

BILL F. HALEPESKA

PETROLEUM ENGINEER

Texas #58052
P. O. Box 80064
915/694-5945

GEOLOGIST

Cert #2941
Midland, Texas 79708

February 25, 2002

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505
Attention: Mr. David R. Catanach

MAR - 4

RE: Water Disposal Project - US MI 15303, Eddy County, New Mexico
Application for Administrative Approval to Inject Saltwater into
the Bradley 13 Federal No. 2 Well, Located 1955' FSL & 936 FWL,
Section 13, T-25S, R-29E (30-015-29257)

Gentlemen:

POGO hereby respectfully submits two (2) original Applications for
Authorization to Inject (Form C-108) pertaining to the captioned well and
requests that same be given Administrative Approval.

Persuant thereto, please find enclosed the following:

- (1) Copy of Notification Letter sent to all Leasehold Operators within
one-half (1/2) mile radius of the proposed injection well and to
surface owner upon which such well is located, along with copies
of proof of mailing; and
- (2) Proof of Legal Publication.

If you should have any questions regarding the subject Application, please
contact the undersigned or Richard L. Wright.

Very truly yours,

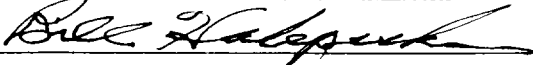


BILL F. HALEPESKA, P.E.

Enclosure(s)

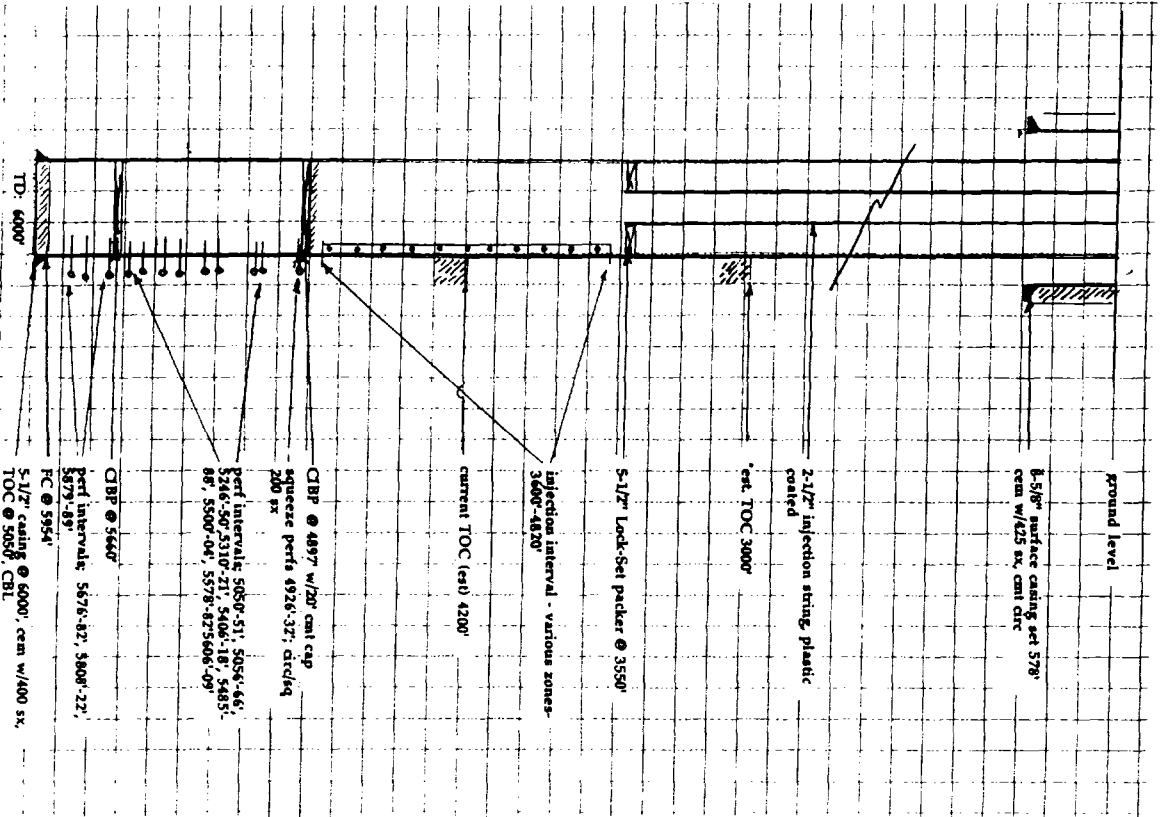
cc w/encl.: New Mexico Oil Conservation Division
Artesia, NM

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance XX Disposal _____ Storage
Application qualifies for administrative approval? XX Yes _____ No
- II. OPERATOR: POGO PRODUCING COMPANY
ADDRESS: P. O. Box 10340, Midland, Texas 79702
CONTACT PARTY: Richard Wright PHONE: 915/685-8100
- 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 XX 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:
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: Bill F. Halepeska TITLE: Agent
SIGNATURE:  DATE: 2-1-02
- * 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: _____

INJECTION WELL DATA SHEET

SCHEMATIC



TABULAR DATA

(1). LEASE: Bradley 13 Federal WELL # 2
LOCATION: Sec. 13 TWP 25S Range 29E
County Eddy
Footage 1955 FSL & 936 FWL

(2). CASING STRINGS:

Surface Casing
Size 8-5/8" Depth 578' Cemented w/ 425 sx.
TOC surf. Determined by circulated
Hole size 12-1/4"

Intermediate Casing

Size Depth Cemented w/ sx.
TOC Determined by
Hole size

Long String

Size 5-1/2" Depth 6000' Cemented w/ 600 sx.
TOC 4200' Determined by calc.
Hole size 7-7/8"

Injection interval, from 3600 to 4820 ft.

(3). INJECTION TUBING STRING:

Size 2-7/8 in., coated/lined with plastic
Setting depth 3550 ft.

(4) INJECTION PACKER:

