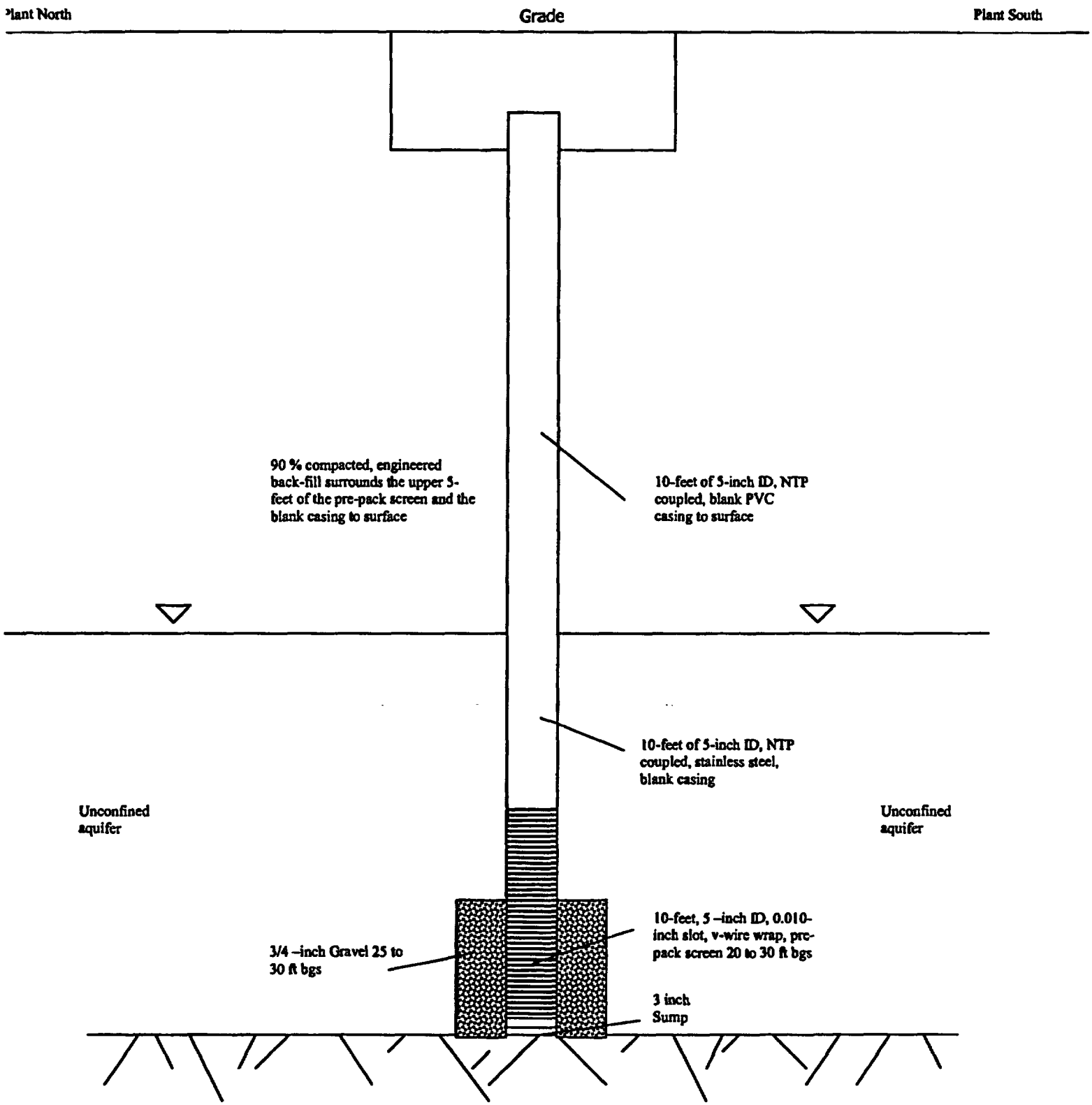
N = ASTM D1586

Backfill Well Key

Cement
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-130 Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-131D Sheet: 1 of 1	Date started: 8/30/2005 Date Finished: 8/30/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: Maura Kennelly	Driller: Eric Ramey D. Helper: Drill Rig:	Weather: Sunny, Hot

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						entire borehole to the total depth of 44'bgs is engineered back-fill	
7							
14							
21							
28							
35							
42							
							TD = 44'bgs MW screened from 34 to 44'bgs

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

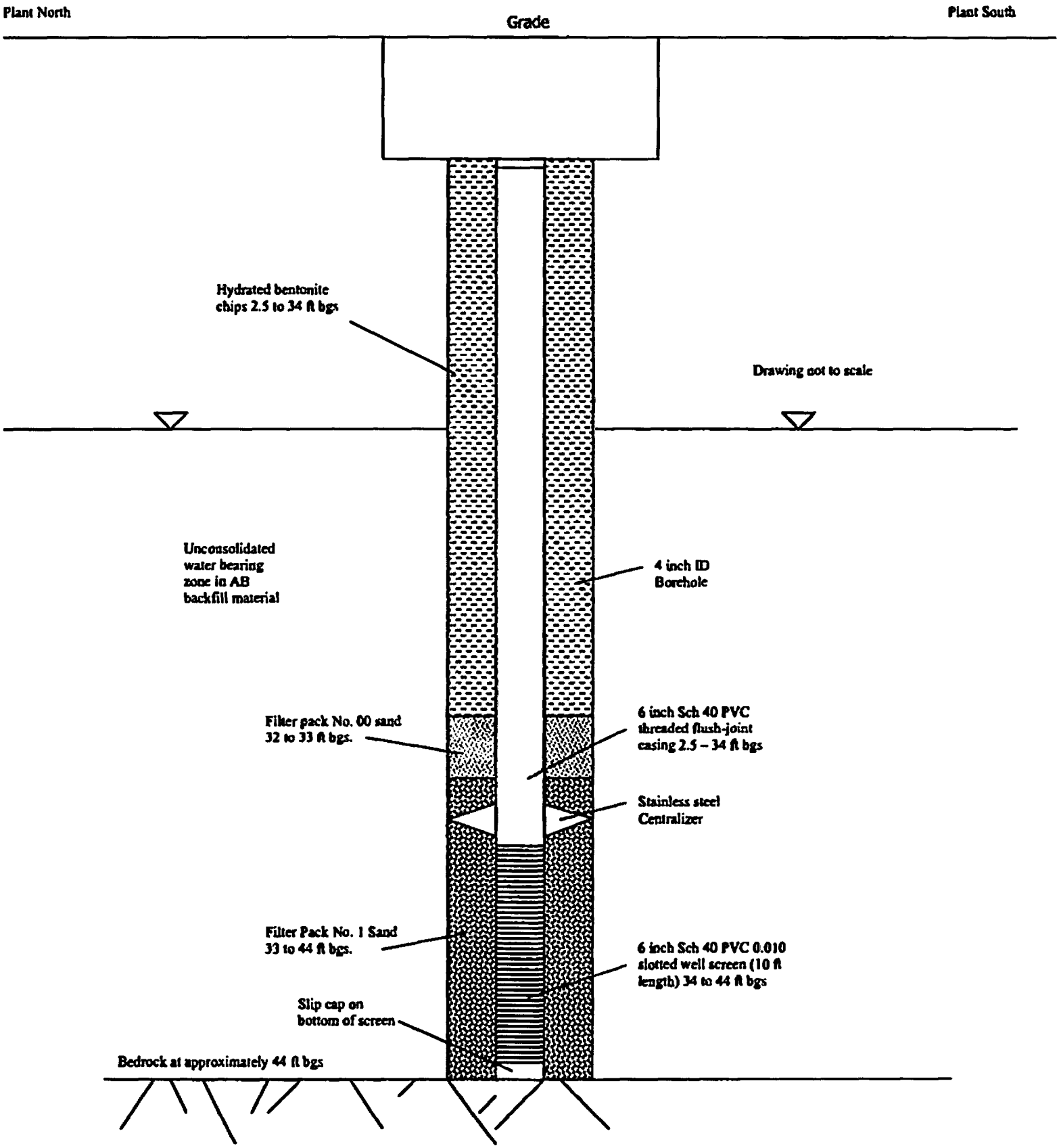
N = ASTM D1586

Backfill Well Key

Cement
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-131D Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-131S Sheet: 1 of 1	Date started: 8/3/2005 Date Finished: 8/3/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: Maura Kennelly	Driller: Eric Ramey D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather: Sunny, Hot

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						entire borehole to the total depth of 22.5'bgs is engineered back-fill	
5							
10							
15							
20							
25							TD = 22.5'bgs MW screened from 12.5 to 22.5
30							

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

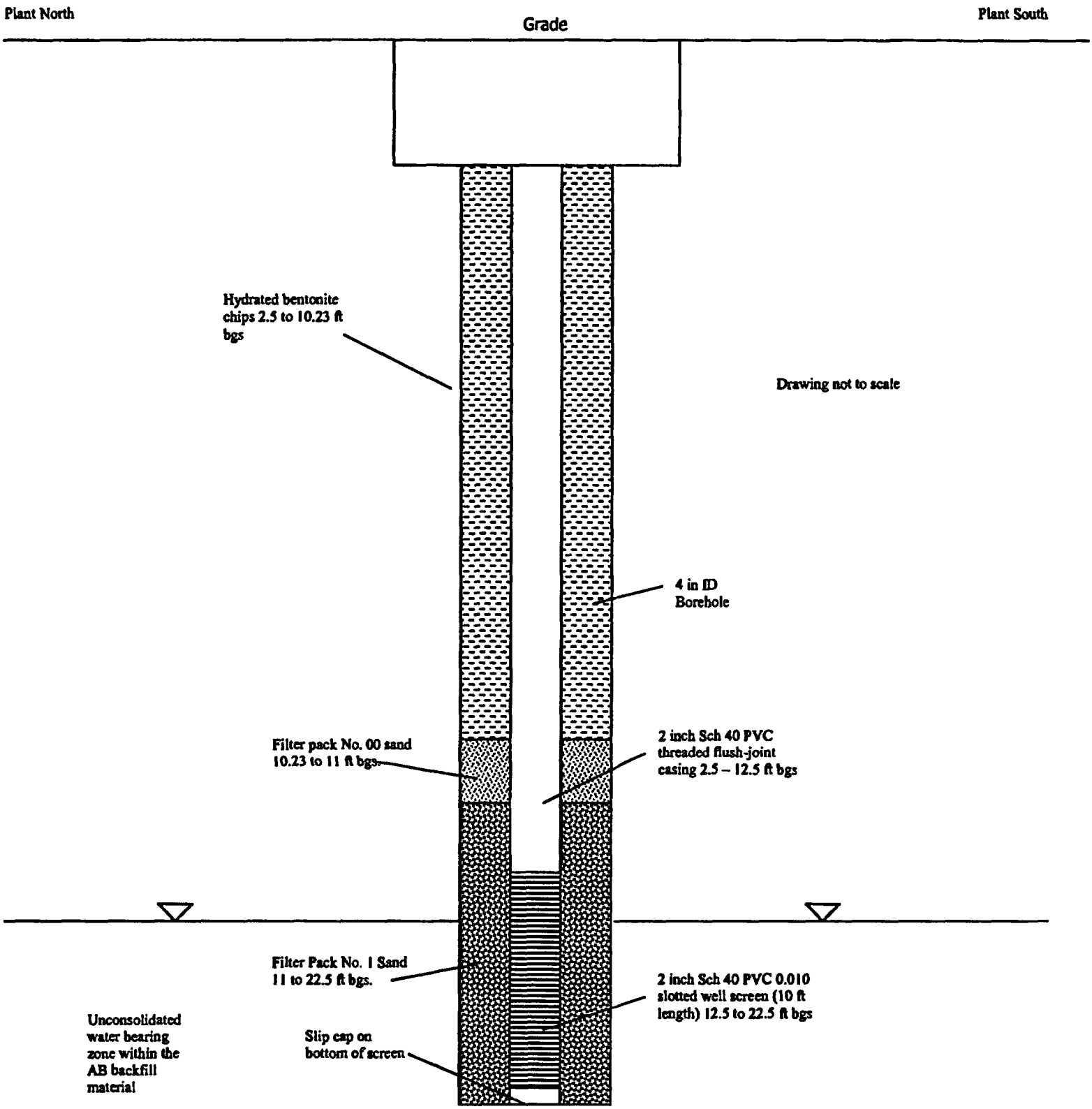
N = ASTM D1586

Backfill Well Key

- Cement
- Sand
- Cement
- Native Fill
- Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-131S Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-132D Sheet: 1 of 1	Date started: 7/28/2005 Date Finished: 8/1/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: Maura Kennelly	Driller: Eric Ramey D. Helper: Drill Rig:
Weather: Sunny, Hot		

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 12.5' - Back-fill Material (Poorly-sorted sand, yellowish brown, dry to slightly moist (at approximately 11' bgs), trace gravel	
5							
10							
						12.5 to 13' - Sandy Silt, reddish brown, slightly moist	
						13 to 14' - Well-sorted Sand, medium to coarse, light brown, dry	
15						14 to 16' - Poorly-sorted Sand, fine to coarse-grained, light brown, dry, trace fine sub-rounded gravel	
						16 to 16.2' - Silty Sand, brown, moist	
						16.2 to 17.3' - Poorly sorted Sand, light brown, ver fine to very coarse, dry, trace gravel	
20						17.3 to 21.25' - Well-sorted Sand, brown, fine to medium grained, dry to slightly moist	
						21.25 to 23.6' - Poorly-sorted Sand, very fine to coarse, dark brown, wet, trace sub-angular gravel	
						23.6 to 24' - Sandy Silt, reddish-brown, wet	
25						24 to 24.5' - Poorly-sorted Sand, dark yellowish brown, very fine to coarse, wet	
						24.5 to 25.5' - Sandy Silt, reddish-brown with few poorly-sorted sand lenses (~0.5" thick)	
30						25.5 to 26' - Poorly-sorted Sand, fine to coarse, trace very coarse, brown, wet	
						26 to 26.9' - Well-sorted Sand, brown, very fine to medium, heaving sands, wet	
						26.9 to 30' - Poorly-sorted Sand, light brown to light reddish-brown, wet, trace gravel, trace silt	TD = 30' MW screened 26 to 29'bgs

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

N = ASTM D1586

Backfill Well Key

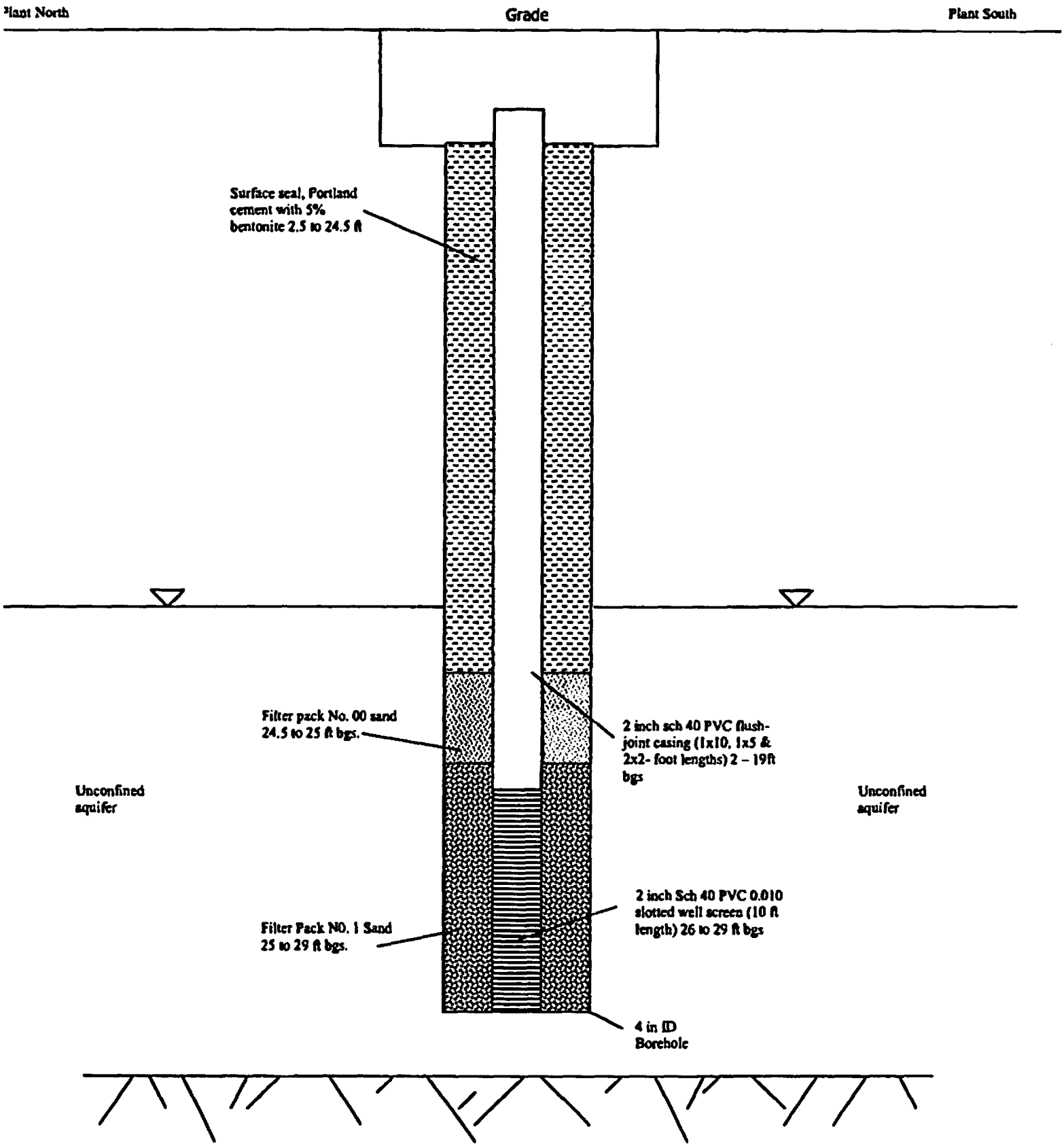
Cement — Native Fill

Sand — Bentonite

Cement

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-132D Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-132S Sheet: 1 of 1	Date started: 8/2/2005 Date Finished: 8/2/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: Maura Kennelly	Driller: Eric Ramey D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather: Sunny, Hot

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						See Soil Description for MW-132D. MW-132S is approximately 5 feet to the south of MW-132D	
4							
8							
12							
16							
20							
24							TD = 23.6'bgs MW screened 13 to 23'bgs

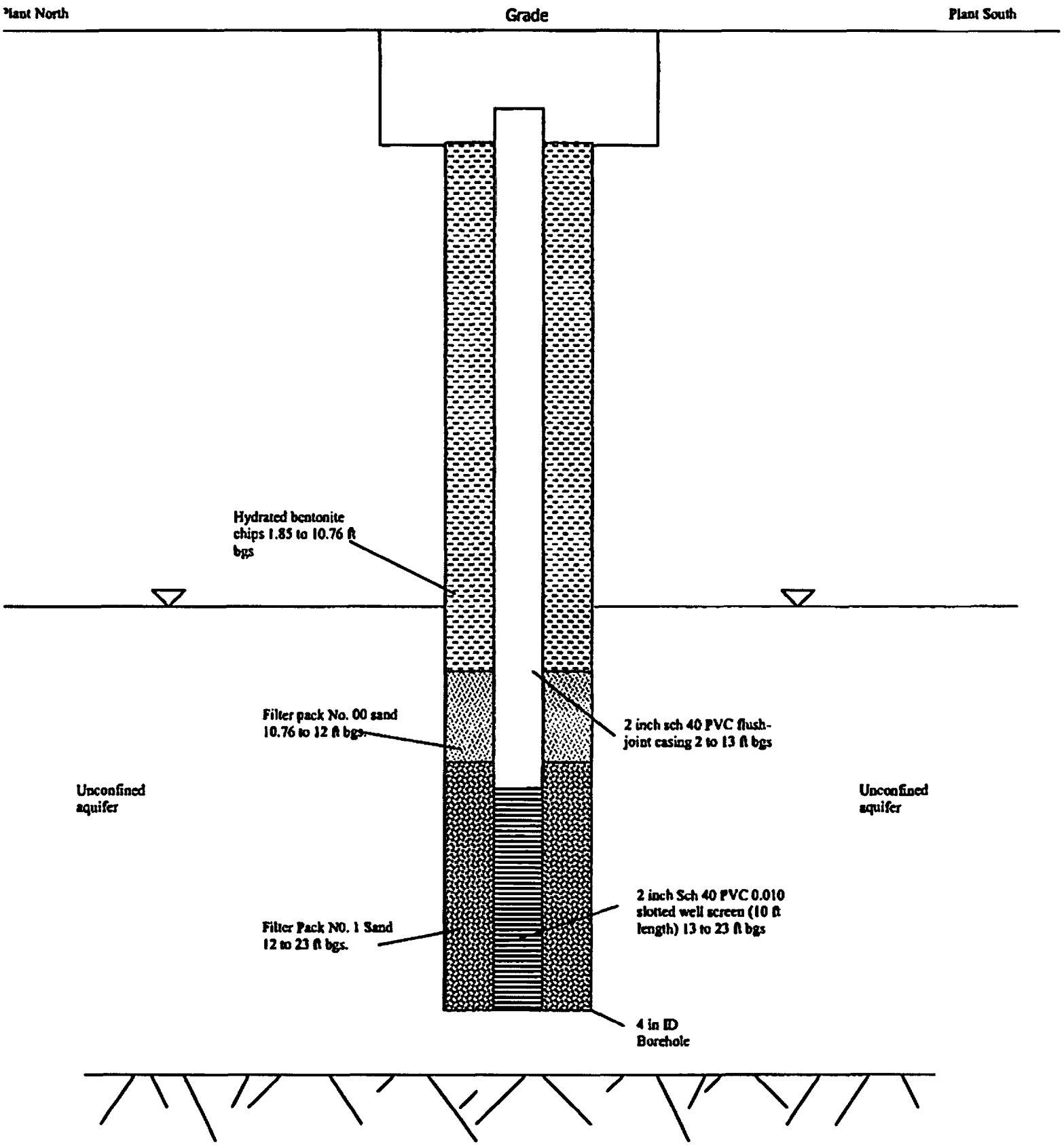
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

N = ASTM D1586

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-132S Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-133 Sheet: 1 of 1	Date started: 9/14/2005 Date Finished: 9/15/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Marty Harrington D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather: Hot, Humid

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						entire borehole to the total depth of 42'bgs is engineered back-fill	
7							
14							
21							
28							
35							
42							

