4,476'–6,146' = INJ interval

PROD Zone

CMT

API	WELL NAME	Short Operator	NS	EW	Dist	UL2	Sec	TVD	LAND TYPE	WELL TYPE	Orig Form.(or Notes)	Last	Status	P. Code	Latest Pool	Days 2002	Gas 2002	Oil 2002	Wat 2002
FEDERAL USA J #005 330S, 1653E, Sec30/19S/32E/Lea Cty			330S	1653E			30				(No WIWs in this acreage)								
30-025-30094	LUSK WEST DELAWARE UNIT #913	GRUY	990S	660W	2405	M	29	7200	F	O	DELAWARE WEST	05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	151	200	749	3766
30-025-20035	ELLIOTT HALL B #002	YATES Drilling	1980S	1997W	2319	K	30	11325	F	O	DELAWARE	05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	143	109	431	3124
30-025-20367	FEDERAL USA J #001	Marbob	990S	660E	1192	P	30	11296	F	O		05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	151	0	0	1659
30-025-32051	FEDERAL USA J #002	Marbob	660S	385E	1310	P	30	7229	F	O	DELAWARE	05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	151	711	1131	2354
30-025-32447	FEDERAL USA J #003	Marbob	1980S	330E	2114	I	30	7200	F	O	DELAWARE	05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	148	1035	2085	2249
30-025-32448	FEDERAL USA J #004	Marbob	1980S	1980E	1682	J	30	7200	F	O	DELAWARE	05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	151	5567	4628	12912
30-025-35088	SL DEEP FEDERAL COM #001	Marbob	1980S	1650E	1650	J	30	0	F	G	LUSK MORROW (GAS)	05-2002	ACTIVE	80759	LUSK;MORROW (GAS)	147	161351	3136	100
30-025-20813	FEDERAL USA I #001	Marbob	660N	660E	1402	A	31	6981	F	O		05-2002	ACTIVE	41540	LUSK;DELAWARE, WEST	151	637	2194	3940
30-025-35340	POLEWSKI FEDERAL #002	RAY WESTALL	990N	1658W	2370	C	31	0	F	O	DELAWARE	NONE	NO COMPL	0		0	0	0	0
30-025-35750	TRES ELO FEDERAL COM #001	Marbob	990N	990E	1477	A	31	0	F	G	MORROW	NONE	NO COMPL	0		0	0	0	0
30-025-20563	NEW MEXICO CR STATE #001	MISSION	660N	660W	2515	D	32	11495	S	O		03-2001	ACTIVE	0		0	0	0	0
30-025-32449	**FEDERAL USA J #005**	**TEPI**	**330S**	**1653E**	0	**O**	**30**	**7300**	**F**	**O**	**P&A 10-31-95**	**NONE**	**ZONE ABAN**	**0**		**0**	**0**	**0**	**0**

calc

7 calcd ≈ 2000' deep
OK

Small, TIGHT Zone, NOT very GOOD
& also Marbob

9/14/2002/6:04 PM
Marbob_FedUSAJ5.xls/halfmileFixed

22385152 SWD 9/6/02

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised 4-1-98

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance __X__Disposal _____Storage
Application qualifies for administrative approval? _____Yes _____No

II. OPERATOR: MARBOB ENERGY CORPORATION

ADDRESS: P O BOX 227, ARTESIA, NM 88211-0227

CONTACT PARTY: BRIAN COLLINS PHONE: 505-748-3303

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes __X__No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

AUG 2 2 2002

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: BRIAN COLLINS TITLE: ENGINEER

SIGNATURE: Brian Collins DATE: 19 August 2002

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

Marbob Energy Corporation

C-108 Application for Authorization to Inject
Federal USA "J"-5
O-30-T19S-R32E
Lea County, NM

(30-025-32449)

V. Map is attached.

VI. Wellbore schematics are attached for all the wells that penetrate the proposed injection zone within the 1/2 mile radius area of review.

VII. 1. Proposed average daily injection rate = 500 BWPD
Proposed maximum daily injection rate = 2500 BWPD

2. Closed system

3. Proposed maximum injection pressure = 895 psi
(0.2 psi/ft. x 4476 ft.)

4. Source of injected water will be the Delaware and Bone Spring produced water. The Delaware produced water is the same as the Delaware water in the receiving formation. An analysis of the Bone Spring water is attached. No compatibility problems are expected.

5. Disposal zone formation water is essentially the same as the injection water.

VIII. The injection zone is the Delaware Sandstone, a fine grained sandstone from 4476' to 6146'. Any underground water sources will be shallower than 838'.

IX. Delaware sand injection interval will be acidized with 20 gals./ft. of 7 1/2% HCl acid. If necessary, the Delaware injection interval may be fraced with up to 250,000 lbs of 16/30 mesh sand.

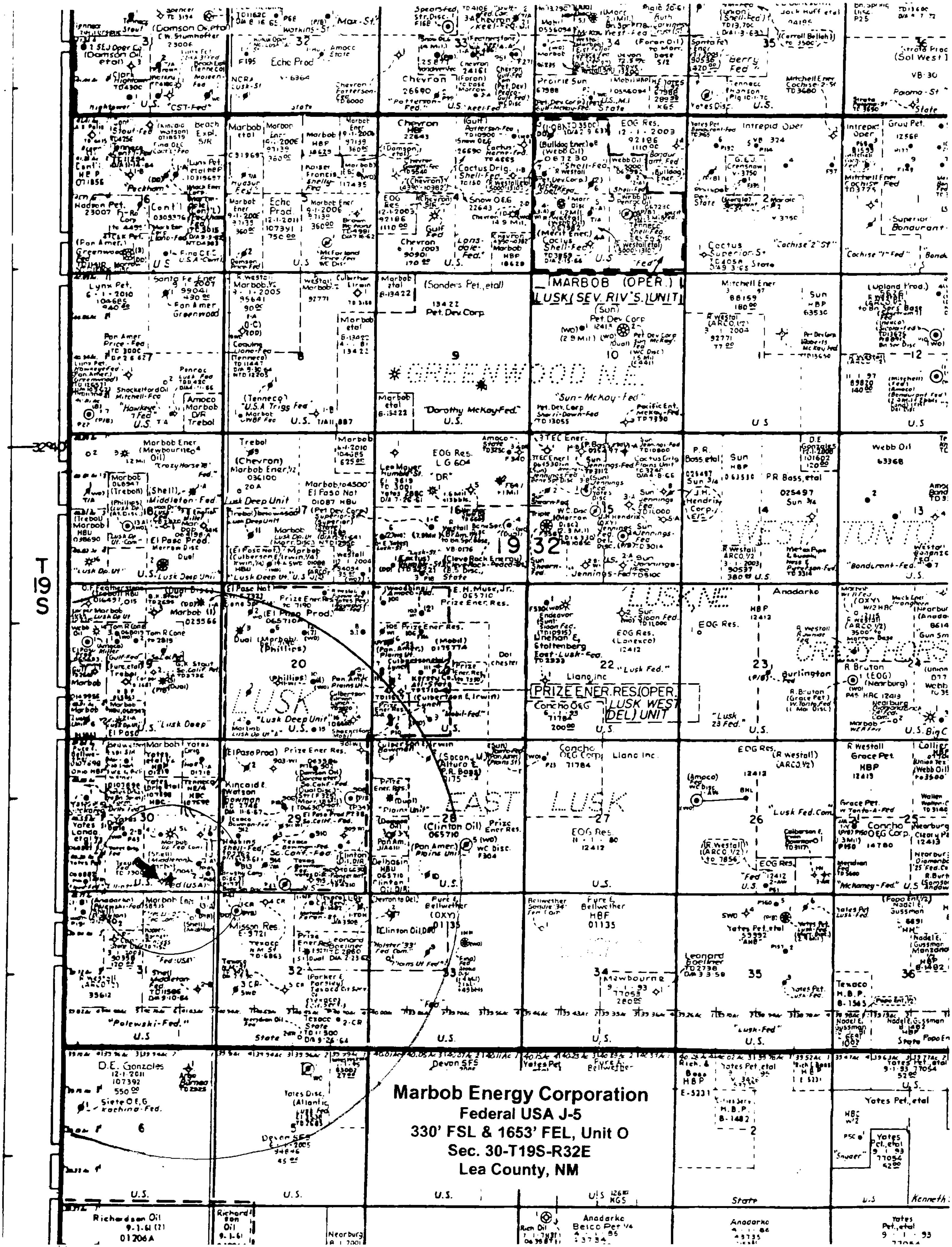
WOW

X. Well logs have been filed with the Division.

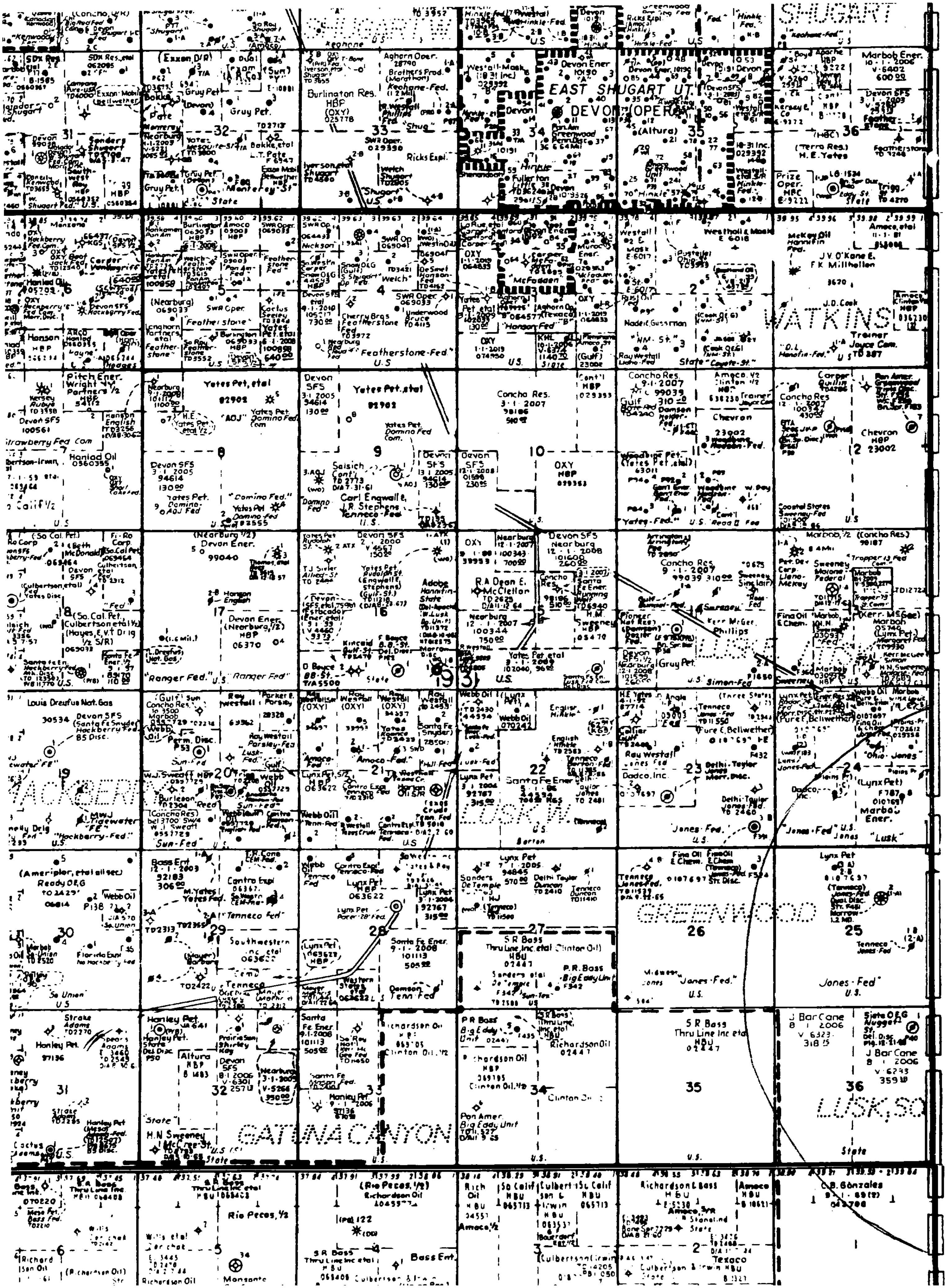
XI. There are no fresh water wells within a one mile radius of the Federal USA J-5.