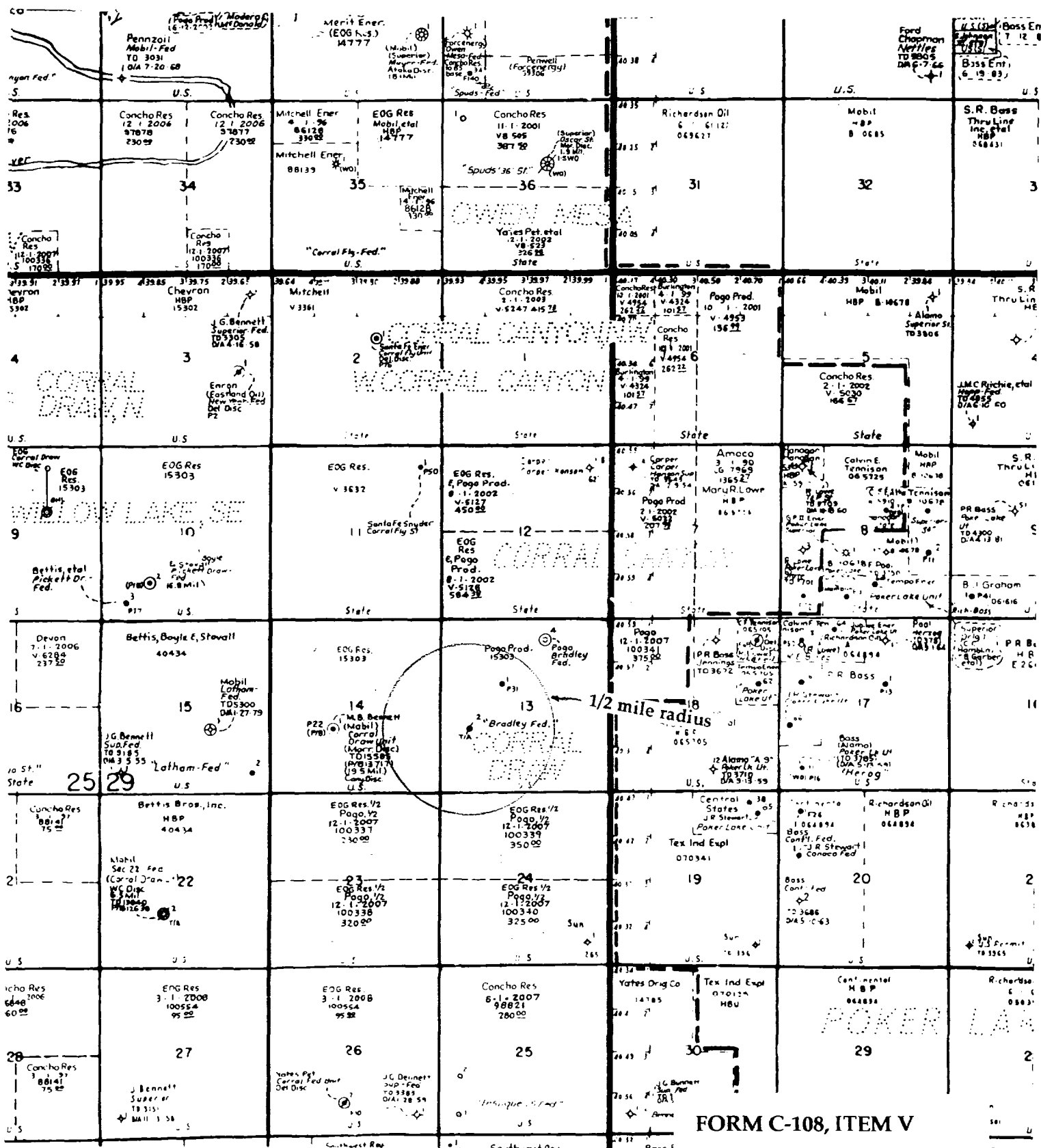
Size 5-1/2 in.; Make/Model Lock-Set or equivalent
Setting depth 3550 ft.

proposed cementing program to bring
cement well above injection interval

ITEM III-B

INJECTION WELL DATA

- (1). Injection formation: Delaware/L. Bell Canyon & U. Cherry Canyon
Field/Pool: Corral Canyon Delaware, West
- (2). Injection interval; from 3600 ft. to 4820 ft.
Perforated XX Open Hole
- (3). Original purpose well drilled Delaware Sand(s) test
- (4). Other perforated intervals; XX Yes No
Squeezed with sx., or isolated by CIBP @ 4897'
w/20' cmt cap; perfs 5050'-51', 5056'-66', 5246'-50', 5310'-21', 5406'-18',
5485'-88', 5500'-04', 5578'-82', 5606'-09', 5676'-82', 5808'-22', 5879'-89'
4926'-32' circ. and squeeze w/200 sx.
- (5). Oil or gas productive zone(s):
Next higher none
Next lower L. Cherry Canyon; 5350'

**FORM C-108, ITEM V**

LOCATION MAP & AREA OF REVIEW

**Pogo Producing Company
Bradley 13 Federal No. 2
Section 13, 25S, 29E
Eddy County, New Mexico**

ITEM VI

WELL DATA - AREA OF REVIEW

(1). Location: 1970 FNL & 1949 FNL, Sec. 13, 25S, 29E, Eddy Co.
Operator: Pogo Producing Company
Lease: Bradley 13 Federal Well No. 1
Well type: Oil XX Gas T.D. 6500'
Date drilled: Spud 3-26-97; Comp. 4-29-97
Completion data: 13-3/8" @ 570' w/500 sx; TOC surface, circ.;
5-1/2" @ 6500' w/1300 sx; TOC 2630', CBL; perf 6384'-6400'; A/1000
gal 7-1/2% HCl; set CIBP @ 6320'; perf 5616'-20', 5684'-88', 5694'-
5700'; A/1000 gal 7-1/2% HCl; IP 3180 + 28 BW and 15 MCFG; 6-97;
perf 5440'-52', 5310'-22; A/2000 gal 8-1/2%; F/33M GW + 25,400# 16/30
sand

Plugged Date (diagram att.)

(). Location:
Operator:
Lease: Well No.
Well type: Oil Gas T.D.
Date drilled:
Completion data:

Plugged Date (diagram att.)

(). Location:
Operator:
Lease: Well No.
Well type: Oil Gas T.D.
Date drilled:
Completion data:

Plugged Date (diagram att.)

ITEM VII

OPERATIONAL DATA

- (1). Average expected injection rate: 750 BWPD; maximum anticipated rate: 1500 BWPD
- (2). Closed system
- (3). Estimated average injection pressure: 750 psi.
Estimated maximum pressure: 900 psi.
- (4). Source of injection water: area wells operated by Pogo and
producing primarily from the Delaware Sand(s)
Analysis of waters attached EXHIBIT I
- (5). Analysis of injection zone water attached EXHIBIT II
Data source: Roswell Geological Society; "A Symposium of Oil
& Gas Fields of Southeastern New Mexico", 1956

ITEM VIII

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: ss, lt gry-lt tan, sm clr, well sorted,
vfg-fg, sb ang-sb rnd, poorly consol-fria, calc cmtd

Geological name: Delaware/Bell Canyon - Up. Cherry Canyon

Zone thickness: 1220 ft; Depth: 3600'

FRESH WATER SOURCE(S)

Geological name of aquifer: Rustler

Depth to bottom of zone +/-300'

ITEM IX

STIMULATION PROGRAM

ACIDIZE

Volume: 3000 Type acid: 7-1/2% HCl
Rate: 3-55 BPM; Misc.: ball sealers

FRACTURE

Fluid volume: 35M gal.; Type: GW
Prop type: 16/30 sand Volume (lb): 65M
Rate: 20-25 BPM; Conductor: 5-1/2"
Misc: _____

ITEM X

LOGGING PROGRAM

Logging program included: GR/CND, DIL, CBL
Copy of GR/CND log(s) included with
attachments

ITEM XI

FRESH WATER DATA

Fresh water well within 1 mile radius: _____ Yes ☒ No
Chemical analysis from well located: _____
Date sampled: _____
Chemical analysis from well located: _____
Date sampled: _____

ITEM XII

HYDROLOGY

Various engineering data and area logs reveal no evidence that there might exist hydrologic connection between the intended injection zone at 3600' and possible fresh water zone(s) above 300'.