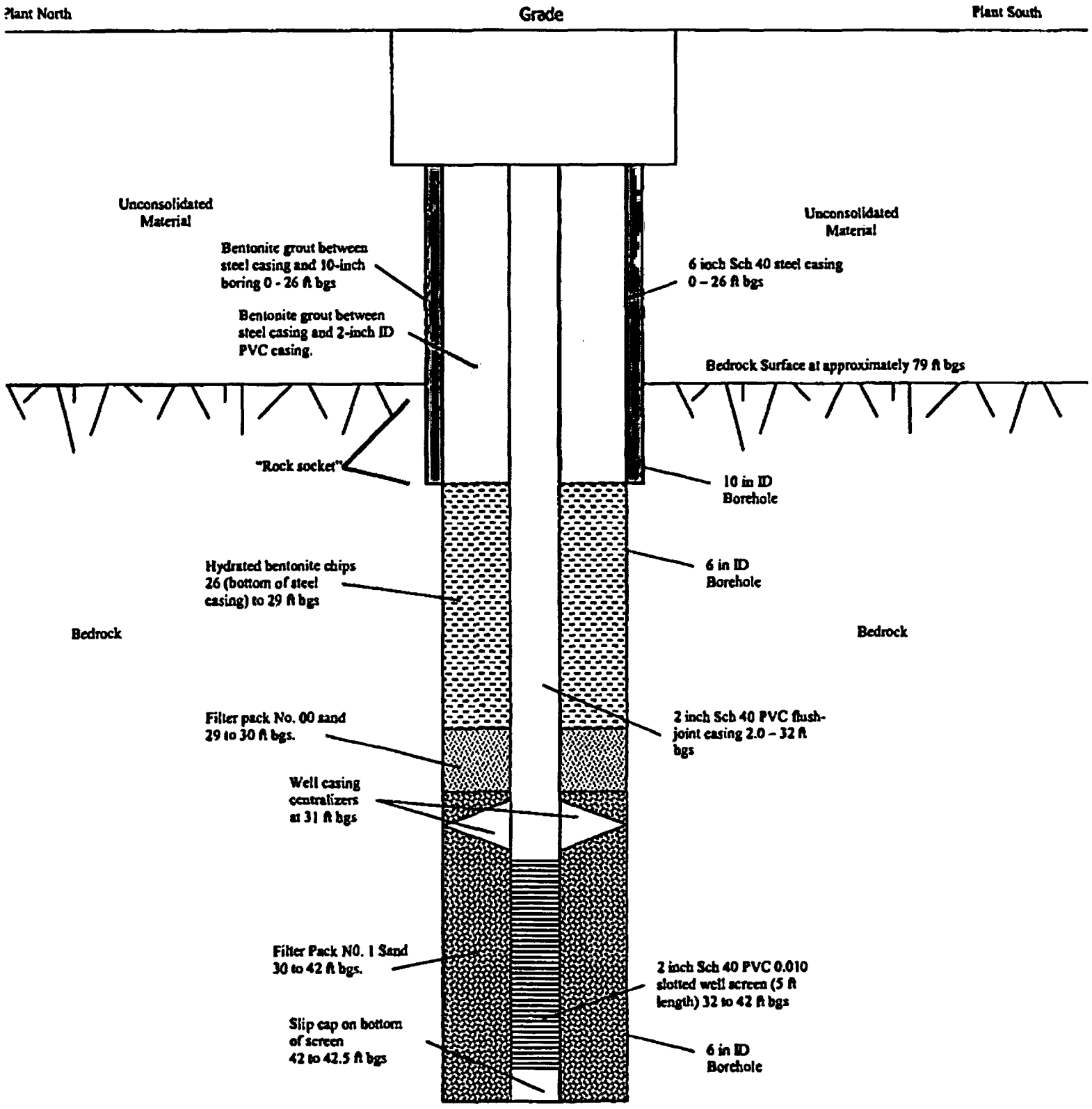
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-133 Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-134 Sheet: 1 of 1	Date started: 9/22/2005 Date Finished: 9/22/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Marty Harrington D. Helper: Drill Rig: Versa Drill, Air Rotary Weather: Windy

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows per 6"	"N"	Recovery (ft.)	Soil Description	Comments
						entire borehole to the total depth of 28.72'bgs is engineered back-fill	
5							
10							
15							
20							
25							
30							
							TD = 28.72'bgs MW screened 18.72 to 28.72

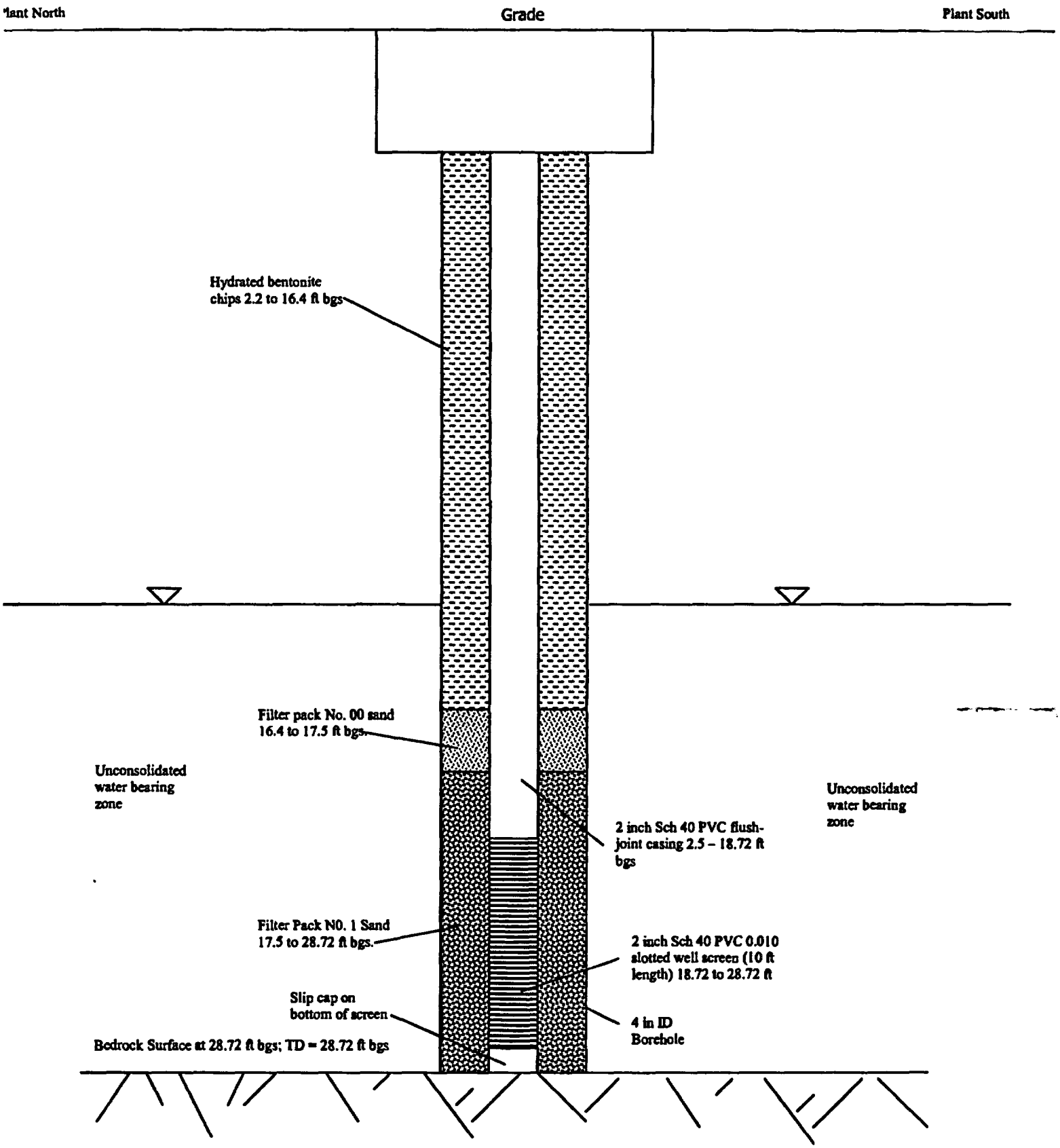
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-134 Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-135 Sheet: 1 of 1	Date started: 7/19/2005 Date Finished: 7/21/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Chuck Miller	Drilling Co.: ADT Geologist: John Rogers	Driller: Eric Ramey D. Helper: Drill Rig:	Weather: Hot & Humid

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						1 to 1.5' - Well-sorted sand, fine to medium-grained, brown (10YR4/3 & 10YR 5/3), dry, no odor, trace gravel	
						1.5 to 1.9' - Sandy Silt, 30% sand, 70% silt, dark yellowish brown, very soft, slightly moist, no odor	
						1.9 to 4.0' - Well-sorted Sand, very fine to fine, loose, dry, no odor, dark yellowish brown	
						3.2 to 3.8' - Silt with Clay, 80% Silt, 15% clay, 5% Sand, slightly moist, slight plasticity, very soft, dark brown, no odor	
5						4.0 to 7.0' - Sandy Silt, 85% Silt, 10% sand, 5% Clay, dry, yellowish brown, no odor	
						7.0 to 7.1' - Well-sorted Sand lense, coarse, slight moist, very loose, dark yellowish brown and dark grayish brown, no odor	
						7.1 to 9.0' - Poorly-sorted Sand, fine to coarse-grained, moist, loose, yellowish-brown, no odor, trace gravel	
						9.0 to 9.5' - Silty Sand, 70% sand, 30% Silt, moist, very dark gray, possible organic staining, no odor, trace gravel	
10						9.5 to 10' - no recovery	
						10 to 11' - Silty Sand, 60% Sand, 40% Silt, moist, dark grayish brown, no odor	
						11 to 11.5' - Rock Layer, pegmitite, biotite, quartz	
						11.5 to 12.5' - Sandy Silt, 40% Sand, 60% Silt, wet, soft, very dark brown, no odor, trace gravel	
						12.5 to 13.5' - Peat Layer, Visible organics (grass, leaves, roots), Sandy Silt, 30% Sand, 70% Silt, wet, soft, very dark brown with some black, no odor	
15						13.5 to 15' - Silt w/ Clay, saturated, slight to moderate plasticity, soft, no organics, dark brown, no odor	
						15 to 16' no recovery	
						16 to 17' - Same as description for 13.5 to 15', but with trace gravel	
						17 to 18' - no recovery	
							TD = 18.0' (refusal) MW screened 15.82 to 17.82bgs

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

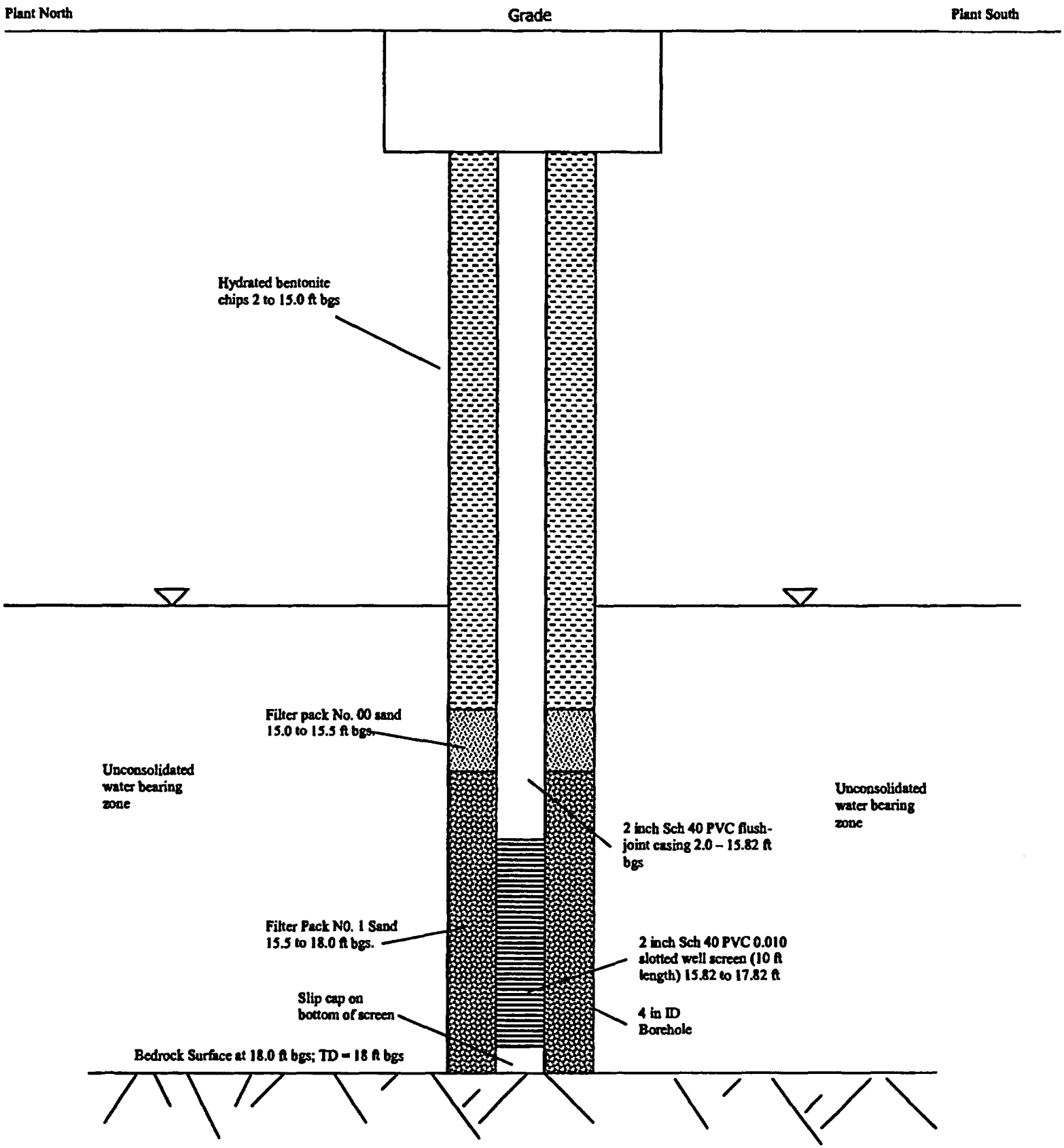
N = ASTM D1586

Backfill Well Key

Cement
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-135 Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-136D Sheet: 1 of 1	Date started: 12/15/2005 Date Finished: 12/23/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	
Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: D. Helper: Drill Rig:
Weather:		

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						entire borehole to total depth of 23.5' bgs is engineered back-fill	
5							
10							
15							
20							
25							TD = 23.5 ft bgs MW screened 13.5 to 23.5' bgs
30							

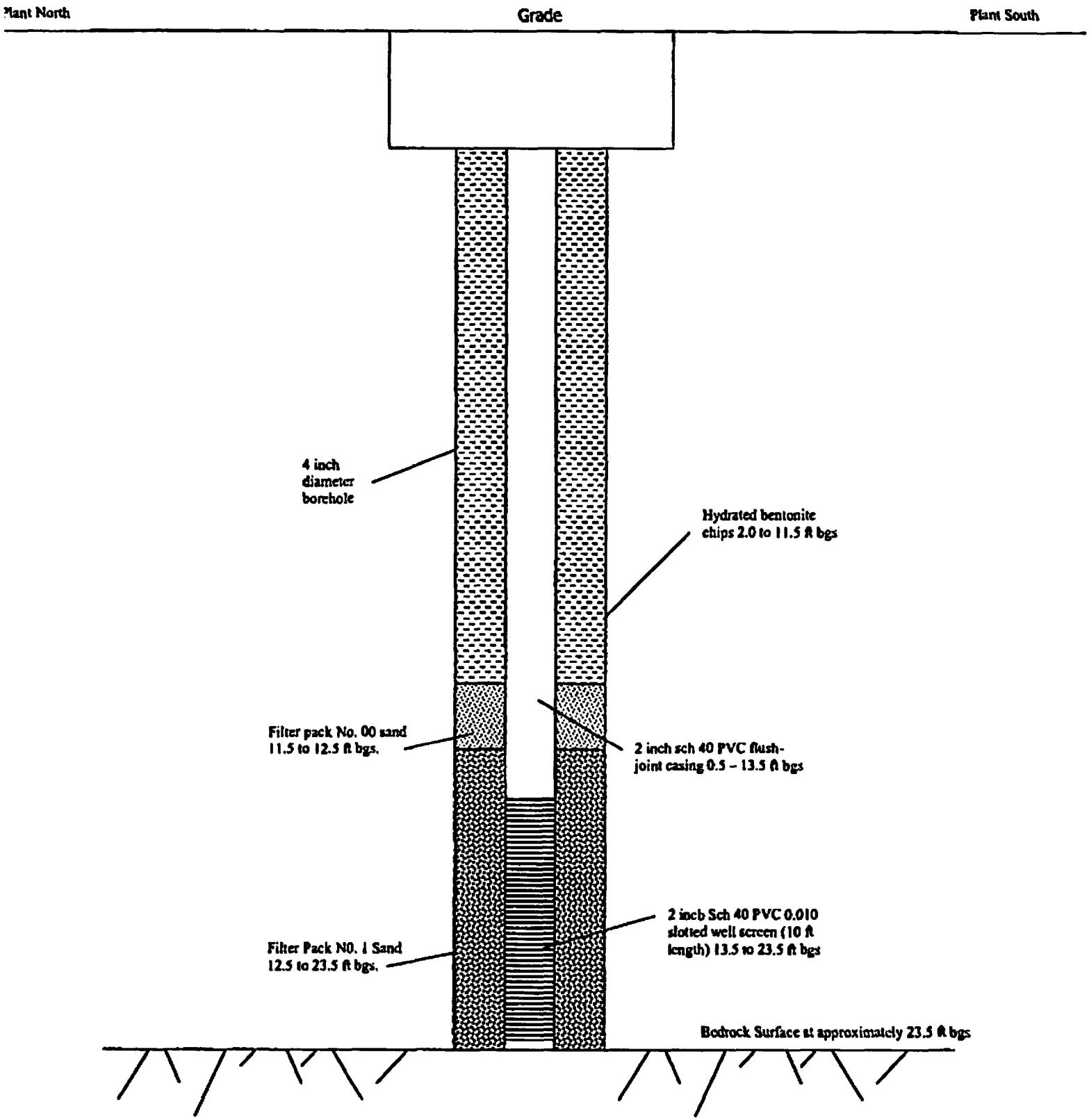
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-136D Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-136S Sheet: 1 of 1	Date started: 12/8/2005 Date Finished: 12/8/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: D. Helper: Drill Rig:	Weather: cold

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						entire borehole to total depth of 15 ft bgs is engineered back-fill	
5							
10							
15							TD = 15' ft bgs (bedrock) MW screened 5 to 15 ft bgs
20							
25							
30							

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

Backfill Well Key

Cement — Native Fill

Sand — Bentonite

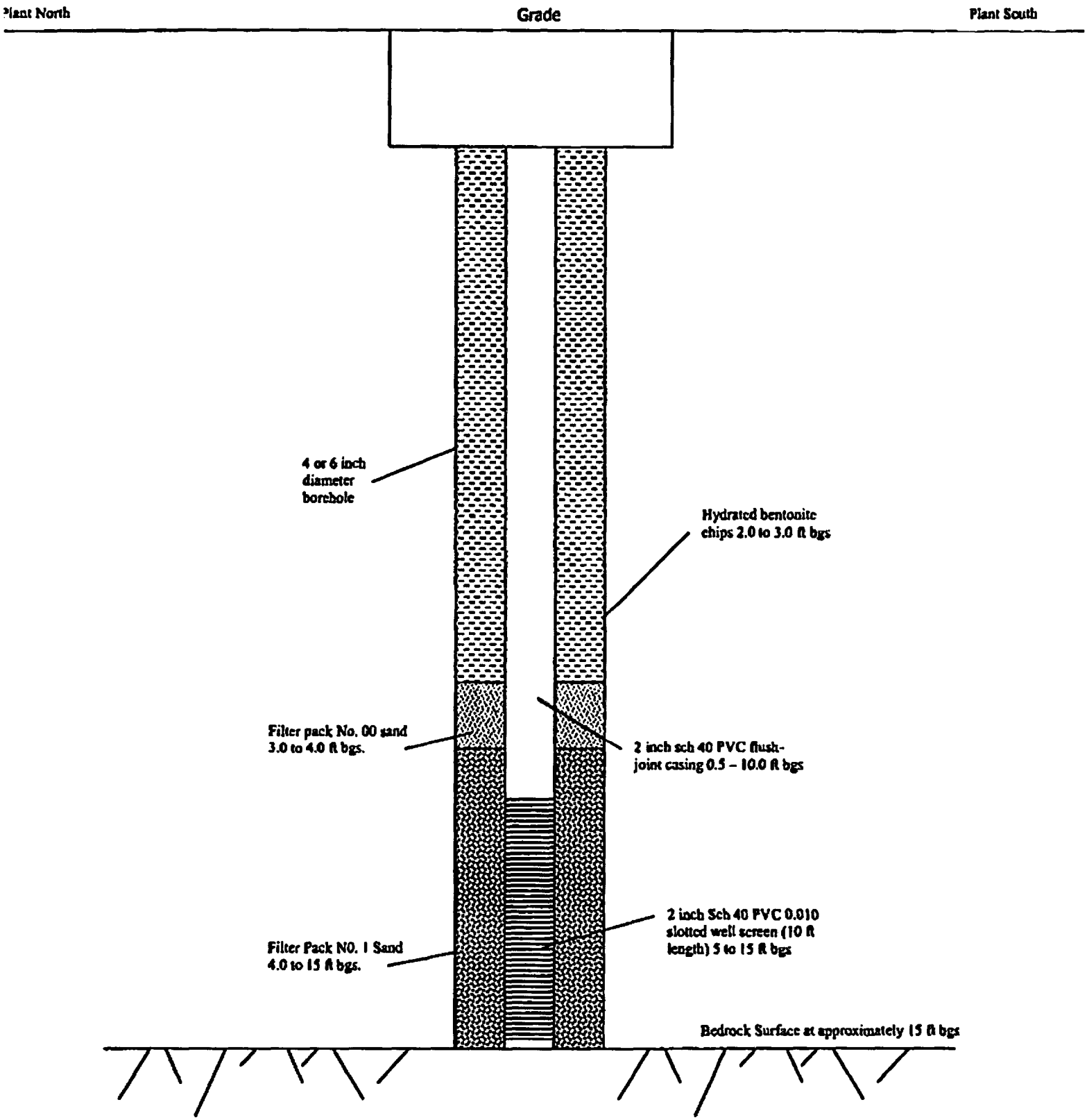
Cement

Comments: Sludge predominately gray, some light brown, rock fragments

N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-136S Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-137 Sheet: 1 of 1	Date started: 12/14/2005 Date Finished: 12/14/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Air Rotary Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: Marty Harrington D. Helper: Drill Rig: Versa Drill, Air Rotary	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 18.5' bgs - Engineered backfill material	
7							
14							
						18.5 to 20' - Feldspar-rich Pegmatite	
						20.3' - FX at Pegmatite/Amphibolite Gneiss contact, slight alteration and clay-fill material on FX faces	Bedrock at 18.5 ft bgs
21						20.3 to 25.5' - Amphibolite Gneiss, highly foliated	
						25.5 to 27.5' - Feldspar-rich Pegmatite	22.5' FX along foliation, clay-fill material and rock flower, slight alteration of FX faces 23.5 FX, same as above
28						27.5 to 33.5 Amphibolite Gneiss	25.4' FX, 900CPM detectable radioactivity, background in 200CPM 29.5' FX w/ slight mud-filling & Fe-oxide staining
35							30.3' FX set/rubble zone, faces filled w/granulite, material in & around rubble zone is very loose & friable
42							TD = 33.5 ft bgs MW screened 23.5 to 33.5 ft bgs