XII. After examining the available geologic and engineering data, no evidence was found of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Proof of Notice is attached.



Marbob Energy Corporation
Federal USA J-5
330' FSL & 1653' FEL, Unit O
Sec. 30-T19S-R32E
Lea County, NM
T 19 S
GREENWOOD N.E.
LUSK
EAST LUSK
MARBOB (OPER.) LUSK (SEV. RIV'S.) UNIT
PRIZE ENER. RES (OPER.) LUSK WEST DEL) UNIT


SHUGART
EAST SHUGART UT.
DEVON (OPER.)
WATKINS
HACKBERRY
LUSK W.
GREENWOOD
GATUNA CANYON
LUSK, SO
Featherstone-Fed
Ranger Fed.
Hackberry-Fed.
Amoco-Fed.
Tenneco Fed
Jones-Fed.

T 19 S

Side 1

INJECTION WELL DATA SHEET

OPERATOR: Marbob Energy Corp.

WELL NAME & NUMBER: Federal USA J-5

WELL LOCATION: 330' FSL, 1653' FEL (FOOTAGE LOCATION) | O (UNIT LETTER) | 30 (SECTION) | 17S (TOWNSHIP) | 32E (RANGE)

WELLBORE SCHEMATIC

"See Attached Before and After Schematics"

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17 1/2" Casing Size: 13 3/8" @ 838'

Cemented with: 725 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 11" Casing Size: 8 5/8" @ 4120'

Cemented with: 2110 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Production Casing

Hole Size: 7 7/8" Casing Size: 5 1/2" @ 7300'

Cemented with: 1100 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Total Depth: 7300'

Injection Interval

4476 feet to 6146 Feet

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2 7/8" Lining Material: Plastic

Type of Packer: Nickel plated retrievable double-grip (Uni-6, Lokset, etc.)

Packer Setting Depth: 4400' ±

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection? ____ Yes X No

   If no, for what purpose was the well originally drilled? Oil and gas production

2. Name of the Injection Formation: Delaware Sand

3. Name of Field or Pool (if applicable): Lusk Delaware, West

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. 6908-24' CIBP + 35' cmt 6870', 6520-6696' CIBP + 35' cmt 6450', 5328-88' CIBP + 35' cmt 5275'.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Overlying: Yates Seven Rivers ± 2700'

   Underlying: Strawn ± 11,100'

Well: Federal USA J-5

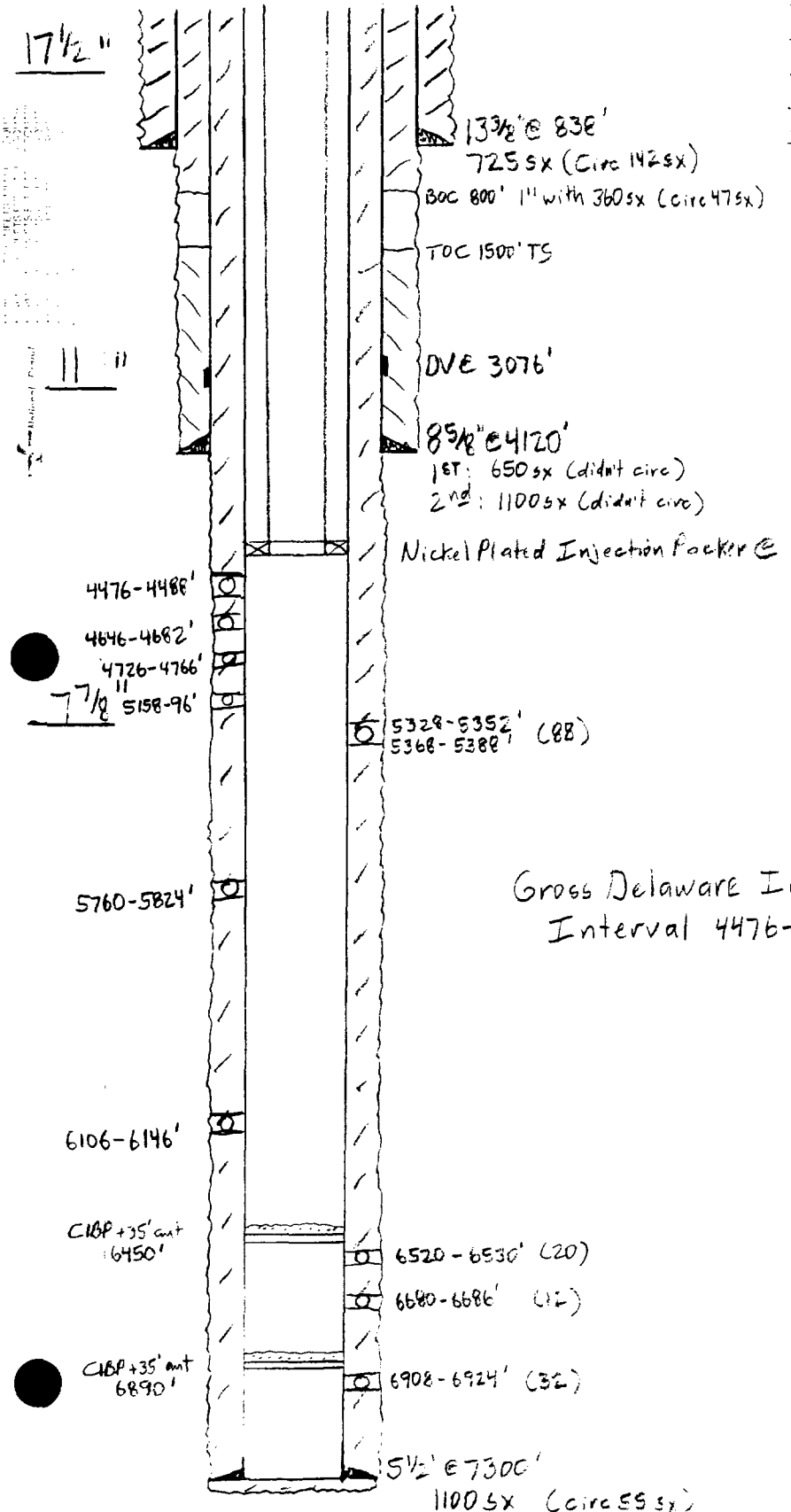
Location: 330' FSL, 1653' FEL
O - 30 - 19s - 32e
Lea Co., NM

Elev: 10.5' AGL
KB: 3553'
GL: 3542.5'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
13 3/8"	54.5	WC-50	STC	838'
8 5/8"	24	K55	LTC	1528'
	32	K55	LTC	4120'
5 1/2"	15.5	K55	LTC	5750'
	17	K55	LTC	7300'
2 7/8"	6.5	J55	EVE	± 4400'

Internally Plastic Coated



AFTER

Gross Delaware Injection Interval 4476-6146'

— Sketch Not To Scale —

KBCollins / 14Feb02

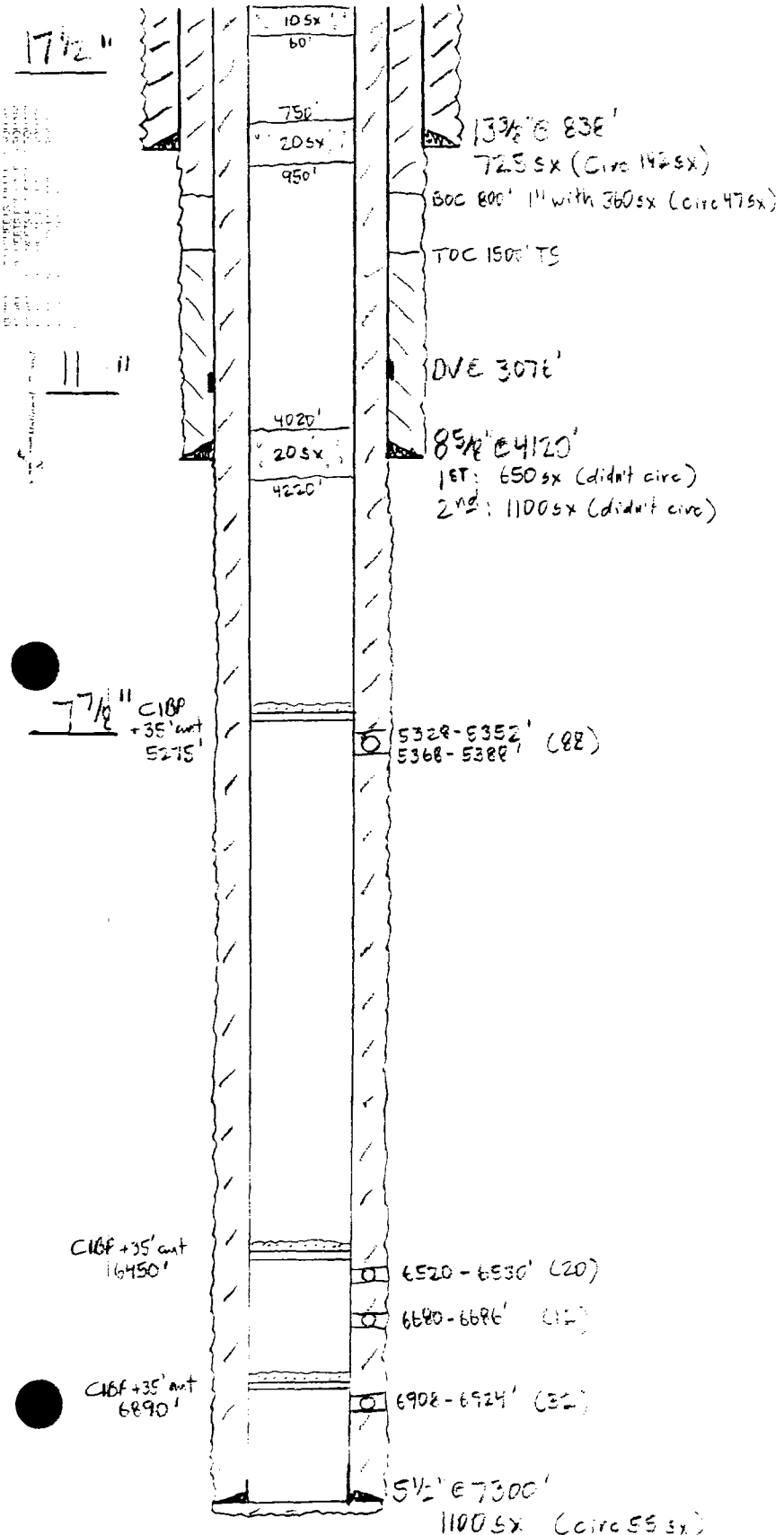
Well: Federal USA J-5

Location: 330' FSL 1653' FEL
O-30-19S-32E
Lea Co., NM

Zero: 10.5' AGL
KB: 3553'
GL: 3542.5'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
13 3/8"	54.5	WC-50	STC	838'
8 5/8"	24	K55	LTC	1528'
	32	K55	LTC	4120'
5 1/2"	15.5	K55	LTC	5750'
	17	K55	LTC	7300'