BILL F. HALEPESKA

Petroleum Engineer
Texas #58852
P. O. Box 80064

Geologist
Cert. #2941
Midland, TX 79708

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 29, 2002

To: Offset Leasehold Operators
(See Attached List)

Re: Water Disposal Project, US MI 15303
Eddy County, New Mexico
Application for Administrative Approval to Inject
Saltwater into the Bradley 13 Federal No, 2 Well, Located
1955' FSL & 936 FWL Section 13, T-25S, R-29E

Gentlemen:

Pogo Producing Company has applied to the New Mexico Oil Conservation Division for Administrative Approval to inject saltwater into the captioned well.

A copy of the Form C-108 submitted by Pogo to the Division is enclosed.

If you object to and/or request that a hearing be held pertaining to this Application, you must notify the Division within fifteen (15) days from the date of Pogo's Application.

If you have any questions, please contact the undersigned or Mr. Richard L. Wright.

Very truly yours,

Bill F. Halepeska, P.E.

Enclosure(s)

FORM C-108

Attached to Notification Letter dated January 29, 2002, regarding Pogo's
Application for Administrative Approval to Inject Saltwater into the Bradley
13 Federal No. 2 Well

EOG Resources
P. O. Box 2267
Midland, Texas 79702
Attention: Ms. Beverly Hatfield

United States Department of Interior
Bureau of Land Management
Roswell Resource Area Office
2909 W. 2nd
Roswell, New Mexico 88201-1287
Attention Mr. David Glass

FORM C-108
PROOF OF MAILING

Pogo Producing Company
Bradley 13 Federal No. 2
Eddy County, New Mexico

7001 0320 0004 3726 6733

U.S. Postal Service	
CERTIFIED MAIL RECEIPT	
<i>(Domestic Mail Only, No Insurance Coverage Provided)</i>	
OFFICIAL USE	
Postage	\$ 0.80
Certified Fee	2.10
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 2.90
01/31/02	
Sent To	
U.S. DEPT. of INTERIOR, BLM	
Street, Apt. No. or PO Box	
2009 W. 2nd	
City, State, ZIP+4	
ROSWELL, NM 88201-1287	

7001 0320 0004 3726 6726

U.S. Postal Service	
CERTIFIED MAIL RECEIPT	
<i>(Domestic Mail Only, No Insurance Coverage Provided)</i>	
OFFICIAL USE	
Postage	\$ 0.80
Certified Fee	2.10
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 2.90
01/31/02	
Sent To	
EOG RESOURCES	
Street, Apt. No. or PO Box	
BOX 2267	
City, State, ZIP+4	
MIDLAND, TX 79702	

Affidavit of Publication

No 22289

State of New Mexico,
County of Eddy, ss.

Dawn Higgins

being first duly sworn, on oath says:

That she is Business Manager
of the Carlsbad Current-Argus, a newspaper published
daily at the City of Carlsbad, in said county of Eddy, state
of New Mexico and of general paid circulation in said coun-
ty; that the same is a duly qualified newspaper under the
laws of the State wherein legal notices and advertisements
may be published; that the printed notice attached hereto
was published in the regular and entire edition of said
newspaper and not in supplement thereof on the date as
follows, to wit:

<u>February 22</u>	<u>2002</u>
<u> </u>	<u>2002</u>
<u> </u>	<u>2002</u>
<u> </u>	<u>2002</u>
<u> </u>	<u>2002</u>
<u> </u>	<u>2002</u>

That the cost of publication is \$ 40.53,
and that payment thereof has been made and will be
assessed as court costs.

Dawn Higgins

Subscribed and sworn to before me this

25 day of February, 2002
Stephane Dobson

My commission expires 12/13/05
Notary Public

February 22, 2002

PUBLIC NOTICE

APPLICATION FOR AUTHORIZATION TO INJECT SALTWATER

**POGO PRODUCING
COMPANY,** P. O. Box
10340, Midland, Texas
79702 (Contact-Richard
L. Wright at 815/685-
8100) has applied to the
New Mexico Oil Conser-
vation Division for Admin-
istrative Approval for Au-
thorization to dispose of
saltwater into its Bradley
13 Federal No. 2 well, lo-
cated 1955' FSL & 936
FWL of Section 13, T-25
-S, R-29-E, Eddy County,
New Mexico. The pur-
pose of such well will be
for disposal of saltwater
produced from nearby
Pogo operated wells. The
injection interval will be in
the Delaware Formation
between 3600' & 4820
beneath the surface, with
an expected maximum in-
jection rate of 1500 BW-
PD and an expected max-
imum injection pressure
of 900 psi.

Any interested parties
must file objections or re-
quests for a hearing with
the New Mexico Oil Con-
servation Division, 2040
South Paseo, Santa Fe,
New Mexico 87505
within fifteen (15) days
from the date of Pogo's
Application.

FORM C-108, ITEM V

**ANALYSIS OF INJECTION
ZONE WATER**

 Data pre
Affiliation
Date:

Pogo Producing Company
DISCOVI Bradley 13 Federal No. 2
PAY ZO Section 13, 25S, 29E
fine Eddy County, New Mexico
 is 1

Field Name: Mason, North (Delaware)

Location: T. 26 S., Rs. 31 & 32 E.

County & State: Eddy & Lea County, New Mexico

on-Federal

COMPLETION DATE: 9-18-54

 ; Guadalupian series; upper Bell Canyon formation. Gray
 nd, slightly limestone cemented. The average pay zone

TYPICAL CORE ANALYSIS OF A PAY INTERVAL IN THIS FIELD:

Perm. in millidarcys		% Porosity	Liquid Saturation (% of pore space)	
Horizontal	Vertical		Water	Oil
24		25.2	47.6	14

OTHER SHOWS ENCOUNTERED IN THIS FIELD: None

TRAP TYPE: Stratigraphic

NATURE OF OIL: Gravity 42.2° A.P.I.

NATURE OF GAS:

NATURE OF PRODUCING ZONE WATER:

Resistivity: .06 ohm-meters @ 65 °F.

	Total Solids	Na/K	Ca	Mg	Fe	SO ₄	Cl	CO ₂	HCO ₃	OH	H ₂ S
ppm	165,340	61,000	2,480	170	-	4,000	94,800	-	2,890	-	-

INITIAL FIELD PRESSURE: 500 psi.

TYPE OF DRIVE: Solution gas drive.

NORMAL COMPLETION PRACTICES: Normal drilling to sand and then core pay, run casing above pay for an open hole completion and use only small fracture treatments.

PRODUCTION DATA:

No. of wells @ yr. end				Production Oil in barrels Gas in MMCF		No. of wells @ yr. end				Production Oil in barrels Gas in MMCF	
Year	Type	Prod.	Shut in or Abnd.			Year	Type	Prod.	Shut in or Abnd.		
				Annual	Cumulative					Annual	Cumulative
1941	oil					1949	oil				
	gas						gas				
1942	oil					1950	oil				
	gas						gas				
1943	oil					1951	oil				
	gas						gas				
1944	oil					1952	oil				
	gas						gas				
1945	oil					1953	oil				
	gas						gas				
1946	oil						oil	1	0	1,462	
	gas					1954	gas				
1947	oil						oil	20	0	124,516	125,978
	gas					1955	gas				
1948	oil						oil	22	0	102,860	228,838
	gas					1956*	gas				

* 1956 Figure is production to 5-1-56.

