



GEOPHYSICAL WELL LOG: GAMMA RAY RESISTANCE S.P.	PERM. DATUM: GROUND LEVEL LOG MEASURED FROM: G. L. ELEVATION:	OTHER SERVICES: DRIFT 3ARM CALIPER
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COMPANY: UNITED NUCLEAR CORPORATION
 PROJECT/FIELD: CHURCHROCK PROJECT
 WELL: 719
 LOCATION SEC.36 T 17 N R 16 W
 COUNTY: MCKINLEY STATE: NEW MEXICO

ELEVATION KB:
 DF:
 GL:

COMPANY: UNITED NUCLEAR CORPORATION
 WELL: UNC-719

	RUN NO. 1		RUN NO. 1
DATE	06-03-91	FLUID LEVEL	
DEPTH DRILLER	178' FT.	FLUID NATURE	WATER-GEL
DEPTH LOGGER	178.1' FT.	FLUID VISCOSITY	
BOTTOM LOGGED	178.6' FT.	FL. RESISTIVITY	
TOP LOGGED INT.	SURFACE	FL. RES. @ B.H.T.	
CASING LEVEL	N/A FT.	CIRCULATION TEMP	
CASING SIZE		BOT HOLE TEMP	
CASING SIZE			
BIT SIZE	5 5/8"		
BIT SIZE			

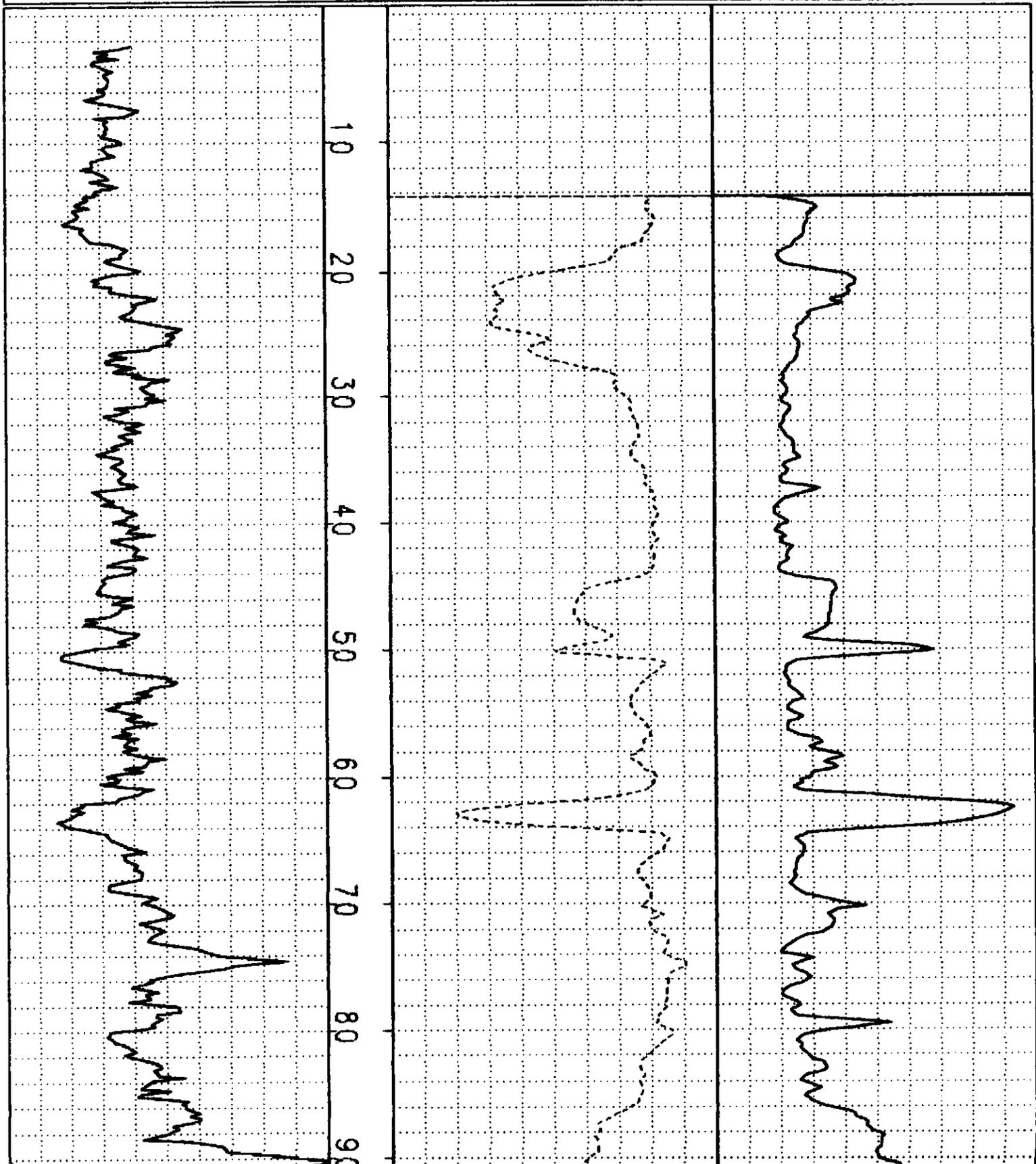
REMARKS: 1ST LOG RUN.
 3-ARM CALIPER TO BE RUN
 AFTER REAMING HOLE TO 11".