P&A: 31 Oct 95

BEFORE

— Sketch Not To Scale —

KBCollins / 14 Feb 02

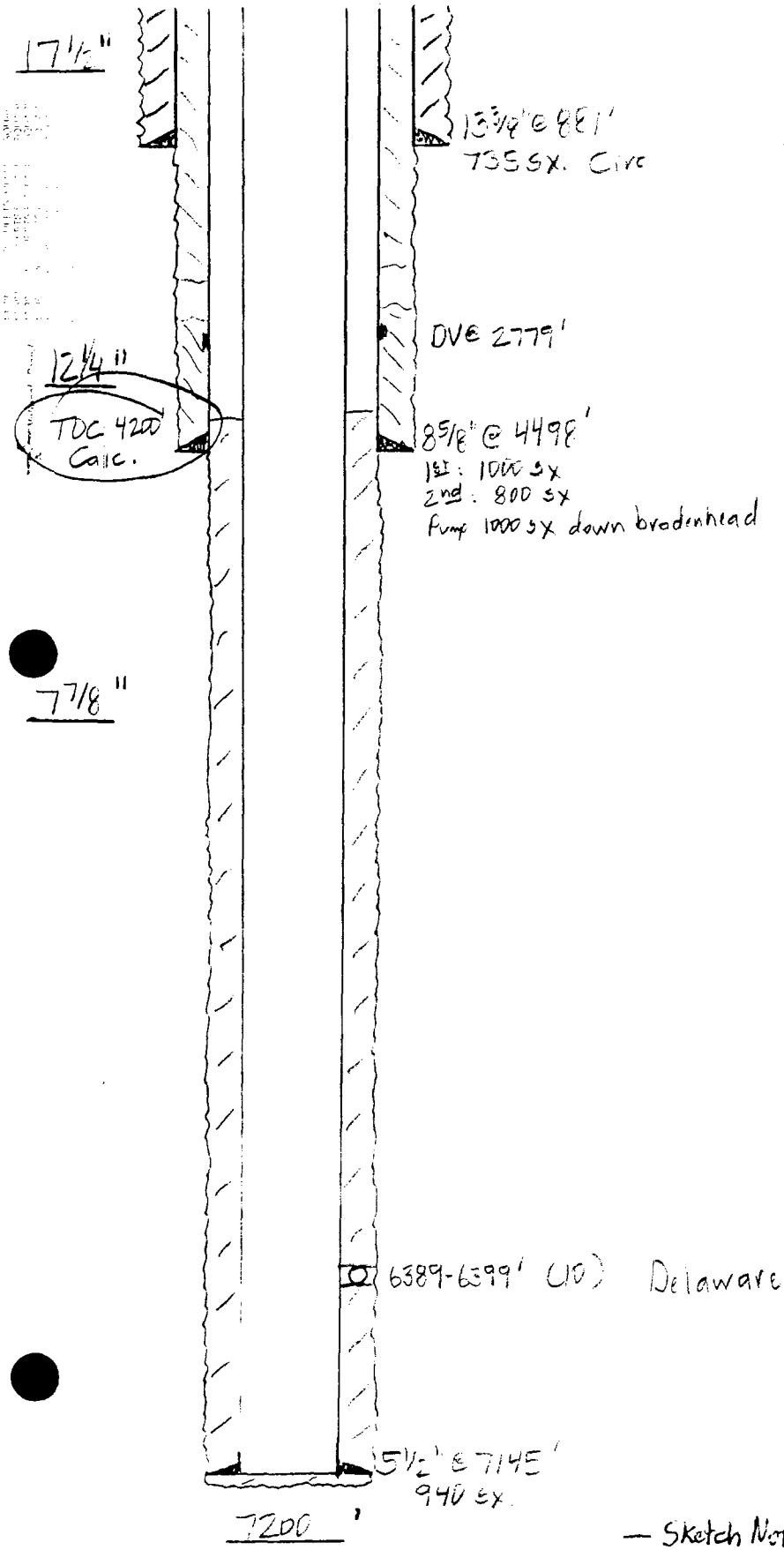
Well: Lusk West Delaware Unit 913

Location: 990' FSL, 600' FWL
M-29-19S-32E
Lea Co. NM

Zero: _____
KB: _____
GL: _____

Casing Program:

Size	Wt.	Grade	Conn.	Depth
13⅜"	[illegible]	K55	STC	881'
8⅝"	24 32	J55	STC	4498'
5½"	15.5	K55	LTC	7145'



— Sketch Not To Scale —

KBCollins / ISE

Well: Federal USA J #3

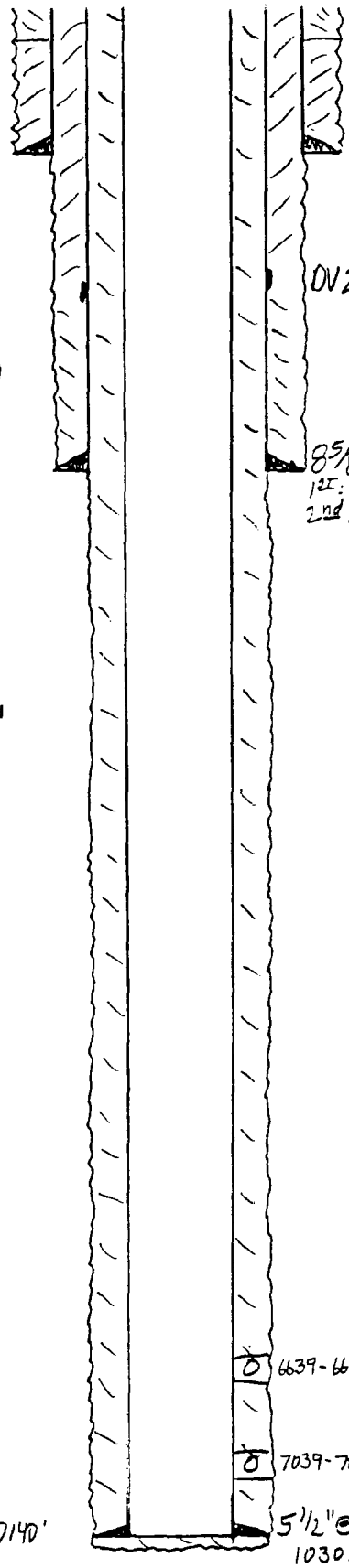
Location: 1980' FSL, 330' FEL
I-30-19s-32e
Lea NM

Zero: 13' AGL
KB: 3560'
GL: 3547'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
11 3/4"	42	WC-40	STC	850'
8 5/8"	32	K55	LTC	4120'
5 1/2"	15.5	CF50	LTC	3990'
	15.5	J55	LTC	5248'
	15.5	L565	LTC	7200'
2 7/8	6.5	WC50	EUE	SN 7078'

Cum 12199: 78 mBO / 234 mMCF / 93 mBW



7/94: Perf Brushy Cnyn. 7039-44', 7056-62', 7067-72', 7078-82', 7086-88' (46)
Perf 7052-62' (21)
Acdz 7039-88' 1200 g. 7½% HCl
Frac 43000 g. XLG + 186,986 # 16/30 Ottawa
8 ppg max. ISI = 1991 15" 1438
Perf U. Brushy Canyon 6639-6660' (42)
Acdz. 1600 g. 7½% HCl.
Frac 32000 g. XLG + 142,000# 16/30 Ottawa
8 ppg max. ISI 1908 15" 1569
IP 151 BOPD / 207 BWPD / 150 MCFD

— Sketch Not To Scale —

KBCollins / 15 Dec 00

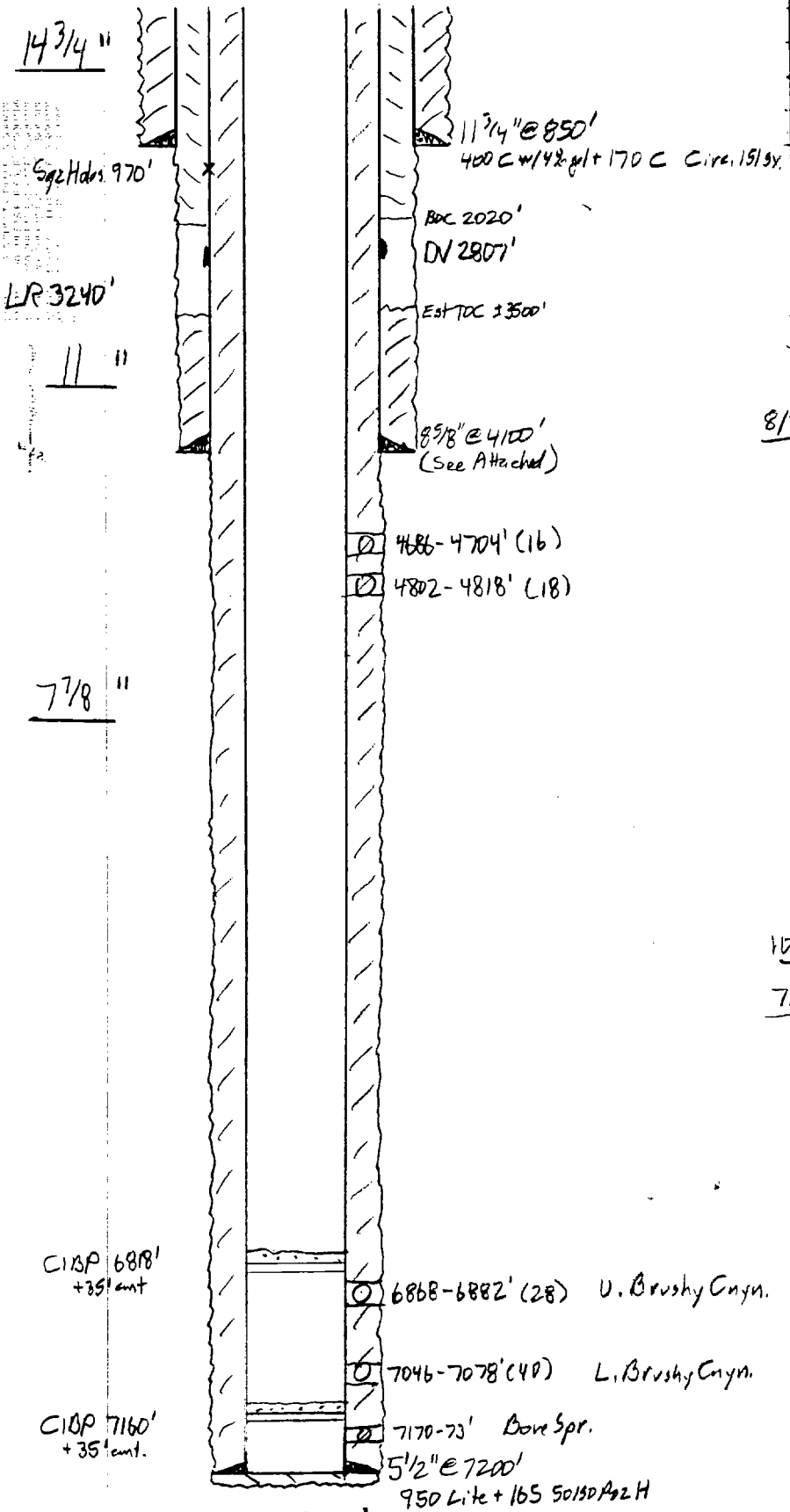
Well: Federal USA J#4

Location: 1980' FSL, 1980' FEL
J - 30 - 19s - 32e
Lea NM

Zero: 13' AGL
KB: 3551'
GL: 3538'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
11 3/4	42	WC50	STC	850'
8 5/8	32	N55	LTC	4100'
5 1/2	15.5	WC50	LTC	4034'
	15.5	N55	LTC	5248'
	15.5	L565	LTC	7200'



8/94: Bone Spring 7170-73' (12)
Acdz 1200g. 15%
CIBP @ 7160' + 35' cmt.

