

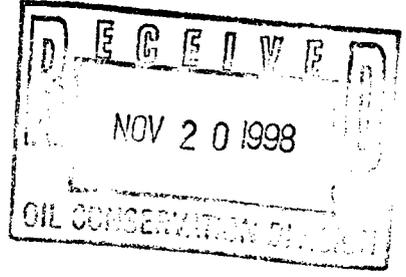


ARCO Permian

600 North Marienfeld
Midland, TX 79701-4373
P.O. Box 1610
Midland, TX 79702-1610
Telephone 915-688-5570
Facsimile 915-688-5956
Email ecasbee@mail.arco.com

Elizabeth A. Casbeer
Regulatory/Compliance Analyst

DHC 12/10/98
~~2116~~ 2146



November 18, 1998

New Mexico Oil Conservation Division
ATTN: David Catanach
2040 S. Pacheco Street
Santa Fe, NM 87505

RE: Application of ARCO Permian
for Downhole Commingling on
Red Lake "3" Federal Well Numbers 1 and 2
Red Lake (QGSA) and NE Red Lake (Glor-Yeso) Fields
Eddy Co., NM

Mr. Catanach:

ARCO Permian respectfully requests administrative approval for downhole commingling on the Red Lake "3" Federal Well Numbers 1 and 2. Attached are the supporting documents for this application.

If you have any questions, please contact me at 915/688-5570. Please send the approved permit to:

ARCO Permian
ATTN: E. A. CASBEER, Room 959-54
P. O. Box 1610
Midland, TX 79702

Yours very truly,

Elizabeth A. Casbeer
Regulatory Compliance Analyst

Attachments

xc: Bureau of Land Management
Carlsbad Resource Area
P. O. Box 1778
Carlsbad, NM 88220
Larry Henson - EUN
Dennis Braaten - 62923/MIO
Donald Knipe - 61323/MIO
Central Files - 041/MIO
R/C Files

DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II

811 South First St., Artesia, NM 88210-2835

DISTRICT III

1000 Rio Brazos Rd, Aztec, NM 87410-1693

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 S. Pacheco
Santa Fe, New Mexico 87505-6429

Form C-107-A
New 3-12-96

APPROVAL PROCESS:

Administrative Hearing

EXISTING WELLBORE

YES NO

APPLICATION FOR DOWNHOLE COMMINGLING

ARCO Permian

Operator Red Lake "3" Fed Well No. 2 Address E-3-T185-R27E County Eddy

Lease 000990 Property Code 30-015-29802 Spacing Unit Lease Types: (check 1 or more)
Federal State (and/or) Fee

The following facts are submitted in support of downhole commingling:	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	Red Lake (QGSA)		NE Red Lake (Glorioso)
2. Top and Bottom of Pay Section (Perforations)	to be perforated: 1856-2328		3150-3360
3. Type of production (Oil or Gas)	Oil		Oil
4. Method of Production (Flowing or Artificial Lift)	Art. Lift		Art. Lift
5. Bottomhole Pressure Oil Zones - Artificial Lift: Estimated Current Gas & Oil - Flowing: Measured Current All Gas Zones: Estimated Or Measured Original	(Current) 70 Producing after perfs & put on pump b. (Original)	a. b.	a. 75 b.
6. Oil Gravity (^o API) or Gas BTU Content	40-42%		42%
7. Producing or Shut-In?	Awaiting Perfs		Producing
Production Marginal? (yes or no)	Expected in 3 to 6 months		yes
* If Shut-In, give date and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data * If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: Rates: NA	Date: Rates:	Date: Rates: NA
	Date: Rates: NA	Date: Rates:	Date: 9-2-98 Rates: 10 BOPD, 8MCFD, 186 BWPD
8. Fixed Percentage Allocation Formula -% for each zone	Oil: 68 % Gas: 68 %	Oil: % Gas: %	Oil: 32 % Gas: 32 %

9. If allocation formula is based upon something other than current or past production, or is based upon some other method, submit attachments with supporting data and/or explaining method and providing rate projections or other required data.