Endura Products Corpor

P.O. Box 3394, Midland, Texas 79701
 Phone (915) 684-4233 Fax (915) 684-4234

FORM C-108, ITEM VII(4)

**ANALYSIS OF INJECTION
WATER****WATER ANALYSIS**

Pogo Producing Company
 Bradley 13 Federal No. 2
 Section 13, 25S, 29E
 Eddy County, New Mexico

Date **02/25/02** Endura Rep **Greg Archer**Sampling Point/Date **Wellhead 02/25/02**Company **Pogo Producing Co.**County **Eddy**

Formation

Lease **BRADLEY 13 FEDERAL**Well **#4****DISSOLVED SOLIDS****CATIONS**

	mg/l	me/l
Sodium, Na+ (Calc.)	85,767	3,729
Total Hardness as Ca++	21,200	0
Calcium Ca++	17,480	874
Magnesium, Mg++	2,268	189
Barium, Ba++	0	0
Iron (Total) Fe+++*	32	2

ANIONS

Chlorides, Cl-	170,000	4,789
Sulfate, SO4-	175	4
Carbonate, CO3-	0	0
Bicarbonates, HCO3-	73	1
Sulfide, S-*	0	0
Total Dissolved Solid	275,795	

OTHER PROPERTIES

pH*	5.229
Specific Gravity, 60/60 F.	1.180
Turbidity	355

SCALING INDICIES

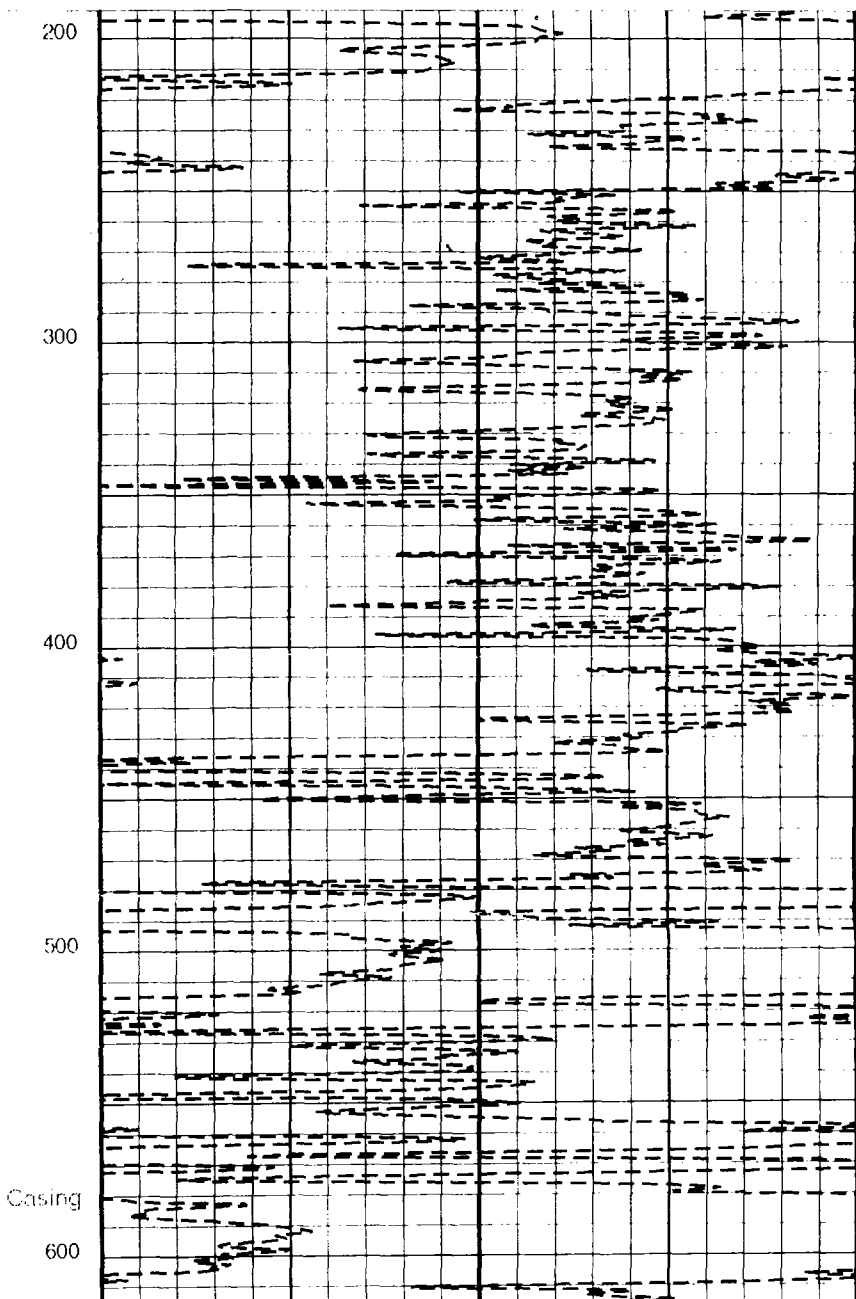
<u>TEMP, F</u>	<u>CA CO3</u>	<u>CASO4*2H2O</u>	<u>CA SO4</u>	<u>BA SO4</u>
80	0.0761	-0.4048	-0.7685	-29.4921
120	0.6278	-0.4176	-0.6009	-29.6286
160	1.4620	-0.4348	-0.4454	-29.8359