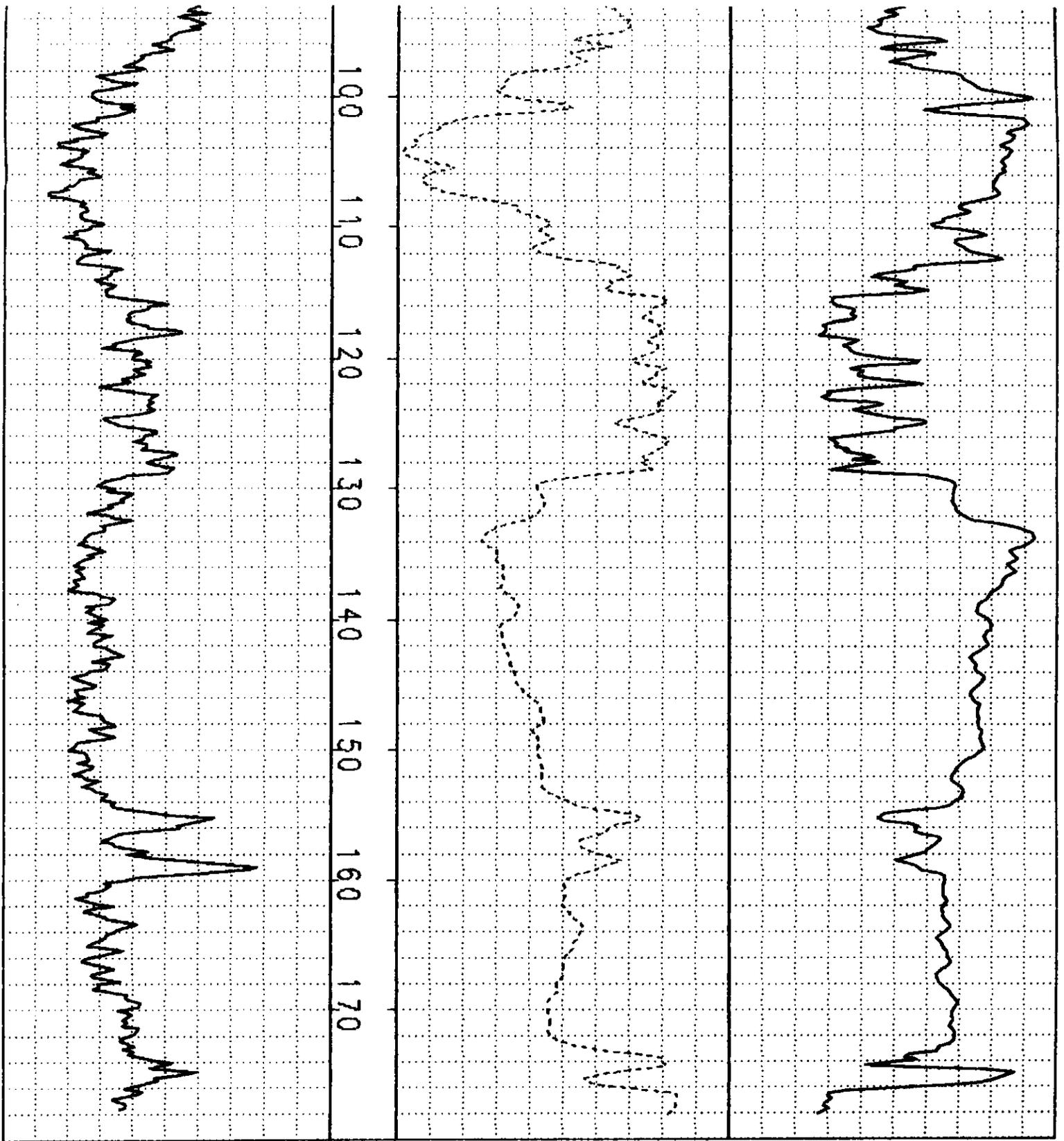
THANK YOU FOR USING
 SOUTHWEST SURVEYS

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UNITED NUCLEAR CORPORATION

GAMMA RAY MV RESISTANCE
CPS S.P. OHMS





← 0 GAMMA RAY 75 →
 CPS
 ← 0 MV 20 →
 S.P.
 ← 0 RESISTANCE 100 →
 OHMS

UNITED NUCLEAR CORPORATION

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Southwest Surveys

GEOPHYSICAL WELL LOG:
CALIPER
CALIPER

PERM. DATUM: GROUND LEVEL
LOG MEASURED FROM: G. L.
ELEVATION:

