Shell

Recharge Test Data Record

Core Boring Number CB-RS-XX-1

Date Of Test 10-29-99

Test Performed by Nathan Bryan

Ground Water Level 1.33 ft. bgs

Casing Size 3.0 in

Casing Depth 97 ft. bgs

Hole Diameter at point of test 3.0 in

				A	B		C	D	E	F
From Depth Elevation	To Depth Elevation	Time Start	Time Stop	Total Time	Depth to Ground Water before test	Depth to Ground Water after test	Stickup above Ground	Total Head	Total Water Injected	Gallons Per Minute
Feet (bgs)	Feet (bgs)	Min	Min	Min	Feet (bgs)	Feet (bgs)	Feet	Feet G+C	Gal	GPM E/A
97	102	0	5:0	5.0	1'4"	11½"	5.0	6'4"	47	9.4

NOTES:
1. Record water lake with the water maintained at the top of casing.
2. Water depth must be measured immediately before the recharge test.
3. Water depth shall be recorded after test, and noted if changed.
4. Typical test time is 5 minutes.

* The recharge test was in accordance w/ CESF delivery order dated 29 october 1999. see note @ bottom of order.

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DRILLING LOG — Project: SAD — Hole No. CB-RS-XX-1

Project	CSF "XX"
Location	SR XX
Drilling Agency	Mid-Atlantic Drilling
Hole No.	CB-RS-XX-1
Driller	Jeff Stewart
Orientation	X Vertical ☐ Inclined ____ deg. from vert.
Thickness of Overburden Sediments	29 ft
Thickness Drilled into Rock	73 ft
Total Depth of Hole	102 bgs
Location	Jacksonville Airport
Sheet	1 of 1 sheets
Drilling Method	D-25 Track Rig
Total No. of Overburden Samples	2
Total No. Rock Cores	6
Elevation Ground Water	14'11" bgs
Date Hole Started	10/26/99
Date Hole Completed	10/29/99
Elevation Top of Hole	0
Total Core Recovery for Rock	44.5' = 72%
Logged By	Nate A Rogers

Elevation	Depth	Legend	Classification of Materials	Sample Type & No.	Rock Core Sample No.	Remarks	Blow Counts
	1.5		LIMESTONE, medium hard, some silty sand, white to tan, fine grass. water @ 1.0' bgs.	5" SS 1			4 4 13
	3.0		LIMESTONE, Weak, shelly, numerous sand filled solution holes, gray to tan. Rec. = 30"/50% RQD = 15%	6" SS 2		coring 3-4 - 0.35 min 4-5 - 3.00 " 5-6 - 1.45 " 6-7 - 2.35 " 7-8 - 1.50 "	15
	4.5						
	6.0						
	7.5					8-9 - 0.10 min	
	9.0		Rec. = 42"/70% RQD = 24%			9-10 - 0.40 " 10-11 - 2.0 " 11-12 - 4.0 "	
	10.5					12-13 - 2.0 " the bottom three inches of core sample is too porous. lost circulation @ 11' bgs	
	12.0		LIMESTONE, Medium hard, little shells + shell frags, some solution holes while			13-14 - 2.0 min 14-15 - 1.0 min 15-16 - 1.10 " 16-17 - 2.50 " 17-18 - 0.13 " still losing circulation.	
	13.5		Rec. = 27"/45% RQD = 25%				
	15.0						
	16.5						
	18.0		LIMESTONE				
	19.5		Rec. = 48"/80% RQD = 41%			18-19 - 2.0 min 19-20 - 2.30 " 20-21 - 5.0 "	
	21.0						

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DRILLING LOG (Cont Sheet) | Hole No. CB-XX-1