10. Are all working, overriding, and royalty interests identical in all commingled zones? Yes No
If not, have all working, overriding, and royalty interests been notified by certified mail? Yes No
Have all offset operators been given written notice of the proposed downhole commingling? Yes No

11. Will cross-flow occur? Yes No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. Yes No (If No, attach explanation)

12. Are all produced fluids from all commingled zones compatible with each other? Yes No

13. Will the value of production be decreased by commingling? Yes No (If Yes, attach explanation)

14. If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. Yes No

15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S) _____

16. ATTACHMENTS:

- * C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- * Production curve for each zone for at least one year. (If not available, attach explanation.)
- * For zones with no production history, estimated production rates and supporting data.
- * Data to support allocation method or formula.
- * Notification list of all offset operators.
- * Notification list of working, overriding, and royalty interests for uncommon interest cases.
- * Any additional statements, data, or documents required to support commingling.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Elizabeth A. Casbeer TITLE Regulatory/ Compliance Analyst DATE 11-18-98

TYPE OR PRINT NAME Elizabeth A. Casbeer TELEPHONE NO. (915) 688-5570

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd., Artec, NM 87410

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT IV
P.O. Box 2088, Santa Fe, NM 87504-2088

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-29802	Pool Code 96210	Pool Name UNDESIGNATED EMPIRE (YESO)
Property Code	Property Name RED LAKE "3" FEDERAL	Well Number 2
OGRID No. 000990	Operator Name ARCO PERMIAN	Elevation 3567

Surface Location

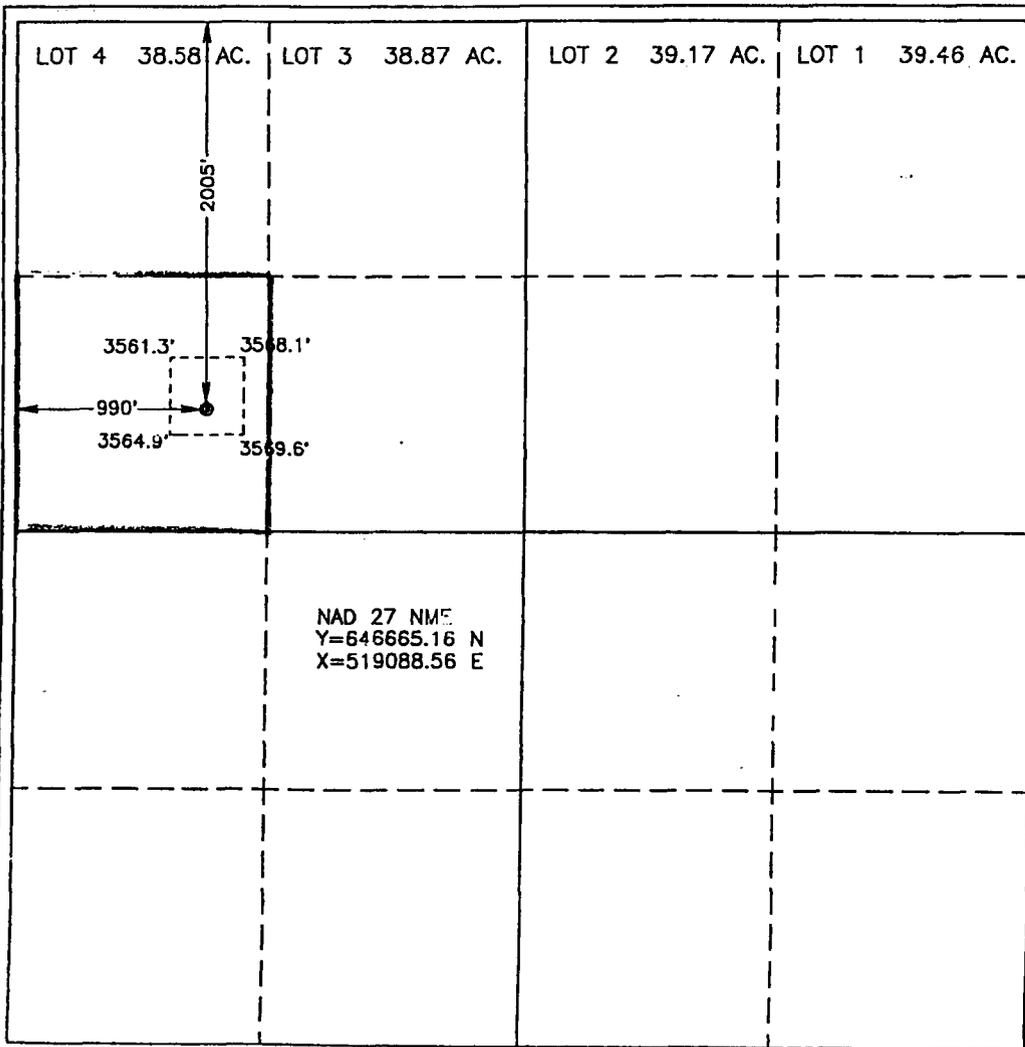
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	3	18 S	27 E		2005	NORTH	990	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Elizabeth A. Casbeer
Signature