L. Brushy Cnyn 7046-52', 7058-62', 7067-71', 7076-78' (40)
Acdz 1000g. 7 1/2% HCl
Frac 19000g. XLG + 82,000# 16/30 Ottawa
8 ppg max. ISI 1740 15" 1538

U. Brushy Cnyn 6868-6882' (28)
Acdz 1100g. 7 1/2% HCl
Frac 19000g. XLG + 82000# 16/30 Ottawa
8 ppg max. ISI 1600 15" 1419
IP 1 BOPD / 110 BWPD / 4 MCFD

10/96 CIBP 6818' + 35' cmt. TA.

7/01: Perf 4802-18', 4686-4704'
Acdz 1000g 7 1/2% (Common acid)
Frac 60,800# Sd

— Sketch Not To Scale —

KB Collins /

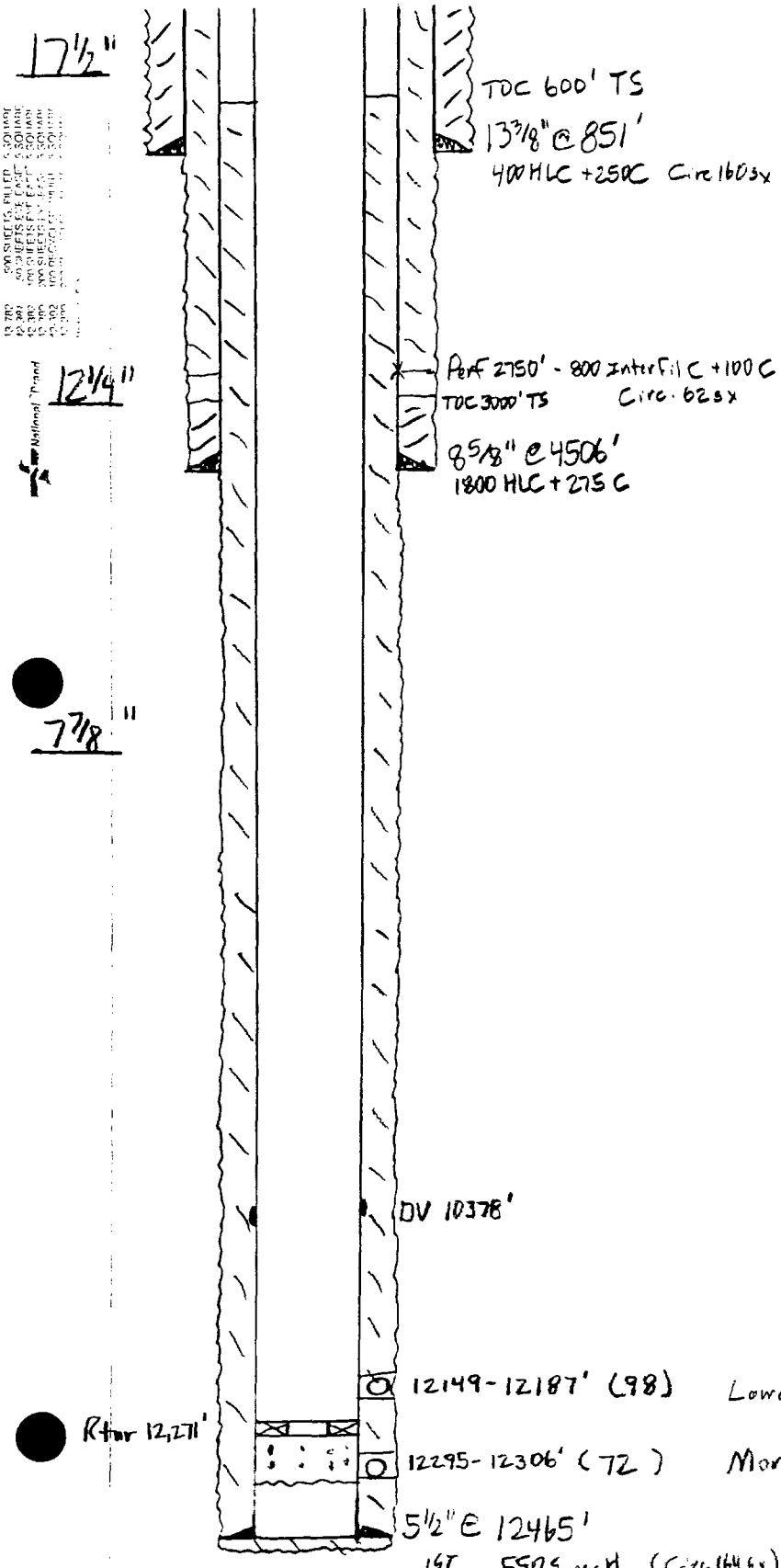
Well: SL Deep Fed. 1

Location: 1980' FSL, 1650' FEL
J-30-19S-32E
Lea Co., NM

Zero: 16' AGL
KB: 3558'
GL: 3542'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
13 3/8	48	H40	STC	851'
8 5/8	32	J55	BTC	4506'
5 1/2"	17	N95-110	LTC	12465'
2 3/8	4.7	L80	EUE	12104'



— Sketch Not To Scale —

KBCollins/

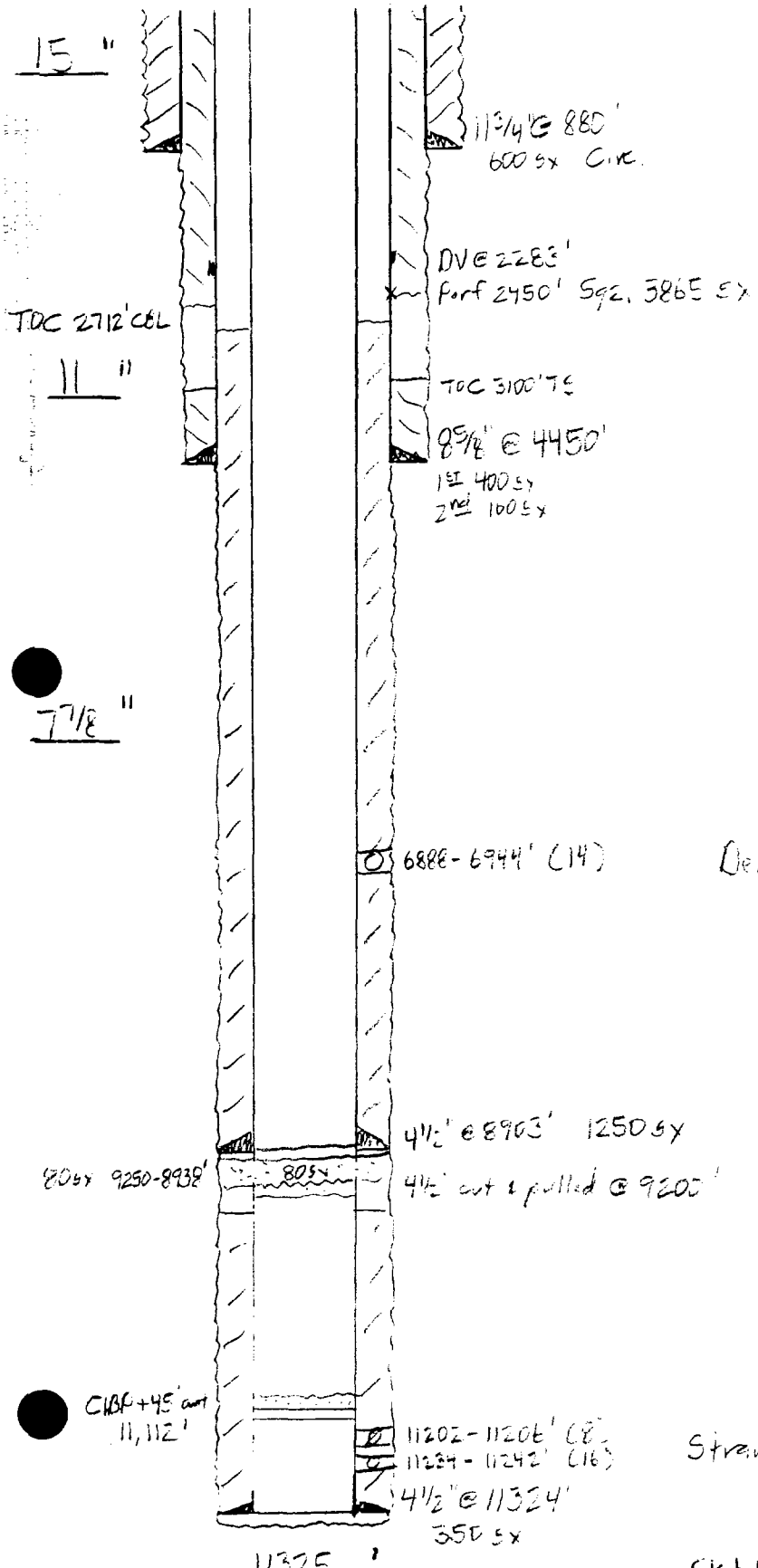
Well: Elliot Hall B-2

Location: 1980' FSL 1997' FWL
K-30-19S-32E
Lea Co. NM

Elev: _____
KB: _____
GL: _____

Casing Program:

Size	Wt.	Grade	Conn.	Depth
11 3/4"	42			880'
8 5/8"	32	J55		4450'
4 1/2"	11.6			8249'
	13.5			11324'
4 1/2"				8903'