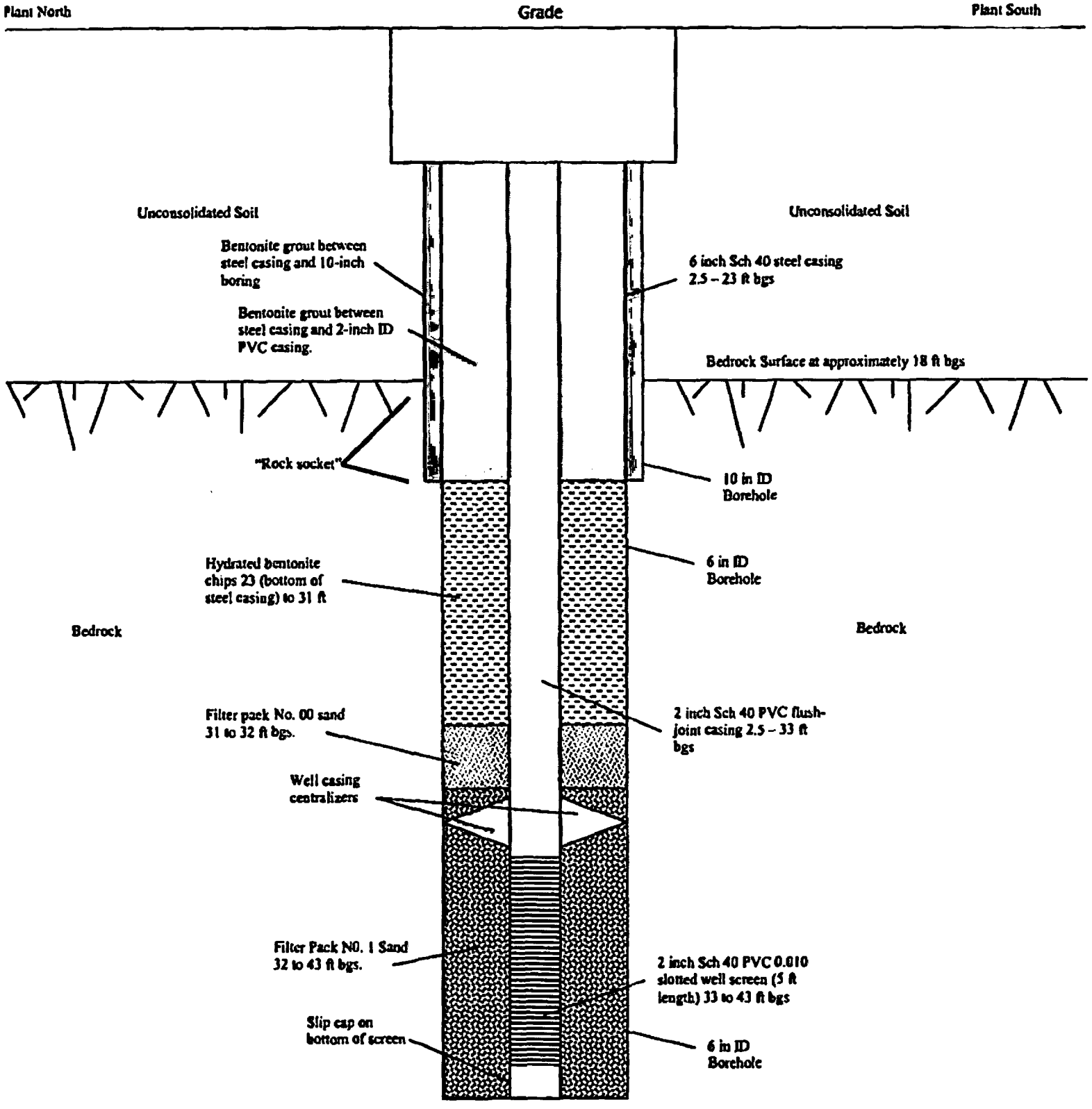
Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____

Backfill Well Key
Cement, Sand, Cement, Native Fill, Bentonite

Comments: Sludge predominately gray, some light brown, rock fragments
N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-137 Groundwater Monitoring Well Schematic
(not to scale)



CT Yankee Decommissioning Project	Subsurface Log	Hole No.: MW-138 Sheet: 1 of 1	Date started: 12/8/2005 Date Finished: 12/8/2005

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Hollow Stem Auger Sampling method: None Hammer weight: NA	

Project No.: 283647.06.T2 P. Manager: Mike Faurote	Drilling Co.: ADT Geologist: Matt Darois	Driller: Eric Ramey D. Helper: Drill Rig:	Weather: cold & sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Soil Description	Comments
						0 to 1' - Poorly-sorted Sand, dark brown, moist	
						2 to 5' - Silty Sand, dark grayish brown, moist	
5							
						5 to 5.5' - Poorly- sorted Sand, brown	
						5.5 to 5.9' - Poorly-sorted Sand, reddish-brown	
						5.9' to 6.3' - layer of Hydrocarbon odor, chunk of rubber (potentially from a very old tire)	
10						6.3 to 8.2' - Silt, dark grayish green, very stiff	
						8.2 to 15' - Silty Sand, organics (roots and wood fragments) dark brown, trace gravel	
15							
						15 to 20' - Reddish-brown fine silty sand, saturated	
20							TD = 20 ft bgs
						Bedock encountered at 20' bgs	MW screened 10 to 20 ft bgs
25							
30							

Sample Types:

S=Split Spoon: _____ T= Shelby Tube: _____

R= Rock Core: _____ O = _____

Backfill Well Key

Cement — Native Fill

Sand — Bentonite

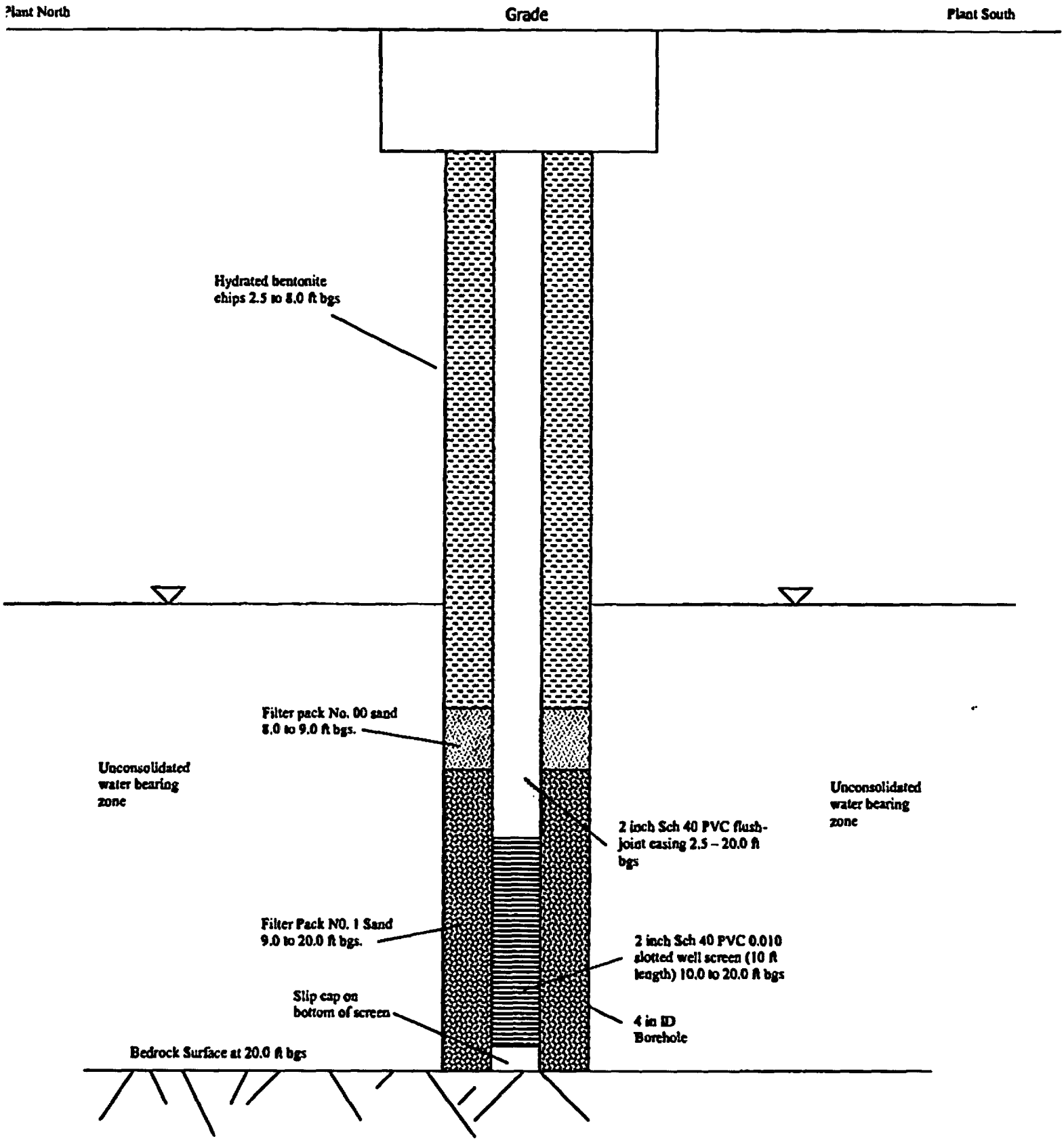
Cement

Comments: Sludge predominately gray, some light brown, rock fragments

N = ASTM D1586

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

MW-138 Groundwater Monitoring Well Schematic
(not to scale)



BECHTEL

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
Connecticut Yankee Reactor Decom	24365-150	1-3	508D

SITE	COORDINATES	ANGLE FROM HORIZ.	BEARING
		90	—

DATE	COMPLETED	DRILLING CONTRACTOR	DRILL MAKE AND MODEL	HOLE SIZE (INCHES)	OVERBURDEN (FT.)	ROCK (FT.)	TOTAL DEPTH (FT.)
8/11/99		New England Boring Contractors Tizert Rob Jeff Leavitt	Mobile B-53	4½			

CORE RECOVERY (FT.)	CORE BOXES	SAMPLES	EL. TOP OF CASING (FT.)	GROUND EL. (FT.)	DEPTH/EL. GROUND WATER (FT.)	DEPTH/EL. TOP OF ROCK (FT.)
11.96/15.5 = 77%	1	18				

SAMPLE HAMMER DESCRIPTION	CASING LEFT IN HOLE? DIAMETER	LOGGED BY
140 lb/30" Cable Free Drop		

SAMPLER TYPE AND DIAMETER	HAMMER WT. (lb.)	HAMMER FALL (in.)	CORE RECOVERY (in.)	SAMPLE ALPHA "n"	PERCENT CORE "RECOVERY"	PENETRATION BLOWS 0-6"	6-12"	12-18" / 18-24"	ELEVATION (FT.)	DEPTH (ft)	UNIFIED SOIL CLASSIFICATION	SAMPLE	DESCRIPTION AND CLASSIFICATION	REMARKS: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
													FILL	
2" SPT	18"	6"	27		24	14	13			0		S1	0.0-0.12' Asphalt (0.5") 0.2'-2.4'. Reddish brown and gray Silty Sand and Gravel - dry to moist; medium dense; silty sand fine-cs sand; little fine; non-plastic; Gravel fine-cs to 1½" gray, fresh and angular.	Advance through 2.5" asphalt with 4" solid stem auger. S-1, S-2 obtained from same hole. Remainder to 41' with solid stem. Mostly gravel and sand silty sand in augers.
2" SPT	24"	18"	29		15	14	15/24					S2		
2" SPT	24"	24"	118		38	90	28/38			5		S3		
2" SPT	23"	6"	15		34	12	3/10					S4	2.4'-4.0' Tan Sand - moist, med. dense; fine-cs sand, most med-cs; few fines; non-plastic; Tr. rounded gravel	S-3, S-4 obtained from same hole. Auger to 8' with solid stem auger. Very hard and rocky 5.5' to 8½'. Attempt S-5 clean out to 9.5' with solid stem auger-cs with sifting. Set 10' of 4½" OD casing. Clean out with 3 15/16" tricone rock bit and water. S-6, S-7 obtained from same hole. Rock bit to 14' to see if casing remain stationary. Advance casing through 3.0'-3.0' 12.8 to 14.8'. Casing advanced with difficulty to 15' Remove water pump. Stop hole. Below 15' [illegible] Advanced smooth beyond interface.
2" SPT	24"	8"	38		13	17	21/10			10		S5	4.0'-4.4' Dark brn Sandy Gravel - moist; dense; fine-cs sand; gvl gray; fine-cs to 1¼" angular granite.	
2" SPT	24"	16"	16		5	6	10/10/12					S6	4.4-4.8' Red Silty Sand - fine-medium sand; some fines non-plastic	
												S7	4.8-5.6' Brown Silty Gravelly Sand - moist; dense; fine-cs sand; fine-med gvl, weathered altered biotite gneiss & partially decomposed granite	
2" SPT	24"	14"	3		6	2	1/2			15		S8	5.6-6.0' Decomposed biotite gneiss and fresh; sand slightly weathered granite rock to 10.5'	
2" SPT	24"	12"	31		8	11	20/20			20		S9	6.0-10.0' Grayish brown Sand and Gravel Dry to 9' wet below; fine-cs gravel angular-subrounded, mostly granite; some sand fine-coarse; little fines non-plastic Scattered cobbles and boulders of variably weathered biotite gneiss.	
2" SPT	24"	6	30		11	14	16/18			25		S10	10.0-12.0' Dark olive gray Gravelly Silty Sand - wet (?); medium dense; fine-cs sand; fine-cs gravel to 1.5"+, biotite gneiss pebbles and cobbles, little fines non-plastic	
2" SPT	24"	8"	26		10	13	13/13			30		S11	12.0-13.8' Olive gray Silty Sand and Gravel - wet; medium dense; fine-cs sand med-fine-med; gravel fine-cs and scattered cobbles of fresh to decomposed biotite gneiss; fines non-plastic or slightly plastic	
													13.8-14.8' Biotite Gneiss boulder.	
										35				

SS = SPLIT SPOON; ST = SHELBY TUBE; S = [illegible]

SITE

[illegible]

BECHTEL

BORING LOG

PROJECT: Connecticut/Hudson Replacement | JOB NO. 24265-150 | SHEET NO. 2 of 3 | HOLE NO. B-50 BD

SAMPLE TYPE AND DIAMETER	DRIVE LENGTH	SAMPLE LENGTH RECOVERY (FT)	SAMPLE BLOWS	PENETROMETER RECOVERY	PENETRATION BLOWS 1ST 6"	2ND 6"	3RD 6" / 4TH 6"	ELEVATION (FT)	DEPTH (FT)	UNIFIED SOIL CLASSIFICATION	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
2" SPT	24"	0	13		5	6	7/9		35		S-2	14.8-15.2' SANDY GRAVEL loose-fine-cs; sand fine-med; fine gravel complete	
												15.2-15.4' DARK gray SANDY CLAY - very soft; little very fine-fine sand; fines plastic. NO RECOVERY	If quantity of sand and gravel in cutting is to 40'
2" SPT	24"	11"	14		9	7	7/10		40		S-3	15.4-20.0' light gray brown SILTY SAND - very loose; fines sand most very fine-fine; weathered roots; some fines non-plastic.	CHATTERS AT 44' ON CLEANOUT TO 45'
												20.0-32.0' Brownish red SILTY SAND - medium dense to dense; fine-cs sand, micaceous; little fines non-plastic; weak stratification; [illegible]	Composite samples of overburden materials obtained for radiological analysis
2" SPT	24"	10"	24		9	9	15/19		45		S-4	32.0-45.0' Brownish red SANDY SAND - med dense; fine-cs sand, subangular-rounded; fine-med sand, rounded quartz; chert and mafics; few fines non-plastic; weak fine-cs stratification.	48'-50' very gravelly
2" SPT	24"	11"	29		15	17	12/13		50		S-5	45.0-50.5' Dark brown to red GRAVELLY SAND and SANDY GRAVEL medium dense; fine-cs sand, most med-cs, subrounded-rounded, micaceous; some gravel fine-cs, [illegible] quartzite; [illegible] subrounded-rounded chert and mafics; trace fines, non-plastic; sandy gravel as above with some sand fine-cs; weak stratification	
2" SPT	24"	11"	17		11	9	8/10		55		S-6	50.5-60.2' Brownish red and red SANDY SILT - Medium dense; fine non-plastic; micaceous; little very fine-fine sand, micaceous	
2" SPT	24"	16"	41		11	12	29/56		60		S-7	58.5' Black organic layer 1/16" thick. 55.0-55.2' Brownish red SANDY CLAY loose - v. fine-fine sand; fines plastic. 56.35' Black organic layer 1/16" thick. 56.75' " " " " " "	T.D. For day 62.0' CONTINUE BIT FLUSH [illegible] on 11.0' below cs. Begin 60' casing advance after drilling hole and taking sample.
2" SPT	24"	18"	131		46	61	70/94		65		S-8	60.2'-61.2' Brown SAND - Dense; fine-cs most med-cs; few fines non-plastic. T.D.	67-68' Heavy chatters
												61.2-65.0' Orange silty SAND - dense fine-cs sand, most fine-med; little fines non-plastic; micaceous.	Drive casing to 70' with difficulty
2" SPT	23"	17"	145		56	71	74/100/3"		70		S-9	65.0-70.5' DARK brownish-gray CLAYEY GRAVEL and CLAYEY SAND very dense; fine-cs gravel, subangular-rounded, qtz, chert, mafics and bronze fine-cs, little sand fine-cs; some fines	Change drill fluid to #941. Drive casing to 74' Cleanout [illegible]

SS = SPLIT SPOON; ST = SHELBY TUBE; [illegible] | SITE | HOLE NO.

BECHTEL

BORING LOG

PROJECT: CONNECTICUT YANKEE REFUELING | JOB NO. 24265-150 | SHEET NO. 3 of 3 | HOLE NO. B-508D

Sampler Type and Diameter / Casing Diameter	Length of Core Barrel	Sample Blows / Core Recovery (%)	Percent Core Recovery	Penetration Blows 1st 6"	2nd 6"	3rd 6" / Total	Elevation (ft.)	Depth (ft)	Unified Soil Classification	Sample	Description and Classification	Notes on Water Levels, Water Return, Character of Drilling, etc.
0' 5" 5.5'	0	100/1.5'	100/1.5'					75	S-26		65.0-78.5 CLAYEY GRAVEL AND CLAYEY SAND (cont.) - medium plastic; clayey sand fine-to coarse, few gravel fine-med, subangular; some fines medium plastic (rock flour) seams less than 1/8 thick. 70.0-70.4' Brown silty sand w/ gravel, very dense; fine-to coarse sand micaceous; little fines non-plastic. 78.5'-80.0' Decomposed granite rock light gray color, pegmatite dike, broken rock and partially decomposed feldspar, abundance of mica and vein filler (muscovite and biotite) 80.0-93.5' T.D. QUARTZ, MICA PEGMATITE - Moderately to severely weathered; biotite and muscovite fresh to moderately stained, Indurated [illegible] Very coarse grained quartz, feldspar biotite and muscovite [illegible] stained; crushed to intensely fractured heavy iron staining on fracture surfaces, fractures mostly vertical, horizontal and 45° 85.0-93.0' As above intensely to closely fractured; fractures heavily Fe-O stained irregular and heavily faced; from vertical, horizontal 30, and 45°; few grains crushed. 90.0-93.5' T.D. As above - dominant near vertical, 45° and near horizontal to 15° faces w/ some crushed zones. Fractures very irregular and heavy. In-situ shearing along grain boundaries.	Drill ahead to 78.5' color changes from dark gray to light gray. Advance very rapidly. Clean out and advance hole to 80.0' Clean out corners and mud pit. Replace with fresh water. 80.0-85.0' CORE WITH NQ barrel and water. Advance 3, 8, 8, 7, 9 min/ft. 85.0-90.0' Advance 9, [illegible] 5, 10 min/ft. 90.0-93.5' [illegible] Drill rate 9, 6, 10, 4/6" min/ft. Hole enlarged to 5 17/32" for installation of monitoring well. Some water loss on reaming
3.5/70 Rock								80		R		
NQ	5.0	2.46'	72%	RQD=0		Box 1		85		L		
NQ	5.0	4.7'	94%	RQD=7%				90		R		
NQ	3.5	3.8'	108%	RQD=21%		END Box 1		95		Z		
								100				
								105				
								110				
								115				

NOTE EXCESS DRILL CUTTINGS AND DRILL FLUID RETAINED IN DRUMS FOR RADIOLOGICAL ANALYSIS

HOLE NO.