PERFORATIONS

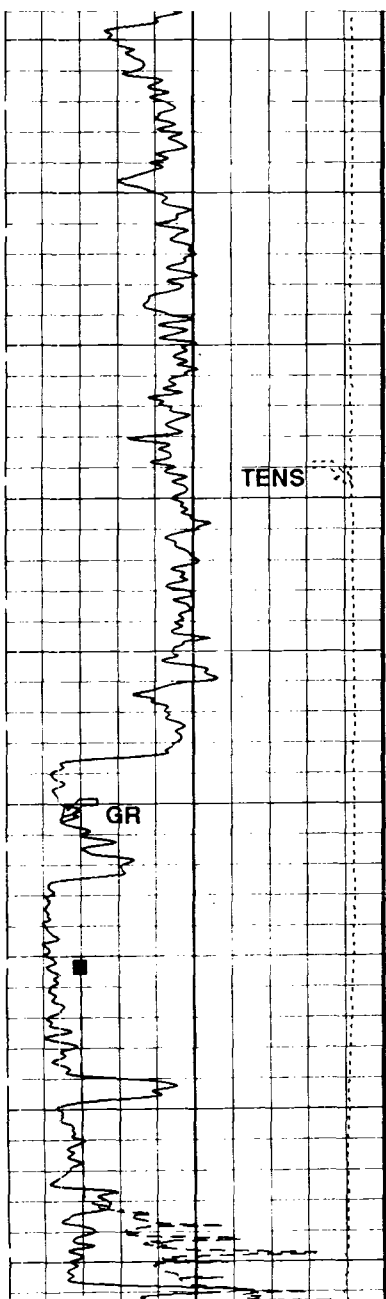
COUNTY: **Eddy** STATE: **New Mexico**

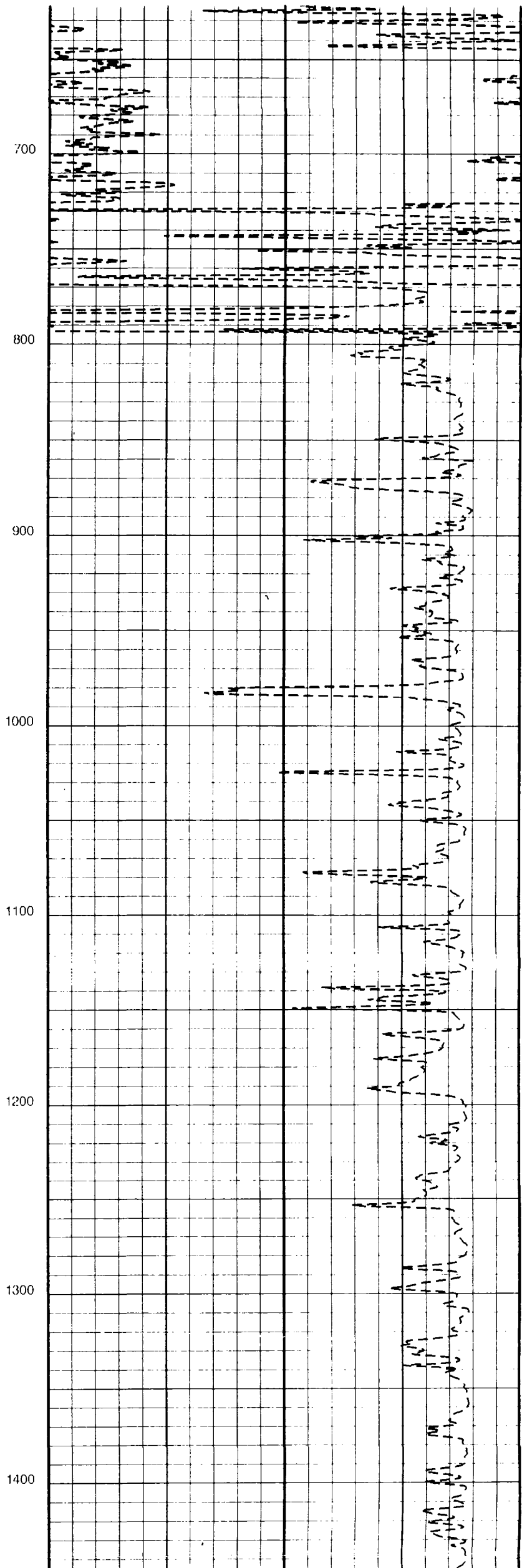
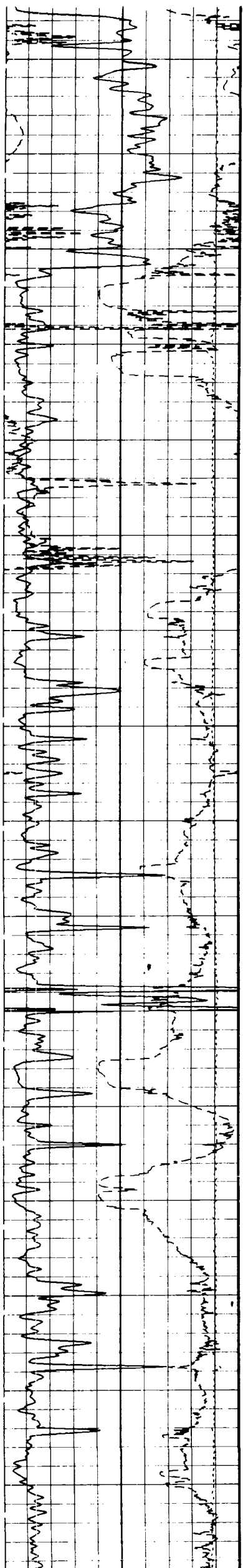
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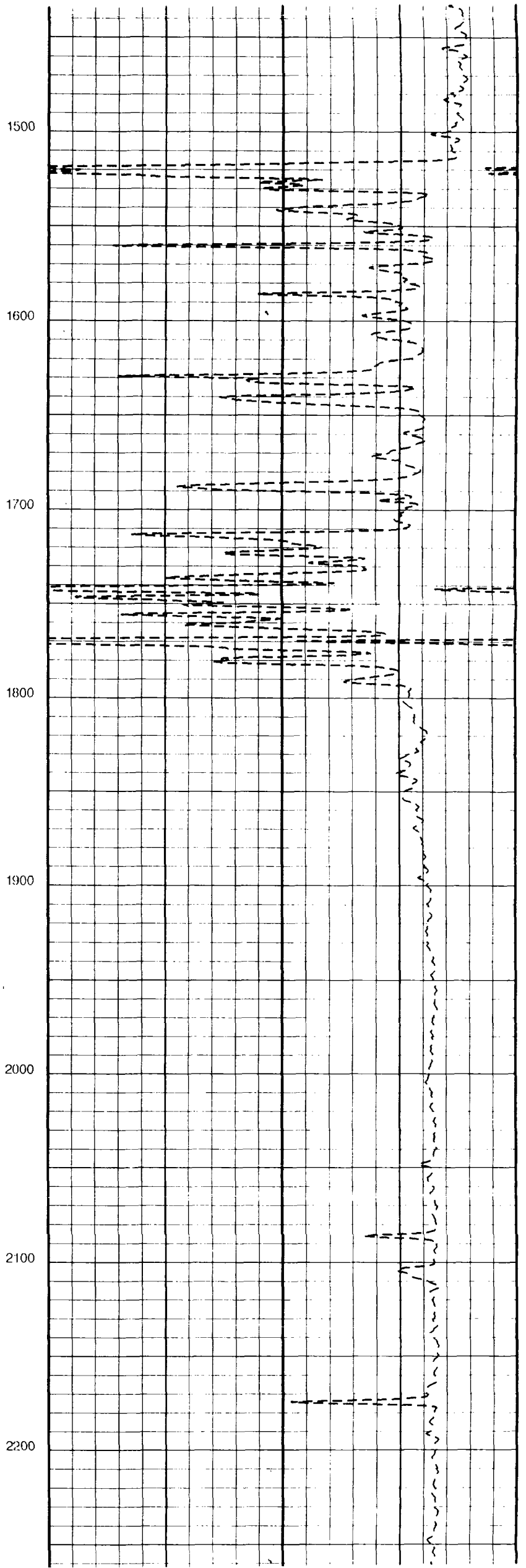
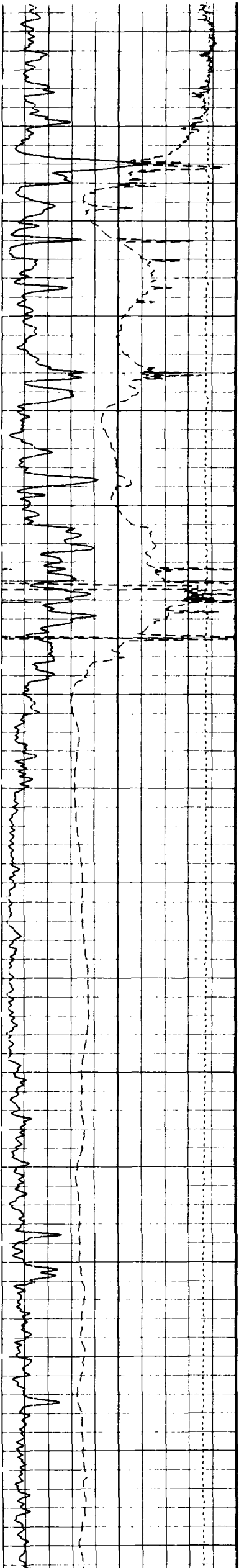
Env. Corr. Thermal Neutron Porosity (TNPH)		
0.3	(V/V)	-0.1
Formation Density (RHOZ)		
2	(G/C3)	3
HRDD Density Correction (HDRA)		
-0.05	(G/C3)	0.45

