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CNC CHARLESTON
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RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT
ZONE A VOLUME III OF V APPENDICES A TO C CNC CHARLESTON SC
8/7/1998
ENSAFE

ZONE A
RCRA FACILITY INVESTIGATION REPORT
NAVBASE CHARLESTON
NORTH CHARLESTON, SOUTH CAROLINA

Volume III of V
Appendices A to C

CTO-029
Contract Number: N62467-89-D-0318

Prepared for:

Department of the Navy
Southern Division
Naval Facilities Engineering Command
North Charleston, South Carolina

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Revision: 0

Release of this document requires prior notification of the Commanding Officer of the Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina.

Appendix A

Monitoring Well Construction Diagram

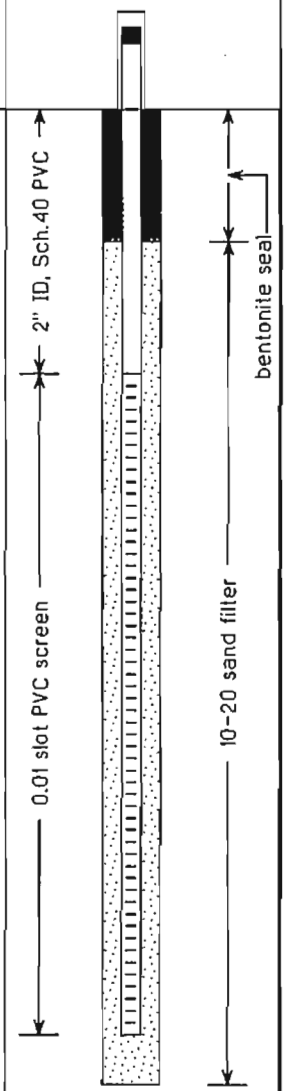
EnSafe/Allen & Hoshall

Monitoring Well NBCA002001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316454.467 E, 381035.169 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1340 on 10-5-93*	TOC Elevation: *11.51 feet msl*
Completed at *1414 on 10-5-93*	Depth to Groundwater: *9.96 feet TOC* Measured: *10-12-93*
Drilling Method: *4.25" HSA with split spoon*	Groundwater Elevation: *1.55 feet msl*
Drilling Company: *ETE*	Total Well Depth: *14.0 feet bgs*
Geologist: *LAK*	Well Screen: *4.0 to 14.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SC SM	Black slightly clayey fine sand and silt with pebbles, slightly moist.	7.8
							ML	Gray-green clayey silt, very cohesive with 0.25' orange, fine sand stringer, slightly clayey and moist.	6.8
			1	100	0				5.8
							SC	Dark gray to light gray, clayey fine sand, moist.	4.8
			2	50	0				
5									
							SC	Orange, fine-medium sand with some light gray, sandy clay zones, wet.	.8
							SP	Dark orange, fine-medium sand, wet.	.3
									-2
10			3	50	0				
							SP	Orange fine sand, saturated with some light-colored zones.	4.2
									5.4
15			4	58	0				
20									

WELL DIAGRAM



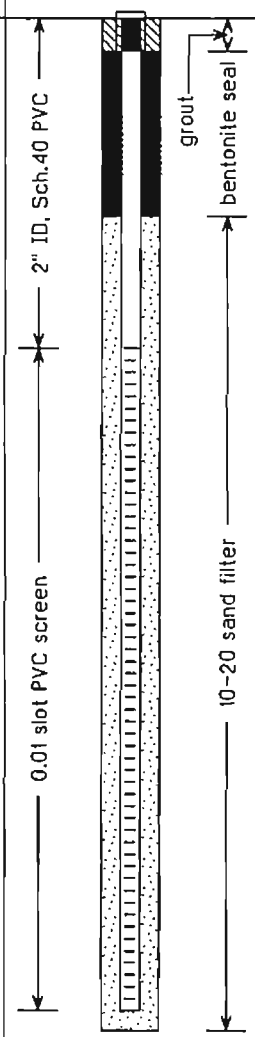
EnSafe/Allen & Hoshall

Monitoring Well NBCA002002

Project: *ZONE A -Naval Base Charleston*	Coordinates: *2316550.594 E, 381597.405 N*
Location: *Charleston, SC*	Surface Elevation: *9.0 feet msl*
Started at *on 10-6-93*	TOC Elevation: *8.88 feet msl*
Completed at *on 10-6-93*	Depth to Groundwater: *7.69 feet TOC* Measured: *10-12-93*
Drilling Method: *4.25" HSA with split spoon*	Groundwater Elevation: *1.19 feet msl*
Drilling Company: *ETE*	Total Well Depth: *15.0 feet bgs*
Geologist: *Britton Dotson*	Well Screen: *5.0 to 15.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								0-1' hand auger cuttings: Black fine sand with some silt, moist.	
							SP	3-3.5' Black fine sand; 3.5-4.0' Light brown fine sand with roots; 4-4.5' Black medium to fine sand with roots.	6
5			1	100	0		SC	Brown sandy clay.	4.5 / 4
							SC	Gray to tan mottled medium sand with clay, saturated.	1 / .5
10			2	75					
							SC	Black fine sand with some clay banding, saturated.	4 / 4.5
							SP	Light brown to yellowish medium sand, well-sorted, saturated.	5
15			3	50					
20									

WELL DIAGRAM



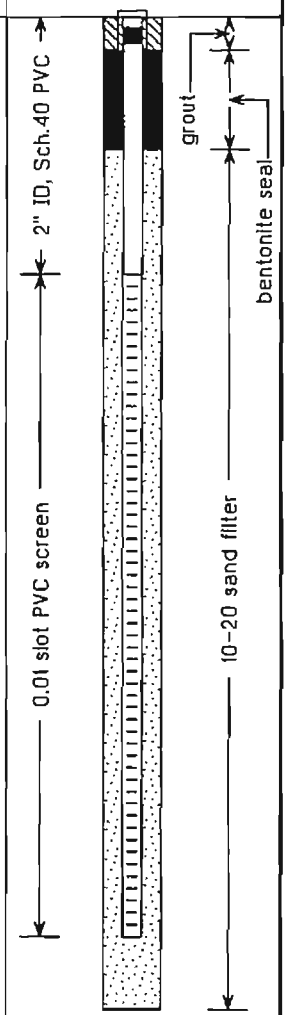
EnSafe/Allen & Hoshall

Monitoring Well NBCA002003

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316663.3100 E, 381399.5900 N*
Location: *Charleston, SC*	Surface Elevation: *6.90 feet msl*
Started at *1025 on 10-6-93*	TOC Elevation: *11.95 feet msl*
Completed at *on 10-6-93*	Depth to Groundwater: *5.85 feet TOC* Measured: *10-12-93*
Drilling Method: *4.25" (7.5" OD) HSA with split spoon*	Groundwater Elevation: *6.10 feet msl*
Drilling Company: *ETE*	Total Well Depth: *15.05 feet bgs*
Geologist: *Britton Dotson*	Well Screen: *3.90 to 13.90 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								0-1' hand auger cuttings: Orange sand with clay	
							SP	Light brown medium sand, well-sorted, grades into sandy clay in bottom 3" of spoon, wet.	3.9
5			1	75	0				2.4
							SM	Brown with black mottling, silty sand, organic, saturated.	1.1
							SC		1.6
							SP	Gray sandy clay, stiff, saturated.	2.1
10			2	100	0			Gray medium sand, well-sorted, saturated, large root (1' x 3/4") in spoon.	3.1
							SC	Dark gray medium sand with some clay and wood pieces.	6.1
							SP	Light yellow fine sand, saturated.	7.1
15			3	100	0				8.1
20									

WELL DIAGRAM



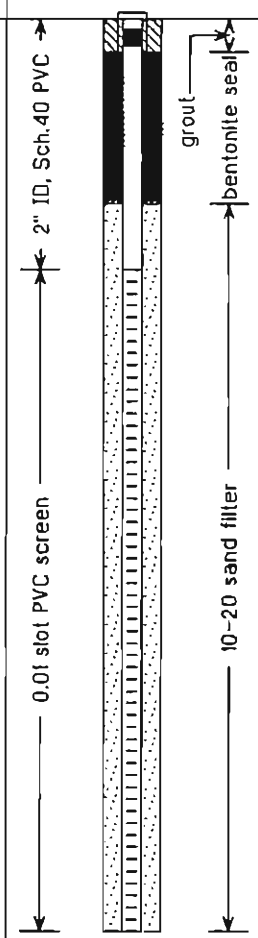
EnSafe/Allen & Hoshall

Monitoring Well NBCA002004

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315912.4800 E, 381601.0500 N*
Location: *Charleston, SC*	Surface Elevation: *7.70 feet msl*
Started at *1340 on 10-6-93*	TOC Elevation: *8.28 feet msl*
Completed at *on 10-6-93*	Depth to Groundwater: *4.50 feet TOC* Measured: *10-12-93*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.78 feet msl*
Drilling Company: *ETE*	Total Well Depth: *13.80 feet bgs*
Geologist: *Britton Dotson*	Well Screen: *3.80 to 13.80 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
									4.7
							SP	Dark gray fine sand, spongy, saturated.	3.7
5			1	50	0				
									3
							SC	8-8.5': Brown to black sandy clay, stiff, saturated. 8.5-10': Gray with brown mottling sandy clay, saturated.	
10			2	100	0				2.3
									5.3
							SC	13-13.5': Grayish-red fine sand with clay, saturated. 13.5-14': Brown, clayey, very fine to fine sand, saturated. 14-14.5': Light greenish-gray, medium to fine sand, greasy, with soft clay in matrix, saturated.	6.8
15			3	75	0				
20									

WELL DIAGRAM



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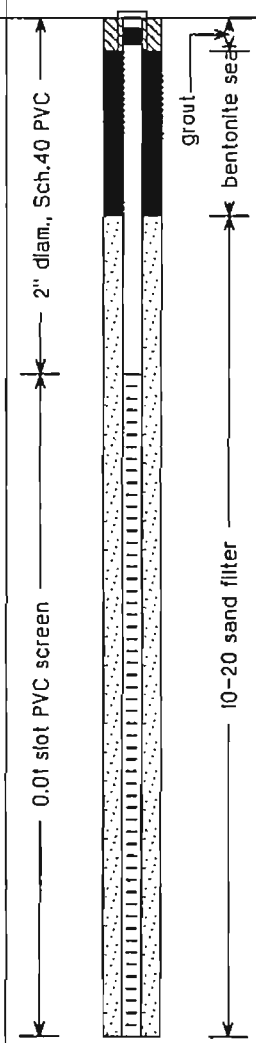
Monitoring Well NBCA002005

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316296.7800 E, 381325.5400 N*
Location: *Charleston, SC*	Surface Elevation: *9.00 feet msl*
Started at *1120 on 10-6-93*	TOC Elevation: *8.89 feet msl*
Completed at *1430 on 10-6-93*	Depth to Groundwater: *7.19 feet TOC* Measured: *10-12-93*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *1.70 feet msl*
Drilling Company: *ETE*	Total Well Depth: *15.4 feet bgs*
Geologist: *Britton Dotson*	Well Screen: *5.4 to 15.4 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								No hand auger sample due to concrete and asphalt layers extending to 1.5' bgs.	
								Gravel, wood, and steel at 2.5–3.0' bgs.	
							SC	Brown, clayey, fine sand, moist.	6
			1	67	0				4.5
5									
10							SC	Black, sandy clay with grass st ems, saturated.	1
									1.5
			2	25	0				
15									
20									

WELL DIAGRAM



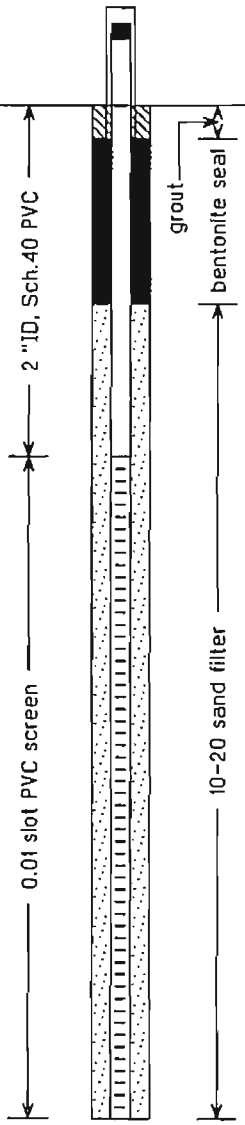
EnSafe/Allen & Hoshall

Monitoring Well NBCA002006

Project: *ZONE A - Naval Base Charleston*	Coordinates: *2315365.2700 E, 381/789.4200 N*
Location: *Charleston, SC*	Surface Elevation: *8.60 feet msl*
Started at *0815 on 10-7-93*	TOC Elevation: *11.53 feet msl*
Completed at *on 10-7-93*	Depth to Groundwater: *7.06 feet TOC* Measured: *10-12-93*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *4.47 feet msl*
Drilling Company: *ETE*	Total Well Depth: *15.32 feet bgs*
Geologist: *Britton Dotson*	Well Screen: *5.32 to 15.32 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
									5.6
							SC	Gray sandy clay with brown mottling, wet, stiff.	
5			1	100	0				3.6
									.6
							SC	8-9': as above. 9-9.5': Gray fine sand with clay.	
									.9
10			2	100	0		SP	Light brown to tan, medium to coarse sand, well-sorted, saturated.	1.4
									4.4
							SC	13-14': Brown and tan sandy clay, colors varied within inches.	
									5.4
15			3	100	0		CL SC	14-15': Gray clay with sand grading to gray sand grading to gray, stiff clay; entire interval is saturated.	6.4
20									

WELL DIAGRAM



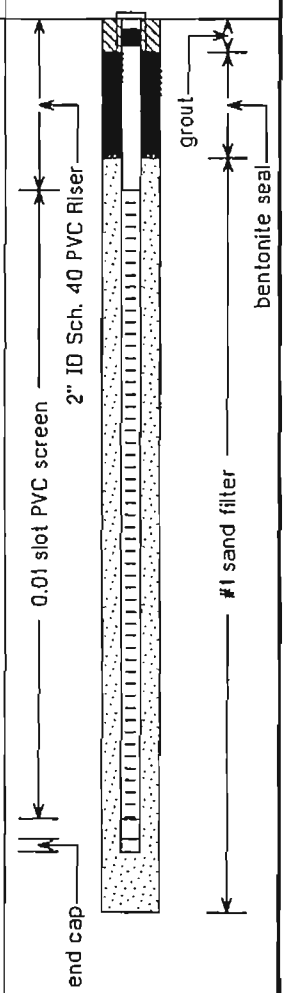
EnSafe/Allen & Hoshall

Monitoring Well NBCA038001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315759.94 E, 381740.29 N*
Location: *Charleston, SC*	Surface Elevation: *7.3 feet msl*
Started at *1305 on 10-06-95*	TOC Elevation: *7.13 feet msl*
Completed at *1435 on 10-06-95*	Depth to Groundwater: *3.45 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.68 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *P. Bayley*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel lot.	
5			1	90	0		SC	Sand: gray with orange-brown mottling, very fine to fine, some silt, clayey, firm, plastic, wet.	2.8
10			2	65	0		SM SC SM	Sand: gray, very fine to fine, some clay, silty, soft, wet. Sand: brown grading to gray at 9.4', very fine to fine/medium, some silt, soft, wet.	1.2 1.6 2.5
15								No attempt at 3rd split spoon due to excessive flowing sands inside augers.	
20									

WELL DIAGRAM



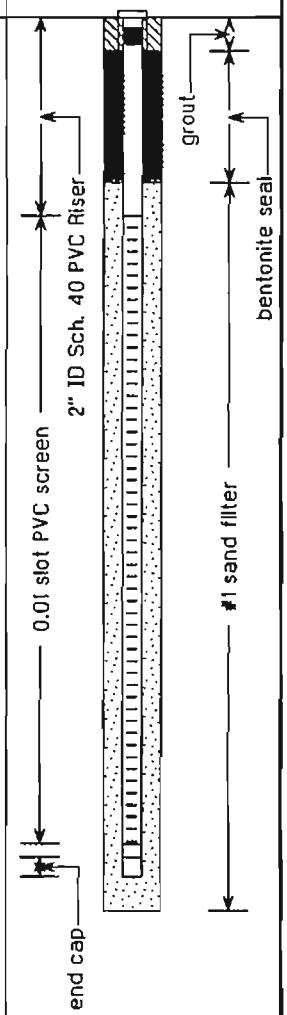
EnSafe/Allen & Hoshall

Monitoring Well NBCA038002

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315696.10 E, 381604.37 N*
Location: *Charleston, SC*	Surface Elevation: *8.6 feet msl*
Started at *0825 on 10-06-95*	TOC Elevation: *8.42 feet msl*
Completed at *0945 on 10-06-95*	Depth to Groundwater: *4.27 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *4.15 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *13.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *3.0 to 12.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt parking lot	
5							CL ML	Clay: light brown with trace gray, silty, with very fine sand, soft, slightly plastic, wet.	4.1 / 3.6
							SM	Sand: dark brown with brown horizontal bands, very fine, silty, trace wood fragments.	2.8
			1	90	0		CL		2.5
							SM SC	Clay: dark brown to light brown, some silt, plastic, soft, with 1-2mm silty pits, wet; 0.1' silty sand lens with wood fragments at 5.1'.	2.3
								Sand: gray, very fine to fine, some clay, silty, soft, wet.	.1
							CL		.2
							SM SP	Clay: gray, silty, with some sand increasing in content with depth, firm, plastic, wet.	1.2
10			2	65	0			Sand: gray with orange-brown horizontal banding, very fine to fine/ medium with trace coarse, some silt and FeOx pits, trace clay, wet.	
								Shelby Tube 11-13.5'-- top: orange-brown sand, very fine to medium with trace coarse; bottom: gray silty clay, firm, plastic.	4.4
			3	100			OL OH	Clay: dark gray, some silt, firm, plastic, with some shells and small bivalves disseminated throughout, moist to wet.	
15			4	100	0				6.4
20									

WELL DIAGRAM



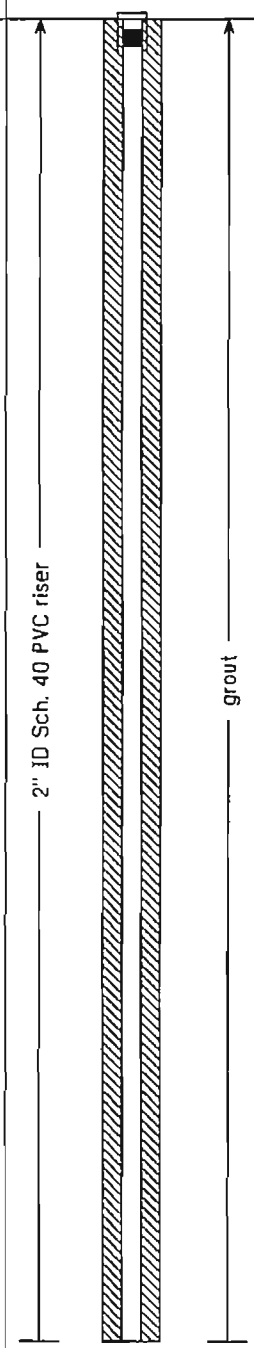
EnSafe/Allen & Hoshall

Monitoring Well NBCA03801D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315760.61 E, 381712.58 N*
Location: *Charleston, SC*	Surface Elevation: *7.8 feet msl*
Started at *1400 on 11-15-95*	TOC Elevation: *7.63 feet msl*
Completed at *0815 on 11-16-95*	Depth to Groundwater: *5.46 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.17 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *50.2 feet bgs*
Geologist: *P. Bayley*	Well Screen: *40.3 to 49.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							GM GP	Gravel and fill.	6.8
							CL	Clay: olive green-gray with some orange mottling, some silt, trace very fine sand, plastic, firm to stiff, moist to wet.	5.8
							ML	Silt: black, some clay, with trace very fine sand, plastic, moist to wet.	5.3
5			1	50	37		SC CL	Sand: brown with orange, very fine to fine with trace medium last 0.2', very clayey, silty, plastic, soft to firm, wet; trace shell fragments last 0.2'; occasional sandy pods from 8.9-10.4'.	2.8
10							CL	Clay: dark gray to black, silty, firm, plastic, wet; orange and gray silty sandy partings in uppper 0.2'.	3.2 / 4.2
15			2	70	0		OL OH	Clay: dark gray to black, silty, trace very fine sand, plastic, firm, wet; with occasional disseminated shell fragments and small bivalve shells; occasional thin (<1 cm) sandy laminae irregular spaced through out.	7.2
20									

WELL DIAGRAM



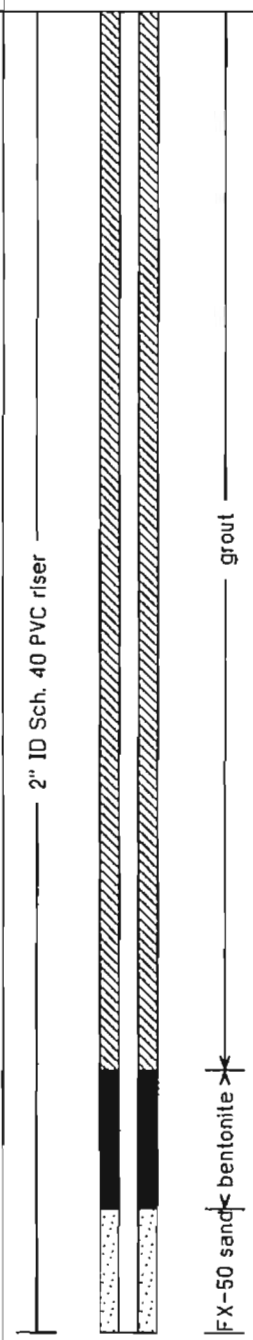
EnSafe/Allen & Hoshall

Monitoring Well NBCA03801D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315760.61 E, 381712.58 N*
Location: *Charleston, SC*	Surface Elevation: *7.8 feet msl*
Started at *1400 on 11-15-95*	TOC Elevation: *7.63 feet msl*
Completed at *0815 on 11-16-95*	Depth to Groundwater: *5.46 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.17 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *50.2 feet bgs*
Geologist: *P. Bayley*	Well Screen: *40.3 to 49.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							OL OH		
25			3	100	0		OH CH	Clay: dark gray to black, silty, with trace sand partings, firm, plastic, wet.	17.2
30								30.8-35': light gray, very fine, thin sand partings spaced approx. every 1' with some sand pods.	
35			4	100	0		SM	Sand: gray, very fine to fine, silty, soft, wet.	27.2
							OH CH	Clay: dark gray-black, silty, with occasional sand laminae and pods, firm, plastic, wet.	27.8
40							SP SM	Sand: gray, very fine to fine, some silt, with occasional thin clay partings at irregular intervals, soft, wet.	31.2

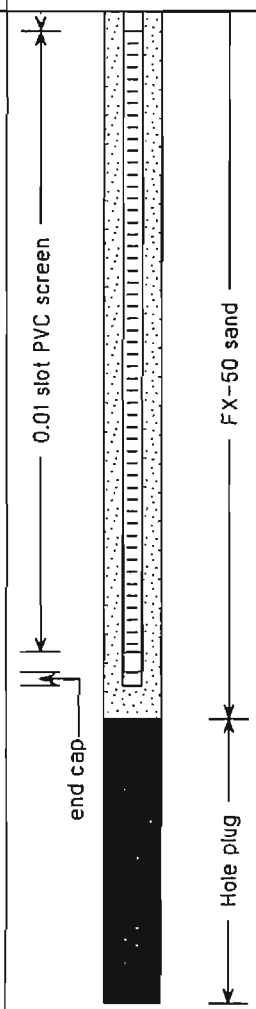
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03801D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315760.61 E, 381712.58 N*
Location: *Charleston, SC*	Surface Elevation: *7.8 feet msl*
Started at *1400 on 11-15-95*	TOC Elevation: *7.63 feet msl*
Completed at *0815 on 11-16-95*	Depth to Groundwater: *5.46 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.17 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *50.2 feet bgs*
Geologist: *P. Bayley*	Well Screen: *40.3 to 49.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP SM		
									33.6
							SP	Sand: gray, very fine to fine/medium, trace silt, soft, wet.	
									36.2
45			5	90	0				37.2
							SP SW	Sand: gray, very fine to medium, trace silt, soft, wet.	
50			6	80	0				42.2
							GM GC	Gravel: dark gray, clayey sandy silt matrix, with some shell fragments (lag deposit).	42.7
							ML CL	Silt: olive-yellow, clayey, some very fine sand, stiff, plastic, wet- - Ashley Formation.	
									46.7
55			7	90	0				
60									

WELL DIAGRAM



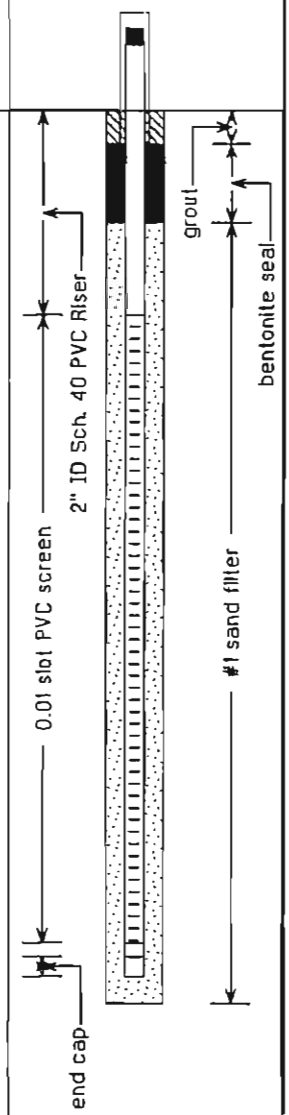
EnSafe/Allen & Hoshall

Monitoring Well NBCA039001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315466.85 E, 381754.60 N*
Location: *Charleston, SC*	Surface Elevation: *11.1 feet msl*
Started at *0823 on 10-03-95*	TOC Elevation: *13.47 feet msl*
Completed at *1430 on 10-03-95*	Depth to Groundwater: *5.64 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *7.83 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *13.1 feet bgs*
Geologist: *T. Kafka*	Well Screen: *3.1 to 12.6 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel.	
5			1	100	0		SC SM	Sand: greenish-tan grading green-gray at 5.7', fine to medium, well-sorted, clayey, some silt, wet.	7.1 / 5.1
10			2	80	0		SM	Sand: gray to green-gray becoming tan and orange-tan at 9.2', very fine to fine with trace medium, moderately well-sorted, silty, minor clay, wet.	2.2 / 1.1
			3	35				Shelby Tube: (10.0-12.5') Top: Sand: whitish-tan, wet, soupy; limited recovery	
15			4	50			SM SC	Sand: tan, medium to coarse, poorly sorted, silty, wet. / Sand: orange-rusty, well-sorted, clayey, wet.	1.9 / 2.5 / 2.9
20									

WELL DIAGRAM



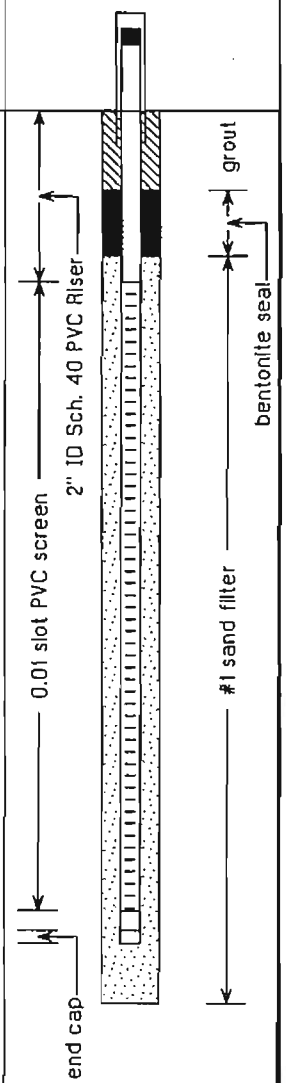
EnSafe/Allen & Hoshall

Monitoring Well NBCA039002

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315378.52 E, 381759.89 N*
Location: *Charleston, SC*	Surface Elevation: *12.1 feet msl*
Started at *1520 on 10-03-95*	TOC Elevation: *14.35 feet msl*
Completed at *0950 on 10-04-95*	Depth to Groundwater: *7.24 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *7.11 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *T. Kafka*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel.	
5							SC SM	Sand: green-gray, very fine to fine, clayey, minor silt, well-sorted, moist to wet.	7.8
			1	75	0				8.1
							SM	Sand: green-gray, very fine to fine grading to medium at 8.7', with brown silt throughout	3.9
10			2	77	0				2.5
15									
20									

WELL DIAGRAM



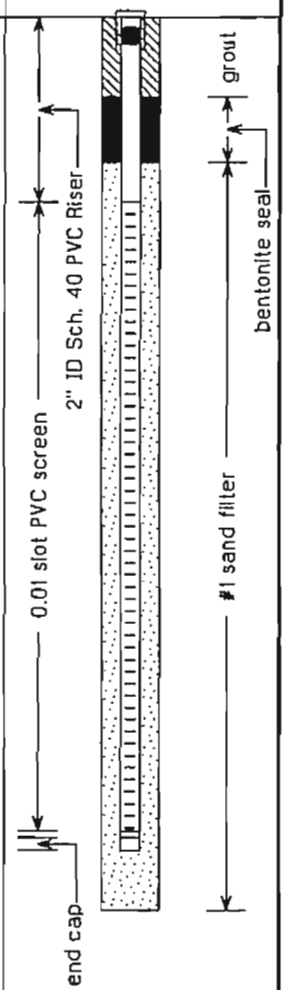
EnSafe/Allen & Hoshall

Monitoring Well NBCA039003

Project: *ZONE A ~ Naval Base Charleston*	Coordinates: *231552.77 E, 381633.09 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1220 on 10-04-95*	TOC Elevation: *8.64 feet msl*
Completed at *1630 on 10-04-95*	Depth to Groundwater: *3.38 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *5.26 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *T. Kafka*	Well Screen: *2.8 to 12.3 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel.	
5			1	80	0		SM	Sand: tan to brown with some orange patches, very fine to fine, silty , well-sorted, wet.	4.5
							SM/SC	Sand: orange-brown, very fine to fine, moderately well-sorted, silty, some clay, slightly cohesive, wet.	3.5
10			2	60	0		SM/SC	Sand: as above with some clay.	2.9
							SM	Sand: orange-brown, very fine to fine, moderately well-sorted, silty, wet; becomes orange and less silty from 9.3-9.5'.	.5 / 0 / .7
15			3	80	0		SC	Sand: orange-brown to tan-orange, very fine to fine with trace medium , moderately well-sorted, silty, with clayey stringers at 11.7-11.8', 11.85-11.9', wet.	2.5
							SM	Sand: orange, very fine to fine, well-sorted, silty, no clay, wet.	3.3 / 4.1
20									

WELL DIAGRAM



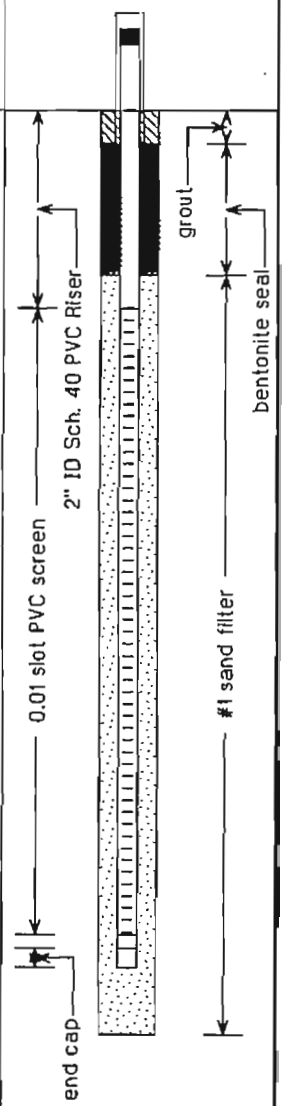
EnSafe/Allen & Hoshall

Monitoring Well NBCA039004

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231543.13 E, 381655.47 N*
Location: *Charleston, SC*	Surface Elevation: *9.4 feet msl*
Started at *1425 on 10-05-95*	TOC Elevation: *11.72 feet msl*
Completed at *1555 on 10-05-95*	Depth to Groundwater: *5.99 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *5.73 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *13.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *3.0 to 12.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel.	
5			1	75	0		SC SM	Sand: light gray with orange FeOx mottling, very fine to fine with trace medium, silty, clayey, soft, slightly plastic, wet; occasional sand pits, very fine to medium with some silt and clay.	4.9 / 3.4
10			2	40	0		SW	Sand: brown, very fine to medium, trace silt, soft, wet; at 8.1' a 1 cm sandy clay lamination.	1.4 / -.6
15			3	90	0		OL OH	Clay: dark gray, silty, soft, plastic, wet, H_2S odor.	3.6 / -5.5
20									

WELL DIAGRAM



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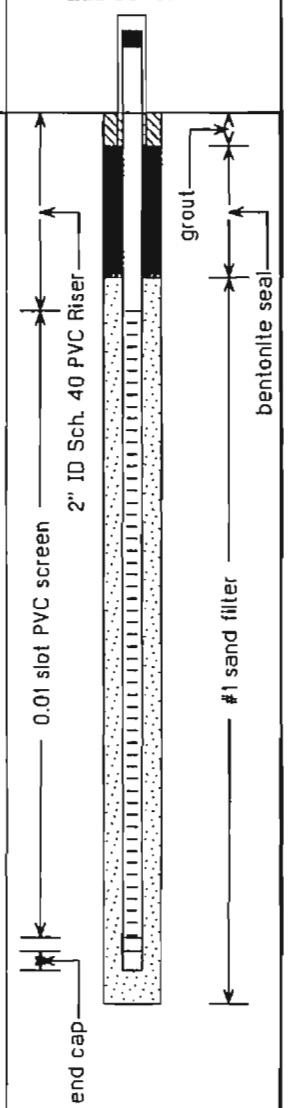
Monitoring Well NBCA039005

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315315.44 E, 381654.81 N*
Location: *Charleston, SC*	Surface Elevation: *10.2 feet msl*
Started at *1055 on 10-05-95*	TOC Elevation: *12.67 feet msl*
Completed at *1305 on 10-05-95*	Depth to Groundwater: *7.04 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *5.63 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *13.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *3.0 to 12.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel.	
5			1	70	0		SP SM	Sand: green, very fine to fine/medium with trace coarse, some silt, soft, wet; grain size increases slightly at 5.5'; 1 cm FeOx stain at 5.6'.	5.7
							SM SC	Sand: green with some orange staining, very fine to fine/medium with trace coarse, silty, trace to some clay, soft, slightly plastic, wet.	4.5 / 4.3
10			2	65	0		SM SC	Sand: green as above.	2.2
							SP SM	Sand: green becoming brown with depth, very fine to fine/medium with trace coarse, some silt, trace clay, wet; at 9', very fine to fine/ medium, loose, soft, wet with decreasing fines with depth.	1.6 / .9
15									
20									

WELL DIAGRAM



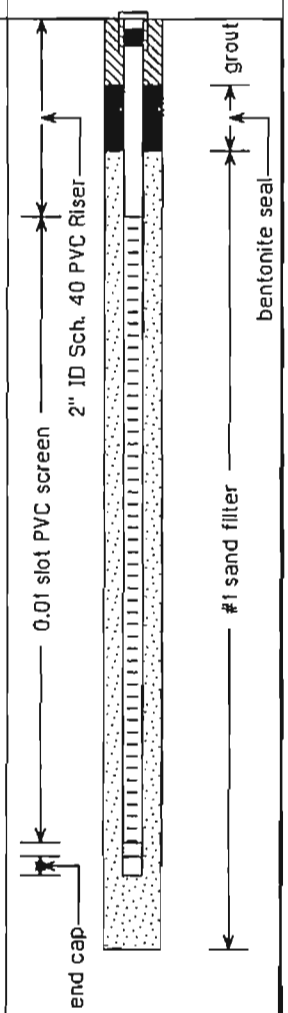
EnSafe/Allen & Hoshall

Monitoring Well NBCA039006

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315939.94 E, 381456.28 N*
Location: *Charleston, SC*	Surface Elevation: *9.0 feet msl*
Started at *1100 on 7-15-96*	TOC Elevation: *8.64 feet msl*
Completed at *1300 on 7-15-96*	Depth to Groundwater: *5.02 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.62 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *13.0 feet bgs*
Geologist: *T. Kafka*	Well Screen: *3.0 to 12.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt road. Posthole cuttings: 0-4.4'-- silty sand with some clay and gravel pieces.	
5			1	95	0		SM SC	Sand: variegated brown, tan and gray; very fine to fine; silty; some blue-gray, soft, low plasticity clay that decreases with depth; moist.	4.6 / 3.2
			2	25	0		SC	Sand: brown and gray; very fine to fine; silty; with light blue-gray, soft, low plasticity clay; wet.	2.5 / 1.1
			3	95			CL CH OL	Clay: rust-brown; medium plasticity; stiff to firm; some very fine to fine sand (~30%); moist.	.6 / -2
10			4	100	7		SP SM SC	Clay: fudge brown with tan mottling in upper 0.2'; medium plasticity; soft; sticky; moist; high organic content (grass); very fine to fine sand in bottom 0.2'.	1 / 1.4 / 1.8 / 2.4
			5	50			CL	Sand: tan to light gray; very fine to fine; silty; saturated.	3
			6	50				Sand and clay: gray to blue-gray; very fine to fine with trace medium sand; silty; some grass and organic matter; soft, low plasticity clay; wet.	4
15								Clay: blue-green to blue-gray; 20-25% very fine to fine with trace medium sand; firm; high organic content (grass); wet.	
20									

WELL DIAGRAM



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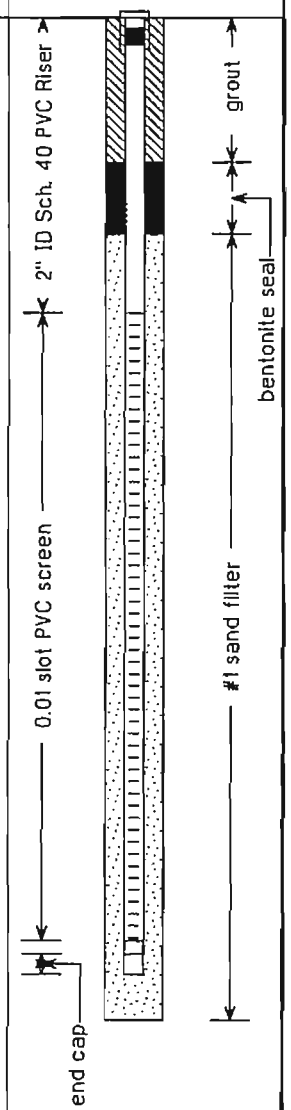
Monitoring Well NBCA039007

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315860.48 E, 381168.80 N*
Location: *Charleston, SC*	Surface Elevation: *8.5 feet msl*
Started at *1030 on 7-10-96*	TOC Elevation: *8.24 feet msl*
Completed at *1235 on 7-10-96*	Depth to Groundwater: *1.61 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *6.63 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *14.5 feet bgs*
Geologist: *T. Kafka*	Well Screen: *4.5 to 14.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt road. Asphalt, concrete, and ROC to 2' bgs. Posthole cuttings: 2-3'--light gray to brown very fine sand with brown, medium plasticity clay; dry; 3-4'--brown clayey sand; very fine to fine; moist.	
							CL SC	Sand and clay fill: very fine to fine sand; low to medium plasticity clay; silty; moist--variable lithology.	4.5
5							ML CL	Silt: olive brown; clayey; very fine to fine sand; moist--Ashley Fm fill material.	3.4
			1	80	11		ML CL	Silt: as above.	2.9
			2	10	0				2.2
							WOOD	Wood: brown to black; peaty; pulpy; heavy H_2S odor.	2
10			3	50	84		WOOD	Wood: as above.	.8
			4	85	18		OL PT	Silt and peat: dark brown; silty; moist; heavy H_2S odor; black, low to medium plasticity clay in upper 0.4' and from 12-13.5' which is stiffer than above.	1.5
			5	100	243		SC PT	Sand: black; very fine to fine with trace medium; silty laminae with organic matter; peaty; some black clay pods interspersed; wet.	1.8
15			6	65	14		SC SM	Sand: gray to brown; very fine to fine; silty; low to medium plasticity clay; some grass and wood material throughout; wet.	5
							CL OL	Clay: gray to brown-gray; low plasticity; some organic matter; soft; some very fine to fine sand; wet.	5.5
20									5.8
									6.3
									7.1

WELL DIAGRAM



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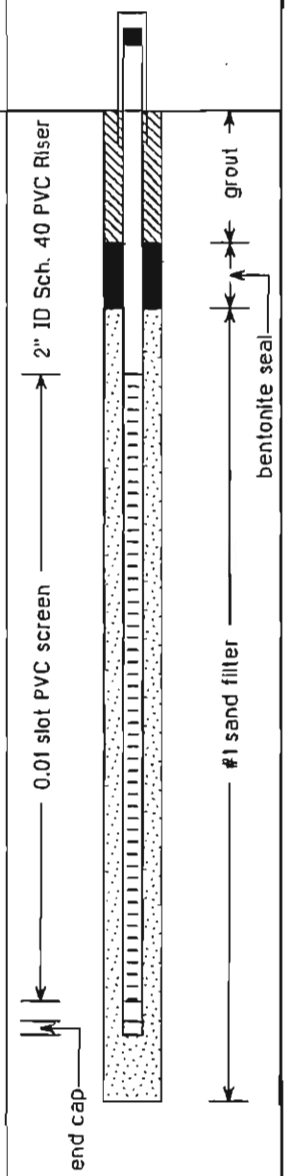
Monitoring Well NBCA039008

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231548.01 E, 380887.28 N*
Location: *Charleston, SC*	Surface Elevation: *7.6 feet msl*
Started at *0815 on 7-16-96*	TOC Elevation: *9.76 feet msl*
Completed at *0930 on 7-16-96*	Depth to Groundwater: *6.15 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.61 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *14.0 feet bgs*
Geologist: *T. Kafka*	Well Screen: *4.0 to 13.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass field in front of Bldg. 1639.	
								Posthole cuttings 1-4': brown to black silty sand with some clay and small rock fragments; large pieces of brick (5-8" diameter); from 3-4' is brown silty clay; some sand; moist.	
							CL	Clay: brown; trace very fine sand; silty; soft; low plasticity; moist	3.6 / 3.4
							WOOD	Wood: brown; appearance close to sawdust but more shredded; moist to wet.	3.1
5			1	25	0			3 split spoon attempts, no recovery; evidence of fine to medium, gray silty sand on sample catcher.	
			2	0					
							SC / CL	Sand: gray with olive and blue mottling; very fine to fine; silty; gray and blue-gray clay pods increasing with depth; soft; low plasticity; wet.	.9 / 1.8
10			3	45	0			Shelby Tube (10-12'): top-- very fine to fine, brown to gray-brown sand; silty; saturated; bottom-- blue-gray clayey sand to sandy clay; low to medium plasticity; firm.	4.2
			4	100			SC / CH	Sand: blue-green with orange-gray mottling; very fine to fine with trace medium becoming medium to coarse at 12.1'; with firm to stiff, medium plasticity clay; moist.	
			5	100	0				6.2
15									
20									

WELL DIAGRAM



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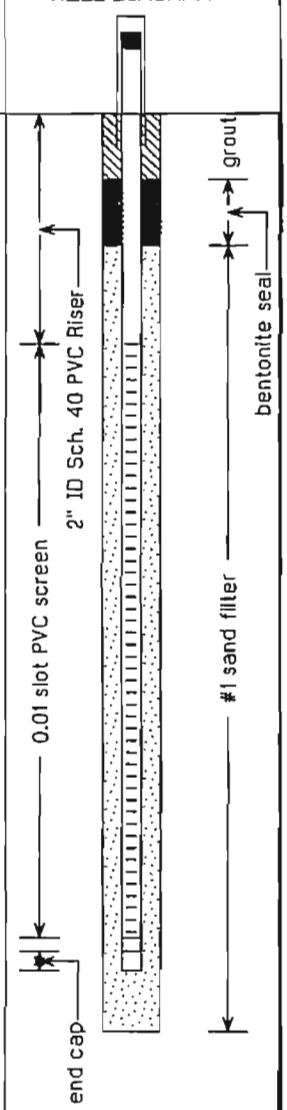
Monitoring Well NBCA039009

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315139.31 E, 381239.07 N*
Location: *Charleston, SC*	Surface Elevation: *7.4 feet msl*
Started at *1345 on 7-15-96*	TOC Elevation: *9.41 feet msl*
Completed at *1515 on 7-15-96*	Depth to Groundwater: *4.42 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *4.99 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *13.0 feet bgs*
Geologist: *T. Kafka*	Well Screen: *3.0 to 12.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass field. Posthole cuttings 0-3.5': brown to black silty sand with small rock fragments, dry, (0-2)'; coarse sand and rock fragments (2.5-3.5'); possible perching of water table in fill material.	
5							GM	Gravel fill: black; medium to coarse sand; some rock fragments; silty and wet; last 1' has dark black, hard asphalt.	2.4 / 1.4
			1	50	280				
			2	0			OL	Clay: green-gray; silty; sticky; soft; high concentration of fibrous grass and root matter.	1.6 / 1.9
10							OL PT	Clay and Peat: brown; soft; low plasticity; extensive wood and fibrous grass; moist.	3.6
			3	100	65			Shelby Tube (11-13'): top-- clay and peat as above; bottom-- gray; very fine to fine silty sand; saturated.	
			4	100			SM SM SW	Sand: light gray to tan; fine to medium; silty; some blue-green clay pods of low/medium plasticity; wet.	5.7 / 8.1 / 6.7
15			5	55	0			Sand: gray-brown; very fine to fine with trace medium to coarse; silty; saturated.	
20									

WELL DIAGRAM



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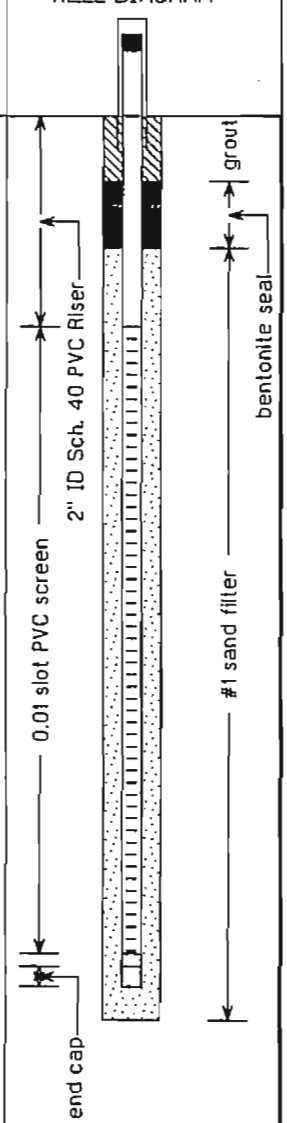
Monitoring Well NBCA039010

Project: *ZONE A - Naval Base Charleston*	Coordinates: *2315135.53 E, 381442.73 N*
Location: *Charleston, SC*	Surface Elevation: *11.2 feet msl*
Started at *1500 on 7-10-96*	TOC Elevation: *13.41 feet msl*
Completed at *1615 on 7-10-96*	Depth to Groundwater: *7.47 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *5.94 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *13.2 feet bgs*
Geologist: *T. Kafka*	Well Screen: *3.2 to 12.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass Posthole cuttings: 0-1'--brown silt and sand with high organic matter content; 1-4'--tan; very fine to fine sand; trace to some silt; loose; dry.	
5			1	70			SM SC	Sand: orange with white and gray mottling; very fine to fine; silty; some clay pods; moist.	7.2 / 6.9
							CL SC	Clay: blue-green with orange mottling; medium plasticity; some silt; high very fine to fine sand content; moist.	5.8 / 5.2
							CL SC	Sand/clay: blue-green with orange-brown and olive-green mottling; very fine to fine with trace medium sand; medium plasticity; firm clay; increasing wetness with depth; *Petro odor; oily sheen in water.*	3.8 / 3.2 / 2.7
10			2	80			CL SC / SM SP	Shelby tube attempt 8-10' had 0.5' recovered: sandy clay as above.	1.5 / 1.2
			3	60			SM SP	Sand: green gray with rust brown; medium to coarse; moderately well sorted; some silt; occasional clay laminae (1-2 mm wide), wet.	.5 / .8
			4	85			SM SP	Sand: olive-brown to tan; fine to medium; well-sorted; silty; cohesive; saturated.	
15			5	90				Sand: tan to olive-brown; very fine to fine with trace to some medium; silty; saturated to flowing.	2.6
20									

WELL DIAGRAM



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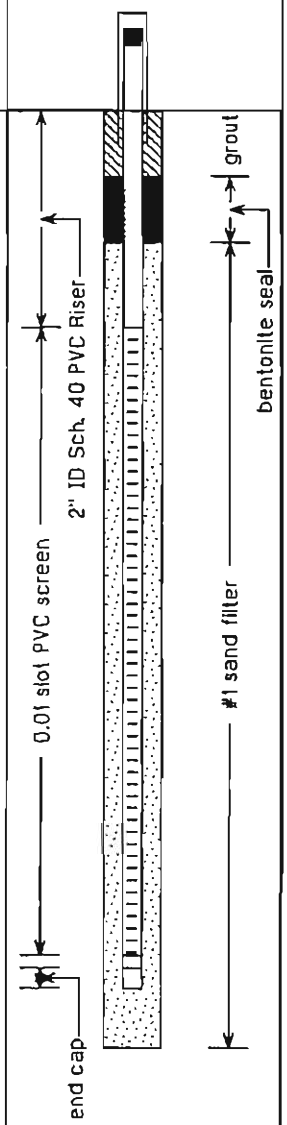
Monitoring Well NBCA039011

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231514.86 E, 381762.42 N*
Location: *Charleston, SC*	Surface Elevation: *12.7 feet msl*
Started at *0815 on 7-10-96*	TOC Elevation: *14.85 feet msl*
Completed at *0950 on 7-10-96*	Depth to Groundwater: *5.85 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *9.00 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *13.3 feet bgs*
Geologist: *T. Kafka*	Well Screen: *3.3 to 12.8 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel lot, NW corner of NAVBASE. Posthole cuttings: 0-0.8'--light brown silty sand with clay; 0.8-4'-- Sand: light blue-gray with green; very fine to fine; silty; moist; *Diesel odor, high FID hits.*	
5							SC CL	Sand: blue-gray with green; very fine to fine; silty; clayey with high content in last 0.2'; moist.	8.7 / 7.9
			1	90	2300		SC SM	Sand: light blue-gray; very fine to fine; silty; some clay; moist.	6.9 / 6.6
							SP SM	Sand: gray; fine to medium; silty; trace yellow-orange clay; moist to wet.	6
							SW		
			2	70	5		SP	Sand: dark gray; very fine to medium; poorly sorted; silty; trace black clayey laminae (1-2 mm), wet.	5 / 4.6
10			3	50	57		SP	Sand: dark gray-black; medium to coarse; trace to some silt; saturated; *Diesel odor still persistent.*	3.8 / 2.8
							SM SC	Sand: as above with some blue clayey pods interspersed.	1.8
			4	90	32		SP	Sand: light brown to green-brown; fine to medium; silty; clayey with highest content in upper 0.2'; wet.	.9 / .5
			5	70	48			Sand: light gray; very fine to fine; clean until bottom 0.3' where some silty laminae found; cohesive; wet--flowing sand.	.8
15									
20									

WELL DIAGRAM



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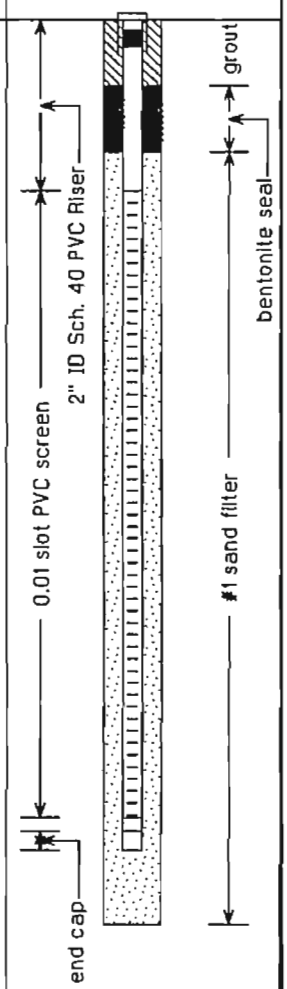
Monitoring Well NBCA039012

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315445.14 E, 381507.92 N*
Location: *Charleston, SC*	Surface Elevation: *8.7 feet msl*
Started at *1000 on 7-16-96*	TOC Elevation: *8.33 feet msl*
Completed at *1130 on 7-16-96*	Depth to Groundwater: *2.52 feet TOC* Measured: *8/7/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *5.81 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *T. Kafka*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt.	
								Posthole cuttings (0-4'): ROC, sandy gravel (0-1'); orange-brown, fine to medium, clayey sand (1-2'); orange to brown, very fine to fine silty sand with soft, medium plasticity clay increasing with depth; moist to wet, (2-4').	
									4.7
5							SC SM	Sand: gray with orange-brown mottling; very fine to fine; silty; wet; at 4.8', increase in clay content; firm; medium plasticity; sand coarsens to medium/coarse.	3
			1	70	0			Shelby Tube (6-8'): top-- gray clayey sand as above; bottom-- brown to tan; fine to medium sand with some coarse; silty; trace clay; wet.	
			2	100					
									3
							SM SW	Sand: brown to olive-brown; fine to medium with trace coarse; moderately well-sorted; silty; saturated.	7
10			3	90	3.7		SW		13
							SM	Sand: green-gray with dark brown stains; medium to coarse; some silt; trace blue-gray clay pods interspersed throughout; saturated; *Possible oily or petro-like stains.*	15
							SM SW		18
							OL SP		25
			4	80	0				29
								Sand: green-gray to brown-green; fine to medium with trace coarse; silty; saturated.	
								Sand: brown to red-brown; fine to medium with trace coarse; moderately well-sorted; occasional clay laminae of low plasticity; rock fragments in bottom 0.1' with coarse sand.	
15								Clay: medium gray; silty; fat; sticky; interspersed with fine to medium sand laminae; silty; wet.	
20									

WELL DIAGRAM



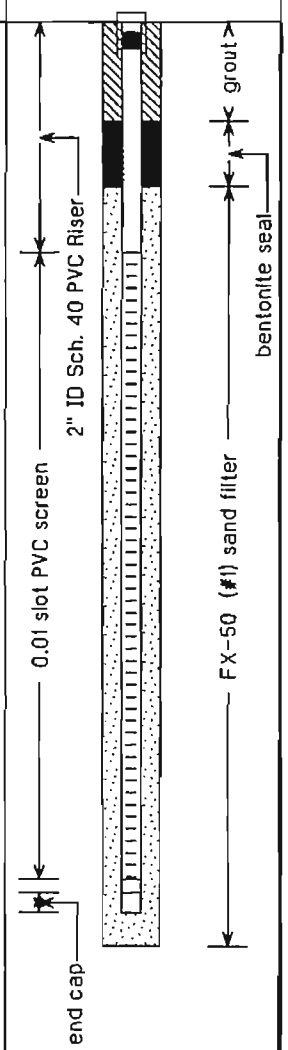
EnSafe/Allen & Hoshall

Monitoring Well NBCA039013

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231550.50 E, 381191.86 N*
Location: *Charleston, SC*	Surface Elevation: *8.4 feet msl*
Started at *1550 on 1-06-97*	TOC Elevation: *10.37 feet msl*
Completed at *0905 on 1-07-97*	Depth to Groundwater: *6.98 feet TOC* Measured: *1/22/97*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.39 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *13.5 feet bgs*
Geologist: *T. Kafka*	Well Screen: *3.5 to 13.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel.	
							CL SC	Sand: rust-orange w/ lt gray mottling; very fine to fine; with firm, low to medium plasticity clay; moist.	5.4 / 4.6
5			1	50	20				
								Rust-brown, silty sand coating spoon.	
10			2	10	0				
							CL SC SM	Clay: lt gray w/ rust-brown mottling; firm; medium plasticity; some very fine to fine sand w/ trace medium in rust-brown mottles; moist.	2.6 / 3.1 / 3.8
			3	75	0			Sand: tan to lt gray; very fine to fine; trace to some silt; some lenses of lt gray, soft to firm, low-medium plasticity clay irregularly spaced and 3-10 mm wide.	
15									
20									

WELL DIAGRAM



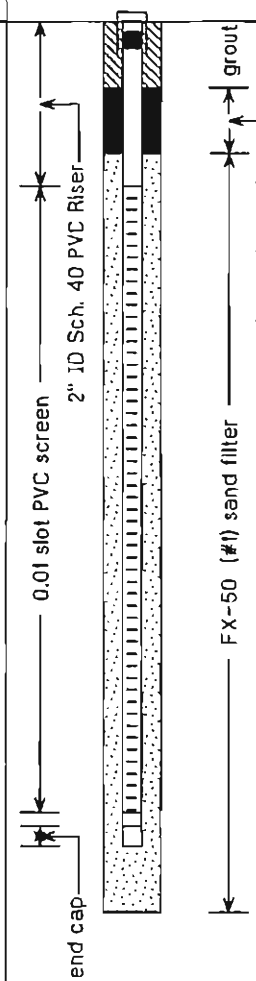
EnSafe/Allen & Hoshall

Monitoring Well NBCA039014

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315137.59 E, 381643.28 N*
Location: *Charleston, SC*	Surface Elevation: *13.9 feet msl*
Started at *1500 on 1-07-97*	TOC Elevation: *13.27 feet msl*
Completed at *1550 on 1-07-97*	Depth to Groundwater: *6.86 feet TOC* Measured: *1/22/97*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *6.41 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *12.5 feet bgs*
Geologist: *T. Kafka*	Well Screen: *2.5 to 12.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: Asphalt.	
5			1	75	280		SP SM	Sand: lt green-gray with dark green pits; very fine to fine; trace to some silt; well-sorted; damp; *Petro odor and suspcious gray-black stains in last 0.5'.*	10.4 / 9
10			2	65	380		SP SM / SM	Sand: as above; gray-black staining; some medium grain sand in thin 3-4 mm stringers; moist to wet.	5.9 / 5.2
								Sand: gray to olive-brown with dark, glossy, black pits and stringers; very fine to fine with medium-coarse lens at 8.8'; some silt; *Heavy Petro odor.*	4.8
			3	65	8		CL OL	Clay: green-gray to gray-green; silty; soft; low plasticity; trace to some very fine to fine sand increasing in content in last 0.5'; wet.	2.9 / 1.7
15									
20									

WELL DIAGRAM



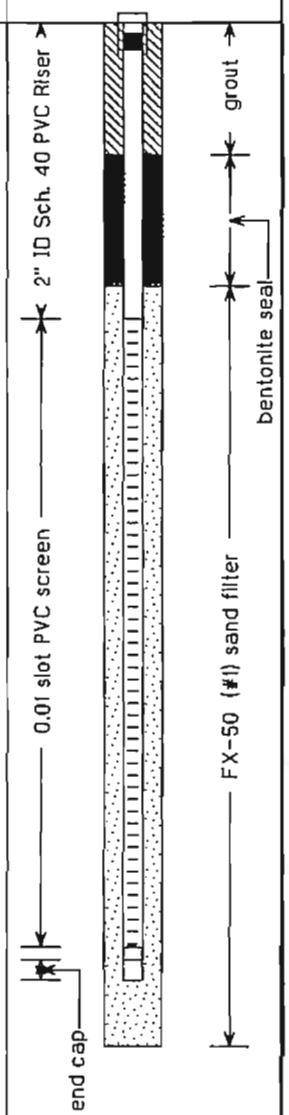
EnSafe/Allen & Hoshall

Monitoring Well NBCA039015

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2314512.96 E, 380990.24 N*
Location: *Charleston, SC*	Surface Elevation: *7.0 feet msl*
Started at *1300 on 1-07-97*	TOC Elevation: *6.10 feet msl*
Completed at *1430 on 1-07-97*	Depth to Groundwater: *3.98 feet TOC* Measured: *1/22/97*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *2.12 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *14.5 feet bgs*
Geologist: *T. Kafka*	Well Screen: *4.5 to 14.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grassy. 2'x2'x3' Vault-type flush mount well completion.	
							GP SP	Sand/Gravel: black; very fine to fine sand intermixed with gravel & asphalt; dry; roadfill?	3.5
5			1	75	0		SP SM	Sand: medium brown; very fine to fine; moderately well-sorted; some silt; moist.	2.4 / 2
							SM	Sand: as above with increased silt content; wet; occasional clay lenses in last 0.2'.	1 / 1.8
						WOOD	SM	Wood: brown-black; marshy; in very fine to fine with trace medium to coarse sandy matrix.	2.2 / 2.5
10			2	75	0			Sand: as above with black silty staining and laminae.	
							SP	Sand: medium gray to brown-gray; very fine to fine; saturated.	6 / 6.5
15			3	25	0			2'x2'x3' vault-type pad used for flush mount completion.	
20									

WELL DIAGRAM



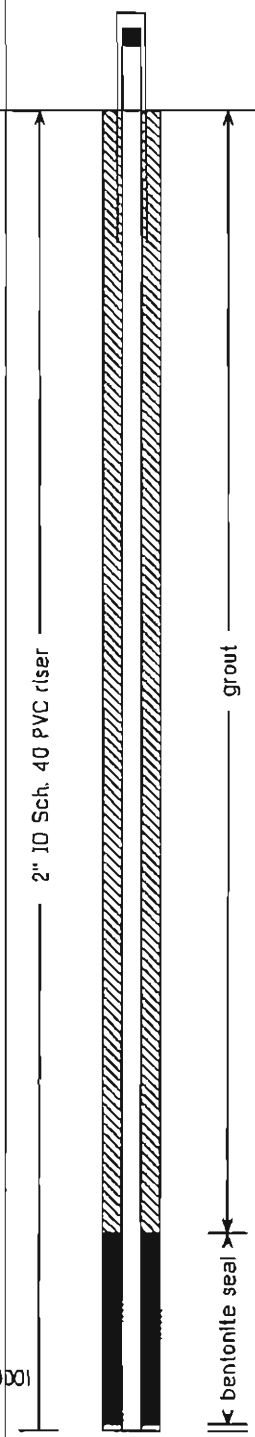
EnSafe/Allen & Hoshall

Monitoring Well NBCA03904I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315416.27 E, 381667.88 N*
Location: *Charleston, SC*	Surface Elevation: *9.8 feet msl*
Started at *1015 on 9-15-96*	TOC Elevation: *8.98 feet msl*
Completed at *1230 on 9-15-96*	Depth to Groundwater: *1.94 feet TOC* Measured: *10/16/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *7.04 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *31.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *21.7 to 30.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM	Sand: orange-brown; very fine; silty; trace clay.	8.3
							CL	Clay: dark brown to black; with very fine sand and silt; stiff; damp; chemical odor at 1.7-1.9'.	7.9
							SM		
							SC	Sand: light gray-brown; very fine to fine; clayey; some silt; dry.	7.3
							CL	Clay: orange-brown with faint thin dark brown laminae; very fine sand and silt; stiff; damp.	6.7
							SP		
5			1	100	0		SP SM	Sand: orange-brown; very fine to fine; some silt; loose; dry.	6
								Sand: orange; very fine to fine; some silt; loose; wet.	
							CL	Clay: light gray with orange laminae; silty; abundant very fine sand rapidly decreasing in content with depth to very fine to medium sand; stiffer with depth; plastic; wet.	2.7
10			2	100	0		SP SW	Sand: light gray; very fine to medium with trace coarse; some silt; loose; wet; brown to orange-brown; fine to coarse lenses from 10.5-10.8' and 11.5-12.2'.	0
							SW	Sand: light brown; very fine to medium/coarse; loose; wet.	3.2
15			3	76	0		SM	Sand: dark gray-black; very fine to fine with trace to some clay; slightly plastic; occasional dark gray clay pods; wet.	5.2
							OL OH	Clay: dark gray-black; some silt; plastic; soft; wet; sharp contacts with 1 cm, dark gray, very fine to fine sand laminae every 0.1' from 15.9-17'; 18.4-19.5': 50% of core consists of sand pods, dark gray, very fine to fine sand to 18.8' becoming 1 cm sand laminae every 0.05-0.1' to 19.5'	8.1
20							SM		9.400001

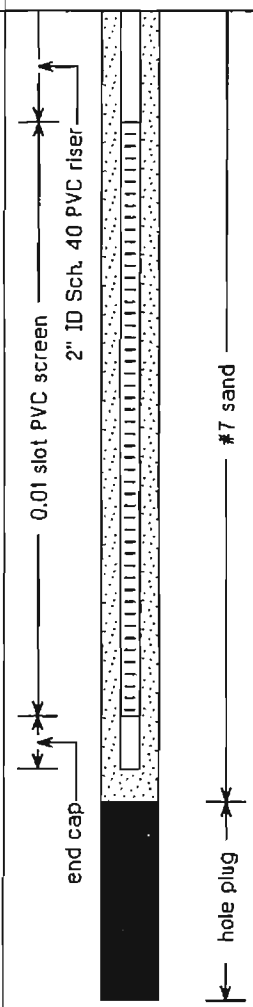
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03904I
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315416.27 E, 381667.88 N*
Location: *Charleston, SC*	Surface Elevation: *9.8 feet msl*
Started at *1015 on 9-15-96*	TOC Elevation: *8.98 feet msl*
Completed at *1230 on 9-15-96*	Depth to Groundwater: *1.94 feet TOC* Measured: *10/18/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *7.04 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *31.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *21.7 to 30.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM	Sand: gray; very fine to fine with trace medium; silty to 20.8' then decreasing with depth; loose; wet; 1 cm dark gray clay laminae from 19.8-20.1'.	13.7
25			4	85	0		SP SM	Sand: gray; very fine to fine trace medium; trace to some silt; loose; wet.	15.2
30							OL OH	Clay: dark gray-black; some silt; stiff; plastic; wet.	18.6
								31.3-31.5': dark gray, very fine to fine, silty sand lense with occasional clay pods.	
35			5	99	0				25.2
40									

WELL DIAGRAM



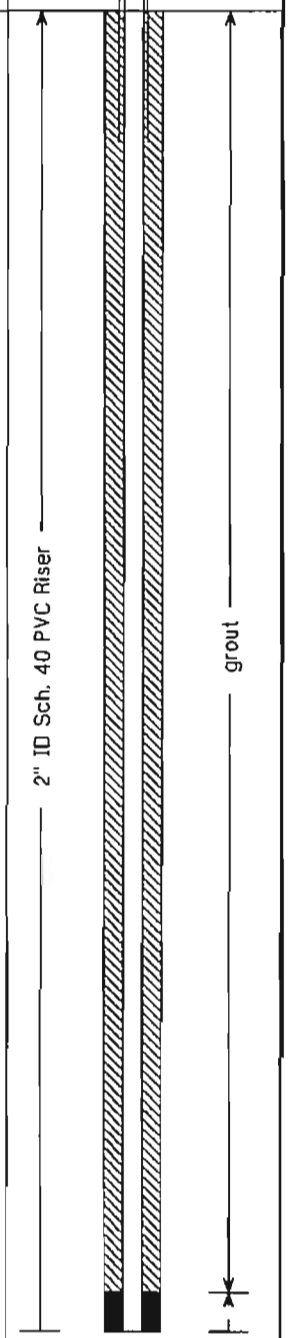
EnSafe/Allen & Hoshall

Monitoring Well NBCA03909I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315132.88 E, 381229.31 N*
Location: *Charleston, SC*	Surface Elevation: *7.1 feet msl*
Started at *1445 on 9-17-96*	TOC Elevation: *9.13 feet msl*
Completed at *1730 on 9-17-96*	Depth to Groundwater: *5.51 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.62 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *33.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *23.2 to 33.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							FILL	Surface conditions: grass Undifferentiated fill material as seen in the log for 03909D.	
5			1	65	0			Chemical odor from 5-6'	
							ML CL	Clay: brown and dark green black; silty; some sand and occasional pebbles; soft to firm; wet.	5 4
10							CL OL	Clay: dark gray grading rapidly to dark brown; some silt; plastic; moist to wet. light gray, very fine to medium/coarse sand lense from 12.3-12.6'.	
15							SM SW	Sand: dark brown grading to light gray and brown rapidly with depth; very fine to fine/medium becoming very fine to medium/coarse at 14-14.3'; silty; wet.	8.6
							SM	Sand: dark gray; very fine to fine/medium; silty; some clay; wet.	8.1 8.5
							CL CH	Clay: green; some silt; very firm to stiff; moist to wet; from 18.5- 18.9', light gray, very fine to fine, silty sand lense.	
20									

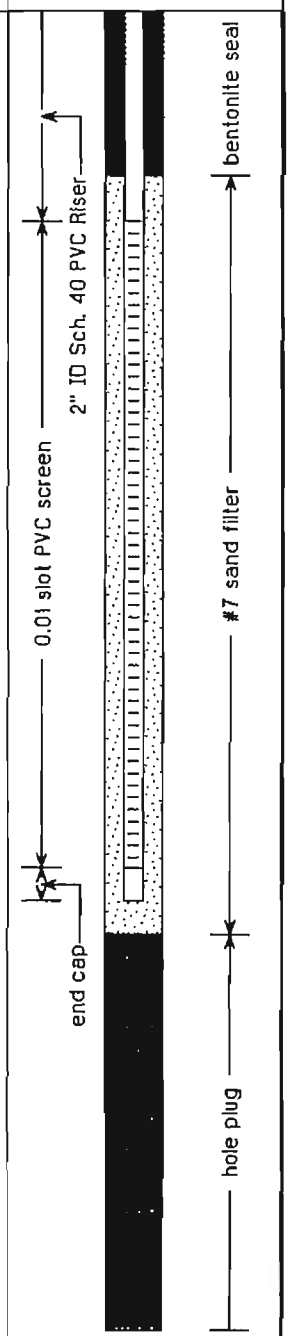
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03909I
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315132.88 E, 381229.31 N*
Location: *Charleston, SC*	Surface Elevation: *7.1 feet msl*
Started at *1445 on 9-17-96*	TOC Elevation: *9.13 feet msl*
Completed at *1730 on 9-17-96*	Depth to Groundwater: *5.51 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.62 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *33.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *23.2 to 33.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							CL CH		
									17.5
25			2	95	5-6			Clay: gray green as above; very thin sand partings from 25-28.3', 28.4-29.6', and 31.7-32.5'; sharp planar contact into sand laminae at 41.6'.	17.9
30							CL CH		
35									
40									

WELL DIAGRAM



EnSafe/Allen & Hoshall

Monitoring Well NBCA03909I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315132.88 E, 381229.31 N*
Location: *Charleston, SC*	Surface Elevation: *7.1 feet msl*
Started at *1445 on 9-17-96*	TOC Elevation: *9.13 feet msl*
Completed at *1730 on 9-17-96*	Depth to Groundwater: *5.51 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.62 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *33.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *23.2 to 33.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
							CL CH			
							SP	Sand: light gray; very fine to fine with trace medium; loose; wet; 1 cm clayey laminae at 42.1'.	34.8	
							CL OL	Clay: dark gray-green; some silt; firm to stiff; plastic; moist to wet; from 42.7-43.3' sand laminae from 1-2 cm in size decreasing in frequency and size with depth.	35.5	hole plug
45			3	95	0				37.4	
50										
55										
60										

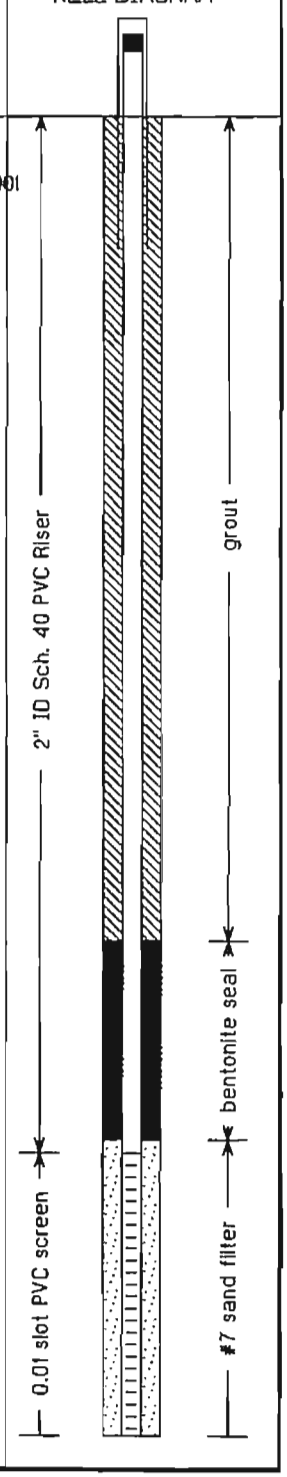
EnSafe/Allen & Hoshall

Monitoring Well NBCA03910I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315145.52 E, 381438.46 N*
Location: *Charleston, SC*	Surface Elevation: *10.9 feet msl*
Started at *1410 on 9-16-96*	TOC Elevation: *13.17 feet msl*
Completed at *1645 on 9-16-96*	Depth to Groundwater: *7.67 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *5.50 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *26.0 feet bgs*
Geologist: *T. Kafka*	Well Screen: *15.7 to 25.4 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass, some asphalt.	
							SM	Sand: dark brown; very fine to fine; silty; root material.	9.900001
							SP		
							CL CH	Sand: light brown with orange mottling; very fine to fine; well-sorted; trace silt; moist to wet.	8.2
							CL SC	Clay: orange to light orange with tan; trace to some very fine to fine sand; firm; low-medium plasticity; moist to wet.	7.9
5			1	80	0			Clay: orange with tan to light gray banding; some very fine to fine sand; silty; firm; low-medium plasticity; moist to wet. *Petro-like chemical odor from 3-5'.*	6.9
							SC CL	Clay: as above with blue-green mottling; decreasing sand content with depth; firm; moist to wet.	4.9
							SW SM	Sand: olive-brown to brown; medium with trace fine and coarse; poorly sorted; silty; wet.	2.8
10							SP SM	Sand: olive-tan to tan; fine to medium becoming very fine to fine at 14-15.3'; trace to some silt; wet.	1.2
15			2	80	0				
							SC CL	Interbedded sand and clay: orange to gray clay; soft to firm; low to medium plasticity; silty; wet; sand is white to orange; fine to medium with some silt; very fine to fine at 16.3-17.1'.	4.4
							SW SM	Sand: light orange to tan; coarse; grading to fine to coarse at 18.4'; trace to some silt; wet.	6.2
20							OL OH	Clay: dark gray; silty; low to medium plasticity; soft; wet; some gray, fine to medium sand pods in top 0.6' and faint sand laminae decreasing in frequency with depth.	7.5

WELL DIAGRAM



EnSafe/Allen & Hoshall

Monitoring Well NBCA03910I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315145.52 E, 381438.46 N*
Location: *Charleston, SC*	Surface Elevation: *10.9 feet msl*
Started at *1410 on 9-16-96*	TOC Elevation: *13.17 feet msl*
Completed at *1645 on 9-16-96*	Depth to Groundwater: *7.67 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *5.50 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *26.0 feet bgs*
Geologist: *T. Kafka*	Well Screen: *15.7 to 25.4 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
							OL OH		12.5	0.01 slot PVC screen; end cap; #7 sand filter
25			3	94	0					
30										
35										
40										

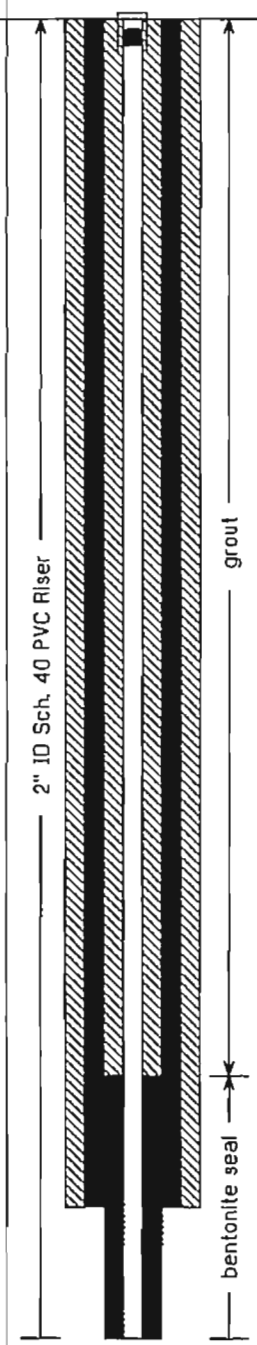
EnSafe/Allen & Hoshall

Monitoring Well NBCA03912I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315472.26 E, 381511.43 N*
Location: *Charleston, SC*	Surface Elevation: *8.7 feet msl*
Started at *1115 on 7-22-96*	TOC Elevation: *8.50 feet msl*
Completed at *1410 on 7-23-96*	Depth to Groundwater: *2.90 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *5.60 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *32 feet bgs*
Geologist: *T. Kafka*	Well Screen: *22 to 31.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt.	
								Only confirmatory split spoon samples taken at this location due to detailed lithologic sampling conducted in 03912D located ~20 feet to the west. Please refer to log of 03912D for specific lithologic details.	
5								Well constructed with 6" ID PVC surface casing from 0-18' bgs grouted into place with a portland/bentonite grout.	
10									
15									
									7.3
			1	100			OL	Clay: dark green to gray-green; silty; soft; fat; low plasticity; wet--marsh clay; very fine to fine sand in pocket at 16.5-16.8'; slight increase in sand content in last 1'.	
									8.3
20									

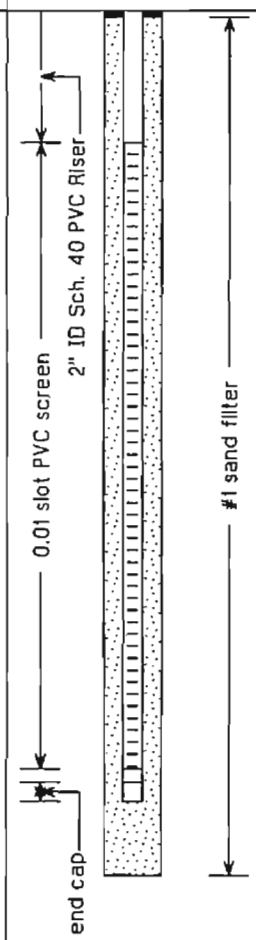
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03912I
Project: *ZONE A – Naval Base Charleston*	Coordinates: *231547.26 E, 381511.43 N*
Location: *Charleston, SC*	Surface Elevation: *8.7 feet msl*
Started at *1115 on 7-22-96*	TOC Elevation: *8.50 feet msl*
Completed at *1410 on 7-23-96*	Depth to Groundwater: *2.90 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *5.60 feet msl*
Drilling Company: *Alliance Environmental Drilling*	Total Well Depth: *32 feet bgs*
Geologist: *T. Kafka*	Well Screen: *22 to 31.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
25									
30									
			2	100			OH CH	Clay: dark green-gray; silty; firm to stiff; slightly fat; wet-- dewatered marsh clay.	23.3 – 25.3
35									
40									