BORING LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
CONNECTICUT / ANNEE [illegible]	24305-13	1 of 1	B-5385

SITE	COORDINATES	ANGLE FROM HORIZ.	BEARING

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	HOLE SIZE (INCHES)	OVERBURDEN (FT.)	ROCK (FT.)	TOTAL DEPTH (FT.)
8/13/89	8/13/89	New England Boring Contractors Trent Ross Jeff Dennis	Mobile B-53	4 1/2"	24.0'		24.0

CORE RECOVERY (FT./%)	CORE BREAKS	SAMPLES	EL. TOP OF CASING (FT.)	GROUND EL. (FT.)	DEPTH/EL. GROUND WATER (FT.)	DEPTH/EL. TOP OF ROCK (FT.)
—	—	—				

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
—	Hole completed as monitoring well	Robert L. Blakeslee

SAMPLER TYPE AND DIAMETER	SAMPLER ADVANCE (FT.) / CORE BARREL (FT.)	SAMPLE RECOVERY (FT.) / CORE RECOVERY (FT.)	SAMPLE BLOWS "N" / PERCENT CORE RECOVERY	PENETRATION BLOWS 1ST 6"	2ND 6"	3RD 6" / 4TH 6"	ELEVATION (FT.)	DEPTH-FT	UNIFIED SOIL CLASSIFICATION	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
								0			NOTE: HOLE DRILLED FOR SHALLOW MONITOR WELL INSTALLATION. SEE BORING LOG FOR B-5080 FOR DETAILS. B-5085 DRILLED 4' E/O B-5080	ADVANCE HOLE WITH 4" SOLID STEM AUGERS TO 15.5 FT.
								5			5.0-11.0' HARD, BLOCKY DIFFICULT PENETRATION WITH AUGERS	5.0-11.0' DIFFICULT PENETRATION THROUGH COBBLES AND BOULDERS
												ASPHALT FRAGMENTS AND COLLOPHITE OF UPPER 5' OF TAKING RETURNS FOR RADIOLOGICAL ANALYSIS
								10				
											14.3-14.7 HARD BLOCKY DIFFICULT PENETRATION	14.3-14.7' HARD DIFFICULT PENETRATION
								15				ADVANCE 4 1/2" ID CASING TO 18.0' DIFFICULT 18.0' DRIVE 10.5' DOWN 300 LB HAMMER [illegible]
								20				OUT CASING WITH 3 15/16" ID ROCK BIT AND WASH. COMPLETE HOLE AS MONITORING WELL.
								25			NOTE: ALL DRILL CUTTINGS AND WATER USED FOR DRILLING RETURNED FOR RADIOLOGICAL ANALYSIS	
								30				

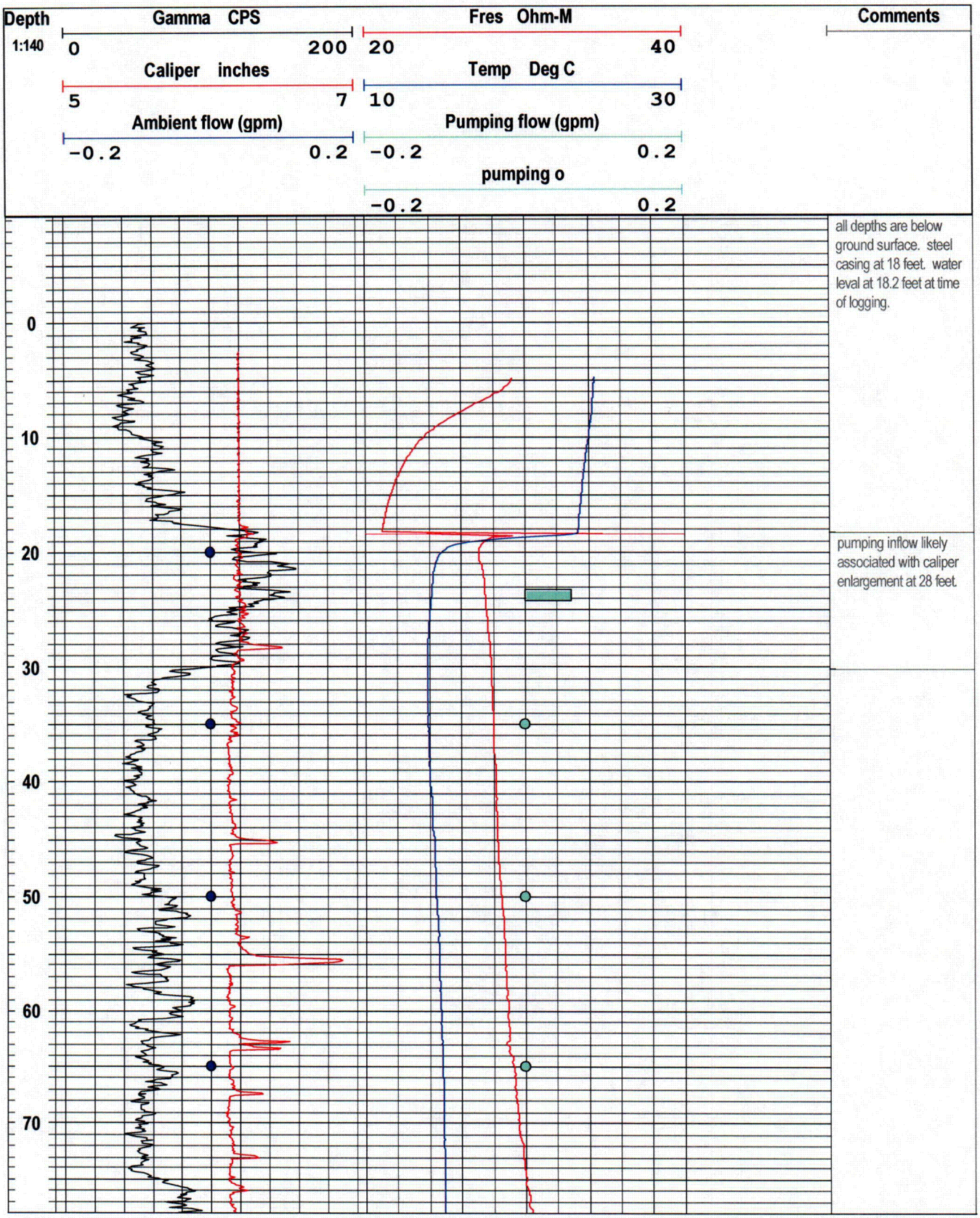
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE

Well ID:	**MW-118a**	***Depth to bedrock(ft):***	—
Well location:	**Industrial area**	***Measured Depth of well(ft from ground):***	—
Boring type:	—	***Difference in measured depth to installed depth***	—
Well installation depth(ft):	—	***Longitude:***	—
Boring depth(ft):	**576**	***Latitude:***	—
Installation date:	—	***Elevation(TOC):***	—

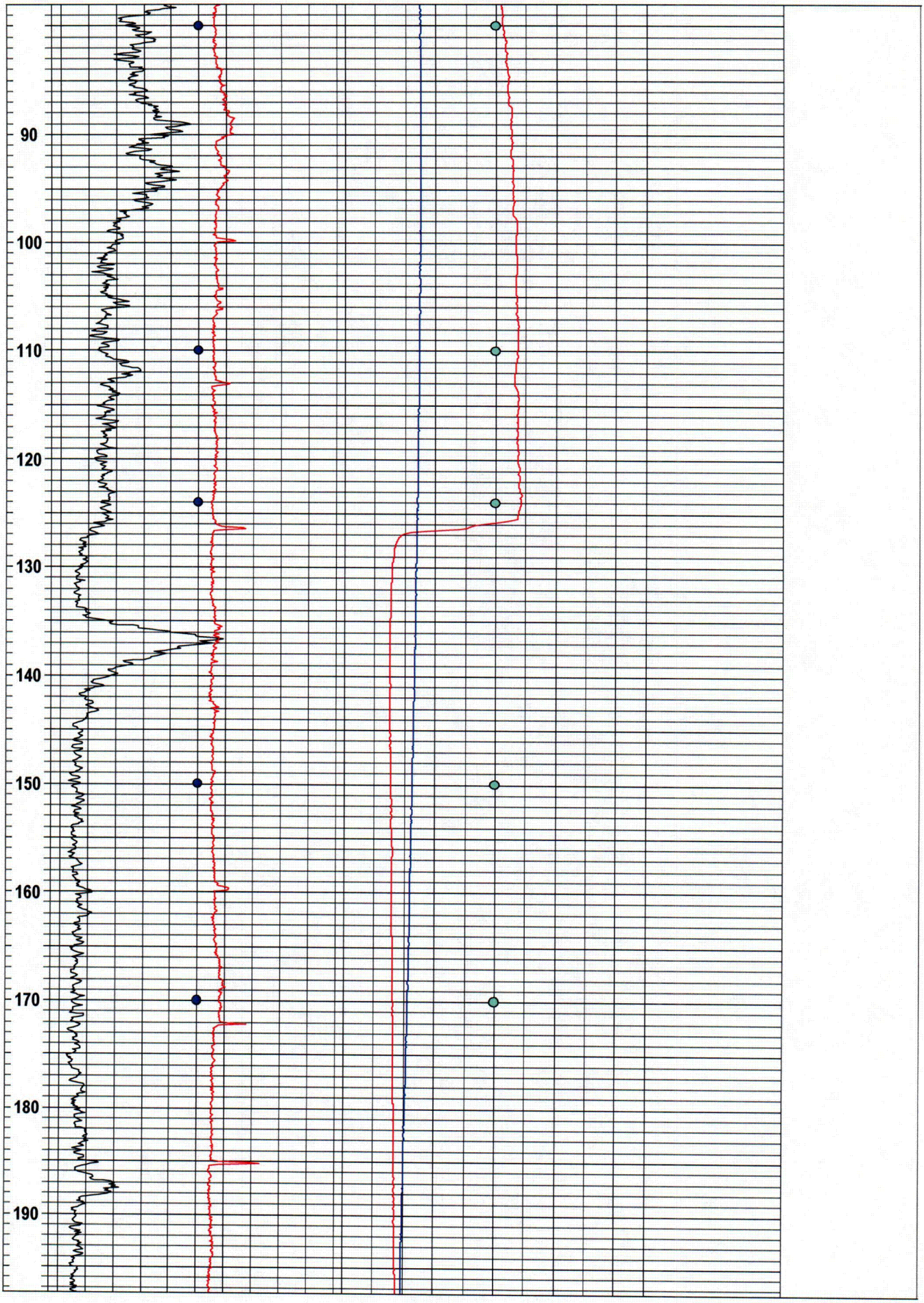
Well picture not available

Wellhead conditions and comments:

Project - Well: CT. Yankee/Haddam Power Plant - MW 118a conventional logs



C-31



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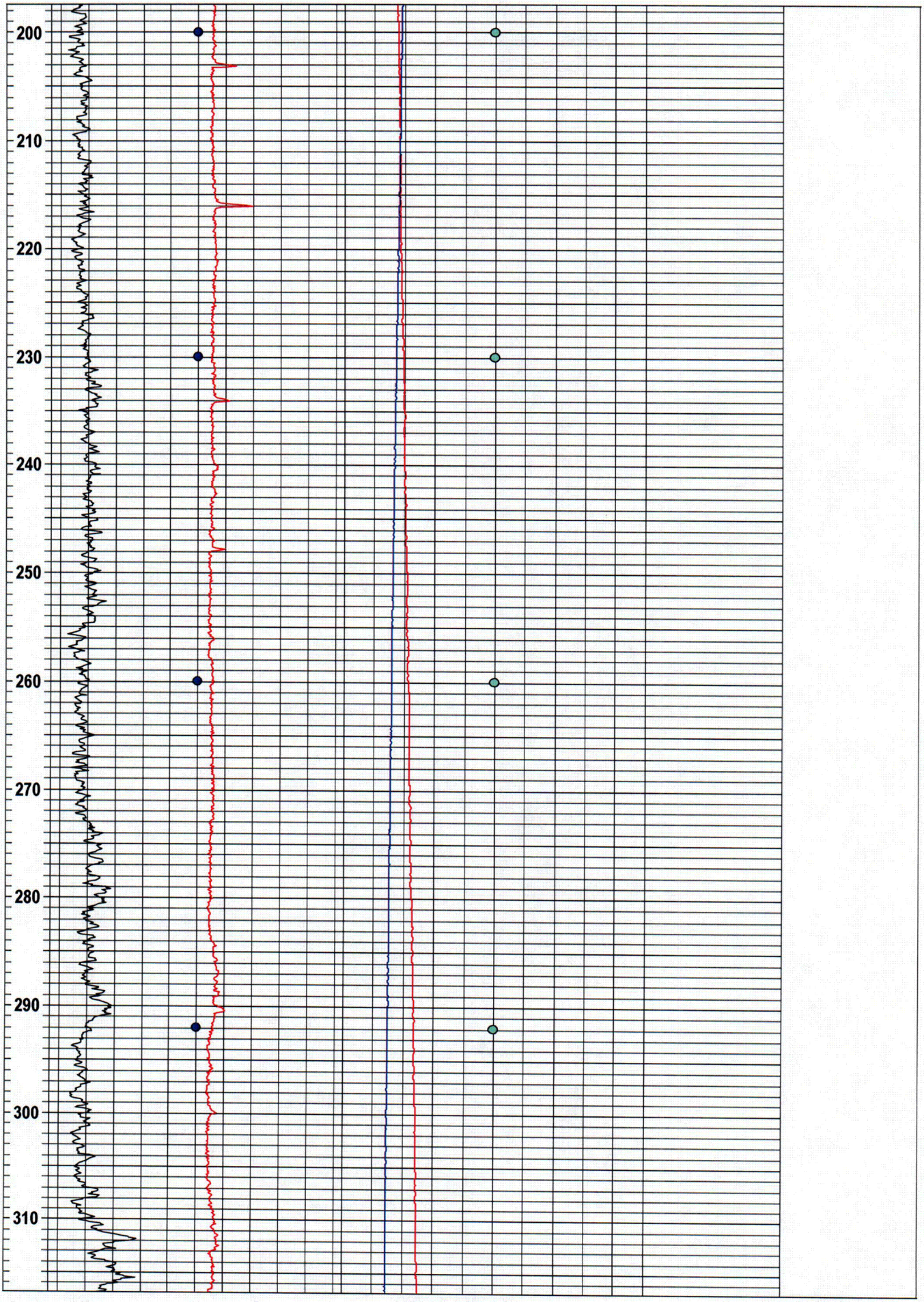

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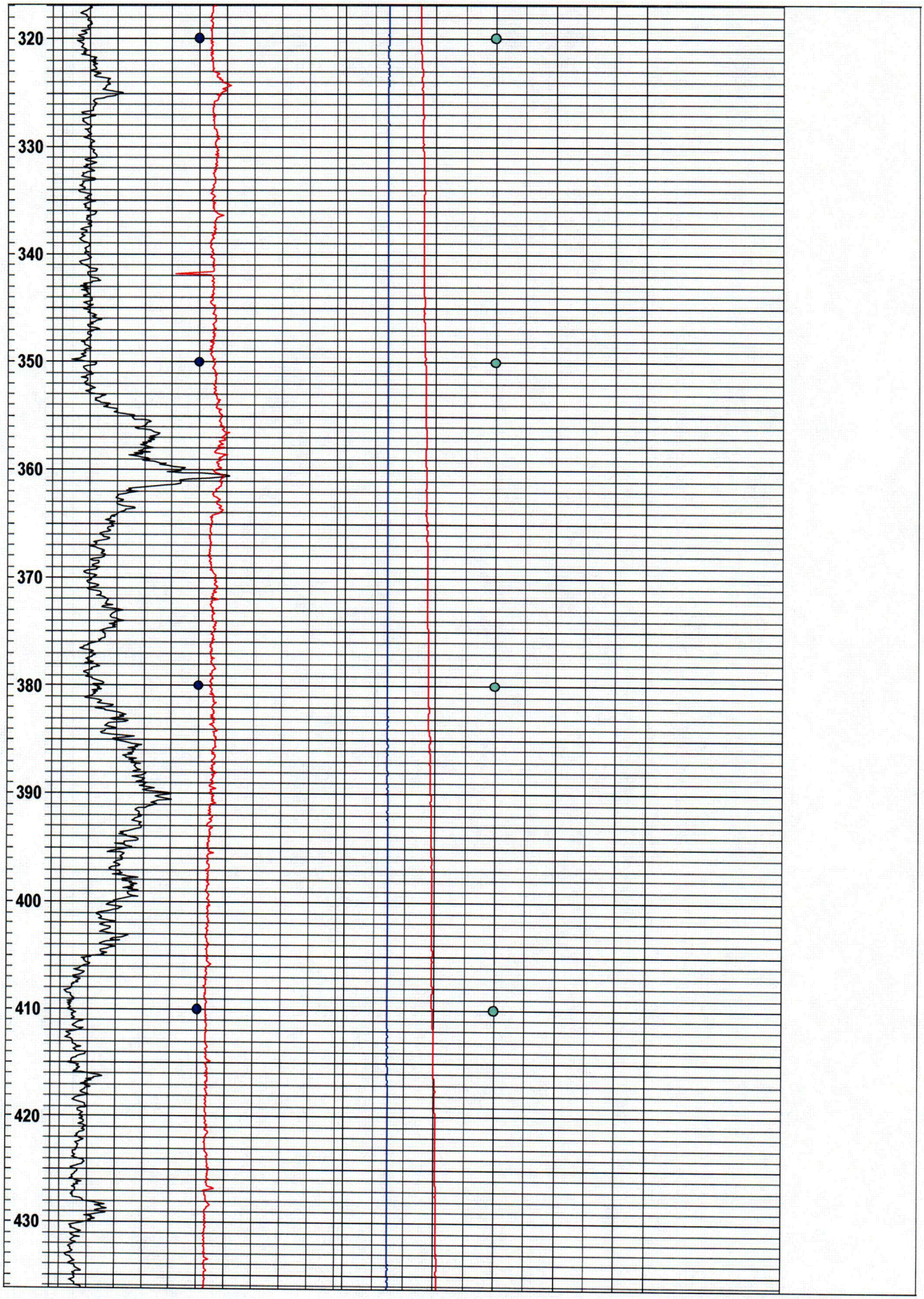

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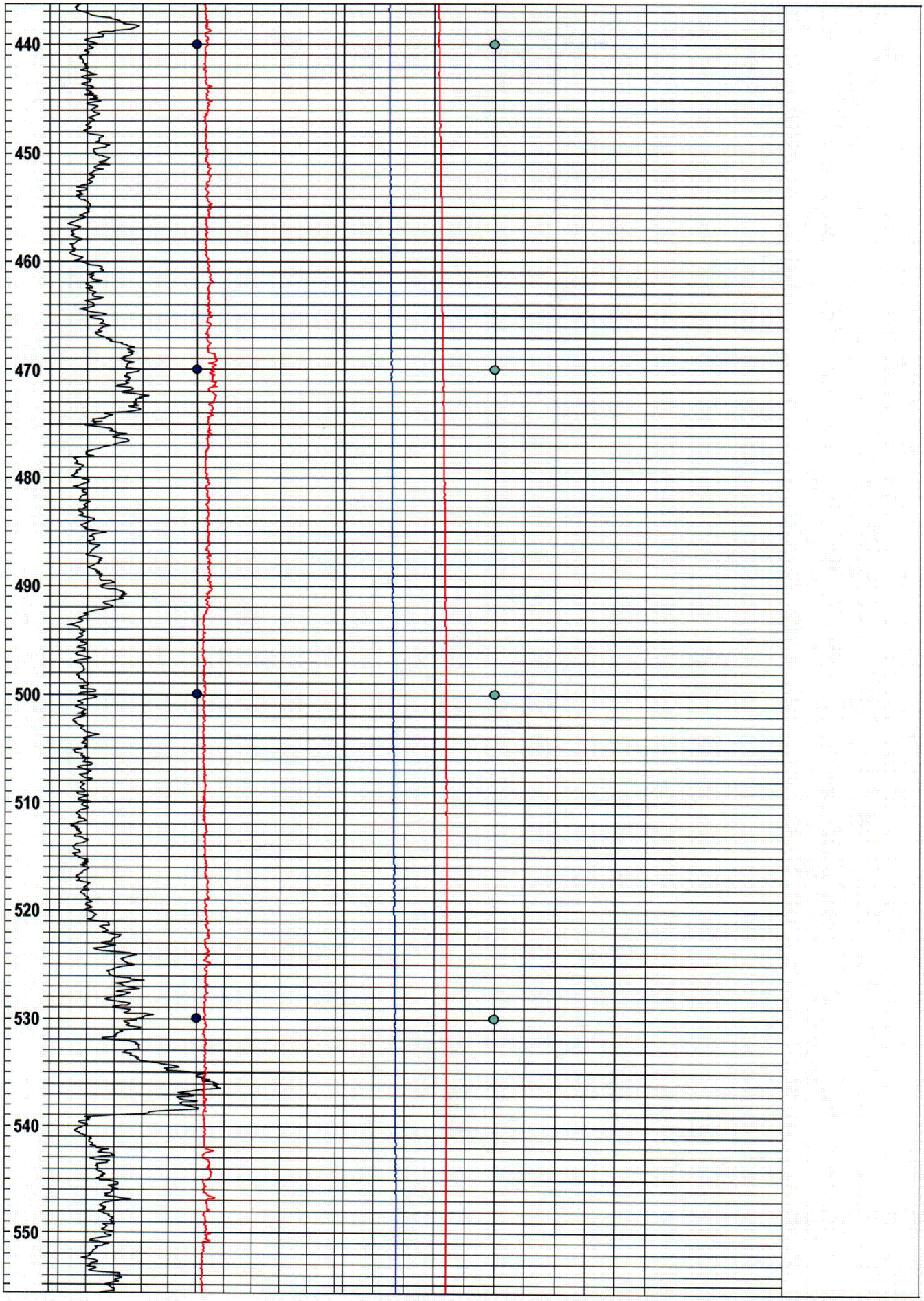

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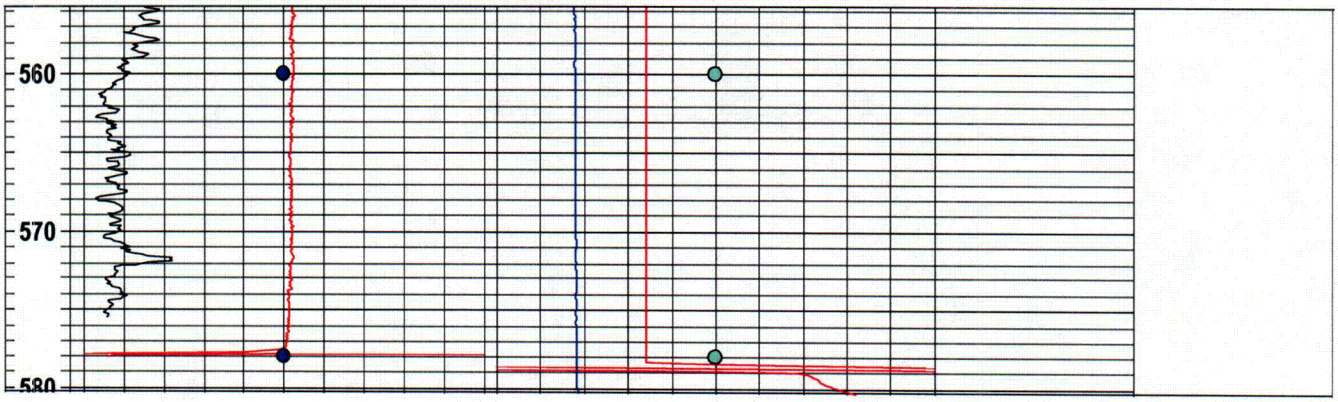
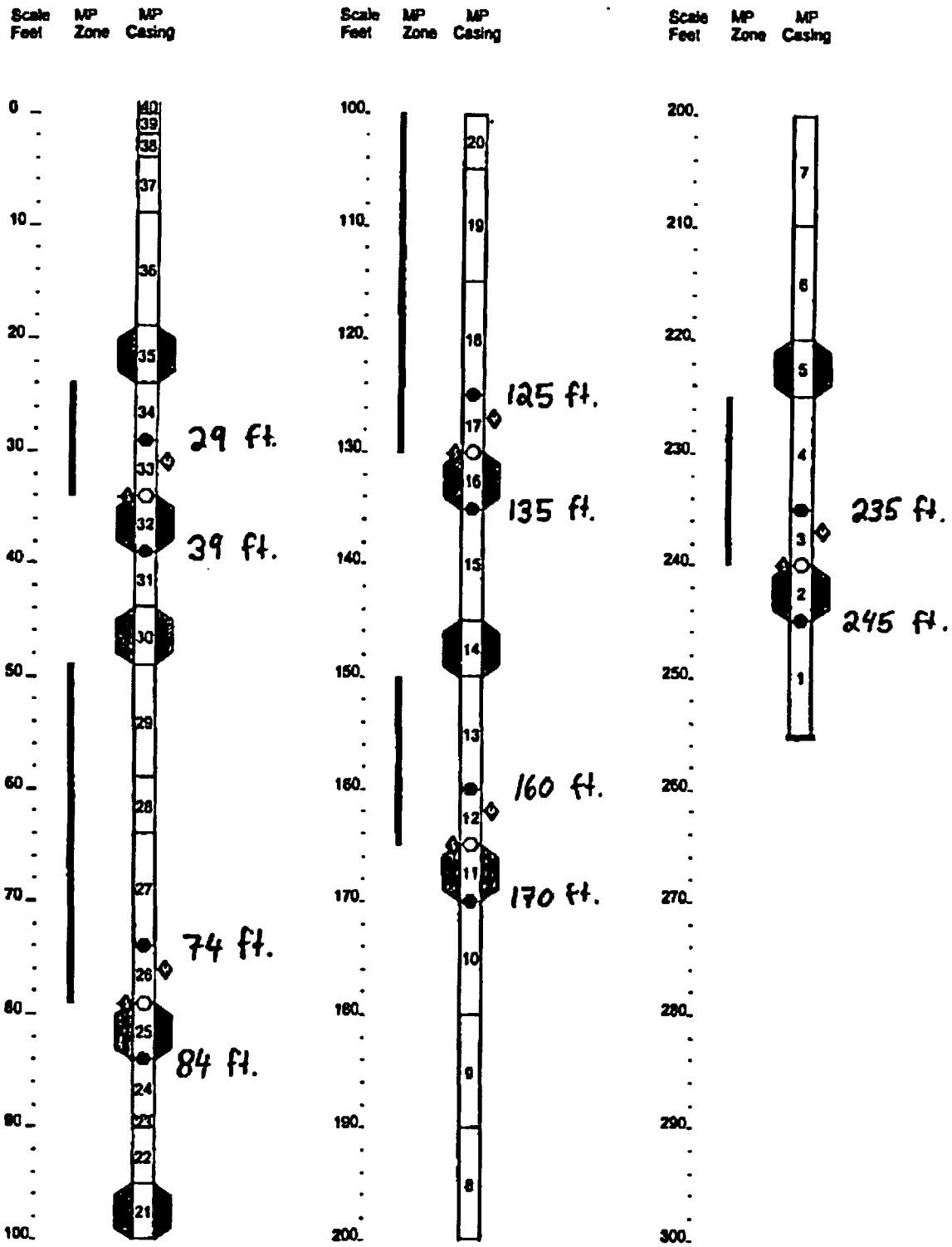