ELIZABETH A. CASBEE
Printed Name

REG. / COMP. ANALYST
Title

2/9/98
Date

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 24, 1997
Date Surveyed

Donald J. Eidson
Signature & Seal of Professional Surveyor

W.G. Num. 97-11-4059

Certification No.: JOHN W. WEST, 676
GARY G. EIDSON, 3239
GARY G. EIDSON, 12841

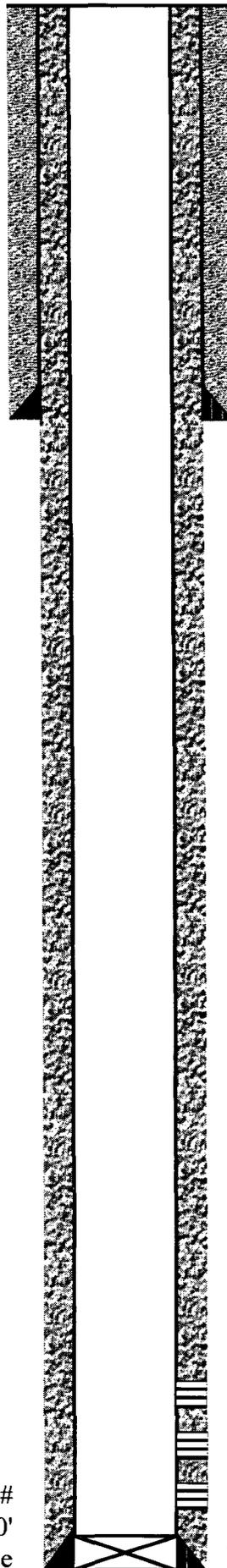
WELLBORE SCHEMATIC

ARCO PERMIAN RED LAKE 3 FEDERAL NO. 2

2005' FNL & 990' FWL (E)
Sec. 3, T-18-S, R-27-E,
Eddy County, NM
API: 30-015-029802
Spudded: 10/27/97
Completed: 12/08/97

Surface Casing 8 5/8" 24#
Cmt'd w/525 sx, Circ.
Shoe @ 1115'

KB: 3561' GL: 3554'



Production Casing 5-1/2" 15.5#
Cement w/650 sx, Shoe @ 3600'
Cement Circulated to Surface

Perforations (1SPF)
3150', 3160'; 3170', 3180', 3190', 3200',
3210', 3220', 3230', 3240', 3250', 3260',
3270', 3280', 3290', 3300', 3310', 3320',
3330', 3340', 3350', 3360'

TD @ 3600'

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____
 b. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. RESERV Other _____

2. NAME OF OPERATOR
ARCO Permian

3. ADDRESS AND TELEPHONE NO.
P.O. Box 1610, Midland, TX 79702 915-688-5570

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
 At surface
2005°FNL, 990°FNL
 At top prod. interval reported below
 At total depth

5. LEASE DESIGNATION AND SERIAL NO.
LC-028805B

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME, WELL NO.
RED LAKE "3" FED 2

9. API WELL NO.
30-015-29802

10. FIELD AND POOL, OR WILDCAT
UNDESIGNATED EMPIRE (YESO)

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
3-T18S-R27E

14. PERMIT NO.	DATE ISSUED 8/18/97	12. COUNTY OR PARISH EDDY	13. STATE NM
----------------	-------------------------------	-------------------------------------	------------------------

15. DATE SPUDDED 10/27/97	16. DATE T.D. REACHED 11/3/97	17. DATE COMPL. (Ready to prod.) 12/8/97	18. ELEVATIONS (DP, RKB, RT, GR, ETC.)* 3567'	19. ELEV. CASINGHEAD
-------------------------------------	---	--	---	----------------------