WELL DIAGRAM



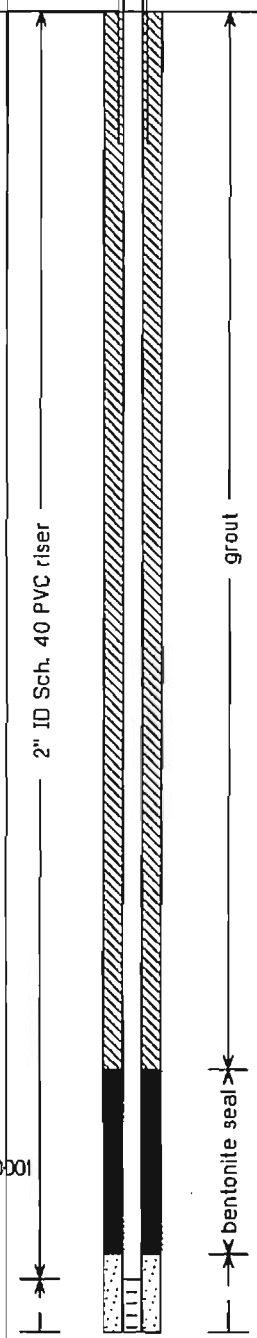
EnSafe/Allen & Hoshall

Monitoring Well NBCA03913I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315503.54 E, 381182.46 N*
Location: *Charleston, SC*	Surface Elevation: *8.1 feet msl*
Started at *1500 on 9-18-96*	TOC Elevation: *10.21 feet msl*
Completed at *1640 on 9-18-96*	Depth to Groundwater: *8.01 feet TOC* Measured: *9/29/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.20 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *24.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *19 to 23.2 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							GM, SM, SC	Sand: brown; very fine to fine; some clay; silty; occasional pebbles.	7.2
							CL	Clay: brown; some silt; trace very fine sand; dry.	6.5
							CL/CH	Clay: red-brown; some silt; trace very fine sand; very stiff; plastic and dry.	4
							CL	Clay: light brown with some red-orange; very thin laminae; sandy; stiff; plastic; moist.	3.5
5			1	92	0				3.1
							CL	Clay: yellow-orange and light gray; some very fine sand; medium plasticity; stiff; at 5.6' grades to very sand clay; at 10' grades to gray, orange-brown clay with very fine to fine sand; plastic; stiff; moist to wet.	
10									
							SM	Sand: orange-brown with light brown; very fine to fine; trace clay; some silt.	3.7 / 4
							SP	Sand: light brown; very fine to fine; trace silt.	5 / 5.3
							CL/CH	Clay: brown with gray; some silt; medium plasticity; stiff.	6 / 6.2 / 6.6
15							SP	Sand: light to orange-brown; very fine to fine; trace silt.	6.9 / 7.8
							CL/SP	Sand: light brown with some orange-brown; very fine to fine; trace to some silt with thin, gray clay laminae (1-2 cm).	9.4 / 00.01
							CL/CH	Clay: blue-gray with brown mottling that decreases with depth; trace silt; plastic; stiff; moist to wet.	
20									

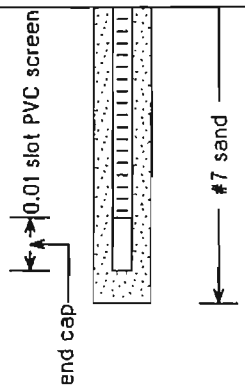
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03913I
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315503.54 E, 381182.46 N*
Location: *Charleston, SC*	Surface Elevation: *8.1 feet msl*
Started at *1500 on 9-18-96*	TOC Elevation: *10.21 feet msl*
Completed at *1640 on 9-18-96*	Depth to Groundwater: *8.01 feet TOC* Measured: *9/29/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.20 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *24.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *19 to 23.2 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							CL CH		
							SP	Sand: orange-brown; very fine to fine; trace silt; loose; wet.	14
							CL SP	Clay: brown; some silt; stiff; plastic; wet; very fine to fine sand from 24.3-24.4'.	15.8 / 16.3
25			2	85	0				
30									
35									
40									

WELL DIAGRAM



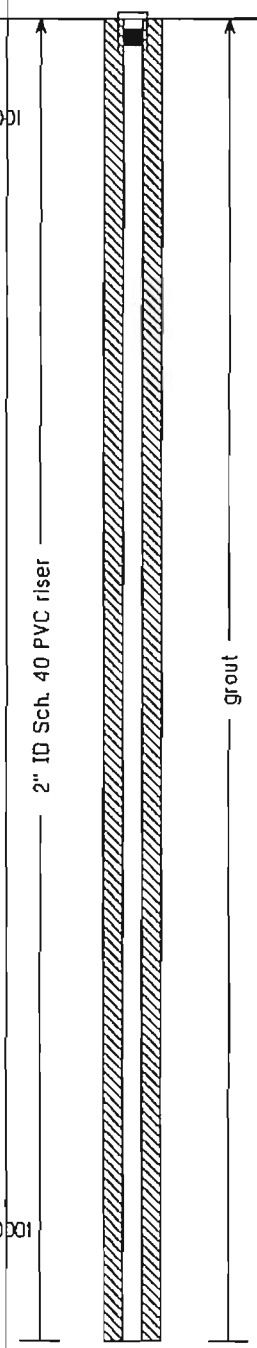
EnSafe/Allen & Hoshall

Monitoring Well NBCA03904D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231542.28 E, 381667.73 N*
Location: *Charleston, SC*	Surface Elevation: *9.9 feet msl*
Started at *1110 on 11-16-95*	TOC Elevation: *9.77 feet msl*
Completed at *1320 on 11-16-95*	Depth to Groundwater: *7.89 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.88 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *54.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *44.6 to 54.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							FILL	Gravel: dark brown to black, up to 2 cm size, silty sand matrix.	8.4000001
					54		SM	Sand: olive-brown grading to brown at 1.7', very fine to fine, some silt, damp.	7.3
							SM SC	Sand: orange-brown, very fine to fine, silty, clayey, firm, damp.	6.6
							SP	Sand: tan becoming orange with depth, very fine to medium, loose, soft, damp.	5.6
5			1	86	2000		SM SC	Sand: orange and gray banded, very fine to fine, silty, clayey, plastic, soft to firm, wet.	4.9
10					1.3		SP	Sand: orange, very fine to fine, some medium sand pods, some silt, loose, soft; from 10-12.7' white, fine to medium sand laminae 0.5-0.8' wide.	2
							SC CL	Interbedded sand and clay: sand is orange becoming gray at 13', very fine to fine, wet; thinly interbedded with gray, firm, plastic clay.	2.8
15			2	96	0		OL OH	Clay: dark gray-black, silty, with thinly interbedded sand, plastic, soft to firm, wet.	4.7 5.1
20							SP SM	Sand: dark gray, very fine to fine with some silt, trace clay, soft, wet; intercalated thin clay partings from 18.3-19.5'; increased grain size to very fine to medium with some silt and trace clay from 21.5- 23.3'.	8.4000001

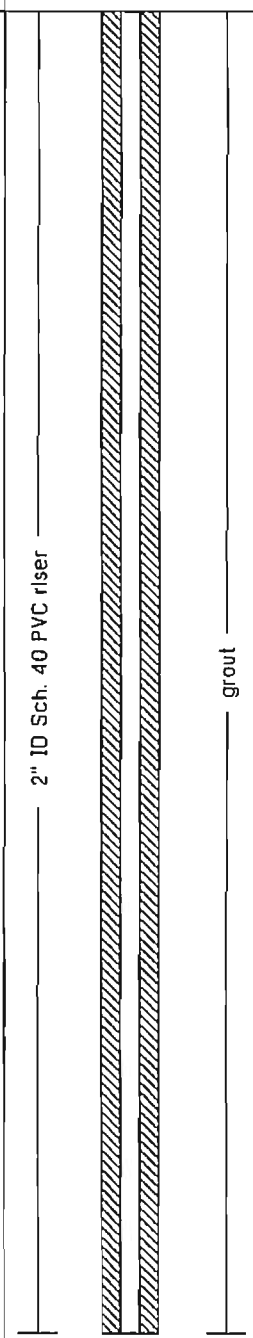
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03904D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315423.28 E, 381667.73 N*
Location: *Charleston, SC*	Surface Elevation: *9.9 feet msl*
Started at *1110 on 11-16-95*	TOC Elevation: *9.77 feet msl*
Completed at *1320 on 11-16-95*	Depth to Groundwater: *7.89 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.88 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *54.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *44.6 to 54.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP SM		14.8
25			3	97	0				15.1
							SP SM	Sand: gray, very fine to fine/medium, trace to some silt, soft, wet.	
30									
									23.8
35			4	90	0		OH CH	Clay: gray to dark gray with green cast, some silt, plastic, stiff, wet. Occasional very thin (<1 cm) dark gray, silty sand laminae, with some mica flakes from 35-45'.	
40									

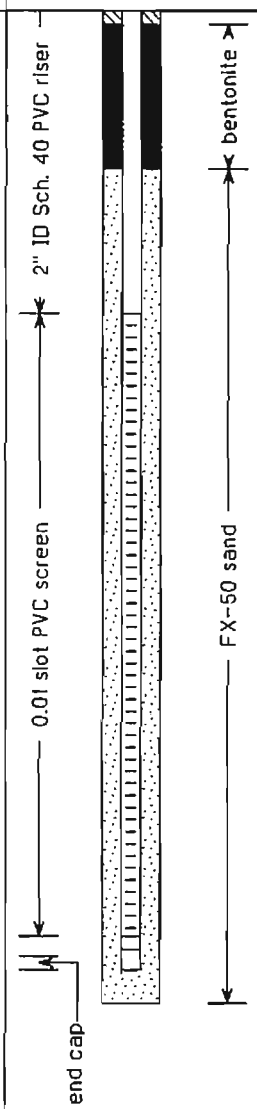
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03904D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315423.28 E, 381667.73 N*
Location: *Charleston, SC*	Surface Elevation: *9.9 feet msl*
Started at *1110 on 11-16-95*	TOC Elevation: *9.77 feet msl*
Completed at *1320 on 11-16-95*	Depth to Groundwater: *7.89 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.88 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *54.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *44.6 to 54.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							OH CH		
45			5	100	0		SP	Sand: gray, very fine to fine/medium, trace silt, soft, wet; some shell fragments (small-large).	35.1
50							SP	51.4-51.6': dark gray, firm, plastic clay lens.	
							OH CH	Clay: dark gray-black, some silt, with some very thin sand partings, stiff, plastic, wet.	42.2
							GM GC	Gravel: gray, mean size 1.5 cm, PO_4 nodules and shells with very fine to fine/medium, silty sand matrix, some clay.	43.4
							ML CL	Silt: olive-yellow, some very fine sand, clayey, stiff, plastic, wet.	44.3
55			6	100	0				45.1
60									

WELL DIAGRAM



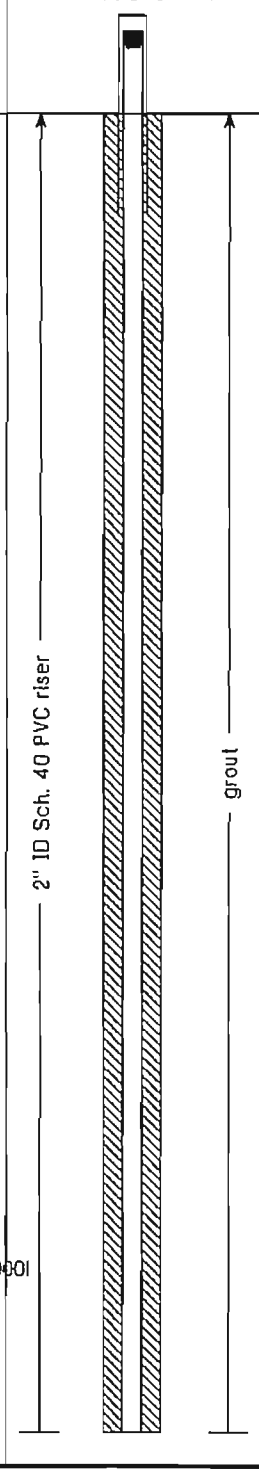
EnSafe/Allen & Hoshall

Monitoring Well NBCA03908D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315489.77 E, 380865.69 N*
Location: *Charleston, SC*	Surface Elevation: *7.6 feet msl*
Started at *0815 on 7-17-96*	TOC Elevation: *9.73 feet msl*
Completed at *1645 on 7-17-96*	Depth to Groundwater: *8.15 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *1.58 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *50.1 feet bgs*
Geologist: *T. Kafka*	Well Screen: *40.1 to 49.6 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass.	
							CL	Clay: tan; silty; firm; with very fine to fine sand; moist.	3.6
5							PT	Peat: brown; high organic matter content; silty; dry to moist.	3.1
			1	50	0				2.6
							WOOD	Wood: pulverized from hammer, moist.	1.6
							SM	Sand: brown to gray-brown; silty and muddy; trace very fine to fine sand; wet.	1.1
			2	55	0				.5
10			3	80	0		SC CL	Sand: blue with olive-green mottling; very fine to fine; with firm, medium plasticity clay; moist; from 10-11.5', trace medium sand; decreasing clay content.	.8
			4	80	0		SC CL	Sand: as above with 20% soft, medium plasticity clay; wet; sand is fine to medium and silty in last 0.1'.	4
			5	85	0		SM	Sand: brown to olive-brown; very fine to fine; silty; some dark (organic?) staining; saturated; lens at 14.6-14.9' of clayey sand as above and blue-gray soft to firm clay at 15.3-15.4'.	4.4
15			6	70	0				6.1
							SP SM	Sand: tan to brown-tan; very fine to fine and well-sorted; some silt; saturated to flowing.	6.4
			7	75	0		SM	Sand: orange-brown to brown, as above; occasional fine clayey sand partings < 5mm at 18.4'and 18.7'; soft; low plasticity.	7.9
									8.7
									9.900001
									10.4
									11.7
20			8	65	0		SM		12.4

WELL DIAGRAM



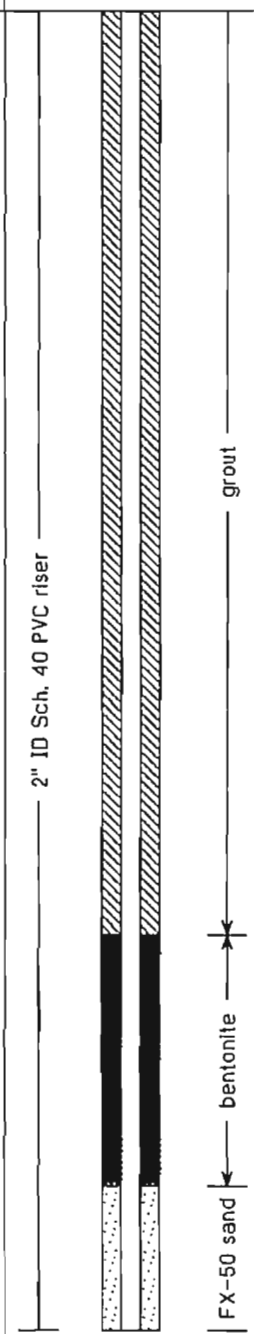
EnSafe/Allen & Hoshall

Monitoring Well NBCA03908D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315489.77 E, 380865.69 N*
Location: *Charleston, SC*	Surface Elevation: *7.6 feet msl*
Started at *0815 on 7-17-96*	TOC Elevation: *9.73 feet msl*
Completed at *1645 on 7-17-96*	Depth to Groundwater: *8.15 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *1.58 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *50.1 feet bgs*
Geologist: *T. Kafka*	Well Screen: *40.1 to 49.6 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM	Sand: as above; 0.1' gray-blue, soft, clayey sand lense at 20.6'; some woody pieces in upper 0.1'.	12.4
									13.8
			9	70	0		SP	Sand: light olive-brown to tan; very fine to fine in upper 0.4' with slight coarsening to fine/medium with depth; some silt; saturated.	14.4
									15.6
			10	60	0		SP	Sand: light olive-brown to tan grading to light blue-gray at 24.8'; very fine to fine with slight coarsening at 24.6'; soft, low plasticity clay lenses in upper 0.2'; high concentration of heavy minerals with no silt at 24.8-25'.	16.4
25									17.9
			11	75	0		SP	Sand: tan to olive-brown in top 0.4' becoming light blue-gray; very fine to fine with trace medium fining downwards; high concentration of heavy minerals; saturated.	18.4
									19.8
			12	70	0		SP	Sand: light gray to blue-gray as above.	20.4
									21.9
30			13	75	0		SM SP	Sand: olive-brown to gray; very fine to fine with trace medium; silty; saturated.	22.4
									23.9
			14	75	0		SM SP	Sand: olive-brown; as above with better sorting.	24.4
									25.5
			15	100	0		SM SP	Sand: olive-brown to olive-gray; very fine to fine; well-sorted; some silt; heavy mineral laminae.	26.4
35			16	100	0				
									29.9
			17	75	0		SM SP	Sand: olive-brown; very fine to fine with trace medium; silty; heavy FeOx staining associated with soft, gray, low plasticity clayey bands from 38.6-38.9'.	30.4
									31.7
40			18	65	0		SM SC		32.4

WELL DIAGRAM



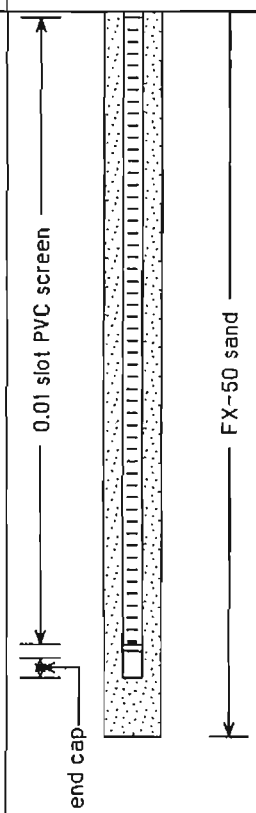
EnSafe/Allen & Hoshall

Monitoring Well NBCA03908D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315489.77 E, 380865.69 N*
Location: *Charleston, SC*	Surface Elevation: *7.6 feet msl*
Started at *0815 on 7-17-96*	TOC Elevation: *9.73 feet msl*
Completed at *1645 on 7-17-96*	Depth to Groundwater: *8.15 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *1.58 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *50.1 feet bgs*
Geologist: *T. Kafka*	Well Screen: *40.1 to 49.6 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM SC	Sand: olive-gray; very fine to fine with trace medium; some clayey partings; silty; wet.	32.4 / 32.8
							CL SC	Clay: gray to orange-brown with green mottling; soft; low-medium plasticity; fine to medium sand laminae interspersed.	33.4
			19	80	0		SM SP		34.4
							SM SP	Sand: orange to olive-brown; fine to medium with coarse in upper 0.4' fining downwards; silty; wet.	35.7
			20	65	0		SM	Sand: olive-brown to orange-brown; very fine to fine with section of fine to medium at 42.5-42.8'; some silt; wet.	36.4
45									37.4
			21	50	0		SM	Sand: color as above; very fine to medium with trace coarse; poorly sorted; silty; occasional red-brown silty pits in last 0.3'; wet.	38.4
									39.4
			22	50	0		SM	Sand: orange-brown; very fine to medium; moderately well-sorted; silty; wet.	40.4
							ML CL	Sand: orange-brown to red-orange; fine to medium with some coarse; poorly sorted; silty; small 0.2' lag bed of 0-2 cm size PO_4 nodules.	41.6 / 42.1
50			23	85	0				42.4
							ML CL	Silt: olive-brown; clayey; trace to some very fine to fine sand; firm--Ashley Formation.	
			24	100	0			Silt: olive-brown to olive-green; clayey; trace very fine to fine sand; firm to stiff; moist--Ashley Fm.	44.4
55									
60									

WELL DIAGRAM



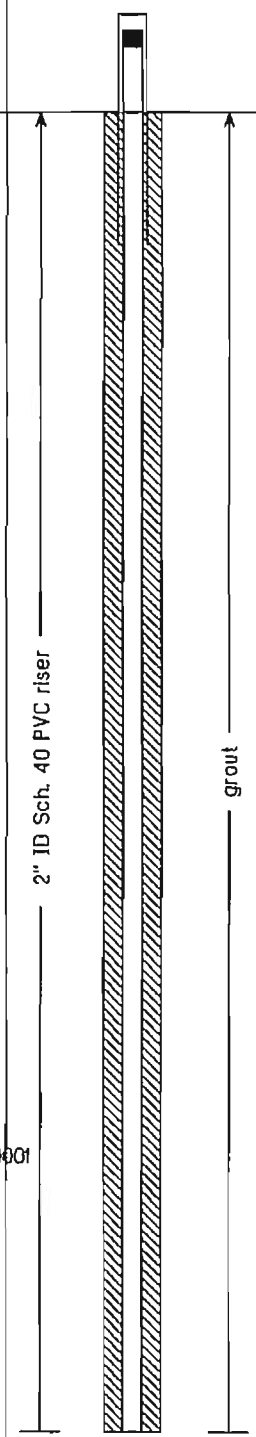
EnSafe/Allen & Hoshall

Monitoring Well NBCA03909D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231513.77 E, 381217.47 N*
Location: *Charleston, SC*	Surface Elevation: *6.9 feet msl*
Started at *0900 on 9-17-96*	TOC Elevation: *9.06 feet msl*
Completed at *1210 on 9-17-96*	Depth to Groundwater: *6.75 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.31 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *46.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *35.7 to 45.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
						FILL	Surface conditions: grassy field Fill: mixture of silty sand, sand, gravel, and clay; saturation at approx. 1.5 feet bgs. (see field log for detailed description of upper 5').	
5			1	100	29.6			1.3
						OL PT	Interbedded clay and peat: clay is brown to dark brown; silty; soft to firm; moist to wet with wood, grass, and root material.	
10								3.6
						SM	Sand: dark brown with light gray mottling; very fine to fine; silty; loose; wet; irregular intervals of very fine to medium sand to 12'.	
						SM SP	Sand: dark brown; very fine to medium trace coarse/gravel; silty; wet.	5.9 8.4
						SM	Sand: brown and light gray-green; thinly lamninated; very fine to fine; very silty; wet.	8.8
15						SM SP	Sand: light gray-green with faint laminae; fine to medium with trace coarse decreasing to very fine to fine with depth; silty; loose; wet.	8.900001
						ML CL	Silt: brown and gray becoming light gray-green at 16.4'; some very fine to fine sand; very thin clay laminae; wet; at 17.8' changes to gray-brown with increased very fine to fine sand content; silty; slightly plastic; occasional thin clay laminae.	11.7
20						SP OL	Interbedded sand/clay: light gray; very fine to fine sand; some silt; loose; wet; gray silty clay; soft; plastic; wet; occasional very thin sand laminae.	

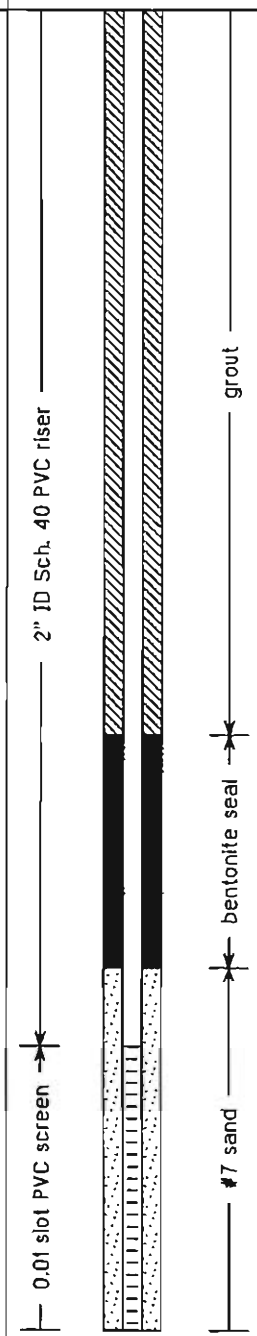
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03909D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *231513.77 E, 381217.47 N*
Location: *Charleston, SC*	Surface Elevation: *6.9 feet msl*
Started at *0900 on 9-17-96*	TOC Elevation: *9.06 feet msl*
Completed at *1210 on 9-17-96*	Depth to Groundwater: *6.75 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.31 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *46.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *35.7 to 45.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP OL	Clay: gray; some silt; soft to firm; plastic; wet; gray; very fine to fine; silty sand laminae and pods at 20.5-21.5'.	13.3
							CL OL		
								0.2' thick light gray sand lense at 24.3'; very fine to fine; silty.	17.6
25			2	95	20.6			Clay: gray-green; some silty; firm to stiff; plastic; with faint very thin dark partings and laminae spaced irregularly; occasional to trace <1 cm sand pods of very fine to fine sand from 25-27', 31.2-31.9', and 37.6-37.7'.	18.1
30							CL OL		
35									
40									

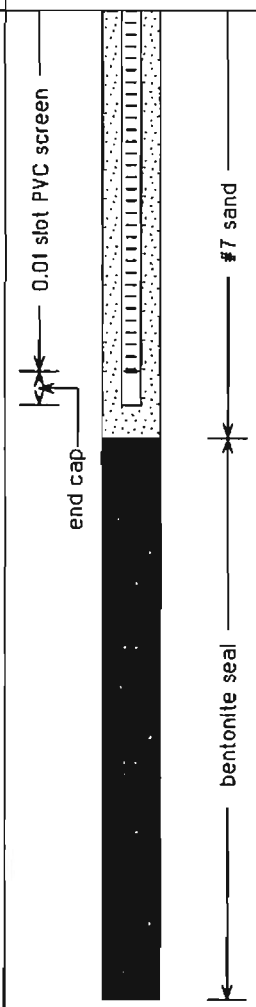
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03909D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *231513.77 E, 381217.47 N*
Location: *Charleston, SC*	Surface Elevation: *6.9 feet msl*
Started at *0900 on 9-17-96*	TOC Elevation: *9.06 feet msl*
Completed at *1210 on 9-17-96*	Depth to Groundwater: *6.75 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.31 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *46.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *35.7 to 45.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							CL OL	At 41.7', gray, very fine to fine, silty quartz sand laminae becoming very fine to medium with thin clay laminae from 42-43.5'; trace very small shell fragments.	
45			3	100	0				38.1
							ML CL	Silt: olive-green; clayey; some very fine to fine sand; stiff; plastic; damp; occasional sandy pods and laminae spaced irregularly but increasing in frequency from 54-55', trace effervescent--Ashley Formation.	
50									
55			4	100	0				47.7
60									

WELL DIAGRAM



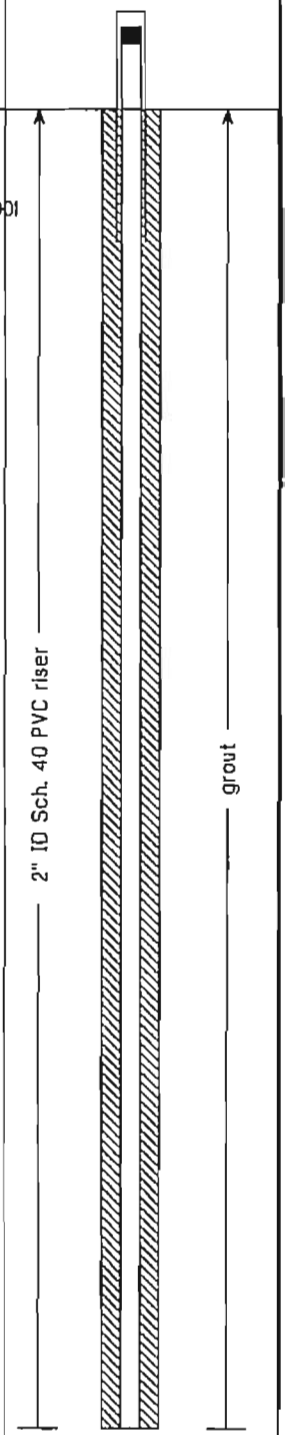
EnSafe/Allen & Hoshall

Monitoring Well NBCA03910D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315155.51 E, 381432.60 N*
Location: *Charleston, SC*	Surface Elevation: *10.9 feet msl*
Started at *0930 on 9-18-96*	TOC Elevation: *13.05 feet msl*
Completed at *1130 on 9-18-96*	Depth to Groundwater: *9.68 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.37 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *41.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *36.7 to 40.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass and some asphalt.	
							SP	Sand: orange-brown; very fine to fine grading to very fine to medium; loose; moist.	0.4000-01
							ML	Silt: orange-brown; some very fine sand and some clay.	8.3
							CL CH	Clay: orange-brown with red mottling; silty; some sand as thin laminae at irregular intervals; plastic; firm; wet.	6.4
5			1	85	82				5.9
							CL ML	Clay: olive drab with dark gray thin laminae; silty; some very fine sand; soft to firm; plastic; wet.	2.7
10							SP SC	Sand: olive-brown; very fine to fine with trace medium; some silt; some clay as occasional thin laminae; occasional granule and coarse sand grains; loose; wet.	2
							SP SM	Sand: brown; very fine to fine; some silt; loose; wet.	1.4
							SP SW	Sand: light green-gray; very fine to fine/medium; trace silt; loose; wet.	2
							SP SC	Sand: brown; very fine to fine; some silt; loose; wet.	3.3
15			2	92	82				4.1
							SP SM	Sand: orange; very fine to fine; some silt; cohesive; wet.	4.7
							OL OH	Clay: dark gray; some silt; very thin sand partings of very fine to fine sand; soft; plastic; wet.	5.2
							SP	Sand: orange-brown; very fine to fine/medium; some silt; cohesive; wet.	6.6
							OL OH	Clay: dark gray; some silt; firm; plastic; wet; thin, very fine to fine/medium sand lenses at 17.8', 18.2', and 18.6'.	
20									

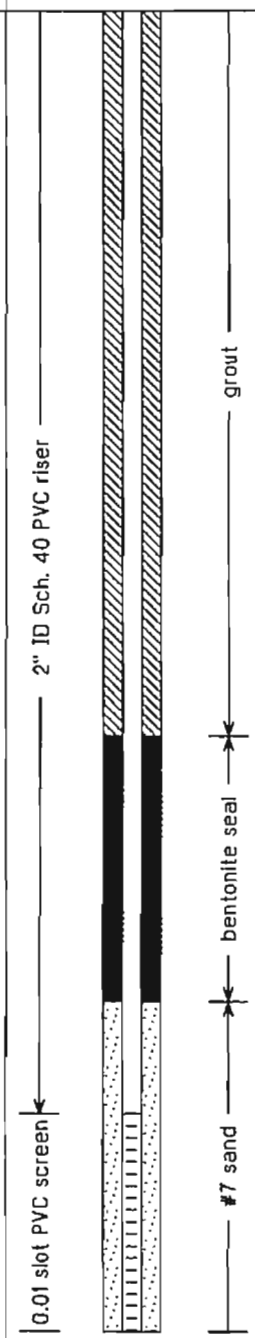
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03910D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315155.51 E, 381432.60 N*
Location: *Charleston, SC*	Surface Elevation: *10.9 feet msl*
Started at *0930 on 9-18-96*	TOC Elevation: *13.05 feet msl*
Completed at *1130 on 9-18-96*	Depth to Groundwater: *9.68 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.37 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *41.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *36.7 to 40.7 feet bgs*

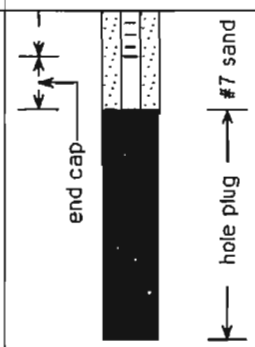
DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							OL OH	color change to olive-gray.	
							OL OH	few thin bivalve shells at 23.4-24.1'.	13.7
25			3	96	0		OL OH	Clay: olive-green to gray; some silt; stiff; plastic; moist.	14.1
30									
35			4	100	0				
							SM	Sand: gray; very fine to fine; silty; occasional small bivalve fragments; wet.	24.9
							OL OH	Clay: dark gray; silt; thin sand partings; plastic; soft; wet.	26
							SM SW	Sand: gray; very fine to medium trace coarse; some silt; wet; some shell fragments; last 0.3' very fine to medium.	26.9
							SP SW	Sand: light gray; very fine to fine; some silt; cohesive; wet.	28.1
40							ML OL		29

WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03910D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315155.51 E, 381432.60 N*
Location: *Charleston, SC*	Surface Elevation: *10.9 feet msl*
Started at *0930 on 9-18-96*	TOC Elevation: *13.05 feet msl*
Completed at *1130 on 9-18-96*	Depth to Groundwater: *9.68 feet TOC* Measured: *9/28/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.37 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *41.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *36.7 to 40.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
45	X		4	100	0		ML CL	Silt: olive-brown; clayey; trace very fine sand; occasional shell fragments; effervescent with HCl; stiff; plastic; moist--Ashley Fm.	34.1	
50										
55										
60										



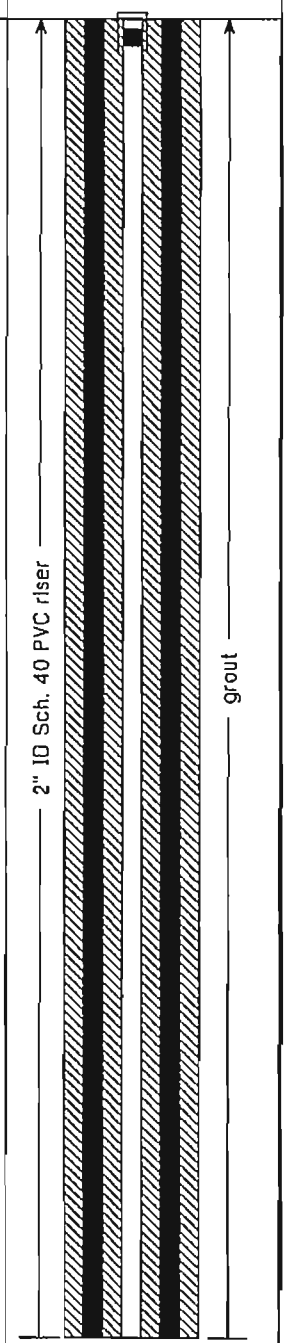
EnSafe/Allen & Hoshall

Monitoring Well NBCA03912D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315457.63 E, 381509.74 N*
Location: *Charleston, SC*	Surface Elevation: *8.7 feet msl*
Started at *0905 on 7-18-96*	TOC Elevation: *8.32 feet msl*
Completed at *1040 on 7-22-96*	Depth to Groundwater: *6.39 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *1.93 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *56.3 feet bgs*
Geologist: *T. Kafka*	Well Screen: *46.3 to 55.8 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt.	
								Cuttings from 0–4.2' bgs: ROC, sandy, clayey sand.	
							SM SC	Sand: light gray with orange mottling; fine to medium; low plasticity clay; silty; moist.	4.5
5							SC	Sand: as above; higher clay content; moist.	3.8
			1	70	0		SM SW	Sand: orange; fine to medium/coarse; silty; trace clay; moist to wet.	2.9
							SC CL	Sand: gray to brown; fine to medium/coarse increasing downward; silty; some soft; low plasticity gray clay; wet.	2.5
			2	65	0		SM GM		1.7
							SM SW	Sand: orange; medium to coarse; silty; some small gravel pieces; grades to fine/medium in last 0.1'.	1.2
			3	65	0				.6
10							SM SW	Sand: orange and gray; medium to coarse fining to very fine to medium downward; poorly sorted; silty; wet; *Petro odor and staining.*	1.3
			4	70	0		SP OL	Sand: brown to orange-brown; fine to medium/coarse fining downward; poorly sorted; silty; saturated; clayey laminae in upper 1'.	2.5
			5	55	0		SP OL SW	Interbedded sand/clay: white; clean; very fine to fine sand with medium gray, silty, soft, fat, sticky, low plasticity marsh clay.	3.3
15								Clay/Sand: interbedded as above; sand is very fine to medium.	4.4
			6	65	0			Sand: gray; fine to coarse with medium to coarse shell hash in upper 0.3'; poorly sorted; some clayey lenses (1–3 cm) decreasing in content with depth; ~20% shell hash total in sample.	5.3
			7	100	0		OL OH	Clay: medium to dark gray; silty; firm to stiff; fat; low plasticity marsh clay; interbedded with 0.1' shelly sand lenses, medium/coarse, at 16.8', 17.1', 17.4', 17.9', and 18.4'; consistent marsh clay from 18.5–19.7' with no sand.	5.8
20			8	90	0		OL OH		6.6
									7.3
									11.1
									11.3

WELL DIAGRAM



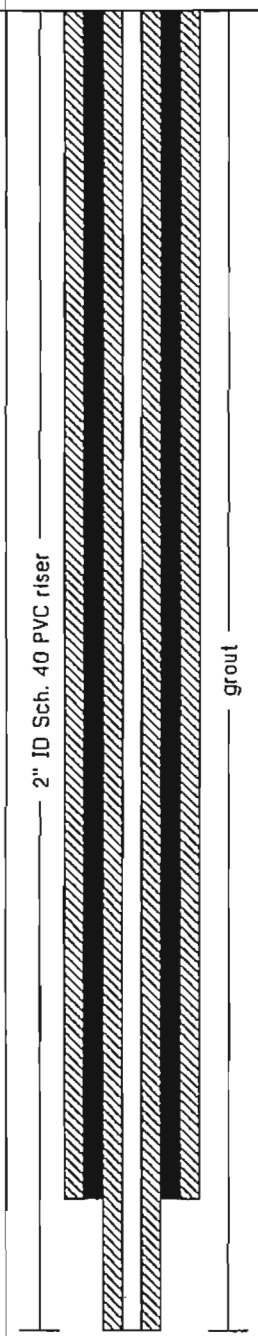
EnSafe/Allen & Hoshall

Monitoring Well NBCA03912D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315457.63 E, 381509.74 N*
Location: *Charleston, SC*	Surface Elevation: *8.7 feet msl*
Started at *0905 on 7-18-96*	TOC Elevation: *8.32 feet msl*
Completed at *1040 on 7-22-96*	Depth to Groundwater: *6.39 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *1.93 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *56.3 feet bgs*
Geologist: *T. Kafka*	Well Screen: *46.3 to 55.8 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							OL OH	Clay: marsh clay as above; occasional very fine to fine sand partings with <5% shell hash.	11.3 / 11.8
							SW	Sand/shell hash: fine to coarse sand; medium to coarse shell hash; few clayey stringers; wet.	12.4 / 13
			9	85	0		OL OH	Clay: marsh clay; occasional very fine to medium sandy laminae; some fine to medium shell hash; moist to wet.	13.3
			10	100	0		SP OL	Clay: marsh clay; fine to medium/coarse sand and fine to medium shell hash lenses at 22-22.2', 23.6-23.7', and 23.4-23.5'; very fine to fine sand in last 0.1'.	15.3 / 16
25							SM SP		18.8
			11	75	0		SM SP	Interbedded sand/clay: marsh clay with very fine to fine/medium with 5% very fine to medium shell hash; clay in lenses 0.2-0.3' wide.	17.3
			12	55	0		SP	Sand: dark gray; very fine to fine with trace medium fining downward; silty; trace to some fine shell hash; wet; occasional clayey partings.	18.4 / 19.3
								Sand: dark gray with black stains; very fine to fine; some silt; wet.	20.1
30			13	40	0		OH SP	Sand: as above; well-sorted.	21.3
			14	100	0			Interbedded sand/clay: dark gray; firm; silty; medium to high plasticity; dewatered marsh clay; moist to wet; very fine to fine sand; well-sorted; trace shell hash; 0.1-0.2' lenses at 30', 31.2', 31.6', and 31.8'.	23.3
			15	100				Shelby Tube (32-34'): top-- as above; bottom-- as above.	25.3
35			16	100	0		OH CH	Clay: dark green; silty; stiff; moist--dewatered marsh clay.	
			17	100	0				29.3
							OH CH	Clay: dewatered marsh clay as above; medium plasticity and nearly brittle in driest zones.	29.8
40									

WELL DIAGRAM



EnSafe/Allen & Hoshall

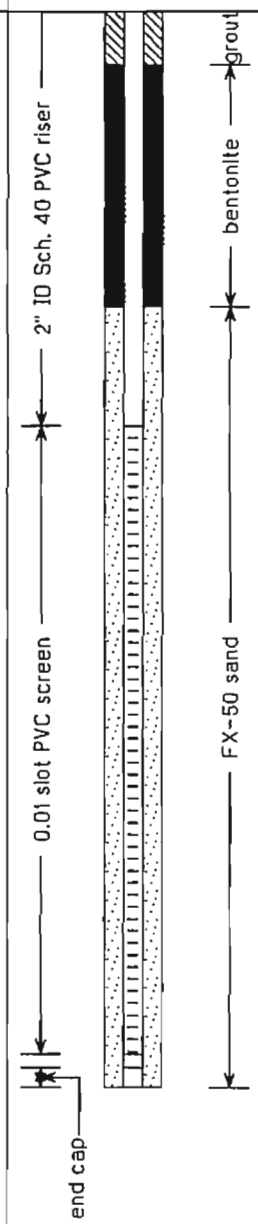
Monitoring Well NBCA03912D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315457.63 E, 381509.74 N*
Location: *Charleston, SC*	Surface Elevation: *8.7 feet msl*
Started at *0905 on 7-18-96*	TOC Elevation: *8.32 feet msl*
Completed at *1040 on 7-22-96*	Depth to Groundwater: *6.39 feet TOC* Measured: *8/7/96*
Drilling Method: *Mud rotary (5.9" OD cutting bit)*	Groundwater Elevation: *1.93 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *56.3 feet bgs*
Geologist: *T. Kafka*	Well Screen: *46.3 to 55.8 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
			18	85	0		OH CH		31.8 / 32
							SM	Sand: dark gray; very fine to fine; silty; some phosphatic content to sand; wet.	33
			19	50	0		SP	Sand: as above.	33.3 / 34.3
			20	50	0		SP	Sand: as above;	35.3 / 36.2
45			21	45	0		SP	*Note: recovery in spoons limited by blockage of shoe with PVC fragments from end cap on casing-- being pushed down by bit.*	37.3
								Sand: as above with silty rich zone at 46.5-46.7'.	38.3
			22	50	0		SP SM	Sand: as above with silt content increasing at depth; mostly clean in top of sample.	39.3 / 40.2
50			23	100	0		OL	Clay: dark gray; silty; soft; fat; low/medium plasticity--Marsh clay; occasional very fine sandy pockets.	41.6
							SW GW	Sand: medium to dark gray; very fine to coarse with fine to very coarse shell hash comprising ~40-50% matrix; shells up to 2 cm size; trace silt.	42.5
			24	60	0		SW GW	Sand: as above with 60-70% fine to very coarse shell hash, 10-15% PO_4 angular deposits (< 0.5 cm) ; sand medium to coarse.	43.3 / 44.9
			25	80	0				
55							SW GW	Sand: as above.	46.3
			26	50	0		ML CL	Silt: olive-green; with very fine to fine sand; clayey; soft to firm; low plasticity; moist--Ashley Formation.	47 / 47.3
60									

NOTE: well constructed with 6" ID PVC surface casing from 0-38' bgs grouted into place with portland/bentonite grout.

WELL DIAGRAM



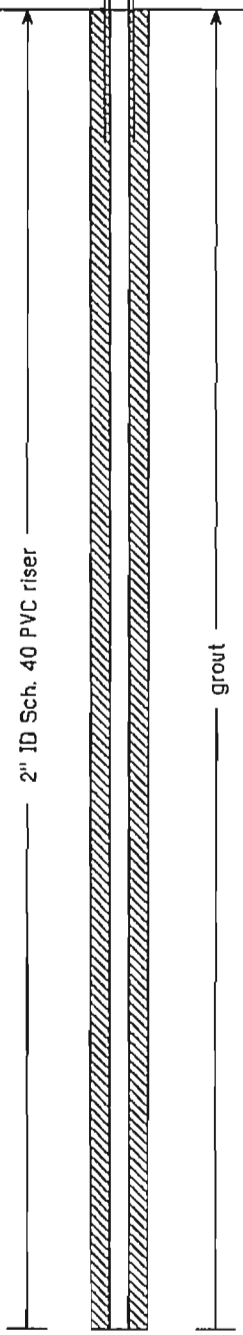
EnSafe/Allen & Hoshall

Monitoring Well NBCA03913D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315505.25 E, 381173.27 N*
Location: *Charleston, SC*	Surface Elevation: *8.2 feet msl*
Started at *0900 on 9-18-96*	TOC Elevation: *10.12 feet msl*
Completed at *1300 on 9-18-96*	Depth to Groundwater: *7.97 feet TOC* Measured: *9/29/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.15 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *52.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *41.7 to 51.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							GM	Surface conditions: ROC and gravel fill.	
							CL CH	Clay: red-brown with faint orange brown; very thin laminae; some silt; damp; very stiff.	4.7
5			1	70	0		CL	Clay: orange and yellow-brown with trace light gray mottling; silty; some very fine to medium sand; firm to stiff; plastic; moist to wet; color change at 6.2' to light gray with orange FeOx mottling and thin laminae.	3.2
							SM SC	Sand: orange and light brown; very fine to fine/medium; trace clay; some silt; trace clay partings and very thin laminae; soft; wet.	.3 / 1.4
10			2	92	0		SP SM	Sand: light brown; very fine to fine; some silt; cohesive; wet.	1.8 / 2.3
							CL	Clay: light brown-gray with some orange; FeOx mottling and thin laminae; some silt; very stiff; plastic; damp; upper 3' has very thin laminae and partings of orange to light gray, very fine to fine, silty sand.	
15			3	100	0		CL CH	Clay: as above without sand partings and laminae.	6.8 / 7.5
							SM SP	Sand: brown to light brown; very fine to fine; very silty from 15.7- 16.3' with very thinly laminated clay, wet.	8.1
							SP	Sand: dark orange brown; very fine to fine/medium decreasing in grain size with depth; some silt; loose; wet; clayey pods and very fine to fine; silty sand laminae (SP-SM) from 17.6-18.1' increasing to fine to medium.	11
20							CL CH	Clay: gray with orange FeOx stains; some silt; firm to stiff; plastic and moist with some very thin; very fine to fine sand partings.	

WELL DIAGRAM



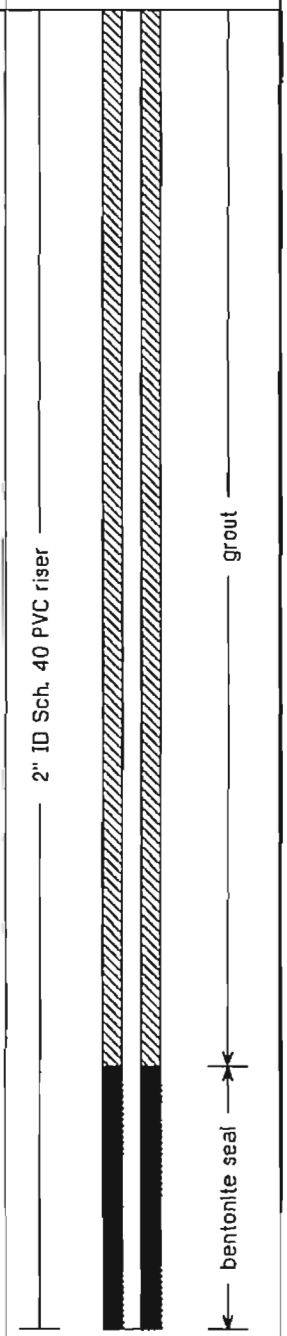
EnSafe/Allen & Hoshall

Monitoring Well NBCA03913D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315505.25 E, 381173.27 N*
Location: *Charleston, SC*	Surface Elevation: *8.2 feet msl*
Started at *0900 on 9-18-96*	TOC Elevation: *10.12 feet msl*
Completed at *1300 on 9-18-96*	Depth to Groundwater: *7.97 feet TOC* Measured: *9/29/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.15 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *52.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *41.7 to 51.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							CL / CH / SM	Sand: light brown; very fine to fine decreasing rapidly to very fine to fine/medium; silt decreasing with depth.	12.1 – 12.8
							CL / CH	Clay: orange FeOx stains with trace gray and brown; some silt; with some orange; very fine to fine; very thin laminae.	13.3 – 14.3
							SP / SW	Sand: brown; very fine to fine increasing in grain size to very fine to medium at 22'; silty; occasional thin clay partings at top.	14.3 – 18.8
25			4	75	0		CL	Clay: red-orange; silty; some very fine sand; firm; plastic; wet.	18.8 – 17.4
							SP / SW	Sand: brown; variable from very fine to fine to fine/medium; no discernible structure; trace silt; loose; wet.	17.4 – 18.9
							SP	Sand: brown with black carbonaceous stains as very thin laminae; very fine to fine; trace to some silt; firm; wet.	18.9 – 20.6
30							SP / SW	Sand: orange-brown grading rapidly to brown and light orange-brown; very fine to fine/medium; trace silt; loose; wet.	20.6 – 22.8
							SP / SM	Sand: light brown; very fine to fine; some silt; firm; wet; becomes light gray-brown to white at 31.8'.	22.8 – 23.8
							SP	Sand: light gray-brown; very fine to fine; trace to some silt; loose; wet.	23.8 –
35							SP	Sand: light gray-white; very fine to fine; varying silt content; trace to some silt; firm; wet.	
							SP	At 37.6-38.3', brown clay laminae (< 1cm) w/ some FeOx stains; plastic; firm; wet.	
40									

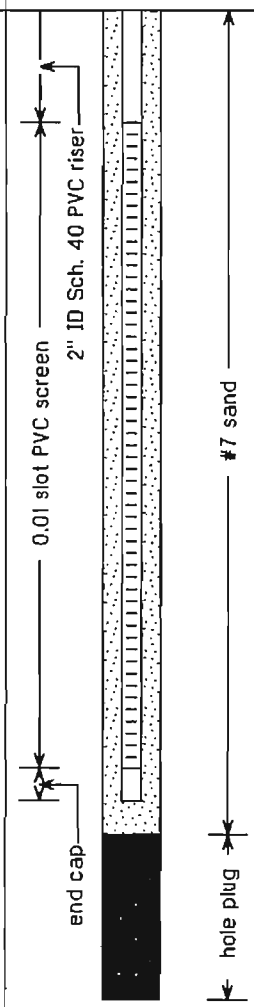
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03913D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315505.25 E, 381173.27 N*
Location: *Charleston, SC*	Surface Elevation: *8.2 feet msl*
Started at *0900 on 9-18-96*	TOC Elevation: *10.12 feet msl*
Completed at *1300 on 9-18-96*	Depth to Groundwater: *7.97 feet TOC* Measured: *9/29/96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.15 feet msl*
Drilling Company: *Boart Longyear*	Total Well Depth: *52.0 feet bgs*
Geologist: *P. Bayley*	Well Screen: *41.7 to 51.5 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP		32.4
45			5	78	0		SW	Sand: light brown; very fine to medium trace coarse; shell fragments comprise 50-60% matrix.	38.8
							SP SW	Sand: brown; very fine to fine trace medium with some shell fragments	38.6
50							GM GC	Gravel: dark gray; granule to 3 cm dia.; grain supported with matrix or clayey silt with some phosphatic sand.	40.9
							ML CL	Silt: olive green-brown; clayey; trace sand from very fine to very coarse; medium plasticity; stiff; effervescent with HCl--Ashley Fm.	42.8
55			6	89	0				48.8
60									

WELL DIAGRAM



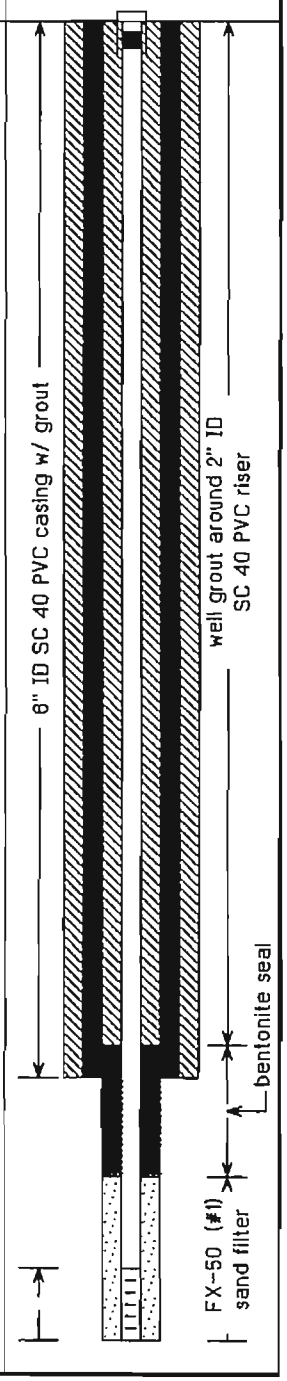
EnSafe/Allen & Hoshall

Monitoring Well NBCA03914D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315147.89 E, 381638.75 N*
Location: *Charleston, SC*	Surface Elevation: *13.7 feet msl*
Started at *1030 on 1-09-97*	TOC Elevation: *13.11 feet msl*
Completed at *1230 on 1-14-97*	Depth to Groundwater: *5.93 feet TOC* Measured: *1/22/97*
Drilling Method: *Mud Rotary (6" OD cutting bit)*	Groundwater Elevation: *7.18 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *24.2 feet bgs*
Geologist: *T. Kafka*	Well Screen: *18.9 to 23.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: Asphalt	
							SP SM	Sand: lt gray w/ green cast; very fine/fine; trace-some silt; dark gray stains in last 0.3'; moist.	9.7 / 8.5
5			1	60	56		SM	Sand: lt green-gray; very fine/fine; trace-some silt; dark silty, clayey stains (6-6.1', 6.3-6.4', 6.5-6.7') w/ heavy Petro odor; moist.	7.7 / 6.2
			2	75	86		SC SM	Sand: blue-green; very fine/fine w/ trace medium; silty; clayey; dark black-brown oily stain @ 8.3-8.6'; wet.	5.7 / 5.1
10			3	75	980			Sand: olive-green; very fine/fine w/ trace medium; silty; trace clay.	4.2 / 3.4
							SP SW	Sand: olive-brown to dark brown; fine/medium w/ trace coarse; heavily stained with oily/fuel-like substance (rootbeer colored); wet.	2.8 / 2.2
			4	75	20		OL CL	Clay: dark rust-brown to medium gray; silty; soft; sticky marsh clay; very fine/fine sand lens at 11.3-11.4'.	1.7
			5	100	7			Clay: as above.	3
15			6	100	0			@13.3-13.5' very fine/fine, gray sand with thinly interbedded clay. @13.8-14' very fine/fine w/ trace medium sand; medium/coarse shell hash; wet.	
								Entire sample from 14-16' is slough; mud is thickened to reduce collapse.	
							SP	Sand: lt medium gray; very fine/fine; ~10% phosphatic sand; clean; wet.	4.3 / 4.9
20			8	30	0		SM OL		6.3

WELL DIAGRAM



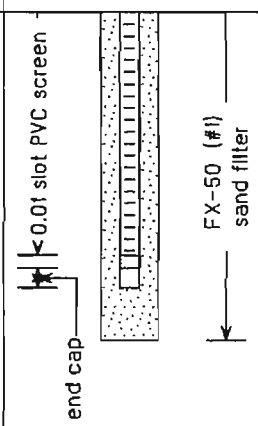
EnSafe/Allen & Hoshall

Monitoring Well NBCA03914D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315147.89 E, 381638.75 N*
Location: *Charleston, SC*	Surface Elevation: *13.7 feet msl*
Started at *1030 on 1-09-97*	TOC Elevation: *13.11 feet msl*
Completed at *1230 on 1-14-97*	Depth to Groundwater: *5.93 feet TOC* Measured: *1/22/97*
Drilling Method: *Mud Rotary (6" OD cutting bit)*	Groundwater Elevation: *7.18 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *24.2 feet bgs*
Geologist: *T. Kafka*	Well Screen: *18.9 to 23.7 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM OL	Sand: dark gray; very fine to fine w/ trace-some medium to coarse; silty; frequent clay stringers (<0.1' wide) of silty, soft, low-medium plasticity marsh clay; fine to coarse shell hash (~15% matrix) in last 0.3'.	6.3
							SM		7.2
			9	75	0				7.8
							ML CL	Sand: lt tan; very fine to fine; ~75% phosphatic sand in matrix; dense; moist.	8.3
			10	75	0			Silt: olive brown; firm to stiff; clayey; some very fine/fine sand in matrix; @22-22.1' lag deposit of coarse shell hash and PO_4 gravel; phosphatic sand in pockets/pits in silt at 22.2-22.4' and 22.5-22.7'; moist; Ashley Formation.	9.8
25									
30									
35									
40									

WELL DIAGRAM



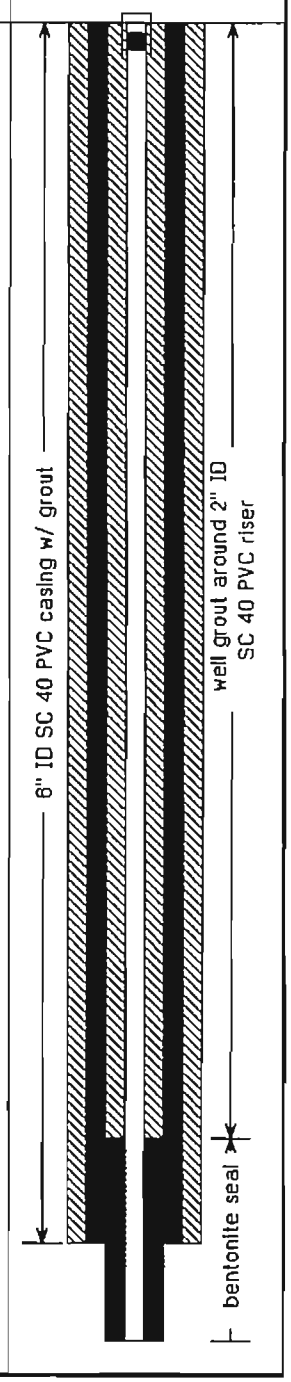
EnSafe/Allen & Hoshall

Monitoring Well NBCA03915D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2314513.09 E, 380981.52 N*
Location: *Charleston, SC*	Surface Elevation: *7.2 feet msl*
Started at *1030 on 1-08-97*	TOC Elevation: *6.53 feet msl*
Completed at *0930 on 1-14-97*	Depth to Groundwater: *6.31 feet TOC* Measured: *1/22/97*
Drilling Method: *Mud Rotary (6" OD cutting bit)*	Groundwater Elevation: *0.22 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *34.1 feet bgs*
Geologist: *T. Kafka*	Well Screen: *24.1 to 33.6 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grassy shoulder of road. 2'x2'x3' Vault-type flush mount completion.	
							SM	Sand: dark brown-black; very fine to fine; silty; well-sorted.	3.2
5								Sand: brown to olive-gray w/ green pits; very fine to fine; less silt than above; gravels in top 0.2'.	2.1
			1	55	0		SM		1.2
							SP SM	Sand: as above with few gravels at 6.7'; dark black organic stain.	1 .1
			2	65	0			Sand: medium brown-gray; very fine to fine; trace-some silt; saturated.	
							WOOD		1.6 1.8
							SM OL	Wood: dark black with silty sand in matrix.	
10			3	60	322			Sand: brown to gray; very fine to fine; trace-some silt in matrix w/ silty gray-black pits and stringers; trace-some marsh clay in irregularly spaced pits.	2.8
							SM SP		4.2
			4	30	0			Sand: medium brown to gray w/ dark pits; very fine/fine; trace-some silt in pits and stringers; trace-some clay; oyster frags in top 0.1'	4.8
			5	0			PT	Saturated clean sand coating spoon; wood probably blocking spoon. Lots of trashy items flushing from hole.	6.8
15								Peat: brown; silty; soft-firm; woody pieces; strong H_2S odor.	8.2
			6	70	270		PT	Peat: as above.	8.8
									10.2
			7	70	160				
20							SM		12.8

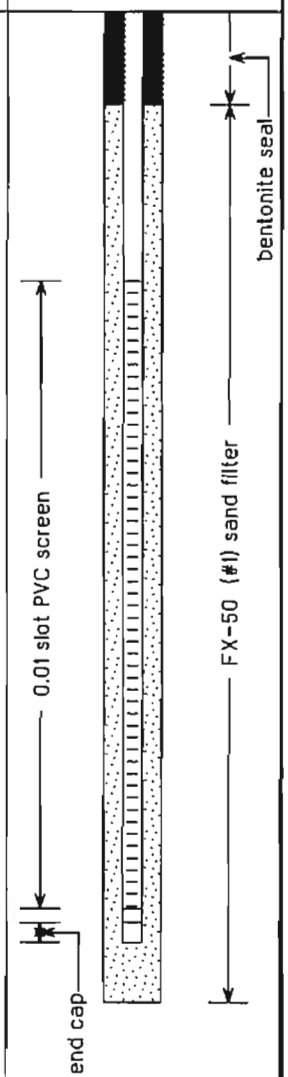
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCA03915D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2314513.09 E, 380981.52 N*
Location: *Charleston, SC*	Surface Elevation: *7.2 feet msl*
Started at *1030 on 1-08-97*	TOC Elevation: *6.53 feet msl*
Completed at *0930 on 1-14-97*	Depth to Groundwater: *6.31 feet TOC* Measured: *1/22/97*
Drilling Method: *Mud Rotary (6" OD cutting bit)*	Groundwater Elevation: *0.22 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *34.1 feet bgs*
Geologist: *T. Kafka*	Well Screen: *24.1 to 33.6 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM	Sand: medium brown; very fine to fine; silty; wet; occasional woody frags.	12.8
							SC CL	Sand: medium gray w/ brown grading to lt blue-green at 21'; very fine to fine; trace-some silt; soft, low-medium plasticity clay increasing in content w/ depth.	13.5
			8	70	5		SP CL		14.2
			9	70	44			Sand: blue-green; very fine to fine w/ trace medium; soft-firm, low- medium plasticity clay present in irregularly spaced lenses in top 0.4' and last 0.3'.	14.8
25							SP SW		16.2
							SC CL	Sand: tan to lt beige; very fine to fine w/ trace medium; abundant woody slivers.	17.4
			10	35	0		SP	Sand: lt blue-green; very fine to fine; trace silty clay @ 25-25.2', soft-firm, medium plasticity.	17.7
			11	40	0		SP	Sand: lt tan to beige; very fine to fine; saturated.	18.1
30			12	35	0		SP	Sand: olive-green to green-brown; very fine to fine; trace silt; small clay lenses irregularly spaced of sticky marsh clay.	18.8
								Sand: light olive-brown to olive-green; very fine to fine; dense.	19.2
			13	25	0		SP	Sand: lt gray; very fine to fine; some phosphatic sand in matrix.	20.8
							GP GW	Gravel: very coarse to fine; largest 0.08' long; subrounded to subhedral quartz grains; lag bed.	21.5
			14	25	0		GP GW	Gravel: as above.	22.8
35							ML CL	Silt: olive-brown; trace-some very fine to fine sand; clayey; firm; low plasticity; moist; Ashley Formation.	23
			15	100	0				24.8
40									25.1
									25.3
									26.8
									27
									28.8

WELL DIAGRAM



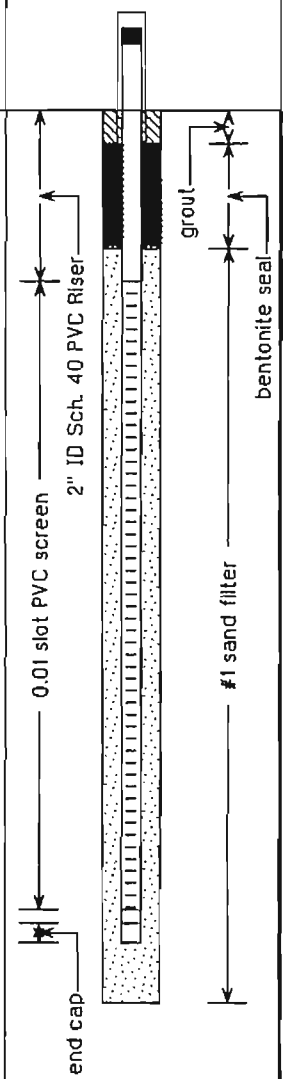
EnSafe/Allen & Hoshall

Monitoring Well NBCA042001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315142.12 E, 380641.84 N*
Location: *Charleston, SC*	Surface Elevation: *7.6 feet msl*
Started at *1400 on 10-07-95*	TOC Elevation: *10.09 feet msl*
Completed at *1530 on 10-07-95*	Depth to Groundwater: *7.03 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.06 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *P. Bayley*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel	
5			1	85	0		CL	Clay: olive to gray with orange-brown mottling, with very fine sand, silty, soft, plastic, moist to wet;	3.6
							CL SC	Clay: orange-red with brown and gray mottling, with increased sand sand content.	2.4 / 1.9
10			2	100	0		SM SP SW	Sand: orange-brown, very fine to medium, silty, with some clay, soft, slightly plastic, wet.	1.4 / 1.8
								Sand: orange-brown, very fine to medium with trace coarse, some silt, soft, plastic, wet.	2.4
								No 13-15' sample taken due to excessive flowing sands inside annulus.	
15									
20									

WELL DIAGRAM



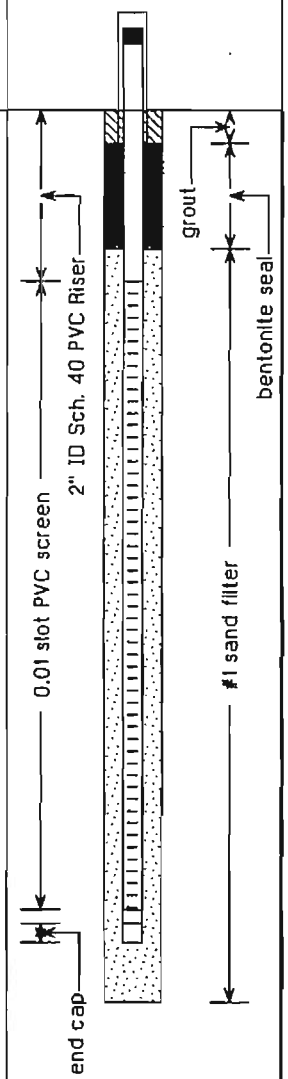
EnSafe/Allen & Hoshall

Monitoring Well NBCA042002

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315069.46 E, 38057.99 N*
Location: *Charleston, SC*	Surface Elevation: *8.0 feet msl*
Started at *1055 on 10-07-95*	TOC Elevation: *10.47 feet msl*
Completed at *1205 on 10-07-95*	Depth to Groundwater: *7.49 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *2.98 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *P. Bayley*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: gravel	
5			1	65	0		CL, SM, SC	Clay: olive and blue-gray with some orange mottling, with very fine to fine sand, soft, plastic, wet.	3.5 / 3.2
								Sand: olive and blue-gray with some orange mottling, very fine to fine, some silt and some clay, soft, plastic, wet.	2.2
10			2	100	0		SW	Sand: light-brown, very fine to medium with trace to some coarse, trace silt, soft, wet.	1 / 2.8
								No 13-15' sample taken due to excessive flowing sands inside annulus.	
15									
20									

WELL DIAGRAM



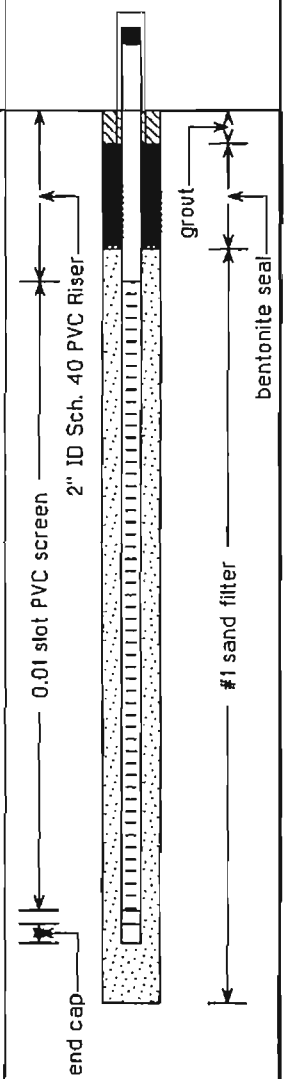
EnSafe/Allen & Hoshall

Monitoring Well NBCA042003

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315069.89 E, 380414.92 N*
Location: *Charleston, SC*	Surface Elevation: *7.7 feet msl*
Started at *0830 on 10-07-95*	TOC Elevation: *10.26 feet msl*
Completed at *0950 on 10-07-95*	Depth to Groundwater: *7.38 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *2.88 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *P. Bayley*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: grass and gravel.	
5			1	75	0		SC, SM, SM	Sand: orange with some gray-brown mottling, very fine to fine, silty, clayey, soft, plastic, wet.	3.7 / 3.4
								Sand: orange, very fine to fine with trace medium, silty, trace clay, soft, slightly plastic, wet.	2.2
10			2	85	0		SW, SC, SM, SW, SP	Sand: light brown, very fine to medium with trace coarse, becomes finer at 9.2'.	1.3 / 1.7
								Sand: light gray to orange-brown, interbedded silty and clayey sand lenses, very fine to fine with trace medium, soft to firm, slightly plastic, wet.	2.3 / 2.6
			3	100				Sand: orange-brown, very fine to medium/coarse, with thin silty clay laminations, soft, wet.	
15			4	100	0		SW, SM, CL, CH	Shelby tube (10-12.5'): top-- sand as above; bottom-- orange-brown sandy clay.	5.8 / 6.4
								Sand: light orange-brown, very fine to medium/coarse, soft, wet; increased silt content bottom 0.2'.	7.8
								Clay: gray with some orange, some silt, plastic, firm to stiff, moist to wet; some sand pits from 14.1-14.3.	
20									

WELL DIAGRAM



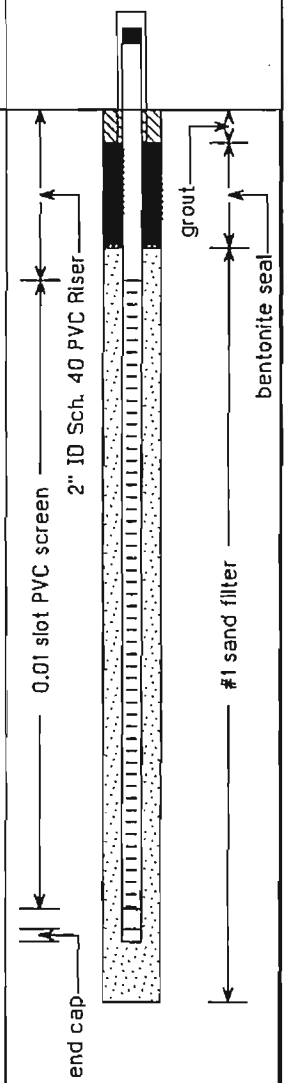
EnSafe/Allen & Hoshall

Monitoring Well NBCA505001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315149.78 E, 380331.97 N*
Location: *Charleston, SC*	Surface Elevation: *7.7 feet msl*
Started at *1640 on 10-06-95*	TOC Elevation: *10.39 feet msl*
Completed at *1750 on 10-06-95*	Depth to Groundwater: *7.46 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *2.53 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.6 feet bgs*
Geologist: *P. Bayley*	Well Screen: *2.6 to 12.1 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt.	
5			1	80	0		SM/SP	Sand: brown, very fine to trace medium, silty, trace clay, wet; with 0.5cm dark brown lamination at 4.6' and 1 cm gray clay lense at 5.6'.	3.2
							SC	Sand: green-gray, very fine to fine, clayey.	1.9 1.6
10			2	65	0		SM/SC	Sand: blue-green with orange-brown mottling, very fine to fine/medium with trace coarse, silty, some clay, plastic, wet; 1 cm clay lens with silty FeOx pits at 9.7'.	-.8 -2.1
15			3	100	0		SP/SW	Sand: orange, very fine to fine/medium with trace coarse, some silt, soft, wet.	-5.8
							CL/CH	Clay: gray and orange, some silt, plastic, with thin very fine to fine/medium sand partings, wet.	-6.7 -6.9
							SW/SM	Sand: orange, very fine to fine/medium with trace coarse, silty, with thin clay partings.	-7.5
							CL/CH	Clay: gray with some orange, some silt, plastic, soft, wet; with thin partings and small sand pits, white to orange, very fine to fine.	-7.8
20									

WELL DIAGRAM



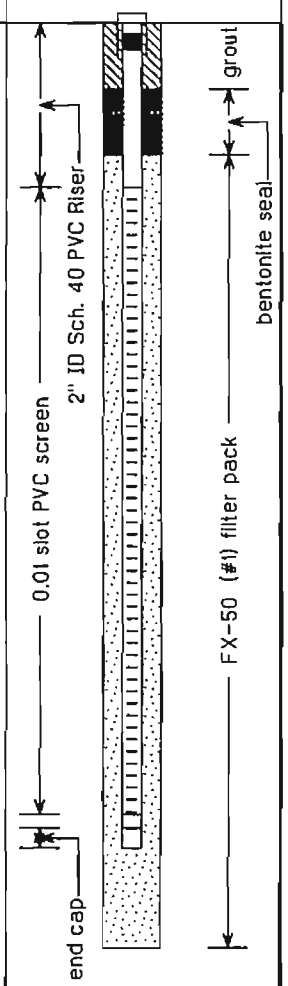
EnSafe/Allen & Hoshall

Monitoring Well NBCA043001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315605.60 E, 380170.25 N*
Location: *Charleston, SC*	Surface Elevation: *6.4 feet msl*
Started at *0930 on 1-10-97*	TOC Elevation: *5.91 feet msl*
Completed at *1055 on 1-10-97*	Depth to Groundwater: *5.22 feet TOC* Measured: *1/22/97*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *0.69 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *12.5 feet bgs*
Geologist: *T. Kafka*	Well Screen: *2.5 to 12.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt	
							WOOD	Wood: dark brown to tan; peaty.	3.4
							SM	Sand: medium gray to dark brown; very fine to fine; silty; some small, soft clayey pods of low plasticity; wet.	2.9
5			1	60	18				2.2
							SC	Sand: green-gray to blue-green; very fine to fine with trace medium; soft, low plasticity clay with trace to some silt; orange-green to olive staining (silty); moist to wet.	1.6
10			2	75	52				2.7
							SP	Sand: olive-brown; very fine to fine; trace to some silt; wet.	4.8
			3	100	1.3				6.6
15									
20									

WELL DIAGRAM



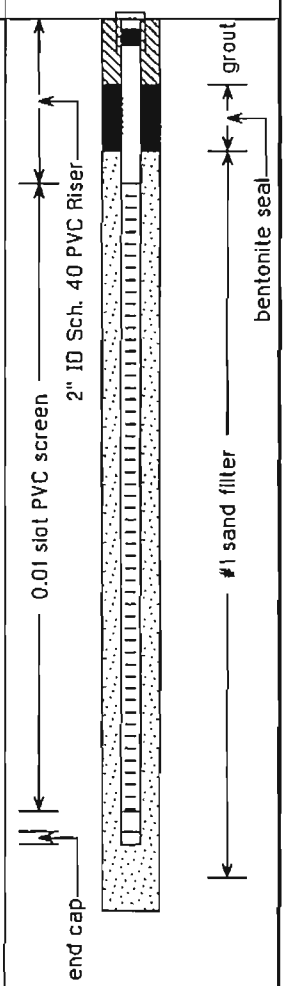
EnSafe/Allen & Hoshall

Monitoring Well NBCA506001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316624.15 E, 380869.74 N*
Location: *Charleston, SC*	Surface Elevation: *9.9 feet msl*
Started at *0800 on 10-11-95*	TOC Elevation: *9.71 feet msl*
Completed at *0900 on 10-11-95*	Depth to Groundwater: *8.05 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *1.66 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.5 feet bgs*
Geologist: *S. Weatherford*	Well Screen: *2.5 to 12.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: concrete pad.	
							SM	Sand: red-brown, loose fill.	6.9
5			1	100	0				4.9
							CH	Clay: red-gray, sandy, tight, damp.	1.9
10			2	100	0				.1
								Cuttings from 10-13': Sand: orange, clayey, medium, wet.	
15									
20									

WELL DIAGRAM



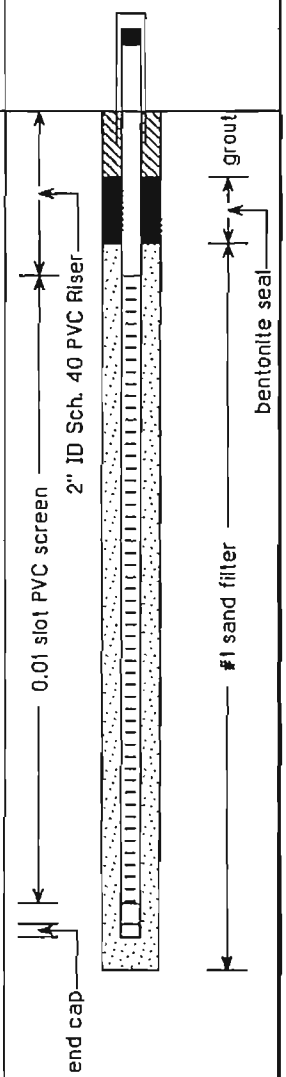
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA001

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316587.47 E, 380620.08 N*
Location: *Charleston, SC*	Surface Elevation: *9.1 feet msl*
Started at *0915 on 10-11-95*	TOC Elevation: *11.45 feet msl*
Completed at *1045 on 10-11-95*	Depth to Groundwater: *9.61 feet TOC* Measured: *1-22-95*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *1.84 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.5 feet bgs*
Geologist: *S. Weatherford*	Well Screen: *2.5 to 12.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt and gravel.	
							SC	Sand: orange, clayey, loose, wet.	8.1
							OL	Clay: dark gray to black, silty, high organic content.	5.1 / 4.8
5			1	75	0			No recovery from shelby tube 10-12.5'.	
			2	0	0				
							SC	Sand: orange, clayey, loose, wet.	1.1
							CL	Clay: red-orange, sandy, tight.	.1
10			3	100	0				-.9
15									
20									