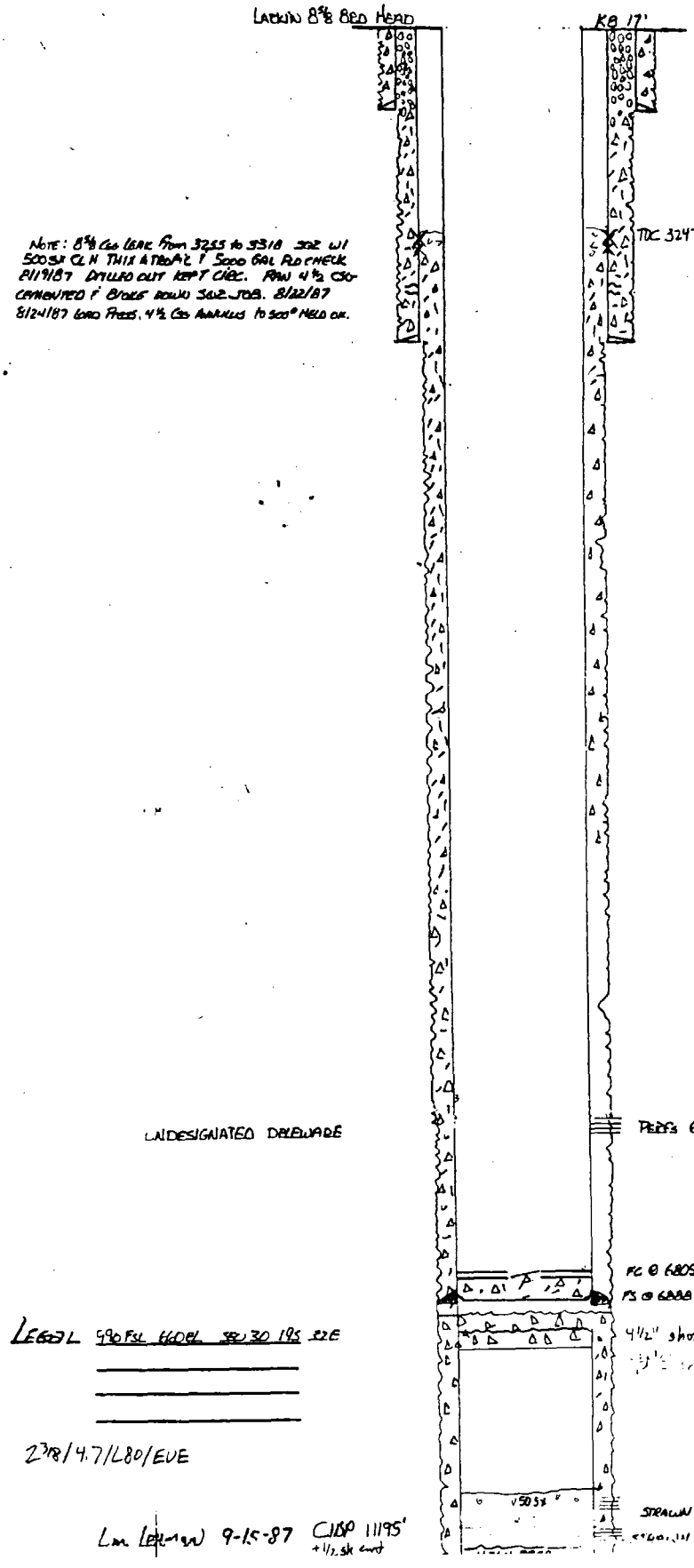


— Sketch Not To Scale —

KBCollins/

LEASE: FEDERAL USA "J" WELL No. 1

Federal USA "J" # 1
990' FSL, 660' FEL
P - 30-19S-32E
Lea, NM



13⅜ 48# H-40 SET @ 809'
CMT CIRC 17" HOLE SIZE

8⅝" 32# H-40, S5 SET @ 3703
CMT W/1810 SX IN 2 STAGES 1ST STG - 210 SX.
TOC CALC 2679 2ND STG - 1600 SX TOC @ 800'
WELL RECORDS SHOWS 13⅜ & 8⅝ ANNULUS PACKED
FROM 800' TO SURF W/ PEA GRAVEL 11" H.S.

NOTE: 8⅝ CSG LEAK FROM 3255 to 3318 30Z W/ 500 SX CL H THIX & TREAT. 1 5000 GAL RIG CHECK 8/19/87 DRILLED OUT KEPT CIRC. RAN 4½ CSG CEMENTED 1ST STAGE ROUGH SQZ JOB. 8/22/87 8/24/87 LOAD PIPES. 4½ CSG ANNULUS TO 500# HELD OK.

4½" 11.60# J-55 CSG SET @ 6888 8/22/87
CMT W/1300 SX TOC @ 3247 BY TEMP
FLOAT COLLAR @ 6805'

8/87: Delaware 6381-86' (2 SPF - 312)
Acidz 2000 g. 15% HCl
2.9 @ 2300 ISI 1500 15"/400
Frac 20,000 g. 30# XL + 30,000# 20/40
15 @ 5350 ISI 1450 15"/400
4 BPM MAX.
IP: 176 BOPD / 186 BWPD / 90 MCFD 25 Sept 87

Cum 8/99: 66 MBO / 145 MMCF / 71 MBW

LEGAL 990 FSL 660 EL SEC 30 19S 32E

2⅜ / 4.7 / L80 / EUE

Lm Leman 9-15-87 CIBP 11195' + 1½ sk cmt

Spot 25 sx - Didn't hold
Spot 25 sx - Hold

Well: Federal USA J#2

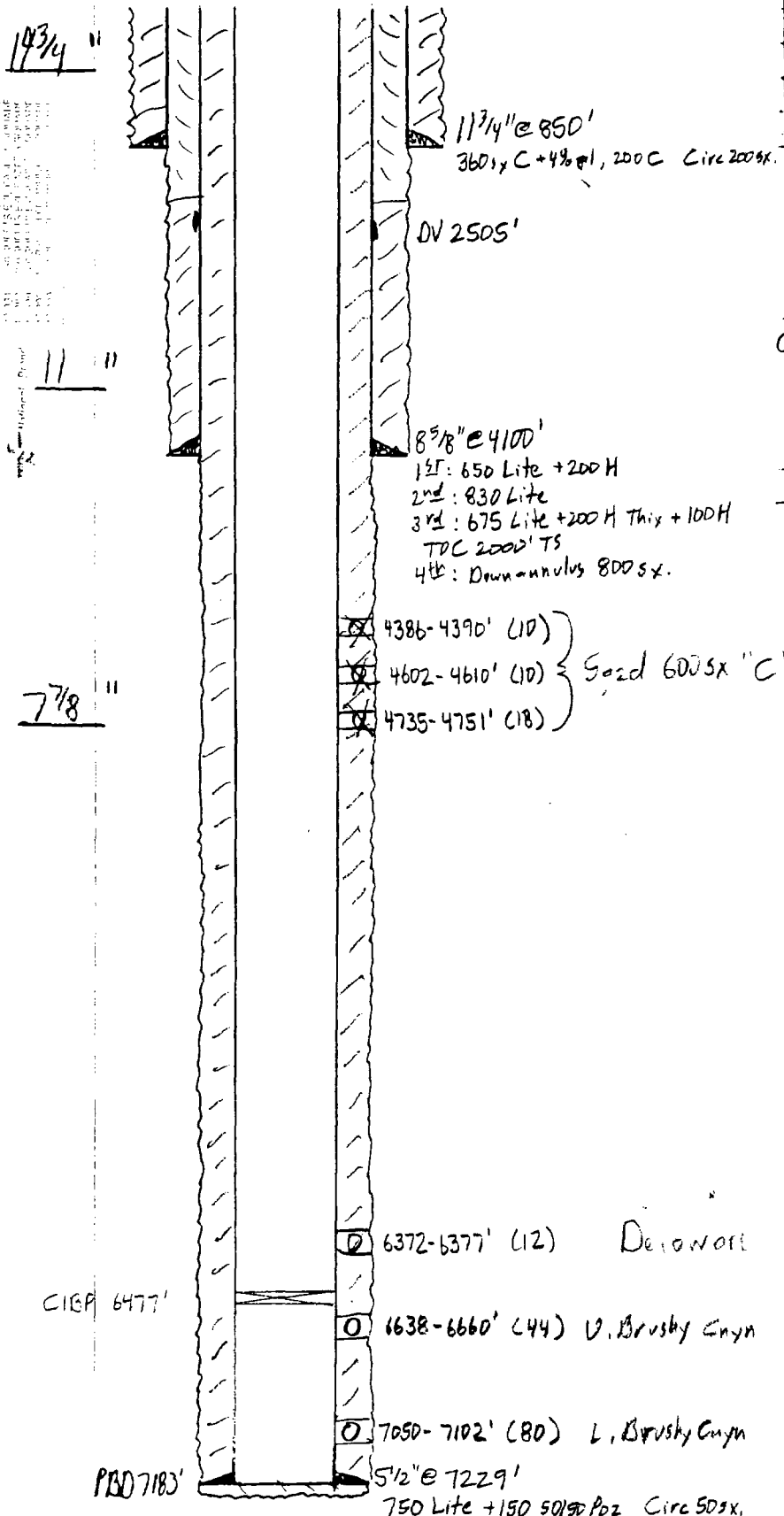
Location: 660'FSL, 385'FEL
P-30-19s-32e
Lea NM

Zero: 14' AGL
KB: 3552'
GL: 3538'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
11 3/4"	42	WC 40	STC	850'
8 5/8"	32	K55	LTC	4100'
5 1/2"	15.5	J55	LTC	4162'
	17	WC 50	LTC	5564'
	17	WC 70	LTC	6090'
	17	L80	LTC	7229'
2 7/8	6.5	J55	EUE	SN 7107'

Cum 12/99: 113 mBO / 168 mmcF / 83 mBW



7/93: L. Brushy Canyon 7050-59', 7064-78', 7080-84', 7087-94', 7096-7102' (80)
Acdz. 1000g 7 1/2% HCl
Frac 34000g. XLG + 122,000# 16/30 Sd.
8ppg max. ISI 1455 15" 1295
U. Brushy Canyon 6638-60' (44)
Acdz 300g. 7 1/2% HCl
Frac 17000g XLG + 61,000# 16/30 Sd
8ppg max ISI 1529 15" 1318
IP: 161 BOPD / 245 BWPD / 40 mcfd

1/01: CIBP 6477', Perf 6372-77',
Acdz 500g 7 1/2% Frac 11250g. 30# X-L
+ 20,000 # 16/30 & 8/16 sd

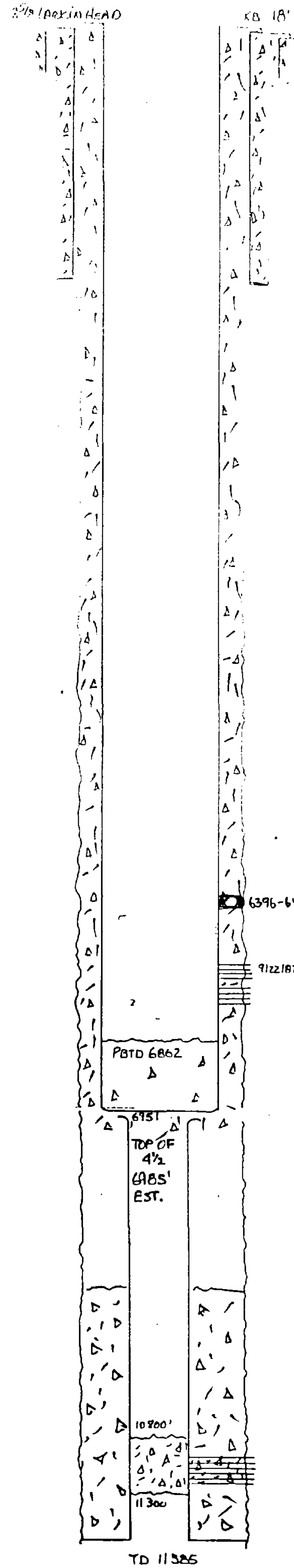
7/01: Perf 4735-51', 4602-10', 4386-90',
Acdz 4735-51' 1000g 7 1/2% Frac 21,500# Sd
Acdz 4602-10' Frac 19,000 # Sd
Acdz 4386-90' 500g 7 1/2% Frac 20,300 # Sd
Sqzd 4386-4751' 600 sx "C"
Ø cmt to 6477'

— Sketch Not To Scale —

KBCollins/

Federal USA "I" Well No. 1

Federal USA "I" #1
660' FNL, 660' FEL
A - 31- 19s - 32e
Lea, NM



13⅜ 48# H-40 SET @ 396'
CMT CIRC. 17½" H.S.