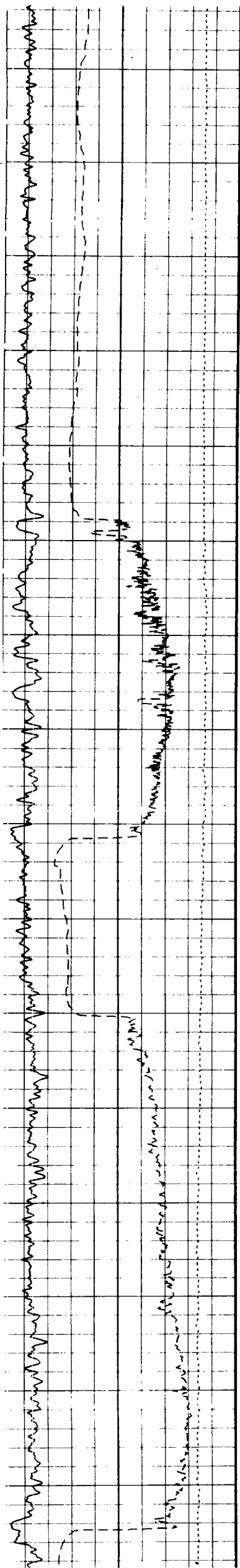


Tension (TENS)		
10000	(LBF)	0
Caliper (HCAL)		
6	(IN)	16
Gamma Ray (GR)		
100	(GAPI)	200
Gamma Ray (GR)		
0	(GAPI)	100









2300

2400

2500

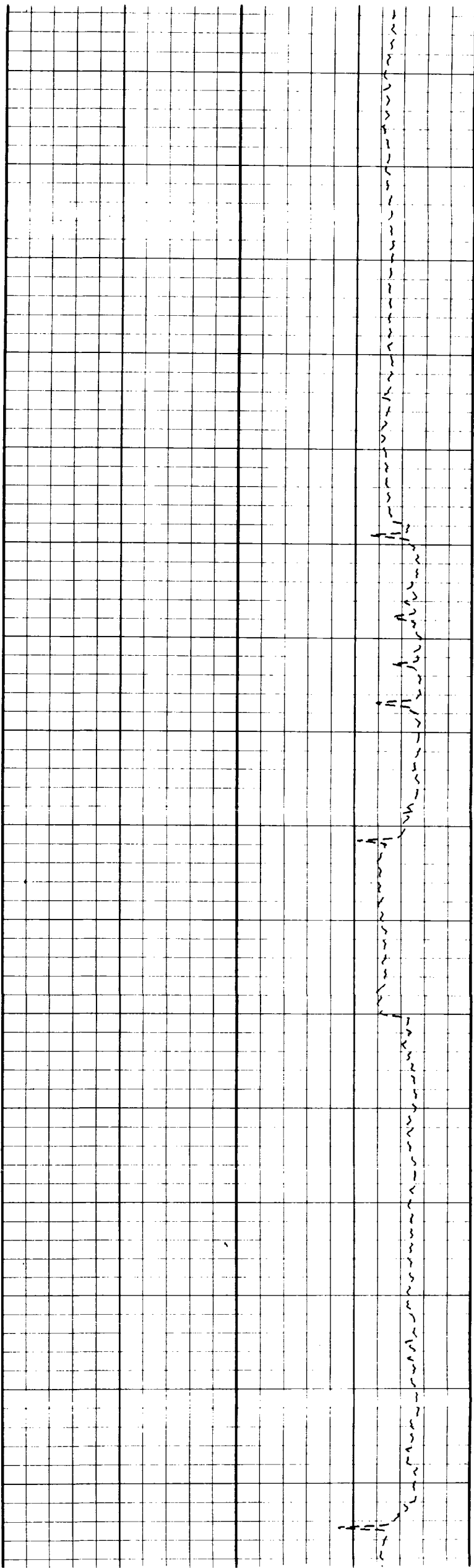
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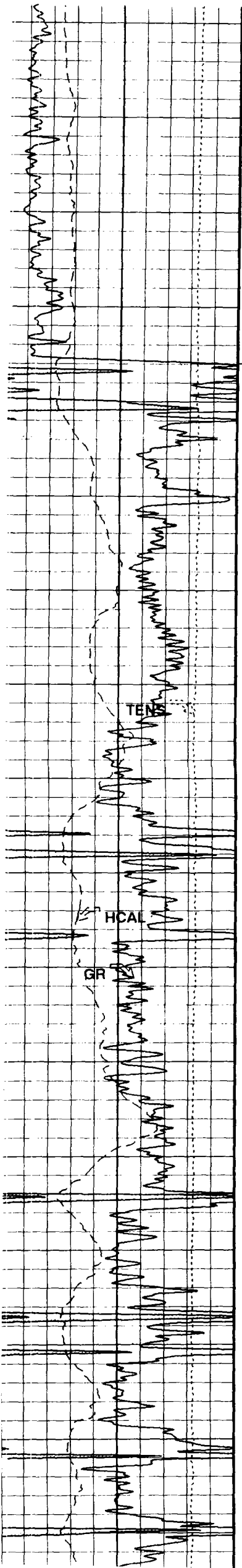
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2900