C-36

Summary Casing Log
CH2M Hill

Job No: WB839
Well: MW-118A



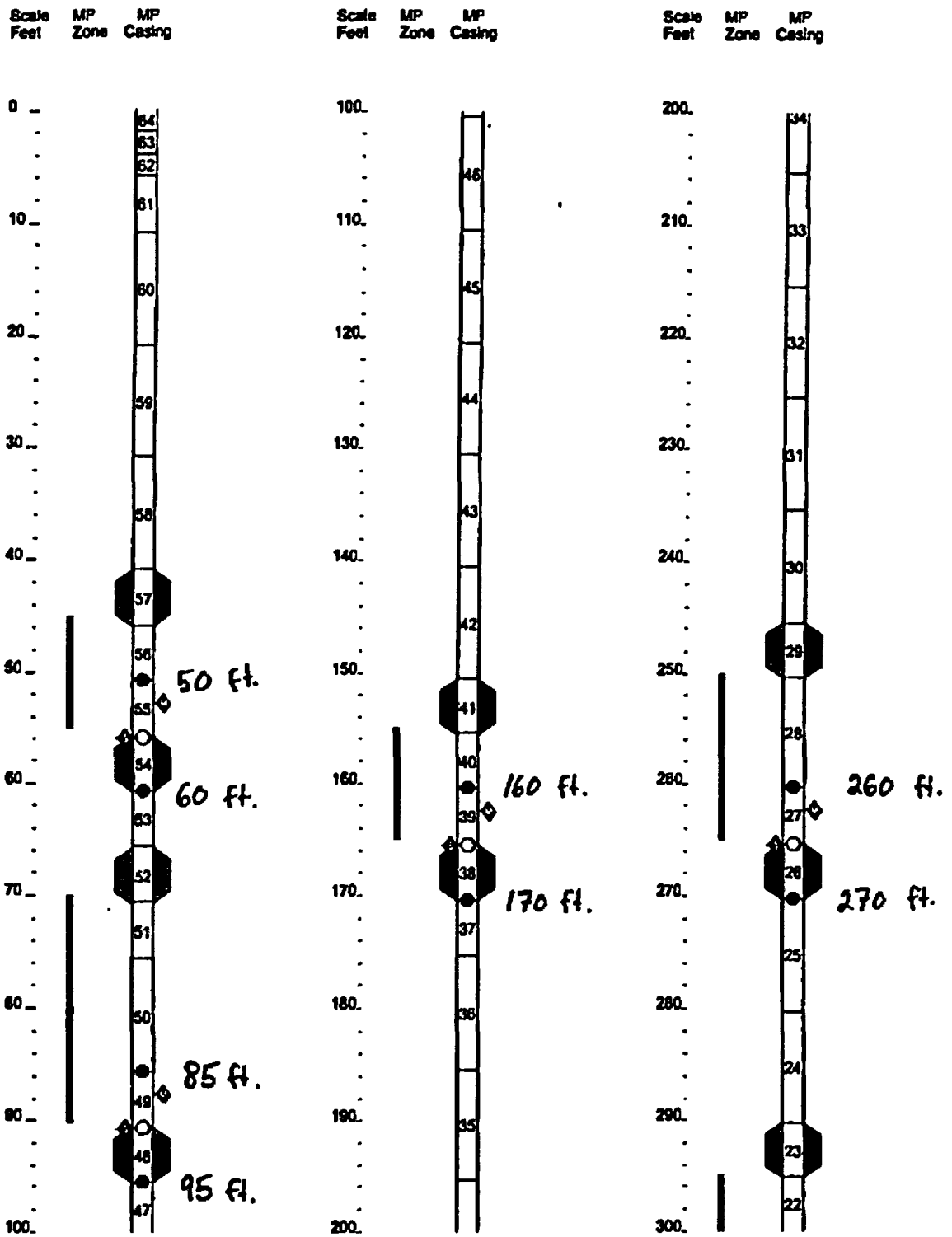
Well ID:	**MW-119**	***Depth to bedrock(ft):***	—
Well location:	**Industrial area**	***Measured Depth of well(ft from ground):***	—
Boring type:	—	***Difference in measured depth to installed depth***	—
Well installation depth(ft):	—	***Longitude:***	—
Boring depth(ft):	—	***Latitude:***	—
Installation date:	—	***Elevation(TOC):***	—

Well picture not available

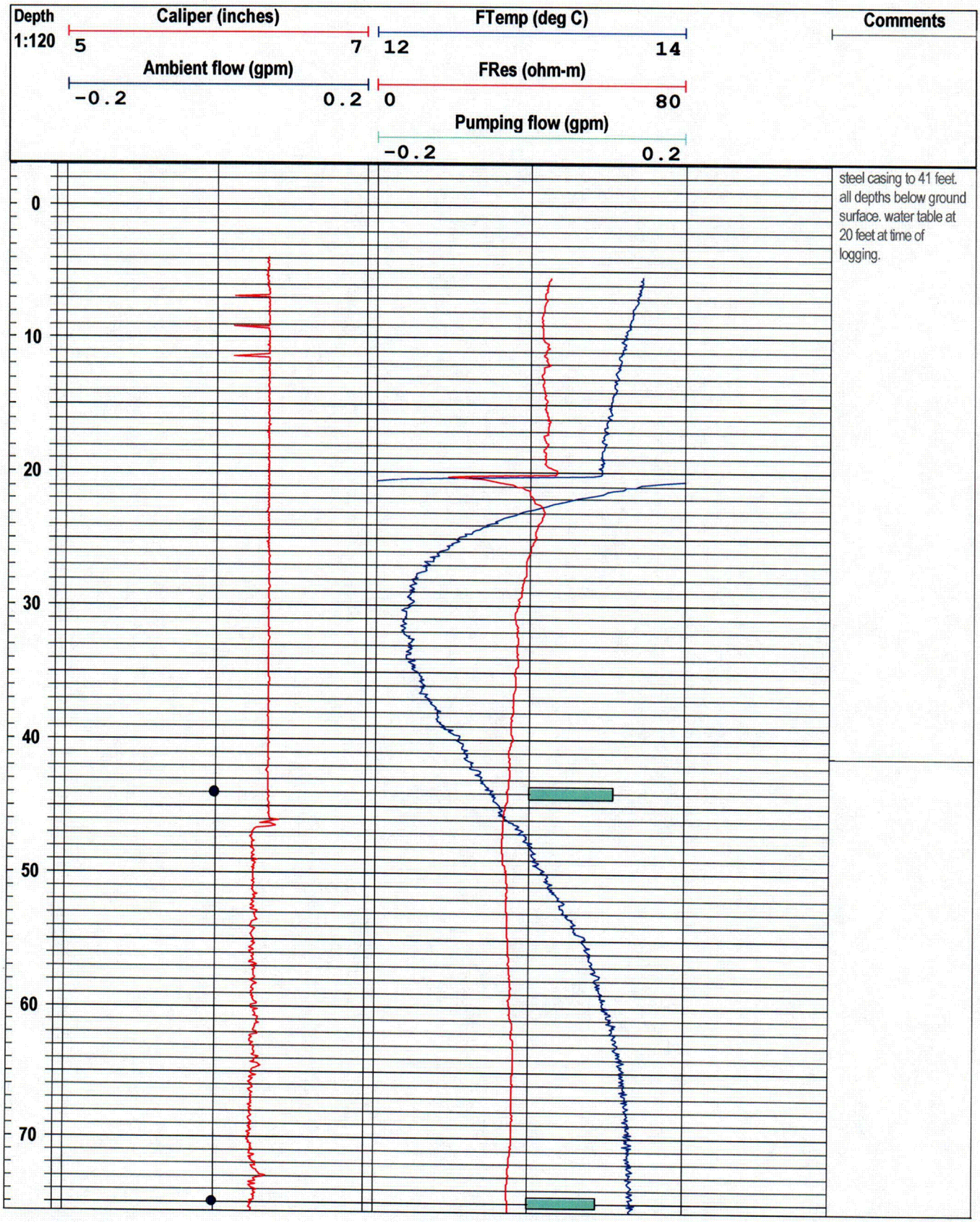
Wellhead conditions and comments:

Summary Casing Log
CH2M Hill

Job No: WB839
Well: MW-119



Project - Well: Bechtel/Haddam Power Plant - MW 119 conventional logs



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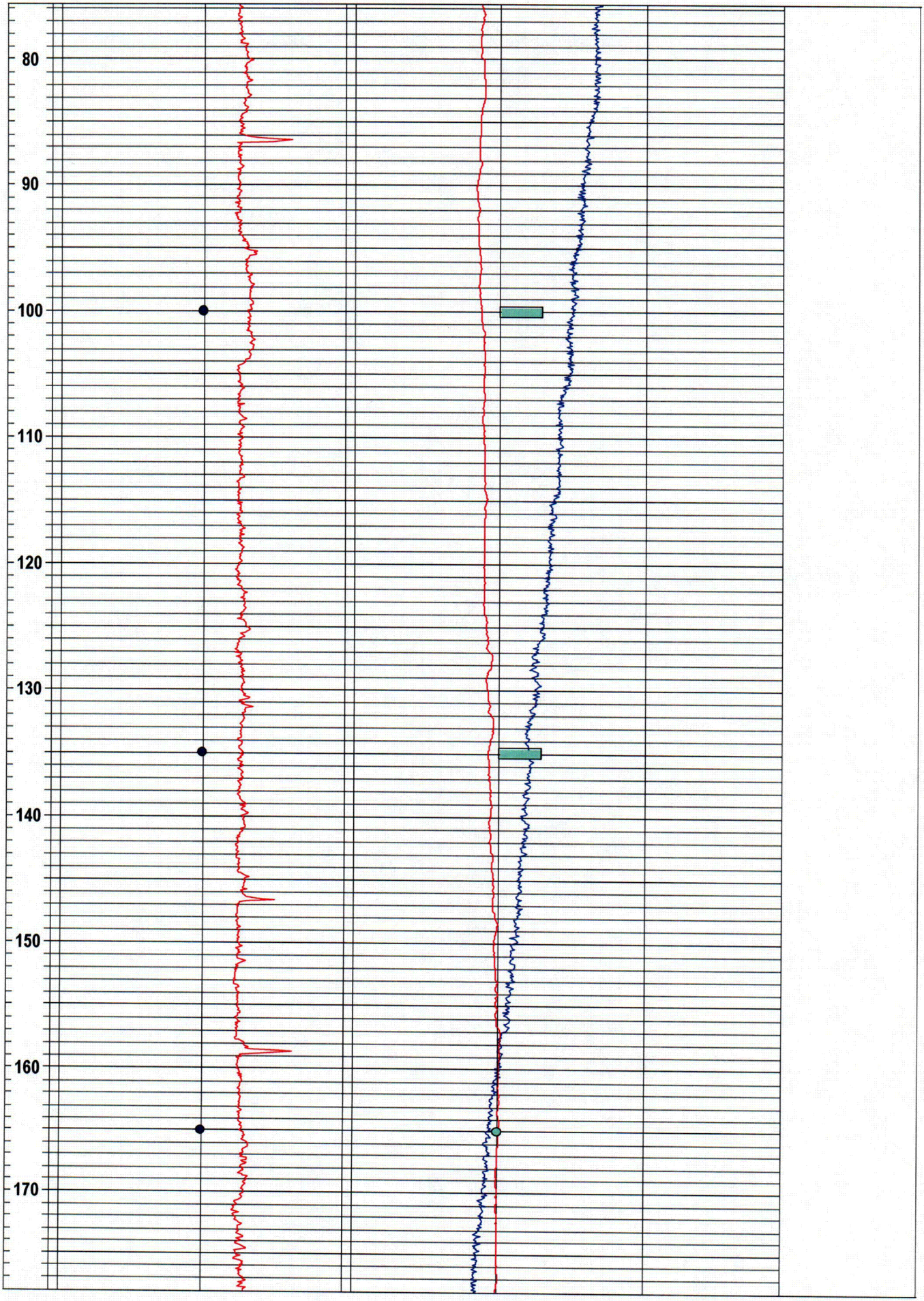

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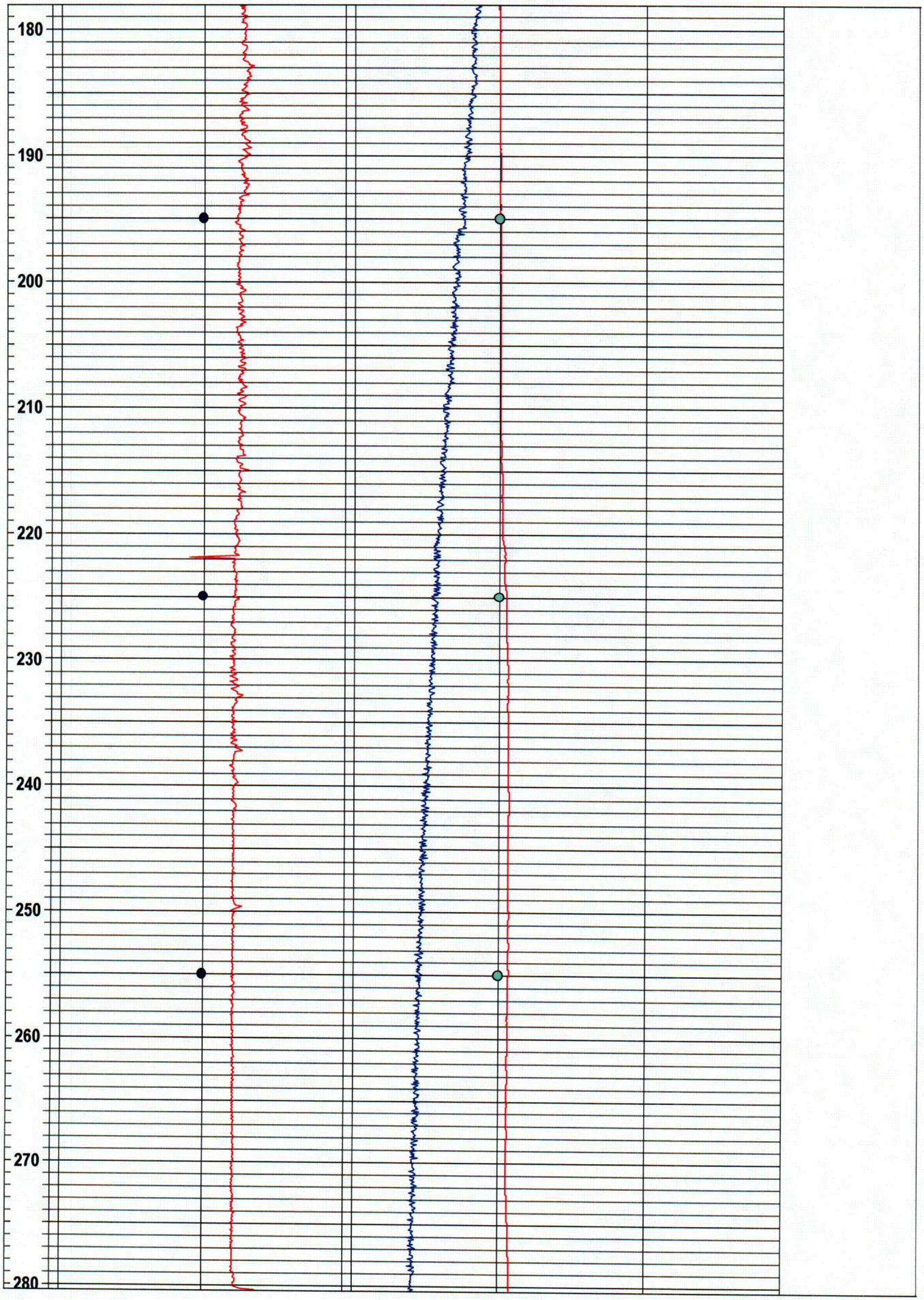

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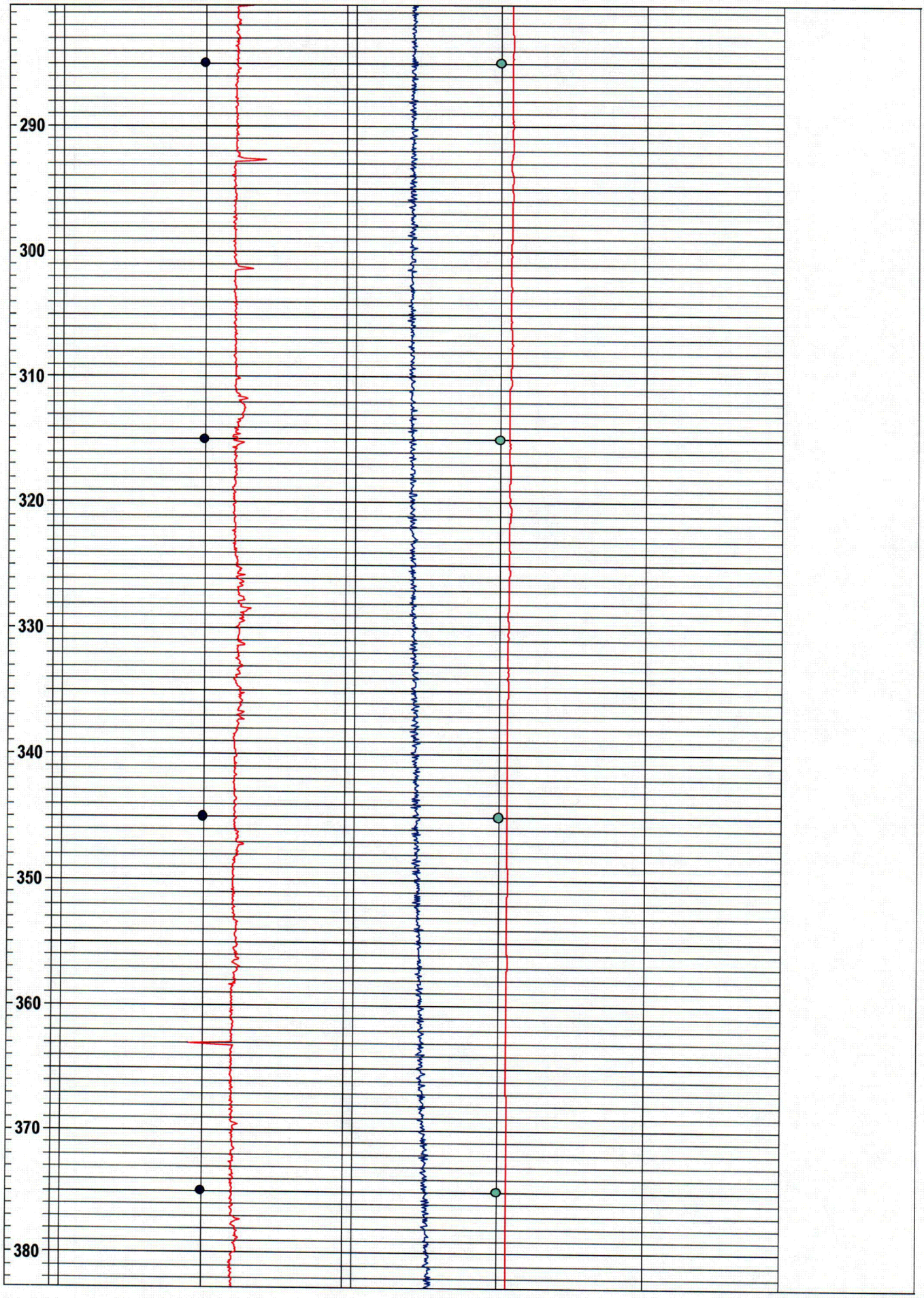

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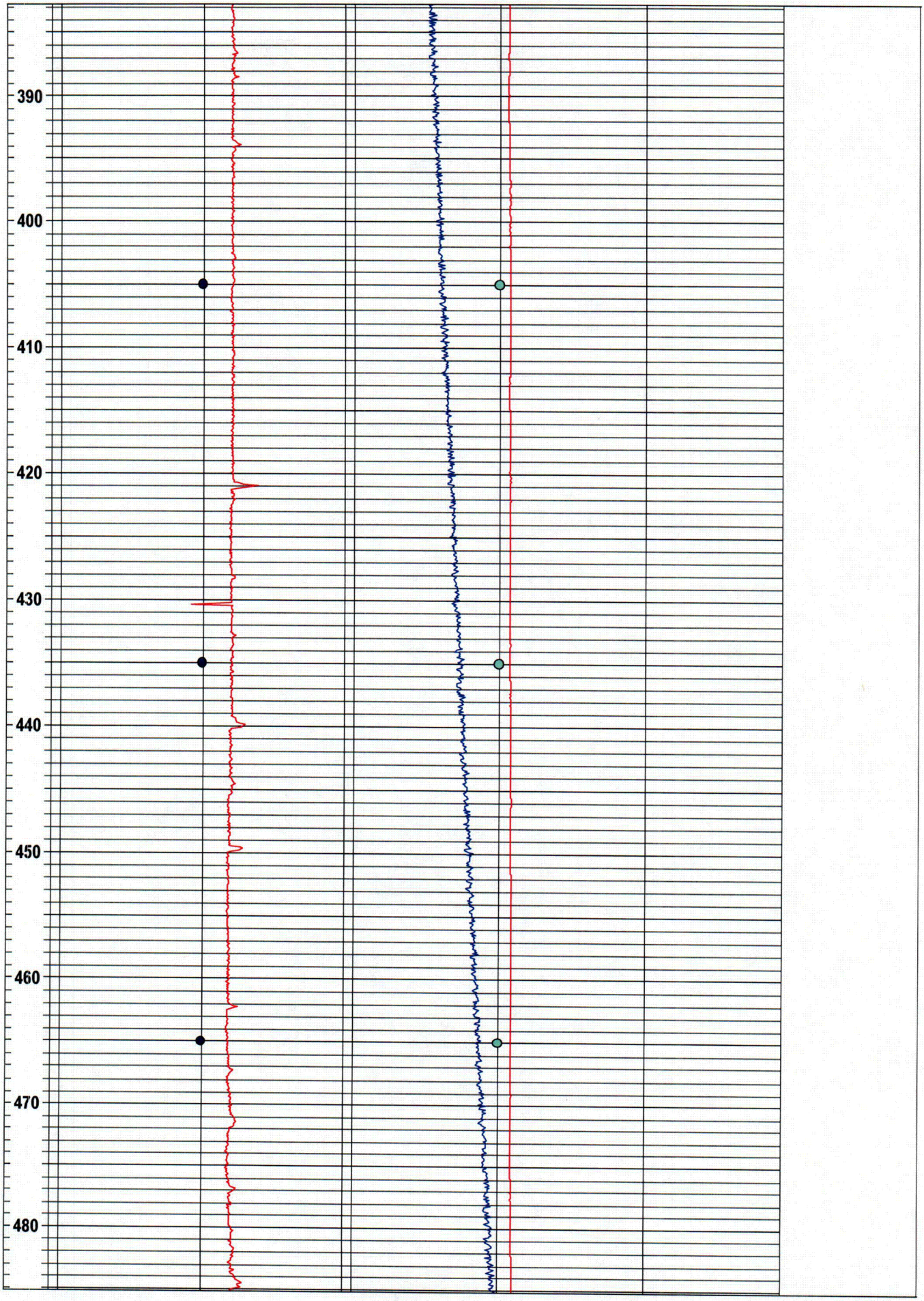