WELL DIAGRAM



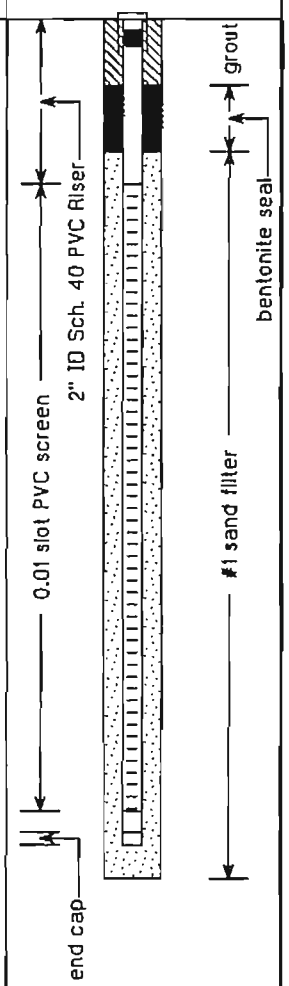
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA002

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231578.64 E, 380420.70 N*
Location: *Charleston, SC*	Surface Elevation: *8.9 feet msl*
Started at *1400 on 10-10-95*	TOC Elevation: *8.61 feet msl*
Completed at *1530 on 10-10-95*	Depth to Groundwater: *4.00 feet TOC* Measured: *1/22/96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *4.61 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.5 feet bgs*
Geologist: *S. Weatherford*	Well Screen: *2.5 to 12.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt parking lot	
							SM SC	Sand: gray-green with brown, fine, loose, trace clay, wet.	5.9
5			1	100	0				3.9
							SC	Sand: gray-green, clayey, loose, wet.	.9
							OH	Clay: red-green, sand, firm.	.1
10			2	100	0				1.1
			3	100	0				
15									
20									

WELL DIAGRAM



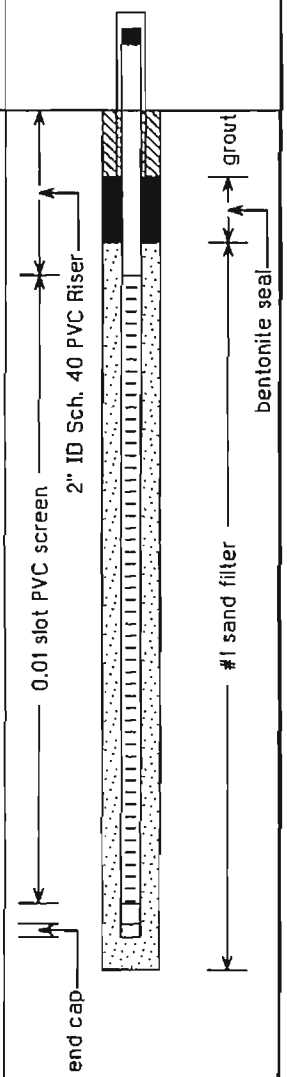
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA003

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316794.40 E, 379811.53 N*
Location: *Charleston, SC*	Surface Elevation: *6.6 feet msl*
Started at *1525 on 10-10-95*	TOC Elevation: *9.12 feet msl*
Completed at *1700 on 10-10-95*	Depth to Groundwater: *5.26 feet TOC* Measured: *1-22-96*
Drilling Method: *4.25" ID (7.5" OD) HSA with split spoon*	Groundwater Elevation: *3.86 feet msl*
Drilling Company: *GES/Miller Drilling*	Total Well Depth: *12.5 feet bgs*
Geologist: *S. Weatherford*	Well Screen: *2.5 to 12.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Surface conditions: asphalt pavement and gravel	
5							CL SC	Sand: clayey, loose, wet, sandy fill.	1.8 / 1.6
			1	50	0				
							OH	Clay: gray-green, fine, fat, wet-- marsh clay.	1.4
10			2	100	0				3.4
								Cuttings 10-13': Clay: loose, silty, sandy, wet.	
15									
20									

WELL DIAGRAM



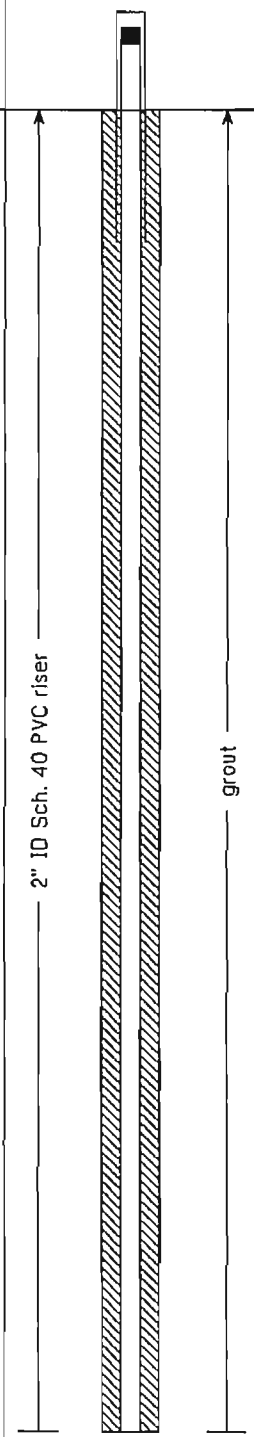
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA01D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316595.85 E, 380626.91 N*
Location: *Charleston, SC*	Surface Elevation: *9.0 feet msl*
Started at *0950 on 11-15-95*	TOC Elevation: *11.33 feet msl*
Completed at *1130 on 11-15-95*	Depth to Groundwater: *9.65 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.68 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *35.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *25.6 to 35.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM	Sand: brown, very fine to fine, some silt, trace to some clay.	8.2
							SP	Sand: orange, very fine to fine/medium, trace to some silt, soft, damp to moist.	6.5
							SM SC	Sand: orange and red-orange, very fine to fine, some silt and clay, soft to firm, trace plasticity, moist.	6
5			1	60			SM SC	Sand: gray and orange-brown, very fine to fine, silty, clayey, soft to firm, slightly plastic, wet.	4
							SC	Sand: gray to brown, as above with higher clay content.	1
10							SP SM	Sand: orange with some gray in upper 0.2', very fine to fine/medium, trace to some silt, soft, wet.	.5
									2.5
15			2	65			SM SC	Sand: brown and gray, very fine to fine, silty, clayey, soft, wet.	6
							SP SW	Sand: light brown with orange mottling, very fine to fine/medium, trace to some silt, soft, wet.	8.6
20			3	100					

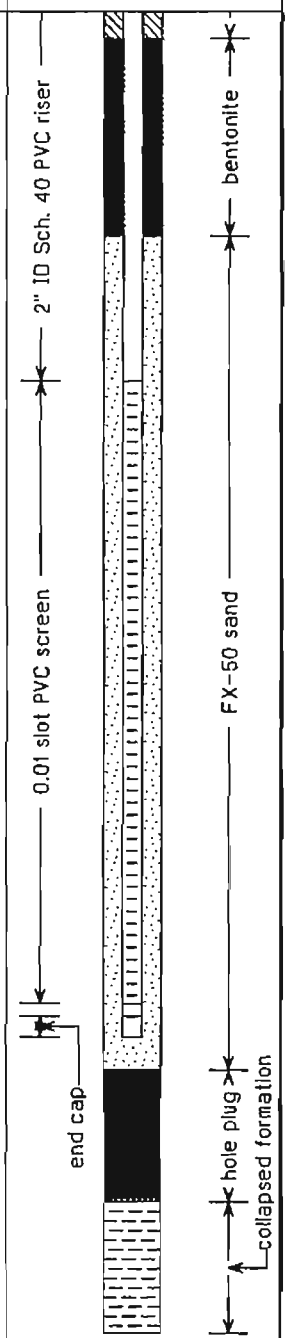
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCAGDA01D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316595.85 E, 380626.91 N*
Location: *Charleston, SC*	Surface Elevation: *9.0 feet msl*
Started at *0950 on 11-15-95*	TOC Elevation: *11.33 feet msl*
Completed at *1130 on 11-15-95*	Depth to Groundwater: *9.65 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.68 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *35.5 feet bgs*
Geologist: *P. Bayley*	Well Screen: *25.6 to 35.0 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Sand: orange with occasional light gray laminae, very fine to fine, trace to some silt, soft, wet.	
25							SP SW	25.9-26.2': some faint very thin black laminae 27.5-29.5': increase in grain size to fine to medium 28.2-28.4': brown, stiff, plastic clay laminae	
30			4	92			SW	Sand: orange, very fine to medium, trace to some silt, soft, wet; increasing to fine/medium from 30.3-31.5', 33.3-35.3'.	21
35							ML CL	Silt: olive-green, clayey, trace very fine sany, slightly calcareous, plastic, firm; upper 0.2' has PO_4 nodules and gray shell hash with silty clay and very fine to fine sand.	26.3
40			5	100					31

WELL DIAGRAM



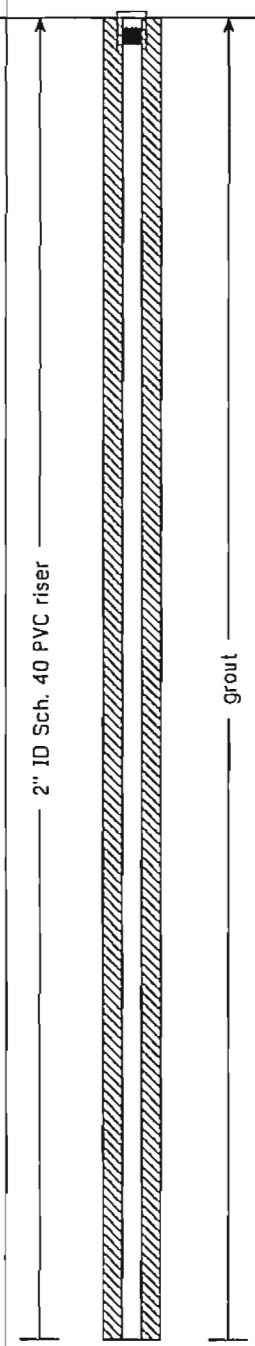
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA02D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231578.35 E, 380418.60 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1320 on 11-17-95*	TOC Elevation: *8.53 feet msl*
Completed at *1600 on 11-17-95*	Depth to Groundwater: *7.78 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.64 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *49.7 feet bgs*
Geologist: *T. Kafka*	Well Screen: *39.8 to 49.2 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							ML SM	Silt: dark brown to black, with very fine to fine sand, trace clay, moist, soft.	8.2
							SM	Sand: olive-green to olive-gray, very fine to fine, well-sorted, silty, trace clay.	7.6
							CL ML	Silt: olive-green, trace very fine to fine sand, clayey, firm; at 2- 2.4' lense of orange-gray clayey sand, very fine to fine, well-sorted, silty; bottom 1' core is soft, moist, with increased clay content and medium to high plasticity.	5.3
5			1	70			GM	Sand and gravel: orange-brown hard clay fragments and cemented sand/ FeOx concretions with 2" basal gravel lens.	3.8 / 3.3
							SC CL	Sand: blue-green to green-gray, very fine to fine grading to fine and medium at 2', clayey stringers throughout and some marl fill in upper 0.3', very clayey, moderate plasticity, wet.	1.3
10									
15			2	25			SP SM	Sand: olive-brown to olive-yellow, very fine to fine with trace medium at 16-18.5', moderately well-sorted, no clay, trace silt, wet; at 17' grades to orange-brown, fine to medium sand, moderately well- sorted, wet.	6.2
							SP	Sand: light brown to tan, very fine to fine, trace silt, no clay, well-sorted, wet.	10.2
20									

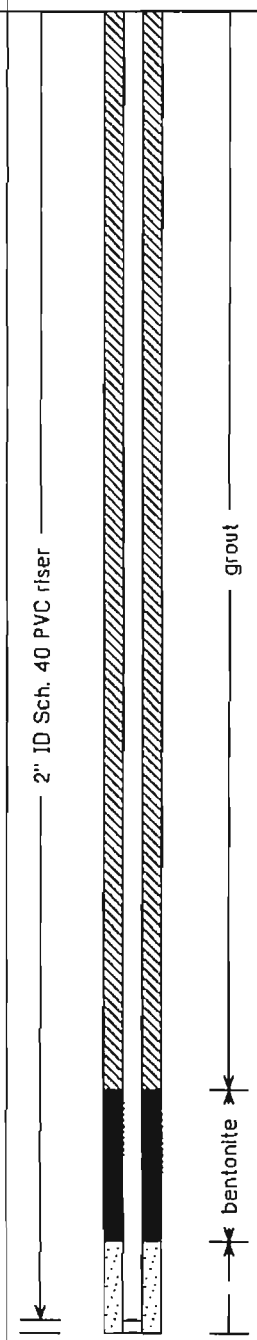
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCAGDA02D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *231578.35 E, 380418.60 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1320 on 11-17-95*	TOC Elevation: *8.53 feet msl*
Completed at *1600 on 11-17-95*	Depth to Groundwater: *7.78 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.64 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *49.7 feet bgs*
Geologist: *T. Kafka*	Well Screen: *39.8 to 49.2 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
25			3	100			SP	Sand: olive-brown, as above, with trace of clay from 32-33'.	
30									
									25.2
							SM	Sand: orange-brown, very fine to fine, higher silt content than above, saturated.	
35			4	90					26.2
							SM SP	Sand: orange-brown, with black silty pods throughout, very fine to fine, well-sorted, saturated.	
									27.7
							SC	Sand: gray, clayey stringer, wet.	28
							SM SP	Sand: orange-brown, very fine to fine, well-sorted, some silt, no clay, wet.	
									30.7
40			5	90			SM SP		31.2

WELL DIAGRAM



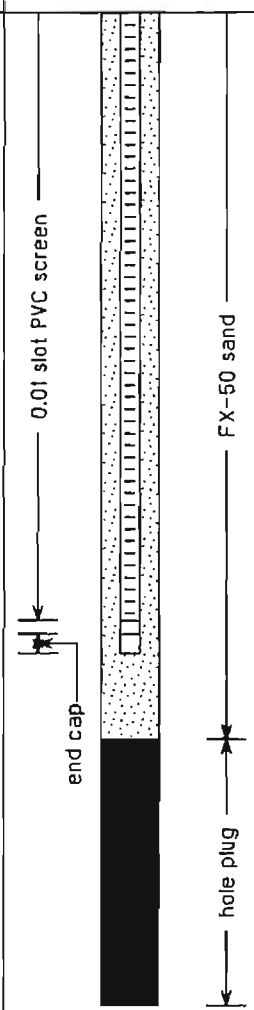
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA02D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *231578.35 E, 380418.60 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1320 on 11-17-95*	TOC Elevation: *8.53 feet msl*
Completed at *1600 on 11-17-95*	Depth to Groundwater: *7.78 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.64 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *49.7 feet bgs*
Geologist: *T. Kafka*	Well Screen: *39.8 to 49.2 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SM SP	Sand: orange-brown, very fine to fine with trace medium, moderately well-sorted, silty, no clay, wet; grades to very fine to fine, well- sorted sand from 41.5-43.5'.	31.2
							SP	Sand: tan to light brown, very fine to fine/medium, moderately well- sorted, trace silty, no clay, wet.	34.7
							SC		35.4
45			6	100			CH	Sand: dark red-brown to brown-orange, fine to medium with some coarse , clayey, silty, low plasticity, crumbly, wet.	36.2
								Clay: gray to dark gray, silty, high plasticity, clean, wet.	
50							GM	Silt and gravel: Lag deposit-- rust-brown to brown-orange, medium to coarse sand, with extensive shell hash with frequent shells up to 5 cm size, poorly sorted, saturated.	40.2
							ML CL	Silt: olive-green, clayey, firm, medium plasticity, calcareous, moist--Ashley Formation.	41.7
55			7	100					46.2
60									

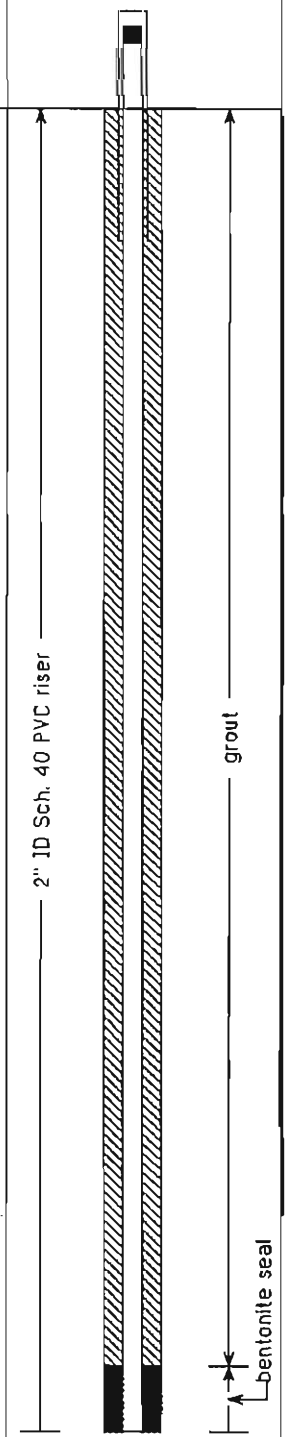
WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCAGDA03D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316794.41 E, 379847.19 N*
Location: *Charleston, SC*	Surface Elevation: *6.3 feet msl*
Started at *1410 on 11-14-95*	TOC Elevation: *8.77 feet msl*
Completed at *1500 on 11-14-95*	Depth to Groundwater: *7.78 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *0.99 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *34.4 feet bgs*
Geologist: *P. Bayley*	Well Screen: *24.5 to 33.9 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							FILL	ROC: light gray, gravel and silty sand.	4.8
							SM SC	Sand: orange-brown to brown, very fine to fine, some silt, with clay laminations at 1.5-1.9', 2.6-2.9', 3.4-3.6'.	2.7
5			1	72			OH	Clay: dark gray-black, silty, soft, with occasional vegetation/roots and grass, wet--marsh clay.	1.3
10							OH	Small 0.4' lens of yellow-brown silt and peat, with very fine sand, some woody pieces, very soft, wet.	6.1
15			2	84			OH	Clay: marsh clay as above.	8.7
20			3	100			OH	Woody knots from 19.5-20' and 20-20.5'.	

WELL DIAGRAM



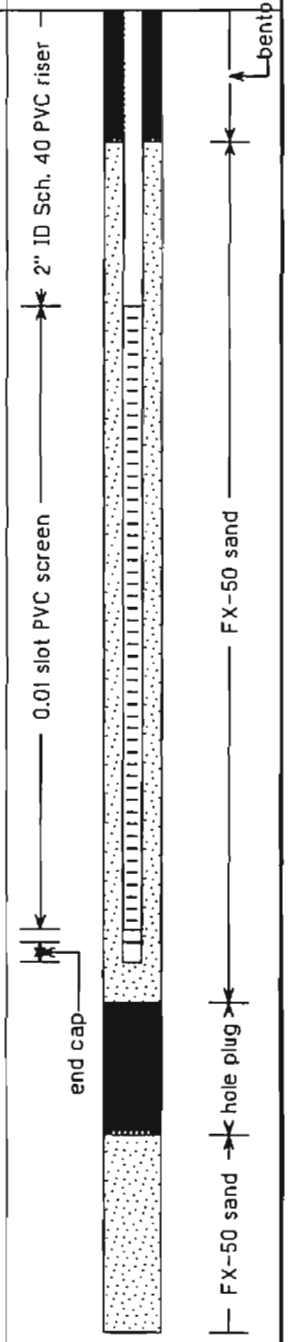
EnSafe/Allen & Hoshall

Monitoring Well NBCAGDA03D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316794.41 E, 379847.19 N*
Location: *Charleston, SC*	Surface Elevation: *6.3 feet msl*
Started at *1410 on 11-14-95*	TOC Elevation: *8.77 feet msl*
Completed at *1500 on 11-14-95*	Depth to Groundwater: *7.78 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *0.99 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *34.4 feet bgs*
Geologist: *P. Bayley*	Well Screen: *24.5 to 33.9 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							OH	1-2 cm very fine to medium sand laminations from 21.5-23'.	
									16.7
							SP SM	Sand: gray, very fine to medium, trace silty laminations.	
									17.7
							OH		
25			4	100					18.7
							SM SC	Sand: light green-gray, very fine to fine with trace medium, silty, clayey, soft, wet.	
									19.5
								Clay: green with orange mottling with some silty sand, stiff, plastic , wet; with occasional sandy laminations <1 cm, wet.	
30							CL CH		
								Woody knot at 32.5'	
35			5	78					28.7
							GM GC	Gravel: phosphate lag bed; gray, up to 1.5-2 cm size, with silty clay and some sand in matrix, plastic, soft.	
									29.5
								Silt: yellow-olive, some sand, some clay, trace calcareous-- Ashley Formation.	
							ML CL		
40			6	100					33.7

WELL DIAGRAM



EnSafe/Allen & Hoshall	Monitoring Well NBCAGDA03D
Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316794.41 E, 379847.19 N*
Location: *Charleston, SC*	Surface Elevation: *6.3 feet msl*
Started at *1410 on 11-14-95*	TOC Elevation: *8.77 feet msl*
Completed at *1500 on 11-14-95*	Depth to Groundwater: *7.78 feet TOC* Measured: *1-22-96*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *0.99 feet msl*
Drilling Company: *Alliance Environmental*	Total Well Depth: *34.4 feet bgs*
Geologist: *P. Bayley*	Well Screen: *24.5 to 33.9 feet bgs*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
									33.7	FX-50 sand
45										
50										
55										
60										

Appendix B

Data Summary From Shelby Tube Samples

Table I - Summary Data for Zone A

Sample Number	CETCO Sample #	Permeability (k)	Specific Gravity (Gs)	Unit Weight (lbs/cu. ft)	Percent Moisture	Void Ratio (e)	Porosity
NBCA 038002	1	0.001540	2.66	125.40	26.00	0.66	0.39937
NBCA GDA002	2	0.000028	2.65	130.00	29.60	0.65	0.39404
NBCA 039001	3	0.001340	2.63	127.30	24.40	0.61	0.37779
NBCA 042003	4	0.000059	2.71	133.70	21.20	0.53	0.3747

Sample NBCA GDA002

Sample Date 10/10/95

Sample Depth 10'-12.5'

Permeability Test Data

k = coefficient of permeability (cm/s)
a = cross sectional area of burette (sq cm)
L = length of specimen (cm)
A = cross sectional area of specimen
h1 = head at beginning of test (cm)
h2 = head at end of test (cm)
t = time from h1 to h2 (s)

a =	1.67	sq cm
L =	10.32	cm
A =	39.16	sq cm
h1 =	97.5	cm
h2 =	53.5	cm
t =	9360	s

k = 2.82E-05 cm/s

Specific Gravity Test Data

Wp =	165.7	g
Wpw =	663.1	g
Ti	25	Degrees C
Wpws	704.5	g
Tx	25	Degrees C
Ws	66.4	g

K =	0.9989
Wtr @Tx =	0.997077
Wtr @Ti =	0.997077

Wpw(@Tx 663.1

Gs= 2.6530784

Unit Weight (Bulk Density) Test Data

A = 39.16 sq cm
L = 10.32 cm
Volume = 404.1312 cu cm

Wt Soil & Tube = 1120 g
Wt Tube = 277.76 g
Wt Soil = 842.24 g

Unit Weight = 130.04632 lbs/cu ft

Percent Moisture (Moisture Content) Test Data

Wsw = 500 g
Ws = 385.7 g
Ww = 114.3 g

%M = 29.634431

Sieve Analysis Test Data

Sieve	Wt Ret (grams)	Wt Pass (grams)	% Pass
3"	0.00	90.00	100.0000
1 1/2"	0.00	90.00	100.0000
3/4"	0.00	90.00	100.0000
3/8"	0.00	90.00	100.0000
#4	0.00	90.00	100.0000
#8	0.00	90.00	100.0000
#16	0.00	90.00	100.0000
#30	2.10	87.90	97.6667
#40	0.80	87.10	96.7778
#50	5.30	81.80	90.8889
#100	40.00	41.80	46.4444
#200	19.80	22.00	24.4444
Pan	22.00	0.00	0.0000

total 90 g

Hydrometer Test Data

W(grams)= 90

Time	Actual Reading	Correct Factor	Corrected Reading	Temp (C)	L	K	D	P
0		0	0	22		0.01332	ERR	-1783.258
2	1.011	0	1.011	22	13.4	0.01332	0.044622	19.615835
5	1.009	0	1.009	22	13.9	0.01332	0.0185148	16.04932
15	1.007	0	1.007	22	14.4	0.01332	0.0063936	12.482804
30	1.007	0	1.007	22	14.4	0.01332	0.0031968	12.482804
60	1.007	0	1.007	22	14.4	0.01332	0.0015984	12.482804

L - Effective Depth Of Hydrometer (cm)
K - Value taken From Table
D - Diameter of Soil Particle (mm)
P - Soil in Suspension (%)
(i.e., % of Soil Finer)

Void Ratio Test Data

Wet Unit Weight = 130.04632 lbs/cu ft

Percent Moisture = 29.634431 %

Dry Unit Weight = 100.31773 lbs/cu ft

Gs = 2.6530784

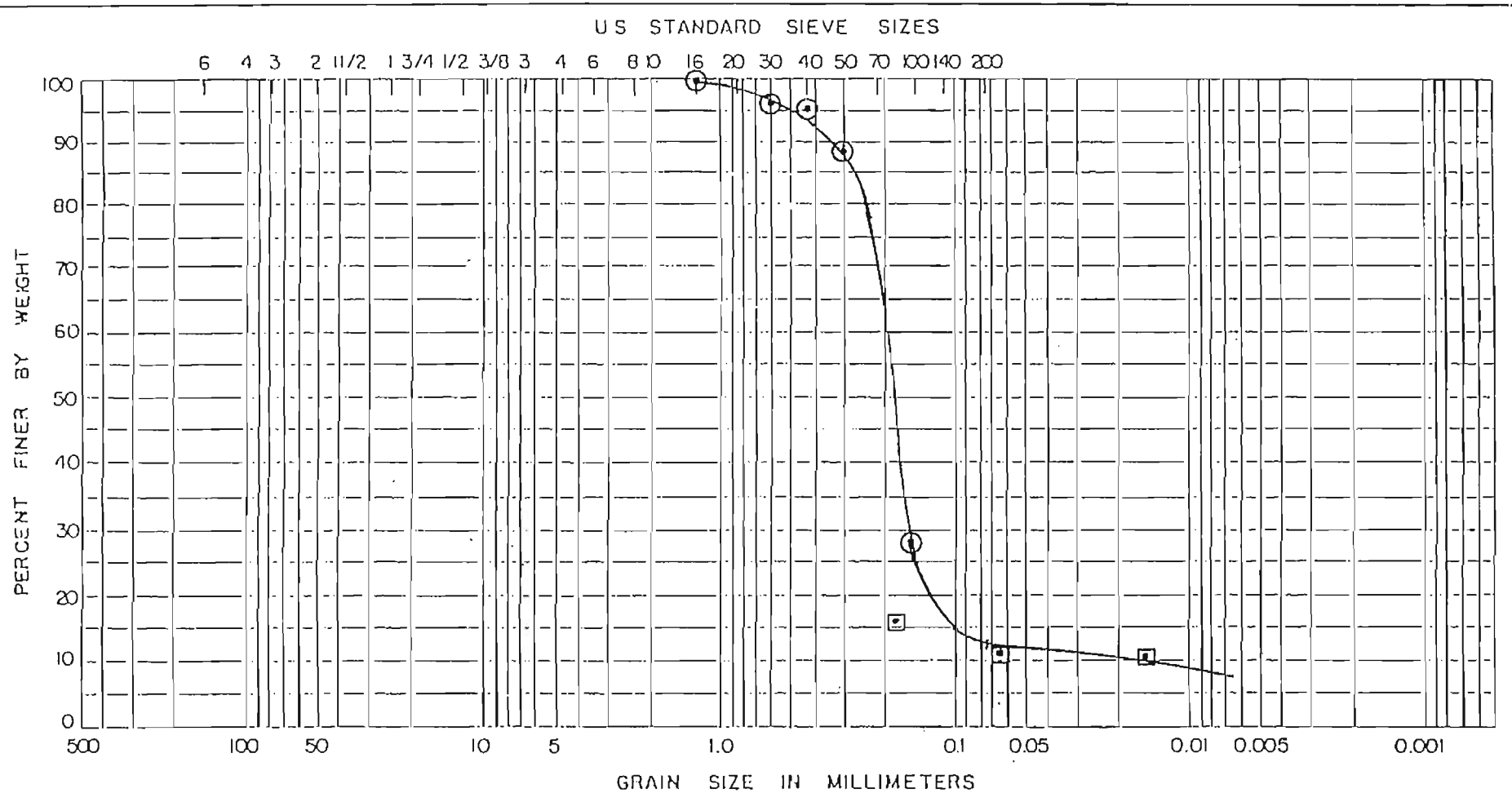
Volume Solids = 0.6059587 cu cm

Volume Voids = 0.3940413 cu cm

Void Ratio = 0.6502775

Porosity Test Data

Porosity= 0.3940413



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	CLASSIFICATION
NBCA SDA 002	10'-12.5'					ZONE A CETCO #2

GRAIN SIZE DISTRIBUTION

JOB NO. 95-03-123

ENGINEERING AND TESTING

Sample NBCA 039001

Sample Date 10/03/95

Sample Depth 10'-10.7'

Permeability Test Data

k = coefficient of permeability (cm/s)
a = cross sectional area of burette (sq cm)
L = length of specimen (cm)
A = cross sectional area of specimen
h1 = head at beginning of test (cm)
h2 = head at end of test (cm)
t = time from h1 to h2 (s)

a =	1.67	sq cm
L =	10.32	cm
A =	39.16	sq cm
h1 =	97.5	cm
h2 =	60.5	cm
t =	156	s

k = 1.34E-03 cm/s

Specific Gravity Test Data

Wp =	165.9	g
Wpw =	654.6	g
Ti	22	Degrees C
Wpws	674.1	g
Tx	28	Degrees C
Ws	32.6	g

K = 0.998
Wtr @Tx = 0.9962652
Wtr @Ti = 0.9978019

Wpw(@Tx 653.84736

Gs= 2.63496

Unit Weight (Bulk Density) Test Data

A = 39.16 sq cm
L = 10.32 cm
Volume = 404.1312 cu cm

Wt Soil & Tube = 1106.5 g
Wt Tube = 282.2 g
Wt Soil = 824.3 g

Unit Weight = 127.27629 lbs/cu ft

Percent Moisture(Moisture Content) Test Data

Wsw = 500 g
Ws = 401.9 g
Ww = 98.1 g

%M = 24.409057

Sieve Analysis Test Data

Sieve	Wt Ret (grams)	Wt Pass (grams)	% Pass
3"	0.00	90.00	100.0000
1 1/2"	0.00	90.00	100.0000
3/4"	0.00	90.00	100.0000
3/8"	0.00	90.00	100.0000
#4	0.00	90.00	100.0000
#8	0.00	90.00	100.0000
#16	0.00	90.00	100.0000
#30	1.30	88.70	98.5556
#40	3.90	84.80	94.2222
#50	33.50	51.30	57.0000
#100	33.50	17.80	19.7778
#200	4.70	13.10	14.5556
Pan	13.10	0.00	0.0000

total 90 g

Hydrometer Test Data

W(grams)= 90

Time (min)	Actual Reading	Correct Factor	Corrected Reading	Temp (c)	L	K	D	P
0		0	0	22		0.01332	ERR	-1790.706
2	1.003	0	1.003	22	15.5	0.01332	0.051615	5.3721193
5	1.003	0	1.003	22	15.5	0.01332	0.020646	5.3721193
15	1.003	0	1.003	22	15.5	0.01332	0.006882	5.3721193
30	1.003	0	1.003	22	15.5	0.01332	0.003441	5.3721193
60	1.003	0	1.003	22	15.5	0.01332	0.0017205	5.3721193

L - Effective Depth Of Hydrometer (cm)
K - Value taken From Table
D - Diameter of Soil Particle (mm)
P - Soil in Suspension (%)
(i.e., % of Soil Finer)

Void Ratio Test Data

Wet Unit Weight = 127.27629 lbs/cu ft

Percent Moisture = 24.409057 %

Dry Unit Weight = 102.30468 lbs/cu ft

Gs = 2.63496

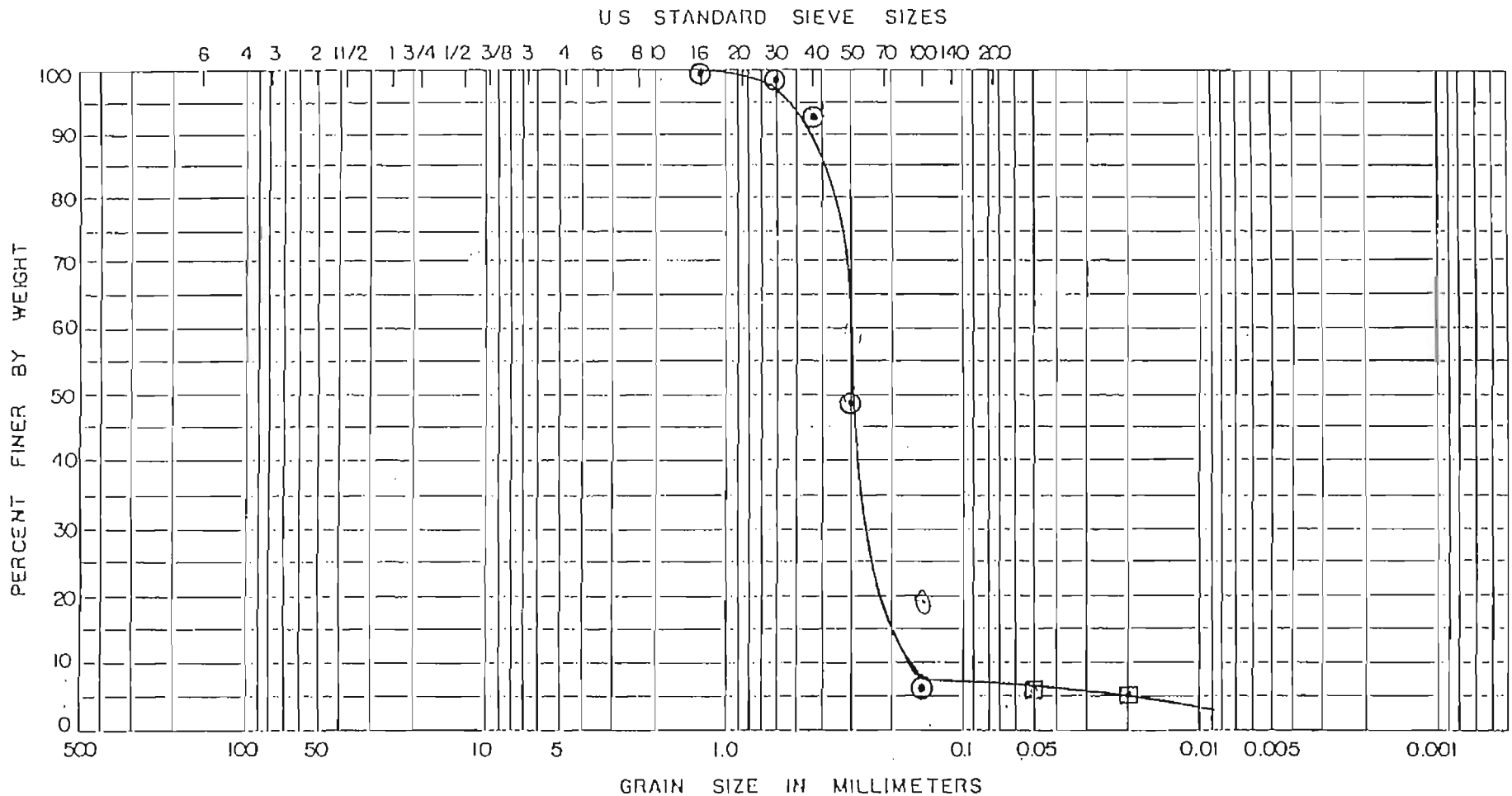
Volume Solids = 0.6222099 cu cm

Volume Voids = 0.3777901 cu cm

Void Ratio = 0.6071747

Porosity Test Data

Porosity= 0.3777901



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	CLASSIFICATION
NBCA 039001						ZONE A GEOCO #3

GRAIN SIZE DISTRIBUTION

JOB NO. 95-03-123

COASTAL ENGINEERING AND TESTING

Sample NBCA 042003

Sample Date 10/07/95

Sample Depth 10'-12.5'

Permeability Test Data

k = coefficient of permeability (cm/s)
a = cross sectional area of burette (sq cm)
L = length of specimen (cm)
A = cross sectional area of specimen
h1 = head at beginning of test (cm)
h2 = head at end of test (cm)
t = time from h1 to h2 (s)

a =	1.67	sq cm
L =	10.32	cm
A =	39.16	sq cm
h1 =	97.5	cm
h2 =	69	cm
t =	2580	s

k = 5.89E-05 cm/s

Specific Gravity Test Data

Wp =	168.9	g
Wpw =	664.4	g
Ti	22	Degrees C
Wpws	686	g
Tx	26	Degrees C
Ws	35	g

K = 0.9986
Wtr @Tx = 0.9968156
Wtr @Ti = 0.9978019

Wpw(@Tx 663.91021

Gs= 2.7072368

Unit Weight (Bulk Density) Test Data

A = 39.16 sq cm
L = 10.32 cm
Volume = 404.1312 cu cm

Wt Soil & Tube = 1148.3 g
Wt Tube = 282.2 g
Wt Soil = 866.1 g

Unit Weight = 133.73043 lbs/cu ft

Percent Moisture (Moisture Content) Test Data

Wsw = 500 g
Ws = 412.4 g
Ww = 87.6 g

%M = 21.241513

Sieve Analysis Test Data

Sieve	Wt Ret (grams)	Wt Pass (grams)	% Pass
3"	0.00	65.00	100.0000
1 1/2"	0.00	65.00	100.0000
3/4"	0.00	65.00	100.0000
3/8"	0.00	65.00	100.0000
#4	0.00	65.00	100.0000
#8	0.00	65.00	100.0000
#16	0.00	65.00	100.0000
#30	0.00	65.00	100.0000
#40	0.00	65.00	100.0000
#50	0.00	65.00	100.0000
#100	36.50	28.50	43.8462
#200	14.20	14.30	22.0000
Pan	14.30	0.00	0.0000

total 65 g

Hydrometer Test Data

W(grams)= 65

Time (min)	Actual Reading	Correct Factor	Corrected Reading	Temp (C)	L	K	D	P
0		0	0	22		0.01312	ERR	-2439.603
2	1.022	0	1.022	22	10.5	0.01312	0.03444	53.671262
5	1.02	0	1.02	22	11	0.01312	0.014432	48.792056
15	1.019	0	1.019	22	11.3	0.01312	0.0049419	46.352454
30	1.017	0	1.017	22	11.8	0.01312	0.0025803	41.473248
60	1.0155	0	1.0155	22	12.2	0.01312	0.0013339	37.813844
120	1.0135	0	1.0135	22	12.8	0.01312	0.0006997	32.934638

L - Effective Depth Of Hydrometer (cm)
K - Value taken From Table
D - Diameter of Soil Particle (mm)
P - Soil in Suspension (%)
(i.e., % of Soil Finer)

Void Ratio Test Data

Wet Unit Weight = 133.73043 lbs/cu ft

Percent Moisture = 21.241513 %

Dry Unit Weight = 110.30086 lbs/cu ft

Gs = 2.7072368

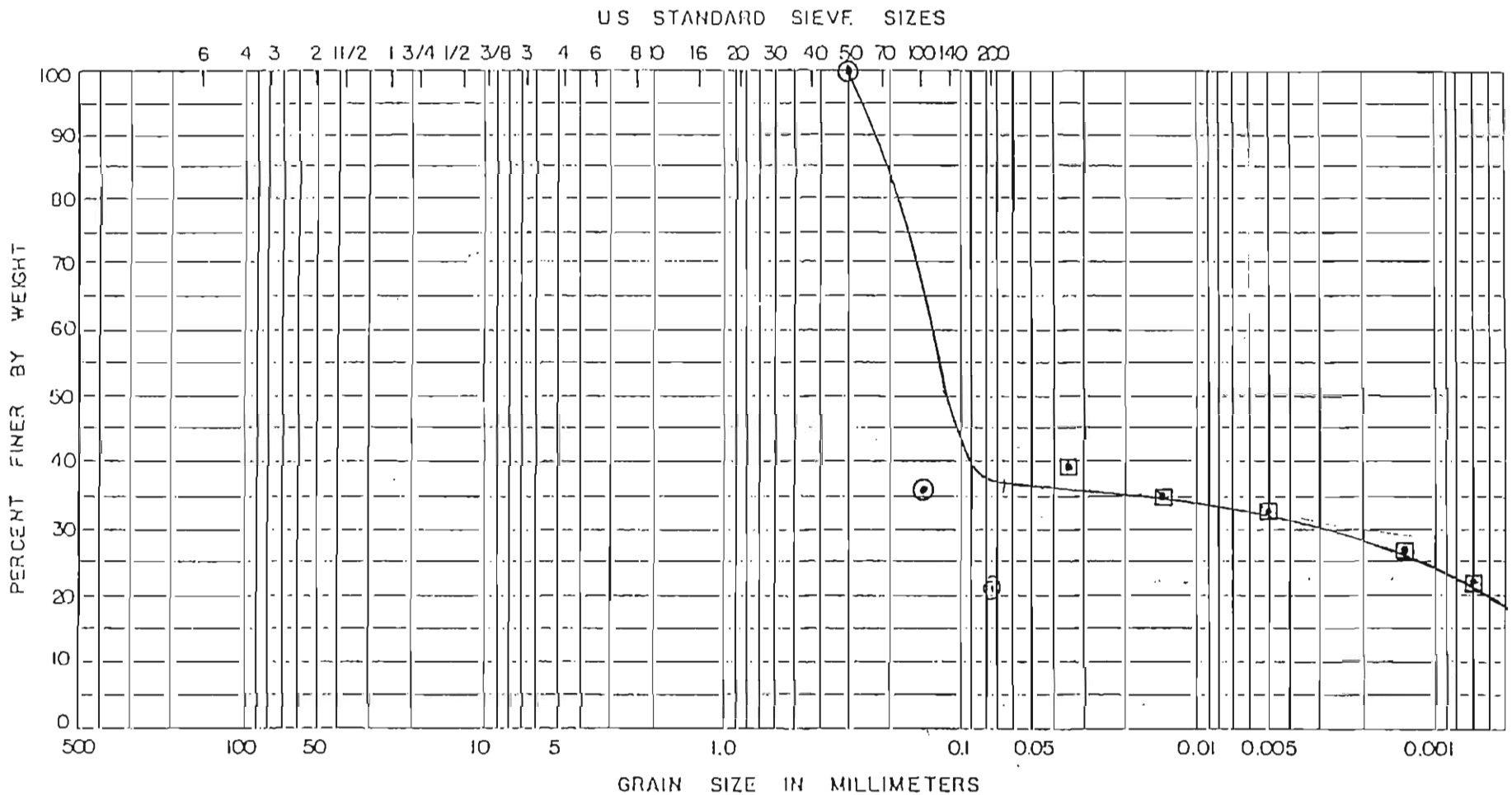
Volume Solids = 0.6529322 cu cm

Volume Voids = 0.3470678 cu cm

Void Ratio = 0.5315526

Porosity Test Data

Porosity= 0.3470678



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	CLASSIFICATION
NBCA 042 003	10'-12.5'					ZONE A CETCO #4

GRAIN SIZE DISTRIBUTION

JOB NO. 95-03-123

PATAL ENGINEERING AND TESTING

Sample NBCA 038002

Sample Date 10/09/95

Sample Depth 10'-12.5'

Sample Test Data

Permeability Test Results

k = coefficient of permeability (cm/s)
a = cross sectional area of burette (sq cm)
L = length of specimen (cm)
A = cross sectional area of specimen
h1 = head at beginning of test (cm)
h2 = head at end of test (cm)
t = time from h1 to h2 (s)

a =	1.67	sq cm
L =	10.32	cm
A =	39.16	sq cm
h1 =	97.5	cm
h2 =	67.5	cm
t =	105	sec

k = 1.54E-03 cm/s

Specific Gravity Test Data

Wp =	171.8	g
Wpw =	668.8	g
Ti	27	Degrees C
Wpws	691.4	g
Tx	25	Degrees C
Ws	35.8	g

K = 0.9989
Wtr @Tx = 0.997077
Wtr @Ti = 0.9965451

Wpw(@Tx 669.06527

Gs= 2.66

Unit Weight (Bulk Density) Test Data

A = 39.16 sq cm
L = 10.32 cm
Volume = 404.13 cu cm

Wt Soil & Tube = 1091.2 g
Wt Tube = 278.9 g
Wt Soil = 812.3 g

Unit Weight = 125.42 lbs/cu ft

Percent Moisture (Moisture Content) Test Data

Wsw = 500 g
Ws = 396.8 g
Ww = 103.2 g

%M = 26.01

Sieve Analysis Test Data

Sieve	Wt Ret (grams)	Wt Pass (grams)	% Pass
3"	0.00	110.00	100.0000
1 1/2"	0.00	110.00	100.0000
3/4"	0.00	110.00	100.0000
3/8"	0.00	110.00	100.0000
#4	0.00	110.00	100.0000
#8	0.00	110.00	100.0000
#16	3.50	106.50	96.8182
#30	17.10	89.40	81.2727
#50	42.30	47.10	42.8182
#100	24.70	22.40	20.3636
#200	12.00	10.40	9.4545
Pan	10.40	0.00	0

total 110 g

Hydrometer Test Data

W (grams)= 110 g

Time (min)	Actual Reading	Correct Factor	Corrected Reading	Temp (C)	L	K	D	P
0	1.0065	0	1.0065	25	14.6	0.01286	ERR	9.4778849
2	1.006	0	1.006	25	14.7	0.01286	0.0472605	8.7488169
5	1.006	0	1.006	25	14.7	0.01286	0.0189042	8.7488169
15	1.005	0	1.005	25	15	0.01286	0.00643	7.2906807
30	1.003	0	1.003	25	15.5	0.01286	0.0033222	4.3744084
60	1	0	1	25	16.3	0.01286	0.0017468	0

L - Effective Depth Of Hydrometer (cm)
K - Value taken From Table
D - Diameter of Soil Particle (mm)
P - Soil in Suspension (%)
(i.e., % of Soil Finer)

Void Ratio Test Data

Wet Unit Weight = 125.42343 lbs/cu ft

Percent Moisture = 26.008065 %

Dry Unit Weight = 99.536032 lbs/cu ft

Gs = 2.6557669

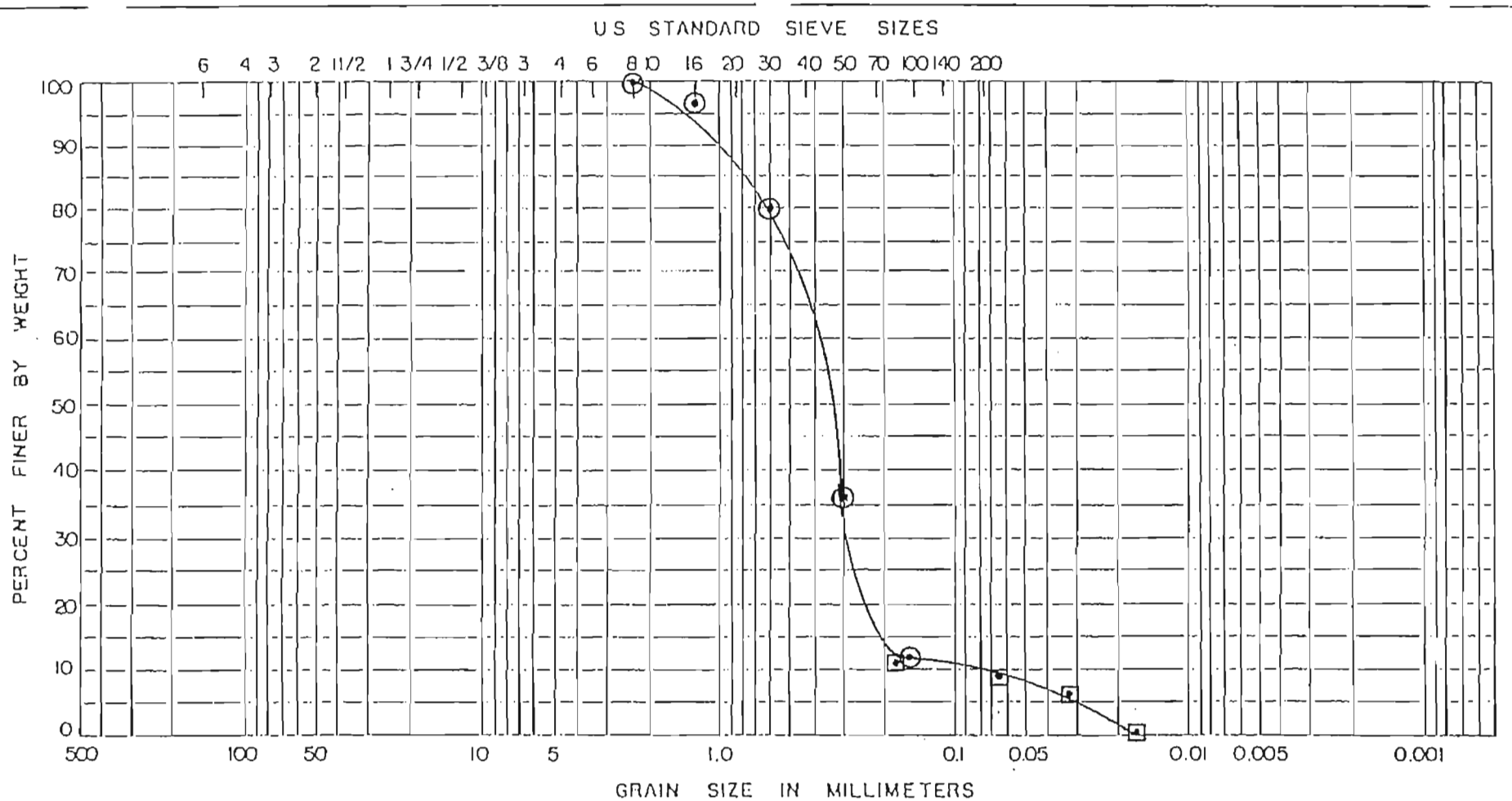
Volume Solids = 0.6006283 cu cm

Volume Voids = 0.3993717 cu cm

Void Ratio = 0.6649232

Porosity Test Data

Porosity= 0.3993717



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	CLASSIFICATION
NBCA 038002	10'-12.5'					ZONE A CETCO #1

GRAIN SIZE DISTRIBUTION

JOB NO. 95-03-123

ENGINEERING AND TESTING

Materials Testing Report	SOIL CONSULTANTS, INC.	HYDRAULIC CONDUCTIVITY TEST ASTM - D 5084
Project And Location:	Naval Base Charleston, RCRA RFI-zone A, Charleston, SC E/A&H Contract #0050-969	
SCI Project:	96-1365 Date:	8-27-96

SAMPLE IDENTIFICATION	NBCA-039-008 10' - 12'	NBCA-039-009 11' - 13' (organic material)	NBCA-039-012 6' - 8'	NBCA-039-12D 32'- 34'

INITIAL CONDITIONS

Sample Length, cm	5.7658	5.08	5.6388	5.6769
Sample Diameter, cm	5.1181	5.1689	5.0419	5.08
Moisture Content, %	50.1	208.0	21.8	21.2
Unit Wet Weight, pcf	107.6	70.7	125.6	125.8
Unit Dry Weight, pcf	71.7	22.9	103.1	103.8
Specific Gravity	2.67	1.87	2.66	2.68
Porosity (computed)	0.569291	0.803297	0.379382	0.379698
Saturation, %	101.2	95.2	95.0	93.0

FINAL CONDITIONS

Sample Length, cm	5.7658	5.0673	5.4102	5.6515
Sample Diameter, cm	5.1308	5.1689	5.08	5.08
Moisture Content, %	50.5	210.0	22.4	21.6
Unit Wet Weight, pcf	107.4	67.2	128.3	125.8
Unit Dry Weight, pcf	71.4	21.6	104.8	103.4
Saturation, %	101.2	89.6	102.0	93.7

TEST CONDITIONS

Permeant	Potable Water	Potable Water	Potable Water	Potable Water
Cell Pressure, psi	30	30	20	20
Back Pressure, psi	27-25	27-25	17-15	17-15
B-value	0.100	0.99	0.97	0.95
Average Gradient	24.3	27.6	24.8	24.6
Hydraulic Conductivity, cm/sec @ 20 deg. C	5.405E-08	1.279E-06	3.850E-06	2.509E-06

SOIL CONSULTANTS, INC.

TABULATED DATA SHEET

SCI Project 96-1365

Date: 8-27-96

Project: Naval Base Charleston, RCRA RFI - Zone A, Charleston, SC
E/A&H Contract #0050-969

I. Results of Falling Head Permeability Test

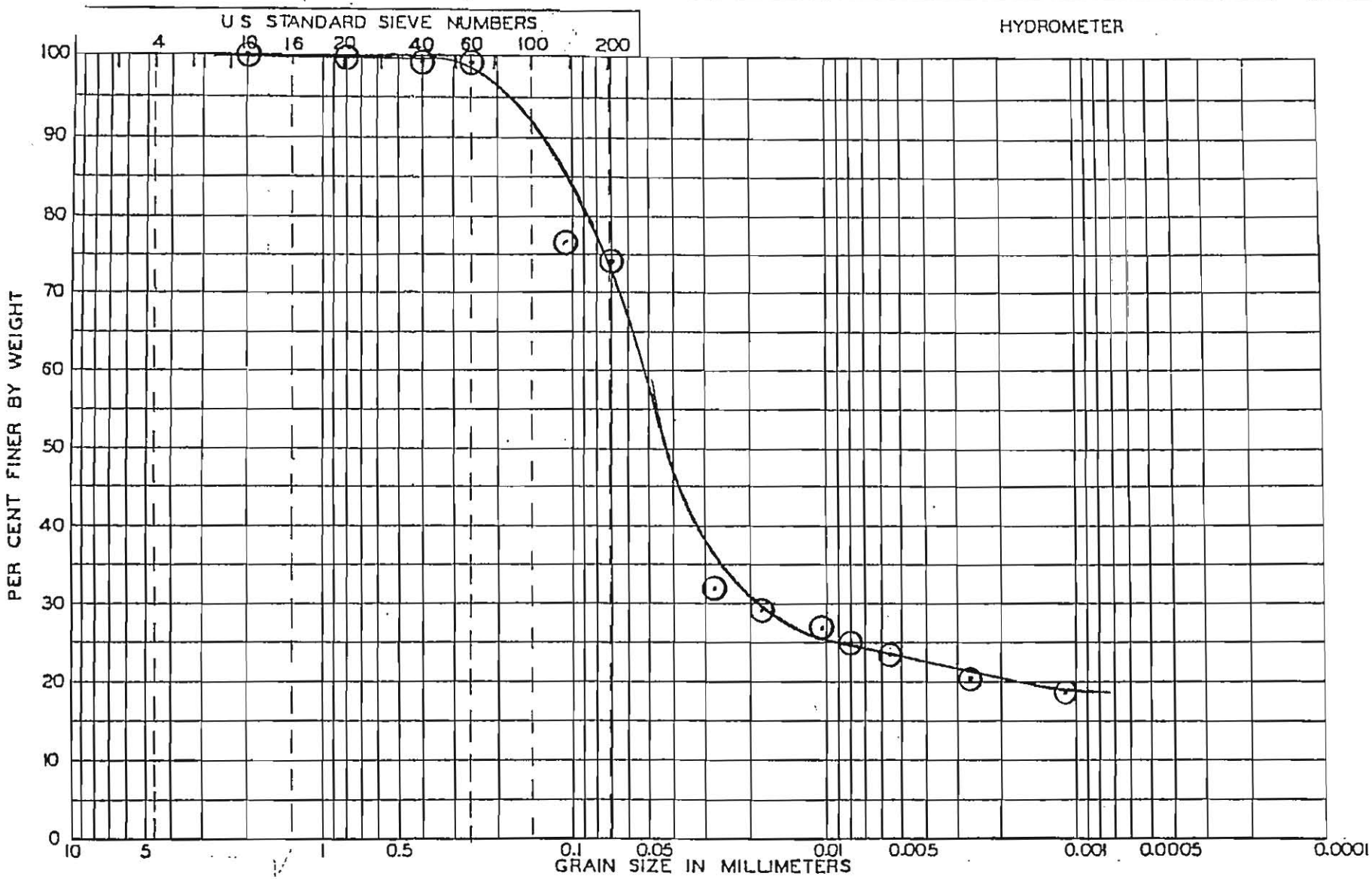
Sample: NBCH 039-009
Depth : 11' - 13' (sand)

Porosity	0.287
Moisture Content	26.5 %
Dry Unit Weight	94.2 lb/cu. ft.
Specific Gravity	2.67
Permeability (k factor)	9.00E-05

II. Results of Moisture Contents and Dry Unit Weights for Shelby Tube Samples

Sample Number	Depth	Moisture Content	Dry Unit Weight
NBCA / 039-009	11' - 13'	70.5 %	74.3 lbs/cu ft
NBCA / 039-12D	32' - 34'	26.2 %	92.4 lbs/cu ft
NBCA / 039-012	6' - 8'	21.8 %	105.5 lbs/cu ft
NBCA / 039-008	11' - 13'	42.5 %	92.4 lbs/cu ft

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-008

DEPTH 10'-12' ELEVATION _____ REMARKS SPECIFIC GRAVITY: 2.67

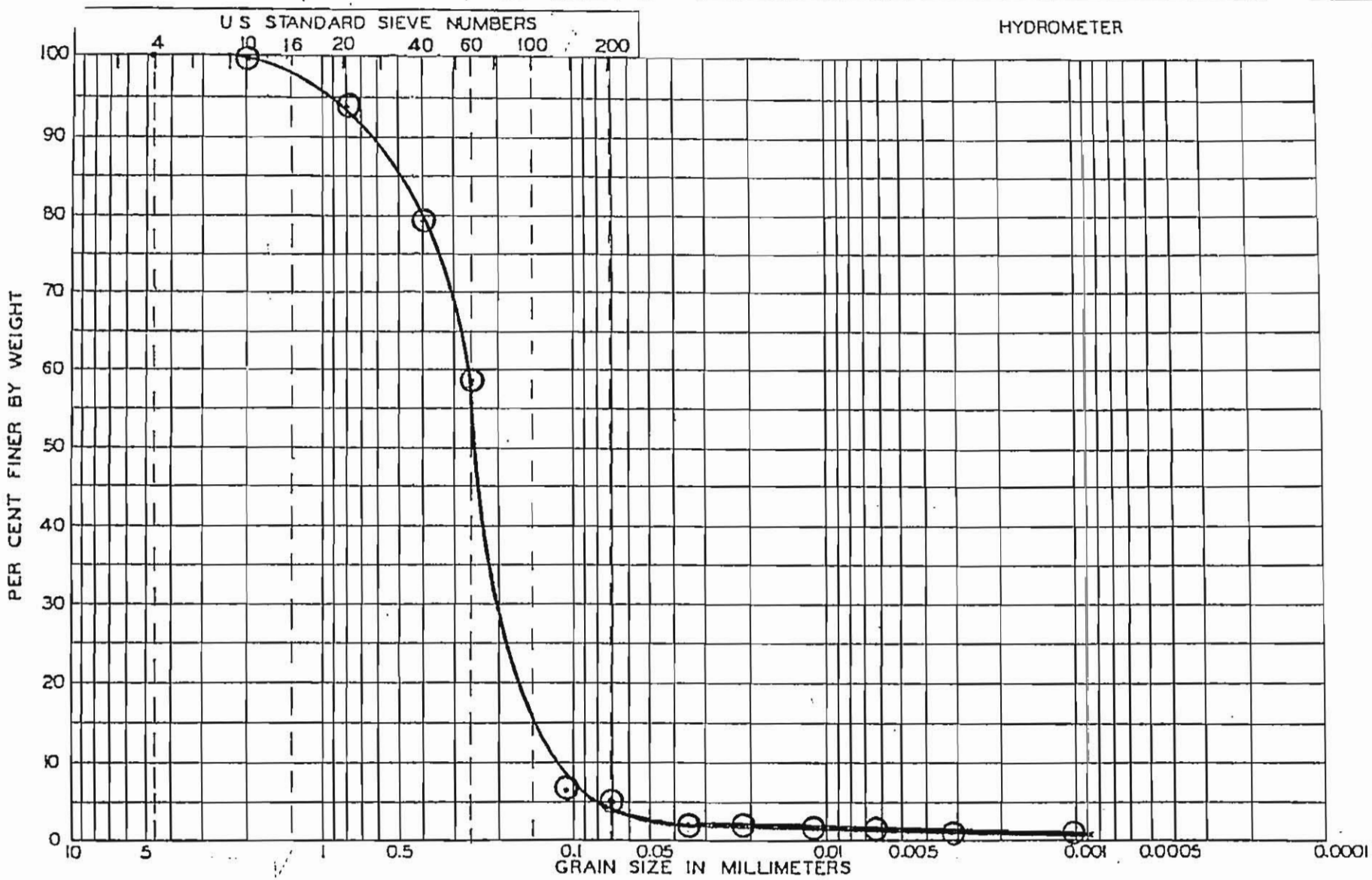
ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

DCL - 8

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-08D

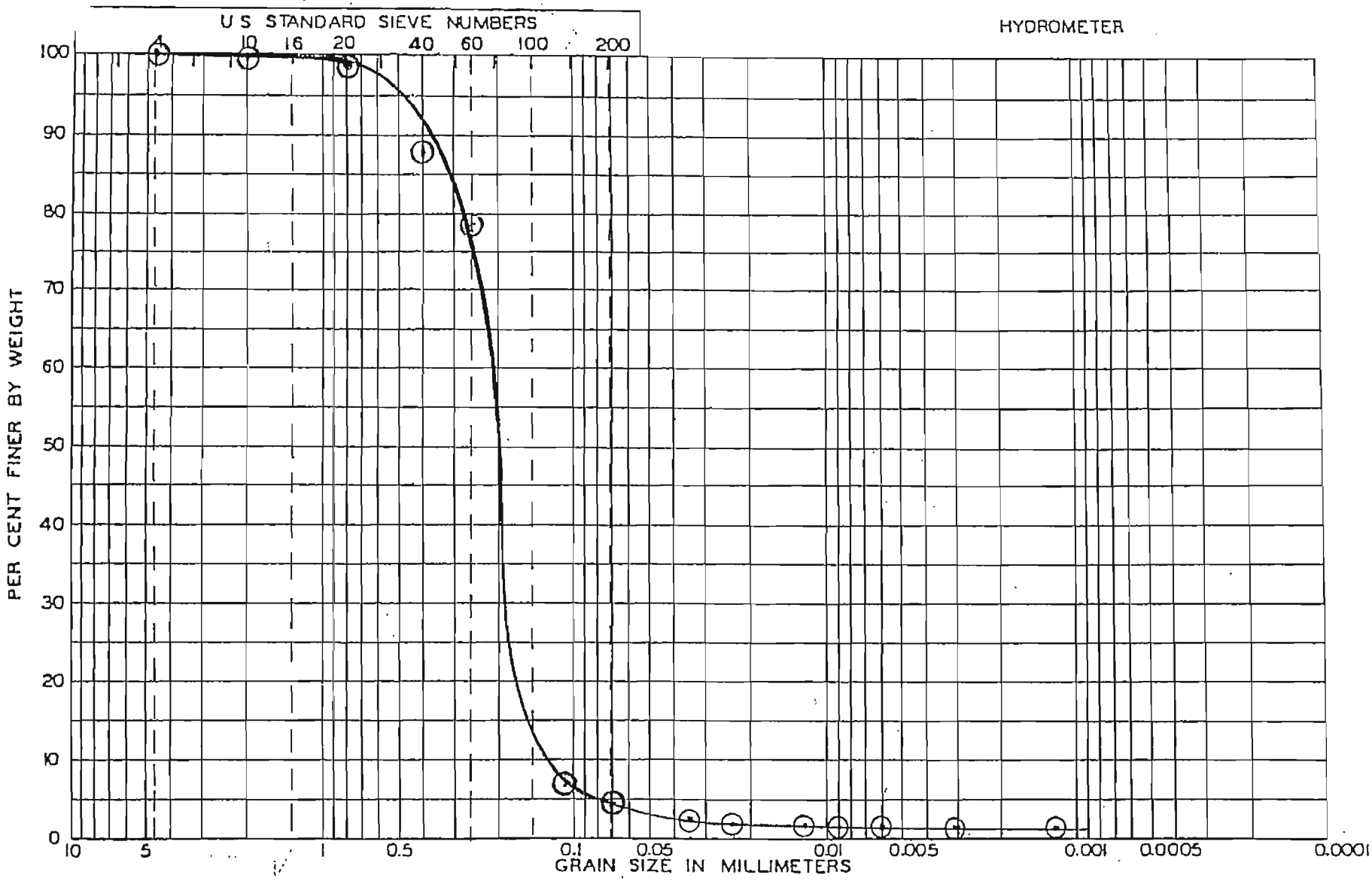
DEPTH 44'-46' ELEVATION _____ REMARKS _____ SPECIFIC GRAVITY: 2.71

ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-08D

DEPTH 46'-48' ELEVATION _____ REMARKS _____ SPECIFIC GRAVITY: 2.72

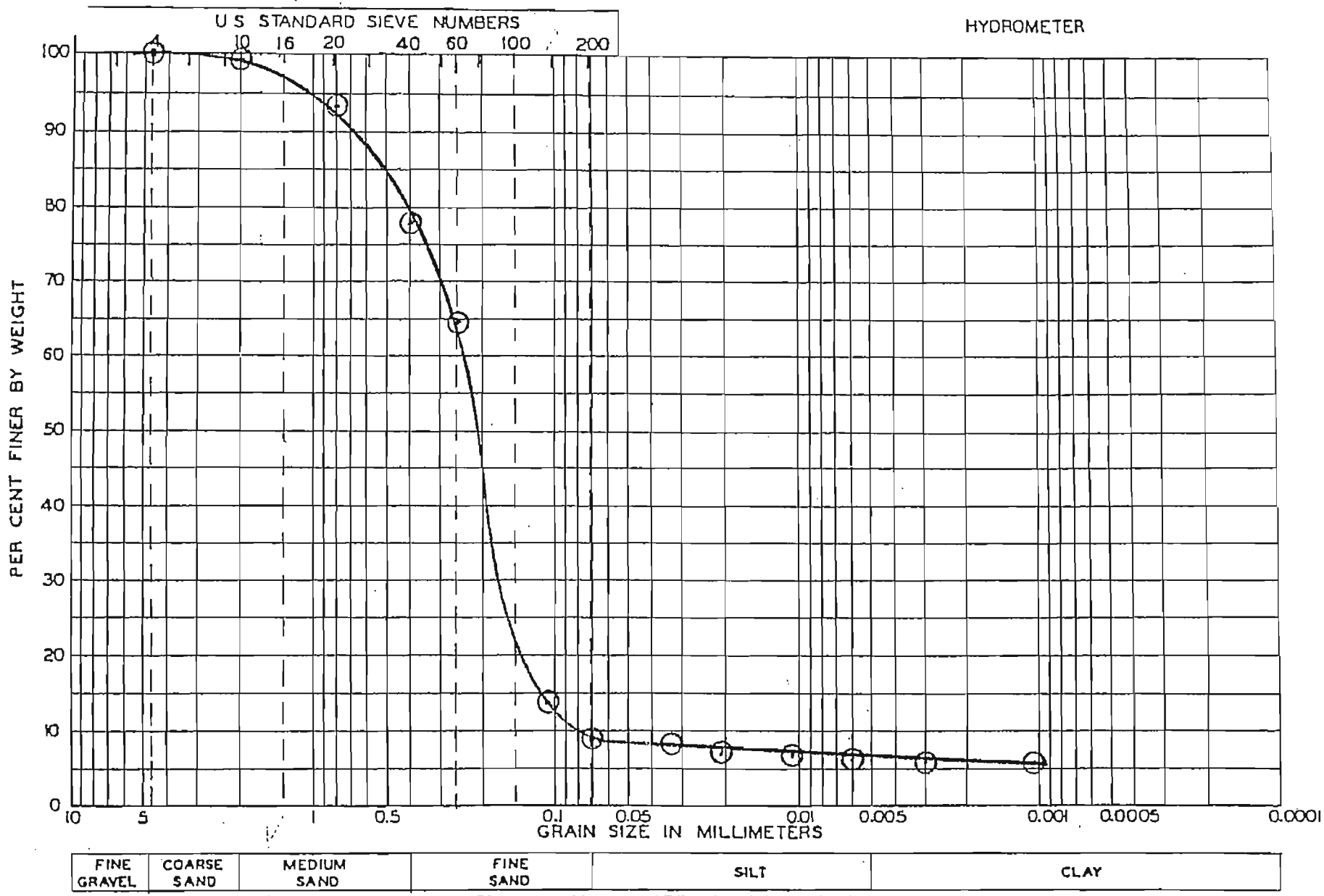
ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

DCL - 8

SCI NUMBER: 96-1365



UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-009

DEPTH 11'-13' ELEVATION _____ REMARKS SPECIFIC GRAVITY: 2.67

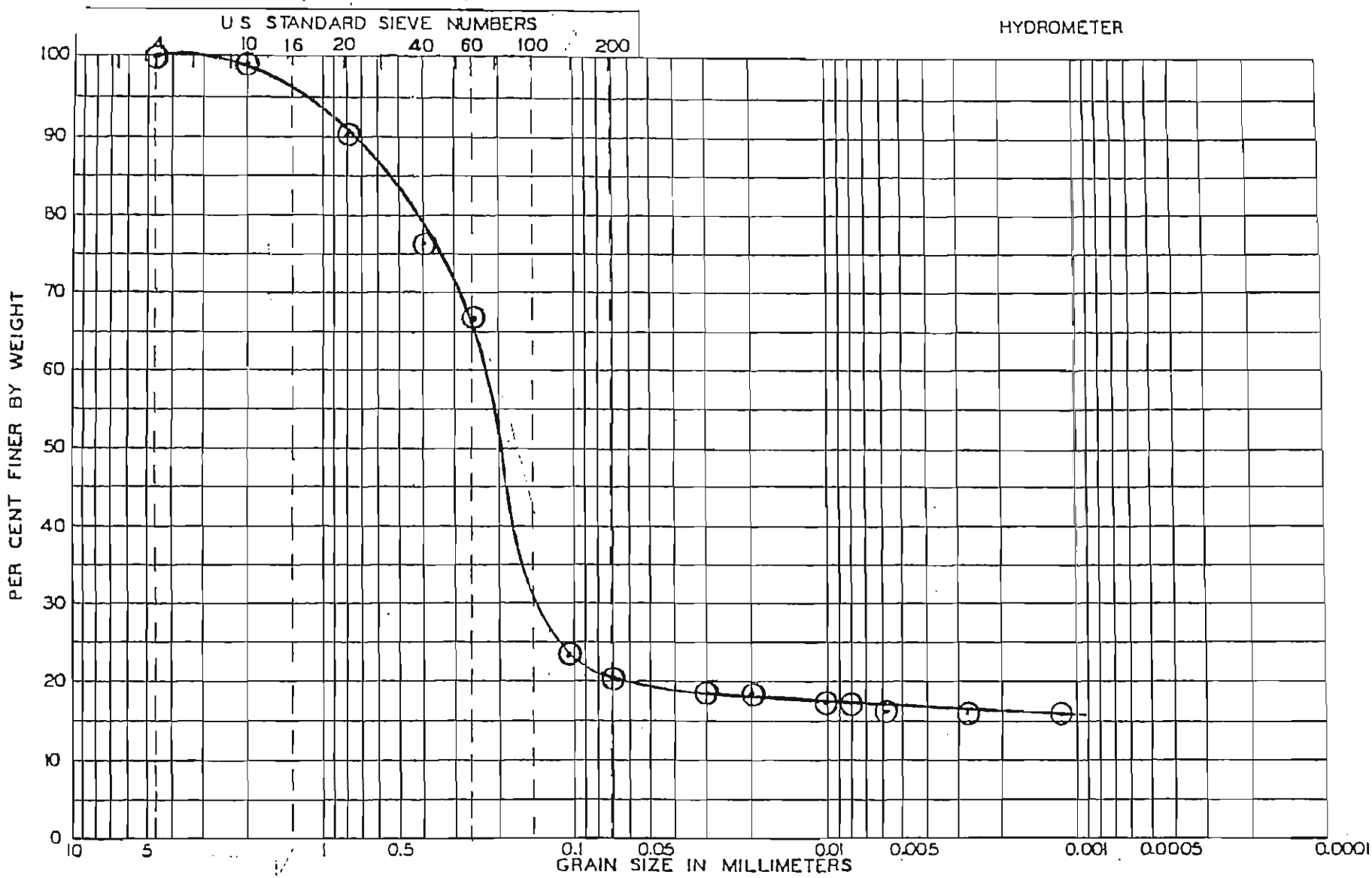
ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

DCL - A

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-012

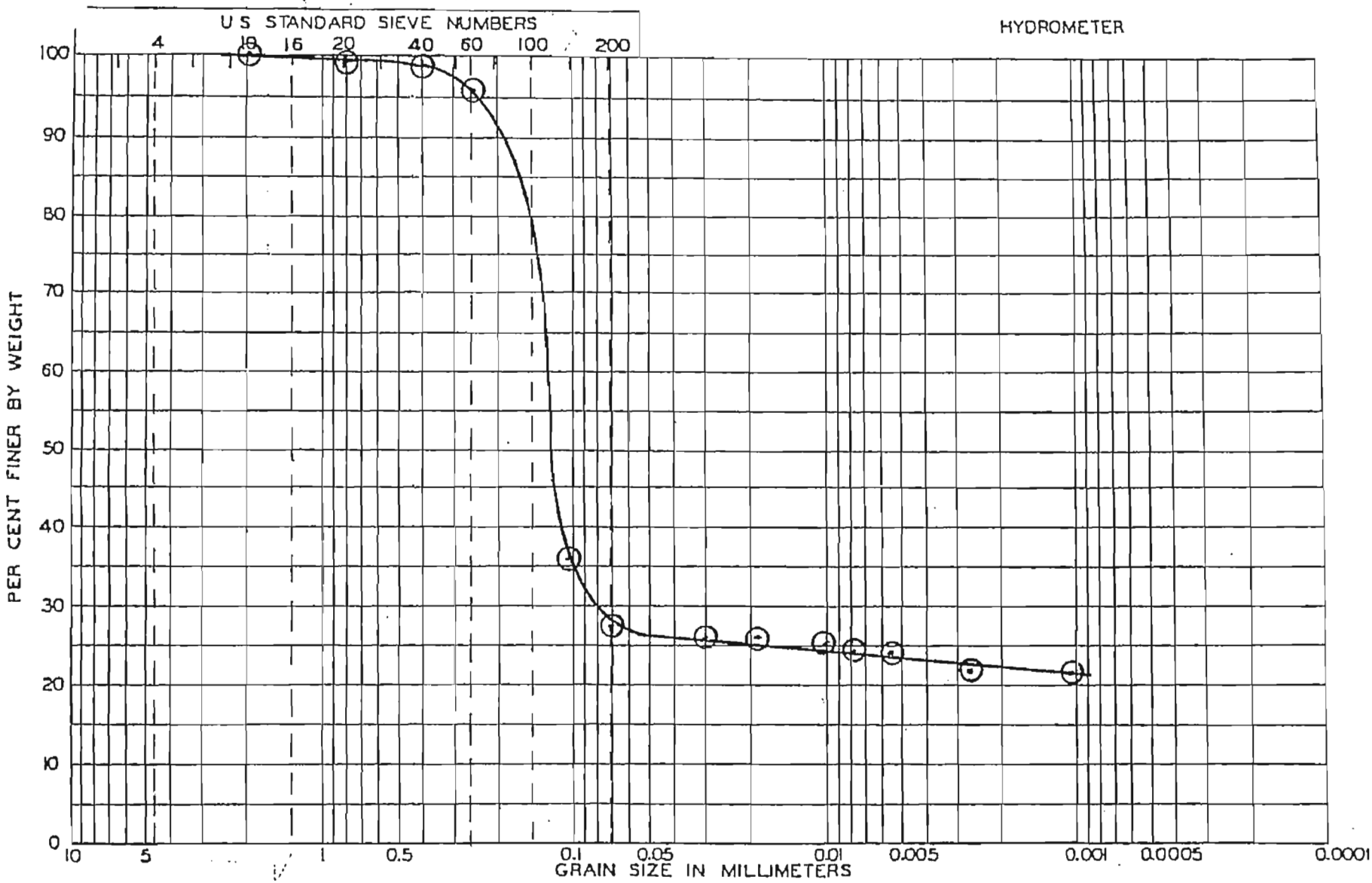
DEPTH 6'-8' ELEVATION _____ REMARKS _____ SPECIFIC GRAVITY: 2.66

ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-12D

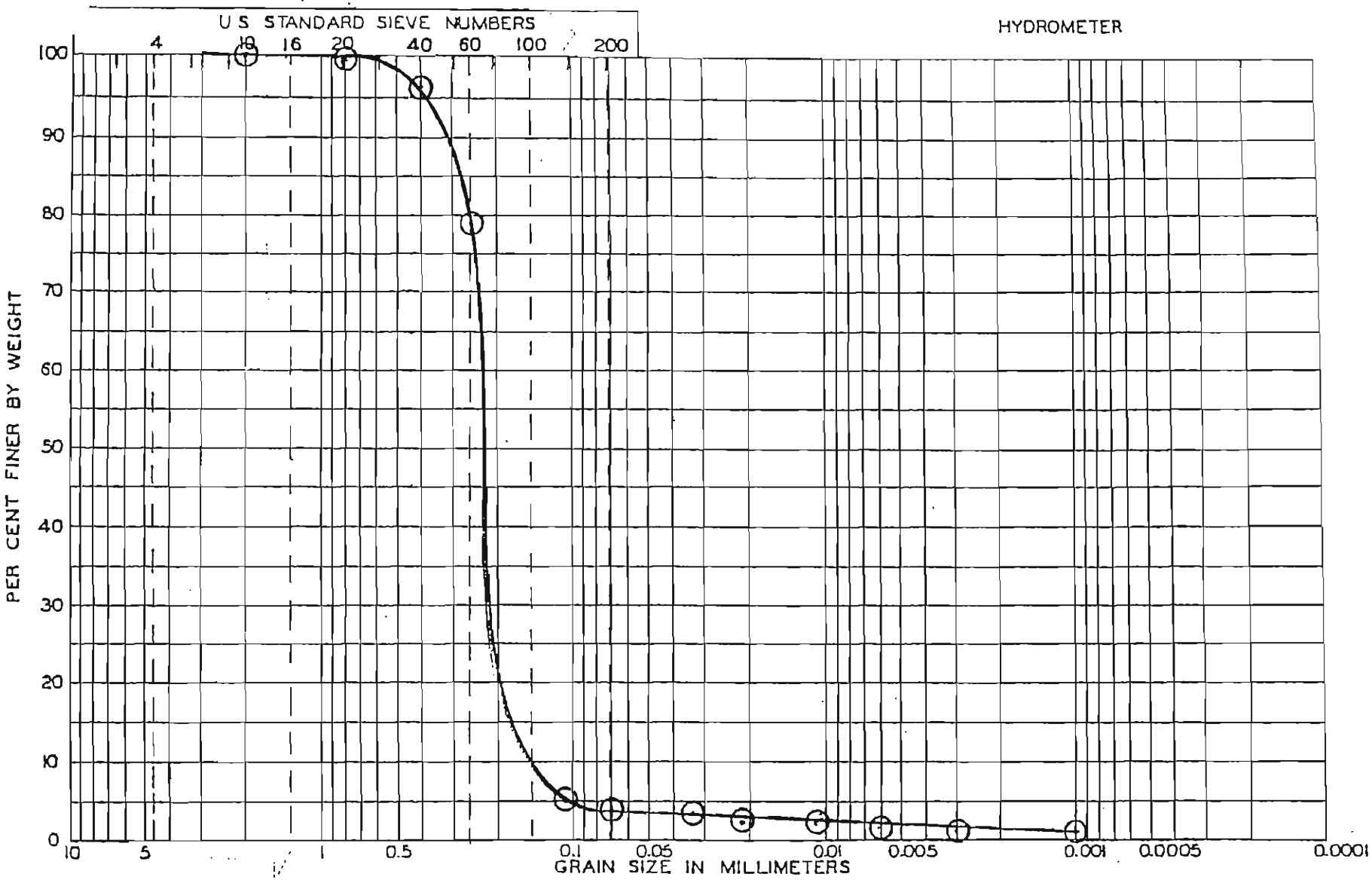
DEPTH 32'-34' ELEVATION _____ REMARKS SPECIFIC GRAVITY: 2.68

ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-12D

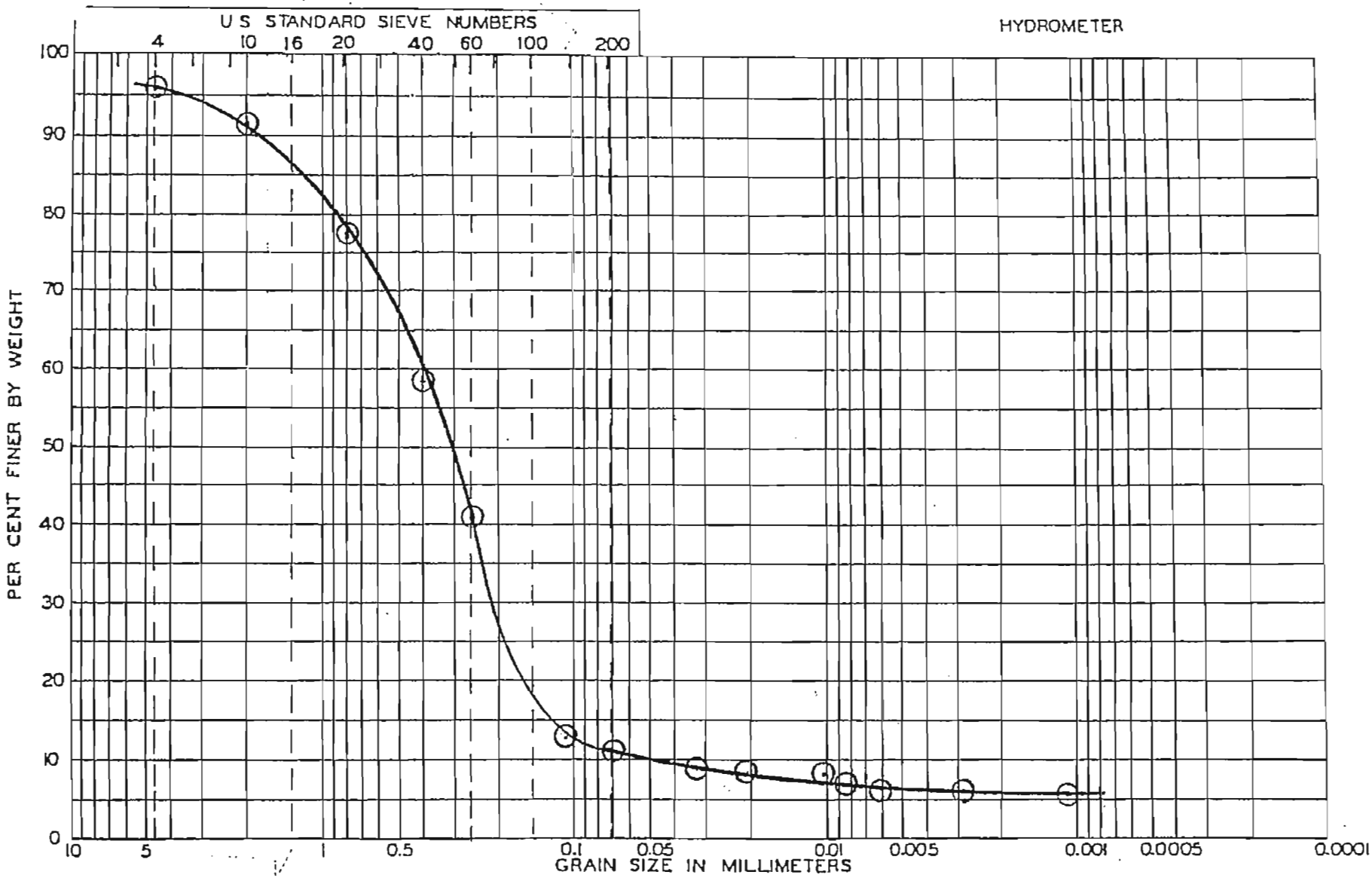
DEPTH 40'-42' ELEVATION _____ REMARKS SPECIFIC GRAVITY: 2.75

ASTM D422

GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

SCI NUMBER: 96-1365



FINE GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT	CLAY

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT NAVAL BASE CHARLESTON, RCRA RFI-ZONE A, CHARLESTON, S.C. E/A&H CONTRACT #0050-96 BORING NO _____ SAMPLE NO. NBCA/039-12D

DEPTH 50'-52' ELEVATION _____ REMARKS _____ SPECIFIC GRAVITY: 2.80

ASTM D422

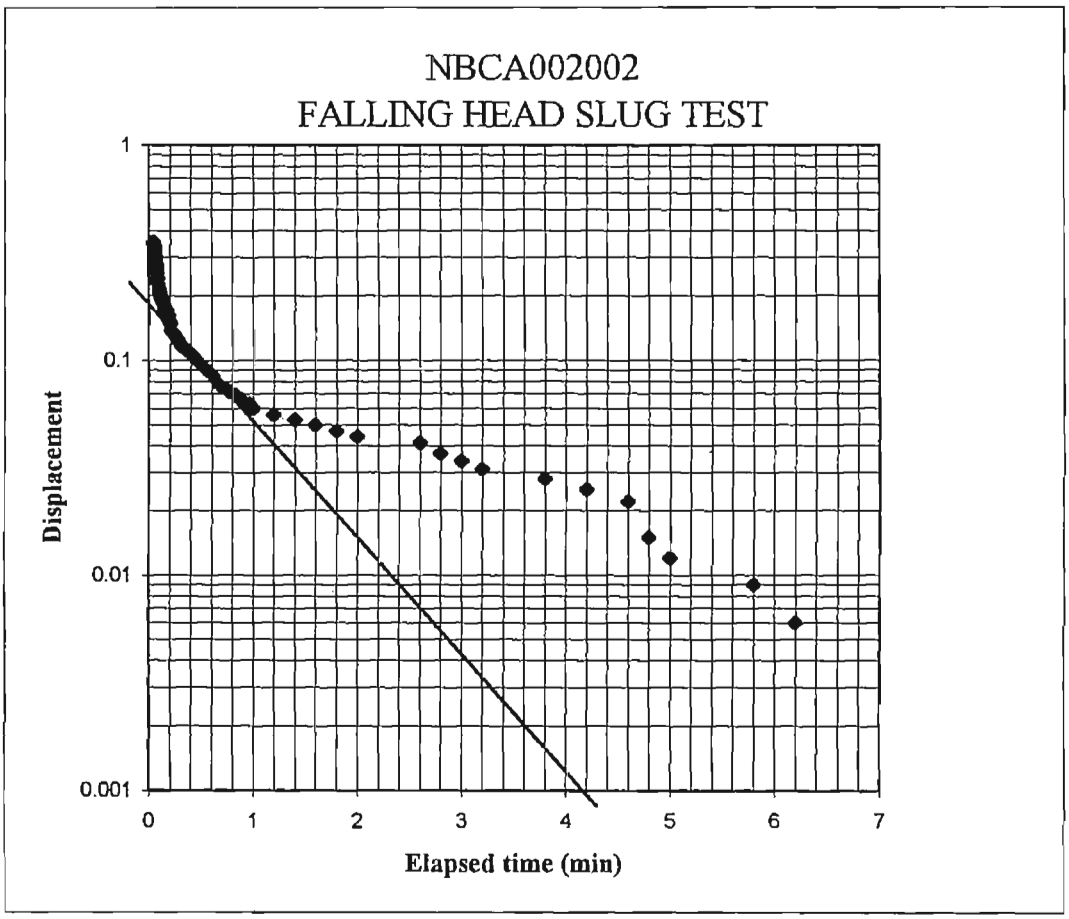
GRAIN SIZE DISTRIBUTION DIAGRAM

DATE: 8-19-96

Appendix C

Slug Test Data

CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**

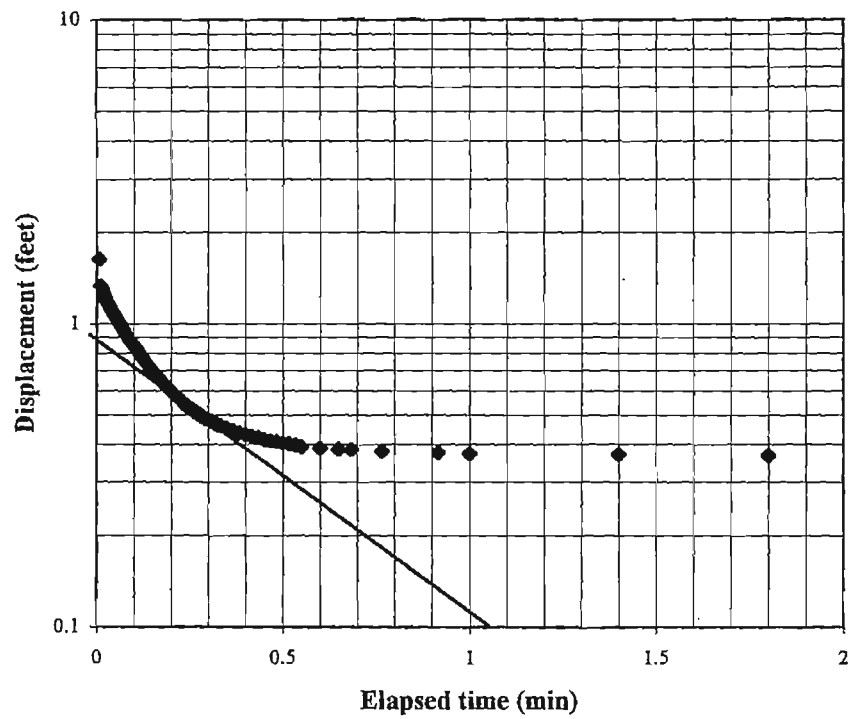


AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 10	y0 = 0.18
rc = 0.083	yt = 0.03
rw = 0.33	t = 1.4
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 8.34	
H = 12	K = 0.0050 ft/min
Lw = 6.9	7.2 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**

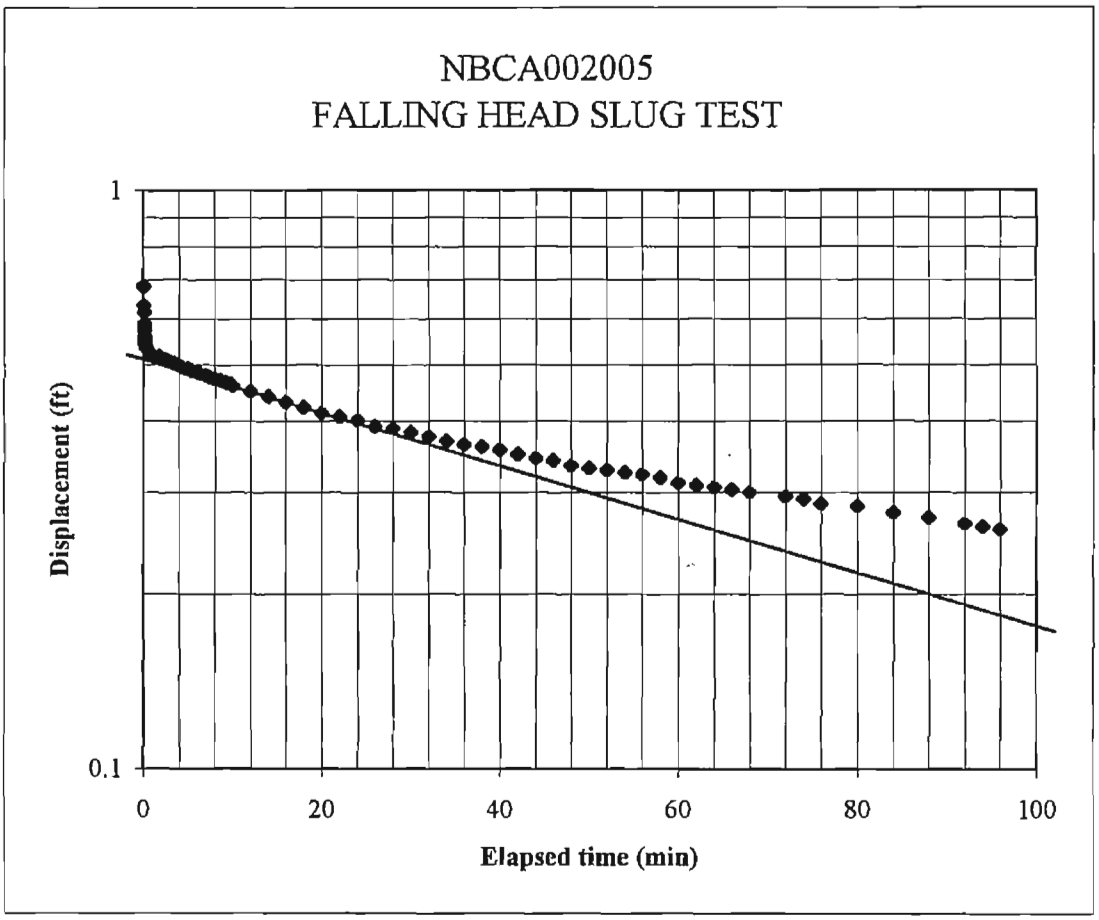
NBCA002002
RISING HEAD SLUG TEST



AQUIFER MODEL: Unconfined	**SOLUTION METHOD:** Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet): Le = 10 rc = 0.083 rw = 0.33 Nfp = 0.3 r*c = 0.194 DTW (bgs) = 8.34 H = 12 Lw = 6.9	**DISPLACEMENT VS. TIME PLOT:** y0 = 0.9 yt = 0.3 t = 0.52 **PARAMETER ESTIMATES:** K = 0.00825 ft/min 12 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

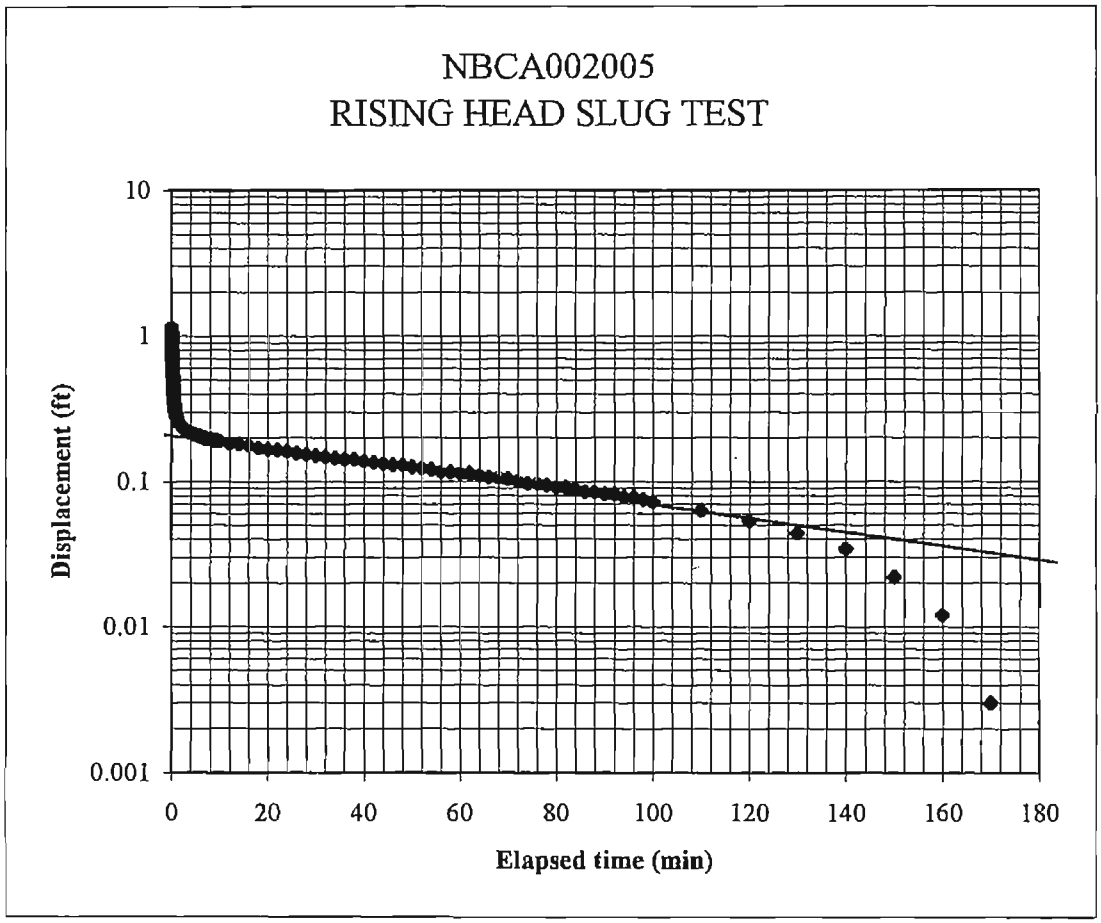
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 0.52
rc = 0.083	yt = 0.4
rw = 0.33	t = 24
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 6.40	
H = 24	K = 4.57E-05 ft/min
Lw = 9	0.07 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

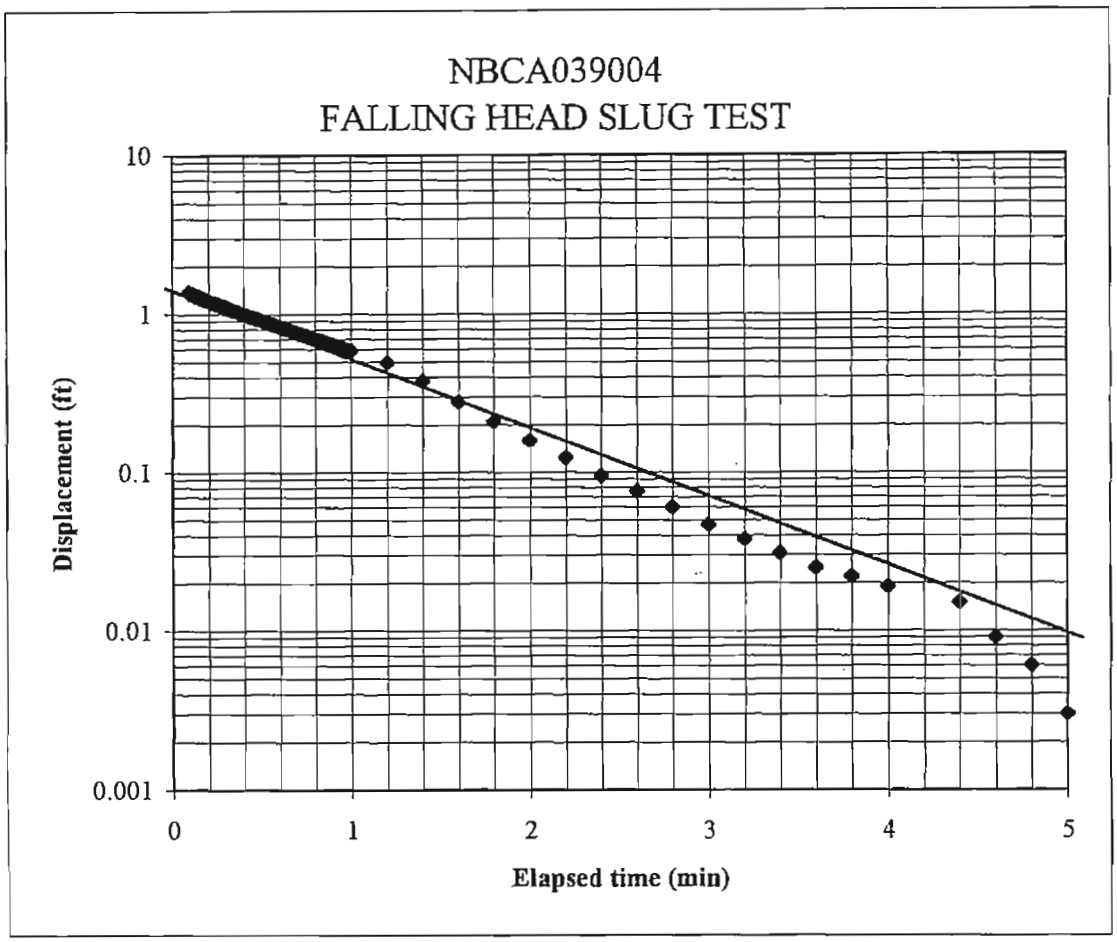
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 0.21
rc = 0.083	yt = 0.06
rw = 0.33	t = 116
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 6.40	
H = 24	K = 4.51E-05 ft/min
Lw = 9	0.06 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

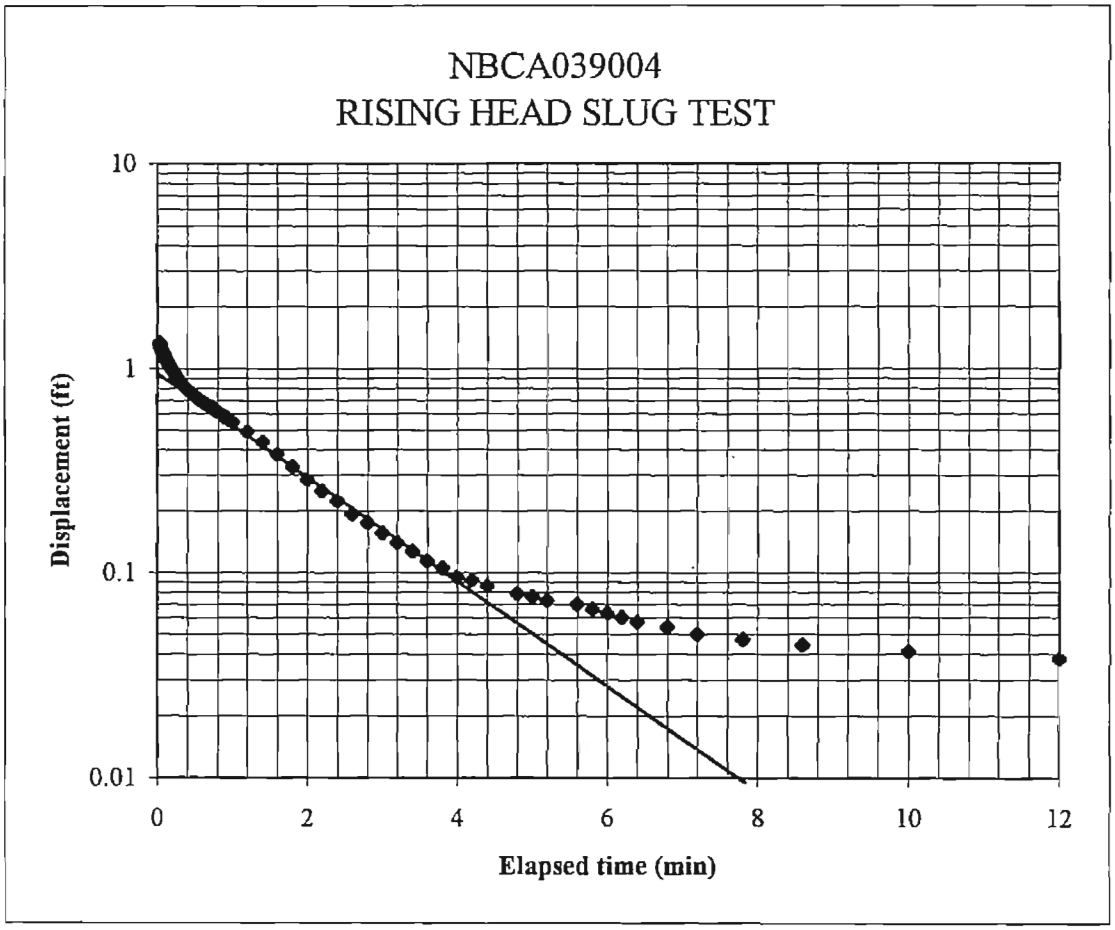
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL: Unconfined	**SOLUTION METHOD:** Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet): Le = 9.5 rc = 0.083 rw = 0.33 Nfp = 0.3 r*c = 0.194 DTW (bgs) = 3.44 H = 44 Lw = 10.6	**DISPLACEMENT VS. TIME PLOT:** y0 = 1.5 yt = 0.06 t = 3.2 **PARAMETER ESTIMATES:** K = 7.80E-04 ft/min 1.1 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5. However, due to the displacement of the water level above the screen slots, rc was used since filter pack effects are less influential compared to cases where the water level rise is still within screened interval.*

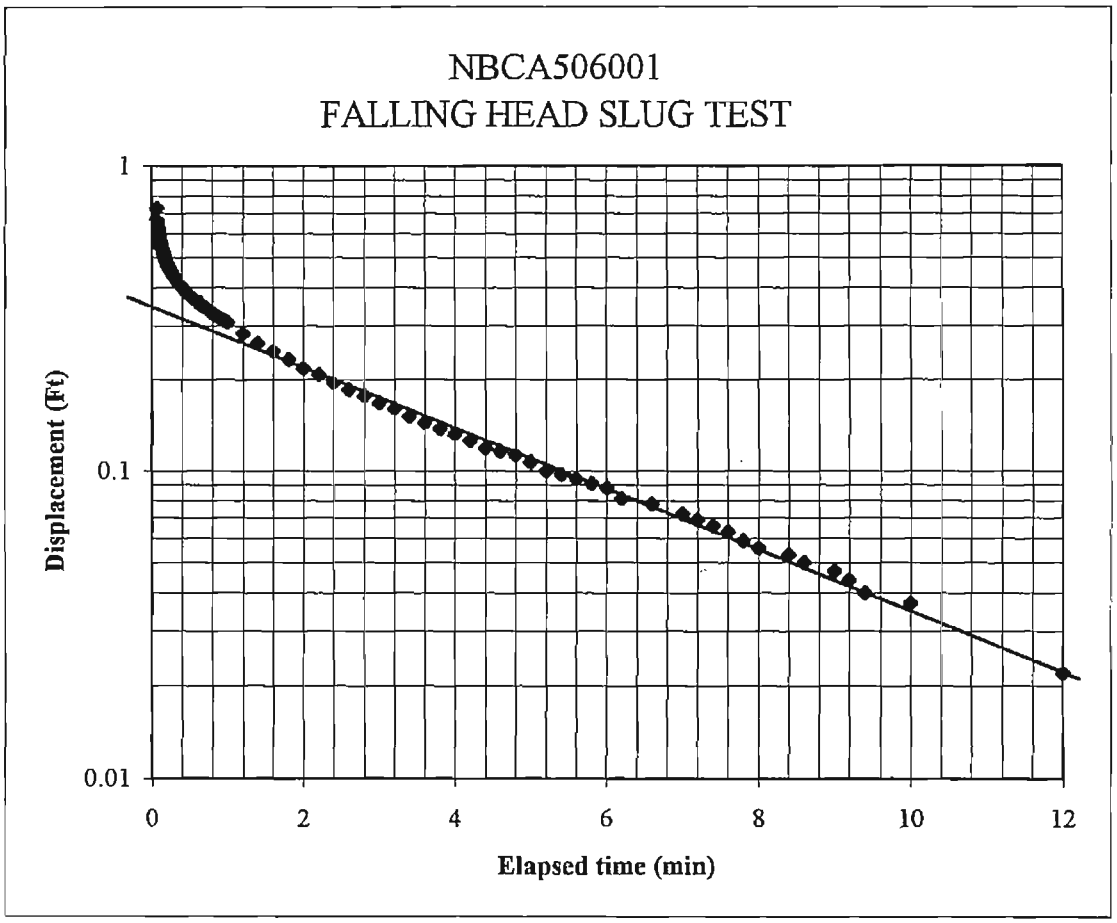
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 0.96
rc = 0.083	yt = 0.3
rw = 0.33	t = 2
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 3.44	
H = 44	K = 2.5E-03 ft/min
Lw = 10.6	3.5 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

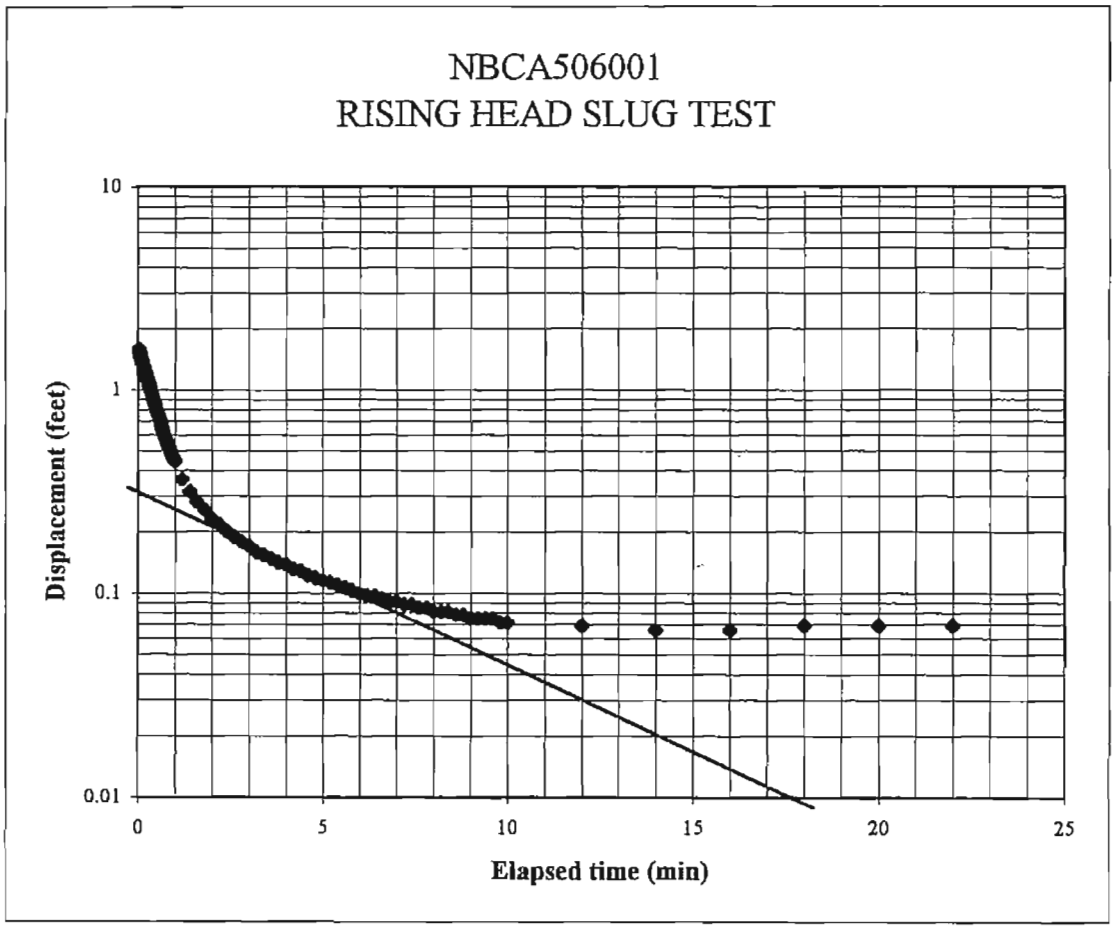
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 0.36
rc = 0.083	yt = 0.2
rw = 0.33	t = 2.4
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 8.37	
H = 17	K = 9.0E-04 ft/min
Lw = 5.1	1.3 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

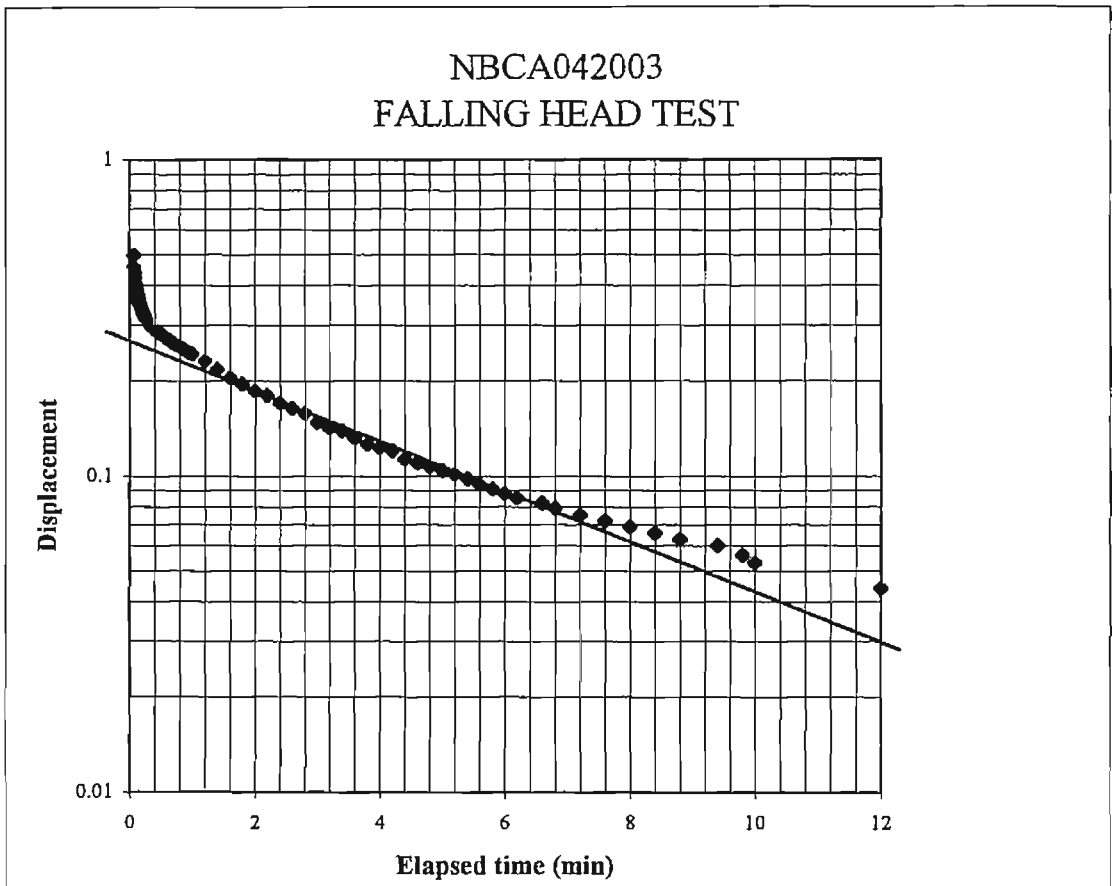
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL: Unconfined	**SOLUTION METHOD:** Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet): Le = 9.5 rc = 0.083 rw = 0.33 Nfp = 0.3 r*c = 0.194 DTW (bgs) = 8.37 H = 17 Lw = 5.1	**DISPLACEMENT VS. TIME PLOT:** y0 = 0.3 yt = 0.08 t = 7 **PARAMETER ESTIMATES:** K = 6.9E-04 ft/min 1.0 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

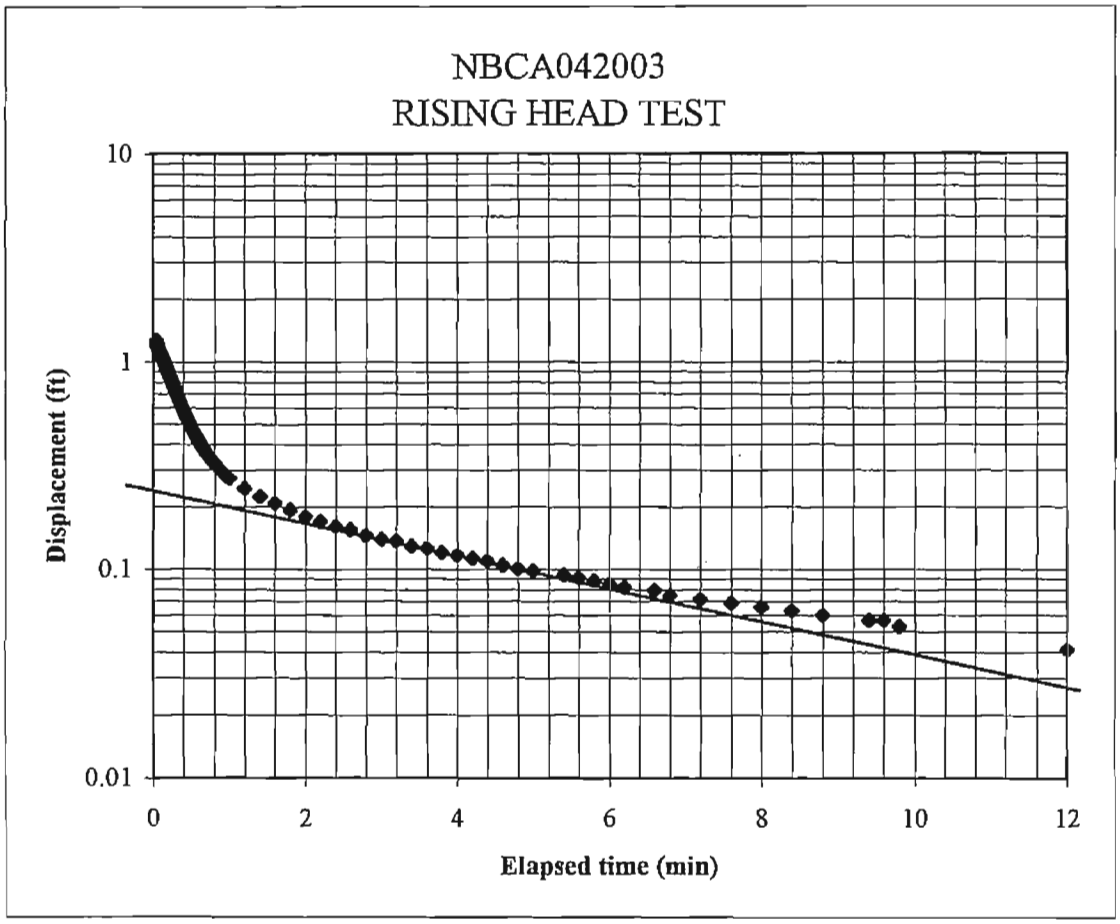
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 0.28
rc = 0.083	yt = 0.07
rw = 0.33	t = 7.2
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 5.02	
H = 45	K = 7.8E-04 ft/min
Lw = 8.4	1.1 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

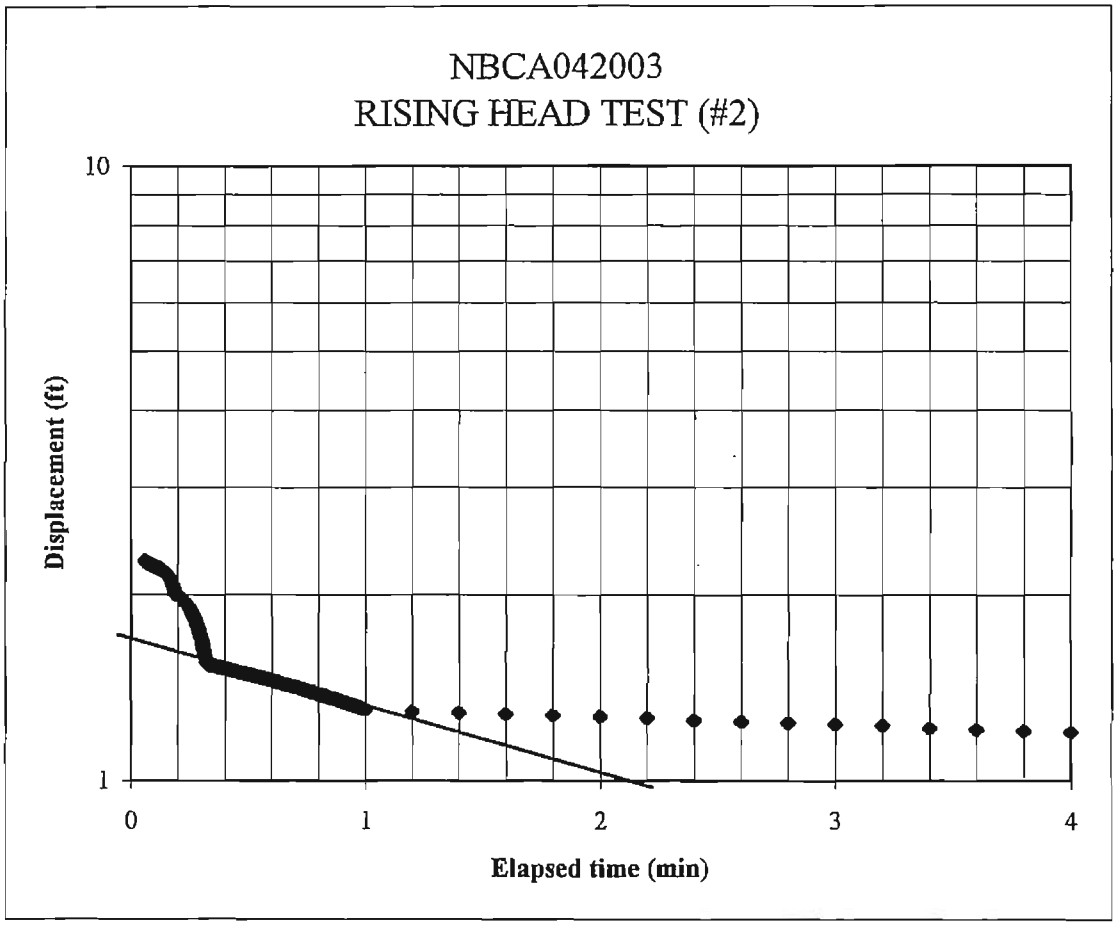
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL: Unconfined	**SOLUTION METHOD:** Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet): Le = 9.5 rc = 0.083 rw = 0.33 Nfp = 0.3 r*c = 0.194 DTW (bgs) = 5.02 H = 45 Lw = 8.4	**DISPLACEMENT VS. TIME PLOT:** y0 = 0.25 yt = 0.1 t = 4.8 **PARAMETER ESTIMATES:** K = 7.7E-04 ft/min 1.1 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

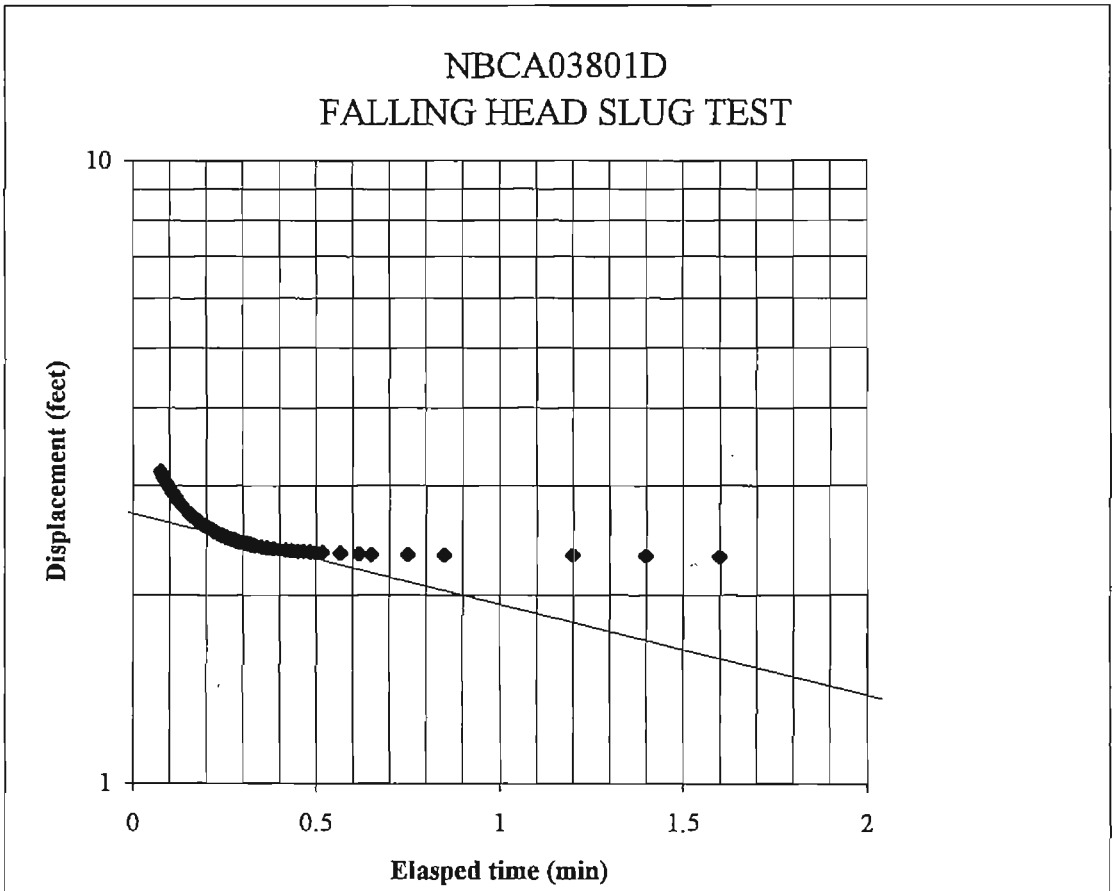
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 1.7
rc = 0.083	yt = 1
rw = 0.33	t = 2.1
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 5.02	
H = 45	K = 1.0E-03 ft/min
Lw = 8.4	1.5 ft/day

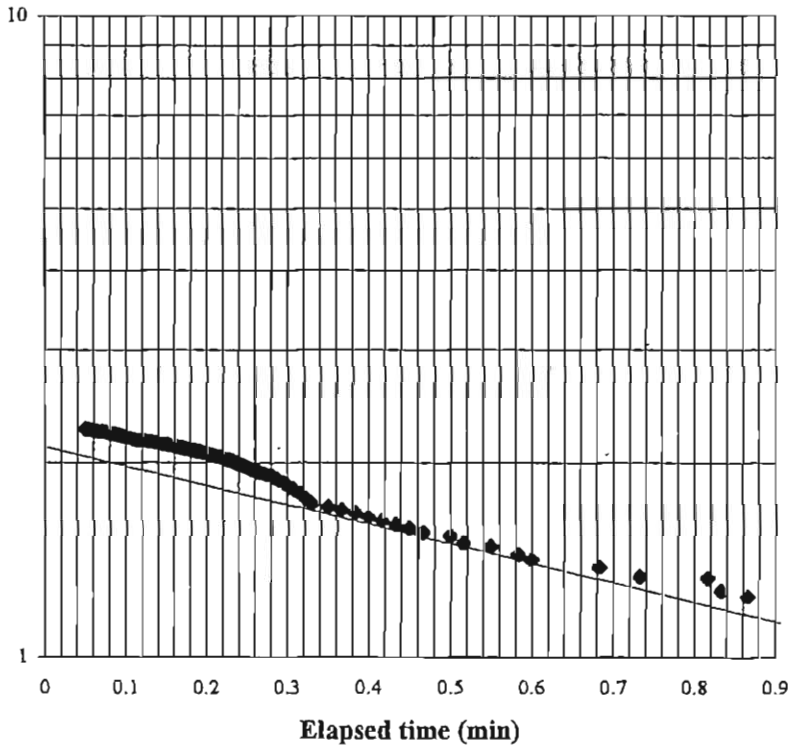
*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



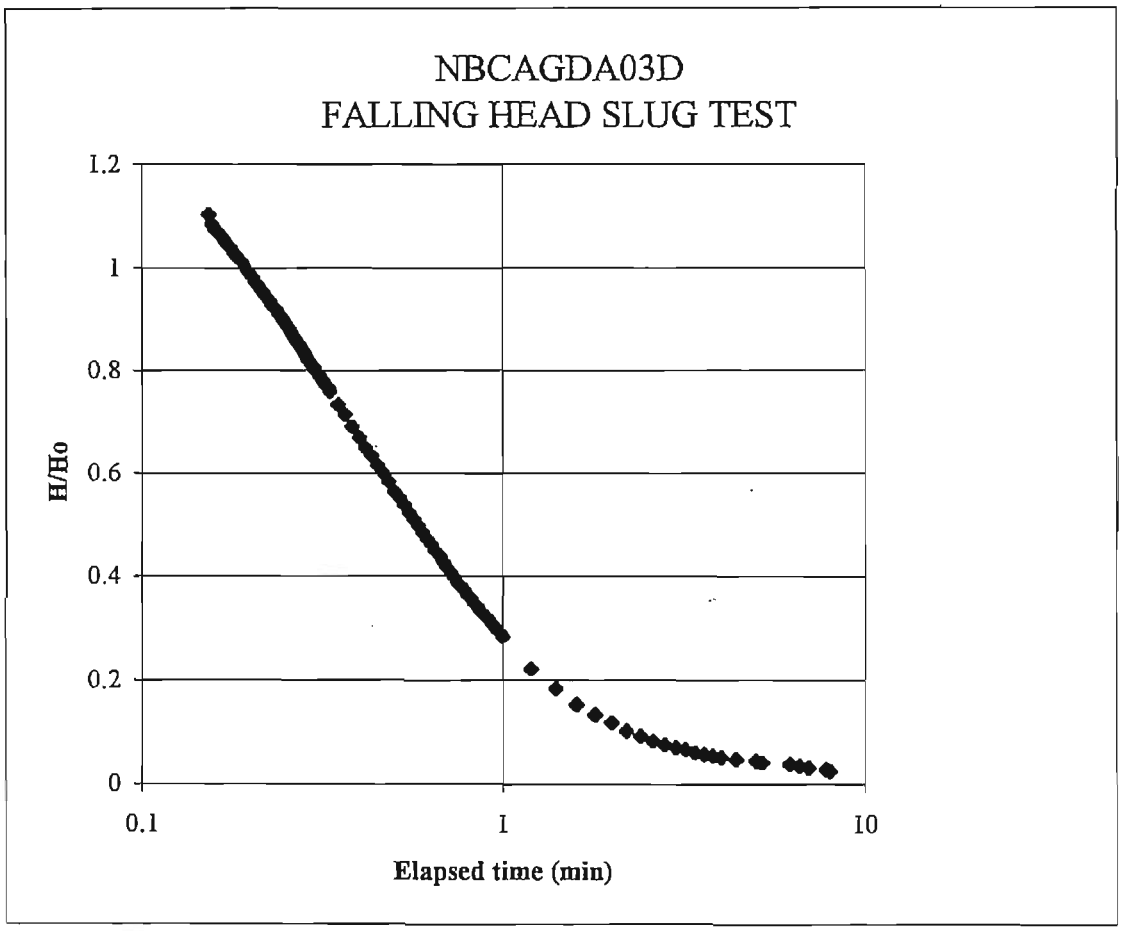
AQUIFER MODEL: Confined	**SOLUTION METHOD:** Bouwer-Rice (1976)
INPUT DATA (feet): Le = 9.5 rc = 0.083 rw = 0.33 DTW (bgs) = 6.32 H = 44.7 Lw = 43.9	**DISPLACEMENT VS. TIME PLOT:** y0 = 2.7 yt = 2 t = 0.9 **PARAMETER ESTIMATES:** K = 3.9E-04 ft/min 0.56 ft/day

CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



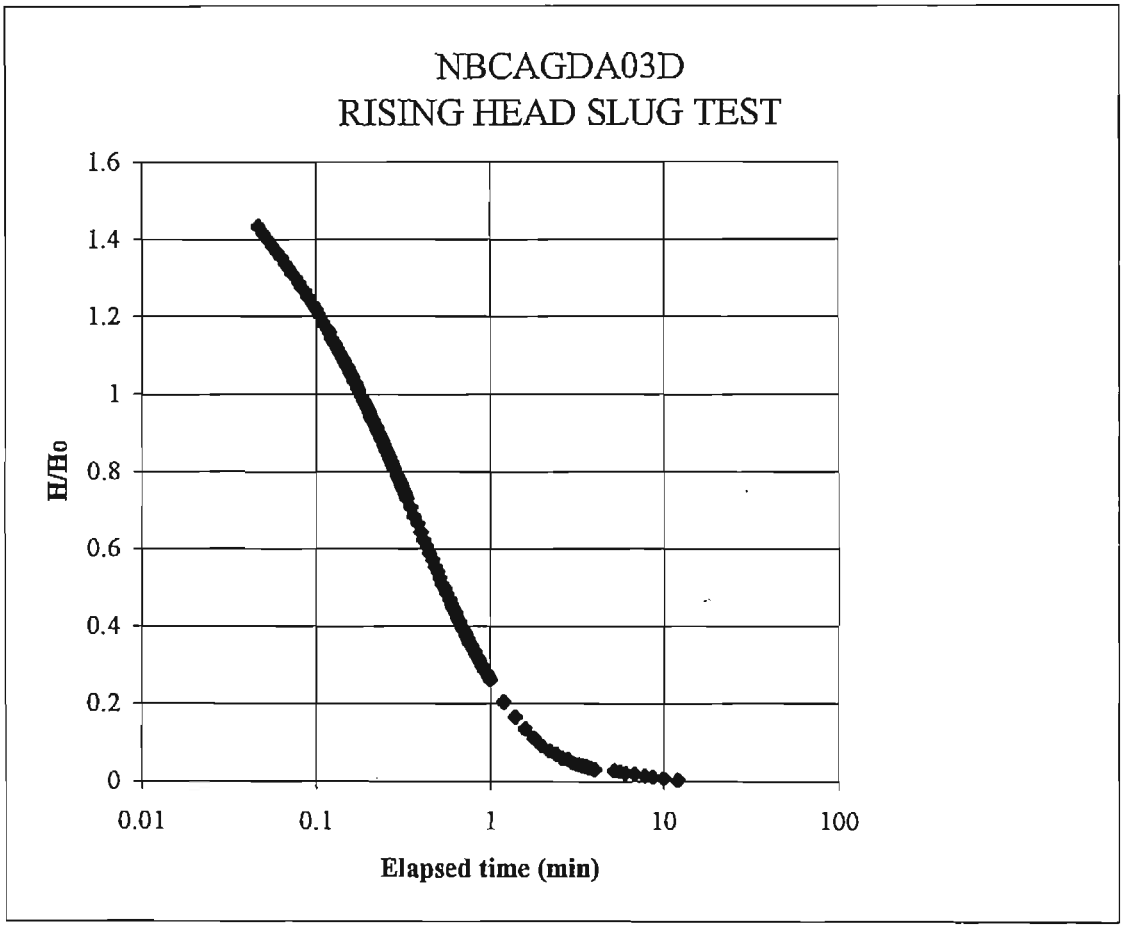
AQUIFER MODEL:	**SOLUTION METHOD:**
Confined	Bouwer-Rice (1976)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 2.1
rc = 0.083	yt = 2
rw = 0.33	t = 0.08
DTW (bgs) = 6.32	
H = 44.7	**PARAMETER ESTIMATES:**
Lw = 43.9	
	K = 7.4E-04 ft/min
	1.10 ft/day

CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



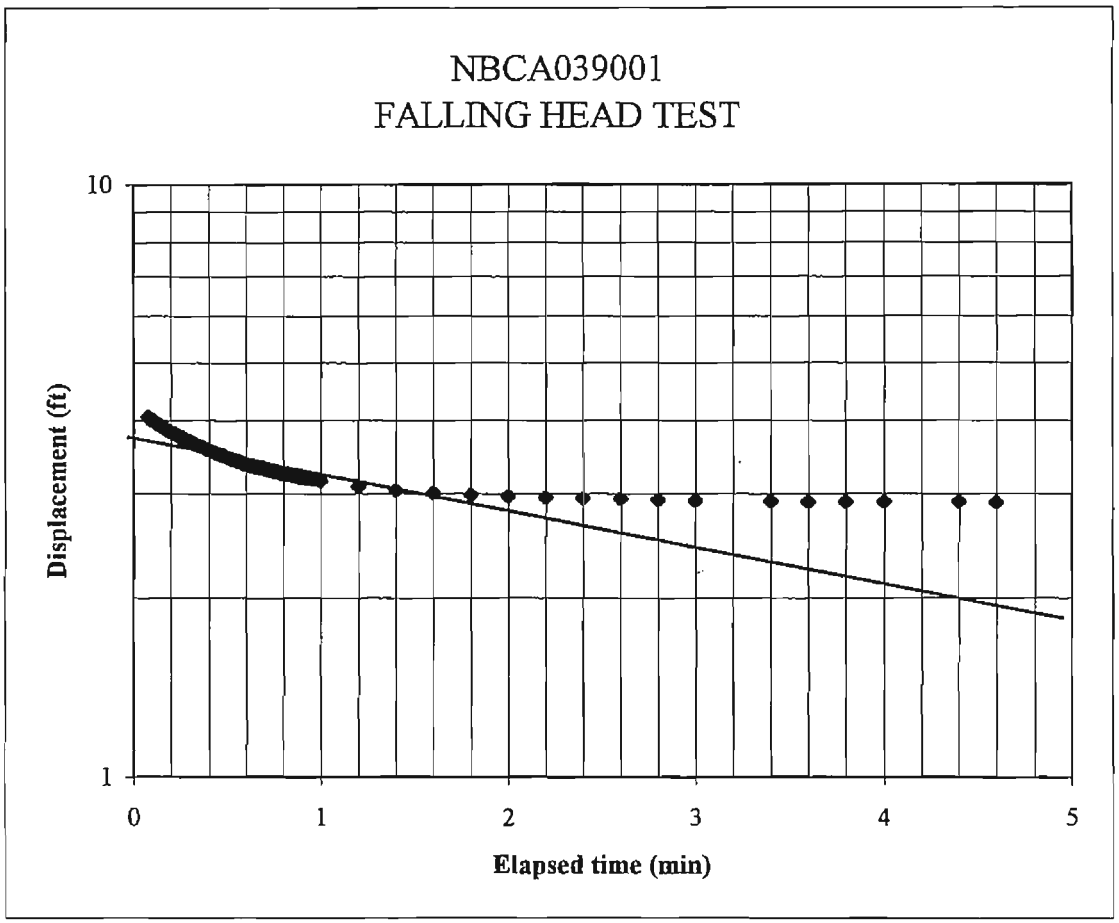
AQUIFER MODEL: Confined	**SOLUTION METHOD:** Cooper et al (1967)
INPUT DATA (feet):	**PARAMETER ESTIMATES:**
rc = 0.083	T = 1.9E-02 ft2/min
rw = 0.33	b = 13 ft
DTW (bgs) = 5.58	K = 2.10 ft/day
Ho = 1.48	S = 0.0001

CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Confined	Cooper et al (1967)
INPUT DATA (feet):	**PARAMETER ESTIMATES:**
rc = 0.083	T = 2.5E-02 ft2/min
rw = 0.33	b = 13 ft
DTW (bgs) = 5.58	K = 2.80 ft/day
Ho = 1.48	S = 0.0001

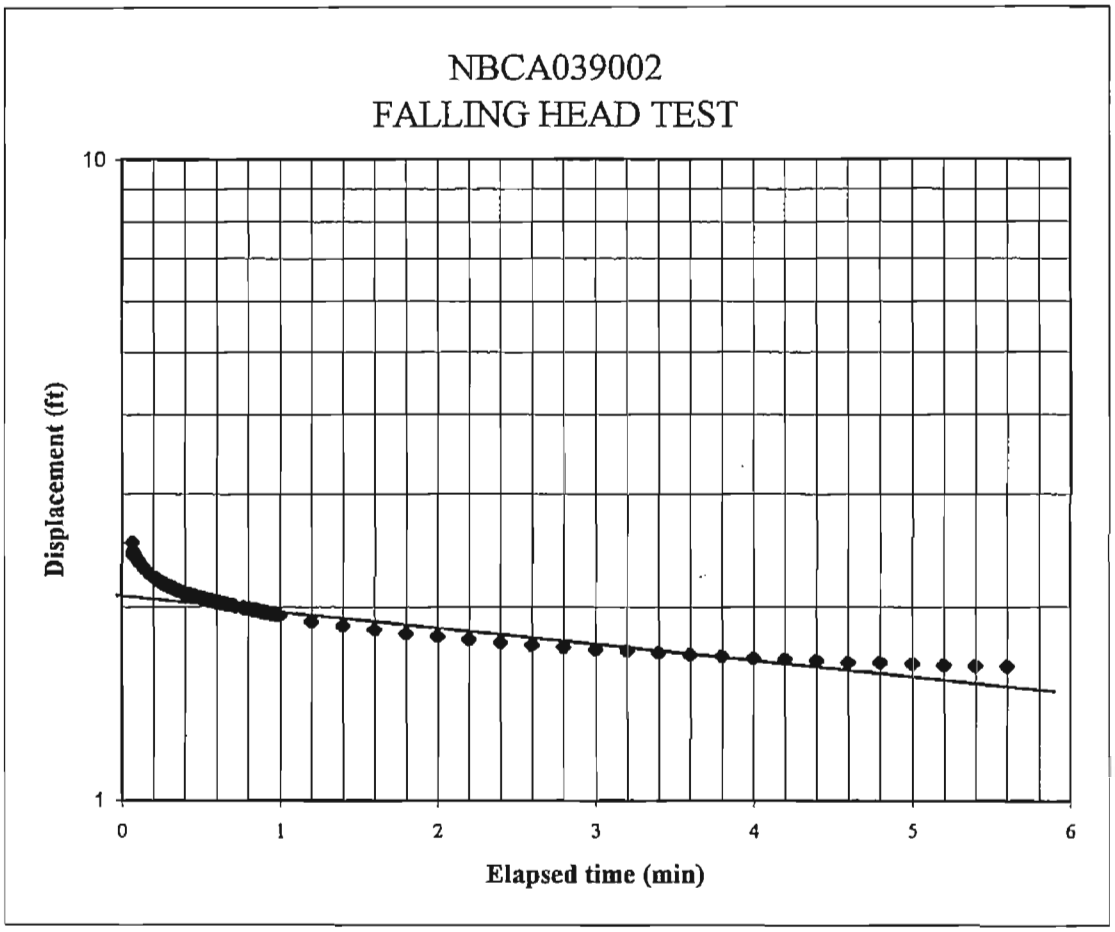
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 3.8
rc = 0.083	yt = 3
rw = 0.33	t = 1.5
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 3.05	
H = 42	K = 6.6E-04 ft/min
Lw = 10.5	0.96 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

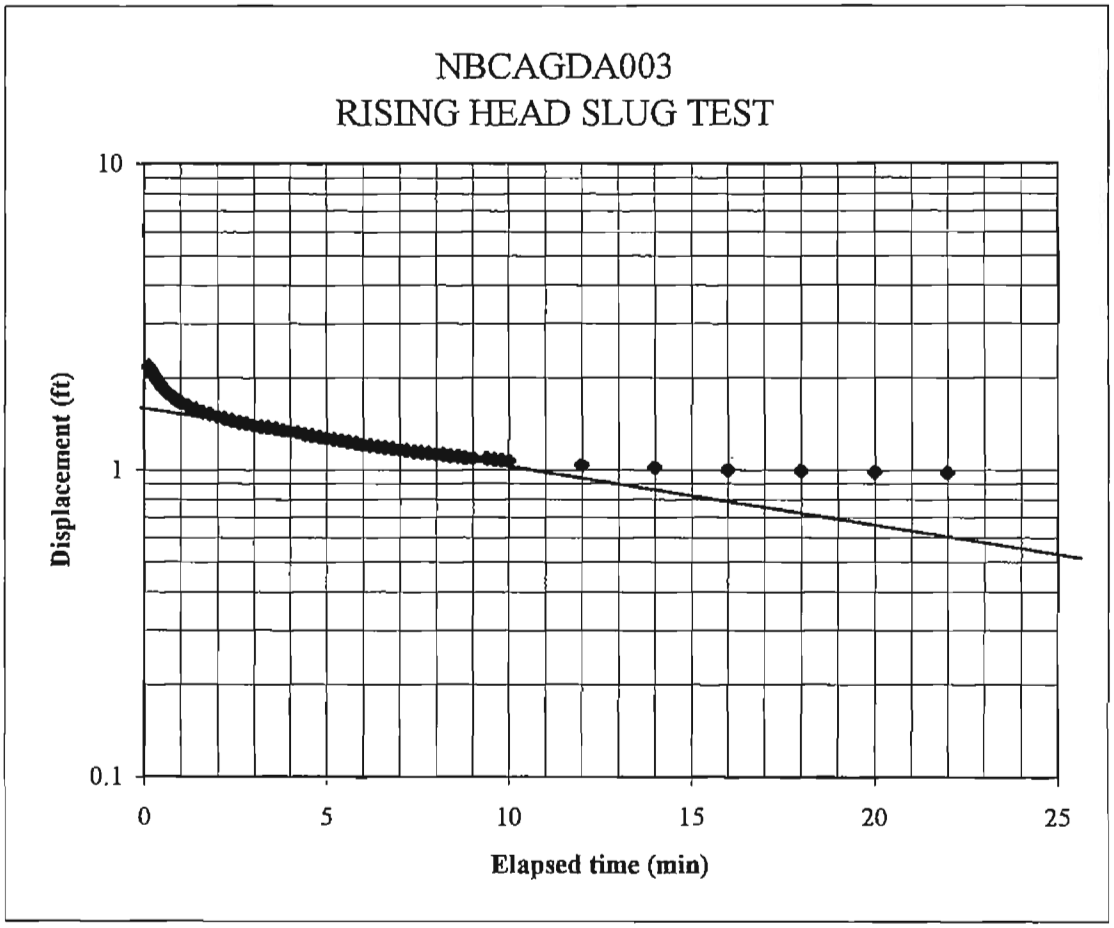
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL: Unconfined	**SOLUTION METHOD:** Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet): Le = 9.5 rc = 0.083 rw = 0.33 Nfp = 0.3 r*c = 0.194 DTW (bgs) = 4.66 H = 40 Lw = 8.9	**DISPLACEMENT VS. TIME PLOT:** y0 = 2.1 yt = 2 t = 0.8 **PARAMETER ESTIMATES:** K = 2.5E-04 ft/min 0.36 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

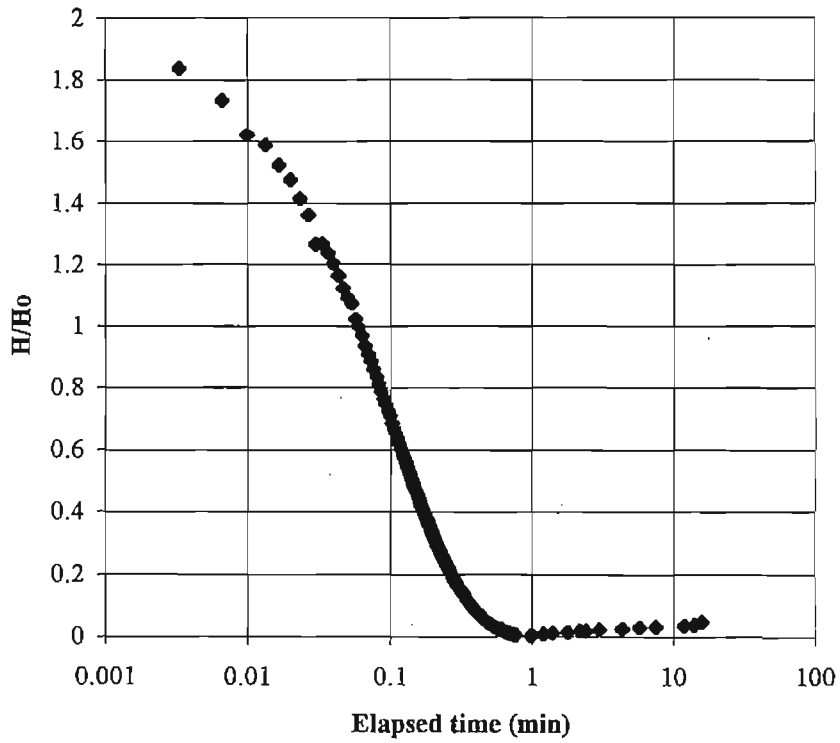
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Unconfined	Bouwer-Rice (1976); Bouwer (1989)
INPUT DATA (feet):	**DISPLACEMENT VS. TIME PLOT:**
Le = 9.5	y0 = 1.7
rc = 0.083	yt = 0.6
rw = 0.33	t = 22
Nfp = 0.3	
r*c = 0.194	**PARAMETER ESTIMATES:**
DTW (bgs) = 2.50	
H = 27	K = 2.0E-04 ft/min
Lw = 10.5	0.29 ft/day

*Note: r*c is the effective well radius that takes into account the permeability of the filter pack (Nfp) and is computed by [(1-Nfp)rc^2 + Nfp*rw^2]^0.5.*

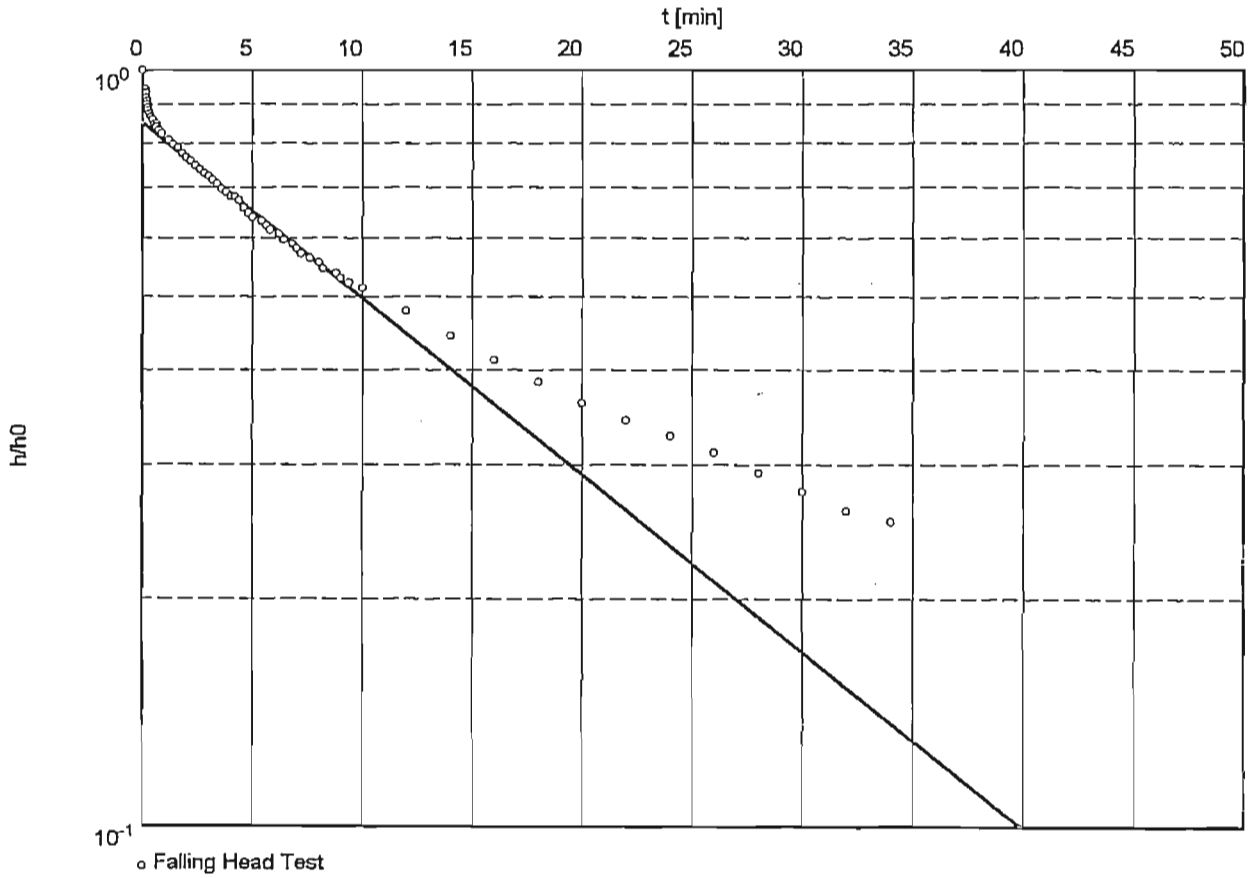
CLIENT: **CLEAN**	COMPANY: **E/A&H**
SITE: **NAVBASE CHARLESTON**	PROJECT: **2901-08450**



AQUIFER MODEL:	**SOLUTION METHOD:**
Confined	Cooper et al (1967)
INPUT DATA (feet):	**PARAMETER ESTIMATES:**
rc = 0.083	T = 1.3E-01 ft2/min
rw = 0.33	b = 7.9 ft
DTW (bgs) = 8.33	K = 23.70 ft/day
Ho = 1.88	S = 0.0001

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	



Hydraulic conductivity [ft/min]: 3.29×10^{-4}

Hydraulic conductivity (ft/d) = 0.48

L = 7.8 ft
b = 7.8 ft
D = 7.8 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	0.3760	0.3760	
2	0.1333	0.3510	0.3510	
3	0.1416	0.3540	0.3540	
4	0.1666	0.3510	0.3510	
5	0.1833	0.3450	0.3450	
6	0.1916	0.3420	0.3420	
7	0.2166	0.3380	0.3380	
8	0.2333	0.3350	0.3350	
9	0.2666	0.3320	0.3320	
10	0.3166	0.3290	0.3290	
11	0.3666	0.3260	0.3260	
12	0.4666	0.3230	0.3230	
13	0.5333	0.3190	0.3190	
14	0.6166	0.3160	0.3160	
15	0.6333	0.3190	0.3190	
16	0.6500	0.3160	0.3160	
17	0.7500	0.3130	0.3130	
18	0.8833	0.3100	0.3100	
19	1.2000	0.3040	0.3040	
20	1.4000	0.3000	0.3000	
21	1.6000	0.2970	0.2970	
22	1.8000	0.2910	0.2910	
23	2.0000	0.2880	0.2880	
24	2.2000	0.2850	0.2850	
25	2.4000	0.2810	0.2810	
26	2.6000	0.2780	0.2780	
27	2.8000	0.2750	0.2750	
28	3.0000	0.2720	0.2720	
29	3.2000	0.2690	0.2690	
30	3.4000	0.2660	0.2660	
31	3.6000	0.2620	0.2620	
32	3.8000	0.2590	0.2590	
33	4.0000	0.2560	0.2560	
34	4.2000	0.2560	0.2560	
35	4.4000	0.2530	0.2530	
36	4.6000	0.2470	0.2470	
37	4.8000	0.2430	0.2430	
38	5.0000	0.2400	0.2400	
39	5.4000	0.2370	0.2370	
40	5.6000	0.2340	0.2340	
41	5.8000	0.2310	0.2310	
42	6.2000	0.2280	0.2280	
43	6.4000	0.2240	0.2240	
44	6.8000	0.2210	0.2210	
45	7.0000	0.2180	0.2180	
46	7.2000	0.2150	0.2150	
47	7.6000	0.2120	0.2120	
48	8.0000	0.2090	0.2090	
49	8.2000	0.2050	0.2050	
50	8.8000	0.2020	0.2020	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