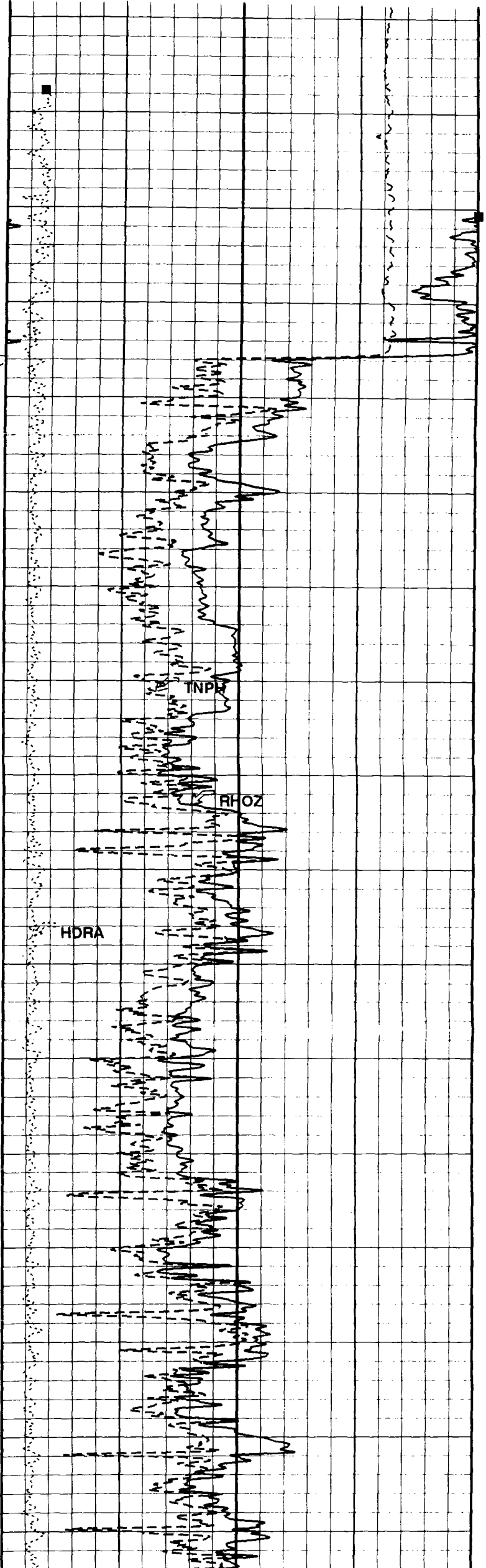
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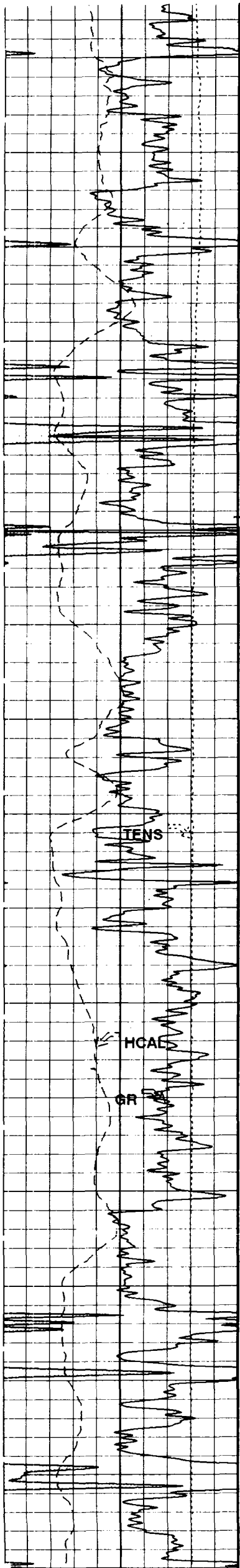




hell
Coyote

3100
3200
3300
3400
3500
3600
3700
3800
3900





Cherry
Canyon

4000

4100

4200

4300

4400

4500

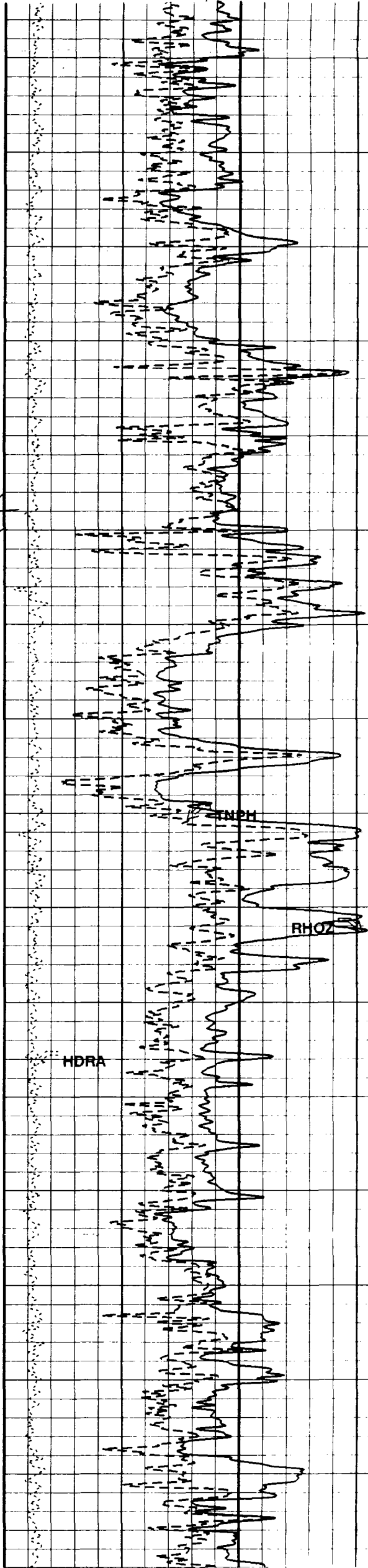
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4700