20. TOTAL DEPTH, MD & TVD 3600	21. PLUG, BACK T.D., MD & TVD 3566	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY →	ROTARY TOOLS X	CABLE TOOLS
--	--	-----------------------------------	-------------------------------	--------------------------	-------------

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*
3150-3360

25. WAS DIRECTIONAL SURVEY MADE
N

26. TYPE ELECTRIC AND OTHER LOGS RUN
CPNL

27. WAS WELL CORED
N

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8-5/8	24	1115	11	CIRC	NA
5-1/2	15.5	3600	7-7/8	CIRC	NA

29. LINER RECORD				30. TUBING RECORD			
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2-7/8	3381	

31. PERFORATION RECORD (Interval, size and number) 3150-3360 (1 SPF)	32. ACID SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
	DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
	3150-3360	ACID W/26460 GAL 20% 3780 GAL 15%

31. PRODUCTION

DATE FIRST PRODUCTION 1/6/98	PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump) FLOWING	WELL STATUS (Producing or shut-in) PRODUCING
--	--	--

DATE OF TEST 1/23/98	HOURS TESTED 24	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL - BBL. 2	GAS - MCF. 10	WATER - BBL. 350	GAS - OIL RATIO 5000
FLOW. TUBING PRESS. 52	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL - BBL.	GAS - MCF.	WATER - BBL.	OIL GRAVITY - API (CORR.) 41.9	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
SOLD

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

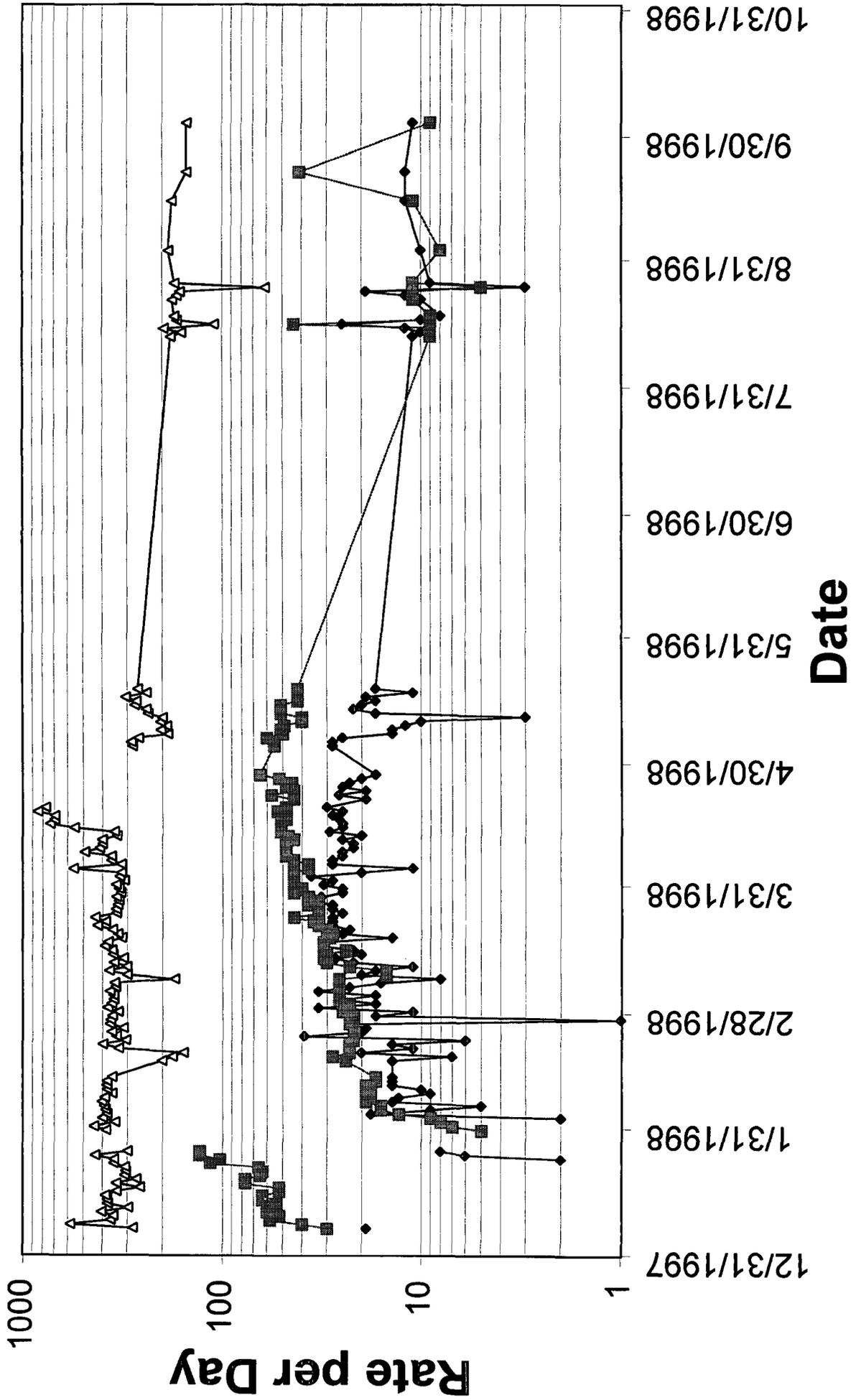
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Elizabeth A. Cashee TITLE REGULATORY COMPLIANCE DATE 2/9/98