OTHER SERVICES:
DRIFT
GAMMA/S.P./RES.

COMPANY: UNITED NUCLEAR CORPORATION
PROJECT/FIELD: CHURCHROCK PROJECT
WELL: 719

LOCATION SEC. 36 T 17 N R 16 W
COUNTY: MCKINLEY STATE: NEW MEXICO

ELEVATION KB:
DF:
GL:

COMPANY UNITED NUCLEAR CORPORATION
 WELL: UNC-719

	RUN NO. 2		RUN NO. 2
DATE	06-06-91	FLUID LEVEL	
DEPTH DRILLER	178' FT.	FLUID NATURE	WATER
DEPTH LOGGER	176.1' FT.	FLUID VISCOSITY	
BOTTOM LOGGED	177.6' FT.	FL. RESISTIVITY	
TOP LOGGED INT.	SURFACE	FL. RES. ● B.H.T.	
CASING LEVEL	N/A FT.	CIRCULATION TEMP	
CASING SIZE		BOT HOLE TEMP	
CASING SIZE			
BIT SIZE	11'	3-ARM CALIPER	CALIPER
BIT SIZE		LOGGED BY:	JIM GENTRY
		WITNESSED BY:	LARRY BUSH

REMARKS: 2ND LOG RUN.
3-ARM CALIPER
HOLE REAMED TO 11"