Project: CSF "X" | Location: Jacksonville Dredgeport | Sheet 2 of 4 Sheets

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)	Blow Counts
	21.0		Limestone			21-22 - 2.0 min 22-23 - 5.0 min Still loosing circulation	21.0
	22.5		Limestone, med. hard, ~~shelly~~ some shells + shell frags. Brownish zone @ 27 top. white			23-24 - 1.40 min 24-25 - 3.20 " 25-26 - 4.0 " 26-27 - 4.0 " 27-28 - 1.0 " Lost circulation @ 27' bgs 29' of 4"Ø steel casing.	22.5
	24.0						24.0
	25.5		Rec. = 53"/88% RQD = 70%				25.5
	27.0						27.0
	28.5		Rec. = 54"/90% RQD = 67%			28-29 - 3.40 min 29-30 - 1.30 min 30-31 - 1.20 " 31-32 - 2.20 " 32-33 - 5.0 "	28.5
	30.0						30.0
	31.5						31.5
	33.0		Rec. = 52"/87% RQD = 23%			33-34 - 4.40 min 34-35 - 3.20 " 35-36 - 2.25 " 36-37 - 4.35 " 37-38 - 7.0 "	33.0
	34.5						34.5
	36.0						36.0
	37.5						37.5 NHB START
	38.0		REC = 34"/57 RQD = 175"/29			38-39 - 0.55 39-40 - 3.0 40-41 - 1.50 41-42 - 1.10 42-43 - 4.0 36' of 4"Ø steel casing.	39.0
	40.5						40.5
	42.0						42.0
	43.5		NHB REC = 47"/78 RQD = 36"/60			~~Circulation return @ 43'~~ NHB 43-44 - 1.10 44-45 - 2.22 45-46 - 2.50 46-47 - 5.05 47-48 - 2.00	43.5
	45.0						45.0
	46.5						46.5
	48.0					48-49 - 1.30 49-50 - 1.35 50-51 - 2.00	48.0
	49.5						49.5
							51.0

No water return 39'
Total circulation @ 41' lost
Noticeable cavities in 13.5' core @ bottom of run - caved in at 2' from bottom of casing.

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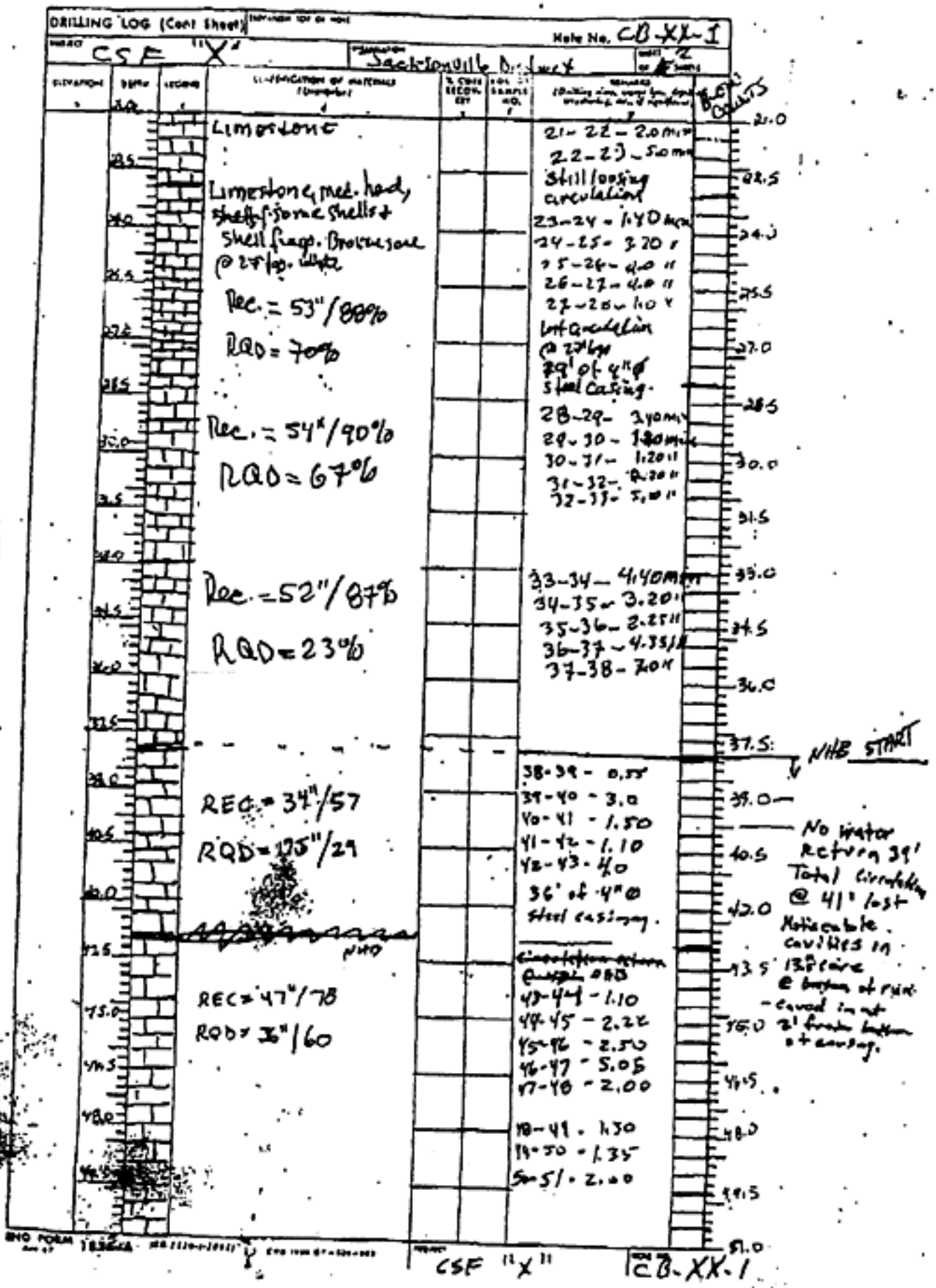
Project: CSF "X" | Hole No. CB-XX-1