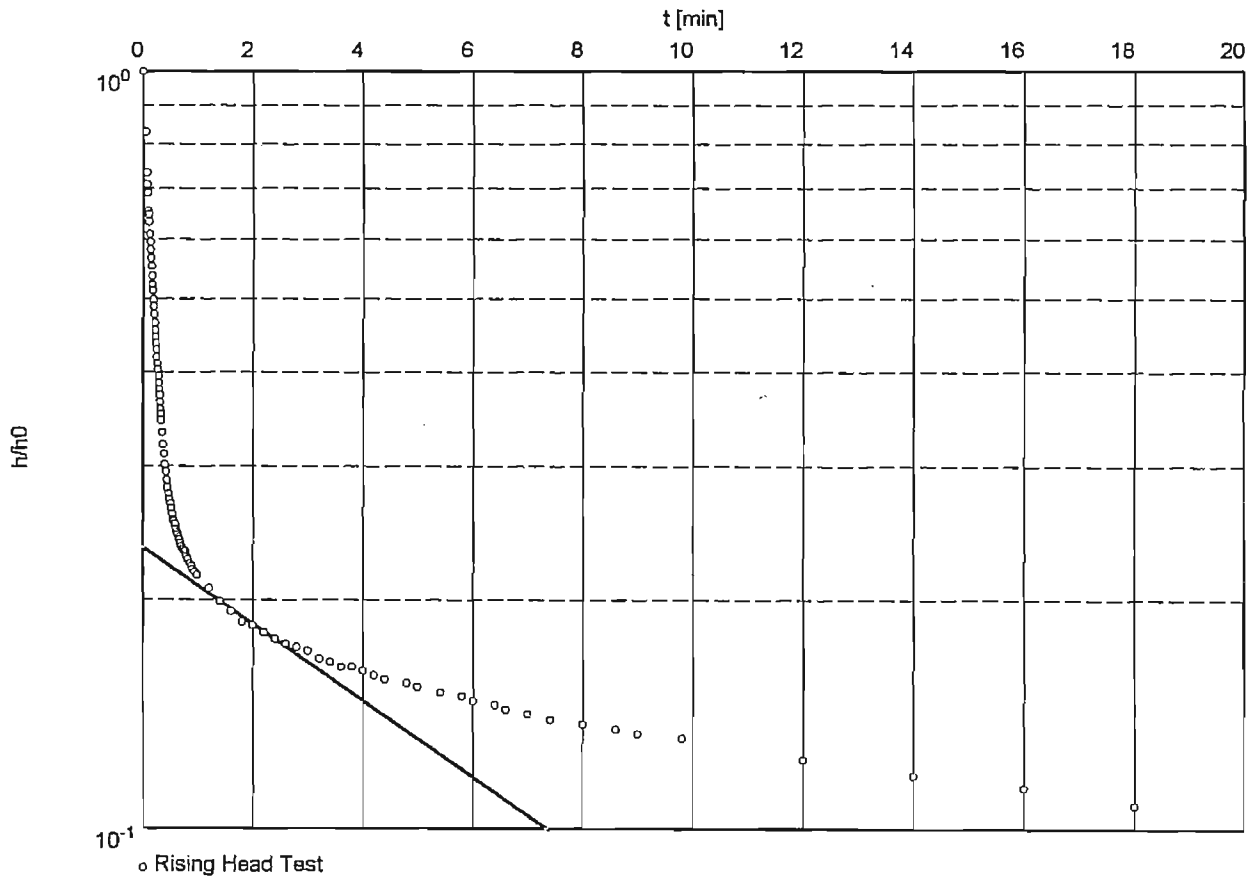
Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	9.0000	0.1990	0.1990	
52	9.4000	0.1960	0.1960	
53	10.0000	0.1930	0.1930	
54	12.0000	0.1800	0.1800	
55	14.0000	0.1670	0.1670	
56	16.0000	0.1550	0.1550	
57	18.0000	0.1450	0.1450	
58	20.0000	0.1360	0.1360	
59	22.0000	0.1290	0.1290	
60	24.0000	0.1230	0.1230	
61	26.0000	0.1170	0.1170	
62	28.0000	0.1100	0.1100	
63	30.0000	0.1040	0.1040	
64	32.0000	0.0980	0.0980	
65	34.0000	0.0950	0.0950	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	



Hydraulic conductivity [ft/min]: 8.15×10^{-4}

Hydraulic conductivity (ft/d) = 1.0

L = 7.8 ft
b = 7.8 ft
D = 7.8 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.5880	1.5880	
2	0.0500	1.3190	1.3190	
3	0.0666	1.1260	1.1260	
4	0.0750	1.1640	1.1640	
5	0.0833	1.0950	1.0950	
6	0.0916	1.0380	1.0380	
7	0.1000	1.0280	1.0280	
8	0.1083	1.0030	1.0030	
9	0.1166	0.9680	0.9680	
10	0.1250	0.9430	0.9430	
11	0.1333	0.9210	0.9210	
12	0.1416	0.8990	0.8990	
13	0.1500	0.8770	0.8770	
14	0.1583	0.8510	0.8510	
15	0.1666	0.8290	0.8290	
16	0.1750	0.8130	0.8130	
17	0.1833	0.7910	0.7910	
18	0.1916	0.7750	0.7750	
19	0.2000	0.7560	0.7560	
20	0.2083	0.7370	0.7370	
21	0.2166	0.7210	0.7210	
22	0.2250	0.7060	0.7060	
23	0.2333	0.6930	0.6930	
24	0.2416	0.6800	0.6800	
25	0.2500	0.6640	0.6640	
26	0.2583	0.6520	0.6520	
27	0.2666	0.6390	0.6390	
28	0.2750	0.6270	0.6270	
29	0.2833	0.6140	0.6140	
30	0.2916	0.6010	0.6010	
31	0.3000	0.5920	0.5920	
32	0.3083	0.5790	0.5790	
33	0.3166	0.5660	0.5660	
34	0.3250	0.5570	0.5570	
35	0.3333	0.5470	0.5470	
36	0.3500	0.5280	0.5280	
37	0.3666	0.5090	0.5090	
38	0.3833	0.4940	0.4940	
39	0.4000	0.4780	0.4780	
40	0.4166	0.4680	0.4680	
41	0.4333	0.4560	0.4560	
42	0.4500	0.4460	0.4460	
43	0.4666	0.4370	0.4370	
44	0.4833	0.4300	0.4300	
45	0.5000	0.4240	0.4240	
46	0.5166	0.4180	0.4180	
47	0.5333	0.4110	0.4110	
48	0.5500	0.4050	0.4050	
49	0.5666	0.4020	0.4020	
50	0.5833	0.3990	0.3990	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6000	0.3920	0.3920	
52	0.6166	0.3890	0.3890	
53	0.6333	0.3860	0.3860	
54	0.6500	0.3830	0.3830	
55	0.6666	0.3800	0.3800	
56	0.6833	0.3770	0.3770	
57	0.7000	0.3730	0.3730	
58	0.7166	0.3700	0.3700	
59	0.7333	0.3700	0.3700	
60	0.7500	0.3670	0.3670	
61	0.7666	0.3670	0.3670	
62	0.7833	0.3640	0.3640	
63	0.8000	0.3610	0.3610	
64	0.8166	0.3580	0.3580	
65	0.8500	0.3540	0.3540	
66	0.8833	0.3510	0.3510	
67	0.9000	0.3480	0.3480	
68	0.9333	0.3450	0.3450	
69	0.9833	0.3420	0.3420	
70	1.2000	0.3290	0.3290	
71	1.4000	0.3160	0.3160	
72	1.6000	0.3070	0.3070	
73	1.8000	0.2970	0.2970	
74	2.0000	0.2940	0.2940	
75	2.2000	0.2880	0.2880	
76	2.4000	0.2820	0.2820	
77	2.6000	0.2780	0.2780	
78	2.8000	0.2750	0.2750	
79	3.0000	0.2720	0.2720	
80	3.2000	0.2660	0.2660	
81	3.4000	0.2630	0.2630	
82	3.6000	0.2590	0.2590	
83	3.8000	0.2590	0.2590	
84	4.0000	0.2560	0.2560	
85	4.2000	0.2530	0.2530	
86	4.4000	0.2500	0.2500	
87	4.8000	0.2470	0.2470	
88	5.0000	0.2440	0.2440	
89	5.4000	0.2400	0.2400	
90	5.8000	0.2370	0.2370	
91	6.0000	0.2340	0.2340	
92	6.4000	0.2310	0.2310	
93	6.6000	0.2280	0.2280	
94	7.0000	0.2250	0.2250	
95	7.4000	0.2210	0.2210	
96	8.0000	0.2180	0.2180	
97	8.6000	0.2150	0.2150	
98	9.0000	0.2120	0.2120	
99	9.8000	0.2090	0.2090	
100	12.0000	0.1960	0.1960	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

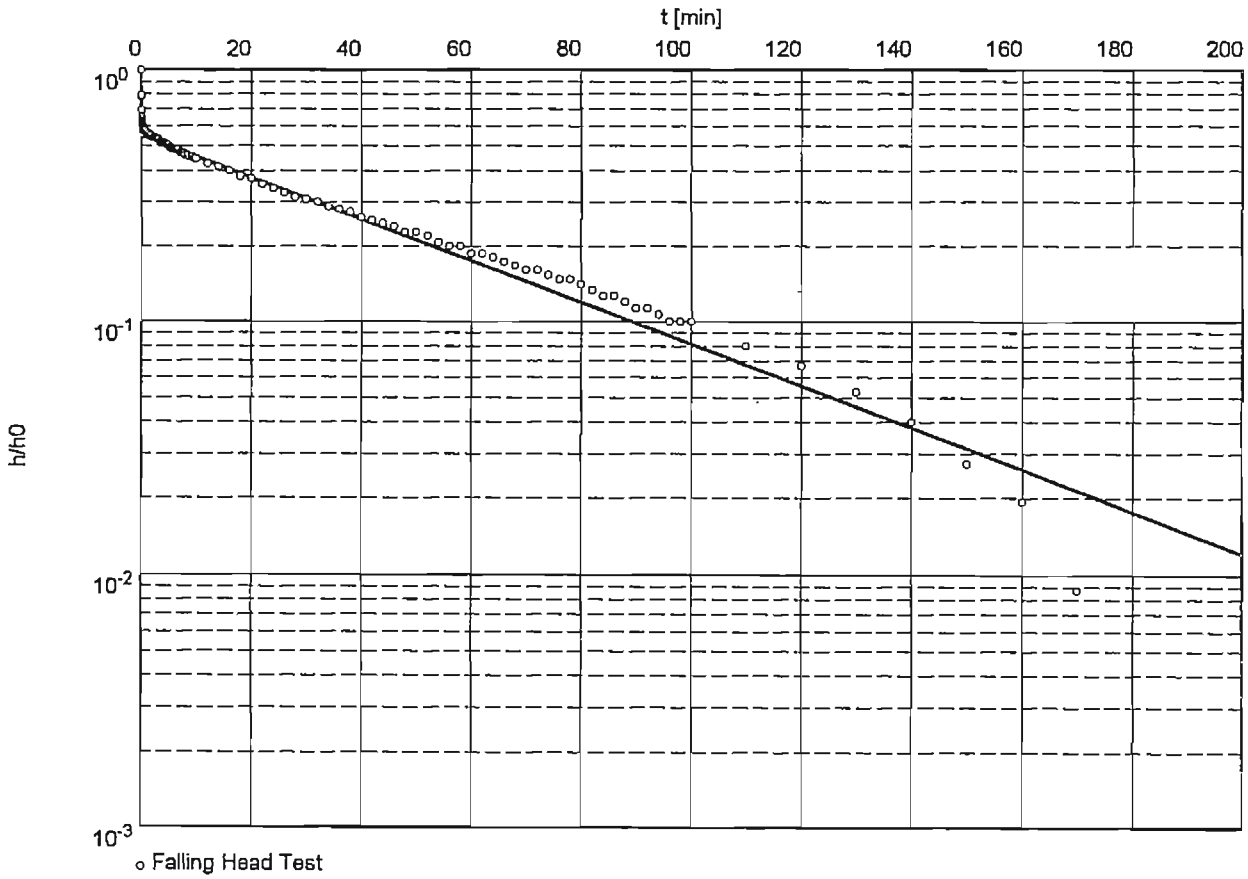
Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-006	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	14.0000	0.1870	0.1870	
102	16.0000	0.1800	0.1800	
103	18.0000	0.1710	0.1710	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	



Hydraulic conductivity [ft/min]: 9.88×10^{-5}

Hydraulic Conductivity (feet/day) = 0.12

L = 12 ft
b = 12 ft
D = 12 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.5000	1.5000	
2	0.0583	1.1700	1.1700	
3	0.0833	1.1900	1.1900	
4	0.1083	1.0400	1.0400	
5	0.1416	0.9700	0.9700	
6	0.1666	0.9500	0.9500	
7	0.1916	0.9300	0.9300	
8	0.2166	0.9200	0.9200	
9	0.2250	0.9100	0.9100	
10	0.2416	0.9100	0.9100	
11	0.2500	0.9100	0.9100	
12	0.2666	0.9100	0.9100	
13	0.2833	0.9000	0.9000	
14	0.3083	0.9000	0.9000	
15	0.3333	0.9000	0.9000	
16	0.3666	0.8900	0.8900	
17	0.4166	0.8900	0.8900	
18	0.4333	0.8900	0.8900	
19	0.4833	0.8800	0.8800	
20	0.5166	0.8800	0.8800	
21	0.5666	0.8800	0.8800	
22	0.6166	0.8800	0.8800	
23	0.6666	0.8700	0.8700	
24	0.7500	0.8700	0.8700	
25	0.8000	0.8600	0.8600	
26	0.8833	0.8600	0.8600	
27	0.9333	0.8600	0.8600	
28	0.9833	0.8600	0.8600	
29	1.2000	0.8500	0.8500	
30	1.4000	0.8400	0.8400	
31	1.6000	0.8300	0.8300	
32	1.8000	0.8300	0.8300	
33	2.0000	0.8200	0.8200	
34	2.2000	0.8100	0.8100	
35	2.4000	0.8100	0.8100	
36	2.6000	0.8100	0.8100	
37	2.8000	0.8000	0.8000	
38	3.0000	0.8000	0.8000	
39	3.2000	0.7900	0.7900	
40	3.4000	0.7800	0.7800	
41	3.6000	0.7800	0.7800	
42	3.8000	0.7700	0.7700	
43	4.0000	0.7700	0.7700	
44	4.2000	0.7700	0.7700	
45	4.4000	0.7600	0.7600	
46	4.6000	0.7600	0.7600	
47	4.8000	0.7500	0.7500	
48	5.0000	0.7500	0.7500	
49	5.2000	0.7400	0.7400	
50	5.4000	0.7400	0.7400	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	5.6000	0.7300	0.7300	
52	5.8000	0.7300	0.7300	
53	6.0000	0.7300	0.7300	
54	6.2000	0.7300	0.7300	
55	6.4000	0.7200	0.7200	
56	6.6000	0.7200	0.7200	
57	6.8000	0.7200	0.7200	
58	7.0000	0.7100	0.7100	
59	7.2000	0.7100	0.7100	
60	7.4000	0.7100	0.7100	
61	7.6000	0.7000	0.7000	
62	7.8000	0.7000	0.7000	
63	8.0000	0.6900	0.6900	
64	8.4000	0.6900	0.6900	
65	8.8000	0.6800	0.6800	
66	9.2000	0.6800	0.6800	
67	9.4000	0.6800	0.6800	
68	9.6000	0.6700	0.6700	
69	9.8000	0.6700	0.6700	
70	10.0000	0.6700	0.6700	
71	12.0000	0.6400	0.6400	
72	14.0000	0.6200	0.6200	
73	16.0000	0.6000	0.6000	
74	18.0000	0.5700	0.5700	
75	20.0000	0.5600	0.5600	
76	22.0000	0.5300	0.5300	
77	24.0000	0.5100	0.5100	
78	26.0000	0.4900	0.4900	
79	28.0000	0.4700	0.4700	
80	30.0000	0.4600	0.4600	
81	32.0000	0.4500	0.4500	
82	34.0000	0.4300	0.4300	
83	36.0000	0.4200	0.4200	
84	38.0000	0.4100	0.4100	
85	40.0000	0.3900	0.3900	
86	42.0000	0.3800	0.3800	
87	44.0000	0.3700	0.3700	
88	46.0000	0.3600	0.3600	
89	48.0000	0.3400	0.3400	
90	50.0000	0.3400	0.3400	
91	52.0000	0.3300	0.3300	
92	54.0000	0.3100	0.3100	
93	56.0000	0.3000	0.3000	
94	58.0000	0.3000	0.3000	
95	60.0000	0.2800	0.2800	
96	62.0000	0.2800	0.2800	
97	64.0000	0.2700	0.2700	
98	66.0000	0.2600	0.2600	
99	68.0000	0.2500	0.2500	
100	70.0000	0.2400	0.2400	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A– NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

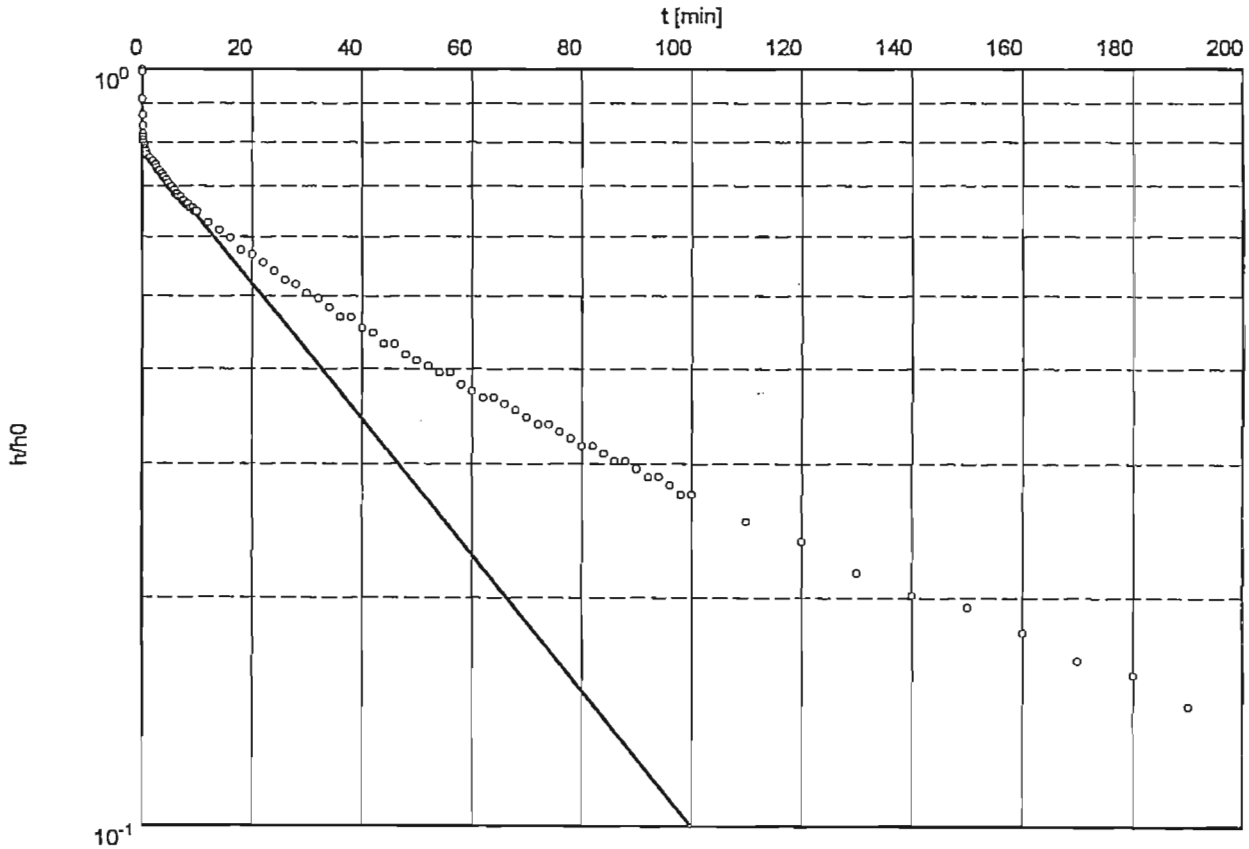
Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	72.0000	0.2400	0.2400	
102	74.0000	0.2300	0.2300	
103	76.0000	0.2200	0.2200	
104	78.0000	0.2200	0.2200	
105	80.0000	0.2100	0.2100	
106	82.0000	0.2000	0.2000	
107	84.0000	0.1900	0.1900	
108	86.0000	0.1900	0.1900	
109	88.0000	0.1800	0.1800	
110	90.0000	0.1700	0.1700	
111	92.0000	0.1700	0.1700	
112	94.0000	0.1600	0.1600	
113	96.0000	0.1500	0.1500	
114	98.0000	0.1500	0.1500	
115	100.0000	0.1500	0.1500	
116	110.0000	0.1200	0.1200	
117	120.0000	0.1000	0.1000	
118	130.0000	0.0790	0.0790	
119	140.0000	0.0600	0.0600	
120	150.0000	0.0410	0.0410	
121	160.0000	0.0290	0.0290	
122	170.0000	0.0130	0.0130	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	



o Rising Head Test

Hydraulic conductivity [ft/min]: 1.06×10^{-4}

Hydraulic conductivity (ft/d) = 0.15

L = 12 ft
b = 12 ft
D = 12 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.3900	1.3900	
2	0.0416	1.3800	1.3800	
3	0.0583	1.2700	1.2700	
4	0.0750	1.2100	1.2100	
5	0.0916	1.1700	1.1700	
6	0.1083	1.1400	1.1400	
7	0.1250	1.1300	1.1300	
8	0.1416	1.1200	1.1200	
9	0.1583	1.1200	1.1200	
10	0.1666	1.1100	1.1100	
11	0.2083	1.1100	1.1100	
12	0.2250	1.1000	1.1000	
13	0.2500	1.1000	1.1000	
14	0.3000	1.1000	1.1000	
15	0.3083	1.1000	1.1000	
16	0.3250	1.1000	1.1000	
17	0.3666	1.0900	1.0900	
18	0.4000	1.0900	1.0900	
19	0.4833	1.0900	1.0900	
20	0.5500	1.0800	1.0800	
21	0.5833	1.0800	1.0800	
22	0.6833	1.0800	1.0800	
23	0.7000	1.0800	1.0800	
24	0.8333	1.0700	1.0700	
25	1.2000	1.0600	1.0600	
26	1.4000	1.0600	1.0600	
27	1.6000	1.0500	1.0500	
28	1.8000	1.0500	1.0500	
29	2.0000	1.0500	1.0500	
30	2.2000	1.0400	1.0400	
31	2.4000	1.0400	1.0400	
32	2.6000	1.0300	1.0300	
33	2.8000	1.0200	1.0200	
34	3.0000	1.0200	1.0200	
35	3.2000	1.0200	1.0200	
36	3.4000	1.0100	1.0100	
37	3.6000	1.0100	1.0100	
38	3.8000	1.0000	1.0000	
39	4.0000	1.0000	1.0000	
40	4.2000	0.9900	0.9900	
41	4.4000	0.9900	0.9900	
42	4.6000	0.9800	0.9800	
43	4.8000	0.9800	0.9800	
44	5.0000	0.9700	0.9700	
45	5.2000	0.9700	0.9700	
46	5.4000	0.9700	0.9700	
47	5.6000	0.9600	0.9600	
48	5.8000	0.9600	0.9600	
49	6.0000	0.9500	0.9500	
50	6.2000	0.9500	0.9500	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	6.4000	0.9500	0.9500	
52	6.6000	0.9400	0.9400	
53	7.0000	0.9400	0.9400	
54	7.2000	0.9300	0.9300	
55	7.6000	0.9300	0.9300	
56	7.8000	0.9200	0.9200	
57	8.2000	0.9200	0.9200	
58	8.4000	0.9200	0.9200	
59	8.6000	0.9100	0.9100	
60	8.8000	0.9100	0.9100	
61	9.2000	0.9100	0.9100	
62	9.4000	0.9000	0.9000	
63	9.6000	0.9000	0.9000	
64	9.8000	0.9000	0.9000	
65	10.0000	0.9000	0.9000	
66	12.0000	0.8700	0.8700	
67	14.0000	0.8500	0.8500	
68	16.0000	0.8300	0.8300	
69	18.0000	0.8000	0.8000	
70	20.0000	0.7900	0.7900	
71	22.0000	0.7700	0.7700	
72	24.0000	0.7500	0.7500	
73	26.0000	0.7300	0.7300	
74	28.0000	0.7200	0.7200	
75	30.0000	0.7000	0.7000	
76	32.0000	0.6900	0.6900	
77	34.0000	0.6700	0.6700	
78	36.0000	0.6500	0.6500	
79	38.0000	0.6500	0.6500	
80	40.0000	0.6300	0.6300	
81	42.0000	0.6200	0.6200	
82	44.0000	0.6000	0.6000	
83	46.0000	0.6000	0.6000	
84	48.0000	0.5800	0.5800	
85	50.0000	0.5700	0.5700	
86	52.0000	0.5600	0.5600	
87	54.0000	0.5500	0.5500	
88	56.0000	0.5500	0.5500	
89	58.0000	0.5300	0.5300	
90	60.0000	0.5200	0.5200	
91	62.0000	0.5100	0.5100	
92	64.0000	0.5100	0.5100	
93	66.0000	0.5000	0.5000	
94	68.0000	0.4900	0.4900	
95	70.0000	0.4800	0.4800	
96	72.0000	0.4700	0.4700	
97	74.0000	0.4700	0.4700	
98	76.0000	0.4600	0.4600	
99	78.0000	0.4500	0.4500	
100	80.0000	0.4400	0.4400	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

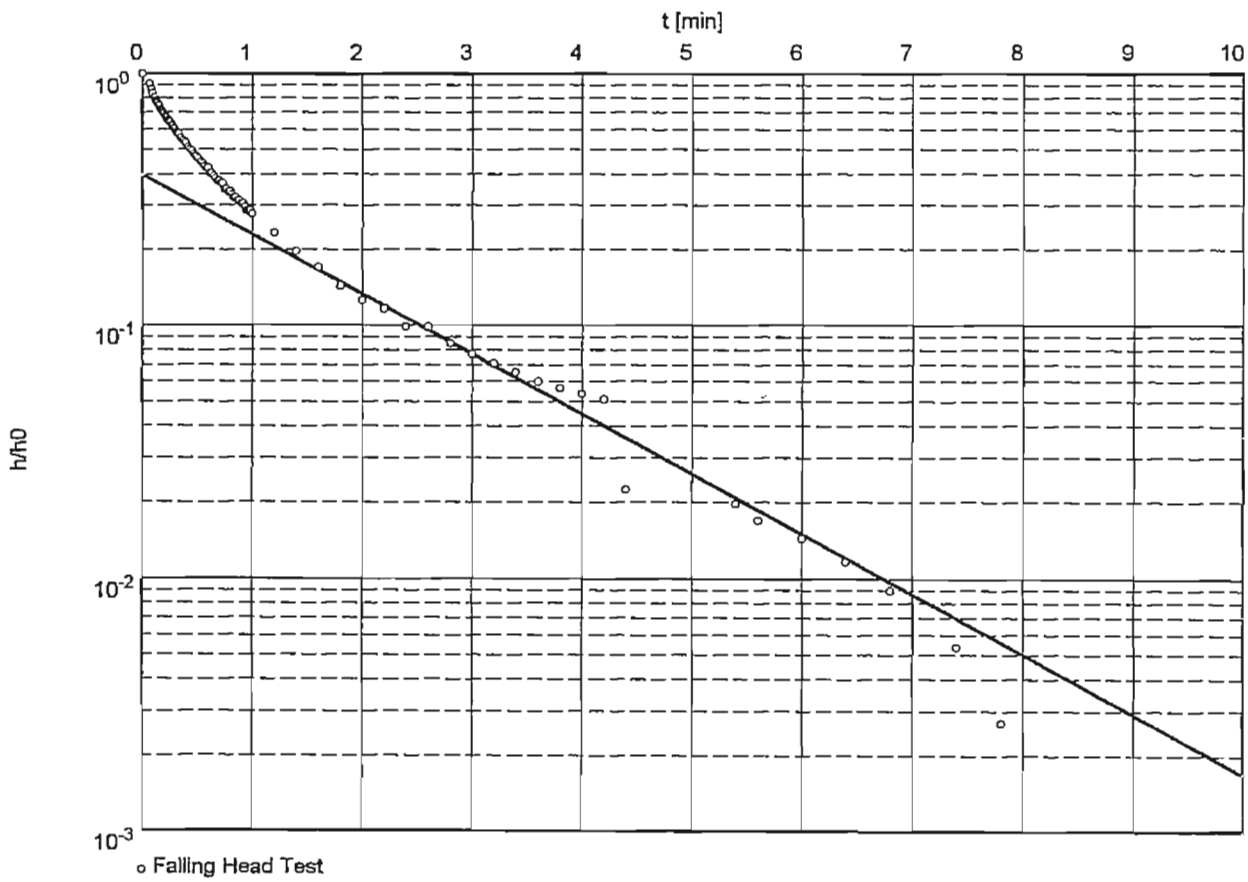
Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-007	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	82.0000	0.4400	0.4400	
102	84.0000	0.4300	0.4300	
103	86.0000	0.4200	0.4200	
104	88.0000	0.4200	0.4200	
105	90.0000	0.4100	0.4100	
106	92.0000	0.4000	0.4000	
107	94.0000	0.4000	0.4000	
108	96.0000	0.3900	0.3900	
109	98.0000	0.3800	0.3800	
110	100.0000	0.3800	0.3800	
111	110.0000	0.3500	0.3500	
112	120.0000	0.3300	0.3300	
113	130.0000	0.3000	0.3000	
114	140.0000	0.2800	0.2800	
115	150.0000	0.2700	0.2700	
116	160.0000	0.2500	0.2500	
117	170.0000	0.2300	0.2300	
118	180.0000	0.2200	0.2200	
119	190.0000	0.2000	0.2000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-009	



Hydraulic conductivity [ft/min]: 7.24×10^{-3}

Hydraulic conductivity (ft/d) = 10.4

L = 3.0 ft
b = 3.0 ft
D = 3.0 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A– NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-009	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.1200	1.1200	
2	0.0666	1.0200	1.0200	
3	0.0833	0.9700	0.9700	
4	0.0916	0.9300	0.9300	
5	0.1083	0.9000	0.9000	
6	0.1166	0.9000	0.9000	
7	0.1250	0.8700	0.8700	
8	0.1333	0.8600	0.8600	
9	0.1416	0.8500	0.8500	
10	0.1500	0.8400	0.8400	
11	0.1583	0.8300	0.8300	
12	0.1666	0.8100	0.8100	
13	0.1750	0.8000	0.8000	
14	0.1833	0.7900	0.7900	
15	0.1916	0.7800	0.7800	
16	0.2000	0.7700	0.7700	
17	0.2083	0.7600	0.7600	
18	0.2166	0.7500	0.7500	
19	0.2250	0.7400	0.7400	
20	0.2333	0.7300	0.7300	
21	0.2416	0.7300	0.7300	
22	0.2500	0.7200	0.7200	
23	0.2583	0.7100	0.7100	
24	0.2666	0.7000	0.7000	
25	0.2750	0.6900	0.6900	
26	0.2833	0.6800	0.6800	
27	0.2916	0.6700	0.6700	
28	0.3000	0.6700	0.6700	
29	0.3083	0.6600	0.6600	
30	0.3166	0.6500	0.6500	
31	0.3250	0.6500	0.6500	
32	0.3333	0.6400	0.6400	
33	0.3500	0.6200	0.6200	
34	0.3666	0.6100	0.6100	
35	0.3833	0.6000	0.6000	
36	0.4000	0.5900	0.5900	
37	0.4166	0.5700	0.5700	
38	0.4333	0.5600	0.5600	
39	0.4500	0.5500	0.5500	
40	0.4666	0.5400	0.5400	
41	0.4833	0.5300	0.5300	
42	0.5000	0.5200	0.5200	
43	0.5166	0.5100	0.5100	
44	0.5333	0.5000	0.5000	
45	0.5500	0.4900	0.4900	
46	0.5666	0.4800	0.4800	
47	0.5833	0.4700	0.4700	
48	0.6000	0.4700	0.4700	
49	0.6166	0.4500	0.4500	
50	0.6333	0.4500	0.4500	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A-- NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

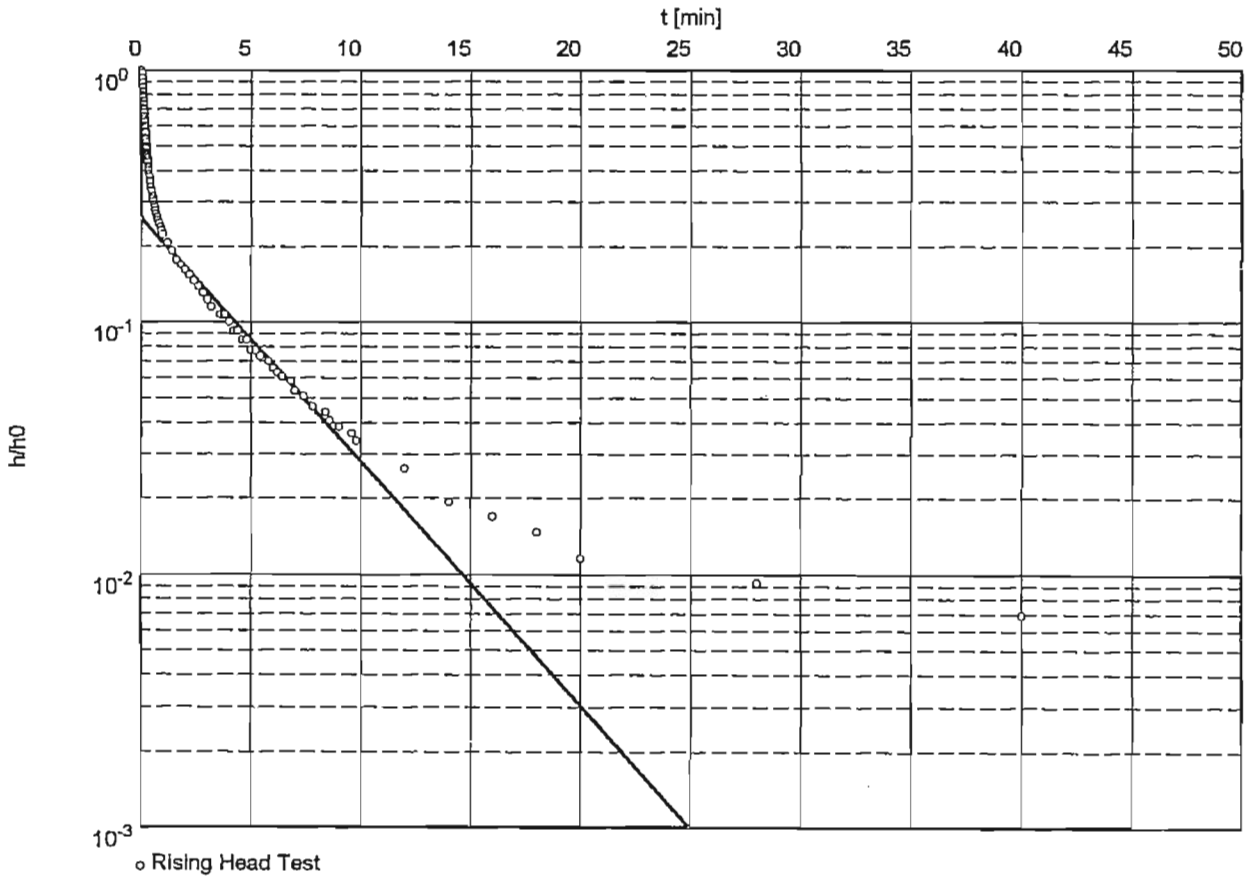
Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-009	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6500	0.4400	0.4400	
52	0.6666	0.4300	0.4300	
53	0.6833	0.4200	0.4200	
54	0.7000	0.4200	0.4200	
55	0.7166	0.4100	0.4100	
56	0.7333	0.4100	0.4100	
57	0.7500	0.3900	0.3900	
58	0.7666	0.3900	0.3900	
59	0.7833	0.3800	0.3800	
60	0.8000	0.3800	0.3800	
61	0.8166	0.3700	0.3700	
62	0.8333	0.3600	0.3600	
63	0.8500	0.3600	0.3600	
64	0.8666	0.3500	0.3500	
65	0.8833	0.3500	0.3500	
66	0.9000	0.3400	0.3400	
67	0.9166	0.3400	0.3400	
68	0.9333	0.3300	0.3300	
69	0.9500	0.3200	0.3200	
70	0.9666	0.3200	0.3200	
71	0.9833	0.3200	0.3200	
72	1.0000	0.3100	0.3100	
73	1.2000	0.2600	0.2600	
74	1.4000	0.2200	0.2200	
75	1.6000	0.1900	0.1900	
76	1.8000	0.1600	0.1600	
77	2.0000	0.1400	0.1400	
78	2.2000	0.1300	0.1300	
79	2.4000	0.1100	0.1100	
80	2.6000	0.1100	0.1100	
81	2.8000	0.0950	0.0950	
82	3.0000	0.0860	0.0860	
83	3.2000	0.0790	0.0790	
84	3.4000	0.0730	0.0730	
85	3.6000	0.0670	0.0670	
86	3.8000	0.0630	0.0630	
87	4.0000	0.0600	0.0600	
88	4.2000	0.0570	0.0570	
89	4.4000	0.0250	0.0250	
90	5.4000	0.0220	0.0220	
91	5.6000	0.0190	0.0190	
92	6.0000	0.0160	0.0160	
93	6.4000	0.0130	0.0130	
94	6.8000	0.0100	0.0100	
95	7.4000	0.0060	0.0060	
96	7.8000	0.0030	0.0030	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-009	



Hydraulic conductivity [ft/min]: 2.57×10^{-3}

Hydraulic conductivity (ft/d) = 3.7

L = 3.0 ft
b = 3.0 ft
D = 3.0 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-009	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.3000	1.3000	
2	0.0500	1.2700	1.2700	
3	0.0583	1.2100	1.2100	
4	0.0666	1.1600	1.1600	
5	0.0750	1.1100	1.1100	
6	0.0833	1.0700	1.0700	
7	0.0916	1.0300	1.0300	
8	0.1000	1.0100	1.0100	
9	0.1083	0.9800	0.9800	
10	0.1166	0.9500	0.9500	
11	0.1250	0.9200	0.9200	
12	0.1333	0.9000	0.9000	
13	0.1416	0.8800	0.8800	
14	0.1500	0.8500	0.8500	
15	0.1583	0.8300	0.8300	
16	0.1666	0.8100	0.8100	
17	0.1750	0.7800	0.7800	
18	0.1833	0.7600	0.7600	
19	0.1916	0.7400	0.7400	
20	0.2000	0.7300	0.7300	
21	0.2083	0.7000	0.7000	
22	0.2166	0.6900	0.6900	
23	0.2250	0.6700	0.6700	
24	0.2333	0.6500	0.6500	
25	0.2416	0.6400	0.6400	
26	0.2500	0.6300	0.6300	
27	0.2583	0.6100	0.6100	
28	0.2666	0.6000	0.6000	
29	0.2750	0.5900	0.5900	
30	0.2833	0.5800	0.5800	
31	0.2916	0.5700	0.5700	
32	0.3000	0.5600	0.5600	
33	0.3083	0.5400	0.5400	
34	0.3166	0.5300	0.5300	
35	0.3250	0.5200	0.5200	
36	0.3333	0.5200	0.5200	
37	0.3500	0.5000	0.5000	
38	0.3666	0.4900	0.4900	
39	0.3833	0.4700	0.4700	
40	0.4000	0.4700	0.4700	
41	0.4166	0.4500	0.4500	
42	0.4333	0.4400	0.4400	
43	0.4500	0.4400	0.4400	
44	0.4666	0.4300	0.4300	
45	0.4833	0.4100	0.4100	
46	0.5000	0.4100	0.4100	
47	0.5166	0.4100	0.4100	
48	0.5333	0.4000	0.4000	
49	0.5500	0.3900	0.3900	
50	0.5833	0.3800	0.3800	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-009	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6000	0.3700	0.3700	
52	0.6166	0.3700	0.3700	
53	0.6333	0.3600	0.3600	
54	0.6500	0.3600	0.3600	
55	0.6666	0.3500	0.3500	
56	0.7000	0.3400	0.3400	
57	0.7166	0.3400	0.3400	
58	0.7333	0.3400	0.3400	
59	0.7500	0.3300	0.3300	
60	0.7666	0.3300	0.3300	
61	0.8000	0.3200	0.3200	
62	0.8166	0.3200	0.3200	
63	0.8333	0.3200	0.3200	
64	0.8833	0.3100	0.3100	
65	0.9166	0.3000	0.3000	
66	0.9333	0.3000	0.3000	
67	0.9833	0.2900	0.2900	
68	1.0000	0.2900	0.2900	
69	1.2000	0.2700	0.2700	
70	1.4000	0.2500	0.2500	
71	1.6000	0.2300	0.2300	
72	1.8000	0.2200	0.2200	
73	2.0000	0.2100	0.2100	
74	2.2000	0.2000	0.2000	
75	2.4000	0.1900	0.1900	
76	2.6000	0.1800	0.1800	
77	2.8000	0.1700	0.1700	
78	3.0000	0.1600	0.1600	
79	3.2000	0.1500	0.1500	
80	3.6000	0.1400	0.1400	
81	3.8000	0.1400	0.1400	
82	4.0000	0.1300	0.1300	
83	4.2000	0.1200	0.1200	
84	4.4000	0.1200	0.1200	
85	4.6000	0.1100	0.1100	
86	4.8000	0.1100	0.1100	
87	5.0000	0.1000	0.1000	
88	5.2000	0.1000	0.1000	
89	5.4000	0.0950	0.0950	
90	5.8000	0.0910	0.0910	
91	6.0000	0.0850	0.0850	
92	6.2000	0.0820	0.0820	
93	6.4000	0.0790	0.0790	
94	6.8000	0.0760	0.0760	
95	7.0000	0.0690	0.0690	
96	7.4000	0.0660	0.0660	
97	7.8000	0.0600	0.0600	
98	8.4000	0.0570	0.0570	
99	8.6000	0.0530	0.0530	
100	9.0000	0.0500	0.0500	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

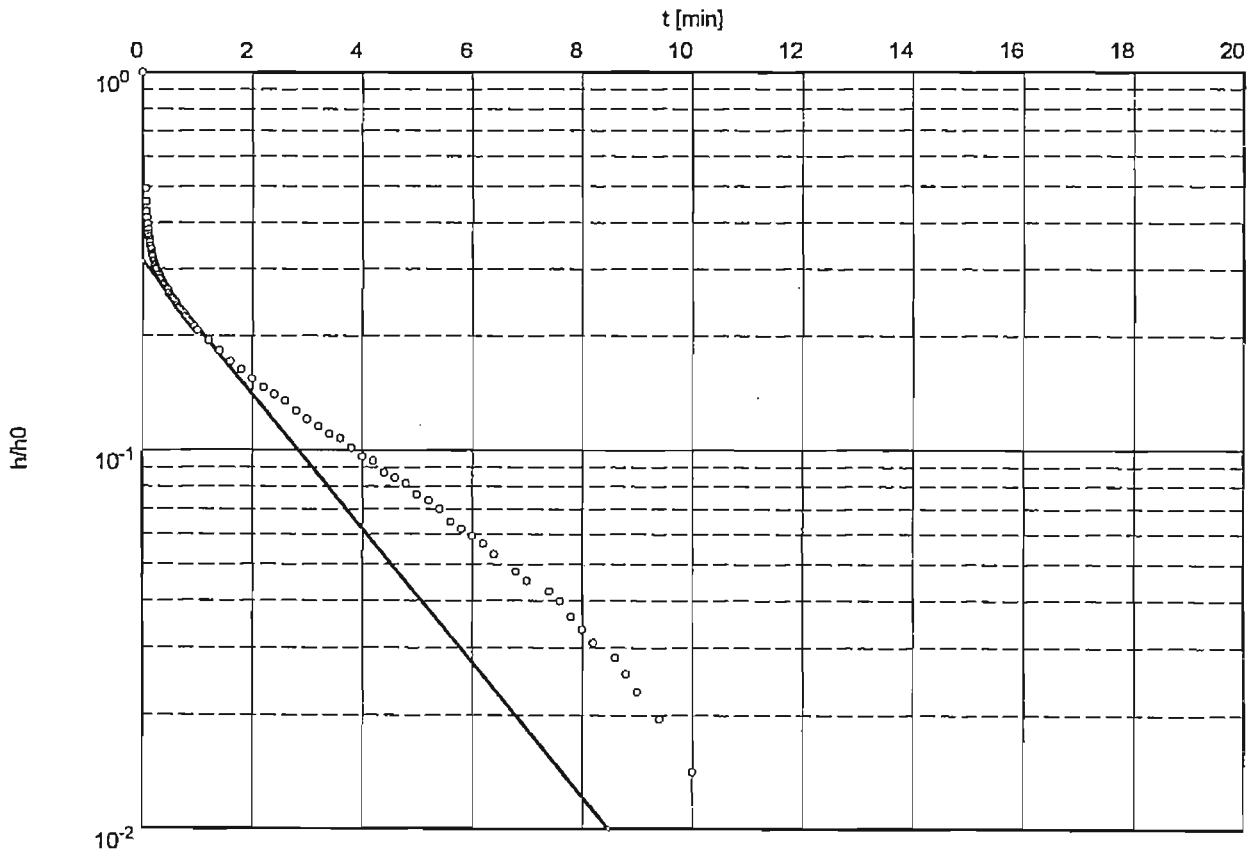
Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-009	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
101	9.6000	0.0470	0.0470
102	9.8000	0.0440	0.0440
103	12.0000	0.0340	0.0340
104	14.0000	0.0250	0.0250
105	16.0000	0.0220	0.0220
106	18.0000	0.0190	0.0190
107	20.0000	0.0150	0.0150
108	28.0000	0.0120	0.0120
109	40.0000	0.0090	0.0090

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1	
		Project: Zone A--NAVBASE Charleston	
		Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	



o Falling Head Test

Hydraulic conductivity [ft/min]: 2.89×10^{-3}

Hydraulic conductivity (ft/d) = 4.2

L = 7.7 ft
b = 7.7 ft
D = 7.7 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.1300	1.1300	
2	0.0583	0.5570	0.5570	
3	0.0666	0.5130	0.5130	
4	0.0750	0.4840	0.4840	
5	0.0833	0.4650	0.4650	
6	0.0916	0.4460	0.4460	
7	0.1000	0.4310	0.4310	
8	0.1083	0.4210	0.4210	
9	0.1166	0.4120	0.4120	
10	0.1250	0.4050	0.4050	
11	0.1333	0.3990	0.3990	
12	0.1416	0.3890	0.3890	
13	0.1500	0.3830	0.3830	
14	0.1583	0.3800	0.3800	
15	0.1666	0.3740	0.3740	
16	0.1750	0.3700	0.3700	
17	0.1833	0.3670	0.3670	
18	0.1916	0.3640	0.3640	
19	0.2000	0.3580	0.3580	
20	0.2083	0.3550	0.3550	
21	0.2166	0.3510	0.3510	
22	0.2250	0.3480	0.3480	
23	0.2333	0.3450	0.3450	
24	0.2500	0.3420	0.3420	
25	0.2583	0.3390	0.3390	
26	0.2666	0.3360	0.3360	
27	0.2833	0.3320	0.3320	
28	0.3000	0.3290	0.3290	
29	0.3083	0.3260	0.3260	
30	0.3250	0.3230	0.3230	
31	0.3333	0.3200	0.3200	
32	0.3500	0.3170	0.3170	
33	0.3666	0.3130	0.3130	
34	0.3833	0.3100	0.3100	
35	0.4000	0.3070	0.3070	
36	0.4166	0.3040	0.3040	
37	0.4500	0.3010	0.3010	
38	0.4666	0.2980	0.2980	
39	0.4833	0.2910	0.2910	
40	0.5166	0.2880	0.2880	
41	0.5333	0.2850	0.2850	
42	0.5666	0.2820	0.2820	
43	0.5833	0.2790	0.2790	
44	0.6166	0.2760	0.2760	
45	0.6333	0.2720	0.2720	
46	0.6500	0.2690	0.2690	
47	0.6833	0.2660	0.2660	
48	0.7000	0.2630	0.2630	
49	0.7333	0.2600	0.2600	
50	0.7666	0.2570	0.2570	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

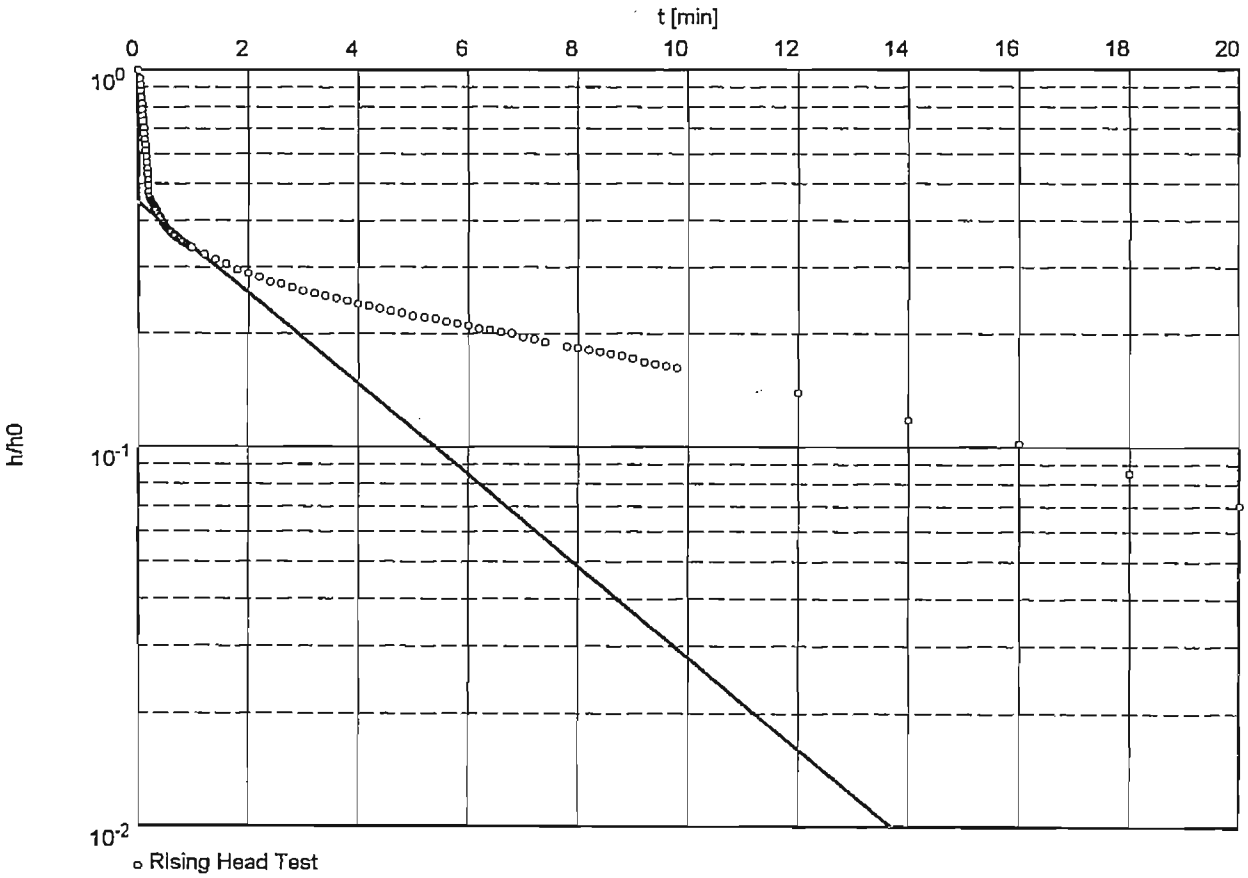
Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.7833	0.2530	0.2530	
52	0.8166	0.2500	0.2500	
53	0.8500	0.2470	0.2470	
54	0.8833	0.2440	0.2440	
55	0.9166	0.2410	0.2410	
56	0.9500	0.2380	0.2380	
57	1.0000	0.2340	0.2340	
58	1.2000	0.2190	0.2190	
59	1.4000	0.2060	0.2060	
60	1.6000	0.1930	0.1930	
61	1.8000	0.1840	0.1840	
62	2.0000	0.1740	0.1740	
63	2.2000	0.1650	0.1650	
64	2.4000	0.1580	0.1580	
65	2.6000	0.1520	0.1520	
66	2.8000	0.1430	0.1430	
67	3.0000	0.1360	0.1360	
68	3.2000	0.1300	0.1300	
69	3.4000	0.1240	0.1240	
70	3.6000	0.1210	0.1210	
71	3.8000	0.1140	0.1140	
72	4.0000	0.1080	0.1080	
73	4.2000	0.1050	0.1050	
74	4.4000	0.0980	0.0980	
75	4.6000	0.0950	0.0950	
76	4.8000	0.0920	0.0920	
77	5.0000	0.0860	0.0860	
78	5.2000	0.0830	0.0830	
79	5.4000	0.0790	0.0790	
80	5.6000	0.0730	0.0730	
81	5.8000	0.0700	0.0700	
82	6.0000	0.0670	0.0670	
83	6.2000	0.0640	0.0640	
84	6.4000	0.0600	0.0600	
85	6.8000	0.0540	0.0540	
86	7.0000	0.0510	0.0510	
87	7.4000	0.0480	0.0480	
88	7.6000	0.0450	0.0450	
89	7.8000	0.0410	0.0410	
90	8.0000	0.0380	0.0380	
91	8.2000	0.0350	0.0350	
92	8.6000	0.0320	0.0320	
93	8.8000	0.0290	0.0290	
94	9.0000	0.0260	0.0260	
95	9.4000	0.0220	0.0220	
96	10.0000	0.0160	0.0160	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	



Hydraulic conductivity [ft/min]: 1.97×10^{-3}

Hydraulic conductivity (ft/d) = 2.8

L = 7.7 ft
b = 7.7 ft
D = 7.7 ft
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.5240	1.5240	
2	0.0333	1.4450	1.4450	
3	0.0416	1.3910	1.3910	
4	0.0500	1.3380	1.3380	
5	0.0583	1.2870	1.2870	
6	0.0666	1.2360	1.2360	
7	0.0750	1.1950	1.1950	
8	0.0833	1.1480	1.1480	
9	0.0916	1.1130	1.1130	
10	0.1000	1.0690	1.0690	
11	0.1083	1.0310	1.0310	
12	0.1166	0.9930	0.9930	
13	0.1250	0.9610	0.9610	
14	0.1333	0.9270	0.9270	
15	0.1416	0.8950	0.8950	
16	0.1500	0.8630	0.8630	
17	0.1583	0.8320	0.8320	
18	0.1666	0.8060	0.8060	
19	0.1750	0.7780	0.7780	
20	0.1833	0.7530	0.7530	
21	0.1916	0.7210	0.7210	
22	0.2000	0.7050	0.7050	
23	0.2083	0.6960	0.6960	
24	0.2166	0.6890	0.6890	
25	0.2250	0.6860	0.6860	
26	0.2333	0.6800	0.6800	
27	0.2500	0.6770	0.6770	
28	0.2583	0.6740	0.6740	
29	0.2666	0.6700	0.6700	
30	0.2750	0.6670	0.6670	
31	0.2833	0.6640	0.6640	
32	0.2916	0.6610	0.6610	
33	0.3000	0.6580	0.6580	
34	0.3083	0.6550	0.6550	
35	0.3166	0.6510	0.6510	
36	0.3250	0.6480	0.6480	
37	0.3333	0.6420	0.6420	
38	0.3500	0.6360	0.6360	
39	0.3666	0.6290	0.6290	
40	0.3833	0.6230	0.6230	
41	0.4000	0.6170	0.6170	
42	0.4166	0.6100	0.6100	
43	0.4333	0.6040	0.6040	
44	0.4500	0.5980	0.5980	
45	0.4666	0.5950	0.5950	
46	0.4833	0.5880	0.5880	
47	0.5000	0.5850	0.5850	
48	0.5166	0.5790	0.5790	
49	0.5333	0.5760	0.5760	
50	0.5500	0.5720	0.5720	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.5666	0.5690	0.5690	
52	0.5833	0.5660	0.5660	
53	0.6000	0.5600	0.5600	
54	0.6333	0.5570	0.5570	
55	0.6500	0.5530	0.5530	
56	0.6666	0.5500	0.5500	
57	0.7000	0.5470	0.5470	
58	0.7333	0.5440	0.5440	
59	0.7500	0.5410	0.5410	
60	0.7666	0.5380	0.5380	
61	0.8000	0.5340	0.5340	
62	0.8333	0.5310	0.5310	
63	0.8666	0.5280	0.5280	
64	0.8833	0.5250	0.5250	
65	0.9166	0.5220	0.5220	
66	0.9500	0.5190	0.5190	
67	0.9666	0.5150	0.5150	
68	1.2000	0.4930	0.4930	
69	1.4000	0.4780	0.4780	
70	1.6000	0.4650	0.4650	
71	1.8000	0.4490	0.4490	
72	2.0000	0.4400	0.4400	
73	2.2000	0.4300	0.4300	
74	2.4000	0.4170	0.4170	
75	2.6000	0.4110	0.4110	
76	2.8000	0.4020	0.4020	
77	3.0000	0.3950	0.3950	
78	3.2000	0.3890	0.3890	
79	3.4000	0.3830	0.3830	
80	3.6000	0.3760	0.3760	
81	3.8000	0.3700	0.3700	
82	4.0000	0.3640	0.3640	
83	4.2000	0.3600	0.3600	
84	4.4000	0.3540	0.3540	
85	4.6000	0.3480	0.3480	
86	4.8000	0.3450	0.3450	
87	5.0000	0.3380	0.3380	
88	5.2000	0.3350	0.3350	
89	5.4000	0.3320	0.3320	
90	5.6000	0.3260	0.3260	
91	5.8000	0.3230	0.3230	
92	6.0000	0.3190	0.3190	
93	6.2000	0.3130	0.3130	
94	6.4000	0.3100	0.3100	
95	6.6000	0.3070	0.3070	
96	6.8000	0.3040	0.3040	
97	7.0000	0.2970	0.2970	
98	7.2000	0.2940	0.2940	
99	7.4000	0.2880	0.2880	
100	7.8000	0.2810	0.2810	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

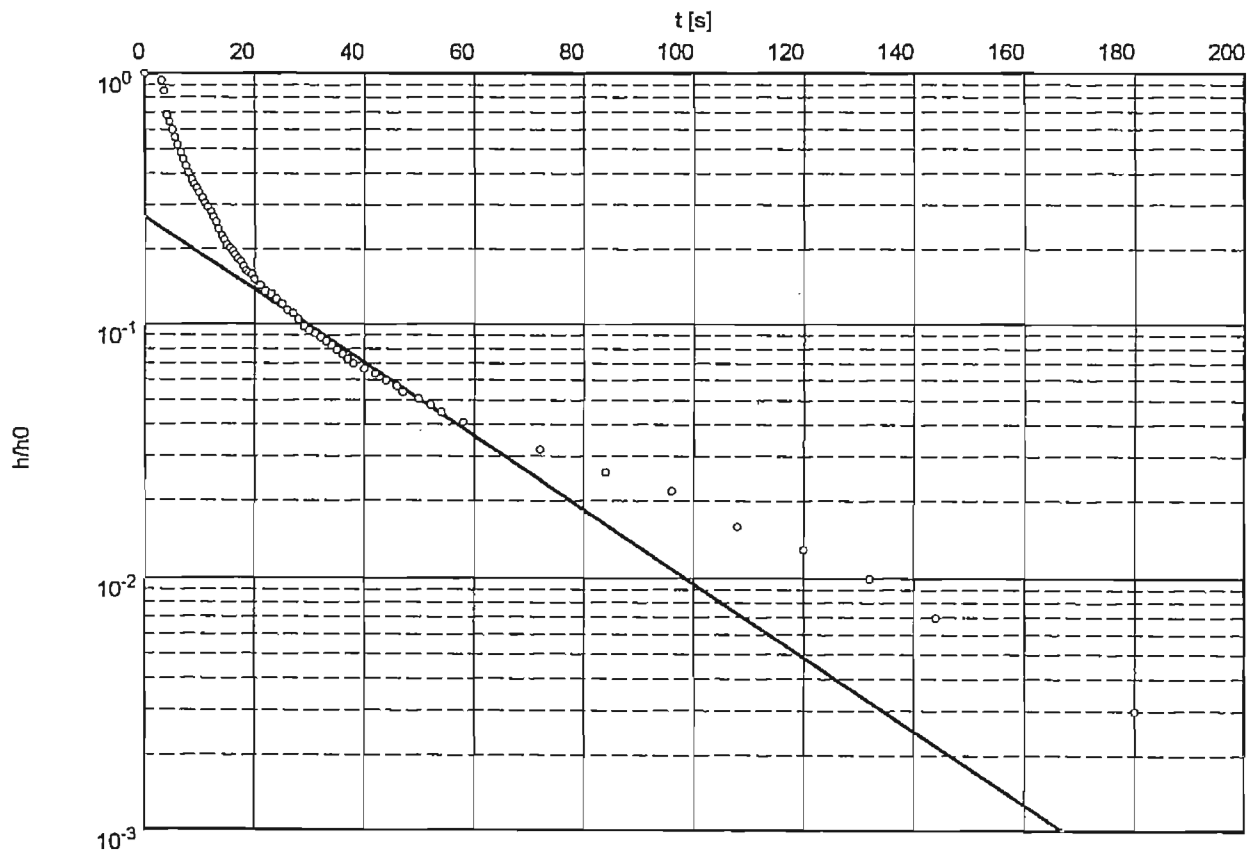
Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-010	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	8.0000	0.2780	0.2780	
102	8.2000	0.2750	0.2750	
103	8.4000	0.2720	0.2720	
104	8.6000	0.2690	0.2690	
105	8.8000	0.2660	0.2660	
106	9.0000	0.2620	0.2620	
107	9.2000	0.2560	0.2560	
108	9.4000	0.2530	0.2530	
109	9.6000	0.2500	0.2500	
110	9.8000	0.2470	0.2470	
111	12.0000	0.2120	0.2120	
112	14.0000	0.1800	0.1800	
113	16.0000	0.1550	0.1550	
114	18.0000	0.1300	0.1300	
115	20.0000	0.1070	0.1070	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1A	Test conducted on: 14.11.1996
NBCA-039-012	



o Falling Head Test-A

Hydraulic conductivity [ft/s]: 1.95×10^{-4}

Hydraulic conductivity (ft/d) = 14.7

L = 10.2 ft
b = 10.2 ft
D = 10.2 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1A	Test conducted on: 14.11.1996
NBCA-039-012	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.0080	1.0080	
2	3.0000	0.9440	0.9440	
3	3.4980	0.8590	0.8590	
4	3.9960	0.6880	0.6880	
5	4.5000	0.6460	0.6460	
6	4.9980	0.6020	0.6020	
7	5.4960	0.5610	0.5610	
8	6.0000	0.5230	0.5230	
9	6.4980	0.4880	0.4880	
10	6.9960	0.4600	0.4600	
11	7.5000	0.4310	0.4310	
12	7.9980	0.4060	0.4060	
13	8.4960	0.3830	0.3830	
14	9.0000	0.3640	0.3640	
15	9.4980	0.3520	0.3520	
16	9.9960	0.3360	0.3360	
17	10.5000	0.3200	0.3200	
18	10.9980	0.3070	0.3070	
19	11.4960	0.2950	0.2950	
20	12.0000	0.2820	0.2820	
21	12.4980	0.2690	0.2690	
22	12.9960	0.2570	0.2570	
23	13.5000	0.2410	0.2410	
24	13.9980	0.2280	0.2280	
25	14.4960	0.2190	0.2190	
26	15.0000	0.2090	0.2090	
27	15.4980	0.2030	0.2030	
28	15.9960	0.1970	0.1970	
29	16.5000	0.1900	0.1900	
30	16.9980	0.1840	0.1840	
31	17.4960	0.1780	0.1780	
32	18.0000	0.1710	0.1710	
33	18.4980	0.1650	0.1650	
34	18.9960	0.1620	0.1620	
35	19.5000	0.1590	0.1590	
36	19.9980	0.1520	0.1520	
37	21.0000	0.1430	0.1430	
38	21.9960	0.1360	0.1360	
39	22.9980	0.1330	0.1330	
40	24.0000	0.1270	0.1270	
41	24.9960	0.1210	0.1210	
42	25.9980	0.1140	0.1140	
43	27.0000	0.1110	0.1110	
44	27.9960	0.1050	0.1050	
45	28.9980	0.0980	0.0980	
46	30.0000	0.0950	0.0950	
47	30.9960	0.0920	0.0920	
48	31.9980	0.0890	0.0890	
49	33.0000	0.0860	0.0860	
50	33.9960	0.0830	0.0830	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

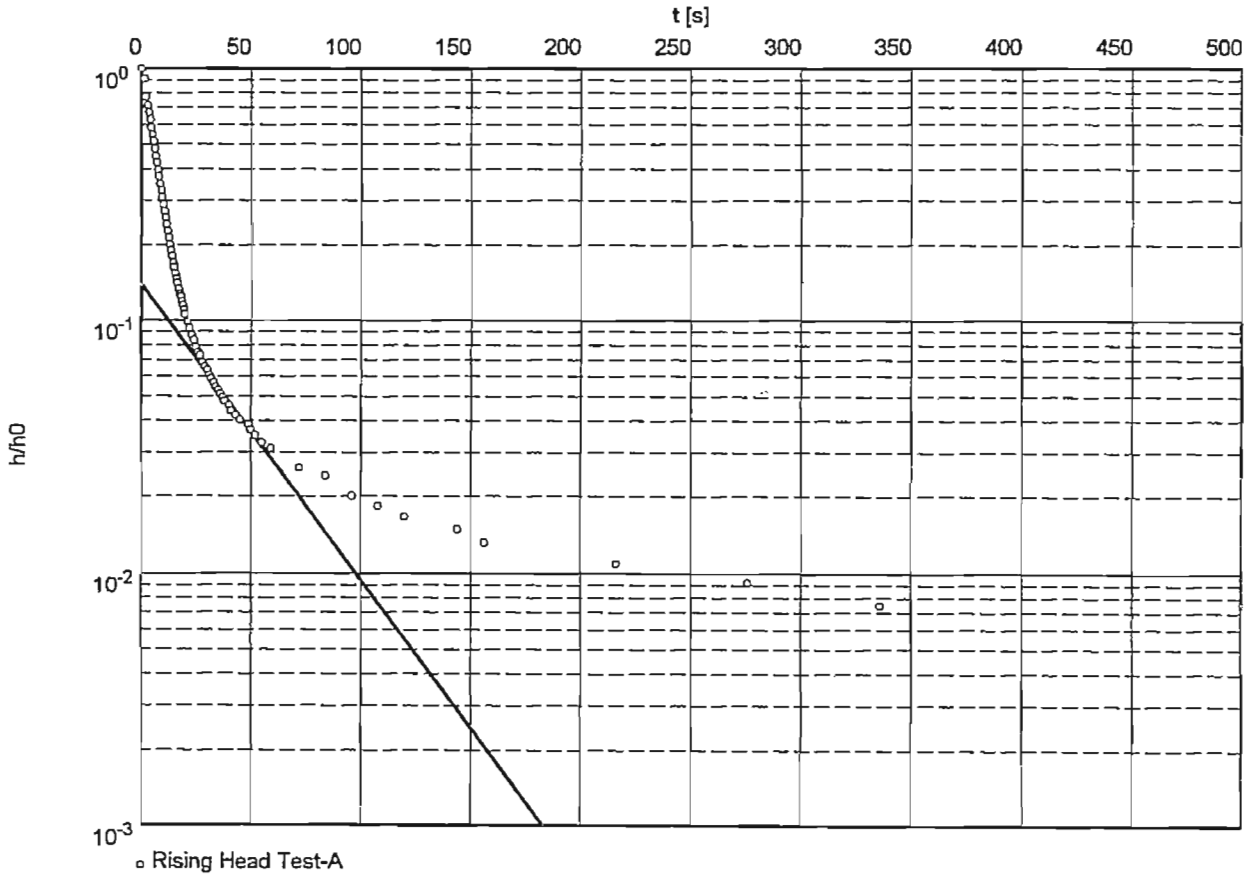
Slug Test No. 1A	Test conducted on: 14.11.1996
NBCA-039-012	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]
51	34.9980	0.0790	0.0790
52	36.0000	0.0760	0.0760
53	36.9960	0.0730	0.0730
54	37.9980	0.0700	0.0700
55	39.9960	0.0670	0.0670
56	42.0000	0.0640	0.0640
57	43.9980	0.0600	0.0600
58	45.9960	0.0570	0.0570
59	46.9980	0.0540	0.0540
60	49.9980	0.0510	0.0510
61	51.9960	0.0480	0.0480
62	54.0000	0.0450	0.0450
63	57.9960	0.0410	0.0410
64	72.0000	0.0320	0.0320
65	84.0000	0.0260	0.0260
66	96.0000	0.0220	0.0220
67	108.0000	0.0160	0.0160
68	120.0000	0.0130	0.0130
69	132.0000	0.0100	0.0100
70	144.0000	0.0070	0.0070
71	180.0000	0.0030	0.0030

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste.113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1A	Test conducted on: 14.11.1996
NBCA-039-012	



Hydraulic conductivity [ft/s]: 1.57×10^{-4}

Hydraulic conductivity (ft/d) = 11.8

L = 10.2 ft
b = 10.2 ft
D = 10.2 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1A	Test conducted on: 14.11.1996
NBCA-039-012	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7420	1.7420	
2	1.5000	1.5870	1.5870	
3	1.9980	1.3430	1.3430	
4	3.0000	1.2450	1.2450	
5	3.4980	1.1630	1.1630	
6	3.9960	1.0930	1.0930	
7	4.5000	1.0170	1.0170	
8	4.9980	0.9510	0.9510	
9	5.4960	0.8940	0.8940	
10	6.0000	0.8370	0.8370	
11	6.4980	0.7800	0.7800	
12	6.9960	0.7320	0.7320	
13	7.5000	0.6880	0.6880	
14	7.9980	0.6470	0.6470	
15	8.4960	0.6050	0.6050	
16	9.0000	0.5710	0.5710	
17	9.4980	0.5360	0.5360	
18	9.9960	0.5010	0.5010	
19	10.5000	0.4720	0.4720	
20	10.9980	0.4440	0.4440	
21	11.4960	0.4190	0.4190	
22	12.0000	0.3930	0.3930	
23	12.4980	0.3710	0.3710	
24	12.9960	0.3490	0.3490	
25	13.5000	0.3300	0.3300	
26	13.9980	0.3140	0.3140	
27	14.4960	0.2950	0.2950	
28	15.0000	0.2820	0.2820	
29	15.4980	0.2670	0.2670	
30	15.9960	0.2540	0.2540	
31	16.5000	0.2440	0.2440	
32	16.9980	0.2320	0.2320	
33	17.4960	0.2220	0.2220	
34	18.0000	0.2160	0.2160	
35	18.4980	0.2060	0.2060	
36	18.9960	0.2000	0.2000	
37	19.5000	0.1910	0.1910	
38	19.9980	0.1840	0.1840	
39	21.0000	0.1720	0.1720	
40	21.9960	0.1620	0.1620	
41	22.9980	0.1520	0.1520	
42	24.0000	0.1460	0.1460	
43	24.9960	0.1370	0.1370	
44	25.9980	0.1300	0.1300	
45	27.0000	0.1270	0.1270	
46	27.9960	0.1180	0.1180	
47	28.9980	0.1140	0.1140	
48	30.0000	0.1110	0.1110	
49	30.9960	0.1050	0.1050	
50	31.9980	0.1020	0.1020	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

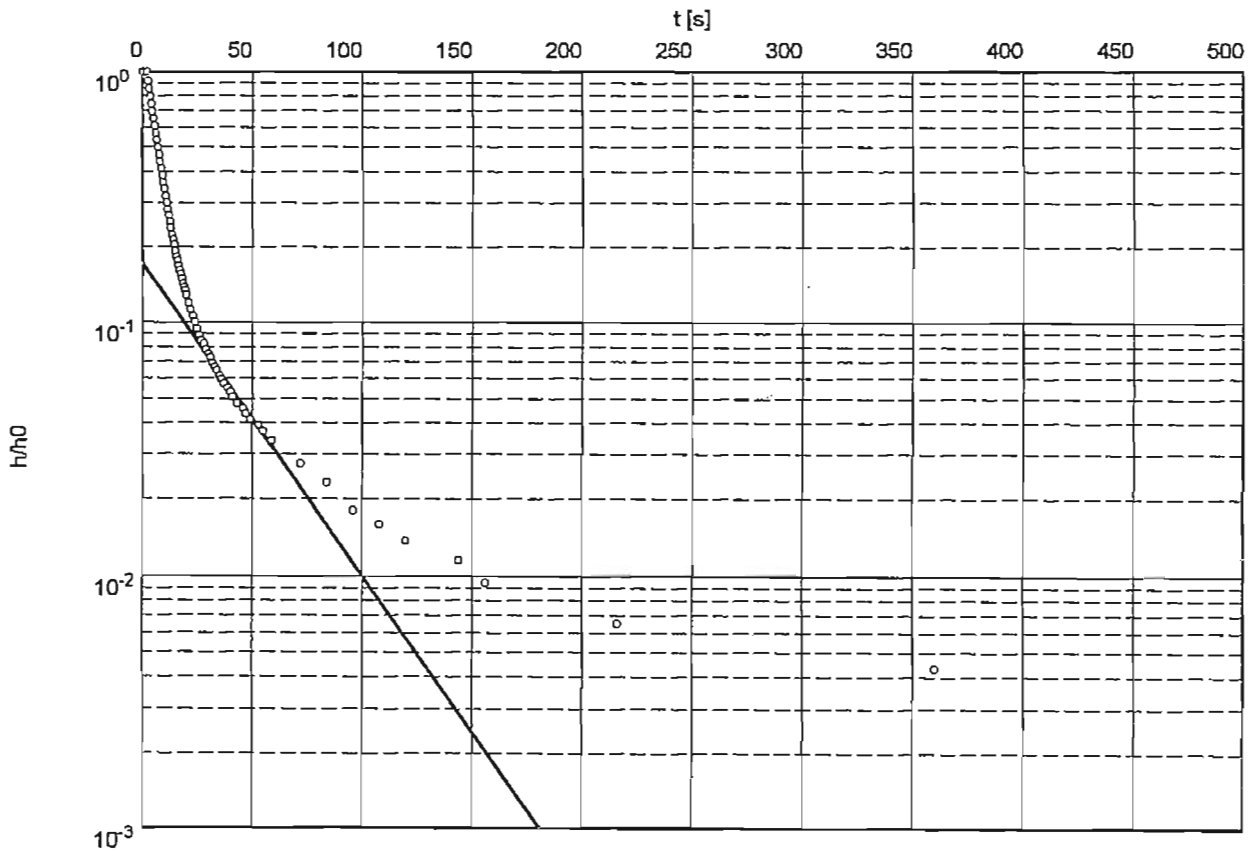
Slug Test No. 1A	Test conducted on: 14.11.1996
NBCA-039-012	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	33.0000	0.0990	0.0990	
52	33.9960	0.0950	0.0950	
53	34.9980	0.0920	0.0920	
54	36.0000	0.0890	0.0890	
55	36.9960	0.0860	0.0860	
56	37.9980	0.0830	0.0830	
57	39.9960	0.0800	0.0800	
58	40.9980	0.0760	0.0760	
59	42.9960	0.0730	0.0730	
60	45.0000	0.0700	0.0700	
61	48.9960	0.0670	0.0670	
62	49.9980	0.0640	0.0640	
63	51.9960	0.0610	0.0610	
64	54.9960	0.0570	0.0570	
65	58.9980	0.0540	0.0540	
66	72.0000	0.0450	0.0450	
67	84.0000	0.0420	0.0420	
68	96.0000	0.0350	0.0350	
69	108.0000	0.0320	0.0320	
70	120.0000	0.0290	0.0290	
71	144.0000	0.0260	0.0260	
72	156.0000	0.0230	0.0230	
73	216.0000	0.0190	0.0190	
74	276.0000	0.0160	0.0160	
75	336.0000	0.0130	0.0130	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-012	



o Rising Head Test-B

Hydraulic conductivity [ft/s]: 1.65×10^{-4}

Hydraulic conductivity (ft/d) = 12.4

L = 10.2 ft
b = 10.2 ft
D = 10.2 ft (full penetration)
Reff = 0.19 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-012	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.3840	1.3840	
2	1.9980	1.3810	1.3810	
3	2.4960	1.2700	1.2700	
4	3.0000	1.1810	1.1810	
5	3.4980	1.1020	1.1020	
6	3.9960	1.0290	1.0290	
7	4.5000	0.9600	0.9600	
8	4.9980	0.8990	0.8990	
9	5.4960	0.8390	0.8390	
10	6.0000	0.7850	0.7850	
11	6.4980	0.7380	0.7380	
12	6.9960	0.6900	0.6900	
13	7.5000	0.6460	0.6460	
14	7.9980	0.6080	0.6080	
15	8.4960	0.5700	0.5700	
16	9.0000	0.5350	0.5350	
17	9.4980	0.5000	0.5000	
18	9.9960	0.4720	0.4720	
19	10.5000	0.4400	0.4400	
20	10.9980	0.4150	0.4150	
21	11.4960	0.3900	0.3900	
22	12.0000	0.3710	0.3710	
23	12.4980	0.3480	0.3480	
24	12.9960	0.3290	0.3290	
25	13.5000	0.3100	0.3100	
26	13.9980	0.2950	0.2950	
27	14.4960	0.2820	0.2820	
28	15.0000	0.2660	0.2660	
29	15.4980	0.2530	0.2530	
30	15.9960	0.2440	0.2440	
31	16.5000	0.2310	0.2310	
32	16.9980	0.2220	0.2220	
33	17.4960	0.2150	0.2150	
34	18.0000	0.2060	0.2060	
35	18.4980	0.1960	0.1960	
36	18.9960	0.1900	0.1900	
37	19.5000	0.1840	0.1840	
38	19.9980	0.1770	0.1770	
39	21.0000	0.1650	0.1650	
40	21.9960	0.1550	0.1550	
41	22.9980	0.1460	0.1460	
42	24.0000	0.1390	0.1390	
43	24.9960	0.1300	0.1300	
44	25.9980	0.1230	0.1230	
45	27.0000	0.1170	0.1170	
46	27.9960	0.1140	0.1140	
47	28.9980	0.1080	0.1080	
48	30.0000	0.1040	0.1040	
49	30.9960	0.1010	0.1010	
50	31.9980	0.0950	0.0950	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-012	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	33.0000	0.0920	0.0920	
52	33.9960	0.0890	0.0890	
53	34.9980	0.0850	0.0850	
54	36.0000	0.0820	0.0820	
55	36.9960	0.0790	0.0790	
56	39.0000	0.0760	0.0760	
57	39.9960	0.0730	0.0730	
58	40.9980	0.0700	0.0700	
59	42.9960	0.0660	0.0660	
60	45.9960	0.0630	0.0630	
61	46.9980	0.0600	0.0600	
62	48.9960	0.0570	0.0570	
63	52.9980	0.0540	0.0540	
64	54.9960	0.0510	0.0510	
65	58.9980	0.0470	0.0470	
66	72.0000	0.0380	0.0380	
67	84.0000	0.0320	0.0320	
68	96.0000	0.0250	0.0250	
69	108.0000	0.0220	0.0220	
70	120.0000	0.0190	0.0190	
71	144.0000	0.0160	0.0160	
72	156.0000	0.0130	0.0130	
73	216.0000	0.0090	0.0090	
74	360.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1	
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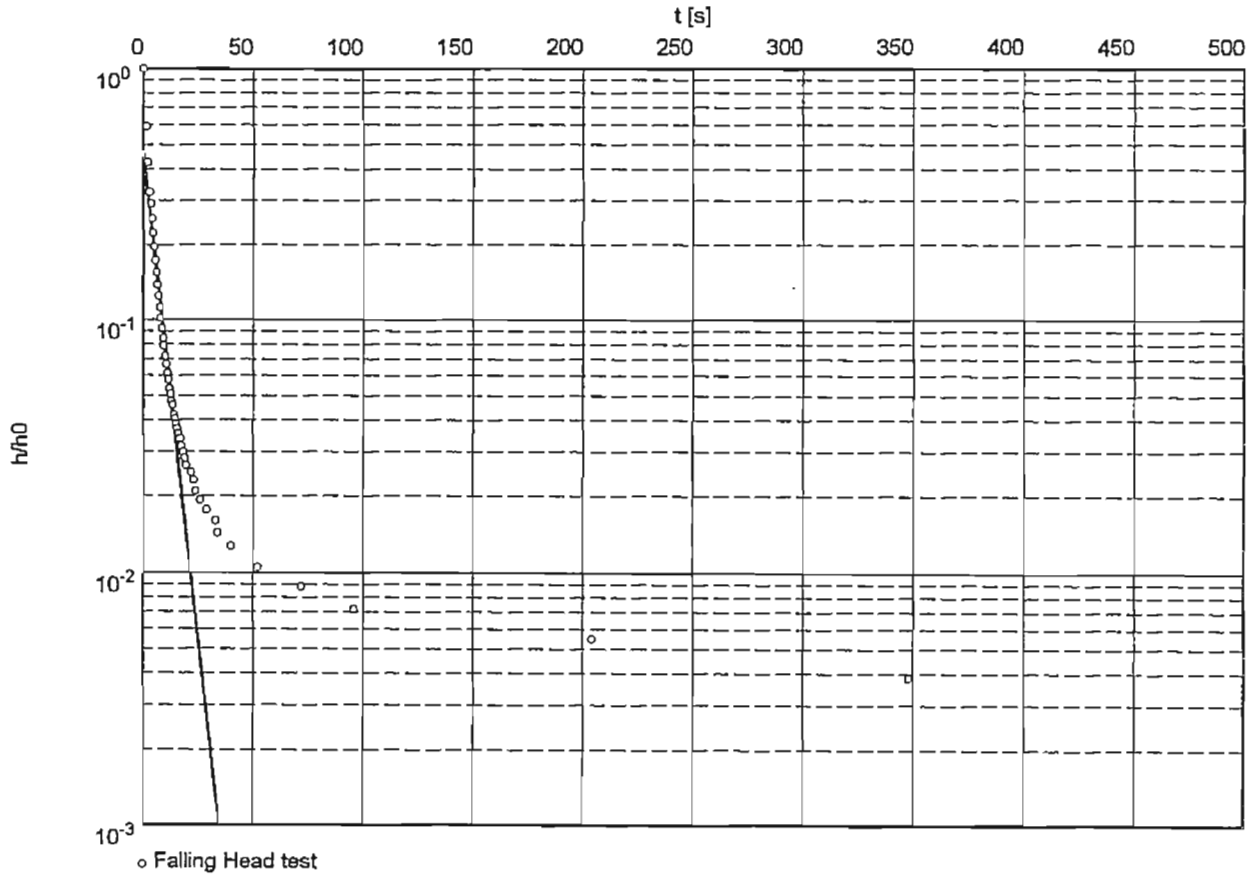
		Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-04I	