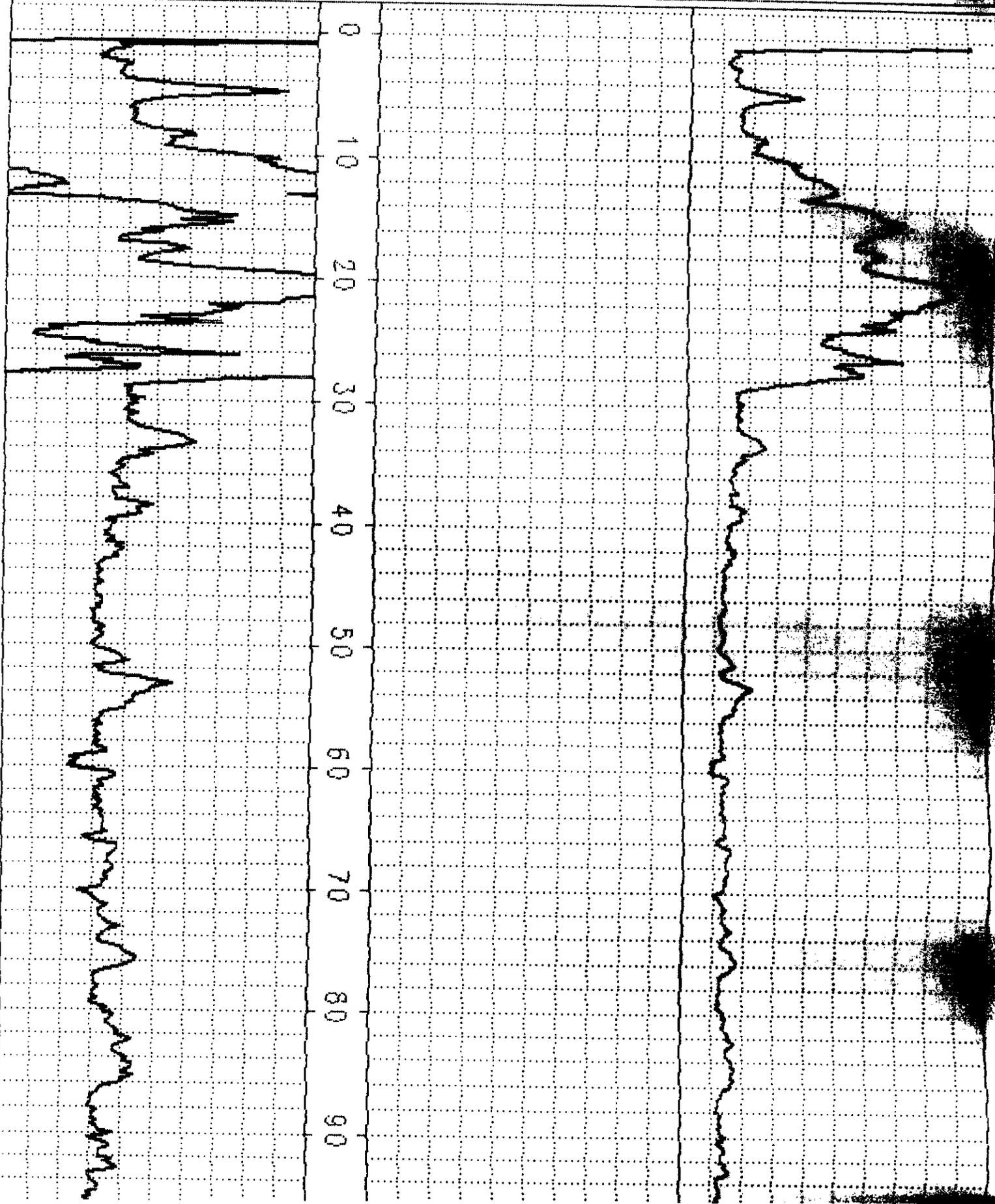
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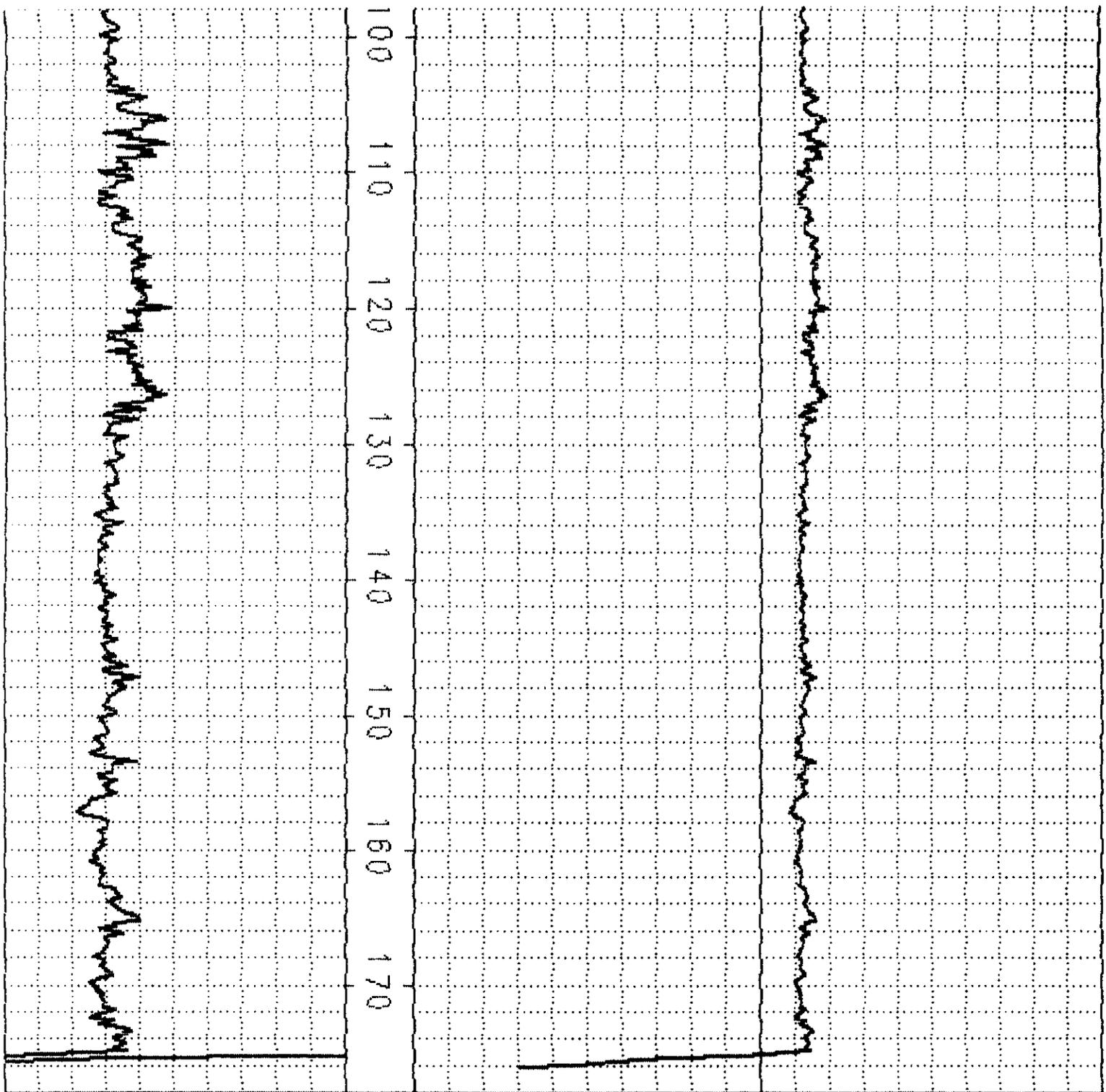
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UNITED STATES