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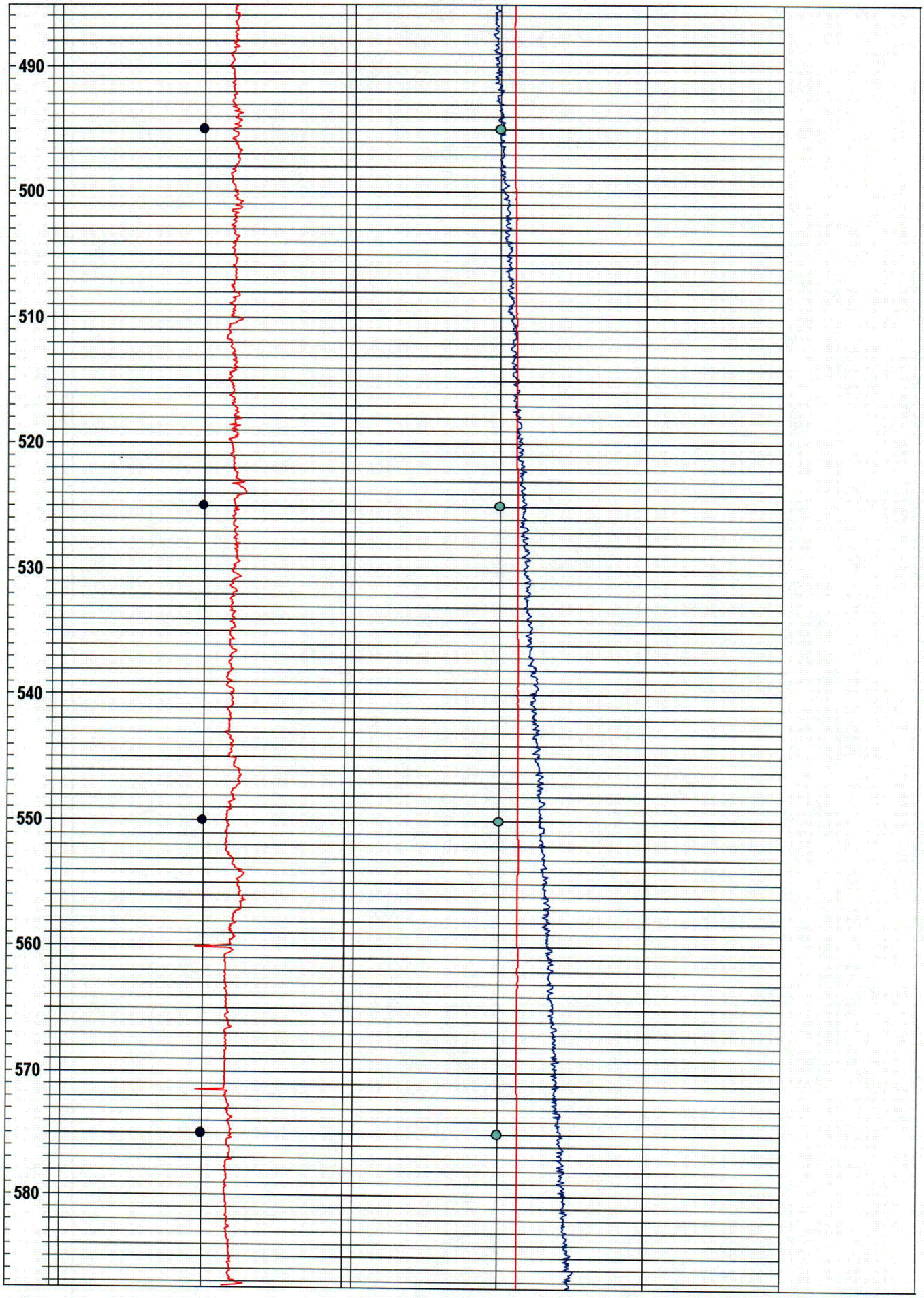

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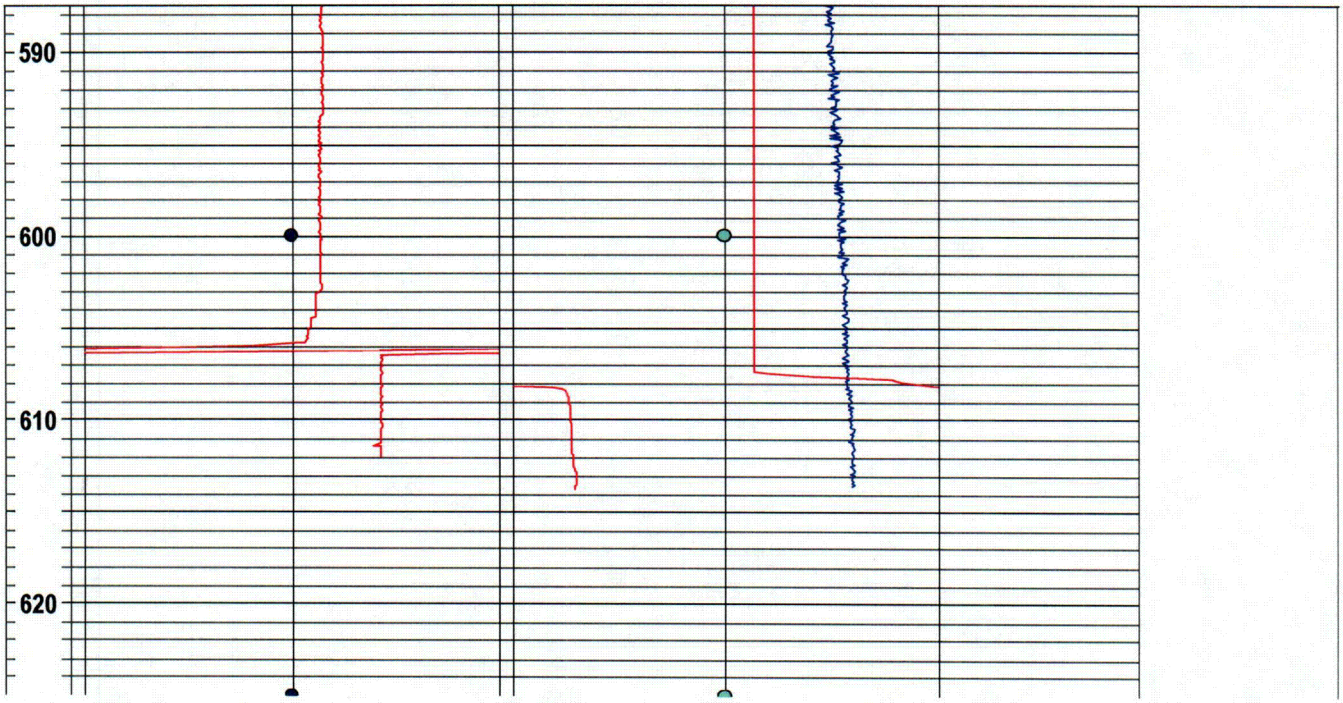
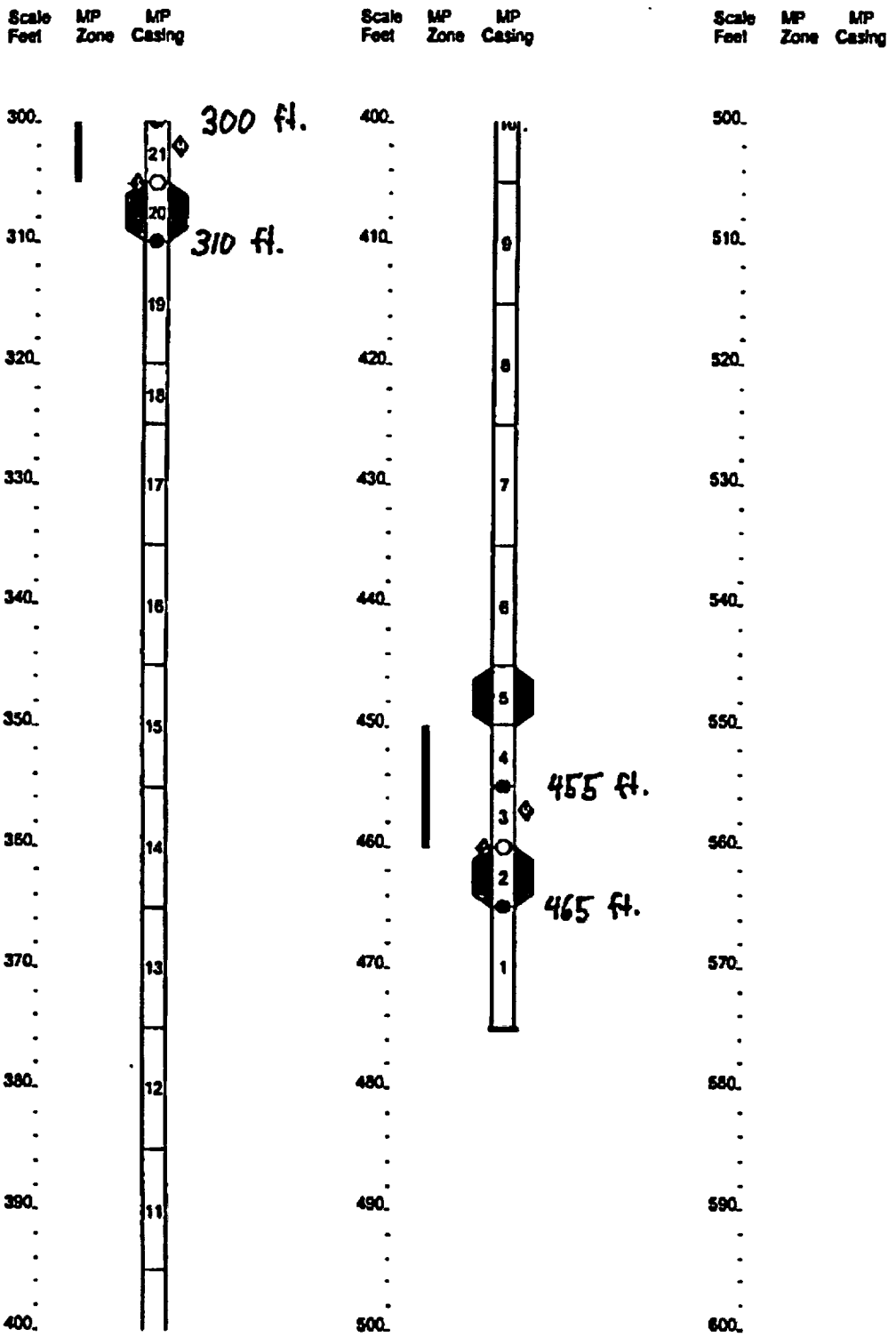


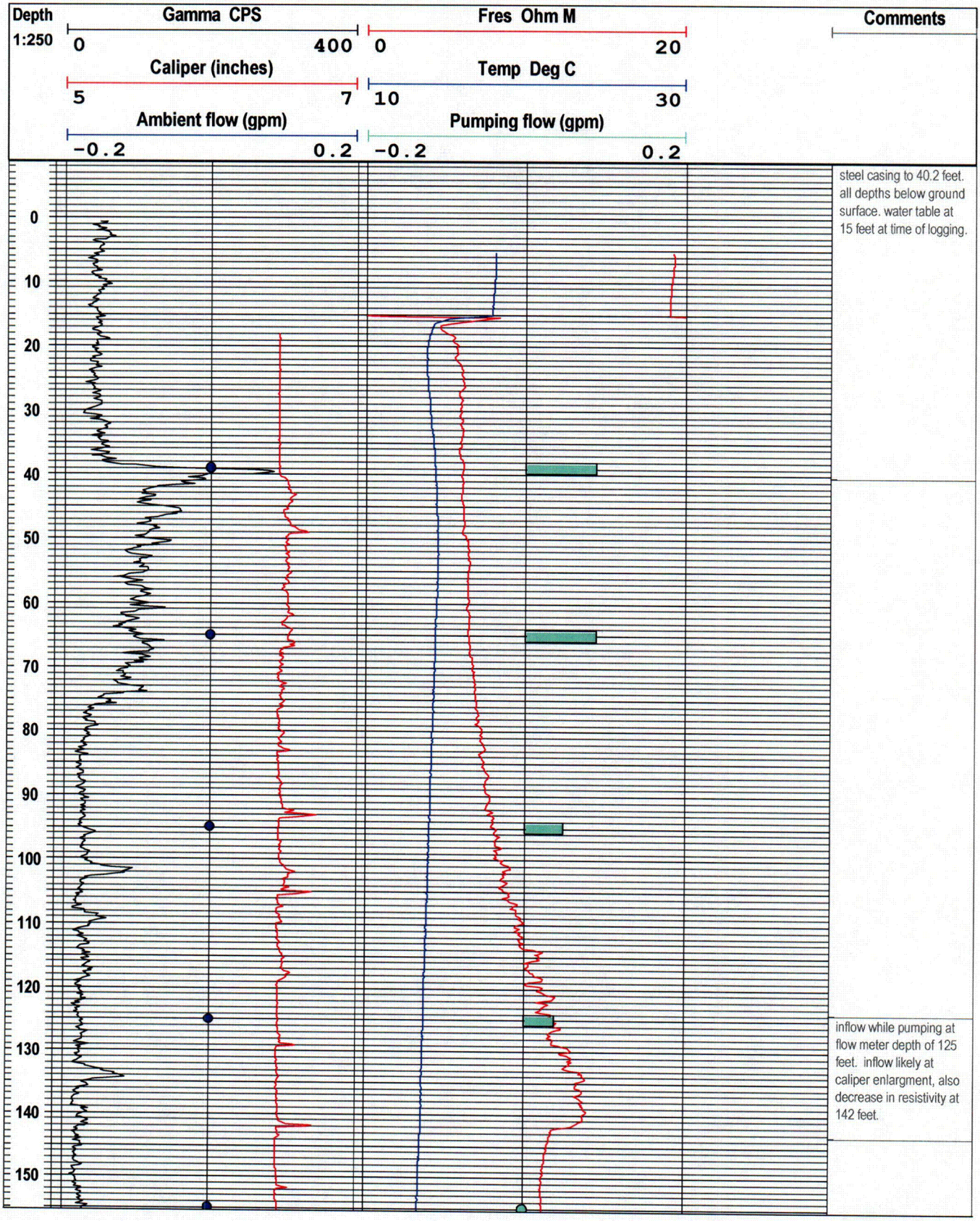
C-43

Summary Casing Log
CH2M Hill

Job No: WB839
Well: MW-119



Project - Well: Bechtel/Haddam Power Plant - MW 120 conventional logs



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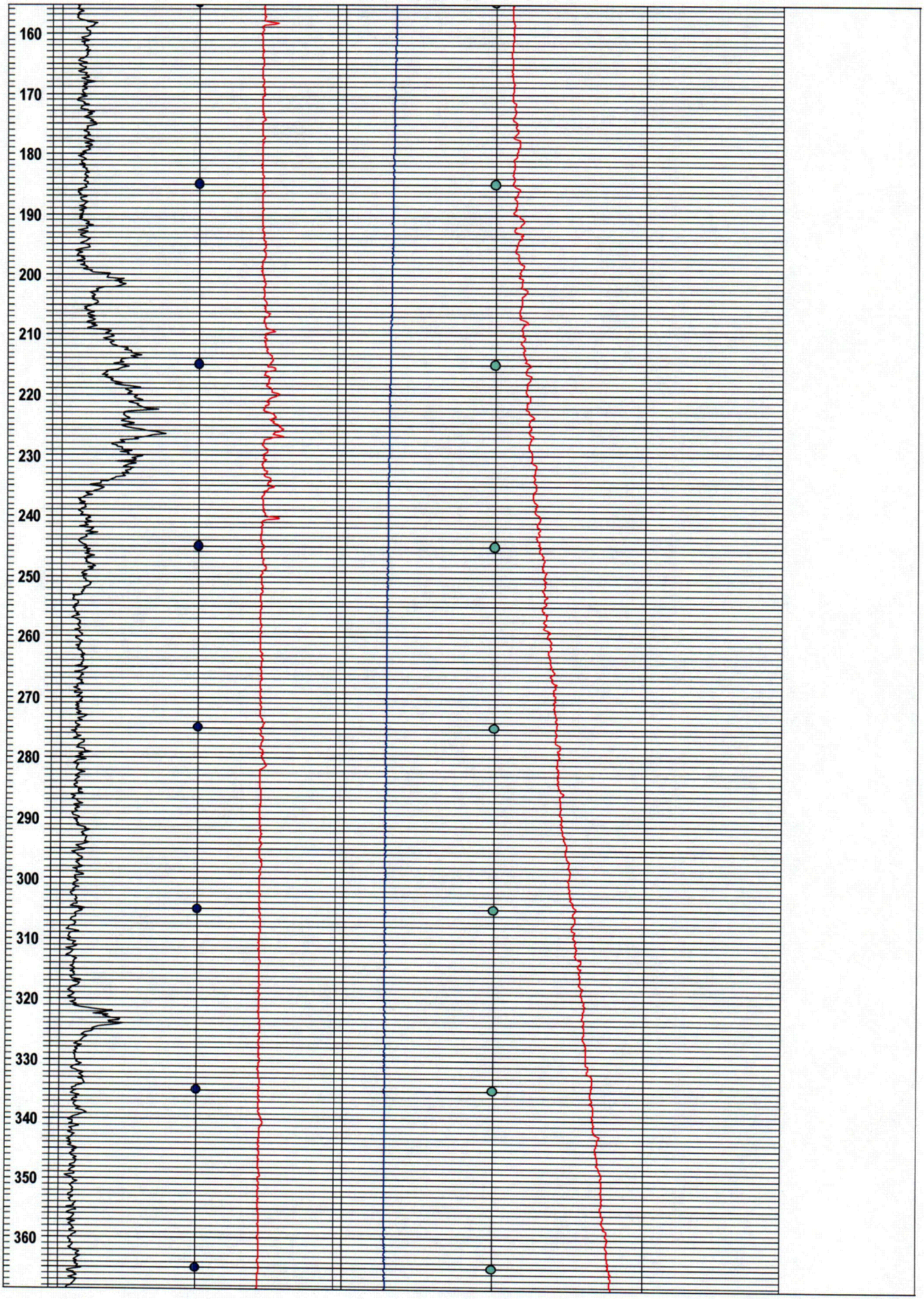
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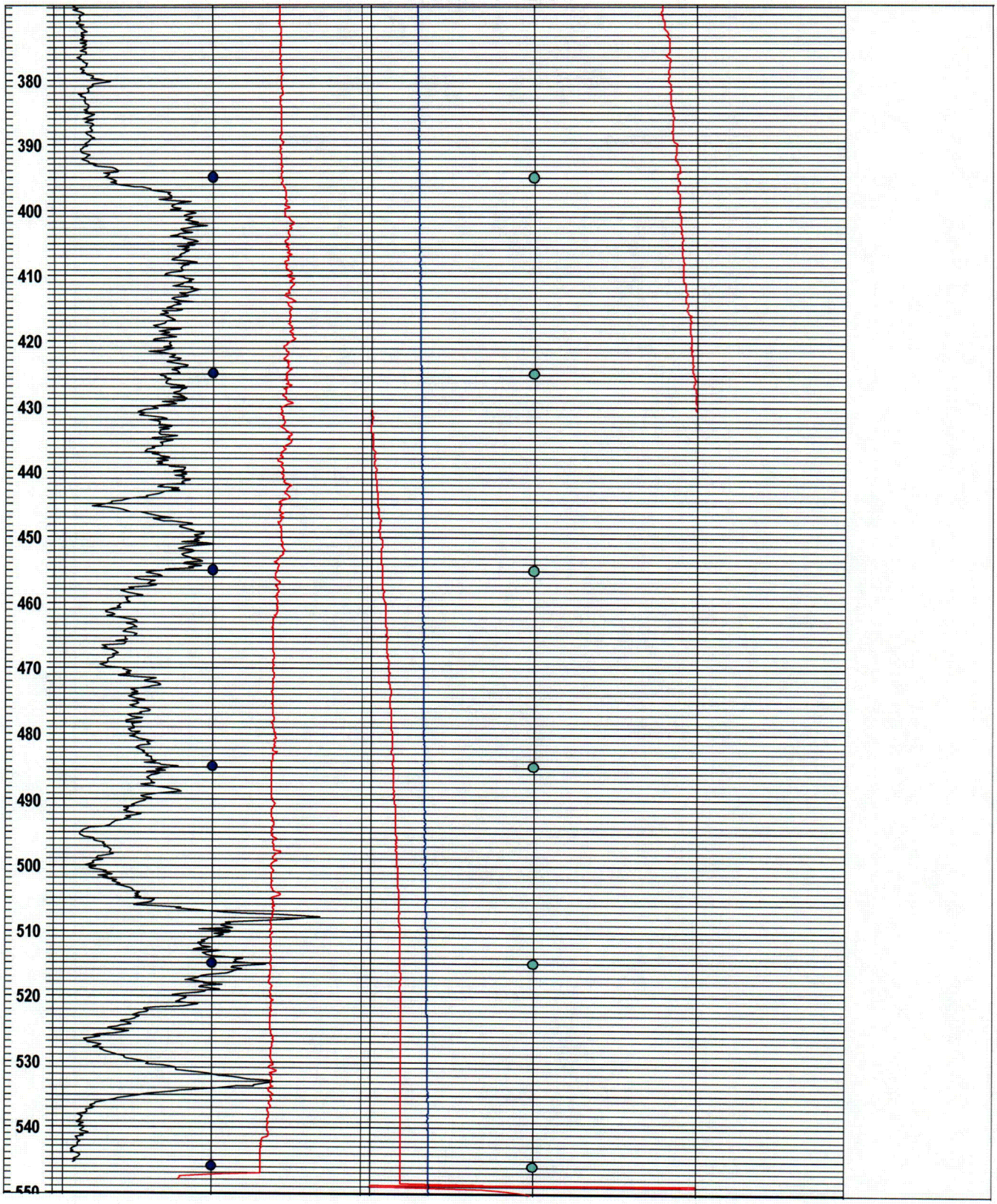
C-45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L-46

Bechtel Power Corp. CY Decommissioning Project	Subsurface Log	Hole No.: MW-120 Sheet: 1 of 1	Date started: Date Finished:

Client: Connecticut Yankee Location: Haddam CT.	Drilling method: Cut and wash, 4 inch inside diameter casing Sampling method: Split spoon Hammer weight: 140lb	