Hydraulic conductivity [ft/s]: 1.90×10^{-4}

Hydraulic conductivity (ft/d) = 16.4

L = 9.2 ft
b = 9.2 ft
D = 9.2 ft
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-04I	Falling Head test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.8190	1.8190	
2	0.9960	1.8860	1.8860	
3	1.5000	1.0730	1.0730	
4	1.9980	0.7680	0.7680	
5	2.4960	0.5870	0.5870	
6	3.0000	0.5910	0.5910	
7	3.4980	0.5270	0.5270	
8	3.9960	0.4610	0.4610	
9	4.5000	0.4030	0.4030	
10	4.9980	0.3560	0.3560	
11	5.4960	0.3140	0.3140	
12	6.0000	0.2800	0.2800	
13	6.4980	0.2510	0.2510	
14	6.9960	0.2260	0.2260	
15	7.5000	0.2030	0.2030	
16	7.9980	0.1840	0.1840	
17	8.4960	0.1680	0.1680	
18	9.0000	0.1530	0.1530	
19	9.4980	0.1430	0.1430	
20	9.9960	0.1300	0.1300	
21	10.5000	0.1210	0.1210	
22	10.9980	0.1110	0.1110	
23	11.4960	0.1050	0.1050	
24	12.0000	0.0960	0.0960	
25	12.4980	0.0920	0.0920	
26	12.9960	0.0860	0.0860	
27	13.5000	0.0830	0.0830	
28	13.9980	0.0760	0.0760	
29	14.4960	0.0730	0.0730	
30	15.0000	0.0700	0.0700	
31	15.4980	0.0670	0.0670	
32	15.9960	0.0640	0.0640	
33	16.5000	0.0610	0.0610	
34	16.9980	0.0610	0.0610	
35	17.4960	0.0570	0.0570	
36	18.0000	0.0540	0.0540	
37	18.4980	0.0540	0.0540	
38	18.9960	0.0510	0.0510	
39	19.5000	0.0480	0.0480	
40	21.9960	0.0450	0.0450	
41	22.9980	0.0420	0.0420	
42	24.0000	0.0380	0.0380	
43	25.9980	0.0350	0.0350	
44	28.9980	0.0320	0.0320	
45	33.0000	0.0290	0.0290	
46	33.9960	0.0260	0.0260	
47	39.9960	0.0230	0.0230	
48	51.9960	0.0190	0.0190	
49	72.0000	0.0160	0.0160	
50	96.0000	0.0130	0.0130	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

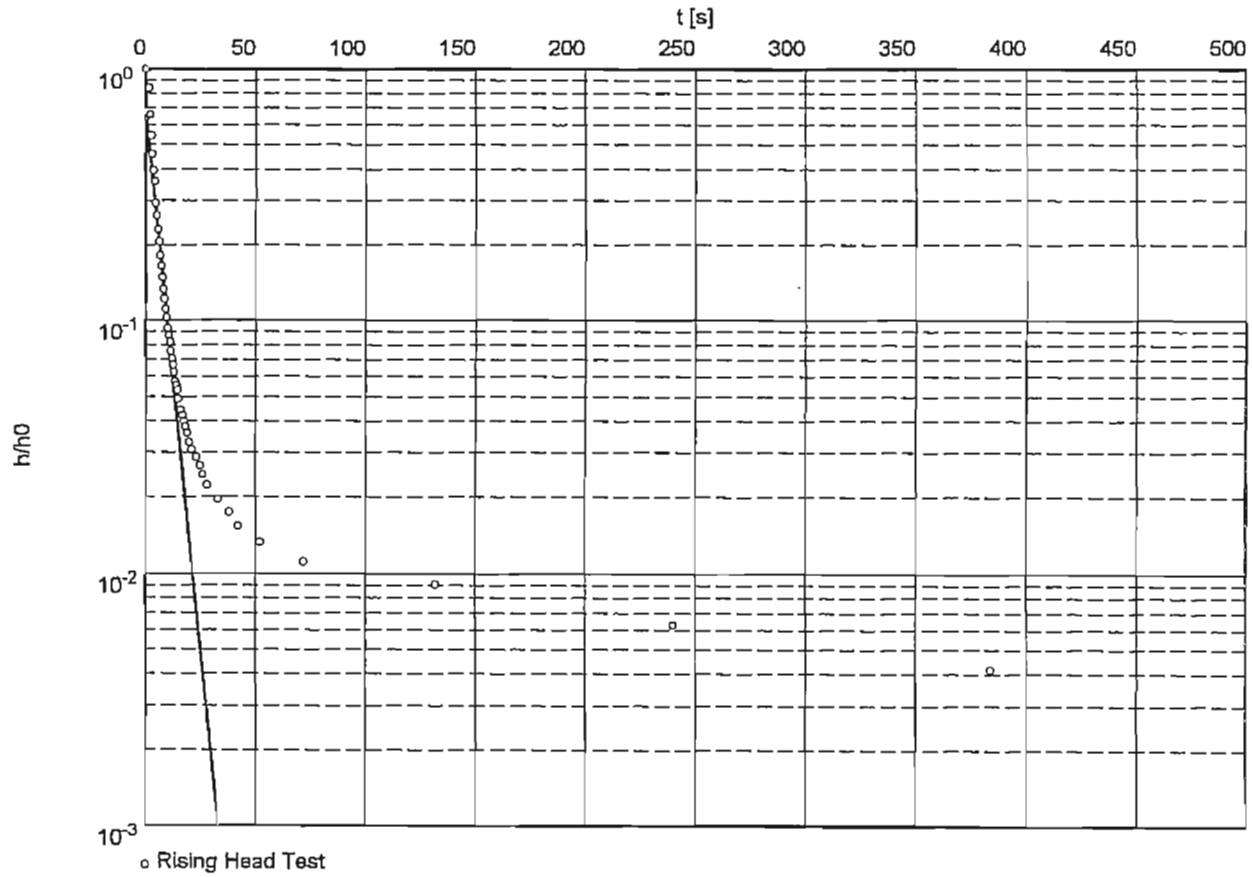
Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-04I	Falling Head test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]
51	204.0000	0.0100	0.0100
52	348.0000	0.0070	0.0070

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK | Date: 31.07.1997

Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-04I	



Hydraulic conductivity [ft/s]: 2.12×10^{-4}

Hydraulic conductivity (ft/d) = 18.3

L = 7.7 ft
b = 7.7 ft
D = 7.7 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

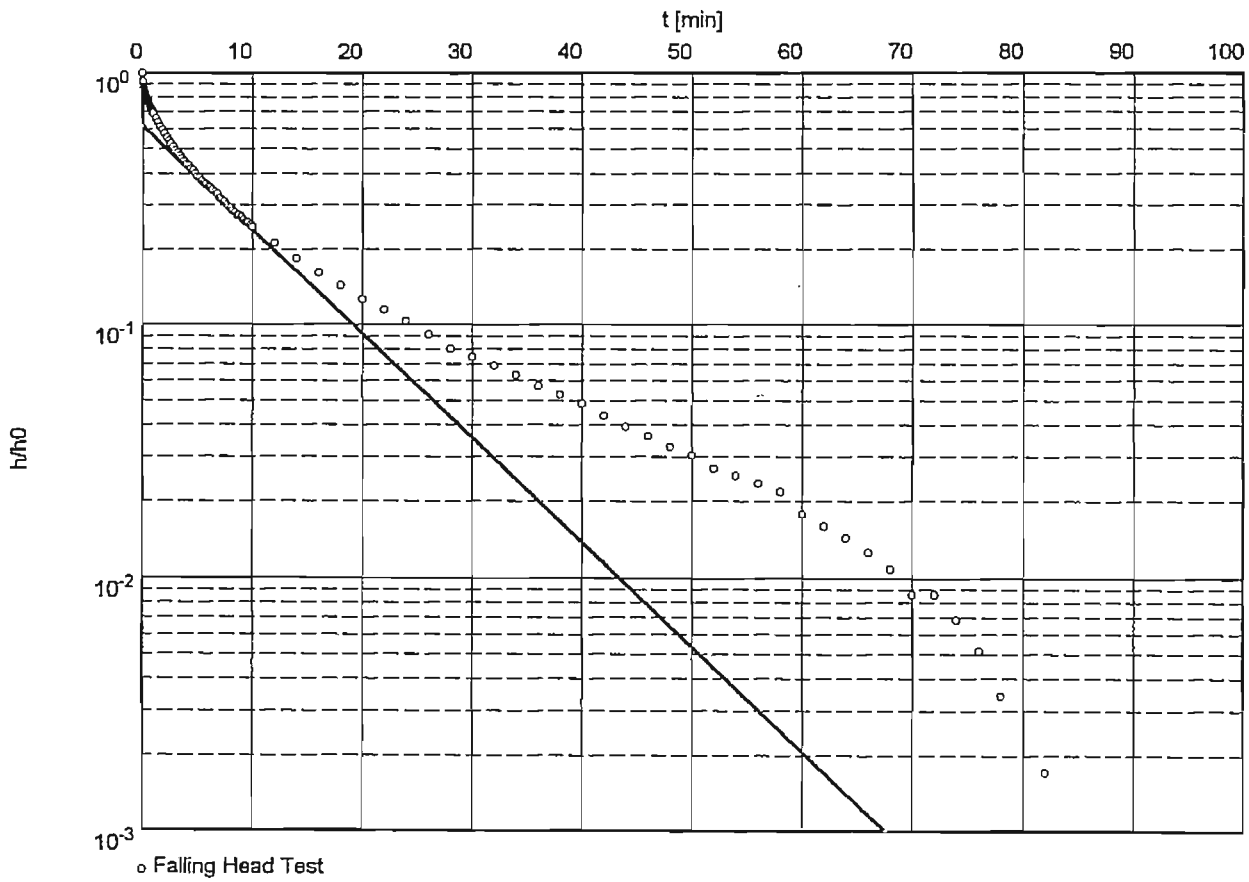
Slug Test No. 1	Test conducted on: 14.11.1996
NBCA-039-04I	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.4340	1.4340	
2	0.9960	1.6720	1.6720	
3	1.5000	1.2060	1.2060	
4	1.9980	0.9420	0.9420	
5	2.4960	0.7800	0.7800	
6	3.0000	0.6600	0.6600	
7	3.4980	0.5650	0.5650	
8	3.9960	0.5140	0.5140	
9	4.5000	0.4220	0.4220	
10	4.9980	0.3740	0.3740	
11	5.4960	0.3300	0.3300	
12	6.0000	0.2950	0.2950	
13	6.4980	0.2600	0.2600	
14	6.9960	0.2350	0.2350	
15	7.5000	0.2120	0.2120	
16	7.9980	0.1900	0.1900	
17	8.4960	0.1740	0.1740	
18	9.0000	0.1590	0.1590	
19	9.4980	0.1460	0.1460	
20	9.9960	0.1330	0.1330	
21	10.5000	0.1240	0.1240	
22	10.9980	0.1170	0.1170	
23	11.4960	0.1080	0.1080	
24	12.0000	0.1010	0.1010	
25	12.4980	0.0950	0.0950	
26	12.9960	0.0890	0.0890	
27	13.5000	0.0820	0.0820	
28	13.9980	0.0790	0.0790	
29	14.4960	0.0760	0.0760	
30	15.0000	0.0700	0.0700	
31	15.9960	0.0630	0.0630	
32	16.9980	0.0600	0.0600	
33	17.4960	0.0570	0.0570	
34	18.0000	0.0540	0.0540	
35	18.9960	0.0510	0.0510	
36	19.9980	0.0470	0.0470	
37	21.0000	0.0440	0.0440	
38	22.9980	0.0410	0.0410	
39	24.9960	0.0380	0.0380	
40	25.9980	0.0350	0.0350	
41	27.9960	0.0320	0.0320	
42	33.0000	0.0280	0.0280	
43	37.9980	0.0250	0.0250	
44	42.0000	0.0220	0.0220	
45	51.9960	0.0190	0.0190	
46	72.0000	0.0160	0.0160	
47	132.0000	0.0130	0.0130	
48	240.0000	0.0090	0.0090	
49	384.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-09I	



Hydraulic conductivity [ft/min]: 9.14×10^{-5}

Hydraulic conductivity (ft/d) = 0.13

L = 10.8 ft
b = 10.8 ft
D = 10.8 ft
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-09I	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7500	1.7500	
2	0.0750	1.6100	1.6100	
3	0.0916	1.5300	1.5300	
4	0.1000	1.5300	1.5300	
5	0.1083	1.5200	1.5200	
6	0.1166	1.5200	1.5200	
7	0.1250	1.5100	1.5100	
8	0.1416	1.5000	1.5000	
9	0.1500	1.5000	1.5000	
10	0.1583	1.4900	1.4900	
11	0.1666	1.4900	1.4900	
12	0.1750	1.4800	1.4800	
13	0.1833	1.4800	1.4800	
14	0.1916	1.4700	1.4700	
15	0.2000	1.4700	1.4700	
16	0.2083	1.4600	1.4600	
17	0.2166	1.4600	1.4600	
18	0.2250	1.4500	1.4500	
19	0.2333	1.4500	1.4500	
20	0.2416	1.4500	1.4500	
21	0.2500	1.4400	1.4400	
22	0.2583	1.4400	1.4400	
23	0.2666	1.4400	1.4400	
24	0.2750	1.4300	1.4300	
25	0.2833	1.4300	1.4300	
26	0.2916	1.4200	1.4200	
27	0.3000	1.4200	1.4200	
28	0.3083	1.4200	1.4200	
29	0.3166	1.4100	1.4100	
30	0.3250	1.4100	1.4100	
31	0.3333	1.4100	1.4100	
32	0.3500	1.4000	1.4000	
33	0.3666	1.3900	1.3900	
34	0.3833	1.3900	1.3900	
35	0.4000	1.3800	1.3800	
36	0.4166	1.3700	1.3700	
37	0.4333	1.3700	1.3700	
38	0.4500	1.3600	1.3600	
39	0.4666	1.3500	1.3500	
40	0.4833	1.3500	1.3500	
41	0.5000	1.3400	1.3400	
42	0.5166	1.3400	1.3400	
43	0.5333	1.3300	1.3300	
44	0.5500	1.3300	1.3300	
45	0.5666	1.3200	1.3200	
46	0.5833	1.3200	1.3200	
47	0.6000	1.3100	1.3100	
48	0.6166	1.3000	1.3000	
49	0.6333	1.3000	1.3000	
50	0.6500	1.2900	1.2900	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-09I	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6666	1.2900	1.2900	
52	0.6833	1.2800	1.2800	
53	0.7000	1.2800	1.2800	
54	0.7166	1.2700	1.2700	
55	0.7333	1.2700	1.2700	
56	0.7500	1.2600	1.2600	
57	0.7666	1.2600	1.2600	
58	0.7833	1.2500	1.2500	
59	0.8000	1.2500	1.2500	
60	0.8166	1.2500	1.2500	
61	0.8333	1.2400	1.2400	
62	0.8500	1.2400	1.2400	
63	0.8666	1.2300	1.2300	
64	0.8833	1.2300	1.2300	
65	0.9000	1.2200	1.2200	
66	0.9166	1.2200	1.2200	
67	0.9333	1.2100	1.2100	
68	0.9500	1.2100	1.2100	
69	0.9666	1.2100	1.2100	
70	0.9833	1.2000	1.2000	
71	1.0000	1.2000	1.2000	
72	1.2000	1.1500	1.1500	
73	1.4000	1.1100	1.1100	
74	1.6000	1.0700	1.0700	
75	1.8000	1.0400	1.0400	
76	2.0000	1.0000	1.0000	
77	2.2000	0.9700	0.9700	
78	2.4000	0.9400	0.9400	
79	2.6000	0.9200	0.9200	
80	2.8000	0.8900	0.8900	
81	3.0000	0.8600	0.8600	
82	3.2000	0.8400	0.8400	
83	3.4000	0.8200	0.8200	
84	3.6000	0.8000	0.8000	
85	3.8000	0.7800	0.7800	
86	4.0000	0.7600	0.7600	
87	4.2000	0.7500	0.7500	
88	4.4000	0.7300	0.7300	
89	4.6000	0.7200	0.7200	
90	4.8000	0.7000	0.7000	
91	5.0000	0.6800	0.6800	
92	5.2000	0.6700	0.6700	
93	5.4000	0.6500	0.6500	
94	5.6000	0.6400	0.6400	
95	5.8000	0.6300	0.6300	
96	6.0000	0.6200	0.6200	
97	6.2000	0.6100	0.6100	
98	6.4000	0.6000	0.6000	
99	6.6000	0.5900	0.5900	
100	6.8000	0.5800	0.5800	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-09I	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	7.0000	0.5600	0.5600	
102	7.2000	0.5500	0.5500	
103	7.4000	0.5400	0.5400	
104	7.6000	0.5300	0.5300	
105	7.8000	0.5200	0.5200	
106	8.0000	0.5100	0.5100	
107	8.2000	0.5000	0.5000	
108	8.4000	0.4900	0.4900	
109	8.6000	0.4800	0.4800	
110	8.8000	0.4800	0.4800	
111	9.0000	0.4700	0.4700	
112	9.2000	0.4600	0.4600	
113	9.4000	0.4500	0.4500	
114	9.6000	0.4500	0.4500	
115	9.8000	0.4400	0.4400	
116	10.0000	0.4300	0.4300	
117	12.0000	0.3700	0.3700	
118	14.0000	0.3200	0.3200	
119	16.0000	0.2800	0.2800	
120	18.0000	0.2500	0.2500	
121	20.0000	0.2200	0.2200	
122	22.0000	0.2000	0.2000	
123	24.0000	0.1800	0.1800	
124	26.0000	0.1600	0.1600	
125	28.0000	0.1400	0.1400	
126	30.0000	0.1300	0.1300	
127	32.0000	0.1200	0.1200	
128	34.0000	0.1100	0.1100	
129	36.0000	0.1000	0.1000	
130	38.0000	0.0920	0.0920	
131	40.0000	0.0850	0.0850	
132	42.0000	0.0760	0.0760	
133	44.0000	0.0690	0.0690	
134	46.0000	0.0630	0.0630	
135	48.0000	0.0570	0.0570	
136	50.0000	0.0530	0.0530	
137	52.0000	0.0470	0.0470	
138	54.0000	0.0440	0.0440	
139	56.0000	0.0410	0.0410	
140	58.0000	0.0380	0.0380	
141	60.0000	0.0310	0.0310	
142	62.0000	0.0280	0.0280	
143	64.0000	0.0250	0.0250	
144	66.0000	0.0220	0.0220	
145	68.0000	0.0190	0.0190	
146	70.0000	0.0150	0.0150	
147	72.0000	0.0150	0.0150	
148	74.0000	0.0120	0.0120	
149	76.0000	0.0090	0.0090	
150	78.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 5 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

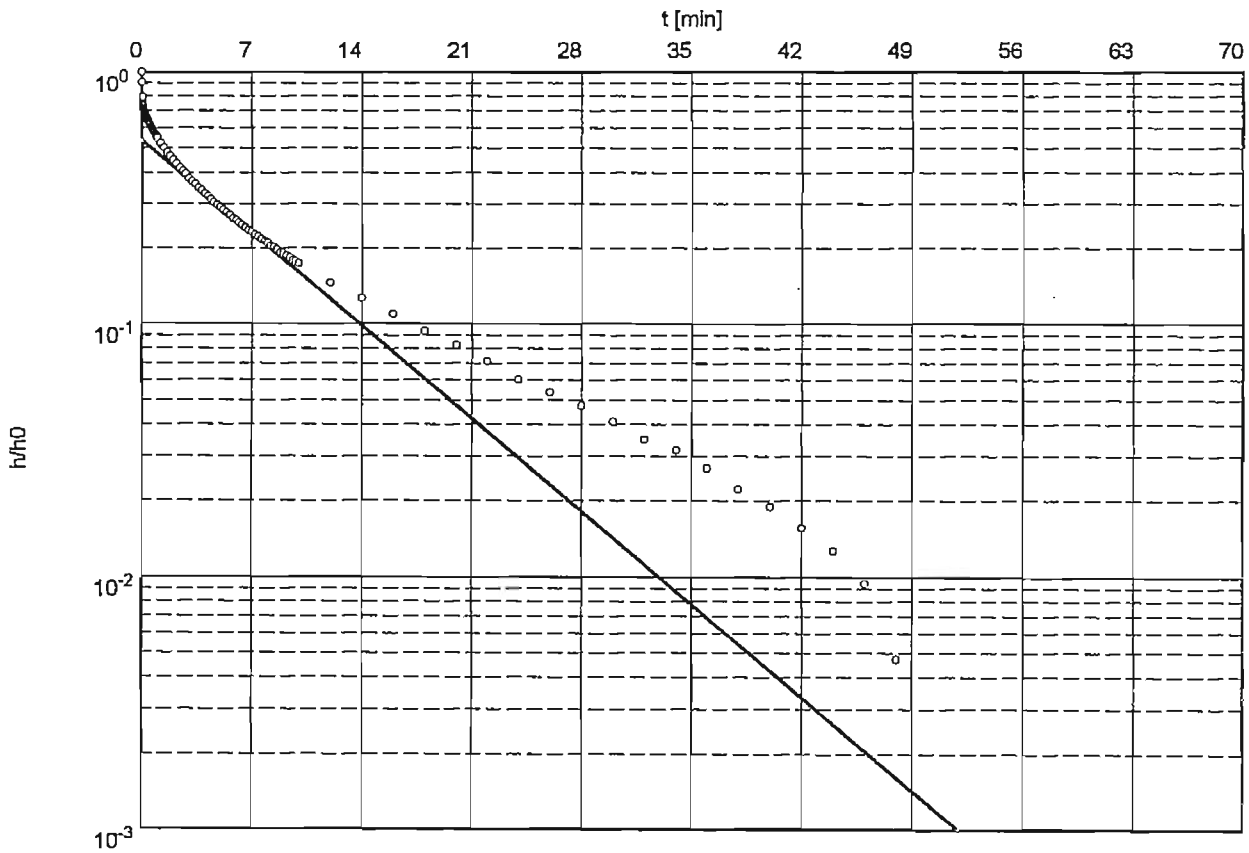
Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-09I	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
151	82.0000	0.0030	0.0030	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: ZONE A--NAVBASE CHARLESTON Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09I	



o Rising Head test

Hydraulic conductivity [ft/min]: 1.16×10^{-4}

Hydraulic conductivity (ft/d) = 0.17

L = 10.8 ft
b = 10.8 ft
D = 10.8 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: ZONE A--NAVBASE CHARLESTON Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09I	Rising Head test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	4.0290	4.0290	
2	0.0166	3.6530	3.6530	
3	0.0333	3.1940	3.1940	
4	0.0500	2.9900	2.9900	
5	0.0583	2.9650	2.9650	
6	0.0833	2.9330	2.9330	
7	0.0916	2.8820	2.8820	
8	0.1000	2.8750	2.8750	
9	0.1083	2.8690	2.8690	
10	0.1166	2.8500	2.8500	
11	0.1250	2.8370	2.8370	
12	0.1333	2.8310	2.8310	
13	0.1416	2.8240	2.8240	
14	0.1500	2.8120	2.8120	
15	0.1583	2.7930	2.7930	
16	0.1666	2.7860	2.7860	
17	0.1750	2.7730	2.7730	
18	0.1833	2.7670	2.7670	
19	0.1916	2.7610	2.7610	
20	0.2000	2.7480	2.7480	
21	0.2083	2.7480	2.7480	
22	0.2166	2.7290	2.7290	
23	0.2250	2.7160	2.7160	
24	0.2333	2.7100	2.7100	
25	0.2416	2.7030	2.7030	
26	0.2500	2.6970	2.6970	
27	0.2583	2.6910	2.6910	
28	0.2666	2.6780	2.6780	
29	0.2750	2.6710	2.6710	
30	0.2833	2.6590	2.6590	
31	0.2916	2.6520	2.6520	
32	0.3000	2.6520	2.6520	
33	0.3083	2.6330	2.6330	
34	0.3166	2.6330	2.6330	
35	0.3250	2.6270	2.6270	
36	0.3333	2.6200	2.6200	
37	0.3500	2.6010	2.6010	
38	0.3666	2.5820	2.5820	
39	0.3833	2.5820	2.5820	
40	0.4000	2.5570	2.5570	
41	0.4166	2.5500	2.5500	
42	0.4333	2.5380	2.5380	
43	0.4500	2.5180	2.5180	
44	0.4666	2.5120	2.5120	
45	0.4833	2.5060	2.5060	
46	0.5000	2.4870	2.4870	
47	0.5166	2.4670	2.4670	
48	0.5333	2.4670	2.4670	
49	0.5500	2.4670	2.4670	
50	0.5666	2.4420	2.4420	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: ZONE A--NAVBASE CHARLESTON Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09I	Rising Head test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
51	0.5833	2.4290	2.4290
52	0.6000	2.4230	2.4230
53	0.6166	2.4100	2.4100
54	0.6333	2.4040	2.4040
55	0.6500	2.3910	2.3910
56	0.6666	2.3780	2.3780
57	0.6833	2.3650	2.3650
58	0.7000	2.3590	2.3590
59	0.7166	2.3530	2.3530
60	0.7333	2.3460	2.3460
61	0.7500	2.3340	2.3340
62	0.7666	2.3140	2.3140
63	0.7833	2.3080	2.3080
64	0.8000	2.3020	2.3020
65	0.8166	2.2950	2.2950
66	0.8333	2.2950	2.2950
67	0.8500	2.2700	2.2700
68	0.8666	2.2700	2.2700
69	0.8833	2.2510	2.2510
70	0.9000	2.2510	2.2510
71	0.9166	2.2320	2.2320
72	0.9333	2.2380	2.2380
73	0.9500	2.2190	2.2190
74	0.9666	2.2060	2.2060
75	0.9833	2.2060	2.2060
76	1.0000	2.1930	2.1930
77	1.2000	2.1040	2.1040
78	1.4000	2.0210	2.0210
79	1.6000	1.9320	1.9320
80	1.8000	1.8680	1.8680
81	2.0000	1.8040	1.8040
82	2.2000	1.7470	1.7470
83	2.4000	1.6900	1.6900
84	2.6000	1.6390	1.6390
85	2.8000	1.5880	1.5880
86	3.0000	1.5300	1.5300
87	3.2000	1.4860	1.4860
88	3.4000	1.4470	1.4470
89	3.6000	1.3960	1.3960
90	3.8000	1.3640	1.3640
91	4.0000	1.3260	1.3260
92	4.2000	1.2940	1.2940
93	4.4000	1.2620	1.2620
94	4.6000	1.2240	1.2240
95	4.8000	1.1990	1.1990
96	5.0000	1.1670	1.1670
97	5.2000	1.1410	1.1410
98	5.4000	1.1160	1.1160
99	5.6000	1.0900	1.0900
100	5.8000	1.0580	1.0580

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: ZONE A--NAVBASE CHARLESTON Evaluated by: TKK	Date: 31.07.1997

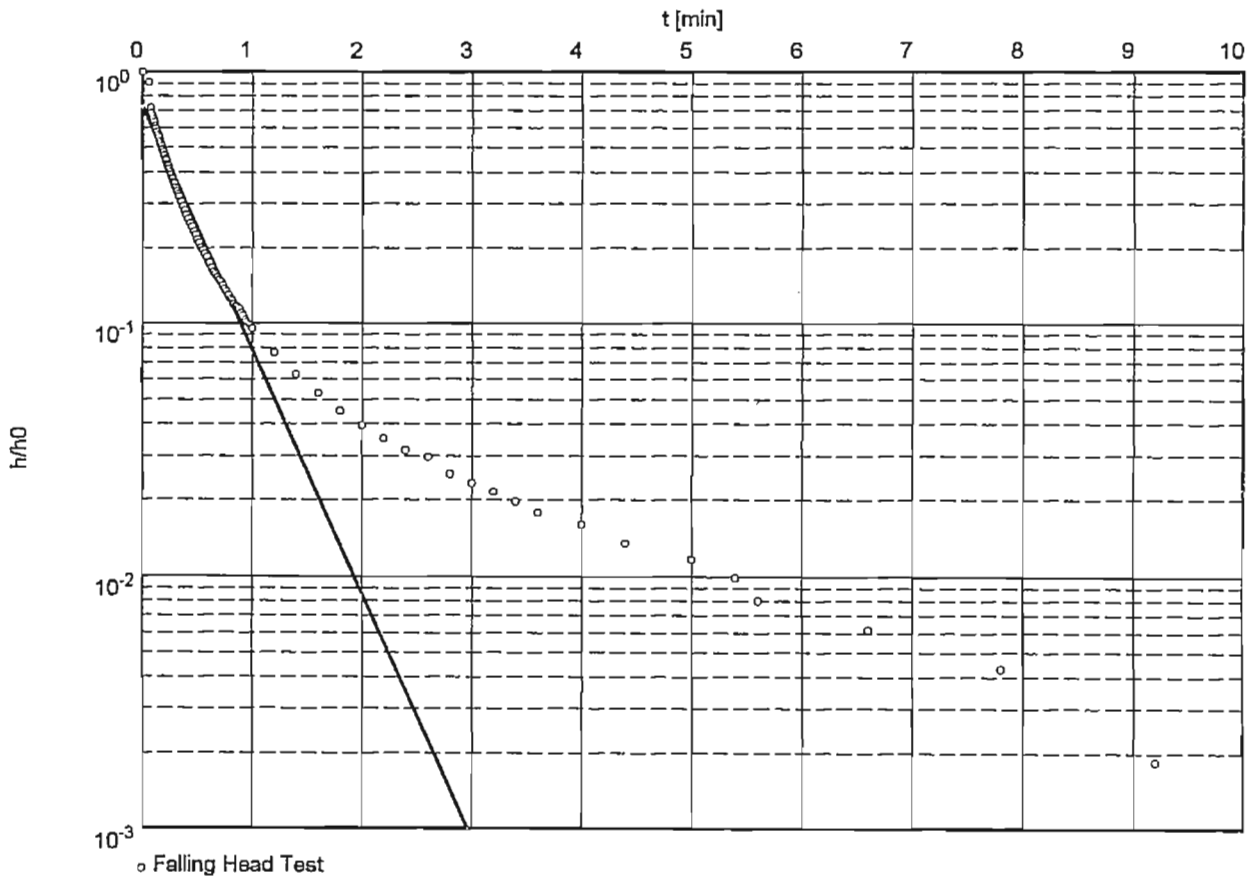
Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09I	Rising Head test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	6.0000	1.0390	1.0390	
102	6.2000	1.0140	1.0140	
103	6.4000	0.9950	0.9950	
104	6.6000	0.9690	0.9690	
105	6.8000	0.9500	0.9500	
106	7.0000	0.9310	0.9310	
107	7.2000	0.9120	0.9120	
108	7.4000	0.8930	0.8930	
109	7.6000	0.8730	0.8730	
110	7.8000	0.8610	0.8610	
111	8.0000	0.8420	0.8420	
112	8.2000	0.8220	0.8220	
113	8.4000	0.8100	0.8100	
114	8.6000	0.7910	0.7910	
115	8.8000	0.7710	0.7710	
116	9.0000	0.7650	0.7650	
117	9.2000	0.7520	0.7520	
118	9.4000	0.7390	0.7390	
119	9.6000	0.7200	0.7200	
120	9.8000	0.7140	0.7140	
121	10.0000	0.7010	0.7010	
122	12.0000	0.5860	0.5860	
123	14.0000	0.5100	0.5100	
124	16.0000	0.4400	0.4400	
125	18.0000	0.3760	0.3760	
126	20.0000	0.3310	0.3310	
127	22.0000	0.2870	0.2870	
128	24.0000	0.2420	0.2420	
129	26.0000	0.2160	0.2160	
130	28.0000	0.1910	0.1910	
131	30.0000	0.1650	0.1650	
132	32.0000	0.1400	0.1400	
133	34.0000	0.1270	0.1270	
134	36.0000	0.1080	0.1080	
135	38.0000	0.0890	0.0890	
136	40.0000	0.0760	0.0760	
137	42.0000	0.0630	0.0630	
138	44.0000	0.0510	0.0510	
139	46.0000	0.0380	0.0380	
140	48.0000	0.0190	0.0190	
141	50.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A – NAVBASE Charleston Evaluated by: TKK / Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-10I	



Hydraulic conductivity [ft/min]: 4.97×10^{-3}

Hydraulic conductivity (ft/d) = 7.2

L = 3.1 ft
b = 3.1 ft
D = 3.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A – NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-10I	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.6260	1.6260	
2	0.0583	1.4830	1.4830	
3	0.0750	1.1690	1.1690	
4	0.0833	1.1090	1.1090	
5	0.0916	1.0810	1.0810	
6	0.1000	1.0490	1.0490	
7	0.1083	1.0200	1.0200	
8	0.1166	0.9890	0.9890	
9	0.1250	0.9630	0.9630	
10	0.1333	0.9380	0.9380	
11	0.1416	0.9100	0.9100	
12	0.1500	0.8870	0.8870	
13	0.1583	0.8590	0.8590	
14	0.1666	0.8400	0.8400	
15	0.1750	0.8180	0.8180	
16	0.1833	0.7950	0.7950	
17	0.1916	0.7760	0.7760	
18	0.2000	0.7540	0.7540	
19	0.2083	0.7350	0.7350	
20	0.2166	0.7190	0.7190	
21	0.2250	0.6970	0.6970	
22	0.2333	0.6850	0.6850	
23	0.2416	0.6660	0.6660	
24	0.2500	0.6500	0.6500	
25	0.2583	0.6340	0.6340	
26	0.2666	0.6210	0.6210	
27	0.2750	0.6090	0.6090	
28	0.2833	0.5930	0.5930	
29	0.2916	0.5800	0.5800	
30	0.3000	0.5640	0.5640	
31	0.3083	0.5550	0.5550	
32	0.3166	0.5420	0.5420	
33	0.3250	0.5290	0.5290	
34	0.3333	0.5170	0.5170	
35	0.3500	0.4940	0.4940	
36	0.3666	0.4750	0.4750	
37	0.3833	0.4560	0.4560	
38	0.4000	0.4370	0.4370	
39	0.4166	0.4220	0.4220	
40	0.4333	0.4060	0.4060	
41	0.4500	0.3930	0.3930	
42	0.4666	0.3770	0.3770	
43	0.4833	0.3650	0.3650	
44	0.5000	0.3490	0.3490	
45	0.5166	0.3390	0.3390	
46	0.5333	0.3260	0.3260	
47	0.5500	0.3170	0.3170	
48	0.5666	0.3070	0.3070	
49	0.5833	0.2980	0.2980	
50	0.6000	0.2850	0.2850	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A – NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

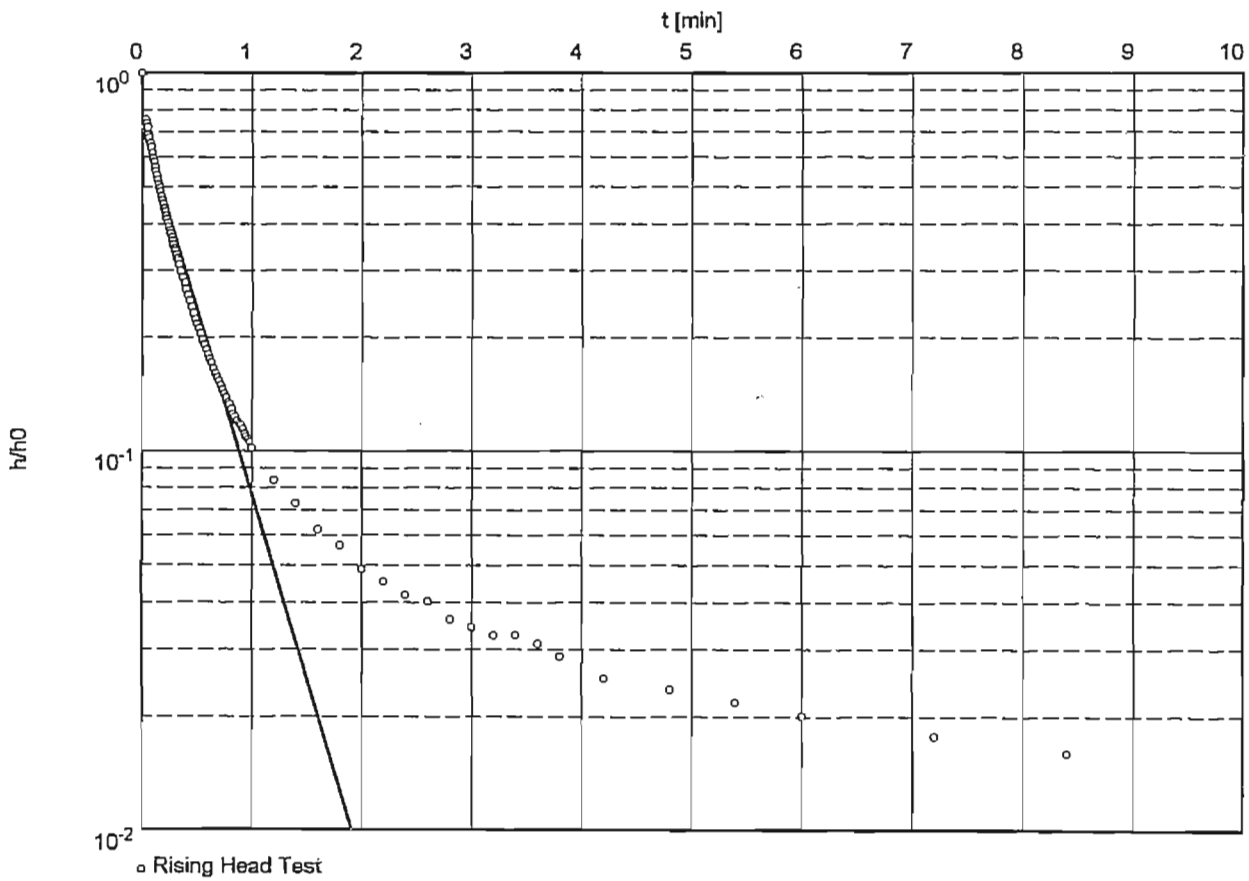
Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-10I	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6166	0.2790	0.2790	
52	0.6333	0.2690	0.2690	
53	0.6500	0.2600	0.2600	
54	0.6666	0.2540	0.2540	
55	0.6833	0.2470	0.2470	
56	0.7000	0.2410	0.2410	
57	0.7166	0.2350	0.2350	
58	0.7333	0.2280	0.2280	
59	0.7500	0.2220	0.2220	
60	0.7666	0.2160	0.2160	
61	0.7833	0.2090	0.2090	
62	0.8000	0.2030	0.2030	
63	0.8166	0.2000	0.2000	
64	0.8333	0.1930	0.1930	
65	0.8500	0.1900	0.1900	
66	0.8666	0.1870	0.1870	
67	0.8833	0.1840	0.1840	
68	0.9000	0.1780	0.1780	
69	0.9166	0.1740	0.1740	
70	0.9333	0.1680	0.1680	
71	0.9500	0.1650	0.1650	
72	0.9666	0.1620	0.1620	
73	0.9833	0.1590	0.1590	
74	1.0000	0.1550	0.1550	
75	1.2000	0.1240	0.1240	
76	1.4000	0.1020	0.1020	
77	1.6000	0.0860	0.0860	
78	1.8000	0.0730	0.0730	
79	2.0000	0.0640	0.0640	
80	2.2000	0.0570	0.0570	
81	2.4000	0.0510	0.0510	
82	2.6000	0.0480	0.0480	
83	2.8000	0.0410	0.0410	
84	3.0000	0.0380	0.0380	
85	3.2000	0.0350	0.0350	
86	3.4000	0.0320	0.0320	
87	3.6000	0.0290	0.0290	
88	4.0000	0.0260	0.0260	
89	4.4000	0.0220	0.0220	
90	5.0000	0.0190	0.0190	
91	5.4000	0.0160	0.0160	
92	5.6000	0.0130	0.0130	
93	6.6000	0.0100	0.0100	
94	7.8000	0.0070	0.0070	
95	9.2000	0.0030	0.0030	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-10I	



Hydraulic conductivity [ft/min]: 5.01×10^{-3}

Hydraulic conductivity (ft/d) = 7.2

L = 3.1 ft
b = 3.1 ft
D = 3.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-10I	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7450	1.7450	
2	0.0333	1.3110	1.3110	
3	0.0416	1.2790	1.2790	
4	0.0500	1.2540	1.2540	
5	0.0583	1.2000	1.2000	
6	0.0666	1.1750	1.1750	
7	0.0750	1.1370	1.1370	
8	0.0833	1.1080	1.1080	
9	0.0916	1.0700	1.0700	
10	0.1000	1.0390	1.0390	
11	0.1083	1.0130	1.0130	
12	0.1166	0.9850	0.9850	
13	0.1250	0.9560	0.9560	
14	0.1333	0.9340	0.9340	
15	0.1416	0.9090	0.9090	
16	0.1500	0.8870	0.8870	
17	0.1583	0.8640	0.8640	
18	0.1666	0.8450	0.8450	
19	0.1750	0.8230	0.8230	
20	0.1833	0.8040	0.8040	
21	0.1916	0.7850	0.7850	
22	0.2000	0.7660	0.7660	
23	0.2083	0.7500	0.7500	
24	0.2166	0.7310	0.7310	
25	0.2250	0.7160	0.7160	
26	0.2333	0.7000	0.7000	
27	0.2416	0.6840	0.6840	
28	0.2500	0.6680	0.6680	
29	0.2583	0.6550	0.6550	
30	0.2666	0.6400	0.6400	
31	0.2750	0.6270	0.6270	
32	0.2833	0.6140	0.6140	
33	0.2916	0.5980	0.5980	
34	0.3000	0.5890	0.5890	
35	0.3083	0.5760	0.5760	
36	0.3166	0.5640	0.5640	
37	0.3250	0.5540	0.5540	
38	0.3333	0.5410	0.5410	
39	0.3500	0.5190	0.5190	
40	0.3666	0.5000	0.5000	
41	0.3833	0.4840	0.4840	
42	0.4000	0.4650	0.4650	
43	0.4166	0.4500	0.4500	
44	0.4333	0.4340	0.4340	
45	0.4500	0.4180	0.4180	
46	0.4666	0.4020	0.4020	
47	0.4833	0.3890	0.3890	
48	0.5000	0.3770	0.3770	
49	0.5166	0.3670	0.3670	
50	0.5333	0.3550	0.3550	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

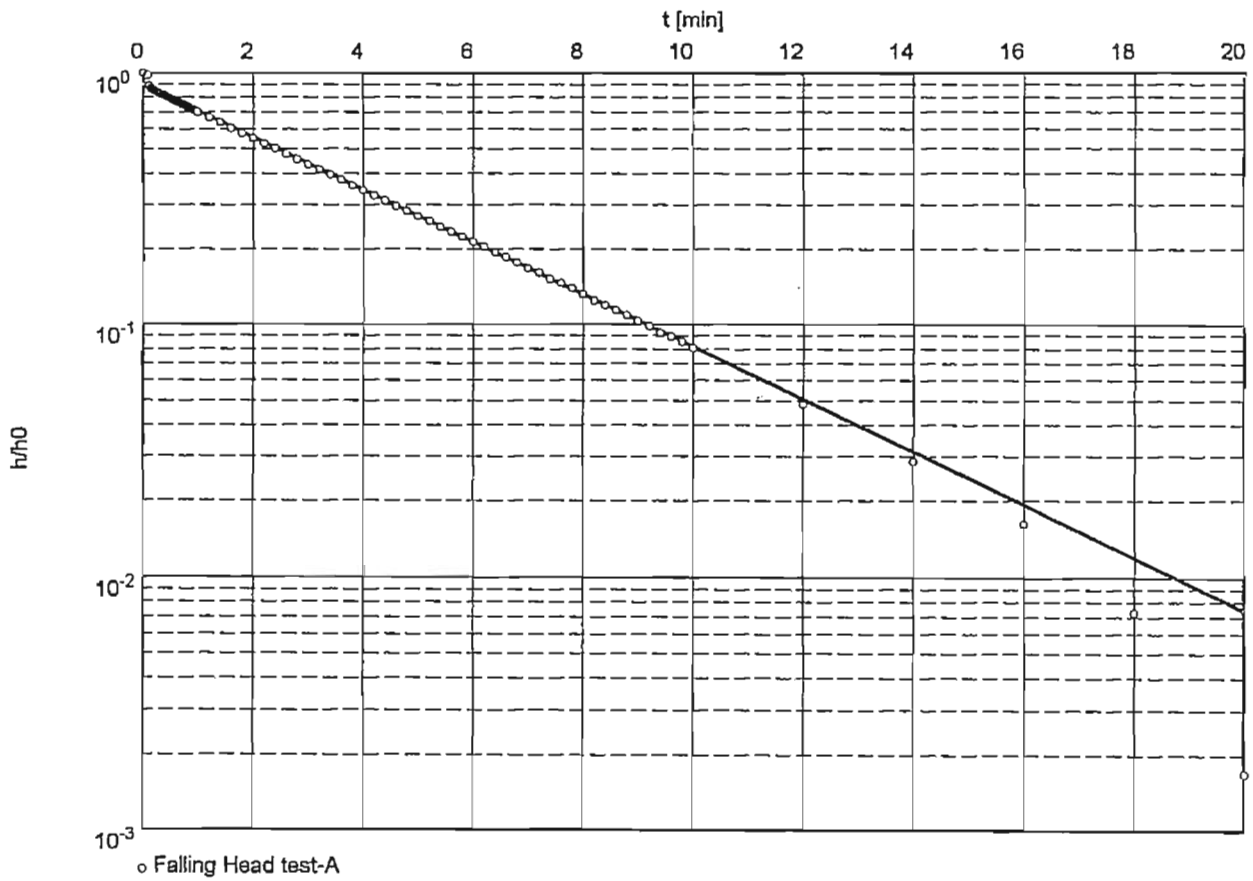
Slug Test No. 1	Test conducted on: 12.11.1996
NBCA-039-10I	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.5500	0.3420	0.3420	
52	0.5666	0.3320	0.3320	
53	0.5833	0.3230	0.3230	
54	0.6000	0.3130	0.3130	
55	0.6166	0.3040	0.3040	
56	0.6333	0.2980	0.2980	
57	0.6500	0.2880	0.2880	
58	0.6666	0.2790	0.2790	
59	0.6833	0.2720	0.2720	
60	0.7000	0.2660	0.2660	
61	0.7166	0.2600	0.2600	
62	0.7333	0.2530	0.2530	
63	0.7500	0.2470	0.2470	
64	0.7666	0.2410	0.2410	
65	0.7833	0.2340	0.2340	
66	0.8000	0.2310	0.2310	
67	0.8166	0.2250	0.2250	
68	0.8333	0.2180	0.2180	
69	0.8500	0.2150	0.2150	
70	0.8666	0.2090	0.2090	
71	0.8833	0.2060	0.2060	
72	0.9000	0.2030	0.2030	
73	0.9166	0.1990	0.1990	
74	0.9333	0.1930	0.1930	
75	0.9500	0.1900	0.1900	
76	0.9666	0.1870	0.1870	
77	0.9833	0.1840	0.1840	
78	1.0000	0.1770	0.1770	
79	1.2000	0.1460	0.1460	
80	1.4000	0.1270	0.1270	
81	1.6000	0.1080	0.1080	
82	1.8000	0.0980	0.0980	
83	2.0000	0.0850	0.0850	
84	2.2000	0.0790	0.0790	
85	2.4000	0.0730	0.0730	
86	2.6000	0.0700	0.0700	
87	2.8000	0.0630	0.0630	
88	3.0000	0.0600	0.0600	
89	3.2000	0.0570	0.0570	
90	3.4000	0.0570	0.0570	
91	3.6000	0.0540	0.0540	
92	3.8000	0.0500	0.0500	
93	4.2000	0.0440	0.0440	
94	4.8000	0.0410	0.0410	
95	5.4000	0.0380	0.0380	
96	6.0000	0.0350	0.0350	
97	7.2000	0.0310	0.0310	
98	8.4000	0.0280	0.0280	
99	14.0000	0.0250	0.0250	
100	20.0000	0.0220	0.0220	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	



Hydraulic conductivity [ft/min]: 1.27×10^{-3}

Hydraulic conductivity (ft/d) = 0.37

L = 9.1 ft
b = 9.1 ft
D = 9.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	Falling Head test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7820	1.7820	
2	0.0666	1.7340	1.7340	
3	0.0916	1.7470	1.7470	
4	0.1083	1.5850	1.5850	
5	0.1166	1.5750	1.5750	
6	0.1333	1.5430	1.5430	
7	0.1416	1.5470	1.5470	
8	0.1500	1.5370	1.5370	
9	0.1583	1.5340	1.5340	
10	0.1666	1.5310	1.5310	
11	0.1750	1.5310	1.5310	
12	0.1833	1.5280	1.5280	
13	0.1916	1.5210	1.5210	
14	0.2000	1.5180	1.5180	
15	0.2083	1.5150	1.5150	
16	0.2166	1.5120	1.5120	
17	0.2250	1.5090	1.5090	
18	0.2333	1.5050	1.5050	
19	0.2416	1.5020	1.5020	
20	0.2500	1.4960	1.4960	
21	0.2583	1.4960	1.4960	
22	0.2666	1.4930	1.4930	
23	0.2750	1.4890	1.4890	
24	0.2833	1.4860	1.4860	
25	0.2916	1.4830	1.4830	
26	0.3000	1.4800	1.4800	
27	0.3083	1.4770	1.4770	
28	0.3166	1.4700	1.4700	
29	0.3250	1.4670	1.4670	
30	0.3333	1.4670	1.4670	
31	0.3500	1.4610	1.4610	
32	0.3666	1.4540	1.4540	
33	0.3833	1.4510	1.4510	
34	0.4000	1.4450	1.4450	
35	0.4166	1.4390	1.4390	
36	0.4333	1.4290	1.4290	
37	0.4500	1.4260	1.4260	
38	0.4666	1.4200	1.4200	
39	0.4833	1.4130	1.4130	
40	0.5000	1.4070	1.4070	
41	0.5166	1.4040	1.4040	
42	0.5333	1.3940	1.3940	
43	0.5500	1.3910	1.3910	
44	0.5666	1.3850	1.3850	
45	0.5833	1.3810	1.3810	
46	0.6000	1.3720	1.3720	
47	0.6166	1.3720	1.3720	
48	0.6333	1.3620	1.3620	
49	0.6500	1.3590	1.3590	
50	0.6666	1.3530	1.3530	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	Falling Head test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6833	1.3460	1.3460	
52	0.7000	1.3400	1.3400	
53	0.7166	1.3340	1.3340	
54	0.7333	1.3310	1.3310	
55	0.7500	1.3240	1.3240	
56	0.7666	1.3180	1.3180	
57	0.7833	1.3150	1.3150	
58	0.8000	1.3080	1.3080	
59	0.8166	1.3020	1.3020	
60	0.8333	1.2990	1.2990	
61	0.8500	1.2920	1.2920	
62	0.8666	1.2860	1.2860	
63	0.8833	1.2830	1.2830	
64	0.9000	1.2770	1.2770	
65	0.9166	1.2730	1.2730	
66	0.9333	1.2700	1.2700	
67	0.9500	1.2640	1.2640	
68	0.9666	1.2580	1.2580	
69	0.9833	1.2510	1.2510	
70	1.0000	1.2450	1.2450	
71	1.2000	1.1840	1.1840	
72	1.4000	1.1310	1.1310	
73	1.6000	1.0770	1.0770	
74	1.8000	1.0290	1.0290	
75	2.0000	0.9780	0.9780	
76	2.2000	0.9340	0.9340	
77	2.4000	0.8920	0.8920	
78	2.6000	0.8480	0.8480	
79	2.8000	0.8100	0.8100	
80	3.0000	0.7720	0.7720	
81	3.2000	0.7370	0.7370	
82	3.4000	0.7020	0.7020	
83	3.6000	0.6700	0.6700	
84	3.8000	0.6380	0.6380	
85	4.0000	0.6100	0.6100	
86	4.2000	0.5810	0.5810	
87	4.4000	0.5530	0.5530	
88	4.6000	0.5300	0.5300	
89	4.8000	0.5050	0.5050	
90	5.0000	0.4830	0.4830	
91	5.2000	0.4600	0.4600	
92	5.4000	0.4380	0.4380	
93	5.6000	0.4160	0.4160	
94	5.8000	0.3970	0.3970	
95	6.0000	0.3810	0.3810	
96	6.2000	0.3620	0.3620	
97	6.4000	0.3460	0.3460	
98	6.6000	0.3300	0.3300	
99	6.8000	0.3140	0.3140	
100	7.0000	0.2980	0.2980	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

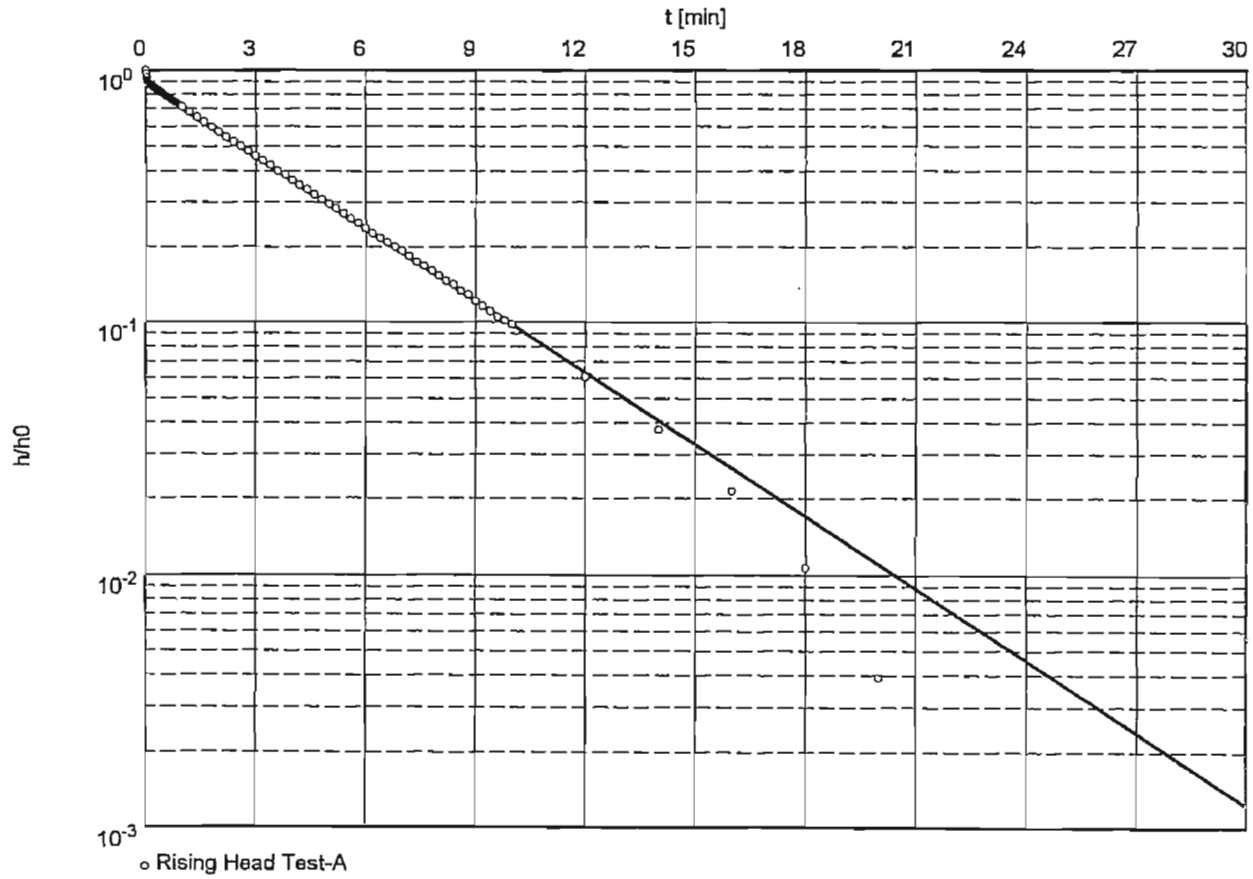
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	Falling Head test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	7.2000	0.2860	0.2860	
102	7.4000	0.2700	0.2700	
103	7.6000	0.2600	0.2600	
104	7.8000	0.2480	0.2480	
105	8.0000	0.2350	0.2350	
106	8.2000	0.2220	0.2220	
107	8.4000	0.2130	0.2130	
108	8.6000	0.2030	0.2030	
109	8.8000	0.1940	0.1940	
110	9.0000	0.1840	0.1840	
111	9.2000	0.1750	0.1750	
112	9.4000	0.1650	0.1650	
113	9.6000	0.1590	0.1590	
114	9.8000	0.1520	0.1520	
115	10.0000	0.1430	0.1430	
116	12.0000	0.0860	0.0860	
117	14.0000	0.0510	0.0510	
118	16.0000	0.0290	0.0290	
119	18.0000	0.0130	0.0130	
120	20.0000	0.0030	0.0030	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	



Hydraulic conductivity [ft/min]: 2.32×10^{-4}

Hydraulic conductivity (ft/d) = 0.33

L = 9.1 ft
b = 9.1 ft
D = 9.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7830	1.7830	
2	0.0250	1.7170	1.7170	
3	0.0333	1.6720	1.6720	
4	0.0416	1.6310	1.6310	
5	0.0500	1.6120	1.6120	
6	0.0583	1.5960	1.5960	
7	0.0666	1.5900	1.5900	
8	0.0750	1.5840	1.5840	
9	0.0833	1.5840	1.5840	
10	0.0916	1.5800	1.5800	
11	0.1000	1.5770	1.5770	
12	0.1083	1.5710	1.5710	
13	0.1166	1.5710	1.5710	
14	0.1250	1.5650	1.5650	
15	0.1333	1.5610	1.5610	
16	0.1416	1.5550	1.5550	
17	0.1500	1.5520	1.5520	
18	0.1583	1.5490	1.5490	
19	0.1666	1.5460	1.5460	
20	0.1750	1.5420	1.5420	
21	0.1833	1.5390	1.5390	
22	0.1916	1.5360	1.5360	
23	0.2000	1.5330	1.5330	
24	0.2083	1.5300	1.5300	
25	0.2166	1.5270	1.5270	
26	0.2250	1.5230	1.5230	
27	0.2333	1.5170	1.5170	
28	0.2416	1.5170	1.5170	
29	0.2500	1.5140	1.5140	
30	0.2583	1.5110	1.5110	
31	0.2666	1.5080	1.5080	
32	0.2750	1.5040	1.5040	
33	0.2833	1.5010	1.5010	
34	0.2916	1.4980	1.4980	
35	0.3000	1.4950	1.4950	
36	0.3083	1.4920	1.4920	
37	0.3166	1.4880	1.4880	
38	0.3250	1.4850	1.4850	
39	0.3333	1.4820	1.4820	
40	0.3500	1.4790	1.4790	
41	0.3666	1.4730	1.4730	
42	0.3833	1.4660	1.4660	
43	0.4000	1.4600	1.4600	
44	0.4166	1.4570	1.4570	
45	0.4333	1.4500	1.4500	
46	0.4500	1.4440	1.4440	
47	0.4666	1.4380	1.4380	
48	0.4833	1.4310	1.4310	
49	0.5000	1.4280	1.4280	
50	0.5166	1.4220	1.4220	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.5333	1.4160	1.4160	
52	0.5500	1.4090	1.4090	
53	0.5666	1.4060	1.4060	
54	0.5833	1.4000	1.4000	
55	0.6000	1.3930	1.3930	
56	0.6166	1.3900	1.3900	
57	0.6333	1.3840	1.3840	
58	0.6500	1.3770	1.3770	
59	0.6666	1.3740	1.3740	
60	0.6833	1.3680	1.3680	
61	0.7000	1.3620	1.3620	
62	0.7166	1.3580	1.3580	
63	0.7333	1.3520	1.3520	
64	0.7500	1.3490	1.3490	
65	0.7666	1.3430	1.3430	
66	0.7833	1.3360	1.3360	
67	0.8000	1.3330	1.3330	
68	0.8166	1.3270	1.3270	
69	0.8333	1.3240	1.3240	
70	0.8500	1.3170	1.3170	
71	0.8666	1.3110	1.3110	
72	0.8833	1.3080	1.3080	
73	0.9000	1.3040	1.3040	
74	0.9166	1.2980	1.2980	
75	0.9333	1.2920	1.2920	
76	0.9500	1.2890	1.2890	
77	0.9666	1.2820	1.2820	
78	0.9833	1.2790	1.2790	
79	1.0000	1.2730	1.2730	
80	1.2000	1.2120	1.2120	
81	1.4000	1.1620	1.1620	
82	1.6000	1.1110	1.1110	
83	1.8000	1.0630	1.0630	
84	2.0000	1.0160	1.0160	
85	2.2000	0.9710	0.9710	
86	2.4000	0.9300	0.9300	
87	2.6000	0.8920	0.8920	
88	2.8000	0.8540	0.8540	
89	3.0000	0.8160	0.8160	
90	3.2000	0.7810	0.7810	
91	3.4000	0.7490	0.7490	
92	3.6000	0.7140	0.7140	
93	3.8000	0.6860	0.6860	
94	4.0000	0.6540	0.6540	
95	4.2000	0.6250	0.6250	
96	4.4000	0.6000	0.6000	
97	4.6000	0.5750	0.5750	
98	4.8000	0.5490	0.5490	
99	5.0000	0.5270	0.5270	
100	5.2000	0.5050	0.5050	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

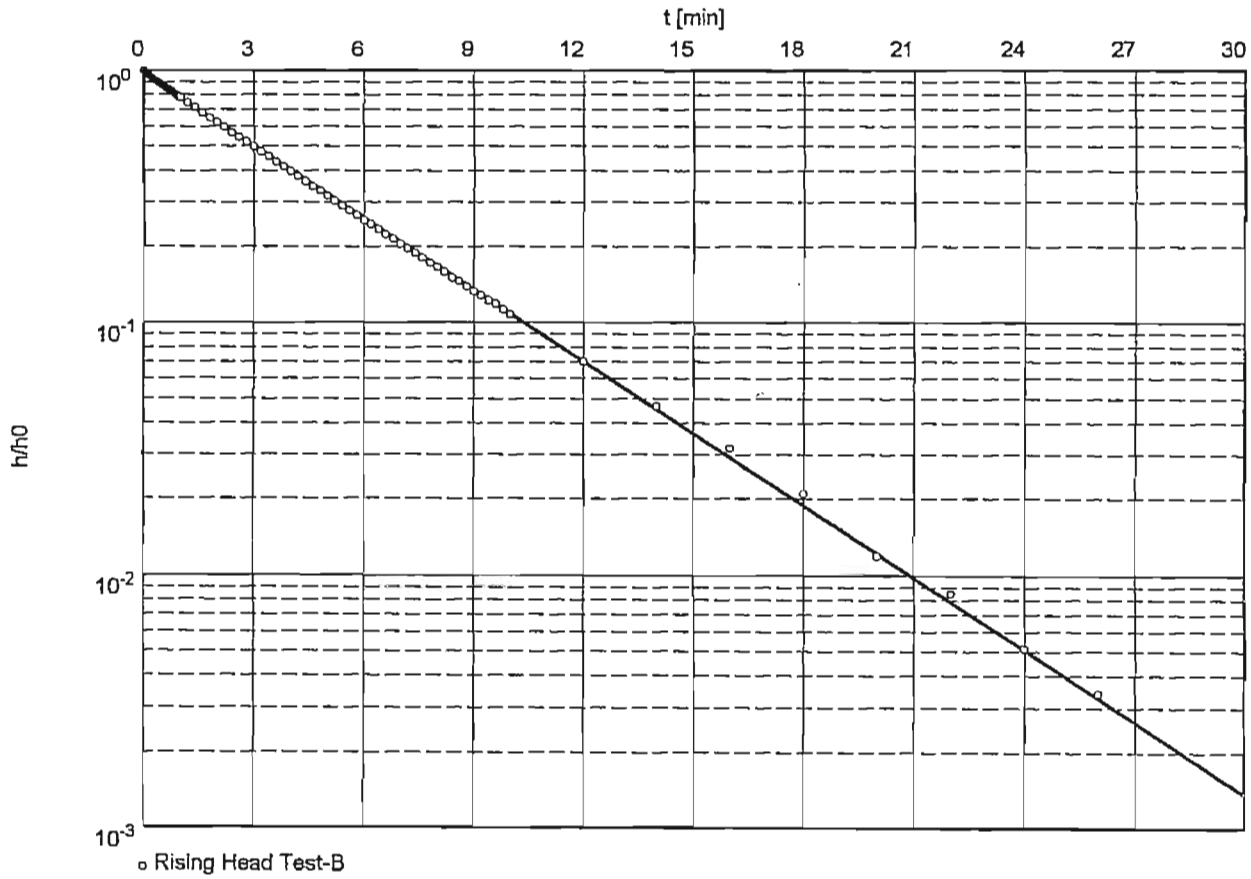
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12I	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	5.4000	0.4830	0.4830	
102	5.6000	0.4600	0.4600	
103	5.8000	0.4410	0.4410	
104	6.0000	0.4220	0.4220	
105	6.2000	0.4030	0.4030	
106	6.4000	0.3870	0.3870	
107	6.6000	0.3720	0.3720	
108	6.8000	0.3560	0.3560	
109	7.0000	0.3430	0.3430	
110	7.2000	0.3270	0.3270	
111	7.4000	0.3110	0.3110	
112	7.6000	0.2990	0.2990	
113	7.8000	0.2860	0.2860	
114	8.0000	0.2730	0.2730	
115	8.2000	0.2600	0.2600	
116	8.4000	0.2510	0.2510	
117	8.6000	0.2380	0.2380	
118	8.8000	0.2290	0.2290	
119	9.0000	0.2160	0.2160	
120	9.2000	0.2070	0.2070	
121	9.4000	0.1970	0.1970	
122	9.6000	0.1870	0.1870	
123	9.8000	0.1810	0.1810	
124	10.0000	0.1750	0.1750	
125	12.0000	0.1080	0.1080	
126	14.0000	0.0670	0.0670	
127	16.0000	0.0380	0.0380	
128	18.0000	0.0190	0.0190	
129	20.0000	0.0070	0.0070	
130	22.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12I	



Hydraulic conductivity [ft/min]: 2.38×10^{-4}

Hydraulic conductivity (ft/d) = 0.34

L = 9.1 ft
b = 9.1 ft
D = 9.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12I	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7640	1.7640	
2	0.0416	1.7360	1.7360	
3	0.0500	1.7330	1.7330	
4	0.0583	1.7100	1.7100	
5	0.0666	1.7170	1.7170	
6	0.0750	1.7170	1.7170	
7	0.0833	1.7140	1.7140	
8	0.0916	1.7100	1.7100	
9	0.1000	1.7040	1.7040	
10	0.1083	1.7010	1.7010	
11	0.1166	1.6950	1.6950	
12	0.1250	1.6910	1.6910	
13	0.1333	1.6880	1.6880	
14	0.1416	1.6820	1.6820	
15	0.1500	1.6820	1.6820	
16	0.1583	1.6790	1.6790	
17	0.1666	1.6720	1.6720	
18	0.1750	1.6690	1.6690	
19	0.1833	1.6660	1.6660	
20	0.1916	1.6630	1.6630	
21	0.2000	1.6600	1.6600	
22	0.2083	1.6560	1.6560	
23	0.2166	1.6530	1.6530	
24	0.2250	1.6500	1.6500	
25	0.2333	1.6440	1.6440	
26	0.2416	1.6440	1.6440	
27	0.2500	1.6370	1.6370	
28	0.2583	1.6340	1.6340	
29	0.2666	1.6310	1.6310	
30	0.2750	1.6280	1.6280	
31	0.2833	1.6250	1.6250	
32	0.2916	1.6210	1.6210	
33	0.3000	1.6180	1.6180	
34	0.3083	1.6150	1.6150	
35	0.3166	1.6120	1.6120	
36	0.3250	1.6090	1.6090	
37	0.3333	1.6050	1.6050	
38	0.3500	1.5960	1.5960	
39	0.3666	1.5930	1.5930	
40	0.3833	1.5860	1.5860	
41	0.4000	1.5800	1.5800	
42	0.4166	1.5740	1.5740	
43	0.4333	1.5670	1.5670	
44	0.4500	1.5610	1.5610	
45	0.4666	1.5550	1.5550	
46	0.4833	1.5480	1.5480	
47	0.5000	1.5450	1.5450	
48	0.5166	1.5390	1.5390	
49	0.5333	1.5320	1.5320	
50	0.5500	1.5260	1.5260	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12I	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.5666	1.5200	1.5200	
52	0.5833	1.5130	1.5130	
53	0.6000	1.5070	1.5070	
54	0.6166	1.5040	1.5040	
55	0.6333	1.4970	1.4970	
56	0.6500	1.4910	1.4910	
57	0.6666	1.4850	1.4850	
58	0.6833	1.4780	1.4780	
59	0.7000	1.4720	1.4720	
60	0.7166	1.4690	1.4690	
61	0.7333	1.4590	1.4590	
62	0.7500	1.4590	1.4590	
63	0.7666	1.4530	1.4530	
64	0.7833	1.4460	1.4460	
65	0.8000	1.4400	1.4400	
66	0.8166	1.4340	1.4340	
67	0.8333	1.4310	1.4310	
68	0.8500	1.4240	1.4240	
69	0.8666	1.4180	1.4180	
70	0.8833	1.4150	1.4150	
71	0.9000	1.4080	1.4080	
72	0.9166	1.4020	1.4020	
73	0.9333	1.3960	1.3960	
74	0.9500	1.3890	1.3890	
75	0.9666	1.3860	1.3860	
76	0.9833	1.3800	1.3800	
77	1.0000	1.3760	1.3760	
78	1.2000	1.3130	1.3130	
79	1.4000	1.2560	1.2560	
80	1.6000	1.1980	1.1980	
81	1.8000	1.1440	1.1440	
82	2.0000	1.0970	1.0970	
83	2.2000	1.0490	1.0490	
84	2.4000	1.0010	1.0010	
85	2.6000	0.9570	0.9570	
86	2.8000	0.9180	0.9180	
87	3.0000	0.8770	0.8770	
88	3.2000	0.8390	0.8390	
89	3.4000	0.8040	0.8040	
90	3.6000	0.7630	0.7630	
91	3.8000	0.7280	0.7280	
92	4.0000	0.6990	0.6990	
93	4.2000	0.6670	0.6670	
94	4.4000	0.6380	0.6380	
95	4.6000	0.6100	0.6100	
96	4.8000	0.5840	0.5840	
97	5.0000	0.5590	0.5590	
98	5.2000	0.5340	0.5340	
99	5.4000	0.5110	0.5110	
100	5.6000	0.4890	0.4890	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

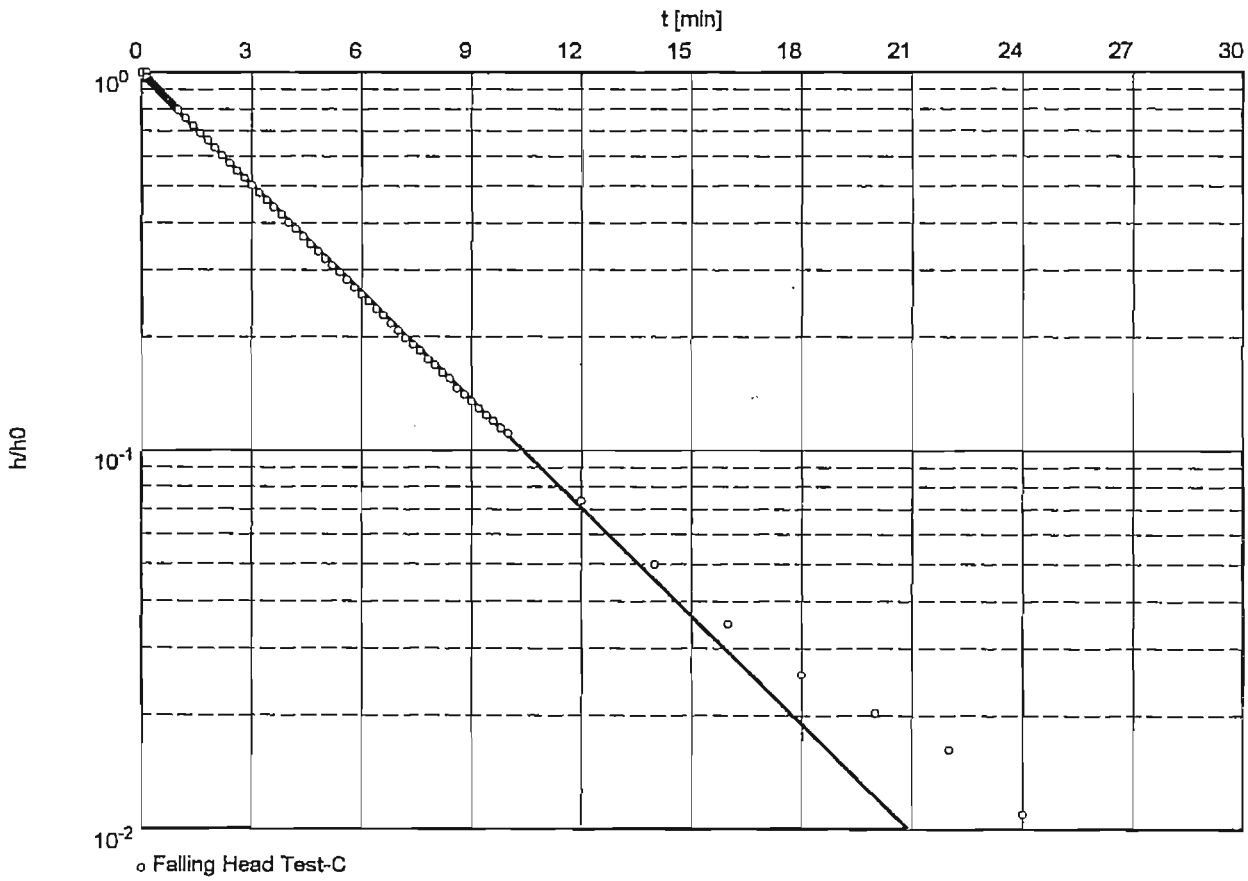
Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12I	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	5.8000	0.4700	0.4700	
102	6.0000	0.4480	0.4480	
103	6.2000	0.4320	0.4320	
104	6.4000	0.4130	0.4130	
105	6.6000	0.3940	0.3940	
106	6.8000	0.3780	0.3780	
107	7.0000	0.3620	0.3620	
108	7.2000	0.3460	0.3460	
109	7.4000	0.3330	0.3330	
110	7.6000	0.3170	0.3170	
111	7.8000	0.3040	0.3040	
112	8.0000	0.2920	0.2920	
113	8.2000	0.2790	0.2790	
114	8.4000	0.2660	0.2660	
115	8.6000	0.2570	0.2570	
116	8.8000	0.2440	0.2440	
117	9.0000	0.2340	0.2340	
118	9.2000	0.2250	0.2250	
119	9.4000	0.2150	0.2150	
120	9.6000	0.2090	0.2090	
121	9.8000	0.1990	0.1990	
122	10.0000	0.1900	0.1900	
123	12.0000	0.1230	0.1230	
124	14.0000	0.0820	0.0820	
125	16.0000	0.0560	0.0560	
126	18.0000	0.0370	0.0370	
127	20.0000	0.0210	0.0210	
128	22.0000	0.0150	0.0150	
129	24.0000	0.0090	0.0090	
130	26.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	