3 ARM CALIPER
10 INCHES 14

3 ARM CALIPER
0 INCHES





3 ARM CALIPER
 10 INCHES 14
 (\ACQ4\UNC719.CLD)

3 ARM CALIPER
 0 INCHES 20
 UNITED NUCLEAR CORPORATION

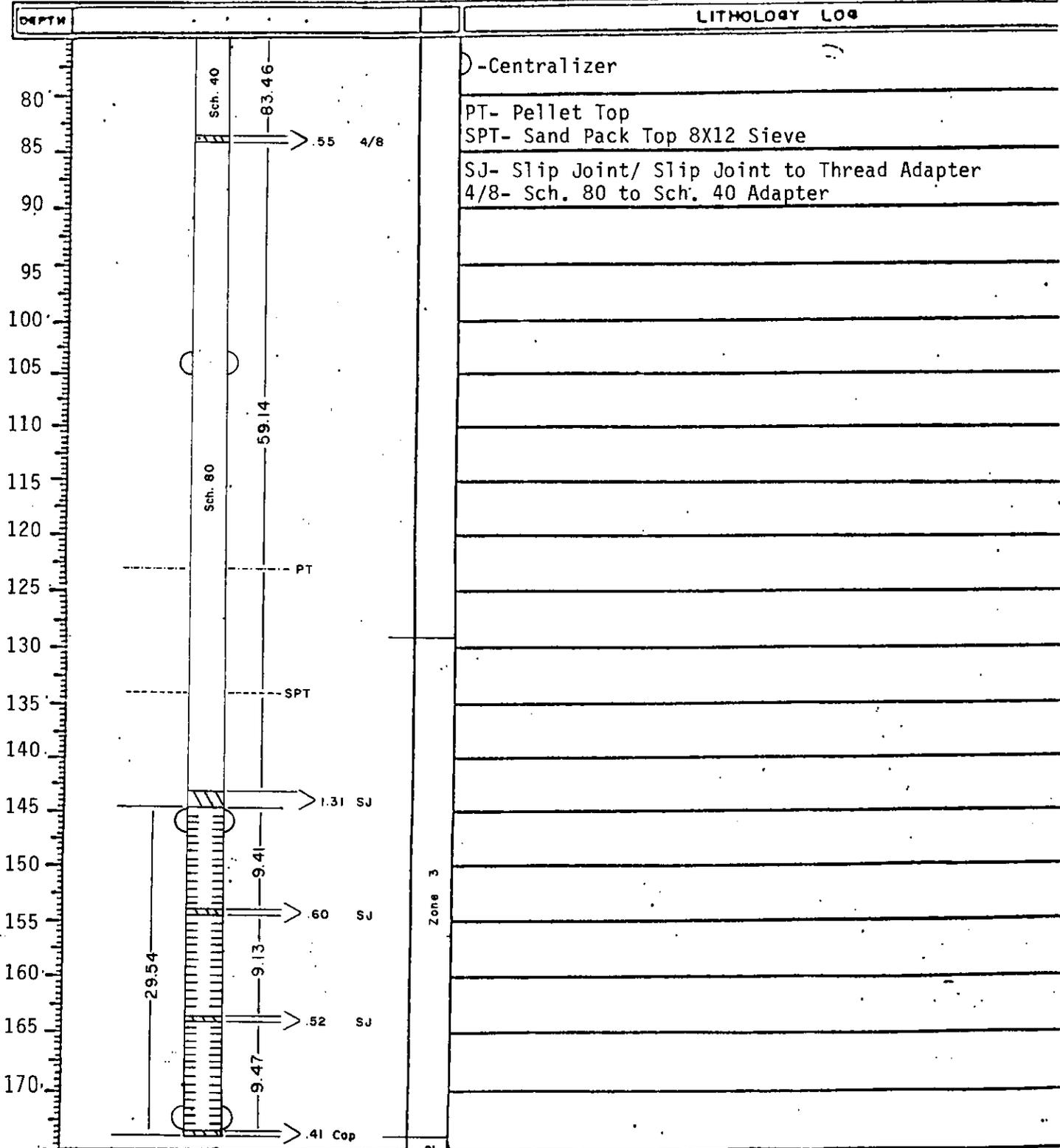
11010 CHURCHROCK

WATER WELL INSTALLATION

WELL NO. 719

DATE DRILLED 6-03-91

LOCATION - SECTION 36 T 17N, R 16W	DRILLER Wayne Smith Drilling
COORDINATES - N 76899.92 E 61700.4	DRILLING METHOD Rotary
ELEVATIONS - GROUND 7000.40 TOP OF PIPE 7001.96	DRILLING MUD Water
DEPTH DRILLED 178'	GEOPHYSICAL LOGS E-Log, Caliper
DEPTH CASSED 174'	Drift
DEPTH TO WATER	DEVELOPMENT Water Wash Screens
	Airlift



WELL CONSTRUCTION & COMPLETION REPORT

Property Name Church Rock Site

Well Name 719

Status or Function of Well as of 6-07-91 : Completed
(Date)

Well Location: N 76899.92 Driller Wayne Smith Drilling

E 61700.44

Wayne Smith

Collar Elev. 7000.40'

Cored Hole: Interval _____ Disposition _____

Geophysical Logs: Natural Gamma Yes
Resistance Yes
Self Potential Yes
Caliper Yes
Spinner _____
Drift Yes
Other _____

Basic Well Construction: Telescoping Screen _____
Gravel Pack Yes
Perforation _____
Underreamed _____
Cement Basket & Screen on Casing _____
Open Hole _____
Other _____

Basic Lithology: Sandstones, Mudstones, Shales, Carbonaceous Shales, and Coal

Basic Mineralization: Oil

Static Water Level: _____

Well Total Depth (or elevation) 6822.40'

Casing Depth (elevation) 6826.40'

Screen Interval (elevation) 6855.94' -- 6826.81'

Perforated Interval 144.46' --- 173.59'

Underreamed Interval _____

Open Hole Interval _____

Gravel Packed Interval 134.2' --174' Bottom Filled

Cemented Interval _____

Location of Centralizers 103.73', 145.46', 173'

Depth (or elevation) of packer _____

Depth (or elevation) of wash plug _____

Depth (or elevation) of bottom of screen string 173.59'

Depth (or elevation) of cement basket _____

Hole: Method Rotary w/ Clear Water

Diameter 5 5/8" From 0' To 178'