Project No.: 24265 P. Manager: Alan Heter	Drilling Co.: ADT Geologist: Dave Scott	Driller: Eric Ramey D. Helper: Jeremy DeGraw Drill Rig: CME	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Sample Blows per 6"	Sample "N"	Sample Recovery (ft.)	Sample Description	Well Details
9						Sand, f to m, some coarse brown, tr f gravel, sub angular: no odor, moist,	
	1	9 - 11'	4	5			
			3				
			2				
			3		5"		
14						Same as 9 - 11'	
	2	14 - 16'	6	7			
			4				
			3				
			3		5"		
19						Same as 9 - 11' wood fragement in tip	
	3	19 - 21'	4	7			
			3				
			4				
			2		6"		
24						Sand, dark brown f to m loose, some f to c subrounded quartz and arkose gravel, no odor, wet	
	4	24 - 26'	7	14			
			6				
			8				
			10		12"		
29							
	5	29 - 31'	5				
			7				
			10				
			10				
34							

Sample Types:
S=Split Spoon: 2" dia. T= Shelby Tube: _____
R= Rock Core: _____ O = _____

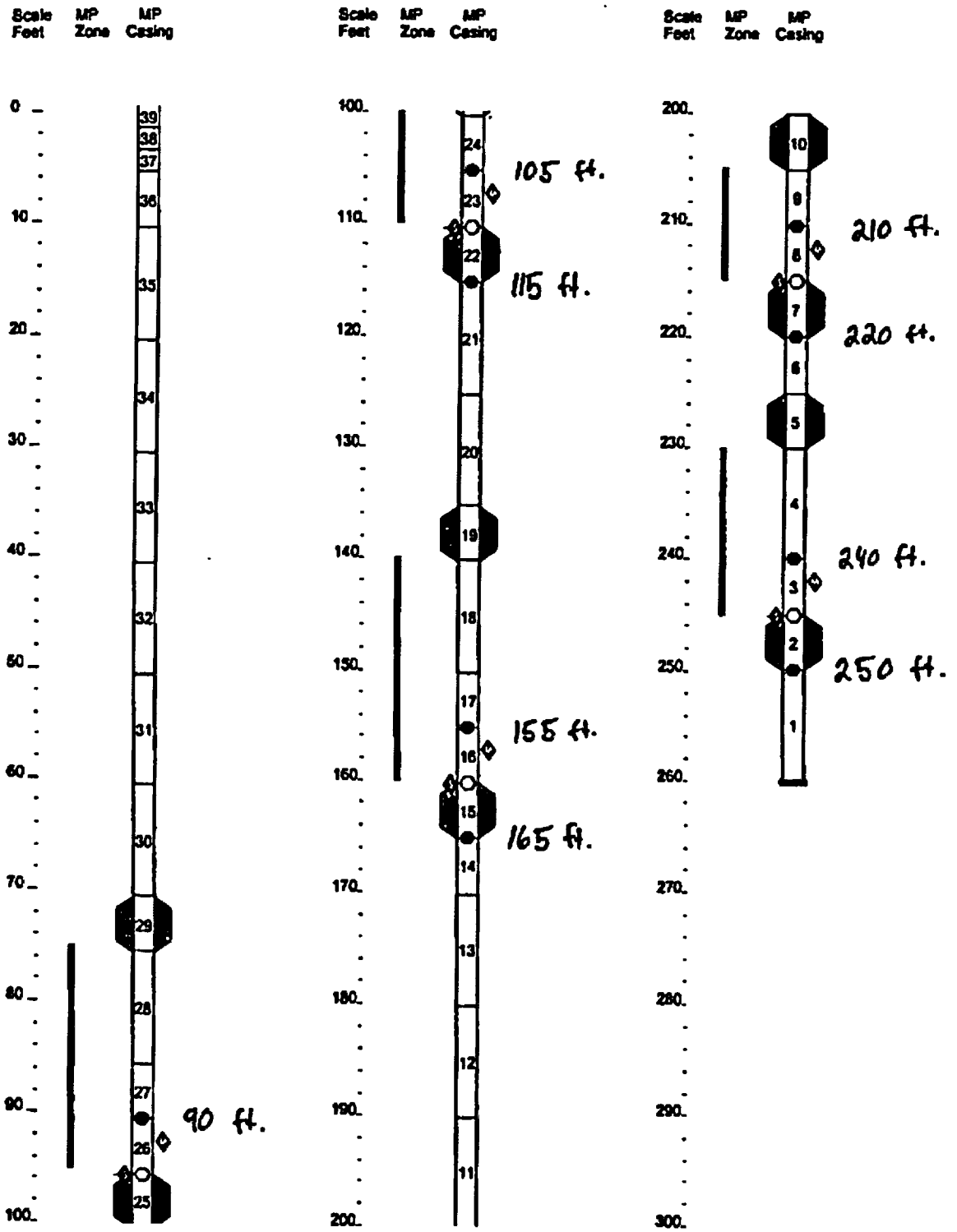
Backfill Well Key
Cement
Sand
Cement
Native Fill
Bentonite

KEY: AND= 50%, SOME=49-30%, LITTLE=29-10%, TRACE=<10% C= COARSE, M= MEDIUM, F= FINE

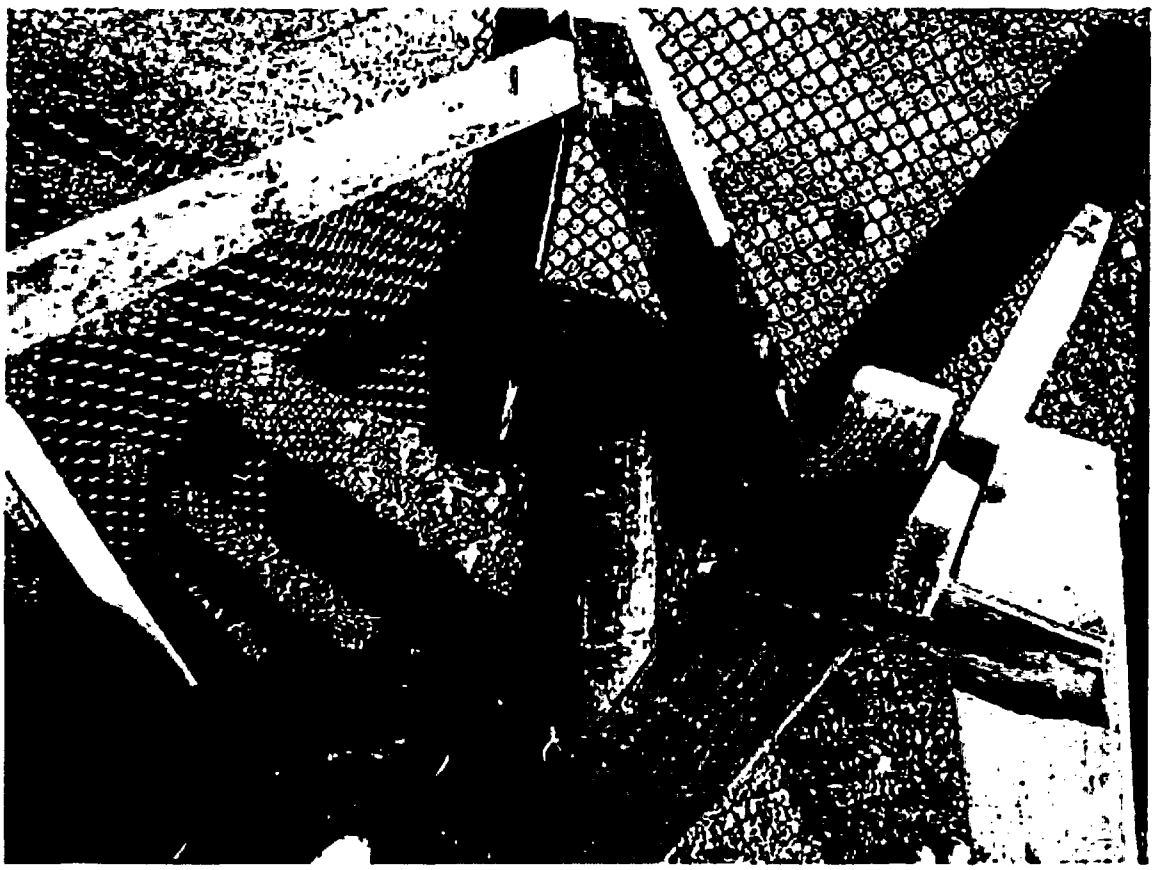
: ASTM D1586

Summary Casing Log
CH2M Hill

Job No: WB839
Well: MW-120

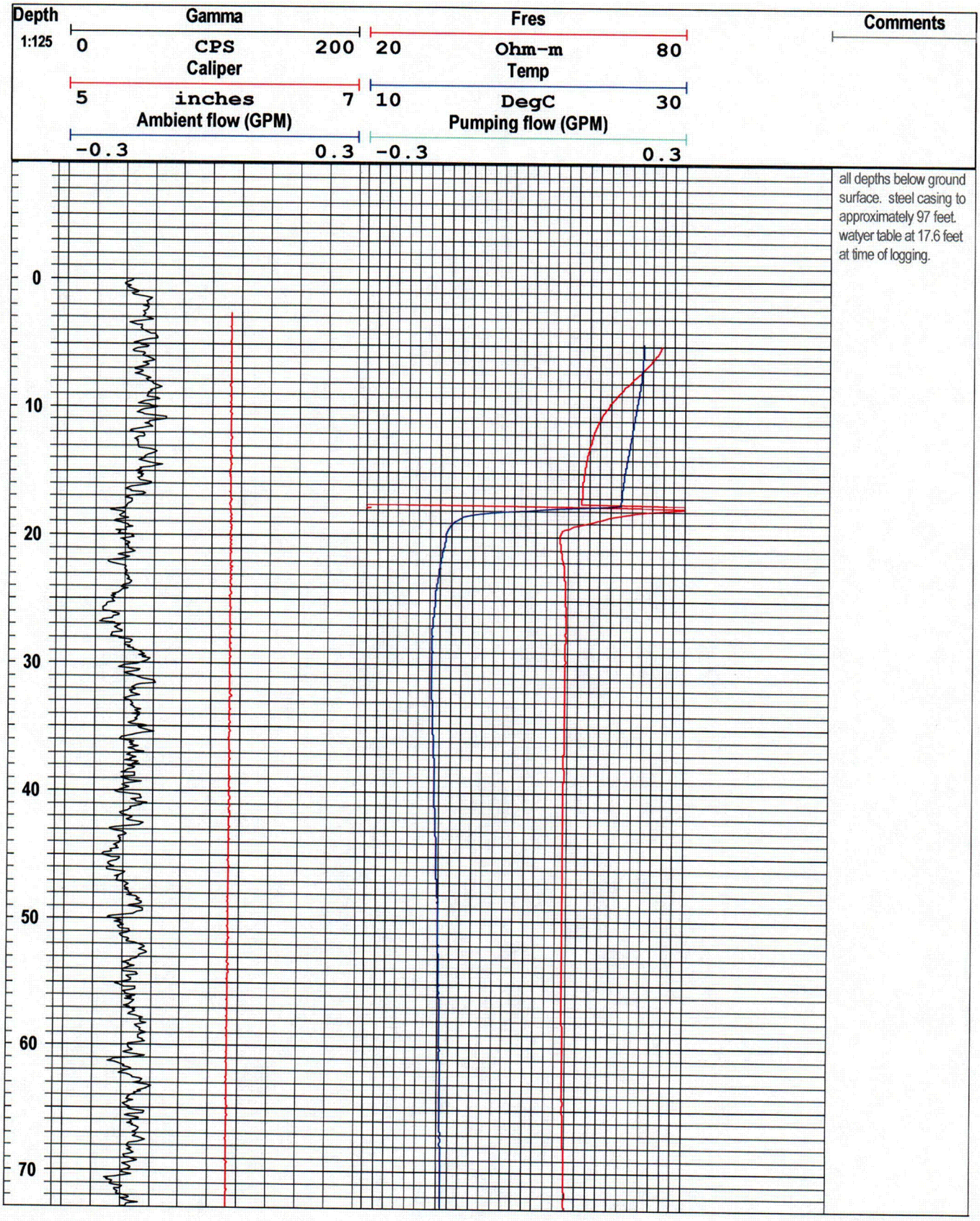


Well ID:	**MW-121A**	***Depth to bedrock(ft):***	—
Well location:	**Industrial area**	***Measured Depth of well(ft from ground):***	—
Boring type:	—	***Difference in measured depth to installed depth***	—
Well installation depth(ft):	—	***Longitude:***	—
Boring depth(ft):	**578**	***Latitude:***	—
Installation date:	—	***Elevation(TOC):***	—

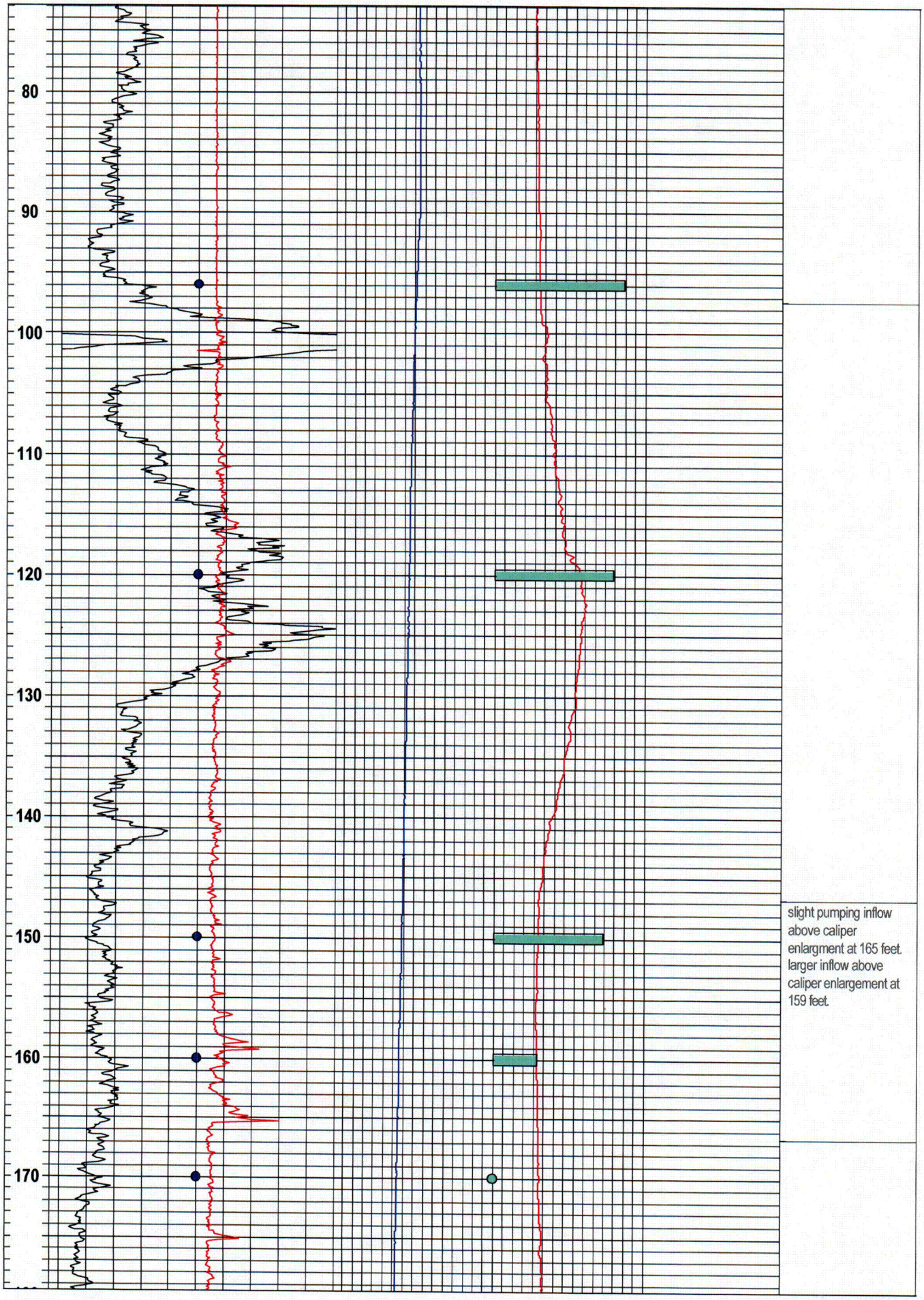


Wellhead conditions and comments: Well not completed

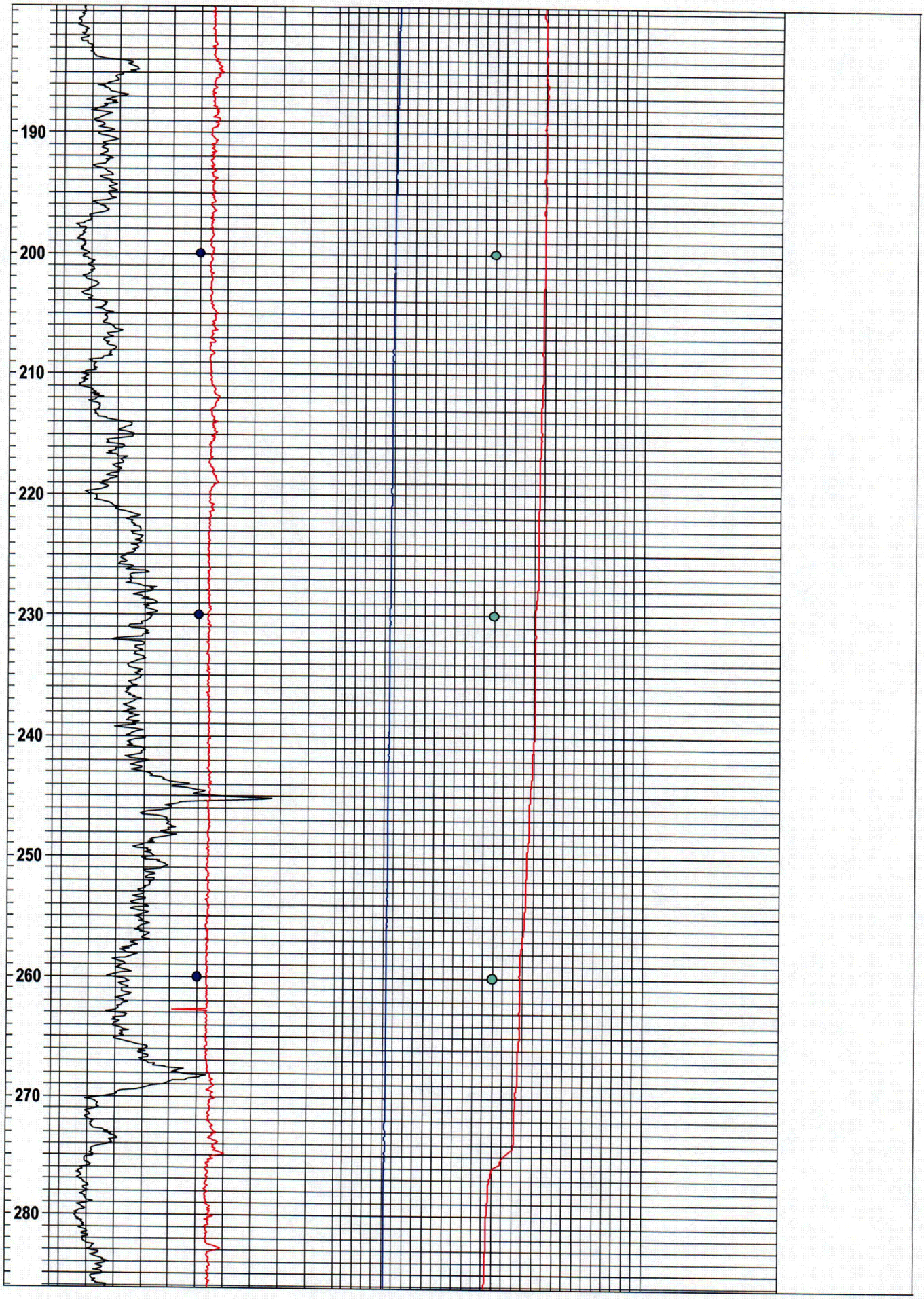
Project - Well: CT. Yankee/Haddam Power Plant - MW 121a conventional logs



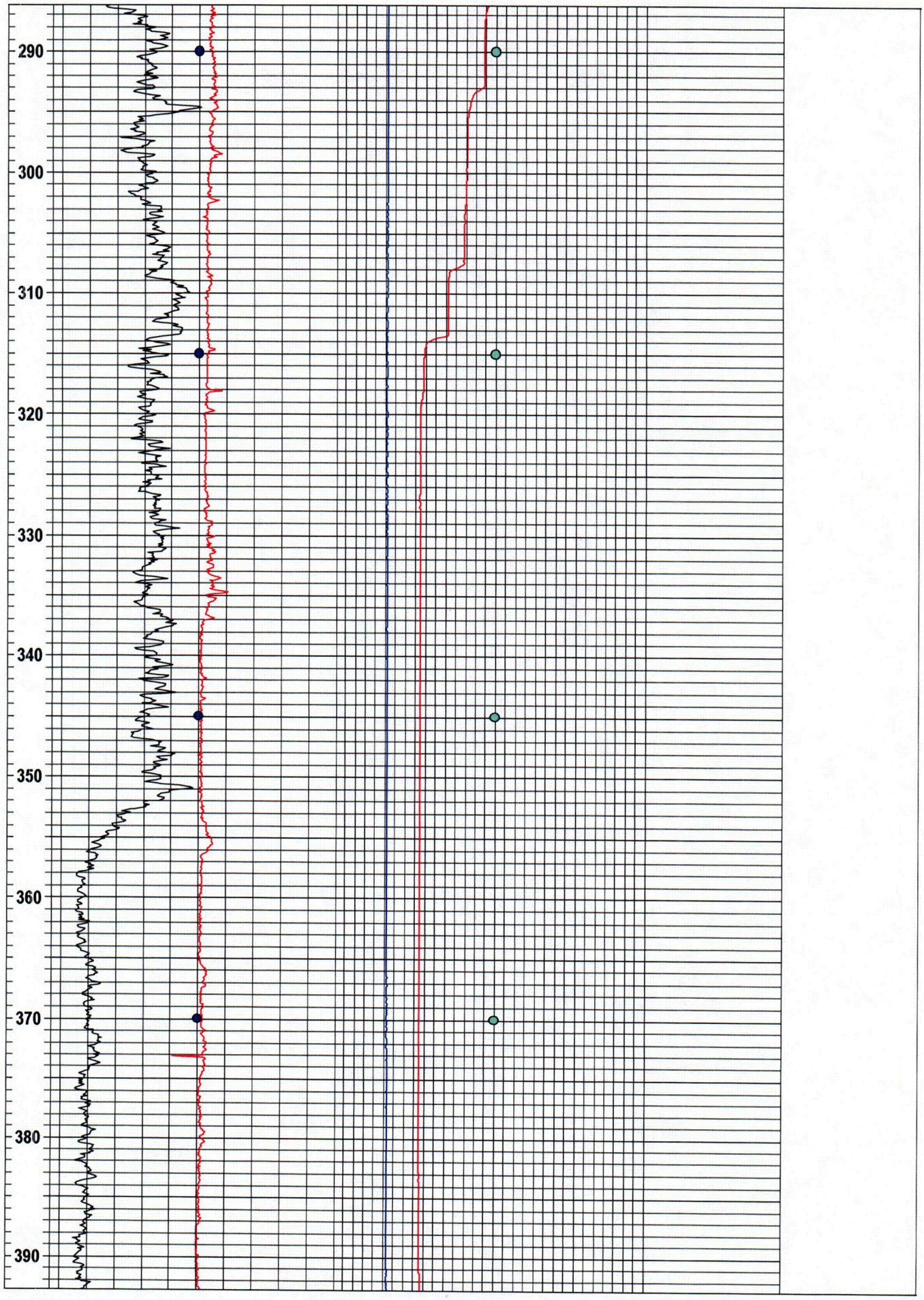
C-47


80
90
100
110
120
130
140
150
160
170
slight pumping inflow above caliper enlargment at 165 feet.
larger inflow above caliper enlargement at 159 feet.