*(See Instructions and Spaces for Additional Data on Reverse Side)

Redlake 3 Federal #2 (Yeso)

◆ OIL ■ MCF ▲ WTR



Redlake "3" Federal No. 2

Allocation Formula

Formation	Net Pay Determination	Feet of Pay	% of Total
Redlake (QGSA)	Net Pay > 6%	115	0.68
NE Redlake (Glor- Yeso)	Net Pay > 6%	53	0.32
	Summary	168	

Log data is attached. Because rate data is not yet available for the San Andres Zone, we believe net pay is an acceptable means to allocate production.

3 #2 Peary



COMPENSATED PHOTO-DENSITY
COMPENSATED NEUTRON
SPECTRAL GAMMA LOG

LOCATION 2005' FNL & 990' FVL PRVNC/CO. EDDY FIELD WILDCAT WELL: RED LAKE FED. "3" NO.2 COMPANY: ARCO PERMIAN	COMPANY ARCO PERMIAN <i>Tops on 5' Limit</i>		
	WELL RED LAKE FED. "3" NO.2		
	FIELD WILDCAT		
	PROVINCE/COUNTY EDDY		
COUNTRY/STATE NEW MEXICO/U.S.A.			
PERMIT NUMBER 30-105-29802			
LOCATION 2005' FNL & 990' FVL SEC. 3. T-18S. R-27E		OTHER SERVICES LCS DLS/MLS AST	
LSD	SEC 03	TVP 18S	RCE 27E

PERMANENT DATUM	GROUND LEVEL	ELEVATION 3554 FT.	ELEVATIONS:
LOC MEASURED FROM	K. B. 6 FT.	ABOVE PERMANENT DATUM	KB 3554 - FF 3575
DRILLING MEASURED FROM	K. B.		DF 3554 - FF 3567
			GL 3554 - FF 3567