IFNS

HCAI

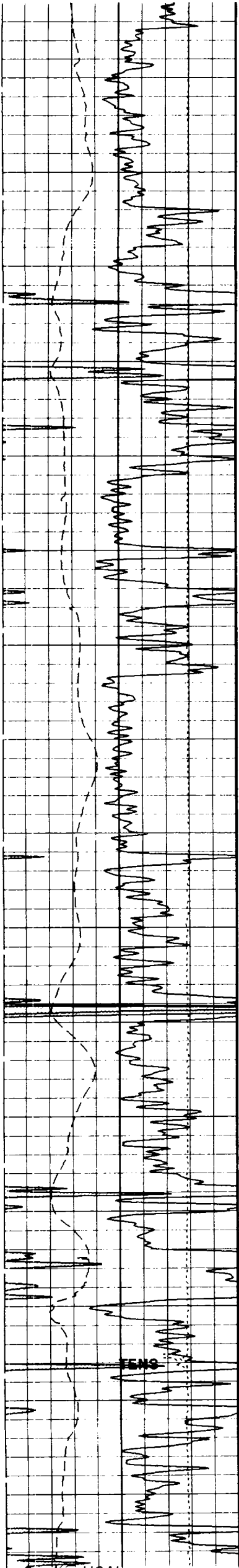
GR



HDRA

HEPT

RHOZ



4800

4900

5000

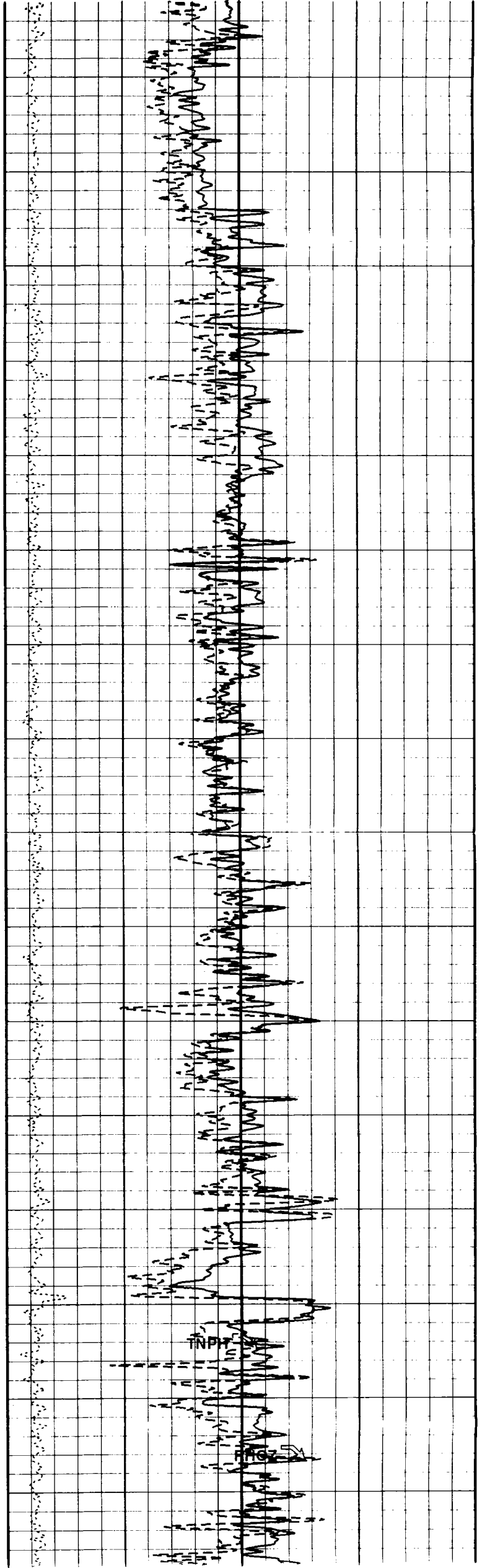
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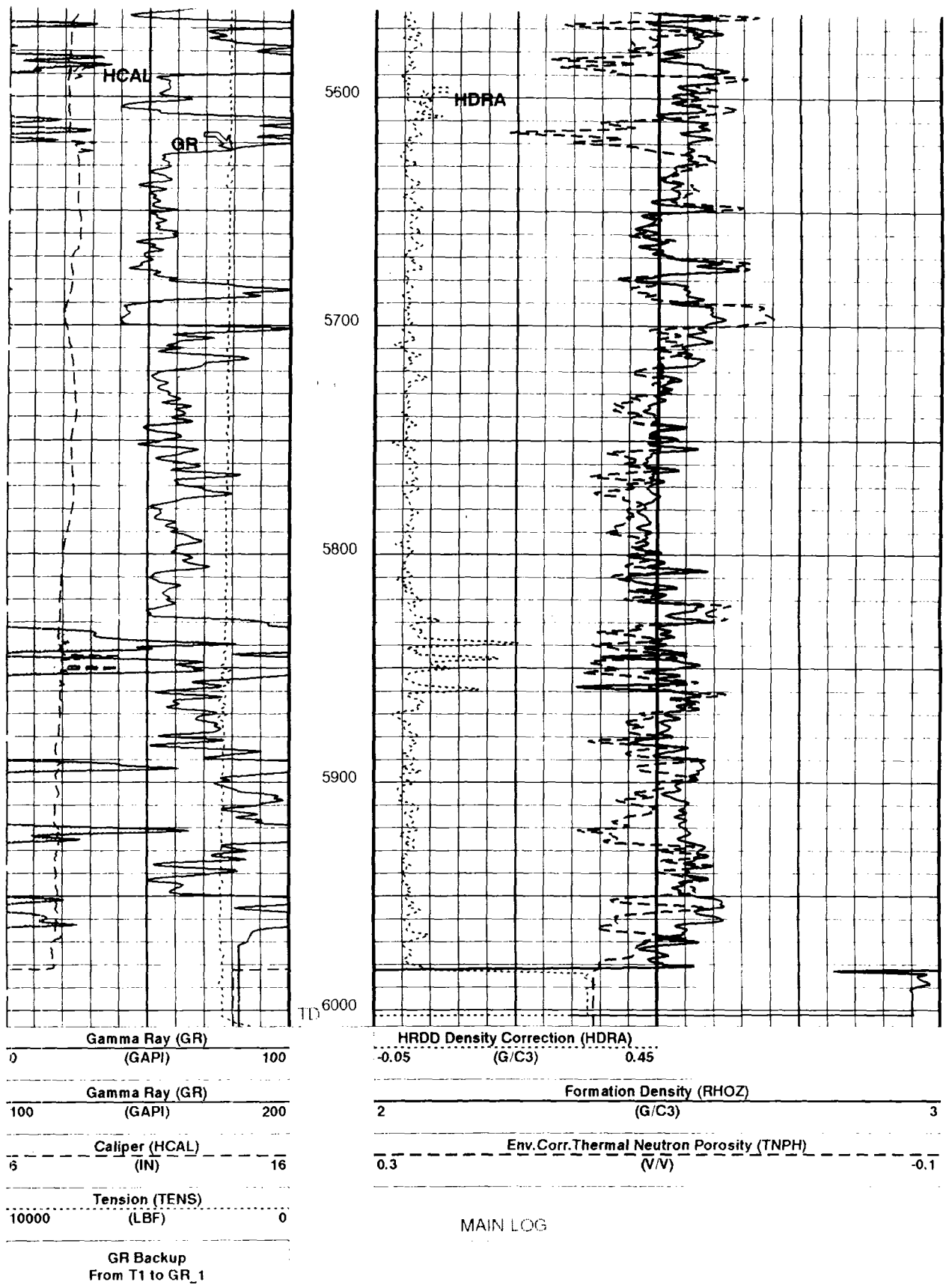
5200

5300

5400

5500





PIP SUMMARY

Time Mark Every 60 S					
Format: Density_2in		Vertical Scale: 2" per 100'		Graphics File Created: 17-SEP-1997 01:04	
OP System Version: 7C0-713					
MBM					
HILTB-CTS		RPCA-856			
Speed Corrected - Depth Matched LOG					
Input DLIS Files					
DEFAULT	HILTC.012	FIELD	17-SEP-1997 00:47	6007.0 FT	5650.0 FT
Output DLIS Files					
DEFAULT	HILTC.013	FN:10	FIELD	17-SEP-1997 01:04	

Input DLIS Files					
DEFAULT	HILTC.012	FIELD	17-SEP-1997 00:47	6007.0 FT	190.5 FT
Output DLIS Files					
DEFAULT	HILTC.013	FN:10	FIELD	17-SEP-1997 01:04	6007.0 FT 190.5 FT
Integrated Hole/Cement Volume Summary					
Hole Volume = 3393.09 F3					
Cement Volume = 1111.11 F3 (1111.11 F3 @ 1.50 IN casing O.D.)					