DRILLING LOG (Cont Sheet)

CSF "X" | Jacksonville District | Hole No. CB-RS-XX-1

ELEVATION	DEPTH	LEGEND	Classification of materials (Description)	% CORE RECOVERY	LOG OF SAMPLE NO.	Remarks (Drilling time, water loss, depth of weathering, etc. if significant)	Blows per 6 in
79.5							
	51.0		- see previous page				
			51-52 - 1.30			still loosing circulation	
	52.5		52-53 - 2.00				
			REC = 57"/95				
			RQD = 45"/75				
	54.0		53-54 - 1.30				
			54-55 - 1.50				
	55.5		55-56 - 1.45				
			56-57 - 0.45				
			57-58 - 5.20				
	57.0		REC = 38"/63				
			RQD = 22"/37				
	58.5		58-59 - 3.00				
			59-60 - 2.00				
	60.0		60-61 - 2.05				
			61-62 - 2.30				
	61.5		62-63 - 0.25				
			REC = 52"/87			Last 8" of run was weathered	
	63.0		RQD = 40"/67				
		NO RECOVERY	63-64 - 2.30				
	64.5		64-65 - 1.45				
			65-66 - 0.35			SEE Remark Above	
	66.0		66-67 - 3.10				
			67-68 - 3.30				
	67.5		REC = 0%				
			RQD = 0%				
	69.0		68-69 - 0.15				
			69-70 - 0.25				
	70.5		70-71 - 0.18				
			71-72 - 0.10				
	72.0		72-73 - 0.15				
			REC = 0%				
			RQD = 0%				
	73.5		SAND, white-grey, medium to coarse shell fragments, trace silt.	9.5" / 42	3		4 8 11
	75.0		SAND, silty, trace fine shell fragments	8" / 44	4		11 16 12
	76.5		SAND, white grey, medium to coarse shell fragments, trace silt	10" / 56	5		7 11 13
	78.0			15" / 83	6		7 7 11
	79.5					see following pg	6

ENG FORM 1836-A (FR 11-84-1) and obsolete editions

CSF "X"

CB-RS-XX-1

** TOTAL DEPTH OF **

DRILLING LOG (Cont Sheet) Hole No. CB-RS-XX-1

Project: CSF "X" Location: Jacksonville District Sheet 4 of 4

Elevation	Depth	Classification of Materials	% Core Recov.	Box of Sample No.	Remarks	Blow Counts
	79.5	SAND, white-grey, med to coarse shell fragments, trace silt	17"/44	7		8, 16
	81.0	SAND, white, silty ~~fine to~~ NRG gravel size limestone fragments, trace shell & shell fragments	16"/100	8		20, 18, 15
	82.5		18"/100	9		13, 15, 17
	84.0		12"/100	10		16, 17, 11
	85.5		18"/100	11		13, 14, 13
	87.0		18"/100	12		11, 12, 14
	88.5		18"/100	13		11, 11, 13
	90.0		18"/100	14		8, 9, 11
	91.5	dark grey, some silt to silty	18"/100	15	transition zone	8, 9, 9
	93.0		18"/100	16		8, 9, 10
	94.5	SILT, grey, clayey trace ~~shell~~ & shell fragments	18"/100	17		5, 6, 9
	96.0		18"/100	18		6, 8, 10
	97.5		18"/100	19	Recharge Test From 97'-102' bgs.	8, 10, 17
	99.0		18"/100	20		13, 8, 9
	100.5		24"/100	21	2 ft spoon used from 100' - 102' bgs	11, 7, 8, 10
	102.0	Boring Terminated @ 102' bgs.				