11" From 0' To 181'

Fluid if Any _____

Casing: Material PVC Sch. 80 & Sch. 40 Aardvark

Dimensions ID Sch. 80- 5.761" Sch. 40- 6.065"

OD Sch. 80 & 40 - 6.625"

Joints Flush

Centralizers 6" opened to 11"

Cement: Method _____

Done By _____

Description of Mixture _____

Screen: Construction & Material Sch. 40 PVC
 Nominal 6" ID 5.688" OD 6 5/8"
 Length 10'
 Slot Size .050"
 Open Area/Ft 54.3 sq. in. / ln. ft.
 Other Material Associated with Screen Slip joint- glue type
~~between screens 5' - 6' in length. 4' End cap on bottom of screen.~~
~~Slip joint & conversion to Aardvark Sch. 80/40 threads @ top of Screen.~~

Peforations: Method
 Size
 Amount

Underream: Method
 Diameter

Slotted Casing: Interval
 Slot Size
 Slots Per Foot
 Open Area/FT

Gravel: Size 8X12 Mesh Amount 50 lb./bag-- 32 bags used

Method of Completion & Description: 5 5/8" Pilot hole drilled & logged. 11" hole reamed and calipered. Screen, centralizers, and casing hung in hole. Screens washed screens gravel packed, hole airlifted, and bentonite pellets placed. Annulus mud of 80 Vis. or higher filled to ground level and refilled at end of drilling 6-14-91.

Wayne Smith Drilling Co., Inc.

DAILY DRILL REPORT

COMPANY NAME UNE
 PROJECT #6 - 719

DATE 6-5-91
 REPORT NO. 12
 DAY SHIFT ✓ NIGHT SHIFT _____
 DRILLER Wayne Smith
 HELPER Ambrose Lewis
 HELPER Ronald Morgan
 RIG 1

10 hrs Rpt time

HOLE NUMBER	INTERVAL			TIME			REMARKS
	FROM	TO	TOTAL	FROM	TO	TOTAL	
718				8:00	10:00	2	Pick up mud + Bit @ UNE yard Start up + mix TD mud Mix - 55X Quick gel - 1 shuigel 1 gal. Pump in BACK side of casing, JOST:
719							Rig down + moved to # 719
				10:00	10:30	1/2	Rig up - mix spud mud
	0	178	178	10:30	4:00	5 1/2	Run 578 hole - losing cement <small>no cement</small>
				4:00	4:20	1/4	Mix mud to fill pool
				4:20	5:30	1	Logging
				5:30	6:00	1/2	Circ - Washed out hole
							LOOP - put 11" Bit on Kelly