Hydraulic conductivity [ft/min]: 2.38×10^{-4}

Hydraulic conductivity (ft/d) = 0.34

L = 9.1 ft
b = 9.1 ft
D = 9.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7250	1.7250	
2	0.1333	1.7220	1.7220	
3	0.1416	1.6800	1.6800	
4	0.2000	1.6200	1.6200	
5	0.2166	1.6580	1.6580	
6	0.2250	1.6390	1.6390	
7	0.2416	1.6330	1.6330	
8	0.2500	1.6290	1.6290	
9	0.2583	1.6230	1.6230	
10	0.2750	1.6200	1.6200	
11	0.2833	1.6170	1.6170	
12	0.2916	1.6130	1.6130	
13	0.3000	1.6100	1.6100	
14	0.3083	1.6070	1.6070	
15	0.3166	1.6040	1.6040	
16	0.3250	1.6010	1.6010	
17	0.3333	1.5980	1.5980	
18	0.3500	1.5910	1.5910	
19	0.3666	1.5850	1.5850	
20	0.3833	1.5780	1.5780	
21	0.4000	1.5720	1.5720	
22	0.4166	1.5660	1.5660	
23	0.4333	1.5590	1.5590	
24	0.4500	1.5530	1.5530	
25	0.4666	1.5470	1.5470	
26	0.4833	1.5400	1.5400	
27	0.5000	1.5370	1.5370	
28	0.5166	1.5310	1.5310	
29	0.5333	1.5240	1.5240	
30	0.5500	1.5180	1.5180	
31	0.5666	1.5150	1.5150	
32	0.5833	1.5050	1.5050	
33	0.6000	1.4990	1.4990	
34	0.6166	1.4960	1.4960	
35	0.6333	1.4890	1.4890	
36	0.6500	1.4830	1.4830	
37	0.6666	1.4770	1.4770	
38	0.6833	1.4700	1.4700	
39	0.7000	1.4640	1.4640	
40	0.7166	1.4610	1.4610	
41	0.7333	1.4540	1.4540	
42	0.7500	1.4480	1.4480	
43	0.7666	1.4420	1.4420	
44	0.7833	1.4350	1.4350	
45	0.8000	1.4320	1.4320	
46	0.8166	1.4260	1.4260	
47	0.8333	1.4190	1.4190	
48	0.8500	1.4160	1.4160	
49	0.8666	1.4100	1.4100	
50	0.8833	1.4030	1.4030	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.9000	1.3970	1.3970	
52	0.9166	1.3910	1.3910	
53	0.9333	1.3870	1.3870	
54	0.9500	1.3810	1.3810	
55	0.9666	1.3780	1.3780	
56	0.9833	1.3710	1.3710	
57	1.0000	1.3680	1.3680	
58	1.2000	1.3050	1.3050	
59	1.4000	1.2470	1.2470	
60	1.6000	1.1900	1.1900	
61	1.8000	1.1390	1.1390	
62	2.0000	1.0880	1.0880	
63	2.2000	1.0400	1.0400	
64	2.4000	0.9930	0.9930	
65	2.6000	0.9480	0.9480	
66	2.8000	0.9070	0.9070	
67	3.0000	0.8650	0.8650	
68	3.2000	0.8270	0.8270	
69	3.4000	0.7890	0.7890	
70	3.6000	0.7570	0.7570	
71	3.8000	0.7250	0.7250	
72	4.0000	0.6900	0.6900	
73	4.2000	0.6620	0.6620	
74	4.4000	0.6330	0.6330	
75	4.6000	0.6040	0.6040	
76	4.8000	0.5790	0.5790	
77	5.0000	0.5530	0.5530	
78	5.2000	0.5310	0.5310	
79	5.4000	0.5090	0.5090	
80	5.6000	0.4870	0.4870	
81	5.8000	0.4640	0.4640	
82	6.0000	0.4450	0.4450	
83	6.2000	0.4260	0.4260	
84	6.4000	0.4070	0.4070	
85	6.6000	0.3910	0.3910	
86	6.8000	0.3720	0.3720	
87	7.0000	0.3560	0.3560	
88	7.2000	0.3400	0.3400	
89	7.4000	0.3270	0.3270	
90	7.6000	0.3150	0.3150	
91	7.8000	0.2990	0.2990	
92	8.0000	0.2890	0.2890	
93	8.2000	0.2760	0.2760	
94	8.4000	0.2670	0.2670	
95	8.6000	0.2510	0.2510	
96	8.8000	0.2410	0.2410	
97	9.0000	0.2320	0.2320	
98	9.2000	0.2220	0.2220	
99	9.4000	0.2130	0.2130	
100	9.6000	0.2060	0.2060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

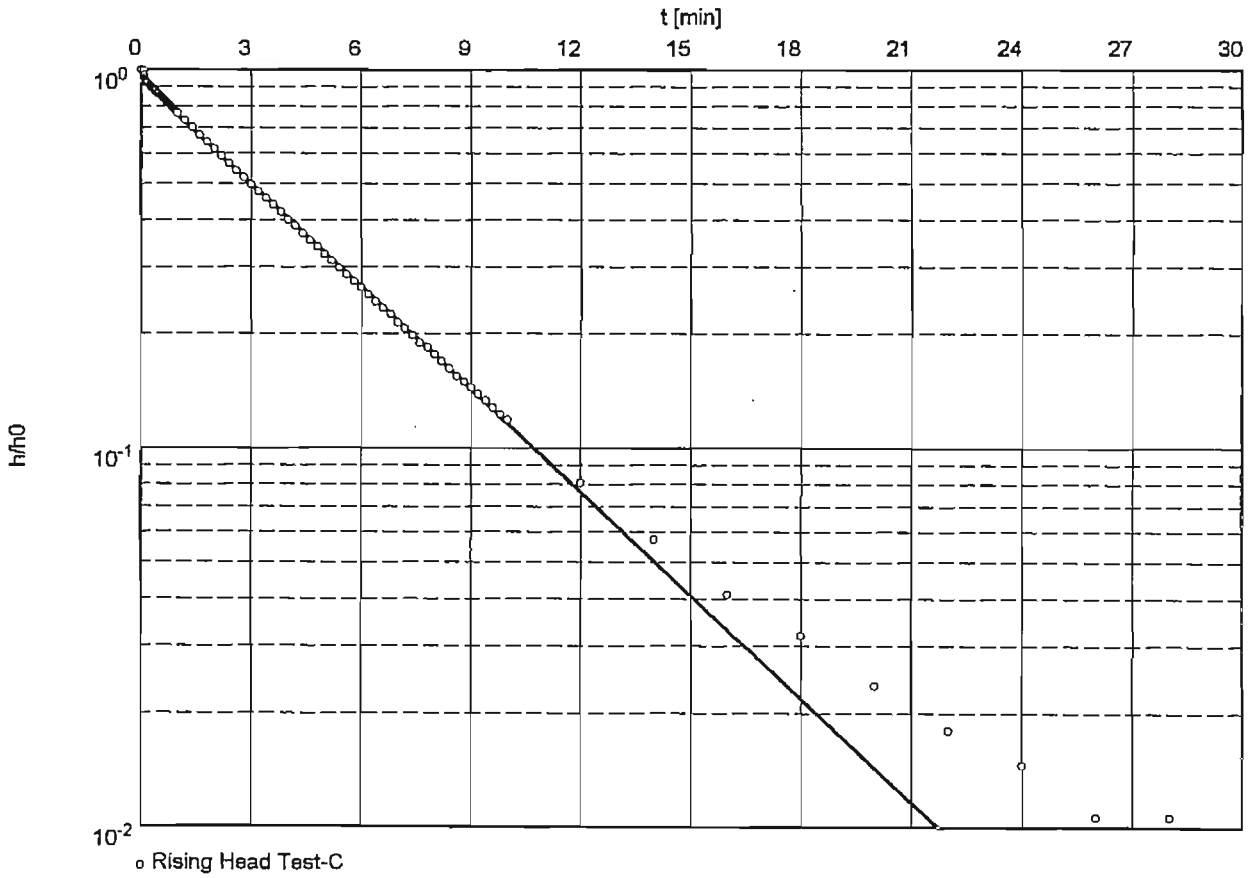
Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
101	9.8000	0.1970	0.1970
102	10.0000	0.1910	0.1910
103	12.0000	0.1270	0.1270
104	14.0000	0.0860	0.0860
105	16.0000	0.0600	0.0600
106	18.0000	0.0440	0.0440
107	20.0000	0.0350	0.0350
108	22.0000	0.0280	0.0280
109	24.0000	0.0190	0.0190

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	



Hydraulic conductivity [ft/min]: 2.44×10^{-4}

Hydraulic conductivity (ft/d) = 0.35

L = 9.1 ft
b = 9.1 ft
D = 9.1 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	Rising Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7760	1.7760	
2	0.0666	1.7670	1.7670	
3	0.0833	1.7160	1.7160	
4	0.0916	1.6900	1.6900	
5	0.1083	1.6710	1.6710	
6	0.1166	1.6680	1.6680	
7	0.1250	1.6590	1.6590	
8	0.1416	1.6550	1.6550	
9	0.1500	1.6490	1.6490	
10	0.1583	1.6460	1.6460	
11	0.1750	1.6430	1.6430	
12	0.1833	1.6360	1.6360	
13	0.1916	1.6330	1.6330	
14	0.2083	1.6270	1.6270	
15	0.2166	1.6240	1.6240	
16	0.2416	1.6170	1.6170	
17	0.2500	1.6140	1.6140	
18	0.2583	1.6080	1.6080	
19	0.2750	1.6040	1.6040	
20	0.2833	1.5980	1.5980	
21	0.3000	1.5950	1.5950	
22	0.3083	1.5920	1.5920	
23	0.3166	1.5890	1.5890	
24	0.3250	1.5850	1.5850	
25	0.3333	1.5820	1.5820	
26	0.3500	1.5760	1.5760	
27	0.3666	1.5690	1.5690	
28	0.3833	1.5630	1.5630	
29	0.4000	1.5570	1.5570	
30	0.4166	1.5540	1.5540	
31	0.4333	1.5470	1.5470	
32	0.4500	1.5410	1.5410	
33	0.4666	1.5340	1.5340	
34	0.4833	1.5310	1.5310	
35	0.5000	1.5250	1.5250	
36	0.5166	1.5180	1.5180	
37	0.5333	1.5120	1.5120	
38	0.5500	1.5060	1.5060	
39	0.5666	1.5030	1.5030	
40	0.5833	1.4960	1.4960	
41	0.6000	1.4900	1.4900	
42	0.6166	1.4870	1.4870	
43	0.6333	1.4800	1.4800	
44	0.6500	1.4740	1.4740	
45	0.6666	1.4680	1.4680	
46	0.6833	1.4610	1.4610	
47	0.7000	1.4580	1.4580	
48	0.7166	1.4520	1.4520	
49	0.7333	1.4450	1.4450	
50	0.7500	1.4390	1.4390	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	Rising Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.7666	1.4360	1.4360	
52	0.7833	1.4290	1.4290	
53	0.8000	1.4260	1.4260	
54	0.8166	1.4200	1.4200	
55	0.8333	1.4130	1.4130	
56	0.8500	1.4070	1.4070	
57	0.8666	1.4040	1.4040	
58	0.8833	1.3970	1.3970	
59	0.9000	1.3910	1.3910	
60	0.9166	1.3880	1.3880	
61	0.9333	1.3820	1.3820	
62	0.9500	1.3750	1.3750	
63	0.9666	1.3720	1.3720	
64	0.9833	1.3660	1.3660	
65	1.0000	1.3620	1.3620	
66	1.2000	1.3020	1.3020	
67	1.4000	1.2480	1.2480	
68	1.6000	1.1940	1.1940	
69	1.8000	1.1430	1.1430	
70	2.0000	1.0950	1.0950	
71	2.2000	1.0470	1.0470	
72	2.4000	1.0030	1.0030	
73	2.6000	0.9610	0.9610	
74	2.8000	0.9200	0.9200	
75	3.0000	0.8820	0.8820	
76	3.2000	0.8440	0.8440	
77	3.4000	0.8090	0.8090	
78	3.6000	0.7770	0.7770	
79	3.8000	0.7450	0.7450	
80	4.0000	0.7100	0.7100	
81	4.2000	0.6840	0.6840	
82	4.4000	0.6530	0.6530	
83	4.6000	0.6270	0.6270	
84	4.8000	0.6020	0.6020	
85	5.0000	0.5760	0.5760	
86	5.2000	0.5540	0.5540	
87	5.4000	0.5280	0.5280	
88	5.6000	0.5090	0.5090	
89	5.8000	0.4870	0.4870	
90	6.0000	0.4680	0.4680	
91	6.2000	0.4490	0.4490	
92	6.4000	0.4300	0.4300	
93	6.6000	0.4140	0.4140	
94	6.8000	0.3980	0.3980	
95	7.0000	0.3790	0.3790	
96	7.2000	0.3660	0.3660	
97	7.4000	0.3500	0.3500	
98	7.6000	0.3340	0.3340	
99	7.8000	0.3250	0.3250	
100	8.0000	0.3120	0.3120	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

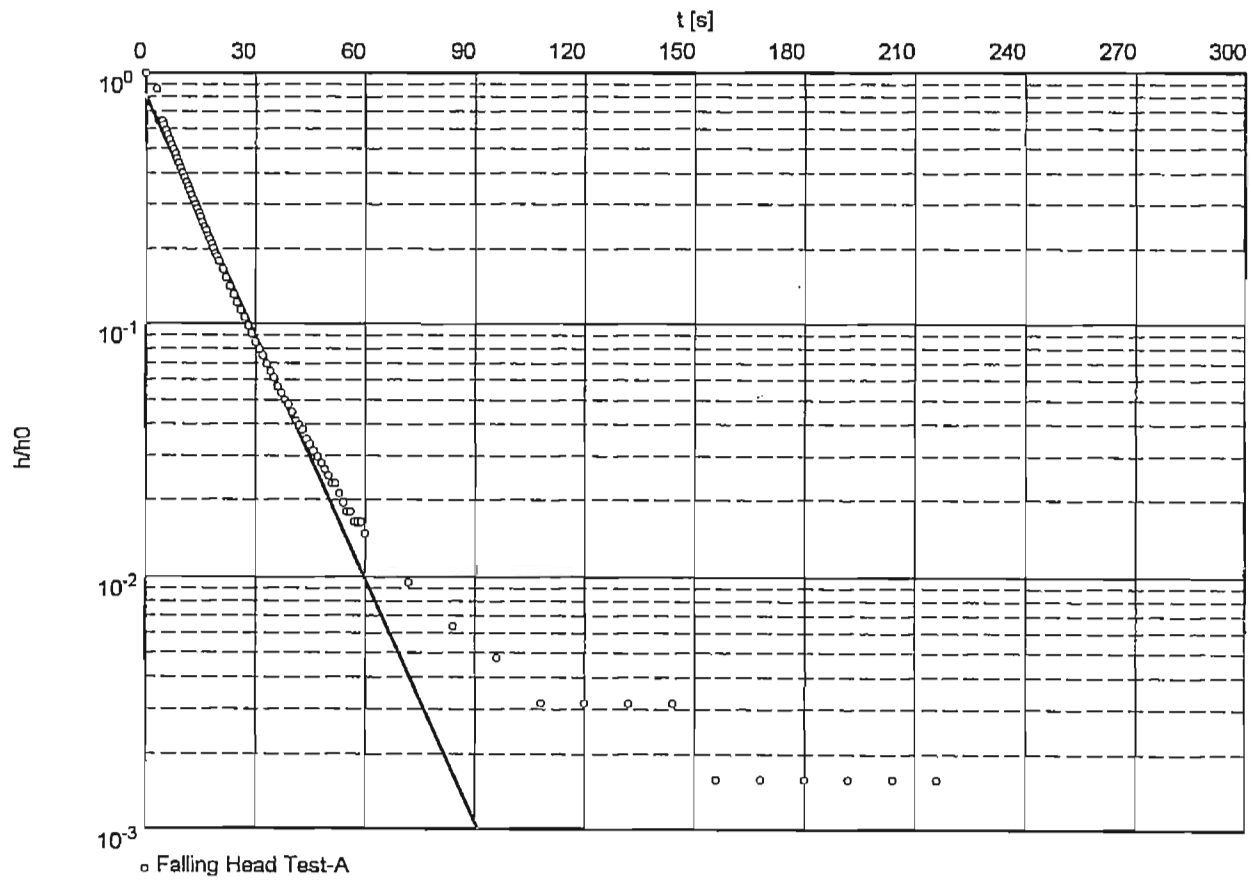
Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12I	Rising Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	8.2000	0.2990	0.2990	
102	8.4000	0.2870	0.2870	
103	8.6000	0.2740	0.2740	
104	8.8000	0.2640	0.2640	
105	9.0000	0.2550	0.2550	
106	9.2000	0.2450	0.2450	
107	9.4000	0.2360	0.2360	
108	9.6000	0.2260	0.2260	
109	9.8000	0.2170	0.2170	
110	10.0000	0.2100	0.2100	
111	12.0000	0.1430	0.1430	
112	14.0000	0.1020	0.1020	
113	16.0000	0.0730	0.0730	
114	18.0000	0.0570	0.0570	
115	20.0000	0.0420	0.0420	
116	22.0000	0.0320	0.0320	
117	24.0000	0.0260	0.0260	
118	26.0000	0.0190	0.0190	
119	28.0000	0.0190	0.0190	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13I	



Hydraulic conductivity [ft/s]: 1.96×10^{-4}

Hydraulic conductivity (ft/d) =16.9

L = 2.3 ft
b = 2.3 ft
D = 2.3 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A—NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13I	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.8970	1.8970	
2	3.0000	1.6270	1.6270	
3	3.4980	1.2120	1.2120	
4	3.9960	1.2030	1.2030	
5	4.5000	1.2150	1.2150	
6	4.9980	1.1740	1.1740	
7	5.4960	1.1200	1.1200	
8	6.0000	1.0730	1.0730	
9	6.4980	1.0250	1.0250	
10	6.9960	0.9810	0.9810	
11	7.5000	0.9400	0.9400	
12	7.9980	0.9020	0.9020	
13	8.4960	0.8610	0.8610	
14	9.0000	0.8260	0.8260	
15	9.4980	0.7910	0.7910	
16	9.9960	0.7560	0.7560	
17	10.5000	0.7280	0.7280	
18	10.9980	0.6960	0.6960	
19	11.4960	0.6680	0.6680	
20	12.0000	0.6420	0.6420	
21	12.4980	0.6140	0.6140	
22	12.9960	0.5910	0.5910	
23	13.5000	0.5660	0.5660	
24	13.9980	0.5440	0.5440	
25	14.4960	0.5220	0.5220	
26	15.0000	0.5030	0.5030	
27	15.4980	0.4810	0.4810	
28	15.9960	0.4620	0.4620	
29	16.5000	0.4460	0.4460	
30	16.9980	0.4270	0.4270	
31	17.4960	0.4110	0.4110	
32	18.0000	0.3950	0.3950	
33	18.4980	0.3790	0.3790	
34	18.9960	0.3630	0.3630	
35	19.5000	0.3510	0.3510	
36	19.9980	0.3380	0.3380	
37	21.0000	0.3130	0.3130	
38	21.9960	0.2910	0.2910	
39	22.9980	0.2680	0.2680	
40	24.0000	0.2490	0.2490	
41	24.9960	0.2300	0.2300	
42	25.9980	0.2150	0.2150	
43	27.0000	0.2020	0.2020	
44	27.9960	0.1860	0.1860	
45	28.9980	0.1730	0.1730	
46	30.0000	0.1610	0.1610	
47	30.9960	0.1510	0.1510	
48	31.9980	0.1420	0.1420	
49	33.0000	0.1320	0.1320	
50	33.9960	0.1230	0.1230	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

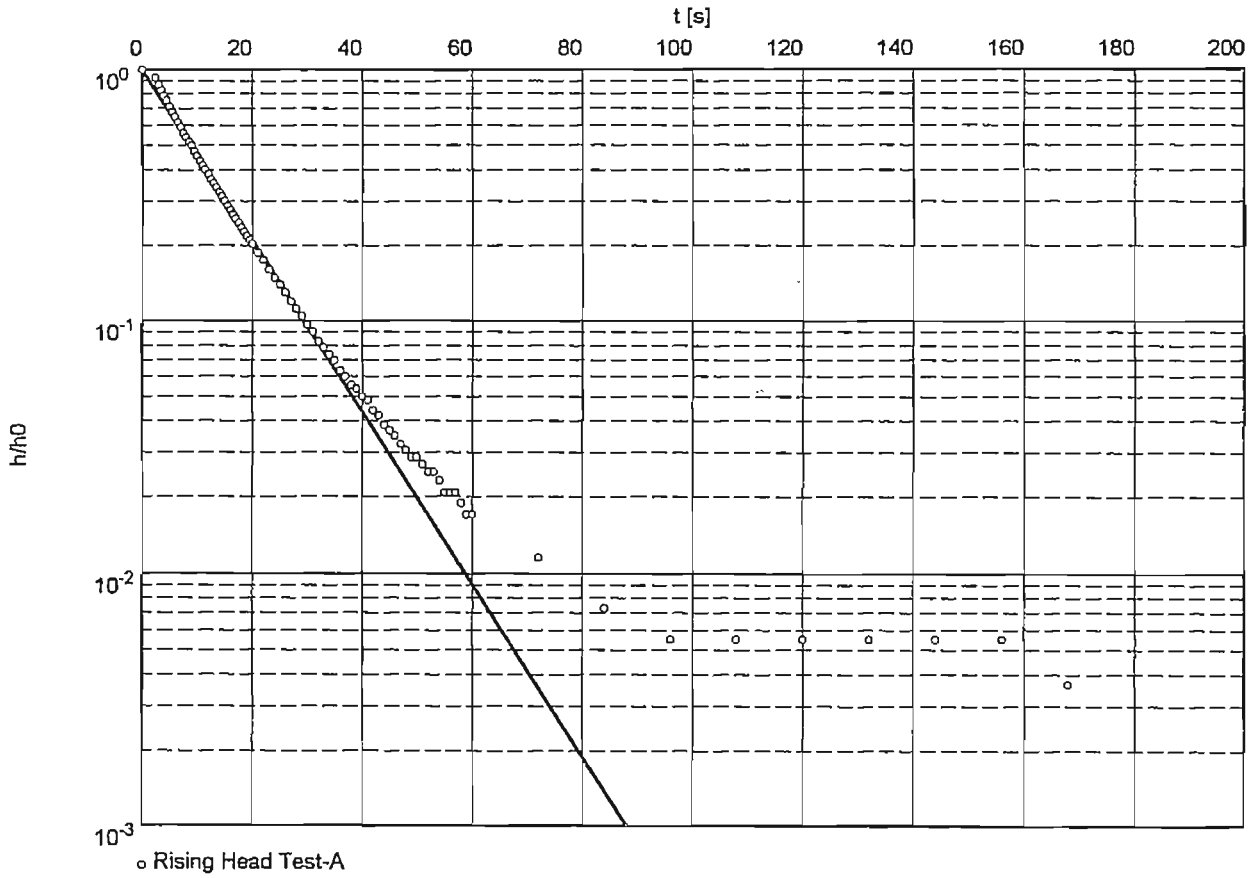
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13I	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	34.9980	0.1160	0.1160	
52	36.0000	0.1070	0.1070	
53	36.9960	0.1010	0.1010	
54	37.9980	0.0940	0.0940	
55	39.0000	0.0910	0.0910	
56	39.9960	0.0850	0.0850	
57	40.9980	0.0780	0.0780	
58	42.0000	0.0750	0.0750	
59	42.9960	0.0720	0.0720	
60	43.9980	0.0660	0.0660	
61	45.0000	0.0630	0.0630	
62	45.9960	0.0590	0.0590	
63	46.9980	0.0560	0.0560	
64	48.0000	0.0530	0.0530	
65	48.9960	0.0500	0.0500	
66	49.9980	0.0470	0.0470	
67	51.0000	0.0440	0.0440	
68	51.9960	0.0440	0.0440	
69	52.9980	0.0400	0.0400	
70	54.0000	0.0370	0.0370	
71	54.9960	0.0340	0.0340	
72	55.9980	0.0340	0.0340	
73	57.0000	0.0310	0.0310	
74	57.9960	0.0310	0.0310	
75	58.9980	0.0310	0.0310	
76	60.0000	0.0280	0.0280	
77	72.0000	0.0180	0.0180	
78	84.0000	0.0120	0.0120	
79	96.0000	0.0090	0.0090	
80	108.0000	0.0060	0.0060	
81	120.0000	0.0060	0.0060	
82	132.0000	0.0060	0.0060	
83	144.0000	0.0060	0.0060	
84	156.0000	0.0030	0.0030	
85	168.0000	0.0030	0.0030	
86	180.0000	0.0030	0.0030	
87	192.0000	0.0030	0.0030	
88	204.0000	0.0030	0.0030	
89	216.0000	0.0030	0.0030	
90	228.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13I	



Hydraulic conductivity [ft/s]: 2.09×10^{-4}

Hydraulic conductivity (ft/d) = 18.1

L = 2.3 ft
b = 2.3 ft
D = 2.3 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13I	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.6420	1.6420	
2	2.4960	1.5220	1.5220	
3	3.0000	1.4300	1.4300	
4	3.4980	1.3540	1.3540	
5	3.9960	1.2880	1.2880	
6	4.5000	1.2370	1.2370	
7	4.9980	1.1680	1.1680	
8	5.4960	1.1140	1.1140	
9	6.0000	1.0600	1.0600	
10	6.4980	1.0090	1.0090	
11	6.9960	0.9650	0.9650	
12	7.5000	0.9210	0.9210	
13	7.9980	0.8830	0.8830	
14	8.4960	0.8450	0.8450	
15	9.0000	0.8200	0.8200	
16	9.4980	0.7750	0.7750	
17	9.9960	0.7440	0.7440	
18	10.5000	0.7120	0.7120	
19	10.9980	0.6830	0.6830	
20	11.4960	0.6550	0.6550	
21	12.0000	0.6300	0.6300	
22	12.4980	0.6010	0.6010	
23	12.9960	0.5790	0.5790	
24	13.5000	0.5570	0.5570	
25	13.9980	0.5320	0.5320	
26	14.4960	0.5130	0.5130	
27	15.0000	0.4940	0.4940	
28	15.4980	0.4710	0.4710	
29	15.9960	0.4520	0.4520	
30	16.5000	0.4330	0.4330	
31	16.9980	0.4180	0.4180	
32	17.4960	0.4020	0.4020	
33	18.0000	0.3860	0.3860	
34	18.4980	0.3700	0.3700	
35	18.9960	0.3570	0.3570	
36	19.5000	0.3450	0.3450	
37	19.9980	0.3320	0.3320	
38	21.0000	0.3070	0.3070	
39	21.9960	0.2850	0.2850	
40	22.9980	0.2620	0.2620	
41	24.0000	0.2430	0.2430	
42	24.9960	0.2280	0.2280	
43	25.9980	0.2120	0.2120	
44	27.0000	0.1960	0.1960	
45	27.9960	0.1830	0.1830	
46	28.9980	0.1710	0.1710	
47	30.0000	0.1580	0.1580	
48	30.9960	0.1480	0.1480	
49	31.9980	0.1360	0.1360	
50	33.0000	0.1290	0.1290	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

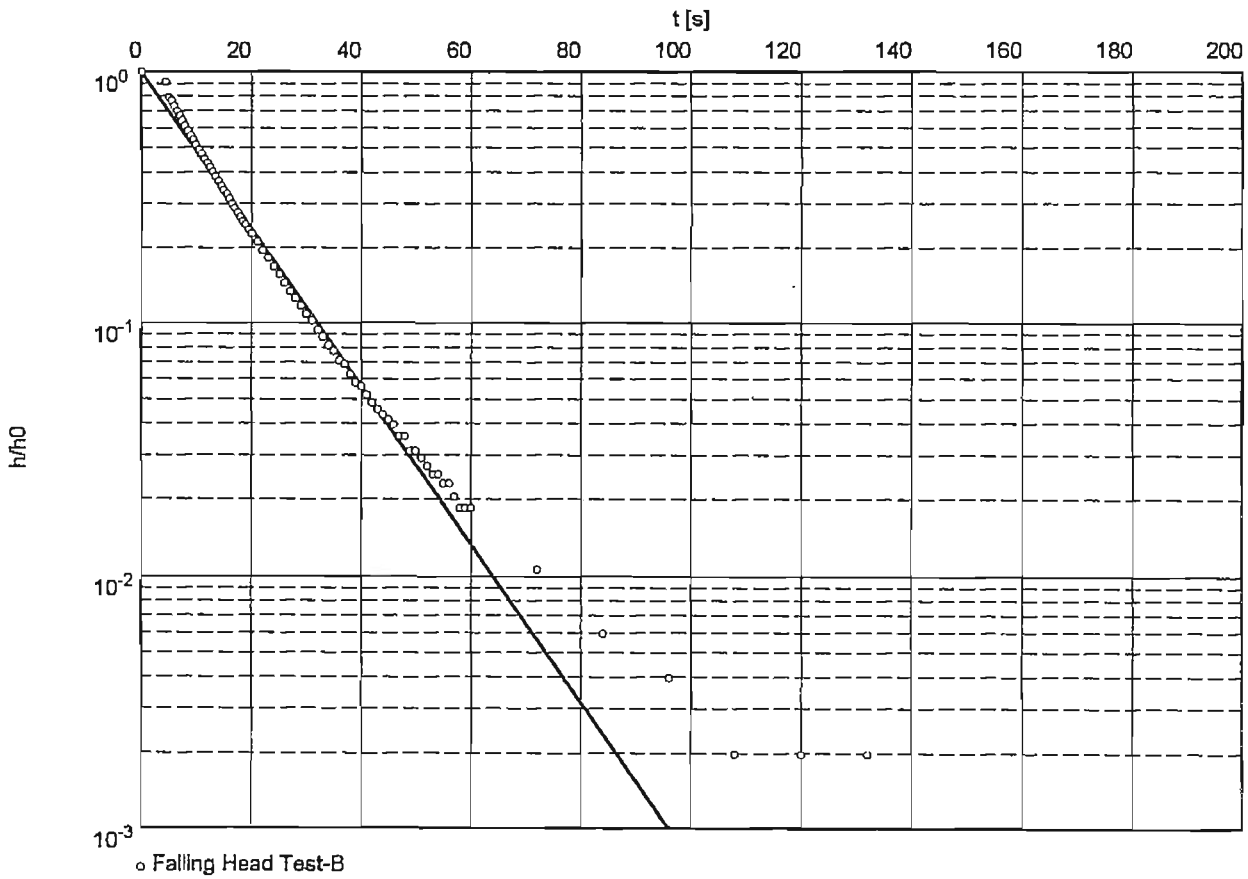
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13I	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	33.9960	0.1200	0.1200	
52	34.9980	0.1140	0.1140	
53	36.0000	0.1040	0.1040	
54	36.9960	0.0980	0.0980	
55	37.9980	0.0910	0.0910	
56	39.0000	0.0880	0.0880	
57	39.9960	0.0820	0.0820	
58	40.9980	0.0790	0.0790	
59	42.0000	0.0720	0.0720	
60	42.9960	0.0690	0.0690	
61	43.9980	0.0630	0.0630	
62	45.0000	0.0600	0.0600	
63	45.9960	0.0570	0.0570	
64	46.9980	0.0530	0.0530	
65	48.0000	0.0500	0.0500	
66	48.9960	0.0470	0.0470	
67	49.9980	0.0470	0.0470	
68	51.0000	0.0440	0.0440	
69	51.9960	0.0410	0.0410	
70	52.9980	0.0410	0.0410	
71	54.0000	0.0380	0.0380	
72	54.9960	0.0340	0.0340	
73	55.9980	0.0340	0.0340	
74	57.0000	0.0340	0.0340	
75	57.9960	0.0310	0.0310	
76	58.9980	0.0280	0.0280	
77	60.0000	0.0280	0.0280	
78	72.0000	0.0190	0.0190	
79	84.0000	0.0120	0.0120	
80	96.0000	0.0090	0.0090	
81	108.0000	0.0090	0.0090	
82	120.0000	0.0090	0.0090	
83	132.0000	0.0090	0.0090	
84	144.0000	0.0090	0.0090	
85	156.0000	0.0090	0.0090	
86	168.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13I	



Hydraulic conductivity [ft/s]: 1.92×10^{-4}

Hydraulic conductivity (ft/d) = 16.6

L = 2.3 ft
b = 2.3 ft
D = 2.3 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13I	Falling Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.5170	1.5170	
2	4.5000	1.3810	1.3810	
3	4.9980	1.1940	1.1940	
4	5.4960	1.1590	1.1590	
5	6.0000	1.1080	1.1080	
6	6.4980	1.0610	1.0610	
7	6.9960	1.0160	1.0160	
8	7.5000	0.9690	0.9690	
9	7.9980	0.9280	0.9280	
10	8.4960	0.8860	0.8860	
11	9.0000	0.8480	0.8480	
12	9.4980	0.8140	0.8140	
13	9.9960	0.7790	0.7790	
14	10.5000	0.7440	0.7440	
15	10.9980	0.7150	0.7150	
16	11.4960	0.6840	0.6840	
17	12.0000	0.6580	0.6580	
18	12.4980	0.6300	0.6300	
19	12.9960	0.6050	0.6050	
20	13.5000	0.5820	0.5820	
21	13.9980	0.5570	0.5570	
22	14.4960	0.5320	0.5320	
23	15.0000	0.5130	0.5130	
24	15.4980	0.4940	0.4940	
25	15.9960	0.4750	0.4750	
26	16.5000	0.4530	0.4530	
27	16.9980	0.4340	0.4340	
28	17.4960	0.4180	0.4180	
29	18.0000	0.4020	0.4020	
30	18.4980	0.3860	0.3860	
31	18.9960	0.3730	0.3730	
32	19.5000	0.3580	0.3580	
33	19.9980	0.3450	0.3450	
34	21.0000	0.3200	0.3200	
35	21.9960	0.2940	0.2940	
36	22.9980	0.2750	0.2750	
37	24.0000	0.2530	0.2530	
38	24.9960	0.2370	0.2370	
39	25.9980	0.2180	0.2180	
40	27.0000	0.2020	0.2020	
41	27.9960	0.1900	0.1900	
42	28.9980	0.1770	0.1770	
43	30.0000	0.1640	0.1640	
44	30.9960	0.1550	0.1550	
45	31.9980	0.1420	0.1420	
46	33.0000	0.1330	0.1330	
47	33.9960	0.1230	0.1230	
48	34.9980	0.1170	0.1170	
49	36.0000	0.1070	0.1070	
50	36.9960	0.1040	0.1040	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

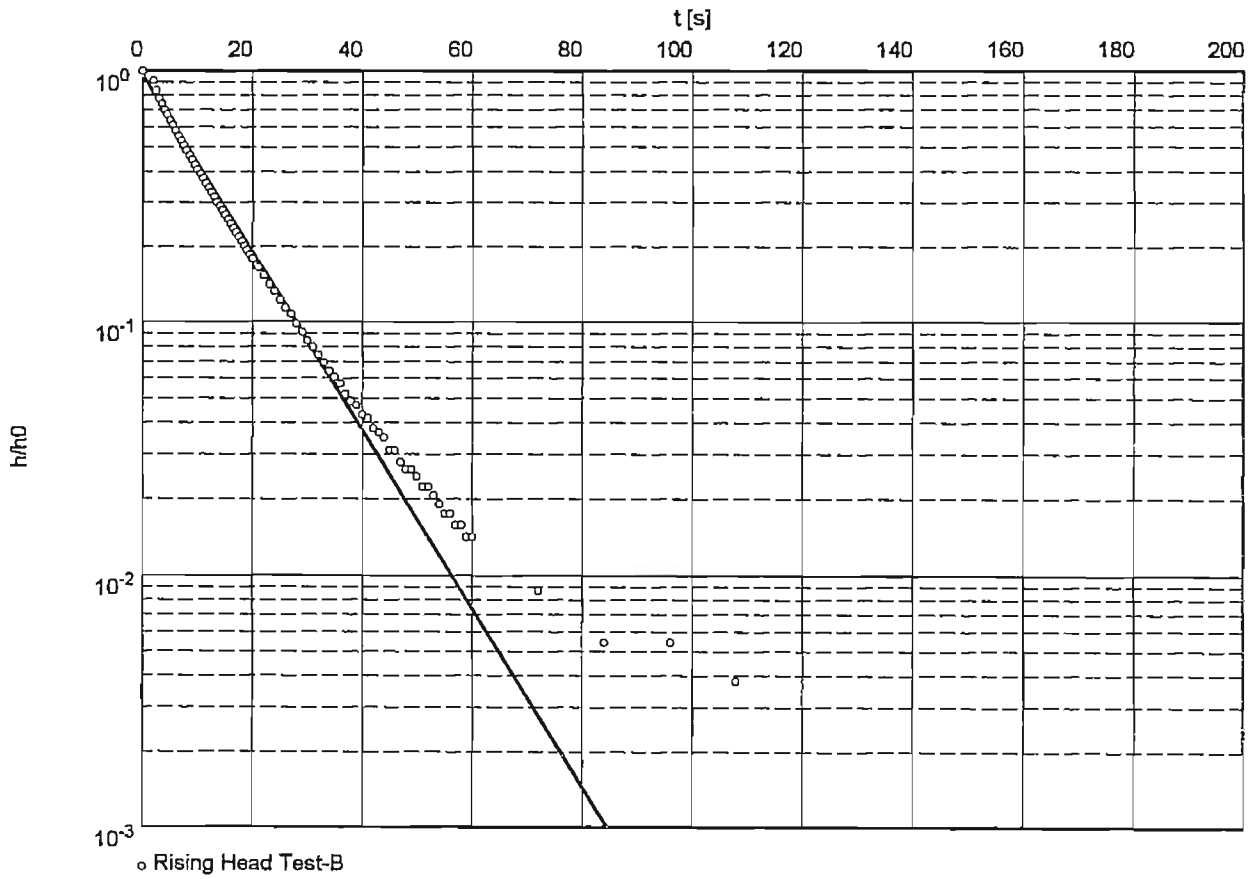
Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13I	Falling Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	37.9980	0.0950	0.0950	
52	39.0000	0.0880	0.0880	
53	39.9960	0.0850	0.0850	
54	40.9980	0.0790	0.0790	
55	42.0000	0.0730	0.0730	
56	42.9960	0.0690	0.0690	
57	43.9980	0.0660	0.0660	
58	45.0000	0.0630	0.0630	
59	45.9960	0.0600	0.0600	
60	46.9980	0.0540	0.0540	
61	48.0000	0.0540	0.0540	
62	48.9960	0.0470	0.0470	
63	49.9980	0.0470	0.0470	
64	51.0000	0.0440	0.0440	
65	51.9960	0.0410	0.0410	
66	52.9980	0.0380	0.0380	
67	54.0000	0.0380	0.0380	
68	54.9960	0.0350	0.0350	
69	55.9980	0.0350	0.0350	
70	57.0000	0.0310	0.0310	
71	57.9960	0.0280	0.0280	
72	58.9980	0.0280	0.0280	
73	60.0000	0.0280	0.0280	
74	72.0000	0.0160	0.0160	
75	84.0000	0.0090	0.0090	
76	96.0000	0.0060	0.0060	
77	108.0000	0.0030	0.0030	
78	120.0000	0.0030	0.0030	
79	132.0000	0.0030	0.0030	
80	144.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13I	



Hydraulic conductivity [ft/s]: 2.17×10^{-4}

Hydraulic conductivity (ft/d) = 18.7

L = 2.3 ft
b = 2.3 ft
D = 2.3 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13I	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]
1	0.0000	1.8390	1.8390
2	1.9980	1.6840	1.6840
3	2.4960	1.5390	1.5390
4	3.0000	1.4280	1.4280
5	3.4980	1.3580	1.3580
6	3.9960	1.2850	1.2850
7	4.5000	1.2320	1.2320
8	4.9980	1.1680	1.1680
9	5.4960	1.1210	1.1210
10	6.0000	1.0640	1.0640
11	6.4980	1.0130	1.0130
12	6.9960	0.9690	0.9690
13	7.5000	0.9340	0.9340
14	7.9980	0.8900	0.8900
15	8.4960	0.8490	0.8490
16	9.0000	0.8140	0.8140
17	9.4980	0.7790	0.7790
18	9.9960	0.7470	0.7470
19	10.5000	0.7160	0.7160
20	10.9980	0.6870	0.6870
21	11.4960	0.6590	0.6590
22	12.0000	0.6300	0.6300
23	12.4980	0.6050	0.6050
24	12.9960	0.5800	0.5800
25	13.5000	0.5540	0.5540
26	13.9980	0.5320	0.5320
27	14.4960	0.5130	0.5130
28	15.0000	0.4910	0.4910
29	15.4980	0.4720	0.4720
30	15.9960	0.4530	0.4530
31	16.5000	0.4340	0.4340
32	16.9980	0.4180	0.4180
33	17.4960	0.4020	0.4020
34	18.0000	0.3860	0.3860
35	18.4980	0.3710	0.3710
36	18.9960	0.3550	0.3550
37	19.5000	0.3420	0.3420
38	19.9980	0.3290	0.3290
39	21.0000	0.3040	0.3040
40	21.9960	0.2820	0.2820
41	22.9980	0.2600	0.2600
42	24.0000	0.2440	0.2440
43	24.9960	0.2250	0.2250
44	25.9980	0.2090	0.2090
45	27.0000	0.1970	0.1970
46	27.9960	0.1810	0.1810
47	28.9980	0.1680	0.1680
48	30.0000	0.1550	0.1550
49	30.9960	0.1460	0.1460
50	31.9980	0.1360	0.1360

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

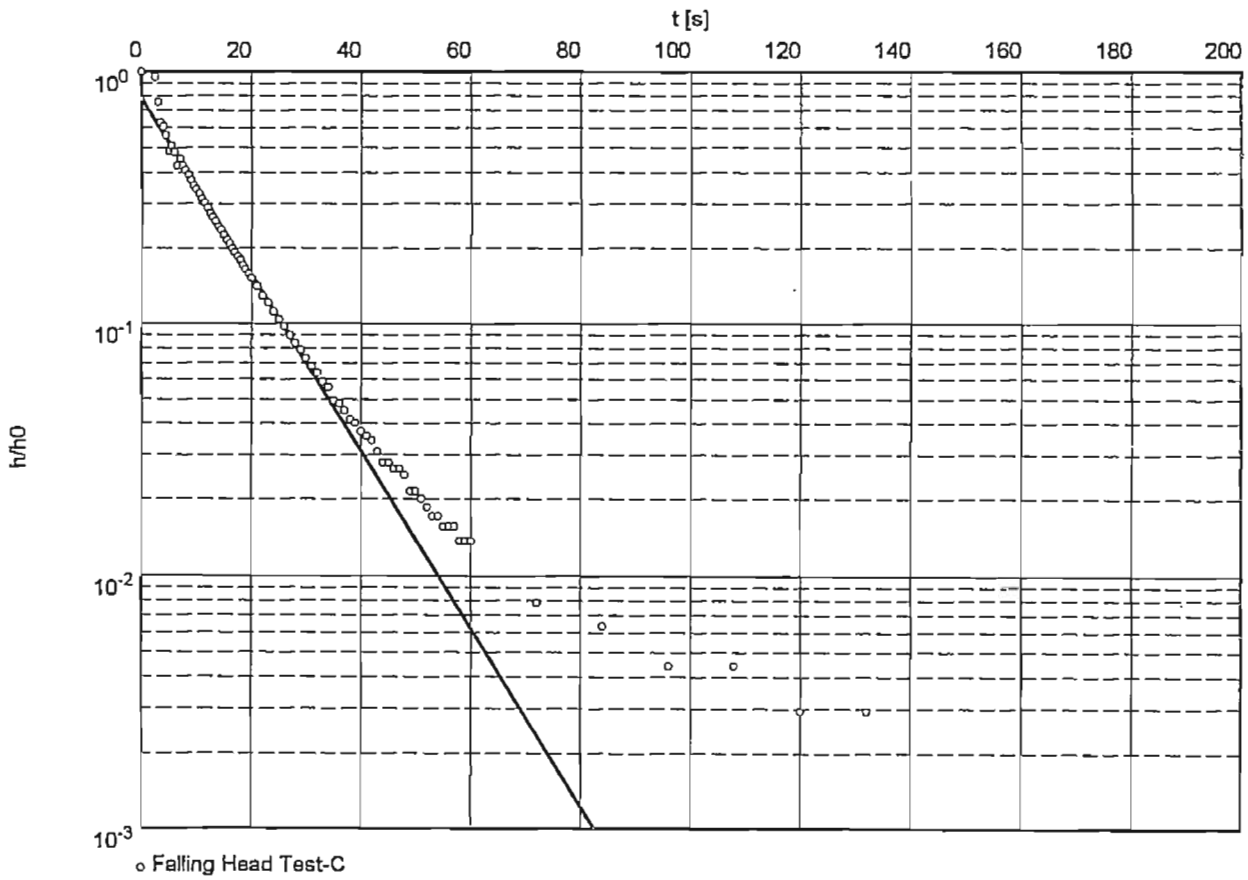
Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13I	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	33.0000	0.1270	0.1270	
52	33.9960	0.1170	0.1170	
53	34.9980	0.1110	0.1110	
54	36.0000	0.1050	0.1050	
55	36.9960	0.0950	0.0950	
56	37.9980	0.0890	0.0890	
57	39.0000	0.0860	0.0860	
58	39.9960	0.0790	0.0790	
59	40.9980	0.0760	0.0760	
60	42.0000	0.0700	0.0700	
61	42.9960	0.0670	0.0670	
62	43.9980	0.0640	0.0640	
63	45.0000	0.0570	0.0570	
64	45.9960	0.0570	0.0570	
65	46.9980	0.0510	0.0510	
66	48.0000	0.0480	0.0480	
67	48.9960	0.0480	0.0480	
68	49.9980	0.0450	0.0450	
69	51.0000	0.0410	0.0410	
70	51.9960	0.0410	0.0410	
71	52.9980	0.0380	0.0380	
72	54.0000	0.0350	0.0350	
73	54.9960	0.0320	0.0320	
74	55.9980	0.0320	0.0320	
75	57.0000	0.0290	0.0290	
76	57.9960	0.0290	0.0290	
77	58.9980	0.0260	0.0260	
78	60.0000	0.0260	0.0260	
79	72.0000	0.0160	0.0160	
80	84.0000	0.0100	0.0100	
81	96.0000	0.0100	0.0100	
82	108.0000	0.0070	0.0070	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13I	



Hydraulic conductivity [ft/s]: 2.15×10^{-4}

Hydraulic conductivity (ft/d) = 18.6

L = 2.3 ft
b = 2.3 ft
D = 2.3 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13I	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	2.0470	2.0470	
2	2.4960	1.9580	1.9580	
3	3.0000	1.5520	1.5520	
4	3.4980	1.2760	1.2760	
5	3.9960	1.2450	1.2450	
6	4.5000	1.1430	1.1430	
7	4.9980	0.9880	0.9880	
8	5.4960	1.0360	1.0360	
9	6.0000	0.9850	0.9850	
10	6.4980	0.8680	0.8680	
11	6.9960	0.9220	0.9220	
12	7.5000	0.8680	0.8680	
13	7.9980	0.8330	0.8330	
14	8.4960	0.7980	0.7980	
15	9.0000	0.7630	0.7630	
16	9.4980	0.7250	0.7250	
17	9.9960	0.7000	0.7000	
18	10.5000	0.6710	0.6710	
19	10.9980	0.6400	0.6400	
20	11.4960	0.6170	0.6170	
21	12.0000	0.5890	0.5890	
22	12.4980	0.5600	0.5600	
23	12.9960	0.5410	0.5410	
24	13.5000	0.5220	0.5220	
25	13.9980	0.4970	0.4970	
26	14.4960	0.4810	0.4810	
27	15.0000	0.4590	0.4590	
28	15.4980	0.4400	0.4400	
29	15.9960	0.4270	0.4270	
30	16.5000	0.4080	0.4080	
31	16.9980	0.3930	0.3930	
32	17.4960	0.3770	0.3770	
33	18.0000	0.3670	0.3670	
34	18.4980	0.3480	0.3480	
35	18.9960	0.3360	0.3360	
36	19.5000	0.3230	0.3230	
37	19.9980	0.3100	0.3100	
38	21.0000	0.2880	0.2880	
39	21.9960	0.2630	0.2630	
40	22.9980	0.2470	0.2470	
41	24.0000	0.2280	0.2280	
42	24.9960	0.2120	0.2120	
43	25.9980	0.1990	0.1990	
44	27.0000	0.1840	0.1840	
45	27.9960	0.1710	0.1710	
46	28.9980	0.1610	0.1610	
47	30.0000	0.1490	0.1490	
48	30.9960	0.1390	0.1390	
49	31.9980	0.1300	0.1300	
50	33.0000	0.1200	0.1200	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

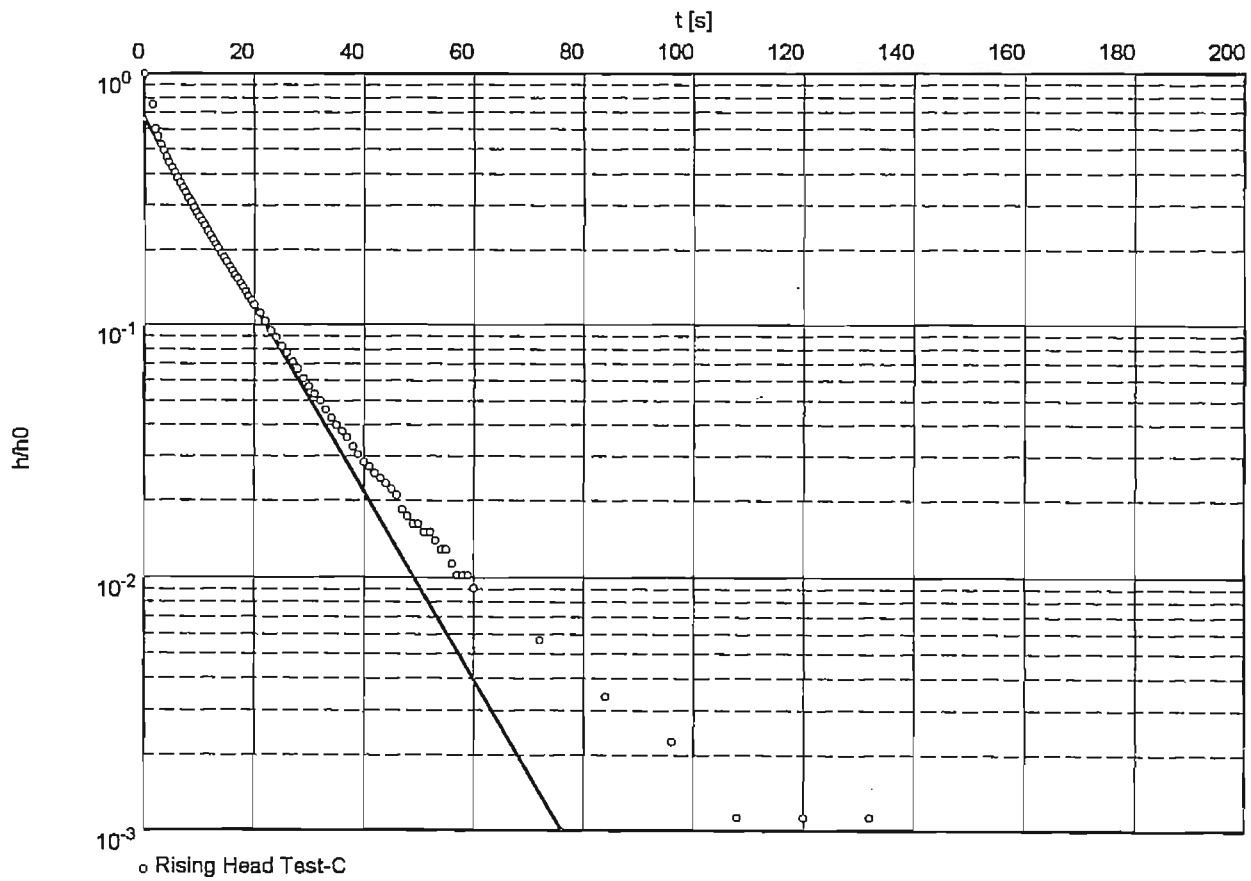
Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13I	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	33.9960	0.1140	0.1140	
52	34.9980	0.1010	0.1010	
53	36.0000	0.0980	0.0980	
54	36.9960	0.0920	0.0920	
55	37.9980	0.0850	0.0850	
56	39.0000	0.0820	0.0820	
57	39.9960	0.0760	0.0760	
58	40.9980	0.0730	0.0730	
59	42.0000	0.0700	0.0700	
60	42.9960	0.0630	0.0630	
61	43.9980	0.0570	0.0570	
62	45.0000	0.0570	0.0570	
63	45.9960	0.0540	0.0540	
64	46.9980	0.0540	0.0540	
65	48.0000	0.0510	0.0510	
66	48.9960	0.0440	0.0440	
67	49.9980	0.0440	0.0440	
68	51.0000	0.0410	0.0410	
69	51.9960	0.0380	0.0380	
70	52.9980	0.0350	0.0350	
71	54.0000	0.0350	0.0350	
72	54.9960	0.0320	0.0320	
73	55.9980	0.0320	0.0320	
74	57.0000	0.0320	0.0320	
75	57.9960	0.0280	0.0280	
76	58.9980	0.0280	0.0280	
77	60.0000	0.0280	0.0280	
78	72.0000	0.0160	0.0160	
79	84.0000	0.0130	0.0130	
80	96.0000	0.0090	0.0090	
81	108.0000	0.0090	0.0090	
82	120.0000	0.0060	0.0060	
83	132.0000	0.0060	0.0060	
84	144.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13I	



Hydraulic conductivity [ft/s]: 2.28×10^{-4}

Hydraulic conductivity (ft/d) = 19.7

L = 2.3 ft
b = 2.3 ft
D = 2.3 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13I	Rising Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	2.6610	2.6610	
2	1.5000	1.9990	1.9990	
3	1.9980	1.6040	1.6040	
4	2.4960	1.4930	1.4930	
5	3.0000	1.3920	1.3920	
6	3.4980	1.3160	1.3160	
7	3.9960	1.2460	1.2460	
8	4.5000	1.1830	1.1830	
9	4.9980	1.1290	1.1290	
10	5.4960	1.0750	1.0750	
11	6.0000	1.0250	1.0250	
12	6.4980	0.9770	0.9770	
13	6.9960	0.9360	0.9360	
14	7.5000	0.8980	0.8980	
15	7.9980	0.8500	0.8500	
16	8.4960	0.8160	0.8160	
17	9.0000	0.7810	0.7810	
18	9.4980	0.7460	0.7460	
19	9.9960	0.7210	0.7210	
20	10.5000	0.6920	0.6920	
21	10.9980	0.6640	0.6640	
22	11.4960	0.6350	0.6350	
23	12.0000	0.6100	0.6100	
24	12.4980	0.5850	0.5850	
25	12.9960	0.5590	0.5590	
26	13.5000	0.5370	0.5370	
27	13.9980	0.5150	0.5150	
28	14.4960	0.4960	0.4960	
29	15.0000	0.4770	0.4770	
30	15.4980	0.4550	0.4550	
31	15.9960	0.4360	0.4360	
32	16.5000	0.4200	0.4200	
33	16.9980	0.4070	0.4070	
34	17.4960	0.3880	0.3880	
35	18.0000	0.3760	0.3760	
36	18.4980	0.3600	0.3600	
37	18.9960	0.3440	0.3440	
38	19.5000	0.3310	0.3310	
39	19.9980	0.3190	0.3190	
40	21.0000	0.2960	0.2960	
41	21.9960	0.2740	0.2740	
42	22.9980	0.2520	0.2520	
43	24.0000	0.2360	0.2360	
44	24.9960	0.2170	0.2170	
45	25.9980	0.2050	0.2050	
46	27.0000	0.1890	0.1890	
47	27.9960	0.1760	0.1760	
48	28.9980	0.1630	0.1630	
49	30.0000	0.1510	0.1510	
50	30.9960	0.1410	0.1410	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

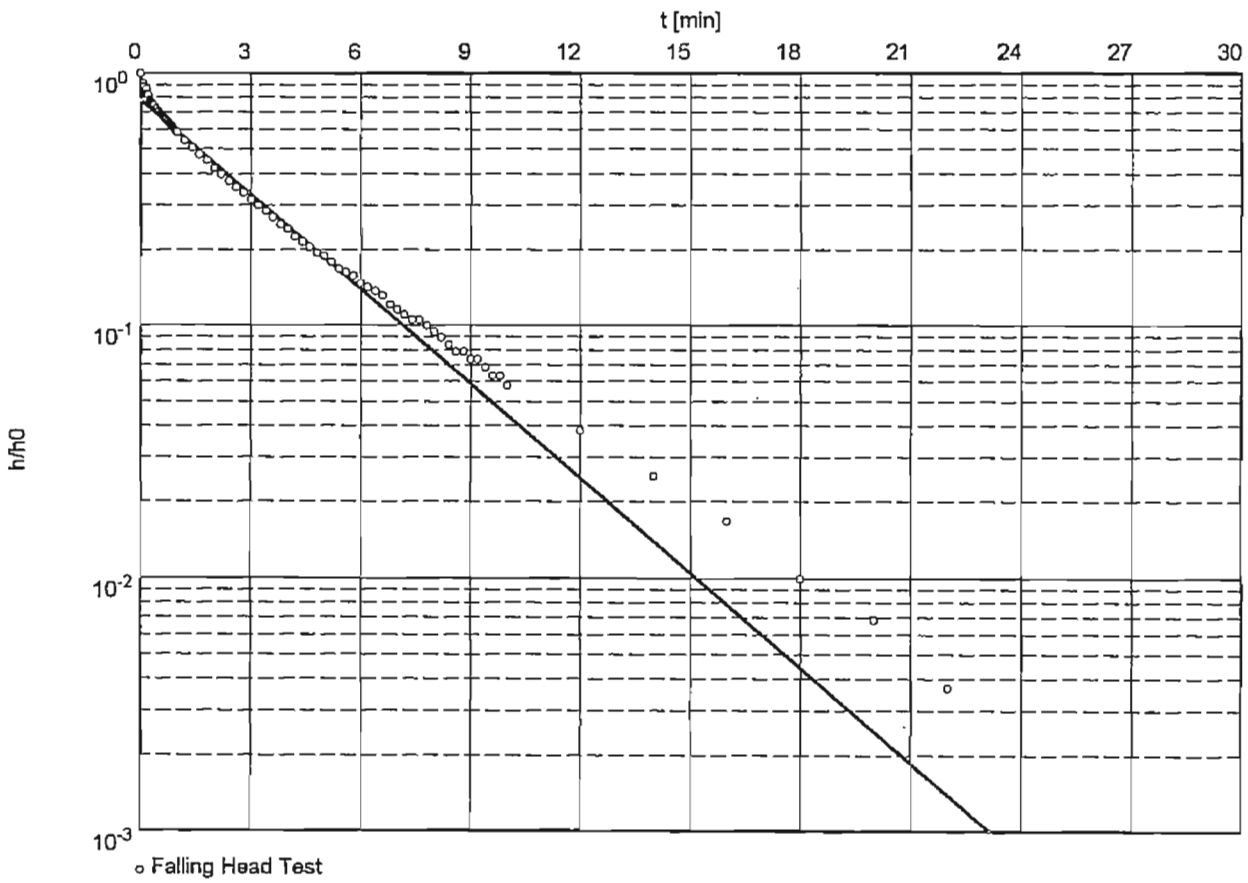
Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13I	Rising Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	31.9980	0.1320	0.1320	
52	33.0000	0.1220	0.1220	
53	33.9960	0.1130	0.1130	
54	34.9980	0.1060	0.1060	
55	36.0000	0.1000	0.1000	
56	36.9960	0.0940	0.0940	
57	37.9980	0.0870	0.0870	
58	39.0000	0.0810	0.0810	
59	39.9960	0.0750	0.0750	
60	40.9980	0.0720	0.0720	
61	42.0000	0.0680	0.0680	
62	42.9960	0.0650	0.0650	
63	43.9980	0.0620	0.0620	
64	45.0000	0.0590	0.0590	
65	45.9960	0.0560	0.0560	
66	46.9980	0.0490	0.0490	
67	48.0000	0.0460	0.0460	
68	48.9960	0.0430	0.0430	
69	49.9980	0.0430	0.0430	
70	51.0000	0.0400	0.0400	
71	51.9960	0.0400	0.0400	
72	52.9980	0.0370	0.0370	
73	54.0000	0.0340	0.0340	
74	54.9960	0.0340	0.0340	
75	55.9980	0.0300	0.0300	
76	57.0000	0.0270	0.0270	
77	57.9960	0.0270	0.0270	
78	58.9980	0.0270	0.0270	
79	60.0000	0.0240	0.0240	
80	72.0000	0.0150	0.0150	
81	84.0000	0.0090	0.0090	
82	96.0000	0.0060	0.0060	
83	108.0000	0.0030	0.0030	
84	120.0000	0.0030	0.0030	
85	132.0000	0.0030	0.0030	
86	144.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	



Hydraulic conductivity [ft/min]: 2.82×10^{-4}

Hydraulic conductivity (ft/d) = 0.41

L = 10.5 ft
b = 10.5 ft
D = 10.5 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.9100	1.9100	
2	0.0666	1.7400	1.7400	
3	0.0833	1.6900	1.6900	
4	0.0916	1.6800	1.6800	
5	0.1250	1.6300	1.6300	
6	0.1500	1.6500	1.6500	
7	0.1666	1.5800	1.5800	
8	0.1916	1.5600	1.5600	
9	0.2166	1.5600	1.5600	
10	0.2500	1.5000	1.5000	
11	0.2583	1.4800	1.4800	
12	0.2666	1.4800	1.4800	
13	0.2750	1.4700	1.4700	
14	0.2833	1.4700	1.4700	
15	0.2916	1.4600	1.4600	
16	0.3000	1.4500	1.4500	
17	0.3083	1.4500	1.4500	
18	0.3166	1.4400	1.4400	
19	0.3250	1.4400	1.4400	
20	0.3333	1.4300	1.4300	
21	0.3500	1.4200	1.4200	
22	0.3666	1.4200	1.4200	
23	0.3833	1.4100	1.4100	
24	0.4000	1.3900	1.3900	
25	0.4166	1.3800	1.3800	
26	0.4333	1.3800	1.3800	
27	0.4500	1.3600	1.3600	
28	0.4666	1.3600	1.3600	
29	0.4833	1.3500	1.3500	
30	0.5000	1.3400	1.3400	
31	0.5166	1.3300	1.3300	
32	0.5333	1.3200	1.3200	
33	0.5500	1.3100	1.3100	
34	0.5666	1.3100	1.3100	
35	0.5833	1.3000	1.3000	
36	0.6000	1.2900	1.2900	
37	0.6166	1.2800	1.2800	
38	0.6333	1.2700	1.2700	
39	0.6500	1.2600	1.2600	
40	0.6666	1.2500	1.2500	
41	0.6833	1.2500	1.2500	
42	0.7000	1.2400	1.2400	
43	0.7166	1.2300	1.2300	
44	0.7333	1.2200	1.2200	
45	0.7500	1.2200	1.2200	
46	0.7666	1.2100	1.2100	
47	0.7833	1.2000	1.2000	
48	0.8000	1.1900	1.1900	
49	0.8166	1.1900	1.1900	
50	0.8333	1.1800	1.1800	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.8500	1.1700	1.1700	
52	0.8666	1.1700	1.1700	
53	0.8833	1.1600	1.1600	
54	0.9000	1.1500	1.1500	
55	0.9166	1.1400	1.1400	
56	0.9333	1.1400	1.1400	
57	0.9500	1.1300	1.1300	
58	0.9666	1.1200	1.1200	
59	0.9833	1.1200	1.1200	
60	1.0000	1.1100	1.1100	
61	1.2000	1.0300	1.0300	
62	1.4000	0.9700	0.9700	
63	1.6000	0.9100	0.9100	
64	1.8000	0.8600	0.8600	
65	2.0000	0.8000	0.8000	
66	2.2000	0.7600	0.7600	
67	2.4000	0.7100	0.7100	
68	2.6000	0.6700	0.6700	
69	2.8000	0.6400	0.6400	
70	3.0000	0.6000	0.6000	
71	3.2000	0.5700	0.5700	
72	3.4000	0.5400	0.5400	
73	3.6000	0.5100	0.5100	
74	3.8000	0.4800	0.4800	
75	4.0000	0.4600	0.4600	
76	4.2000	0.4300	0.4300	
77	4.4000	0.4100	0.4100	
78	4.6000	0.3900	0.3900	
79	4.8000	0.3700	0.3700	
80	5.0000	0.3600	0.3600	
81	5.2000	0.3400	0.3400	
82	5.4000	0.3200	0.3200	
83	5.6000	0.3100	0.3100	
84	5.8000	0.3000	0.3000	
85	6.0000	0.2800	0.2800	
86	6.2000	0.2700	0.2700	
87	6.4000	0.2600	0.2600	
88	6.6000	0.2500	0.2500	
89	6.8000	0.2300	0.2300	
90	7.0000	0.2200	0.2200	
91	7.2000	0.2100	0.2100	
92	7.4000	0.2000	0.2000	
93	7.6000	0.2000	0.2000	
94	7.8000	0.1900	0.1900	
95	8.0000	0.1800	0.1800	
96	8.2000	0.1700	0.1700	
97	8.4000	0.1600	0.1600	
98	8.6000	0.1500	0.1500	
99	8.8000	0.1500	0.1500	
100	9.0000	0.1400	0.1400	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

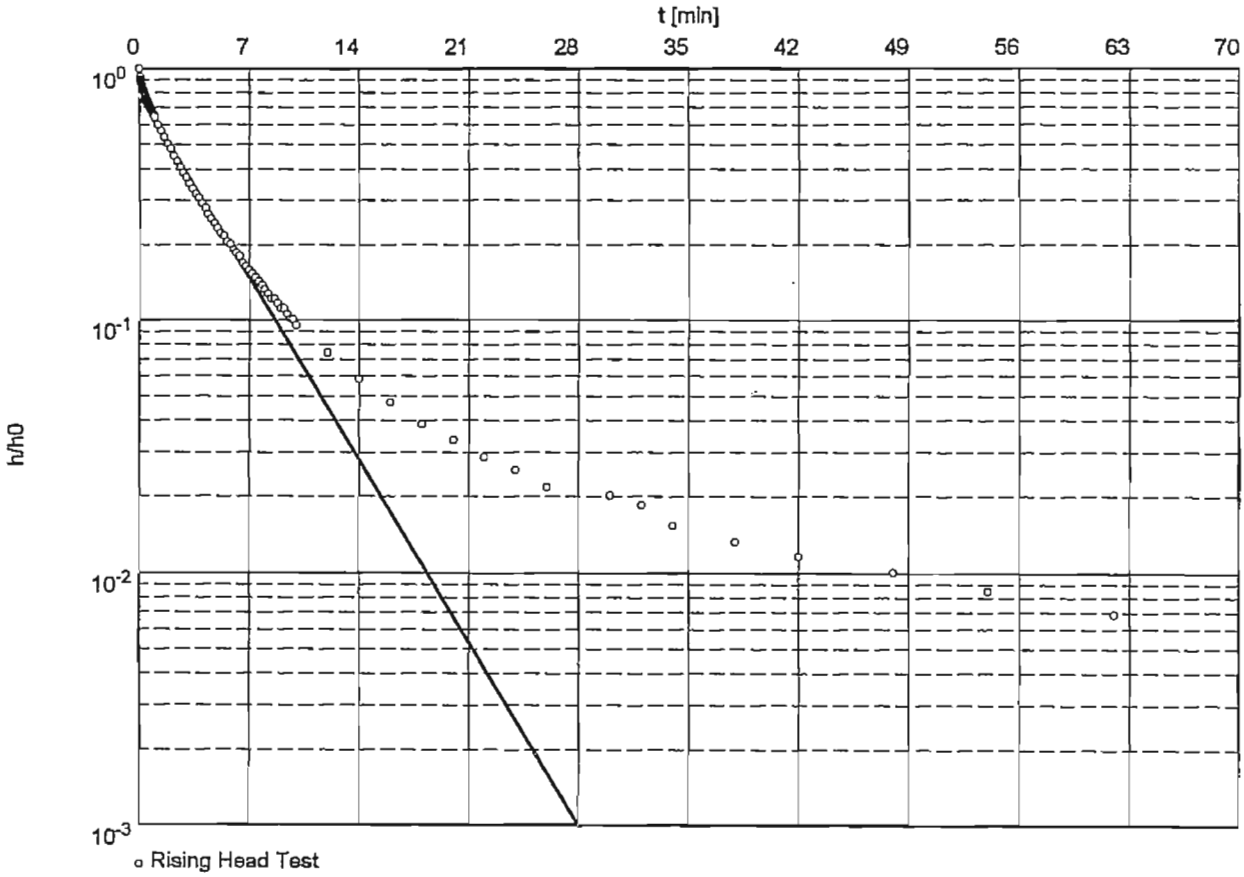
Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	9.2000	0.1400	0.1400	
102	9.4000	0.1300	0.1300	
103	9.6000	0.1200	0.1200	
104	9.8000	0.1200	0.1200	
105	10.0000	0.1100	0.1100	
106	12.0000	0.0730	0.0730	
107	14.0000	0.0480	0.0480	
108	16.0000	0.0320	0.0320	
109	18.0000	0.0190	0.0190	
110	20.0000	0.0130	0.0130	
111	22.0000	0.0070	0.0070	
112	24.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	



Hydraulic conductivity [ft/min]: 2.33×10^{-4}

Hydraulic conductivity (ft/d) = 0.34

L = 10.5 ft
b = 10.5 ft
D = 10.5 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.8900	1.8900	
2	0.0666	1.7500	1.7500	
3	0.0750	1.7000	1.7000	
4	0.0833	1.6800	1.6800	
5	0.0916	1.6900	1.6900	
6	0.1000	1.6700	1.6700	
7	0.1083	1.6800	1.6800	
8	0.1166	1.6700	1.6700	
9	0.1250	1.6700	1.6700	
10	0.1333	1.6500	1.6500	
11	0.1416	1.6500	1.6500	
12	0.1500	1.6300	1.6300	
13	0.1583	1.6200	1.6200	
14	0.1666	1.6100	1.6100	
15	0.1750	1.6100	1.6100	
16	0.1833	1.6100	1.6100	
17	0.1916	1.6000	1.6000	
18	0.2000	1.5900	1.5900	
19	0.2083	1.5900	1.5900	
20	0.2166	1.5800	1.5800	
21	0.2250	1.5800	1.5800	
22	0.2333	1.5700	1.5700	
23	0.2416	1.5600	1.5600	
24	0.2500	1.5600	1.5600	
25	0.2583	1.5600	1.5600	
26	0.2666	1.5500	1.5500	
27	0.2750	1.5400	1.5400	
28	0.2833	1.5400	1.5400	
29	0.2916	1.5300	1.5300	
30	0.3000	1.5300	1.5300	
31	0.3083	1.5200	1.5200	
32	0.3166	1.5200	1.5200	
33	0.3250	1.5100	1.5100	
34	0.3333	1.5100	1.5100	
35	0.3500	1.5000	1.5000	
36	0.3666	1.4900	1.4900	
37	0.3833	1.4800	1.4800	
38	0.4000	1.4700	1.4700	
39	0.4166	1.4600	1.4600	
40	0.4333	1.4500	1.4500	
41	0.4500	1.4400	1.4400	
42	0.4666	1.4400	1.4400	
43	0.4833	1.4300	1.4300	
44	0.5000	1.4200	1.4200	
45	0.5166	1.4100	1.4100	
46	0.5333	1.4000	1.4000	
47	0.5500	1.4000	1.4000	
48	0.5666	1.3900	1.3900	
49	0.5833	1.3800	1.3800	
50	0.6000	1.3700	1.3700	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.6166	1.3600	1.3600	
52	0.6333	1.3600	1.3600	
53	0.6500	1.3500	1.3500	
54	0.6666	1.3400	1.3400	
55	0.6833	1.3300	1.3300	
56	0.7000	1.3300	1.3300	
57	0.7166	1.3200	1.3200	
58	0.7333	1.3100	1.3100	
59	0.7500	1.3100	1.3100	
60	0.7666	1.3000	1.3000	
61	0.7833	1.2900	1.2900	
62	0.8000	1.2900	1.2900	
63	0.8166	1.2800	1.2800	
64	0.8333	1.2700	1.2700	
65	0.8500	1.2600	1.2600	
66	0.8666	1.2600	1.2600	
67	0.8833	1.2500	1.2500	
68	0.9000	1.2500	1.2500	
69	0.9166	1.2400	1.2400	
70	0.9333	1.2300	1.2300	
71	0.9500	1.2300	1.2300	
72	0.9666	1.2200	1.2200	
73	0.9833	1.2100	1.2100	
74	1.0000	1.2100	1.2100	
75	1.2000	1.1300	1.1300	
76	1.4000	1.0700	1.0700	
77	1.6000	1.0100	1.0100	
78	1.8000	0.9500	0.9500	
79	2.0000	0.9100	0.9100	
80	2.2000	0.8500	0.8500	
81	2.4000	0.8100	0.8100	
82	2.6000	0.7700	0.7700	
83	2.8000	0.7300	0.7300	
84	3.0000	0.7000	0.7000	
85	3.2000	0.6600	0.6600	
86	3.4000	0.6300	0.6300	
87	3.6000	0.6000	0.6000	
88	3.8000	0.5800	0.5800	
89	4.0000	0.5500	0.5500	
90	4.2000	0.5300	0.5300	
91	4.4000	0.5000	0.5000	
92	4.6000	0.4800	0.4800	
93	4.8000	0.4600	0.4600	
94	5.0000	0.4400	0.4400	
95	5.2000	0.4200	0.4200	
96	5.4000	0.4100	0.4100	
97	5.6000	0.3900	0.3900	
98	5.8000	0.3800	0.3800	
99	6.0000	0.3600	0.3600	
100	6.2000	0.3500	0.3500	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 4 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

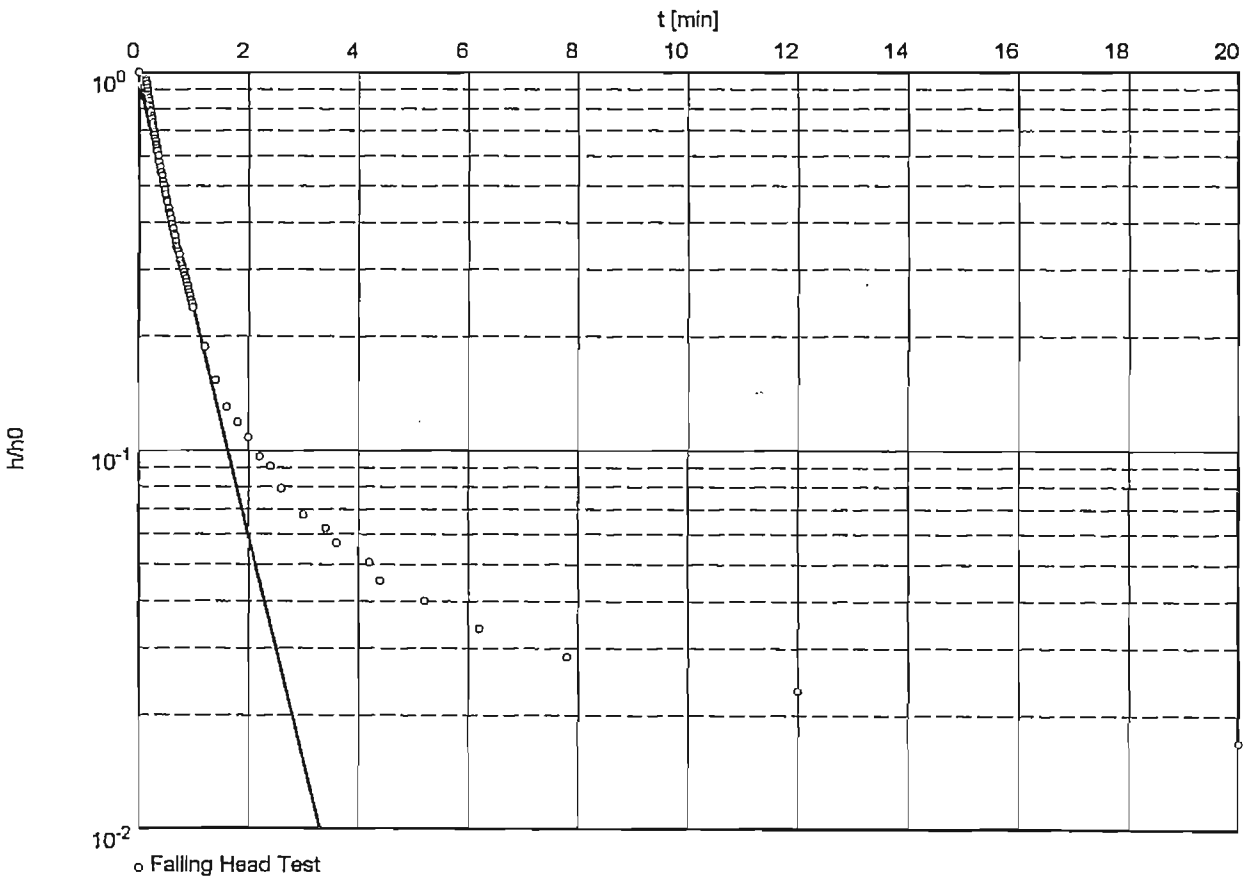
Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-09D	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
101	6.4000	0.3400	0.3400	
102	6.6000	0.3200	0.3200	
103	6.8000	0.3100	0.3100	
104	7.0000	0.3000	0.3000	
105	7.2000	0.2900	0.2900	
106	7.4000	0.2800	0.2800	
107	7.6000	0.2700	0.2700	
108	7.8000	0.2600	0.2600	
109	8.0000	0.2500	0.2500	
110	8.2000	0.2400	0.2400	
111	8.4000	0.2300	0.2300	
112	8.6000	0.2300	0.2300	
113	8.8000	0.2200	0.2200	
114	9.0000	0.2100	0.2100	
115	9.2000	0.2100	0.2100	
116	9.4000	0.2000	0.2000	
117	9.6000	0.1900	0.1900	
118	9.8000	0.1900	0.1900	
119	10.0000	0.1800	0.1800	
120	12.0000	0.1400	0.1400	
121	14.0000	0.1100	0.1100	
122	16.0000	0.0890	0.0890	
123	18.0000	0.0730	0.0730	
124	20.0000	0.0630	0.0630	
125	22.0000	0.0540	0.0540	
126	24.0000	0.0480	0.0480	
127	26.0000	0.0410	0.0410	
128	30.0000	0.0380	0.0380	
129	32.0000	0.0350	0.0350	
130	34.0000	0.0290	0.0290	
131	38.0000	0.0250	0.0250	
132	42.0000	0.0220	0.0220	
133	48.0000	0.0190	0.0190	
134	54.0000	0.0160	0.0160	
135	62.0000	0.0130	0.0130	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-10D	