8⅝ 32# J-55 SET @ 3706
CMT CIRC 11" H.S.

Cum: 71 MBO / 135 MMCF / 266 MBW
10/99

9/87: Perf 6682-6727' (26)
Acdz 3000g. 15% HCl
5@2500 ISI: 1700 15" 1700
Frac
21@5100 ISI 1480 15" 1410
4ppg max. 29 bopd / 305 bwpd

11/87: CIBP 6590'. Perf 6396-6401' (12)
Acdz 3000g. 15% HCl
3.8@3500 ISI 1500 15" 1400
Frac 20000g 40# XL + 26000# 20/40
+ 4000# 12/20 4ppg max
10@2000 ISI: 1090 15" 1020
Ø out to 6718'. Set CIBP 6616'
119 bopd / 109 bwpd

2/88: CIBP 6578' + 5' cmt.

3/90: Ø CIBP's & CO to 6860'
Went from 18 bopd / 28 bwpd to
38 bopd / 465 bwpd

UNDESIGNATED DELEWARE

6862

5½ 15.50# J-55 SET @ 6951; FLOAT COLLAR
@ 6862' CMT CIRC TO SURF. 7⅞ H.S.
SHORT JT TOP @ 5708 BTM 5728+ BY SCHLUM. LOG 21 SEPT

LUSK STRAWN 11,199 - 11,250
SPOT 25 SX CMT 10,800 - 11,300

4½ 10.50 & 11.60 J-55 SET @ 11385
TOP @ 6985 EST. [illegible]
[illegible]

NE4 NE4 660' FNL 660' FEL
SEC 31 T 19S R 32E UNIT LETTER A

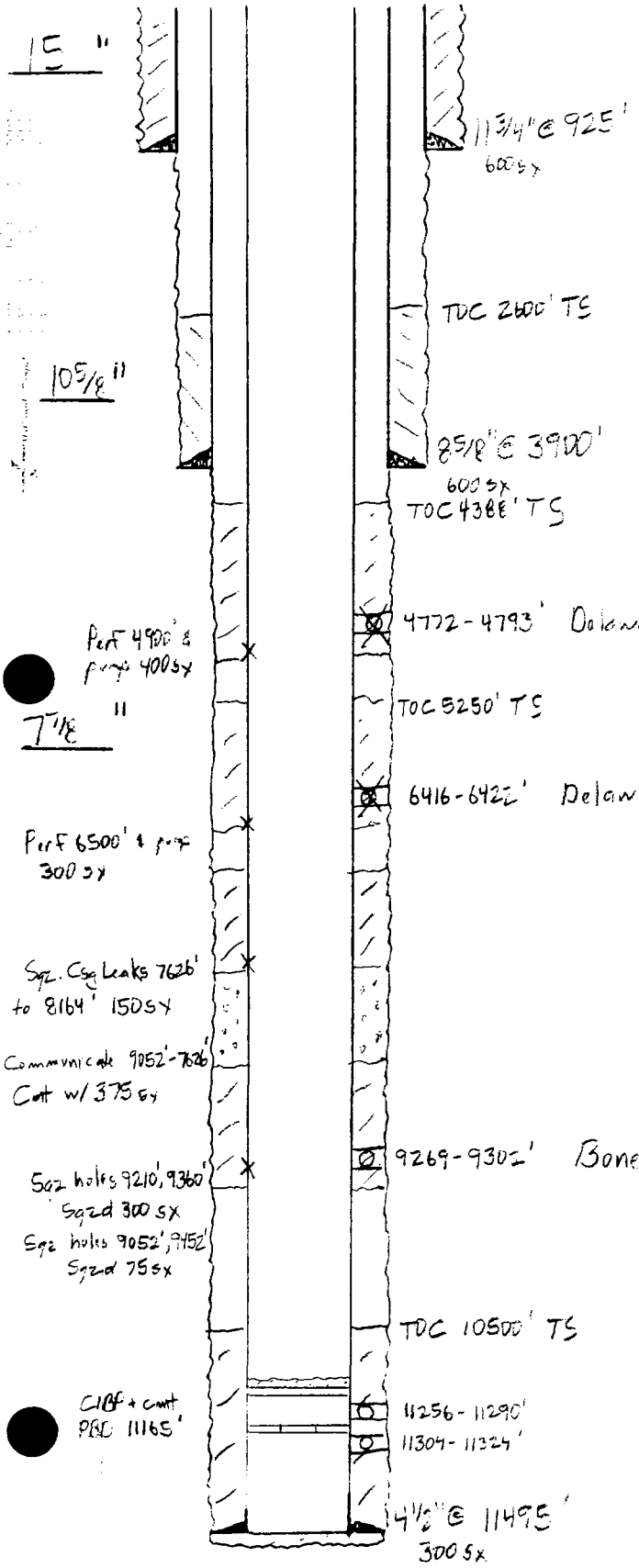
Well: New Mexico "CR" St. 1

Location: 660' FNL, 660' FWL
D-32-19s-32e
Lea Co. NM

Zero: _____
KB: _____
GL: _____

Casing Program:

Size	Wt.	Grade	Conn.	Depth
11 3/4"	31.2	SW		925'
8 5/8"	24	J55		3900'
4 1/2"	10.6	N80		11495'



Cement Coverage Summary:

10500' to 11495' (Wolfcamp - Strawn)
±7626' to ±9452' (Bone Spring)
5250' to ±6500' } (Delaware)
4388' to ± 4900' }

— Sketch Not To Scale —

KBCollins / 18Feb02

HALLIBURTON

CENTRAL OPERATIONS LABORATORY
WATER ANALYSIS REPORT
HOBBS, NEW MEXICO

COMPANY Marbob

REPORT W01-112
DATE November 26, 2001
DISTRICT Artesia/Hobbs

Bone Spring
Produced Water

SUBMITTED BY

WELL
COUNTY

DEPTH
FIELD

FORMATION
SOURCE

SAMPLE	Luske 13		Lusk 19		WPB 1			
Sample Temp.	66	°F	66	°F	66	°F		°F
RESISTIVITY	0.058		0.06		0.058			
SPECIFIC GR.	1.135		1.120		1.135			
pH	6.14		6.19		6.54			
CALCIUM	7,600	mpl	8,200	mpl	4,100	mpl		mpl
MAGNESIUM	5,160	mpl	6,900	mpl	3,000	mpl		mpl
CHLORIDE	134,355	mpl	106,470	mpl	129,285	mpl		mpl
SULFATES	Mod	mpl	light	mpl	Light	mpl		mpl
BICARBONATES	31	mpl	61	mpl	122	mpl		mpl
SOLUBLE IRON	light	mpl	light	mpl	light	mpl		mpl
Sodium		mpl		mpl		mpl	0	mpl
TDS		mpl		mpl		mpl	0	mpl
OIL GRAVITY	@	°F	@	°F	@	°F	@	°F

REMARKS

MPL = Milligrams per litter
Resitivity measured in: Ohm/m2/m

ANALYST: John Eubank

HALLIBURTON

CENTRAL OPERATIONS LABORATORY
WATER ANALYSIS REPORT
HOBBS NEW MEXICO

COMPANY Marbob

REPORT W02-041
DATE February 18, 2002
DISTRICT Hobbs

SUBMITTED BY Delaware Produced / Injection Zone Water

WELL Fed - J DEPTH FORMATION
COUNTY FIELD SOURCE

SAMPLE				
Sample Temp.	69 °F	°F	°F	°F
RESISTIVITY	1.208			
SPECIFIC GR.	0.050			
pH	5.85			
CALCIUM	25,000 mpl	mpl	mpl	mpl
MAGNESIUM	25,500 mpl	mpl	mpl	mpl
CHLORIDE	192,660 mpl	mpl	mpl	mpl
SULFATES	0 mpl	mpl	mpl	mpl
BICARBONATES	67 mpl	mpl	mpl	mpl
SOLUBLE IRON	0 mpl	mpl	mpl	mpl
Sodium	~~48082~~ mpl	0 mpl	0 mpl	0 mpl
TDS	291,309 mpl	0 mpl	0 mpl	0 mpl
OIL GRAVITY	@ °F	@ °F	@ °F	@

REMARKS Delaware Produced Water = Delaware Injection Zone Water

MPL = Milligrams per litter
Resitivity measured in: Ohm/m2m

ANALYST: James Bonner

COMPANY: TEXACO E & P, INC.

WELL: FEDERAL (USA) "J" #5

FIELD: LUSK DELAWARE WEST

COUNTY: LEA STATE: NEW MEXICO

COUNTY: LEA
Field: LUSK DELAWARE WEST
Location: 330' FSL AND 1653' FEL
Well: FEDERAL (USA) "J" #5
Company: TEXACO E & P, INC.

Schlumberger

LITHO-DENSITY
COMPENSATED NEUTRON
SPECTROSCOPY GAMMA

LOCATION
330' FSL AND 1653' FEL
UNIT LETTER "O"

Elev. KB 3553 F
GL 3542.5 F
DF 3552 F

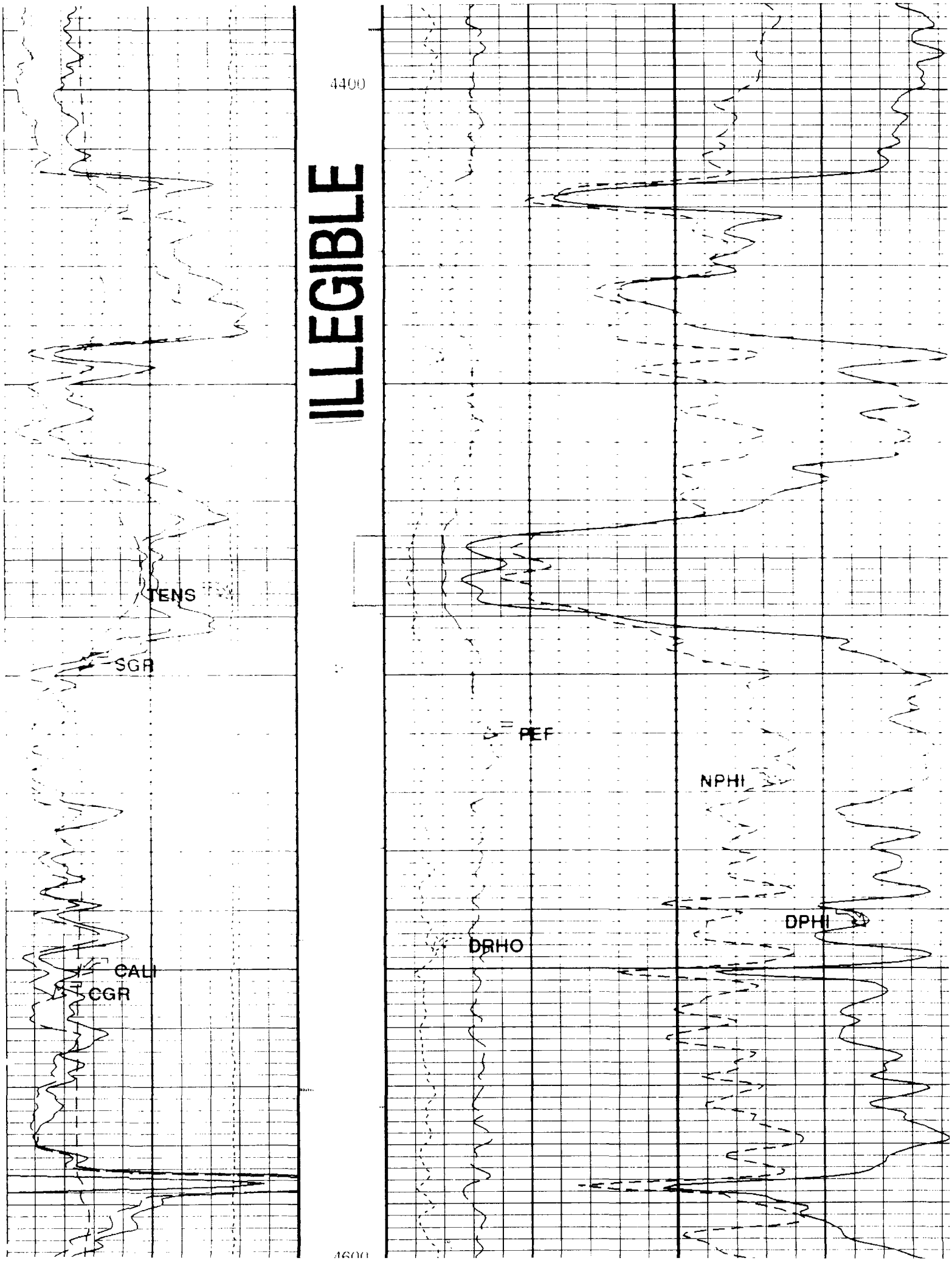
Permanent Datum: GROUND LEVEL Elev 3542.5 F
Log Measured From: KELLY BUSHING 10.5 F above Perm. Datum
Drilling Measured From: KELLY BUSHING