	DRILLING MUD USED	LOADS OF WATER HAULED	BIT NUMBER	BIT SIZE	SERIAL NUMBER
718	5-AG - 13G, 1 gal PR.	2 - 1/2 loads	3	578	Reborn
719	12-5X Quick gel	1 - Full load			
		1 - Full load stand by			

Service Printing Co. 6/90

TOTAL FOOTAGE DRILLED 178

Wayne Smith Drilling Co., Inc.

DAILY DRILL REPORT

COMPANY NAME UNL

DATE 6-6-91

PROJECT #6-719

REPORT NO. 13

DAY SHIFT ✓ NIGHT SHIFT _____

DRILLER Wayne Smith

HELPER Anthony Lewis

HELPER Ronald Morgan

RIG 1

13 1/2 hrs Runtime

HOLE NUMBER	INTERVAL			TIME			REMARKS
	FROM	TO	TOTAL	FROM	TO	TOTAL	
				8:00	8:30	1/2	Start motor. Run up sec Rig
	0	178		8:30	2:00	5 1/2	Reaming 5 5/8 to 11"
				2:00	2:30	1/2	Cit hole clean. Flushed w/ mud & air
				2:30	2:45	1/4	Push - took off BIT
				2:45	4:30	1 3/4	Logging - log stopped @ 172
							Gib. w/ 11" BIT - wash & fill out
	178	181					Drilled 3' - cit hole & push
							Run clab. log - 177 1/2
				4:30	5:30	1	Run 6" casing & wash screen
				5:30	10:15	4 3/4	Gravel Pack Wash well & Air Lift.
				10:15	10:30	1/4	Shut Down

DRILLING MUD USED	LOADS OF WATER HAULED	BIT NUMBER	BIT SIZE	SERIAL NUMBER
	4 Loads water	3	11"	New Ret. P

Service Printing Co. 6/90

TOTAL FOOTAGE DRILLED 178

Wayne Smith Drilling Co., Inc.

DAILY DRILL REPORT

COMPANY NAME UNLC

DATE 6-7-91

PROJECT #6-719 to OFFSITE LT1

REPORT NO. 14

DAY SHIFT ✓ NIGHT SHIFT _____

DRILLER Wayne Smith

HELPER Ambrose Lewis

HELPER Ronald Morgan

RIG 1

10 hrs Rytima

HOLE NUMBER	INTERVAL			TIME			REMARKS
	FROM	TO	TOTAL	FROM	TO	TOTAL	
				9:00	1:45	4:14	Picked up mud & 2" Pipe run Start Ryt up & MIX TO mud 45x Quikgel 1 5x Surgeal 1 gal Vis 122 - Fill backside of casing Ryt down moved & Ryt up
LT1-OFFSITE	0	110	110	1:45	6:00	4:14	Drilling 6 1/2" Air hole - LT-1-A Cik samples & wait on orders - Develop LOADP - hole 5 1/2" wait on orders LOADP
				6:00	7:00	1	Ryt down & mud to uncased

DRILLING MUD USED	LOADS OF WATER HAULED	BIT NUMBER	BIT SIZE	SERIAL NUMBER
#719 - 4 Quikgel 1 Surgeal TD mud 1 gal PR	1 load	1	6 1/2	Rt.p

Service Printing Co. 6/90

TOTAL FOOTAGE DRILLED 110

PROJECT _____

HOLE SIZE 5 5/8" AIR WATER

HOLE NO. 719

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____

DATE 6-5-91

SECTION _____

TOWNSHIP _____

RANGE _____

T.D. 178'

R.D. 178'