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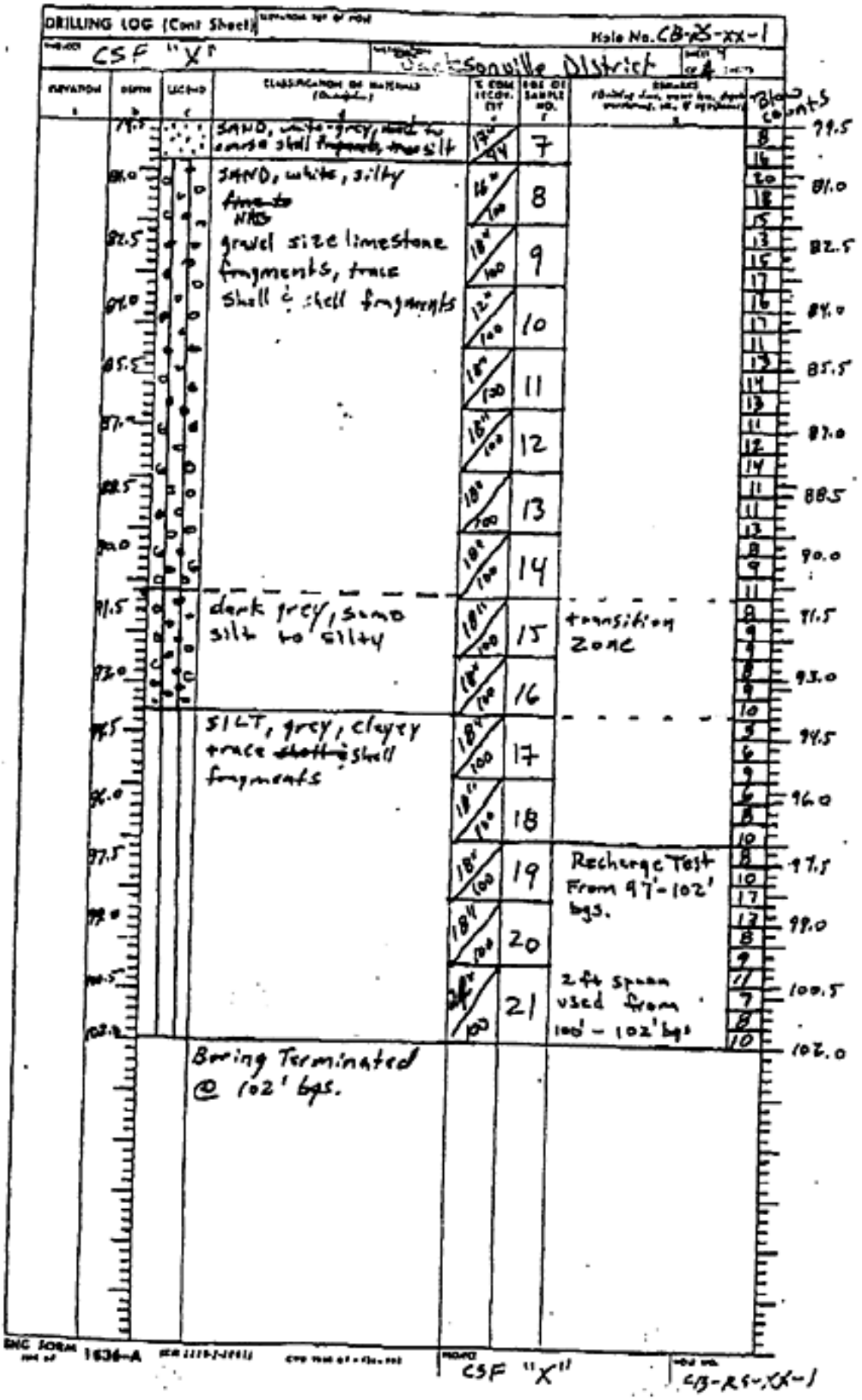
Project: CSF "X" Hole No. CB-RS-XX-1