Hydraulic conductivity [ft/min]: 3.01×10^{-3}

Hydraulic conductivity (ft/d) = 4.3

L = 3.2 ft
b = 3.2 ft
D = 3.2 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-10D	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.1240	1.1240	
2	0.1250	1.0790	1.0790	
3	0.1333	1.0600	1.0600	
4	0.1416	1.0410	1.0410	
5	0.1500	1.0160	1.0160	
6	0.1583	0.9970	0.9970	
7	0.1666	0.9780	0.9780	
8	0.1750	0.9590	0.9590	
9	0.1833	0.9400	0.9400	
10	0.1916	0.9200	0.9200	
11	0.2000	0.9080	0.9080	
12	0.2083	0.8890	0.8890	
13	0.2166	0.8760	0.8760	
14	0.2250	0.8570	0.8570	
15	0.2333	0.8440	0.8440	
16	0.2416	0.8250	0.8250	
17	0.2500	0.8130	0.8130	
18	0.2583	0.8000	0.8000	
19	0.2666	0.7870	0.7870	
20	0.2750	0.7740	0.7740	
21	0.2833	0.7620	0.7620	
22	0.2916	0.7490	0.7490	
23	0.3000	0.7360	0.7360	
24	0.3083	0.7240	0.7240	
25	0.3166	0.7170	0.7170	
26	0.3250	0.7050	0.7050	
27	0.3333	0.6920	0.6920	
28	0.3500	0.6730	0.6730	
29	0.3666	0.6480	0.6480	
30	0.3833	0.6280	0.6280	
31	0.4000	0.6090	0.6090	
32	0.4166	0.5970	0.5970	
33	0.4333	0.5780	0.5780	
34	0.4500	0.5650	0.5650	
35	0.4666	0.5460	0.5460	
36	0.4833	0.5330	0.5330	
37	0.5000	0.5140	0.5140	
38	0.5166	0.5080	0.5080	
39	0.5333	0.4890	0.4890	
40	0.5500	0.4760	0.4760	
41	0.5666	0.4700	0.4700	
42	0.5833	0.4570	0.4570	
43	0.6000	0.4440	0.4440	
44	0.6166	0.4320	0.4320	
45	0.6333	0.4190	0.4190	
46	0.6500	0.4130	0.4130	
47	0.6666	0.4000	0.4000	
48	0.6833	0.3870	0.3870	
49	0.7000	0.3810	0.3810	
50	0.7166	0.3750	0.3750	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

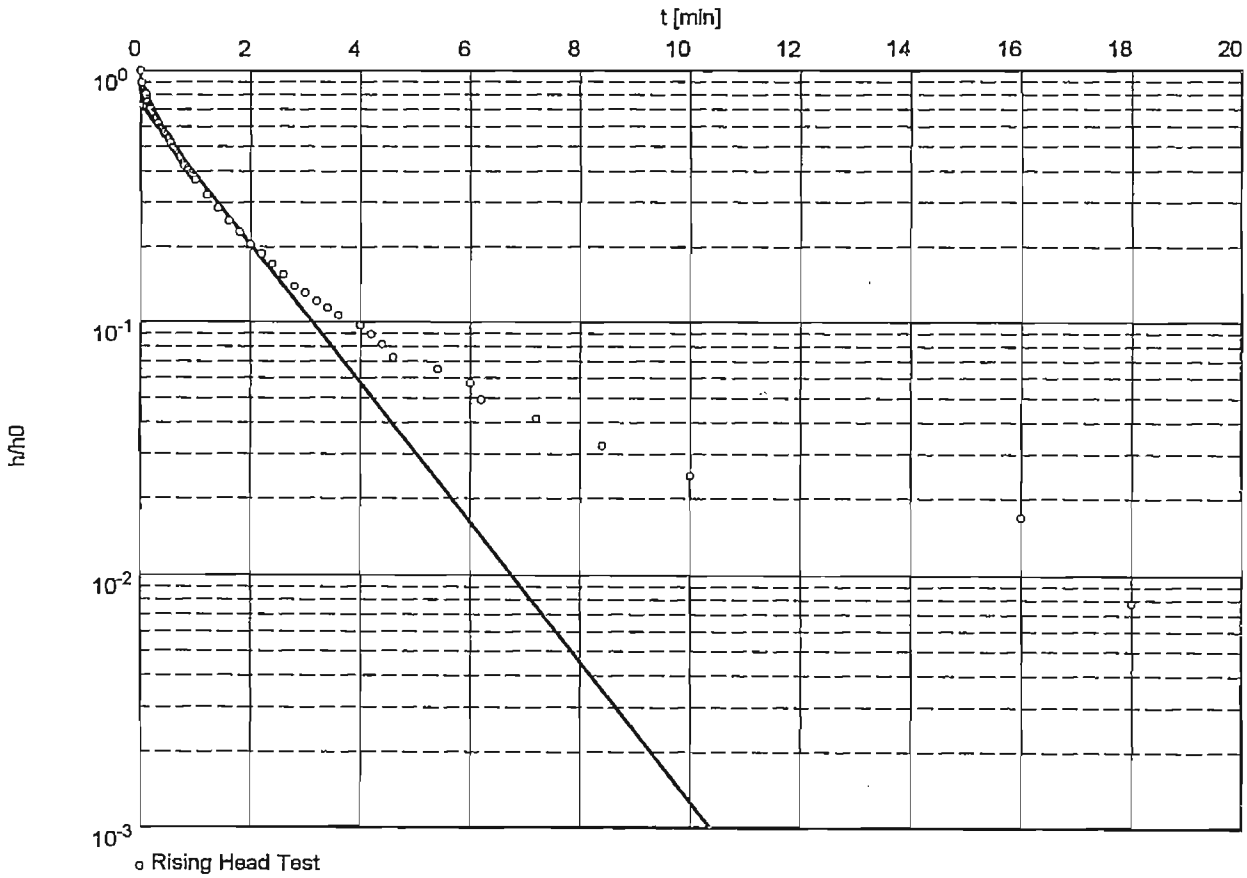
Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-10D	Falling Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.7333	0.3680	0.3680	
52	0.7500	0.3560	0.3560	
53	0.7666	0.3490	0.3490	
54	0.7833	0.3430	0.3430	
55	0.8000	0.3370	0.3370	
56	0.8166	0.3300	0.3300	
57	0.8333	0.3240	0.3240	
58	0.8500	0.3180	0.3180	
59	0.8666	0.3110	0.3110	
60	0.8833	0.3050	0.3050	
61	0.9000	0.2980	0.2980	
62	0.9166	0.2920	0.2920	
63	0.9333	0.2860	0.2860	
64	0.9500	0.2790	0.2790	
65	0.9666	0.2730	0.2730	
66	0.9833	0.2670	0.2670	
67	1.2000	0.2100	0.2100	
68	1.4000	0.1720	0.1720	
69	1.6000	0.1460	0.1460	
70	1.8000	0.1330	0.1330	
71	2.0000	0.1210	0.1210	
72	2.2000	0.1080	0.1080	
73	2.4000	0.1020	0.1020	
74	2.6000	0.0890	0.0890	
75	3.0000	0.0760	0.0760	
76	3.4000	0.0700	0.0700	
77	3.6000	0.0640	0.0640	
78	4.2000	0.0570	0.0570	
79	4.4000	0.0510	0.0510	
80	5.2000	0.0450	0.0450	
81	6.2000	0.0380	0.0380	
82	7.8000	0.0320	0.0320	
83	12.0000	0.0260	0.0260	
84	20.0000	0.0190	0.0190	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-10D	



Hydraulic conductivity [ft/min]: 1.39×10^{-3}

Hydraulic conductivity (ft/d) = 2.0

L = 3.2 ft
b = 3.2 ft
D = 3.2 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-10D	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.0000	0.7730	0.7730	
2	0.0166	0.6910	0.6910	
3	0.0250	0.6910	0.6910	
4	0.0333	0.6460	0.6460	
5	0.0416	0.6460	0.6460	
6	0.0500	0.6340	0.6340	
7	0.0583	0.6340	0.6340	
8	0.0666	0.6270	0.6270	
9	0.0750	0.6210	0.6210	
10	0.0833	0.6080	0.6080	
11	0.0916	0.6080	0.6080	
12	0.1000	0.5640	0.5640	
13	0.1083	0.6210	0.6210	
14	0.1166	0.5960	0.5960	
15	0.1250	0.5830	0.5830	
16	0.1333	0.5770	0.5770	
17	0.1500	0.5640	0.5640	
18	0.1666	0.5570	0.5570	
19	0.1750	0.5510	0.5510	
20	0.1833	0.5450	0.5450	
21	0.2000	0.5380	0.5380	
22	0.2250	0.5260	0.5260	
23	0.2333	0.5190	0.5190	
24	0.2500	0.5130	0.5130	
25	0.2666	0.5070	0.5070	
26	0.2833	0.5000	0.5000	
27	0.2916	0.4940	0.4940	
28	0.3083	0.4880	0.4880	
29	0.3166	0.4810	0.4810	
30	0.3333	0.4750	0.4750	
31	0.3666	0.4620	0.4620	
32	0.3833	0.4560	0.4560	
33	0.4000	0.4500	0.4500	
34	0.4166	0.4430	0.4430	
35	0.4333	0.4370	0.4370	
36	0.4500	0.4310	0.4310	
37	0.4833	0.4240	0.4240	
38	0.5000	0.4180	0.4180	
39	0.5166	0.4120	0.4120	
40	0.5333	0.4050	0.4050	
41	0.5500	0.3990	0.3990	
42	0.5833	0.3860	0.3860	
43	0.6000	0.3800	0.3800	
44	0.6333	0.3730	0.3730	
45	0.6500	0.3670	0.3670	
46	0.6833	0.3610	0.3610	
47	0.7000	0.3540	0.3540	
48	0.7166	0.3480	0.3480	
49	0.7333	0.3420	0.3420	
50	0.7666	0.3350	0.3350	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 31.07.1997

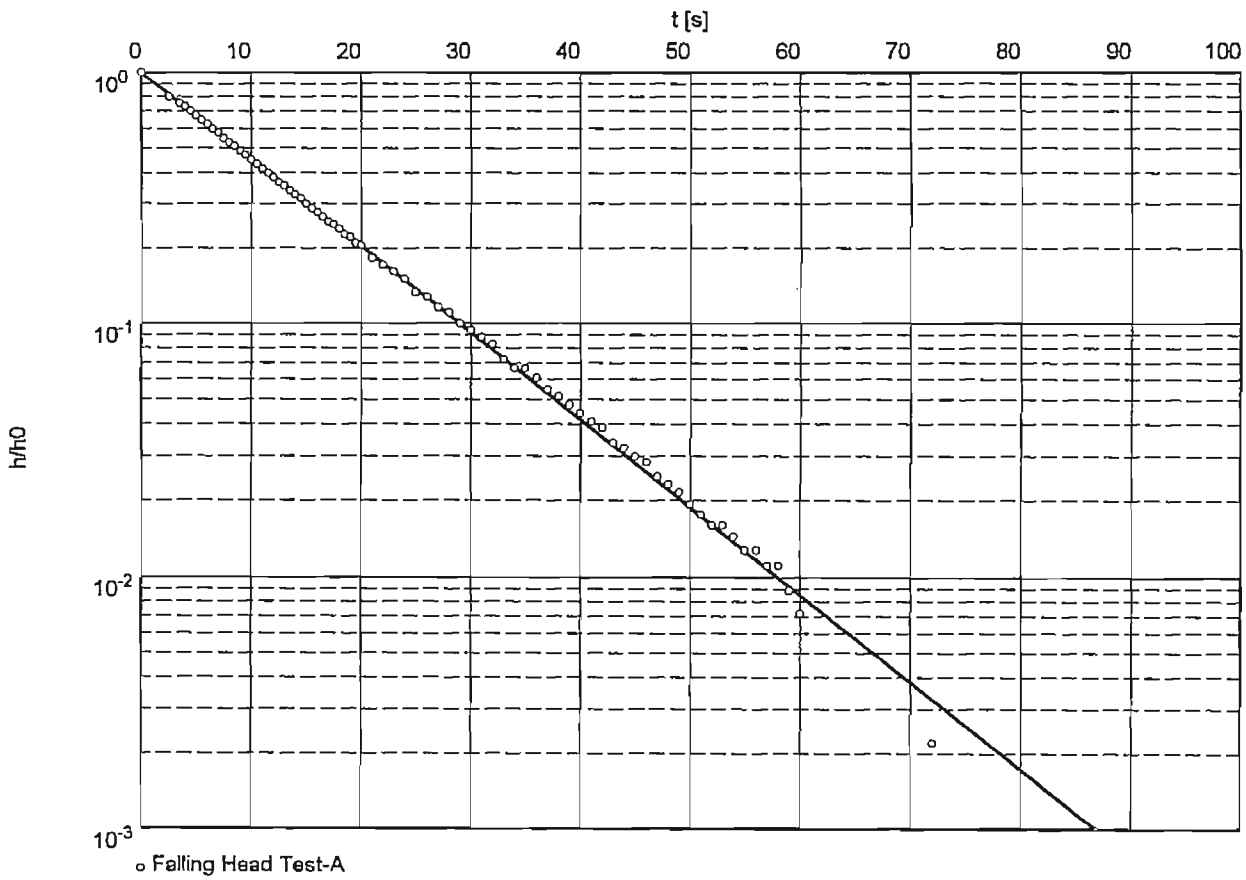
Slug Test No. 1	Test conducted on: 13.11.1996
NBCA-039-10D	Rising Head Test

Static water level: 0.0000 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	0.7833	0.3290	0.3290	
52	0.8000	0.3230	0.3230	
53	0.8500	0.3160	0.3160	
54	0.8666	0.3100	0.3100	
55	0.9000	0.3040	0.3040	
56	0.9166	0.3040	0.3040	
57	0.9333	0.2970	0.2970	
58	0.9666	0.2910	0.2910	
59	1.0000	0.2850	0.2850	
60	1.2000	0.2470	0.2470	
61	1.4000	0.2210	0.2210	
62	1.6000	0.1960	0.1960	
63	1.8000	0.1770	0.1770	
64	2.0000	0.1580	0.1580	
65	2.2000	0.1450	0.1450	
66	2.4000	0.1320	0.1320	
67	2.6000	0.1200	0.1200	
68	2.8000	0.1070	0.1070	
69	3.0000	0.1010	0.1010	
70	3.2000	0.0940	0.0940	
71	3.4000	0.0880	0.0880	
72	3.6000	0.0820	0.0820	
73	4.0000	0.0750	0.0750	
74	4.2000	0.0690	0.0690	
75	4.4000	0.0630	0.0630	
76	4.6000	0.0560	0.0560	
77	5.4000	0.0500	0.0500	
78	6.0000	0.0440	0.0440	
79	6.2000	0.0380	0.0380	
80	7.2000	0.0320	0.0320	
81	8.4000	0.0250	0.0250	
82	10.0000	0.0190	0.0190	
83	16.0000	0.0130	0.0130	
84	18.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12D	



Hydraulic conductivity [ft/s]: 8.65×10^{-5}

Hydraulic conductivity (ft/d) = 7.5

L = 9.4 ft
b = 9.4 ft
D = 9.4 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12D	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.8100	1.8100	
2	2.4960	1.4500	1.4500	
3	3.4980	1.3600	1.3600	
4	3.9960	1.3300	1.3300	
5	4.5000	1.2700	1.2700	
6	4.9980	1.2200	1.2200	
7	5.4960	1.1700	1.1700	
8	6.0000	1.1300	1.1300	
9	6.4980	1.0800	1.0800	
10	6.9960	1.0400	1.0400	
11	7.5000	0.9900	0.9900	
12	7.9980	0.9500	0.9500	
13	8.4960	0.9200	0.9200	
14	9.0000	0.8800	0.8800	
15	9.4980	0.8500	0.8500	
16	9.9960	0.8100	0.8100	
17	10.5000	0.7800	0.7800	
18	10.9980	0.7500	0.7500	
19	11.4960	0.7200	0.7200	
20	12.0000	0.6900	0.6900	
21	12.4980	0.6600	0.6600	
22	12.9960	0.6400	0.6400	
23	13.5000	0.6100	0.6100	
24	13.9980	0.5900	0.5900	
25	14.4960	0.5700	0.5700	
26	15.0000	0.5400	0.5400	
27	15.4980	0.5200	0.5200	
28	15.9960	0.5000	0.5000	
29	16.5000	0.4800	0.4800	
30	16.9980	0.4600	0.4600	
31	17.4960	0.4500	0.4500	
32	18.0000	0.4300	0.4300	
33	18.4980	0.4100	0.4100	
34	18.9960	0.4000	0.4000	
35	19.5000	0.3800	0.3800	
36	19.9980	0.3700	0.3700	
37	21.0000	0.3300	0.3300	
38	21.9960	0.3100	0.3100	
39	22.9980	0.2900	0.2900	
40	24.0000	0.2700	0.2700	
41	24.9960	0.2400	0.2400	
42	25.9980	0.2300	0.2300	
43	27.0000	0.2100	0.2100	
44	27.9960	0.2000	0.2000	
45	28.9980	0.1800	0.1800	
46	30.0000	0.1700	0.1700	
47	30.9960	0.1600	0.1600	
48	31.9980	0.1500	0.1500	
49	33.0000	0.1300	0.1300	
50	33.9960	0.1200	0.1200	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A–NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

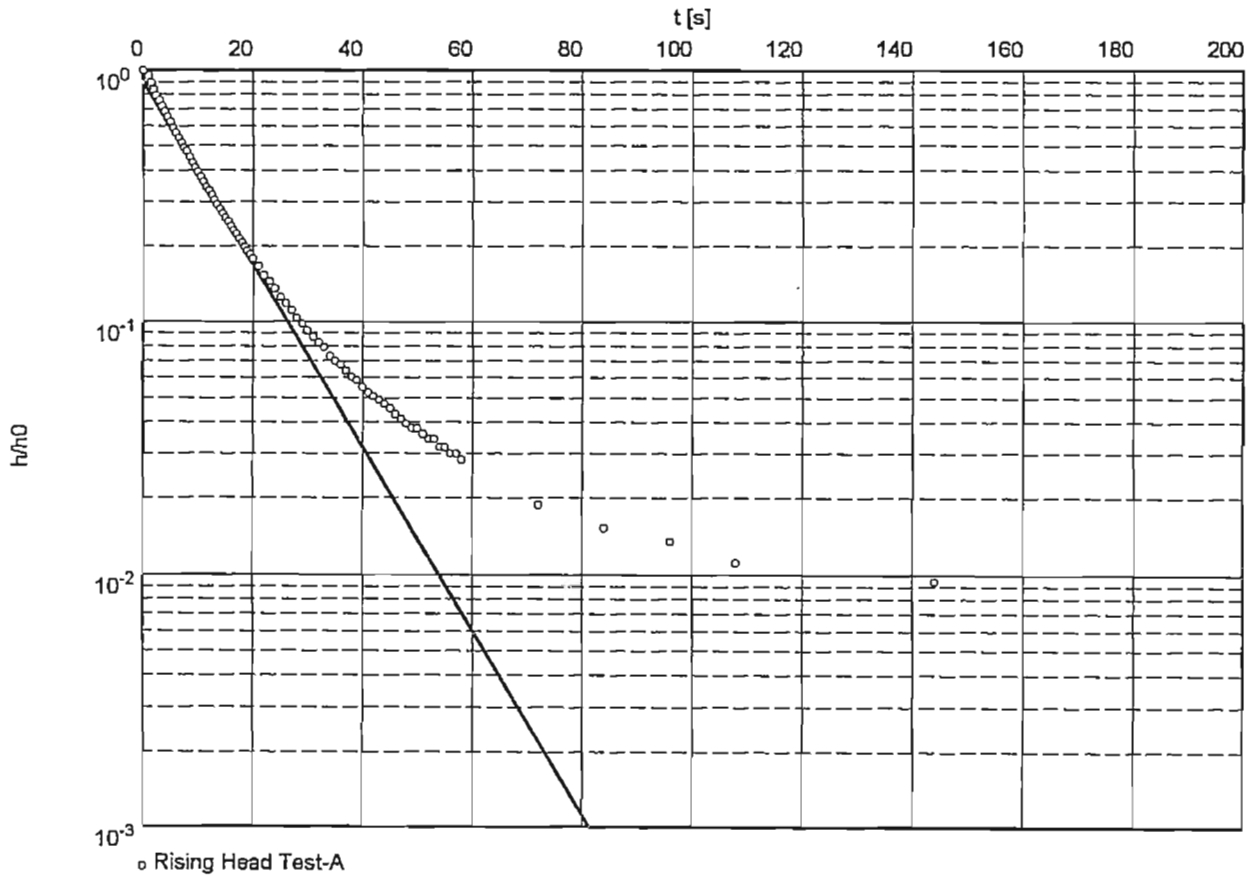
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12D	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	34.9980	0.1200	0.1200	
52	36.0000	0.1100	0.1100	
53	36.9960	0.0990	0.0990	
54	37.9980	0.0930	0.0930	
55	39.0000	0.0860	0.0860	
56	39.9960	0.0800	0.0800	
57	40.9980	0.0740	0.0740	
58	42.0000	0.0700	0.0700	
59	42.9960	0.0610	0.0610	
60	43.9980	0.0580	0.0580	
61	45.0000	0.0540	0.0540	
62	45.9960	0.0510	0.0510	
63	46.9980	0.0450	0.0450	
64	48.0000	0.0420	0.0420	
65	48.9960	0.0390	0.0390	
66	49.9980	0.0350	0.0350	
67	51.0000	0.0320	0.0320	
68	51.9960	0.0290	0.0290	
69	52.9980	0.0290	0.0290	
70	54.0000	0.0260	0.0260	
71	54.9960	0.0230	0.0230	
72	55.9980	0.0230	0.0230	
73	57.0000	0.0200	0.0200	
74	57.9960	0.0200	0.0200	
75	58.9980	0.0160	0.0160	
76	60.0000	0.0130	0.0130	
77	72.0000	0.0040	0.0040	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charlestno Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12D	



Hydraulic conductivity [ft/s]: 9.09×10^{-5}

Hydraulic conductivity (ft/d) = 7.9

L = 9.4 ft
b = 9.4 ft
D = 9.4 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charlestno Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12D	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7000	1.7000	
2	0.9960	1.6140	1.6140	
3	1.5000	1.5100	1.5100	
4	1.9980	1.4270	1.4270	
5	2.4960	1.3510	1.3510	
6	3.0000	1.2840	1.2840	
7	3.4980	1.2210	1.2210	
8	3.9960	1.1630	1.1630	
9	4.5000	1.1060	1.1060	
10	4.9980	1.0550	1.0550	
11	5.4960	1.0040	1.0040	
12	6.0000	0.9570	0.9570	
13	6.4980	0.9120	0.9120	
14	6.9960	0.8710	0.8710	
15	7.5000	0.8330	0.8330	
16	7.9980	0.8080	0.8080	
17	8.4960	0.7660	0.7660	
18	9.0000	0.7280	0.7280	
19	9.4980	0.6960	0.6960	
20	9.9960	0.6680	0.6680	
21	10.5000	0.6390	0.6390	
22	10.9980	0.6110	0.6110	
23	11.4960	0.5850	0.5850	
24	12.0000	0.5630	0.5630	
25	12.4980	0.5410	0.5410	
26	12.9960	0.5180	0.5180	
27	13.5000	0.4960	0.4960	
28	13.9980	0.4770	0.4770	
29	14.4960	0.4580	0.4580	
30	15.0000	0.4390	0.4390	
31	15.4980	0.4230	0.4230	
32	15.9960	0.4070	0.4070	
33	16.5000	0.3910	0.3910	
34	16.9980	0.3790	0.3790	
35	17.4960	0.3630	0.3630	
36	18.0000	0.3500	0.3500	
37	18.4980	0.3370	0.3370	
38	18.9960	0.3250	0.3250	
39	19.5000	0.3150	0.3150	
40	19.9980	0.3020	0.3020	
41	21.0000	0.2830	0.2830	
42	21.9960	0.2610	0.2610	
43	22.9980	0.2450	0.2450	
44	24.0000	0.2290	0.2290	
45	24.9960	0.2130	0.2130	
46	25.9980	0.2010	0.2010	
47	27.0000	0.1880	0.1880	
48	27.9960	0.1750	0.1750	
49	28.9980	0.1660	0.1660	
50	30.0000	0.1560	0.1560	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charlestno Evaluated by: TKK	Date: 01.08.1997

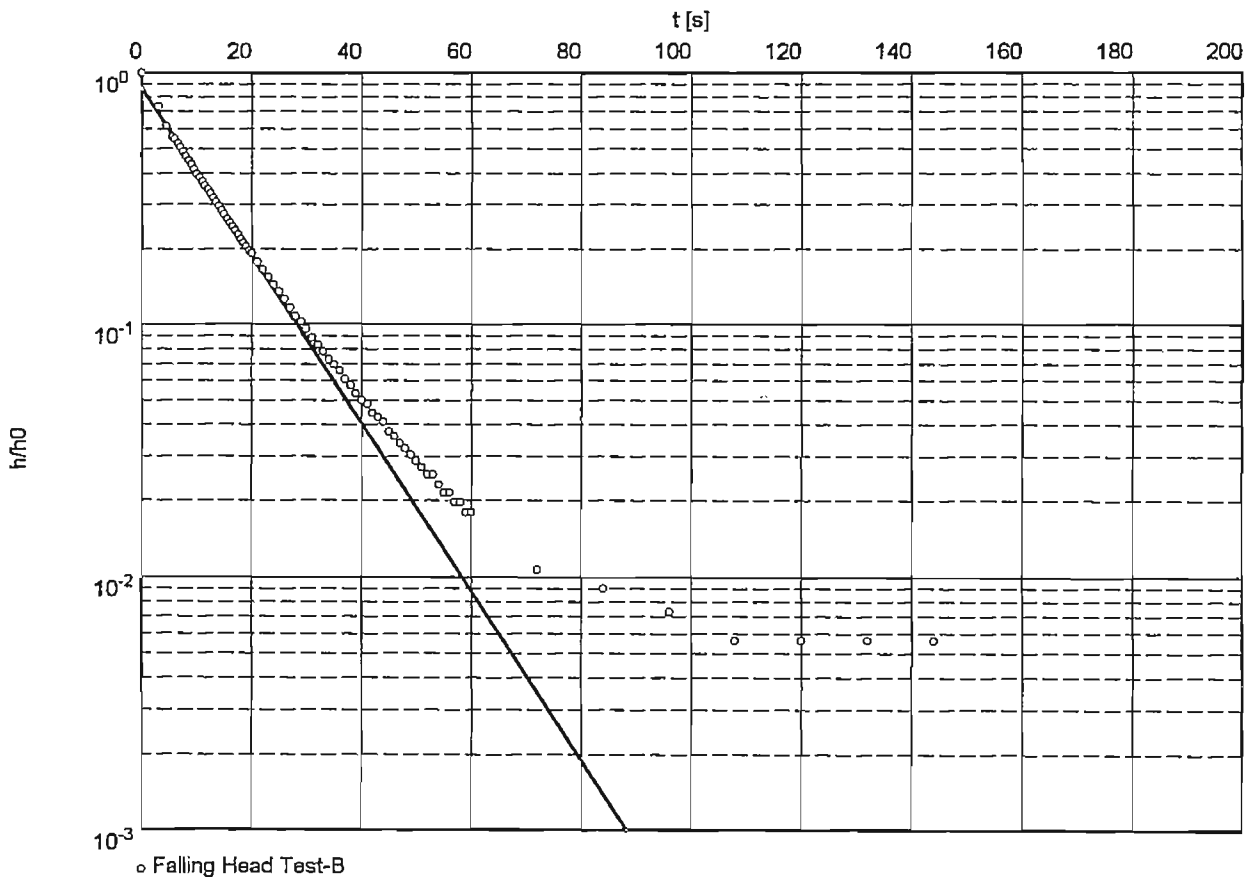
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-12D	Rising Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	30.9960	0.1470	0.1470	
52	31.9980	0.1400	0.1400	
53	33.0000	0.1340	0.1340	
54	33.9960	0.1240	0.1240	
55	34.9980	0.1180	0.1180	
56	36.0000	0.1150	0.1150	
57	36.9960	0.1080	0.1080	
58	37.9980	0.1020	0.1020	
59	39.0000	0.0990	0.0990	
60	39.9960	0.0930	0.0930	
61	40.9980	0.0890	0.0890	
62	42.0000	0.0860	0.0860	
63	42.9960	0.0830	0.0830	
64	43.9980	0.0800	0.0800	
65	45.0000	0.0770	0.0770	
66	45.9960	0.0730	0.0730	
67	46.9980	0.0700	0.0700	
68	48.0000	0.0670	0.0670	
69	48.9960	0.0640	0.0640	
70	49.9980	0.0640	0.0640	
71	51.0000	0.0610	0.0610	
72	51.9960	0.0580	0.0580	
73	52.9980	0.0580	0.0580	
74	54.0000	0.0540	0.0540	
75	54.9960	0.0540	0.0540	
76	55.9980	0.0510	0.0510	
77	57.0000	0.0510	0.0510	
78	57.9960	0.0480	0.0480	
79	72.0000	0.0320	0.0320	
80	84.0000	0.0260	0.0260	
81	96.0000	0.0230	0.0230	
82	108.0000	0.0190	0.0190	
83	144.0000	0.0160	0.0160	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12D	



Hydraulic conductivity [ft/s]: 8.15×10^{-5}

Hydraulic conductivity (ft/d) = 7.0

L = 9.4 ft
b = 9.4 ft
D = 9.4 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12D	Falling Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7810	1.7810	
2	3.0000	1.3120	1.3120	
3	4.5000	1.0960	1.0960	
4	5.4960	0.9920	0.9920	
5	6.0000	0.9730	0.9730	
6	6.4980	0.9340	0.9340	
7	6.9960	0.9000	0.9000	
8	7.5000	0.8650	0.8650	
9	7.9980	0.8300	0.8300	
10	8.4960	0.7980	0.7980	
11	9.0000	0.7700	0.7700	
12	9.4980	0.7380	0.7380	
13	9.9960	0.7090	0.7090	
14	10.5000	0.6840	0.6840	
15	10.9980	0.6590	0.6590	
16	11.4960	0.6330	0.6330	
17	12.0000	0.6110	0.6110	
18	12.4980	0.5890	0.5890	
19	12.9960	0.5670	0.5670	
20	13.5000	0.5480	0.5480	
21	13.9980	0.5250	0.5250	
22	14.4960	0.5060	0.5060	
23	15.0000	0.4870	0.4870	
24	15.4980	0.4680	0.4680	
25	15.9960	0.4530	0.4530	
26	16.5000	0.4370	0.4370	
27	16.9980	0.4210	0.4210	
28	17.4960	0.4050	0.4050	
29	18.0000	0.3890	0.3890	
30	18.4980	0.3760	0.3760	
31	18.9960	0.3640	0.3640	
32	19.5000	0.3510	0.3510	
33	19.9980	0.3420	0.3420	
34	21.0000	0.3160	0.3160	
35	21.9960	0.2940	0.2940	
36	22.9980	0.2750	0.2750	
37	24.0000	0.2560	0.2560	
38	24.9960	0.2400	0.2400	
39	25.9980	0.2240	0.2240	
40	27.0000	0.2080	0.2080	
41	27.9960	0.1930	0.1930	
42	28.9980	0.1830	0.1830	
43	30.0000	0.1700	0.1700	
44	30.9960	0.1580	0.1580	
45	31.9980	0.1480	0.1480	
46	33.0000	0.1390	0.1390	
47	33.9960	0.1300	0.1300	
48	34.9980	0.1240	0.1240	
49	36.0000	0.1170	0.1170	
50	36.9960	0.1080	0.1080	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

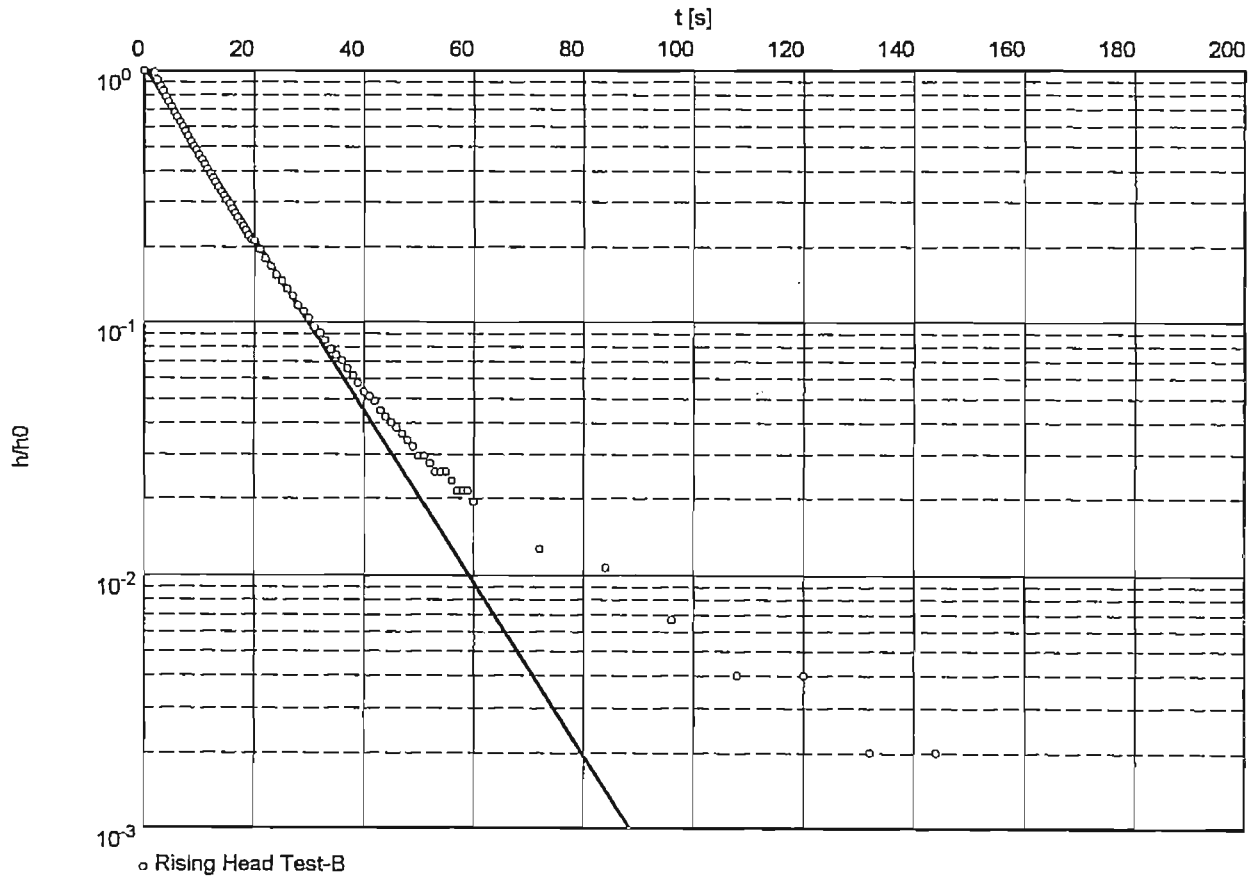
Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12D	Falling Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	37.9980	0.1020	0.1020	
52	39.0000	0.0950	0.0950	
53	39.9960	0.0890	0.0890	
54	40.9980	0.0860	0.0860	
55	42.0000	0.0790	0.0790	
56	42.9960	0.0760	0.0760	
57	43.9980	0.0730	0.0730	
58	45.0000	0.0670	0.0670	
59	45.9960	0.0640	0.0640	
60	46.9980	0.0600	0.0600	
61	48.0000	0.0570	0.0570	
62	48.9960	0.0540	0.0540	
63	49.9980	0.0510	0.0510	
64	51.0000	0.0480	0.0480	
65	51.9960	0.0450	0.0450	
66	52.9980	0.0450	0.0450	
67	54.0000	0.0410	0.0410	
68	54.9960	0.0380	0.0380	
69	55.9980	0.0380	0.0380	
70	57.0000	0.0350	0.0350	
71	57.9960	0.0350	0.0350	
72	58.9980	0.0320	0.0320	
73	60.0000	0.0320	0.0320	
74	72.0000	0.0190	0.0190	
75	84.0000	0.0160	0.0160	
76	96.0000	0.0130	0.0130	
77	108.0000	0.0100	0.0100	
78	120.0000	0.0100	0.0100	
79	132.0000	0.0100	0.0100	
80	144.0000	0.0100	0.0100	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12D	



Hydraulic conductivity [ft/s]: 8.35×10^{-5}

Hydraulic conductivity (ft/d) = 7.2

L = 9.4 ft
b = 9.4 ft
D = 9.4 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12D	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.4960	1.4960	
2	1.9980	1.4830	1.4830	
3	2.4960	1.3690	1.3690	
4	3.0000	1.2870	1.2870	
5	3.4980	1.2450	1.2450	
6	3.9960	1.1760	1.1760	
7	4.5000	1.1250	1.1250	
8	4.9980	1.0740	1.0740	
9	5.4960	1.0200	1.0200	
10	6.0000	0.9790	0.9790	
11	6.4980	0.9350	0.9350	
12	6.9960	0.8970	0.8970	
13	7.5000	0.8590	0.8590	
14	7.9980	0.8210	0.8210	
15	8.4960	0.7860	0.7860	
16	9.0000	0.7510	0.7510	
17	9.4980	0.7230	0.7230	
18	9.9960	0.6910	0.6910	
19	10.5000	0.6620	0.6620	
20	10.9980	0.6370	0.6370	
21	11.4960	0.6090	0.6090	
22	12.0000	0.5830	0.5830	
23	12.4980	0.5610	0.5610	
24	12.9960	0.5390	0.5390	
25	13.5000	0.5170	0.5170	
26	13.9980	0.4940	0.4940	
27	14.4960	0.4750	0.4750	
28	15.0000	0.4560	0.4560	
29	15.4980	0.4410	0.4410	
30	15.9960	0.4220	0.4220	
31	16.5000	0.4060	0.4060	
32	16.9980	0.3900	0.3900	
33	17.4960	0.3740	0.3740	
34	18.0000	0.3610	0.3610	
35	18.4980	0.3490	0.3490	
36	18.9960	0.3330	0.3330	
37	19.5000	0.3200	0.3200	
38	19.9980	0.3170	0.3170	
39	21.0000	0.2920	0.2920	
40	21.9960	0.2690	0.2690	
41	22.9980	0.2500	0.2500	
42	24.0000	0.2310	0.2310	
43	24.9960	0.2190	0.2190	
44	25.9980	0.2030	0.2030	
45	27.0000	0.1900	0.1900	
46	27.9960	0.1740	0.1740	
47	28.9980	0.1650	0.1650	
48	30.0000	0.1550	0.1550	
49	30.9960	0.1430	0.1430	
50	31.9980	0.1360	0.1360	

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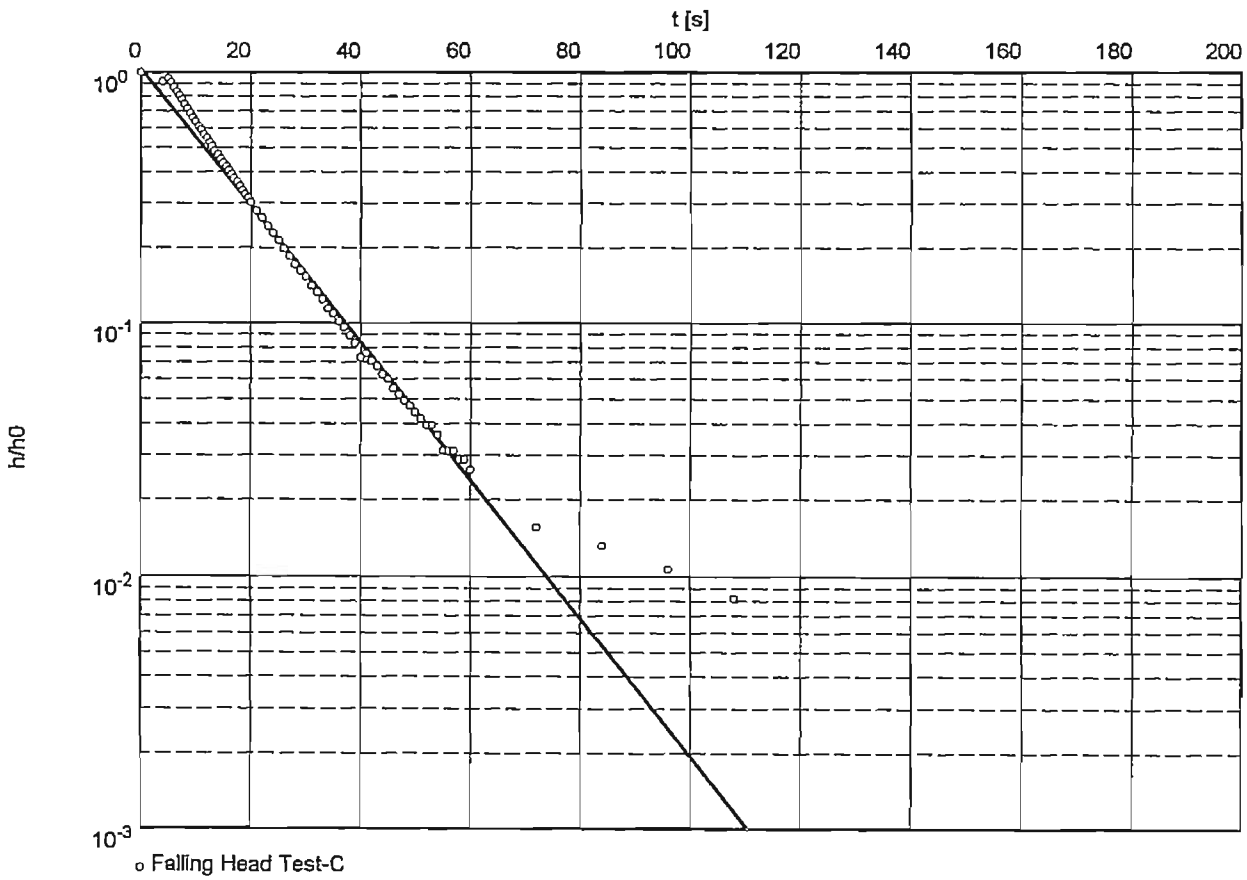
Slug Test No. 1B	Test conducted on: 14.11.1996
NBCA-039-12D	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	33.0000	0.1270	0.1270	
52	33.9960	0.1170	0.1170	
53	34.9980	0.1110	0.1110	
54	36.0000	0.1050	0.1050	
55	36.9960	0.0980	0.0980	
56	37.9980	0.0920	0.0920	
57	39.0000	0.0860	0.0860	
58	39.9960	0.0790	0.0790	
59	40.9980	0.0760	0.0760	
60	42.0000	0.0730	0.0730	
61	42.9960	0.0670	0.0670	
62	43.9980	0.0630	0.0630	
63	45.0000	0.0600	0.0600	
64	45.9960	0.0570	0.0570	
65	46.9980	0.0540	0.0540	
66	48.0000	0.0510	0.0510	
67	48.9960	0.0480	0.0480	
68	49.9980	0.0440	0.0440	
69	51.0000	0.0440	0.0440	
70	51.9960	0.0410	0.0410	
71	52.9980	0.0380	0.0380	
72	54.0000	0.0380	0.0380	
73	54.9960	0.0380	0.0380	
74	55.9980	0.0350	0.0350	
75	57.0000	0.0320	0.0320	
76	57.9960	0.0320	0.0320	
77	58.9980	0.0320	0.0320	
78	60.0000	0.0290	0.0290	
79	72.0000	0.0190	0.0190	
80	84.0000	0.0160	0.0160	
81	96.0000	0.0100	0.0100	
82	108.0000	0.0060	0.0060	
83	120.0000	0.0060	0.0060	
84	132.0000	0.0030	0.0030	
85	144.0000	0.0030	0.0030	
86	156.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12D	



Hydraulic conductivity [ft/s]: 6.68×10^{-5}

Hydraulic conductivity (ft/d) = 5.8

L = 9.4 ft
b = 9.4 ft
D = 9.4 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12D	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.2210	1.2210	
2	3.9960	1.1220	1.1220	
3	4.9980	1.1540	1.1540	
4	5.4960	1.1100	1.1100	
5	6.0000	1.0620	1.0620	
6	6.4980	1.0210	1.0210	
7	6.9960	0.9830	0.9830	
8	7.5000	0.9450	0.9450	
9	7.9980	0.9070	0.9070	
10	8.4960	0.8720	0.8720	
11	9.0000	0.8370	0.8370	
12	9.4980	0.8050	0.8050	
13	9.9960	0.7770	0.7770	
14	10.5000	0.7420	0.7420	
15	10.9980	0.7200	0.7200	
16	11.4960	0.6910	0.6910	
17	12.0000	0.6660	0.6660	
18	12.4980	0.6400	0.6400	
19	12.9960	0.6180	0.6180	
20	13.5000	0.5930	0.5930	
21	13.9980	0.5740	0.5740	
22	14.4960	0.5520	0.5520	
23	15.0000	0.5330	0.5330	
24	15.4980	0.5140	0.5140	
25	15.9960	0.4950	0.4950	
26	16.5000	0.4760	0.4760	
27	16.9980	0.4600	0.4600	
28	17.4960	0.4440	0.4440	
29	18.0000	0.4280	0.4280	
30	18.4980	0.4120	0.4120	
31	18.9960	0.3990	0.3990	
32	19.5000	0.3840	0.3840	
33	19.9980	0.3680	0.3680	
34	21.0000	0.3420	0.3420	
35	21.9960	0.3200	0.3200	
36	22.9980	0.2980	0.2980	
37	24.0000	0.2790	0.2790	
38	24.9960	0.2600	0.2600	
39	25.9980	0.2410	0.2410	
40	27.0000	0.2250	0.2250	
41	27.9960	0.2090	0.2090	
42	28.9980	0.1970	0.1970	
43	30.0000	0.1870	0.1870	
44	30.9960	0.1710	0.1710	
45	31.9980	0.1620	0.1620	
46	33.0000	0.1520	0.1520	
47	33.9960	0.1390	0.1390	
48	34.9980	0.1330	0.1330	
49	36.0000	0.1240	0.1240	
50	36.9960	0.1170	0.1170	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 14.11.1996
NBCA-039-12D	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	37.9980	0.1080	0.1080	
52	39.0000	0.1010	0.1010	
53	39.9960	0.0890	0.0890	
54	40.9980	0.0920	0.0920	
55	42.0000	0.0860	0.0860	
56	42.9960	0.0820	0.0820	
57	43.9980	0.0760	0.0760	
58	45.0000	0.0730	0.0730	
59	45.9960	0.0670	0.0670	
60	46.9980	0.0630	0.0630	
61	48.0000	0.0600	0.0600	
62	48.9960	0.0570	0.0570	
63	49.9980	0.0540	0.0540	
64	51.0000	0.0510	0.0510	
65	51.9960	0.0480	0.0480	
66	52.9980	0.0480	0.0480	
67	54.0000	0.0440	0.0440	
68	54.9960	0.0380	0.0380	
69	55.9980	0.0380	0.0380	
70	57.0000	0.0380	0.0380	
71	57.9960	0.0350	0.0350	
72	58.9980	0.0350	0.0350	
73	60.0000	0.0320	0.0320	
74	72.0000	0.0190	0.0190	
75	84.0000	0.0160	0.0160	
76	96.0000	0.0130	0.0130	
77	108.0000	0.0100	0.0100	

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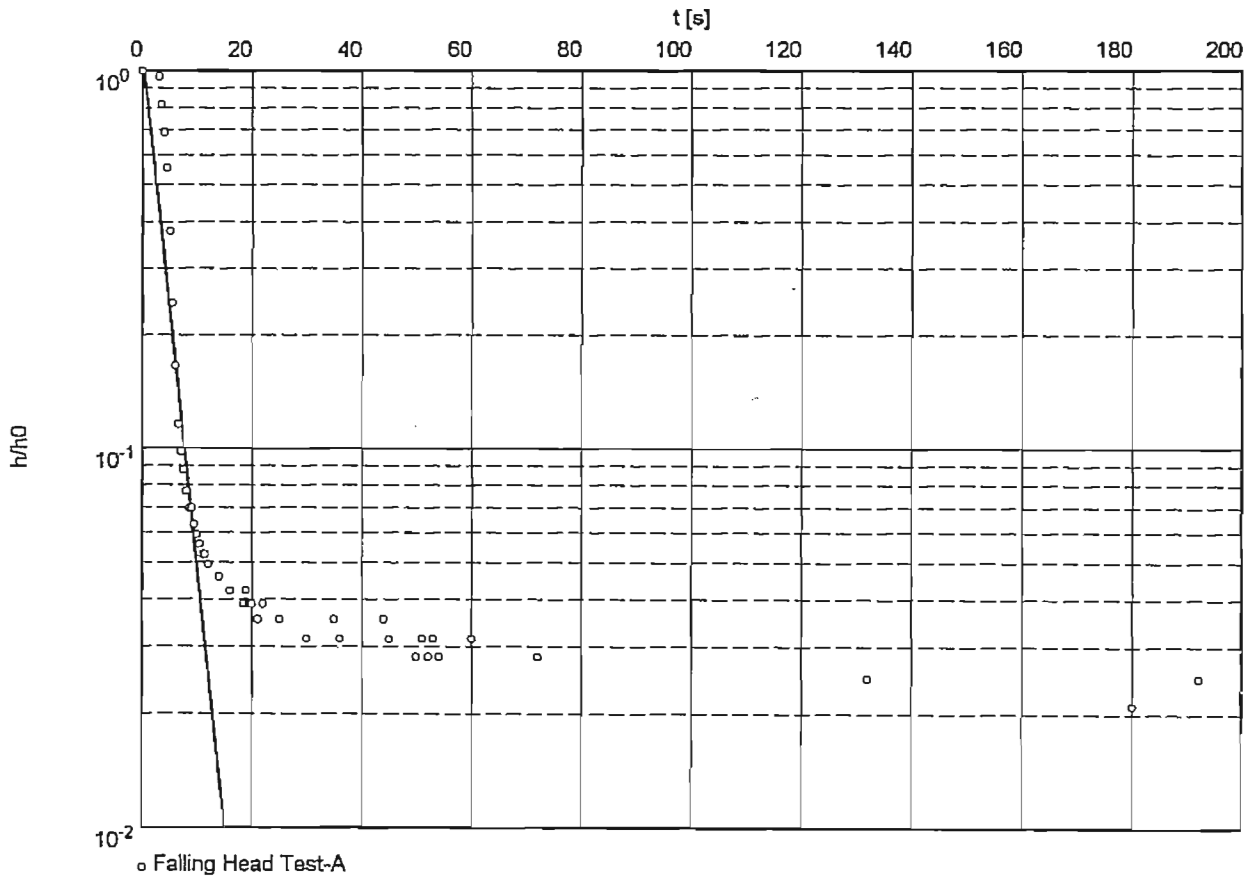
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13D	



Hydraulic conductivity [ft/s]: 2.96×10^{-4}

Hydraulic conductivity (ft/d) = 25.6

L = 11 ft
b = 11 ft
D = 11 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13D	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.8080	1.8080	
2	3.0000	1.7440	1.7440	
3	3.4980	1.4700	1.4700	
4	3.9960	1.2410	1.2410	
5	4.5000	0.9990	0.9990	
6	4.9980	0.6800	0.6800	
7	5.4960	0.4380	0.4380	
8	6.0000	0.2980	0.2980	
9	6.4980	0.2090	0.2090	
10	6.9960	0.1770	0.1770	
11	7.5000	0.1580	0.1580	
12	7.9980	0.1390	0.1390	
13	8.4960	0.1260	0.1260	
14	9.0000	0.1260	0.1260	
15	9.4980	0.1140	0.1140	
16	9.9960	0.1070	0.1070	
17	10.5000	0.1010	0.1010	
18	10.9980	0.0950	0.0950	
19	11.4960	0.0950	0.0950	
20	12.0000	0.0890	0.0890	
21	13.9980	0.0830	0.0830	
22	15.9960	0.0760	0.0760	
23	18.4980	0.0700	0.0700	
24	18.9960	0.0760	0.0760	
25	19.5000	0.0700	0.0700	
26	19.9980	0.0700	0.0700	
27	21.0000	0.0640	0.0640	
28	21.9960	0.0700	0.0700	
29	24.9960	0.0640	0.0640	
30	30.0000	0.0570	0.0570	
31	34.9980	0.0640	0.0640	
32	36.0000	0.0570	0.0570	
33	43.9980	0.0640	0.0640	
34	45.0000	0.0570	0.0570	
35	49.9980	0.0510	0.0510	
36	51.0000	0.0570	0.0570	
37	51.9960	0.0510	0.0510	
38	52.9980	0.0570	0.0570	
39	54.0000	0.0510	0.0510	
40	60.0000	0.0570	0.0570	
41	72.0000	0.0510	0.0510	
42	132.0000	0.0450	0.0450	
43	180.0000	0.0380	0.0380	
44	192.0000	0.0450	0.0450	
45	204.0000	0.0380	0.0380	
46	252.0000	0.0320	0.0320	
47	264.0000	0.0380	0.0380	
48	312.0000	0.0320	0.0320	
49	360.0000	0.0250	0.0250	
50	372.0000	0.0320	0.0320	

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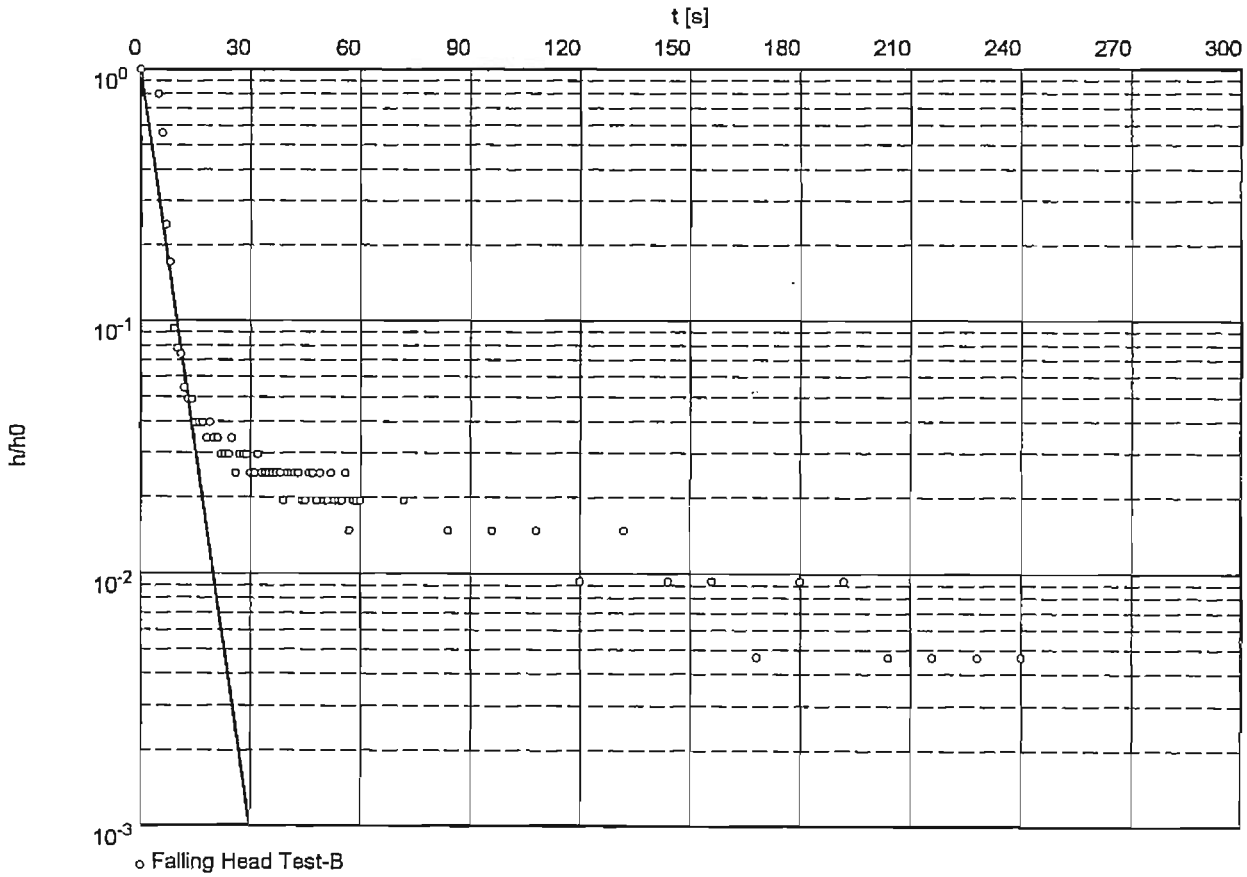
Slug Test No. 1A	Test conducted on: 13.11.1996
NBCA-039-13D	Falling Head Test-A

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	384.0000	0.0250	0.0250	
52	432.0000	0.0190	0.0190	
53	528.0000	0.0130	0.0130	
54	588.0000	0.0060	0.0060	
55	720.0000	0.0000	0.0000	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A–NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13D	



Hydraulic conductivity [ft/s]: 2.20×10^{-4}

Hydraulic conductivity (ft/d) = 19.0

L = 11 ft
b = 11 ft
D = 11 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13D	Falling Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.4200	1.4200	
2	4.9980	1.2860	1.2860	
3	5.4960	1.0310	1.0310	
4	6.0000	0.7190	0.7190	
5	6.4980	0.4840	0.4840	
6	6.9960	0.3120	0.3120	
7	7.5000	0.2160	0.2160	
8	7.9980	0.1650	0.1650	
9	8.4960	0.1330	0.1330	
10	9.0000	0.1210	0.1210	
11	9.4980	0.1080	0.1080	
12	9.9960	0.1020	0.1020	
13	10.5000	0.0950	0.0950	
14	10.9980	0.0820	0.0820	
15	11.4960	0.0760	0.0760	
16	12.0000	0.0700	0.0700	
17	12.4980	0.0700	0.0700	
18	12.9960	0.0630	0.0630	
19	13.5000	0.0630	0.0630	
20	13.9980	0.0570	0.0570	
21	14.4960	0.0570	0.0570	
22	15.0000	0.0510	0.0510	
23	15.4980	0.0510	0.0510	
24	15.9960	0.0510	0.0510	
25	16.5000	0.0510	0.0510	
26	16.9980	0.0440	0.0440	
27	17.4960	0.0440	0.0440	
28	18.0000	0.0440	0.0440	
29	18.4980	0.0440	0.0440	
30	18.9960	0.0510	0.0510	
31	19.5000	0.0440	0.0440	
32	19.9980	0.0440	0.0440	
33	21.0000	0.0440	0.0440	
34	21.9960	0.0380	0.0380	
35	22.9980	0.0380	0.0380	
36	24.0000	0.0380	0.0380	
37	24.9960	0.0440	0.0440	
38	25.9980	0.0320	0.0320	
39	27.0000	0.0380	0.0380	
40	27.9960	0.0380	0.0380	
41	28.9980	0.0380	0.0380	
42	30.0000	0.0320	0.0320	
43	30.9960	0.0320	0.0320	
44	31.9980	0.0380	0.0380	
45	33.0000	0.0320	0.0320	
46	33.9960	0.0320	0.0320	
47	34.9980	0.0320	0.0320	
48	36.0000	0.0320	0.0320	
49	36.9960	0.0320	0.0320	
50	37.9980	0.0320	0.0320	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 3 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

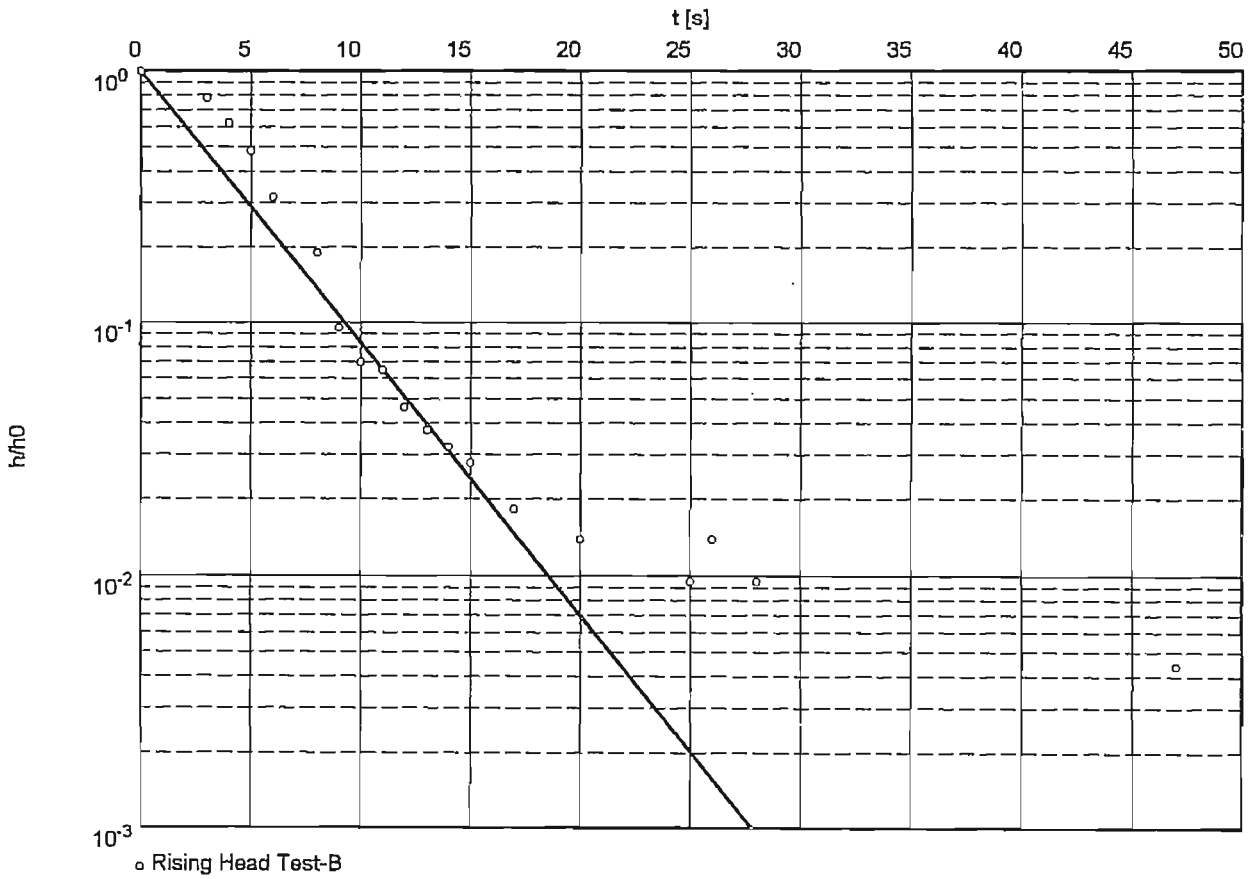
Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13D	Falling Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
51	39.0000	0.0250	0.0250	
52	39.9960	0.0320	0.0320	
53	40.9980	0.0320	0.0320	
54	42.0000	0.0320	0.0320	
55	42.9960	0.0320	0.0320	
56	43.9980	0.0250	0.0250	
57	45.0000	0.0250	0.0250	
58	45.9960	0.0320	0.0320	
59	46.9980	0.0320	0.0320	
60	48.0000	0.0250	0.0250	
61	48.9960	0.0320	0.0320	
62	49.9980	0.0250	0.0250	
63	51.0000	0.0250	0.0250	
64	51.9960	0.0320	0.0320	
65	52.9980	0.0250	0.0250	
66	54.0000	0.0250	0.0250	
67	54.9960	0.0250	0.0250	
68	55.9980	0.0320	0.0320	
69	57.0000	0.0190	0.0190	
70	57.9960	0.0250	0.0250	
71	58.9980	0.0250	0.0250	
72	60.0000	0.0250	0.0250	
73	72.0000	0.0250	0.0250	
74	84.0000	0.0190	0.0190	
75	96.0000	0.0190	0.0190	
76	108.0000	0.0190	0.0190	
77	120.0000	0.0120	0.0120	
78	132.0000	0.0190	0.0190	
79	144.0000	0.0120	0.0120	
80	156.0000	0.0120	0.0120	
81	168.0000	0.0060	0.0060	
82	180.0000	0.0120	0.0120	
83	192.0000	0.0120	0.0120	
84	204.0000	0.0060	0.0060	
85	216.0000	0.0060	0.0060	
86	228.0000	0.0060	0.0060	
87	240.0000	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13D	



Hydraulic conductivity [ft/s]: 2.35×10^{-4}

Hydraulic conductivity (ft/d) = 20.3

L = 11 ft
b = 11 ft
D = 11 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

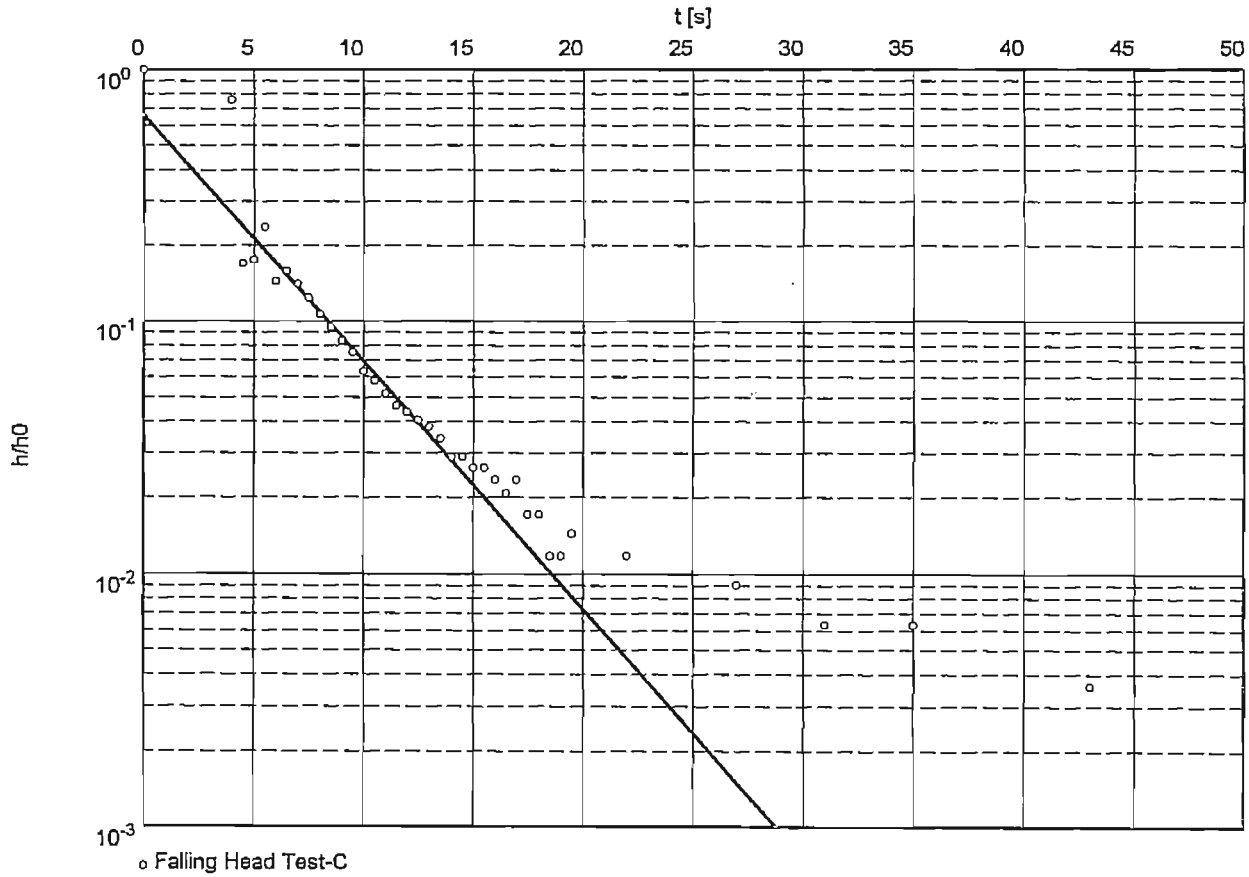
Slug Test No. 1B	Test conducted on: 13.11.1996
NBCA-039-13D	Rising Head Test-B

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.7380	1.7380	
2	3.0000	1.3690	1.3690	
3	3.4980	1.0690	1.0690	
4	3.9960	0.8530	0.8530	
5	4.5000	0.6560	0.6560	
6	4.9980	0.4960	0.4960	
7	5.4960	0.4010	0.4010	
8	6.0000	0.4260	0.4260	
9	6.4980	0.2670	0.2670	
10	7.5000	0.2610	0.2610	
11	7.9980	0.1720	0.1720	
12	8.4960	0.1530	0.1530	
13	9.0000	0.1340	0.1340	
14	9.4980	0.1080	0.1080	
15	9.9960	0.0950	0.0950	
16	10.5000	0.0890	0.0890	
17	10.9980	0.0760	0.0760	
18	11.4960	0.0630	0.0630	
19	12.0000	0.0630	0.0630	
20	12.4980	0.0510	0.0510	
21	12.9960	0.0510	0.0510	
22	13.5000	0.0440	0.0440	
23	13.9980	0.0440	0.0440	
24	14.4960	0.0380	0.0380	
25	15.0000	0.0380	0.0380	
26	15.4980	0.0320	0.0320	
27	17.4960	0.0250	0.0250	
28	19.9980	0.0190	0.0190	
29	24.9960	0.0130	0.0130	
30	25.9980	0.0190	0.0190	
31	27.9960	0.0130	0.0130	
32	46.9980	0.0060	0.0060	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13D	



Hydraulic conductivity [ft/s]: 2.14×10^{-4}

Hydraulic conductivity (ft/d) = 18.5

L = 11 ft
b = 11 ft
D = 11 ft (full penetration)
Reff = 0.08 ft

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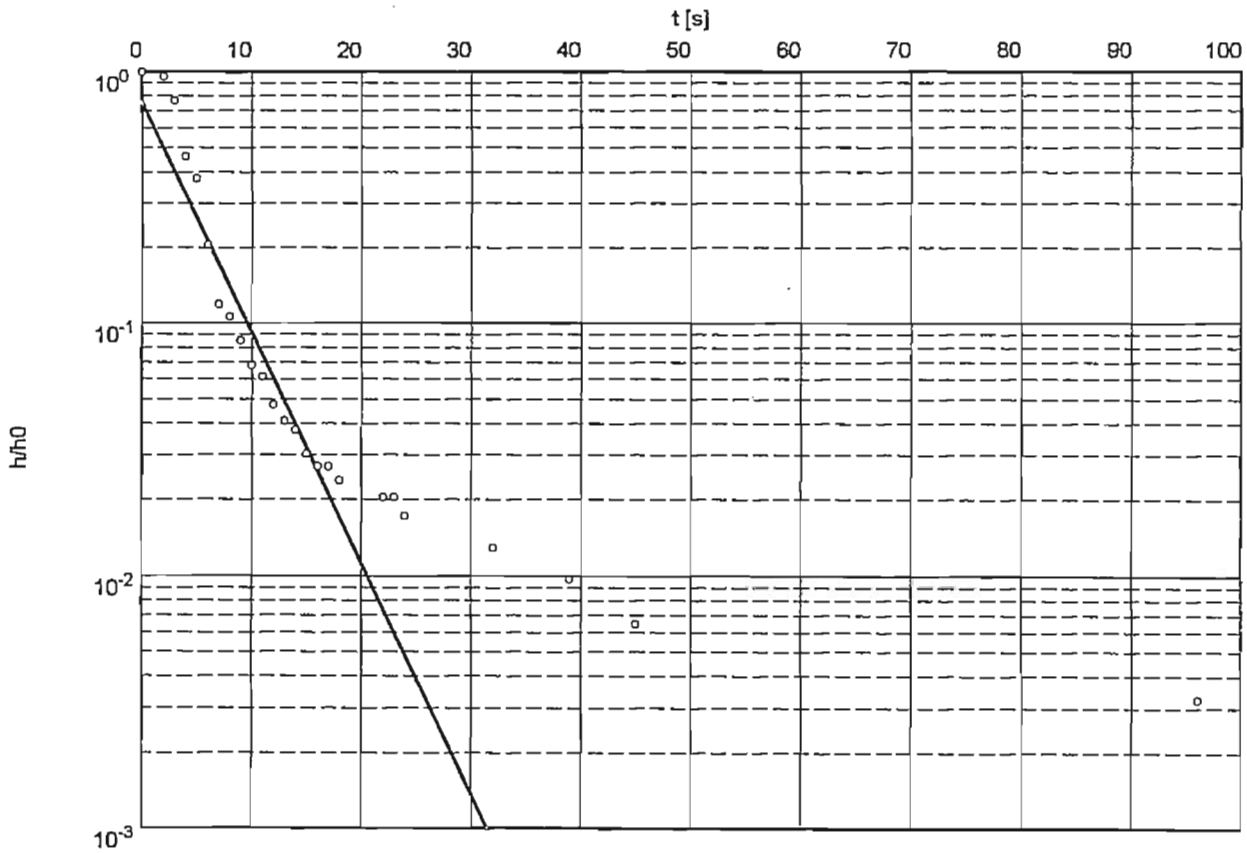
Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13D	Falling Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	1.1090	1.1090	
2	3.9960	0.8370	0.8370	
3	4.5000	0.1870	0.1870	
4	4.9980	0.1940	0.1940	
5	5.4960	0.2630	0.2630	
6	6.0000	0.1590	0.1590	
7	6.4980	0.1750	0.1750	
8	6.9960	0.1560	0.1560	
9	7.5000	0.1370	0.1370	
10	7.9980	0.1180	0.1180	
11	8.4960	0.1050	0.1050	
12	9.0000	0.0920	0.0920	
13	9.4980	0.0830	0.0830	
14	9.9960	0.0700	0.0700	
15	10.5000	0.0640	0.0640	
16	10.9980	0.0570	0.0570	
17	11.4960	0.0510	0.0510	
18	12.0000	0.0480	0.0480	
19	12.4980	0.0450	0.0450	
20	12.9960	0.0420	0.0420	
21	13.5000	0.0380	0.0380	
22	13.9980	0.0320	0.0320	
23	14.4960	0.0320	0.0320	
24	15.0000	0.0290	0.0290	
25	15.4980	0.0290	0.0290	
26	15.9960	0.0260	0.0260	
27	16.5000	0.0230	0.0230	
28	16.9980	0.0260	0.0260	
29	17.4960	0.0190	0.0190	
30	18.0000	0.0190	0.0190	
31	18.4980	0.0130	0.0130	
32	18.9960	0.0130	0.0130	
33	19.5000	0.0160	0.0160	
34	21.9960	0.0130	0.0130	
35	27.0000	0.0100	0.0100	
36	30.9960	0.0070	0.0070	
37	34.9980	0.0070	0.0070	
38	42.9960	0.0040	0.0040	

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/ball test analysis BOUWER-RICE's method	Page 1 Project: Zone A--NAVBASE Charleston Evaluated by: TKK — Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13D	



o Rising Head Test-C

Hydraulic conductivity [ft/s]: 2.00×10^{-4}

Hydraulic conductivity (ft/d) = 17.3

L = 11 ft
b = 11 ft
D = 11 ft (full penetration)
Reff = 0.08 ft

EnSafe/Allen & Hoshall 935 Houston Northcutt Blvd. Ste 113 Mt. Pleasant, SC 29464 (803) 884 0029	slug/bail test analysis BOUWER-RICE's method	Page 2 Project: Zone A--NAVBASE Charleston Evaluated by: TKK	Date: 01.08.1997

Slug Test No. 1C	Test conducted on: 15.11.1996
NBCA-039-13D	Rising Head Test-C

Static water level: 0.0000 ft below datum

	Pumping test duration [s]	Water level [ft]	Drawdown [ft]	
1	0.0000	0.9300	0.9300	
2	1.9980	1.0940	1.0940	
3	2.4960	0.8850	0.8850	
4	3.0000	0.7080	0.7080	
5	3.4980	0.5340	0.5340	
6	3.9960	0.4260	0.4260	
7	4.5000	0.3500	0.3500	
8	4.9980	0.2780	0.2780	
9	5.4960	0.2270	0.2270	
10	6.0000	0.1890	0.1890	
11	6.4980	0.1600	0.1600	
12	6.9960	0.1110	0.1110	
13	7.5000	0.0980	0.0980	
14	7.9980	0.1010	0.1010	
15	8.4960	0.0880	0.0880	
16	9.0000	0.0790	0.0790	
17	9.4980	0.0730	0.0730	
18	9.9960	0.0630	0.0630	
19	10.5000	0.0570	0.0570	
20	10.9980	0.0500	0.0500	
21	11.4960	0.0470	0.0470	
22	12.0000	0.0440	0.0440	
23	12.4980	0.0410	0.0410	
24	12.9960	0.0380	0.0380	
25	13.5000	0.0350	0.0350	
26	13.9980	0.0310	0.0310	
27	14.4960	0.0310	0.0310	
28	15.0000	0.0280	0.0280	
29	15.4980	0.0280	0.0280	
30	15.9960	0.0250	0.0250	
31	16.5000	0.0250	0.0250	
32	16.9980	0.0250	0.0250	
33	17.4960	0.0250	0.0250	
34	18.0000	0.0220	0.0220	
35	21.9960	0.0190	0.0190	
36	22.9980	0.0190	0.0190	
37	24.0000	0.0160	0.0160	
38	31.9980	0.0120	0.0120	
39	39.0000	0.0090	0.0090	
40	45.0000	0.0060	0.0060	
41	96.0000	0.0030	0.0030	