T.D. And 122

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG	Page 1 of 2
	5		Lt. Tan Sandy Soil w/ White Fine Gr. Silty SS	
	10		Lt. Tan Fine Gr. Silty SS w/ Brown Mudstone, limonitic SS, and Gray shale	
	15		Lt. Tan to White Fine Gr. Silty SS w/ Hematitic SS, minor coal, Gray Shale	
	20		Lt. Tan to White Fine Gr. Silty SS w/ Hematitic Mudstone, Hematitic SS, minor coal, minor dense Gray shale	
	25		Lt. Tan to white Fine Gr. Silty SS + Brown to Bk. Carb. Shale limonitic + Hematitic stained throughout	
	30		Med. Gray Shale + Bk. Carb. Shale w/ Lt. Tan Fine Gr. Silty SS, minor coal some limonitic staining in SS	
	35		DK. Gray Shale w/ some Carb. Shale, minor thin limonitic stained silty SS, minor gypsum	
	40		DK. Gray shale & Lt. Gray Silty Shale w/ some carb. shales, thin Lt. Gray Fine Gr. Silty SS	
	45		Lt. Gray to DK. Gray Shale & Lt. Gray Silty shale w/ white to Lt. Gray Fine Gr. Silty SS & Carb. shale	
	50		Lt. Gray Silty Fine Gr. SS & Lt. Gray to Bk. Shale w/ minor carb. material	
	55		Lt. Gray Silty Shale & Lt. Gray to white Fine Gr. Silty SS	
	60		Lt. Gray to white Fine Gr. Silty SS & Lt. Gray Silty Shale	
	65		DK. Gray Shale & Lt. Gray Silty Shale + Carb. Shale w/ coal, Lt. Gray to white Fine Gr. Silty SS	
	70		DK. Gray Carb. Shale & Lt. Gray Silty SS w/ coal + thin white Fine Gr. Silty SS	
	75		Lt. Gray Silty Shale & Lt. Gray Fine Gr. Silty SS w/ Carb. Shale some coal	
	80		Lt. to DK Gray shale + Lt. Gray Fine Gr. Silty SS	
	85		Lt. Gray to white Fine Gr. Silty SS + Lt. to DK. Gray shale	
	90		Lt. Gray to white Fine Gr. Silty SS + Lt. Gray shale	
	95		Lt. Gray to white Fine Gr. Silty SS w/ Lt. Gray to Mod. Gray shale w/ Moderate Oil stained silty SS	
	100		Lt. Gray to white Fine Gr. Silty SS w/ Lt. Gray to Mod. Gray shale, minor oil stained silty SS	
	105		Lt. Gray to white Fine Gr. Silty SS w/ Lt. Gray to Mod. Gray shale, mod. oil stained silty SS, Carb. shale & coal	
	110		Lt. Gray to white Fine Gr. Silty SS w/ Lt. Gray shale + coal fragments in silty SS, Mod. oil stained silty SS	
	115			

PROJECT _____

HOLE SIZE 5 5/8"

AIR WATER

HOLE NO. 719

ELEVATION _____

NORTH _____

EAST _____

LOGGED BY _____

DATE 6-5-91

SECTION _____

TOWNSHIP _____

RANGE _____

T.D. 178'

P.D. 178'

ELECTRIC LOG	DEPTH	STRIP LOG	LITHOLOGY LOG Page 2 of 2
			Lt. to Med. Gray shale + Lt. Gray to white Fine Gr. Silty SS
	120		Lt. to Med. Gray Shale + Lt. Gray to White Fine Gr. Silty SS
	125		Lt. Gray to White Fine Gr. Silty SS + Lt. Gray Silty Shale w/ minor Med. Gr. Qtz. SS w/ White Feldspar
	130		Lt. Gray to white Fine Gr. Silty SS + Lt. Gray Silty Shale w/ Fine to coarse Gr. Qtz SS w/ white Feldspar + some minor fresh Pyrite
	135		Lt. Gray Fine to Med. Gr. Qtz. SS w/ 1-2% white Feldspar, Lt. to Med. Gray Shale + Lt. Gray to White Fine Gr. Silty SS
	140		Lt. Gray Fine to Med. Gr. Qtz. SS w/ 1-3% white Feldspar, minor Med. Gray Shale
	145		Lt. Gray Fine to Coarse Gr. Qtz SS w/ 2-4% white Feldspar, minor Lt. Gray Shale
	150		Lt. Gray Fine to Coarse Gr. Qtz. SS w/ 1-3% white Feldspar, some Lt. Gray Shale
	155		Lt. Gray Fine to Med. Gr. Qtz. SS w/ 1% white Feldspar and Med. to Dark Gray Shale w/ Lt. Tan to White Fine Gr. Silty SS
	160		Lt. Gray Fine + Coarse Gr. Qtz. SS w/ 1-3% white Feldspar, some Lt. Gray to Dk. Gray Shale + minor coal fragments
	165		Lt. Gray Fine to Med. Gr. Qtz. SS w/ 1-3% white Feldspar, Med. Gray Shale, minor Lt. Tan Mudstone + limonitic silty shale + SS
	170		Lt. Gray Fine Gr. Qtz. SS w/ 1% white Feldspar, minor Lt. Tan Mudstone + limonitic silty SS
	175		173'-174' COAL
		178' T.D.	Lt. Gray to Med. Gray Shale + coal w/ minor Lt. Gray Fine Gr. Silty SS