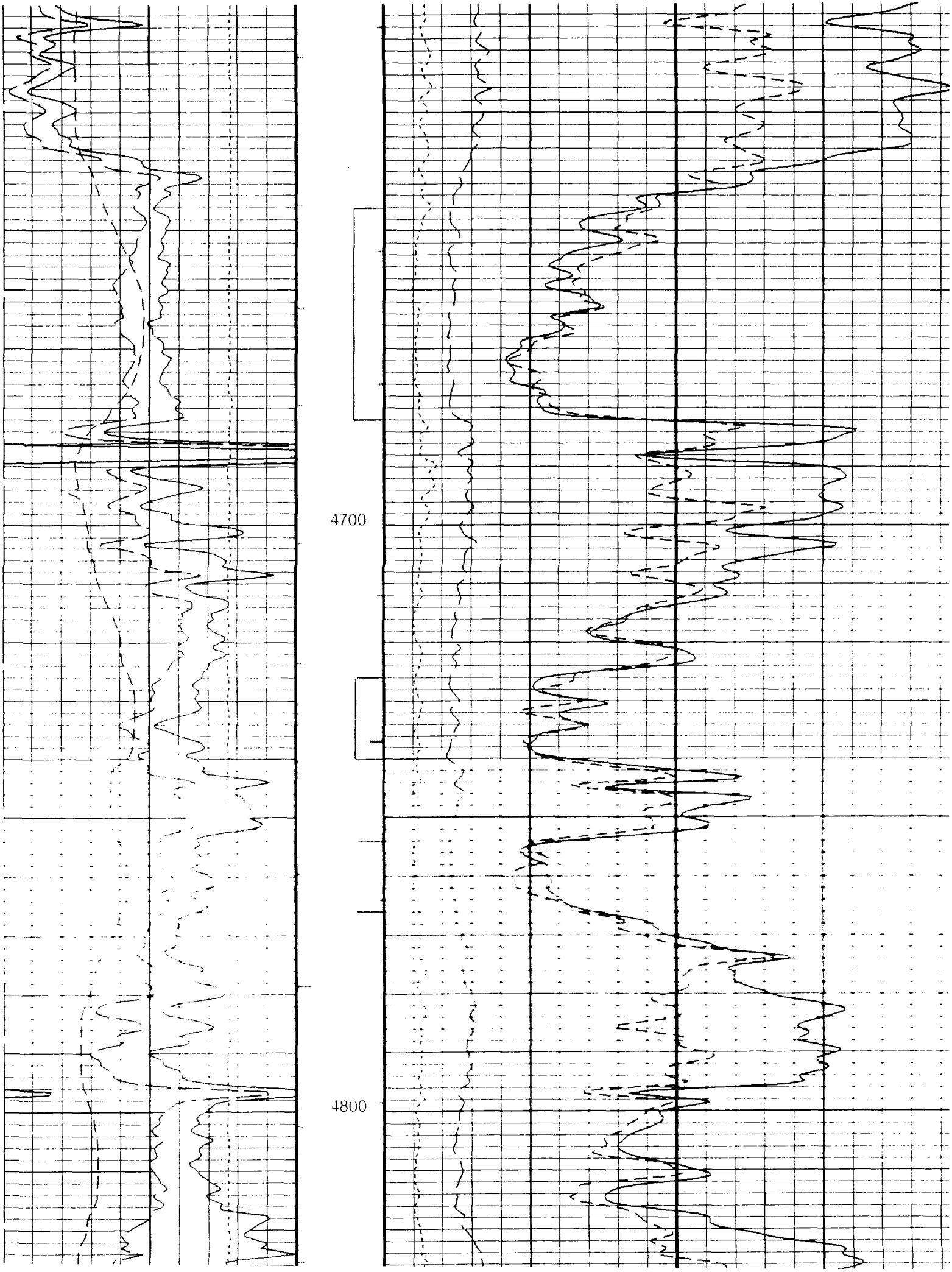
API Serial No.	SECTION	TOWNSHIP	RANGE
30-025-32449	30	19 SOUTH	32 EAST