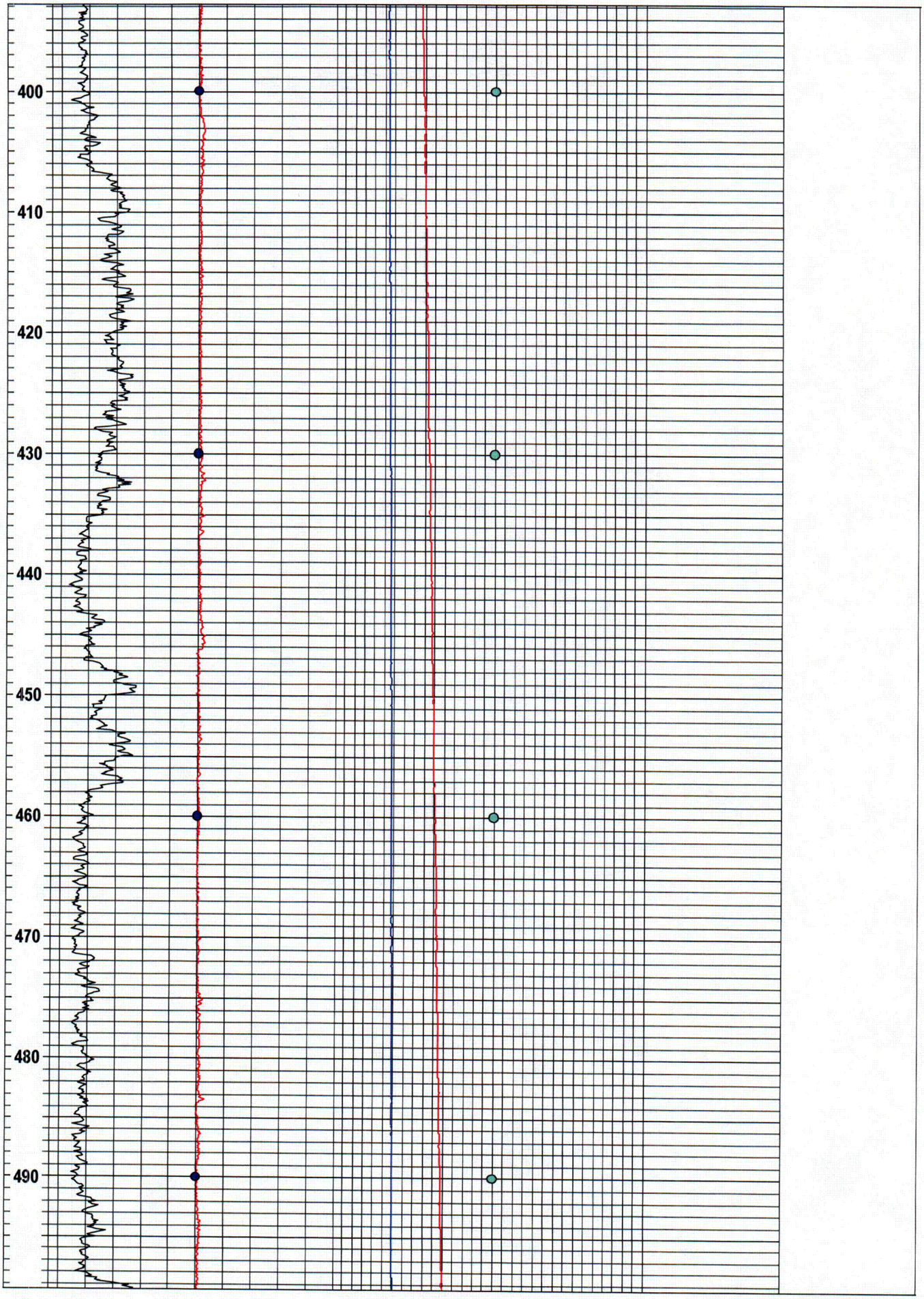
C-48



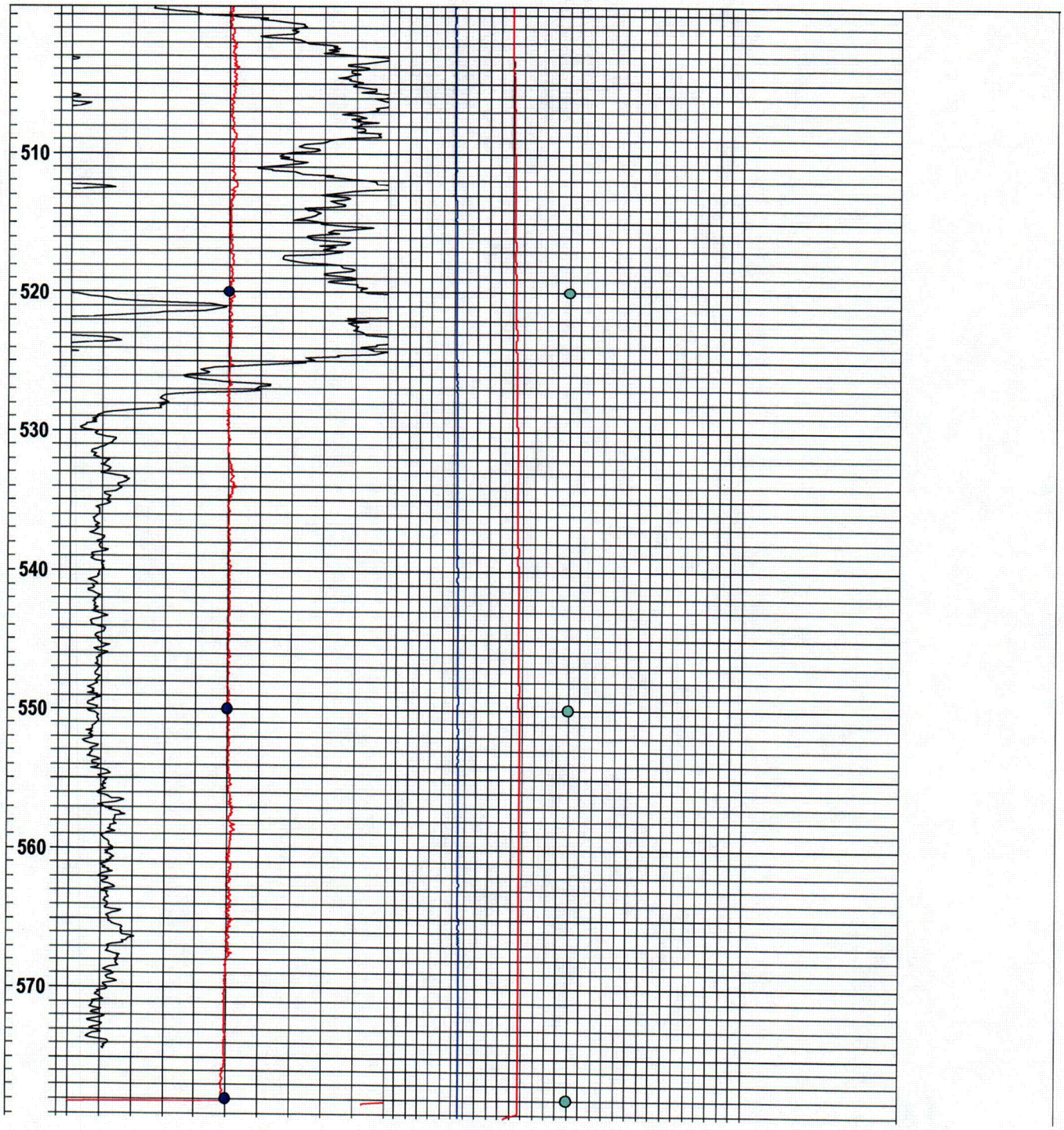
C-49



C-50



C-51



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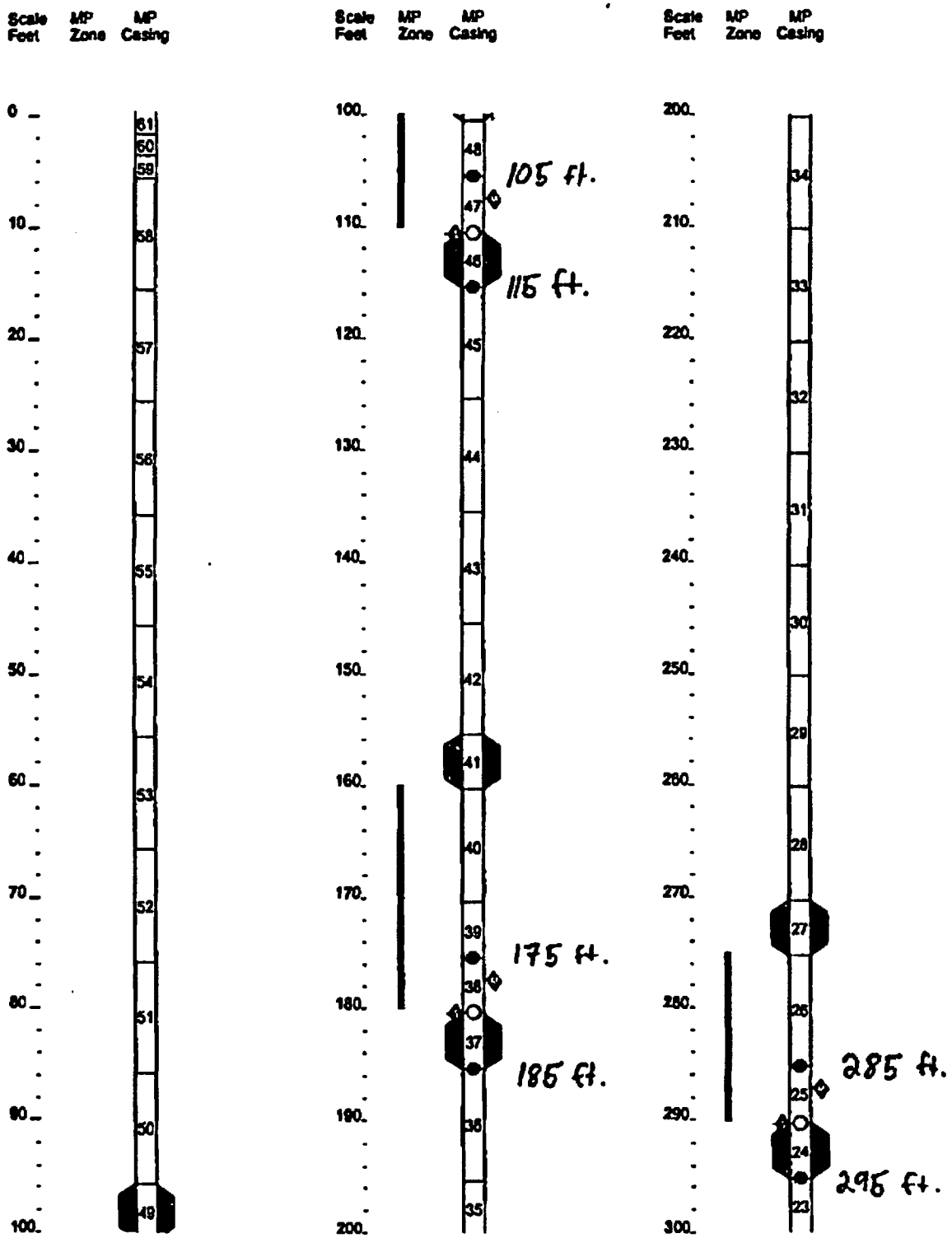
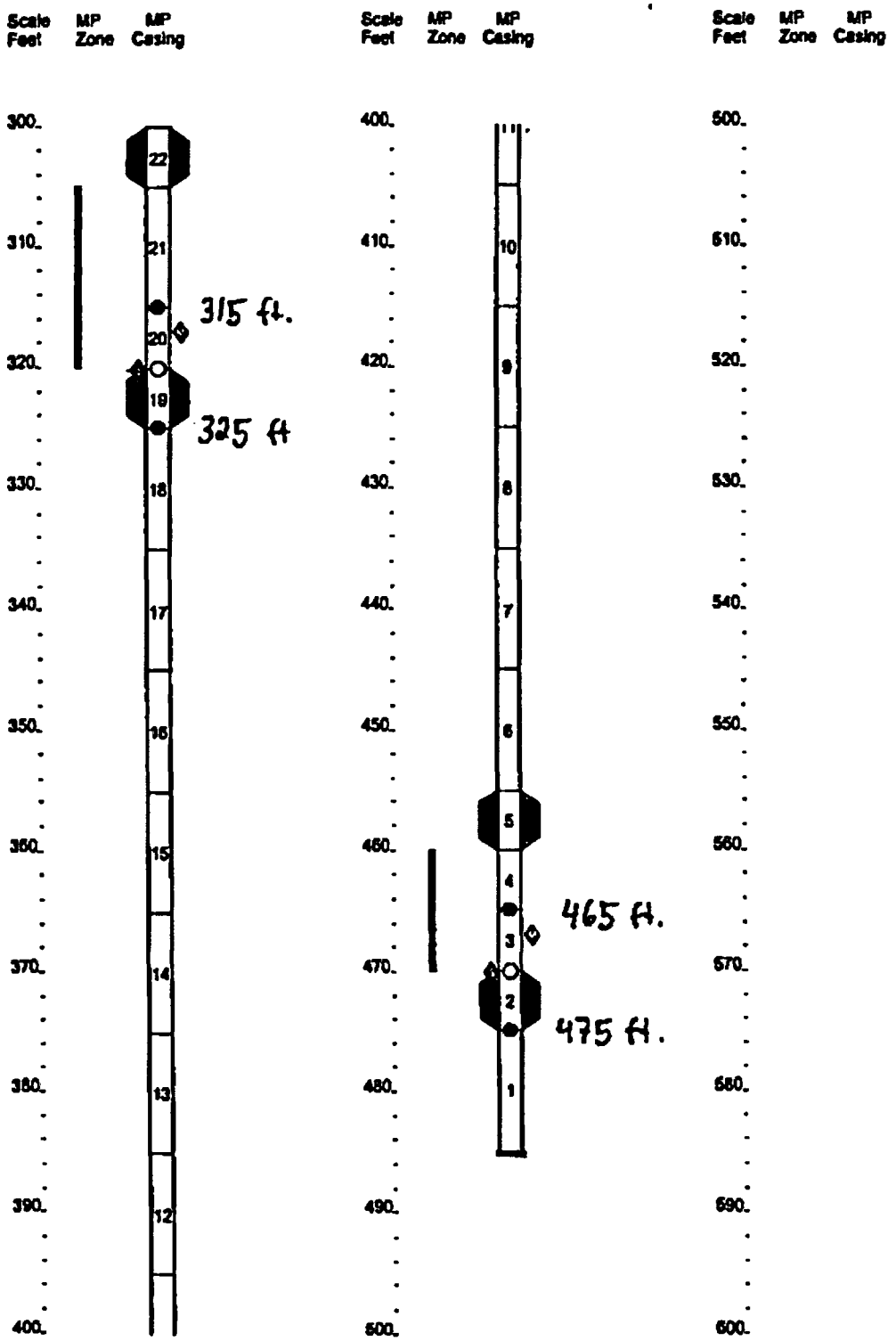
Summary Casing Log
CH2M Hill

Job No: WB839
Well: MW-121A



Summary Casing Log
CH2M Hill

Job No: WB839
Well: MW-121A

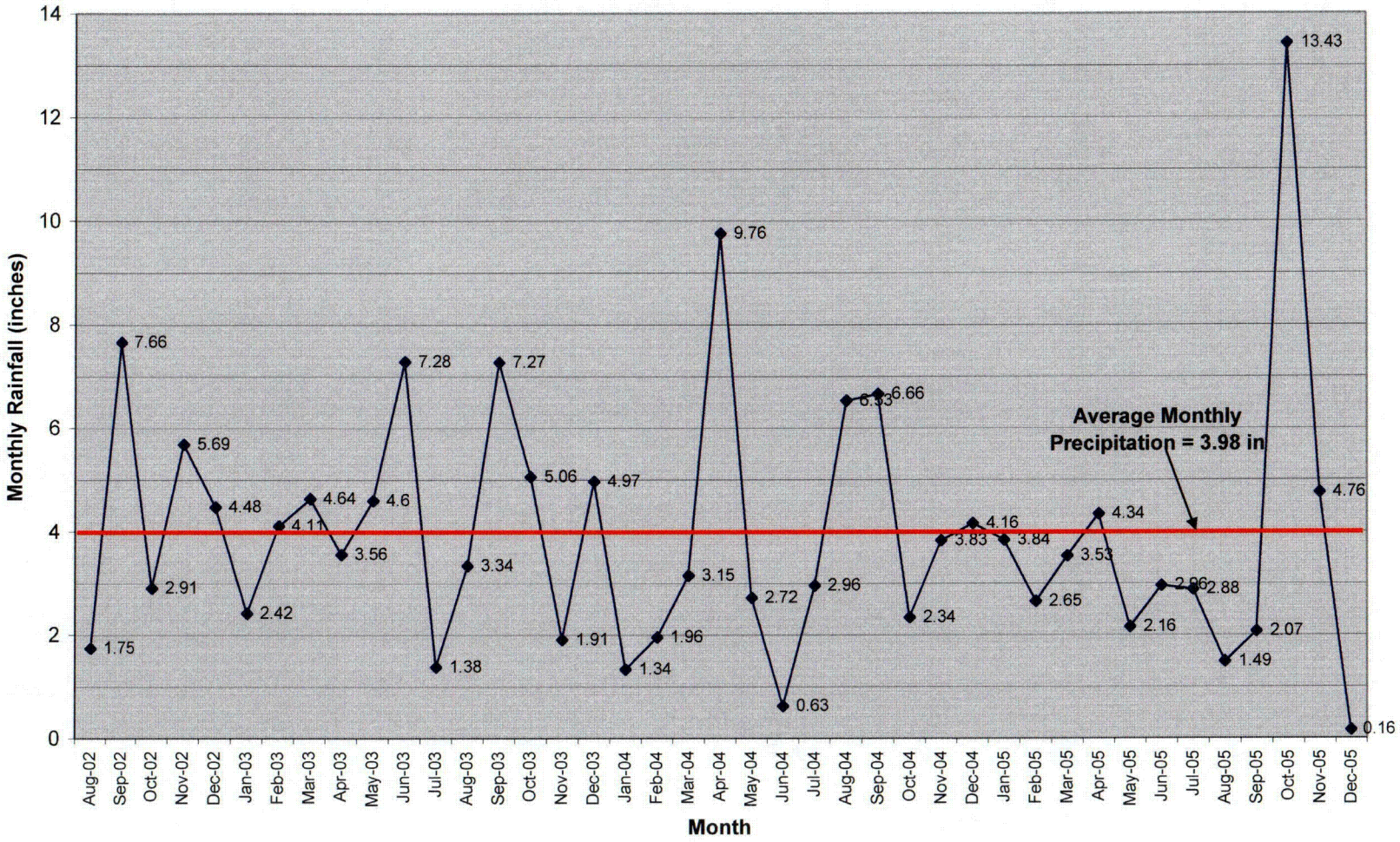


CY-06-002

Attachment 2
Monthly On-site Precipitation Totals for
August 2002 through December 14, 2005

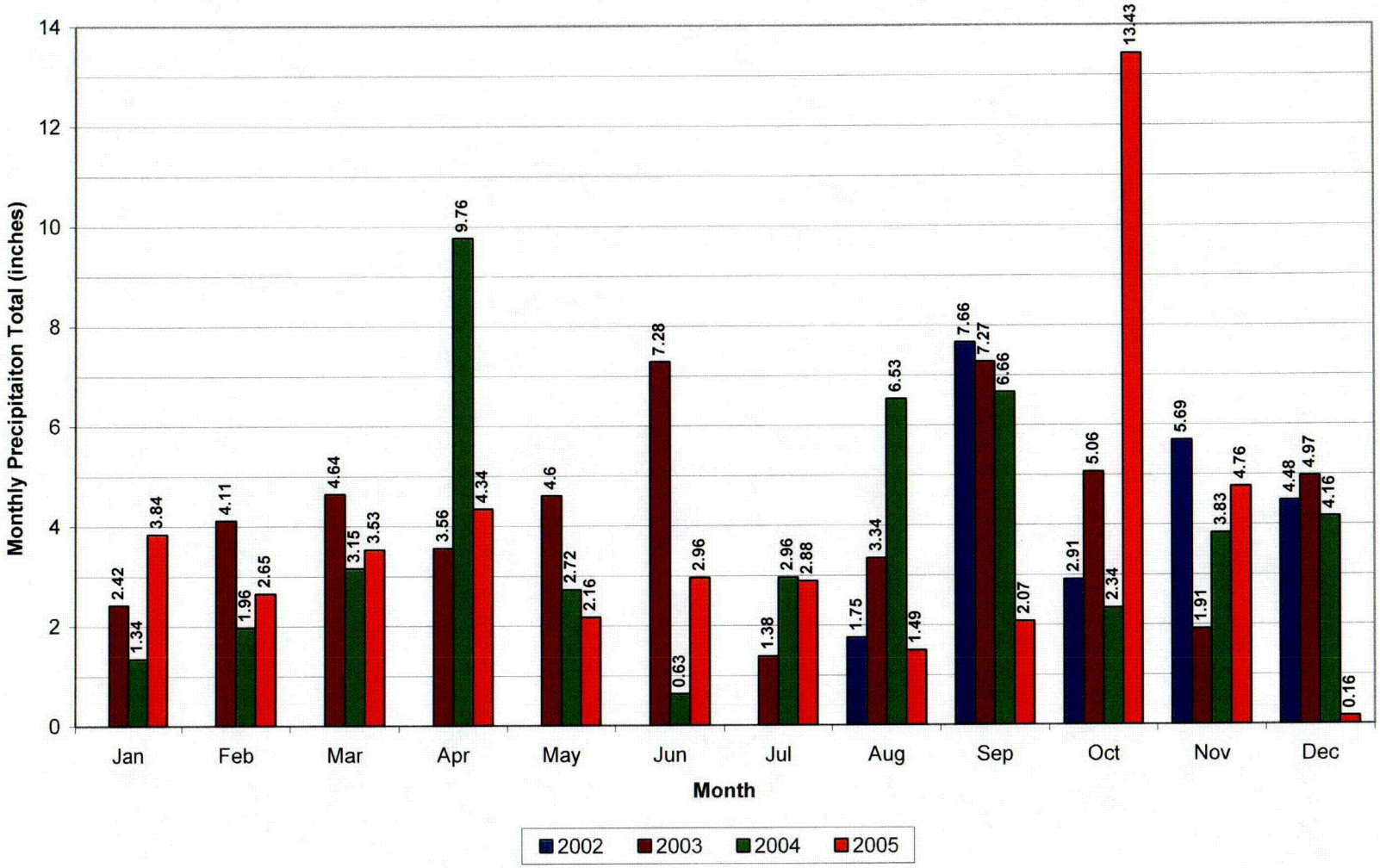
January 2006

Monthly Rainfall Totals at Haddam Neck Plant - August 2002 through 14 December 2005



C-53

Comparison of Monthly Precipitation Totals - Haddam Neck Plant



C-54