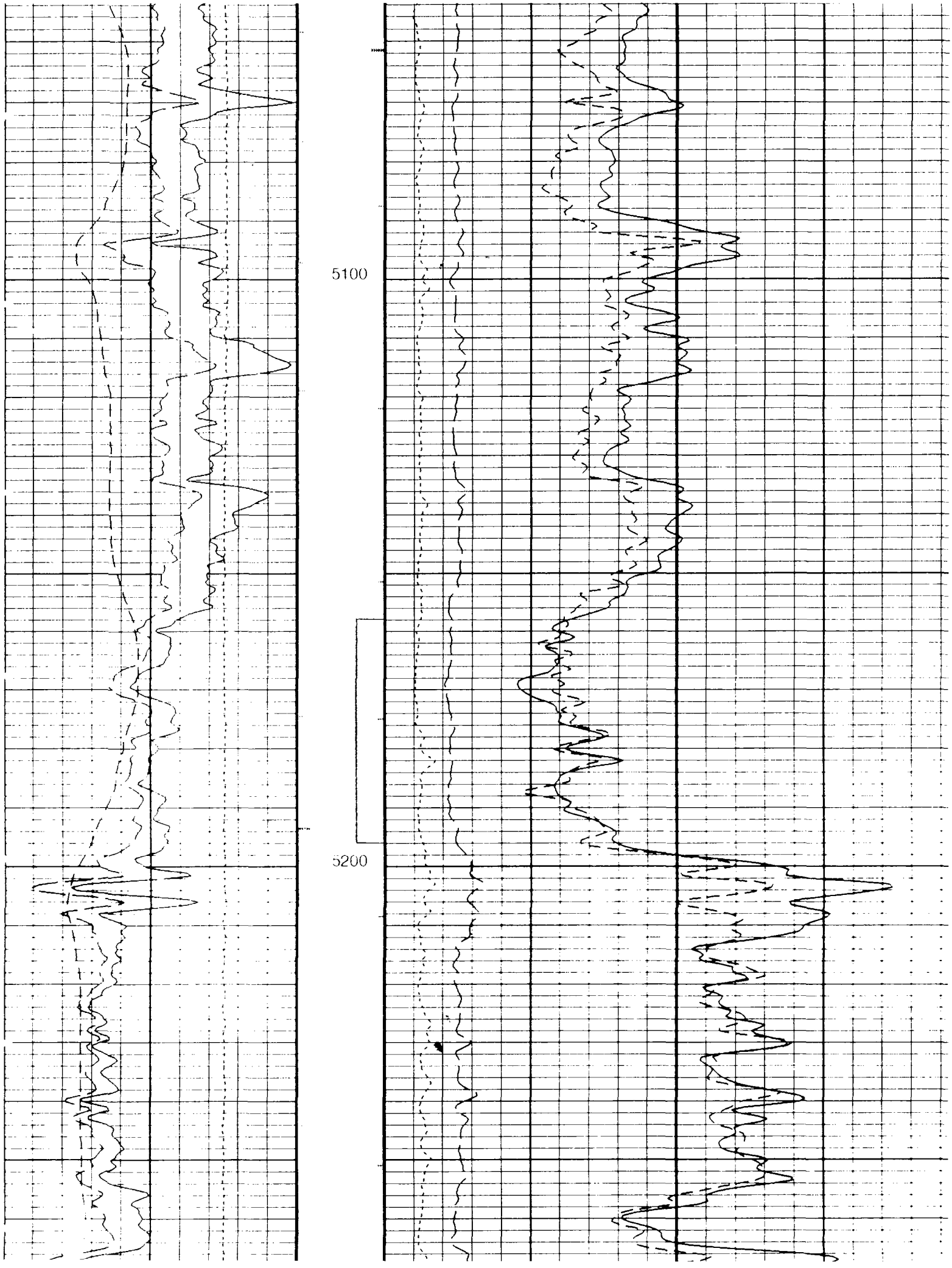
ILLEGIBLE

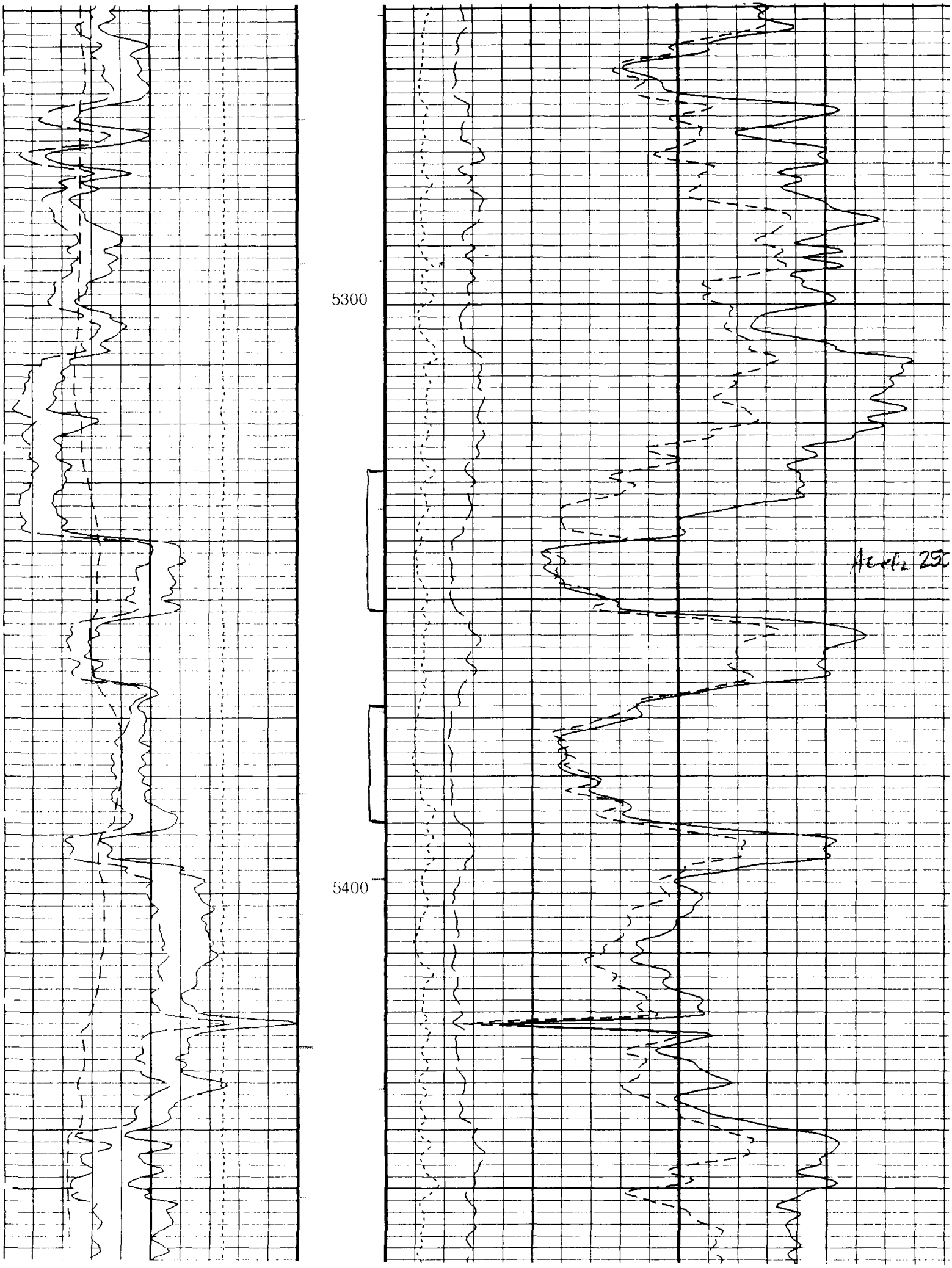
Logging Date		20-AUG-1995				Logging Date	
Run Number		1				Run Number	
Depth Driller		7300 F				Depth Driller	
Schlumberger Depth		7286 F				Schlumberger Depth	
Bottom Log Interval		7284 F				Bottom Log Interval	
Top Log Interval		200 F				Top Log Interval	
Casing Driller Size @ Depth		8.625 IN	@	4126 F	@	Casing Driller Size @ Depth	@
Casing Schlumberger		4120 F				Casing Schlumberger	
Bit Size		7.875 IN				Bit Size	
Type Fluid In Hole		FRESH				Type Fluid In Hole	
MUD Density	Viscosity	8.4 LB/G	29 S			MUD Density	Viscosity
Fluid Loss	PH		10			Fluid Loss	PH
Source Of Sample		CIRCULATION PIT				Source Of Sample	
RM @ Measured Temperature		0.380 OHMM	@	80 DEGF	@	RM @ Measured Temperature	@
RMF @ Measured Temperature		0.340 OHMM	@	80 DEGF	@	RMF @ Measured Temperature	@
RMC @ Measured Temperature		0.350 OHMM	@	80 DEGF	@	RMC @ Measured Temperature	@
Source RMF	RMC	MEASURED	MEASURED			Source RMF	RMC
RM @ MRT	RMF @ MRT	0.271 @ 115	0.242 @ 115		@ @	RM @ MRT	RMF @ MRT @ @
Maximum Recorded Temperatures		115 DEGF	115	115		Maximum Recorded Temperatures	
Circulation Stopped	Time	20-AUG-1995		6:00		Circulation Stopped	Time
Logger On Bottom	Time	20-AUG-1995		16:30		Logger On Bottom	Time
Unit Number	Location	2030 HOBBS, N.M.				Unit Number	Location
Recorded By		TIMOTHY HAMMILL				Recorded By	
Witnessed By		CHUCK BAHR (VIA LOGNET)				Witnessed By	

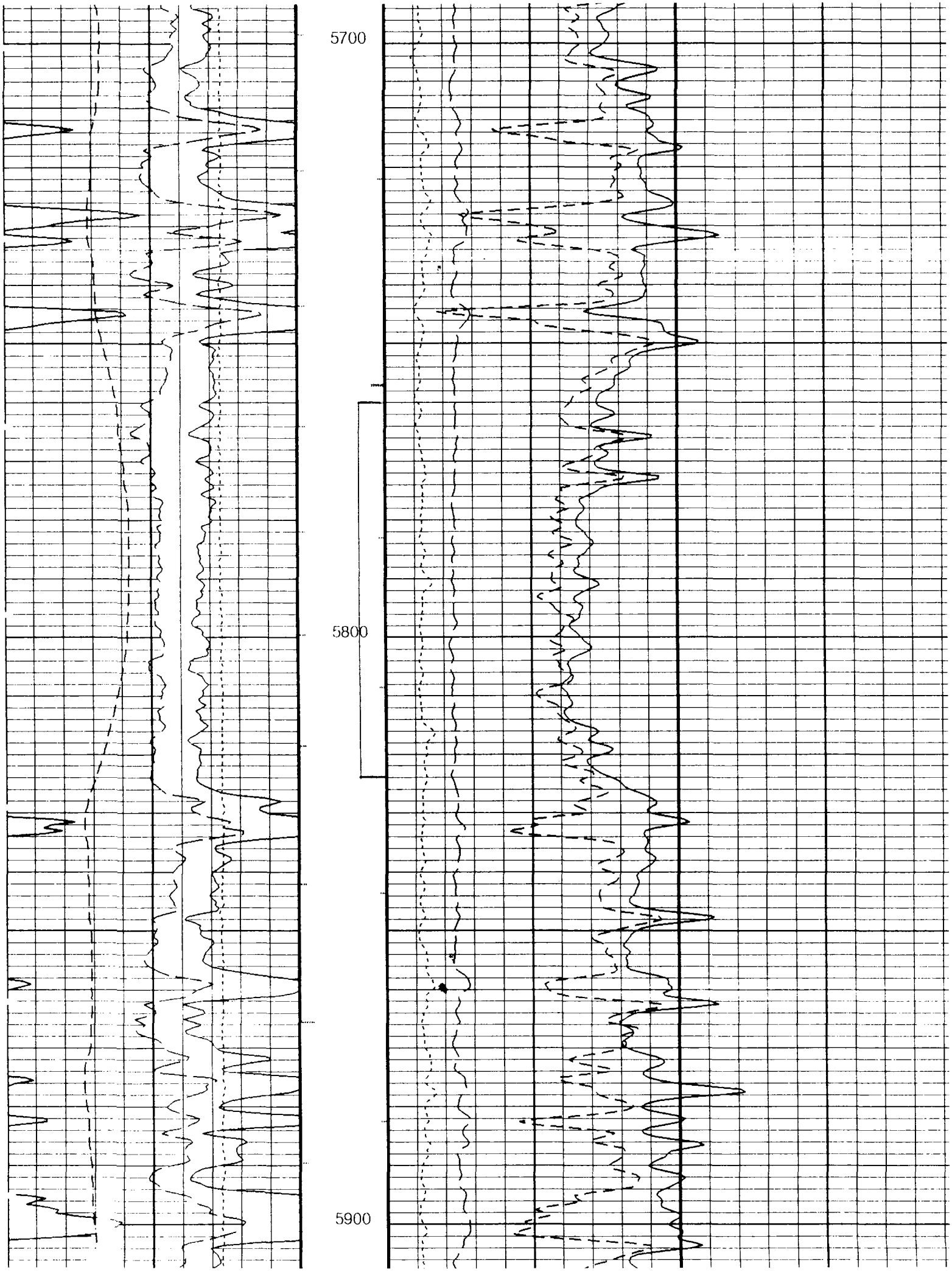
FINAL PRINT

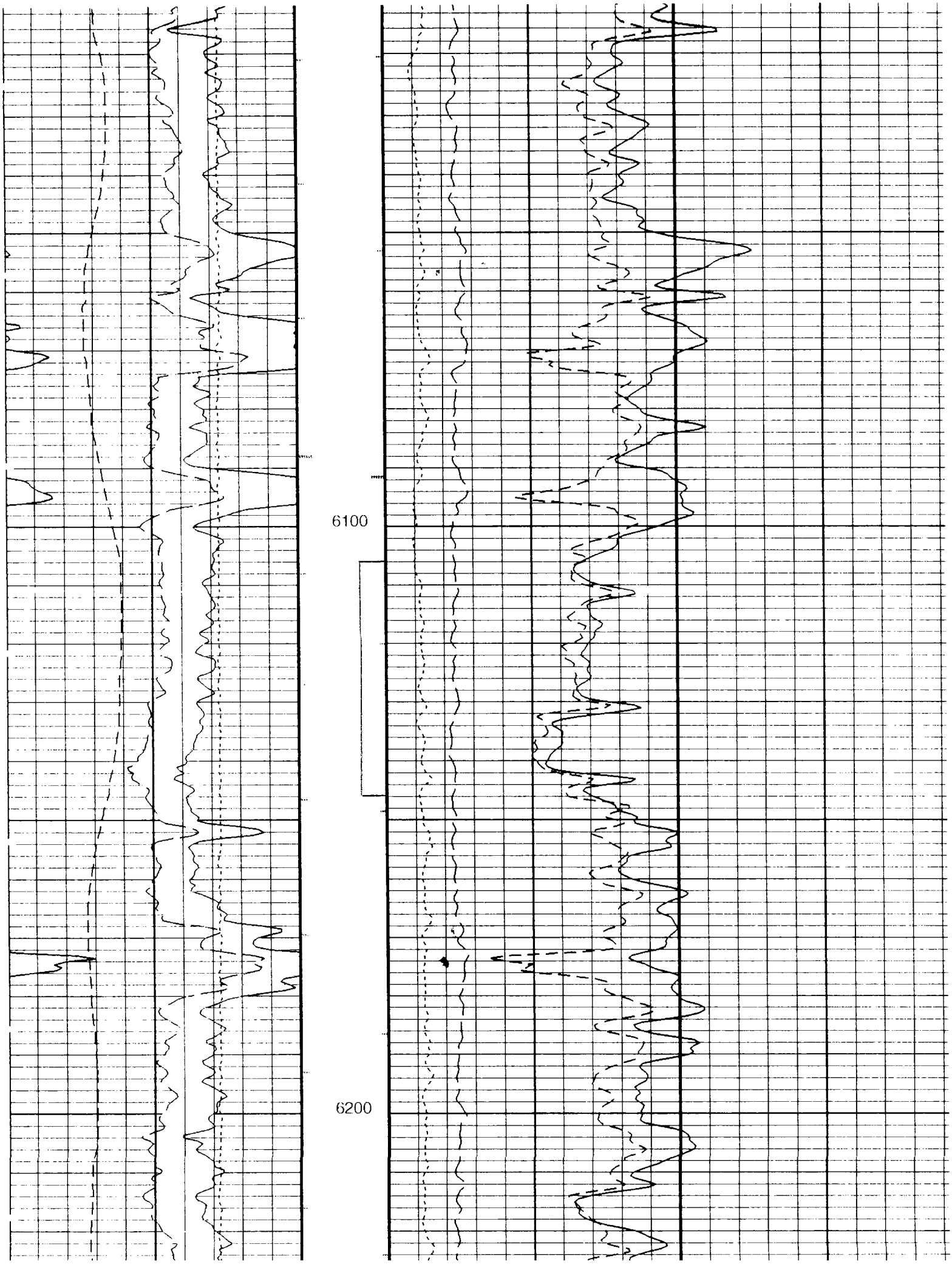

ILLEGIBLE
4400
TENS
SGR
PEF
NPHI
DPHI
DRHO
CALI
CGR
4600


4700
4800


5100
5200


5300
5400


5700
5800
5900


6100
6200