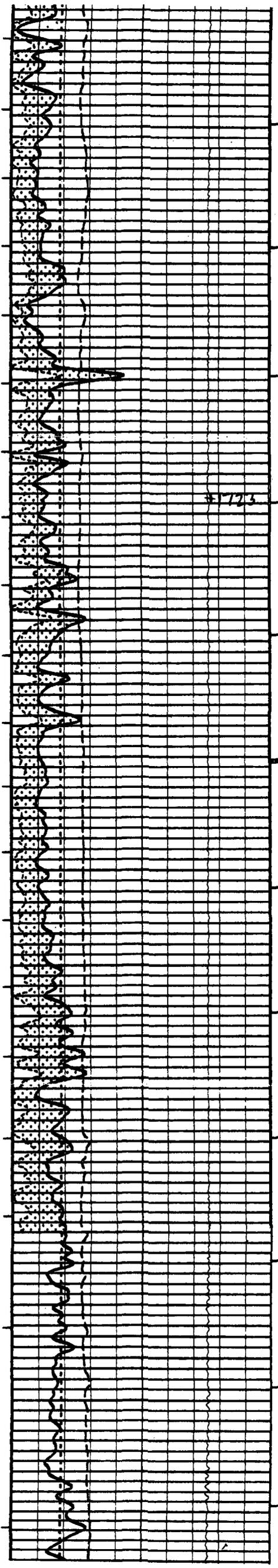
DATE	04-NOV-97			9. 3567
RUN NUMBER	ONE			
DEPTH-DRILLER	3600 FT.			
DEPTH-LOGGER	3601 FT.			
FIRST READING	3599 FT.			
LAST READING	100 FT.			
CASING-DRILLER	1113 FT.			
CASING-LOGGER	1124 FT.			
BIT SIZE	7 7/8 INCH			
HOLE FLUID TYPE	SALT GEL			
DENS./VISC.	9.6 30			
PH/FLUID LOSS	9 NC			
SAMPLE SOURCE	PIT			
RM @ MEAS TEMP	0.055 @ 84 F			
RMF @ MEAS TEMP	0.055 @ 84 F			
RMC @ MEAS TEMP				
SOURCE: RMF/RMC	CALC			<i>Mar dug ~ 25150 PDP + 35200</i>
RM @ BHT	0.50 @ 88 F			
TIME SINCE CIRC	5 HOURS			
MAX REC TEMP	88 DEC. F.			<i>5# 105' net > 6% xpld.</i>
EQUIPMENT/BASE	V1031 MDD			
RECORDED BY	GILBERT			
WITNESSED BY	MR. PEARY			

Photo replay on bitm

32' hot pay

(+21' wet in y.)

@ 640 52



#1723

1800

1650

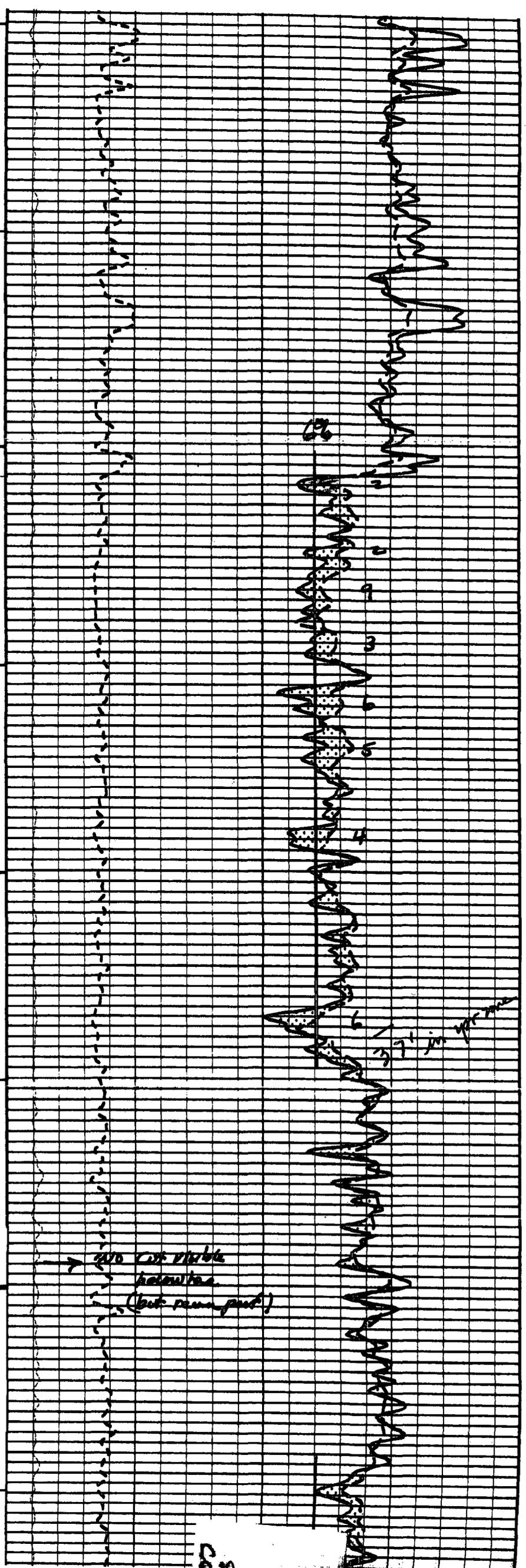
5A1

1900

1950

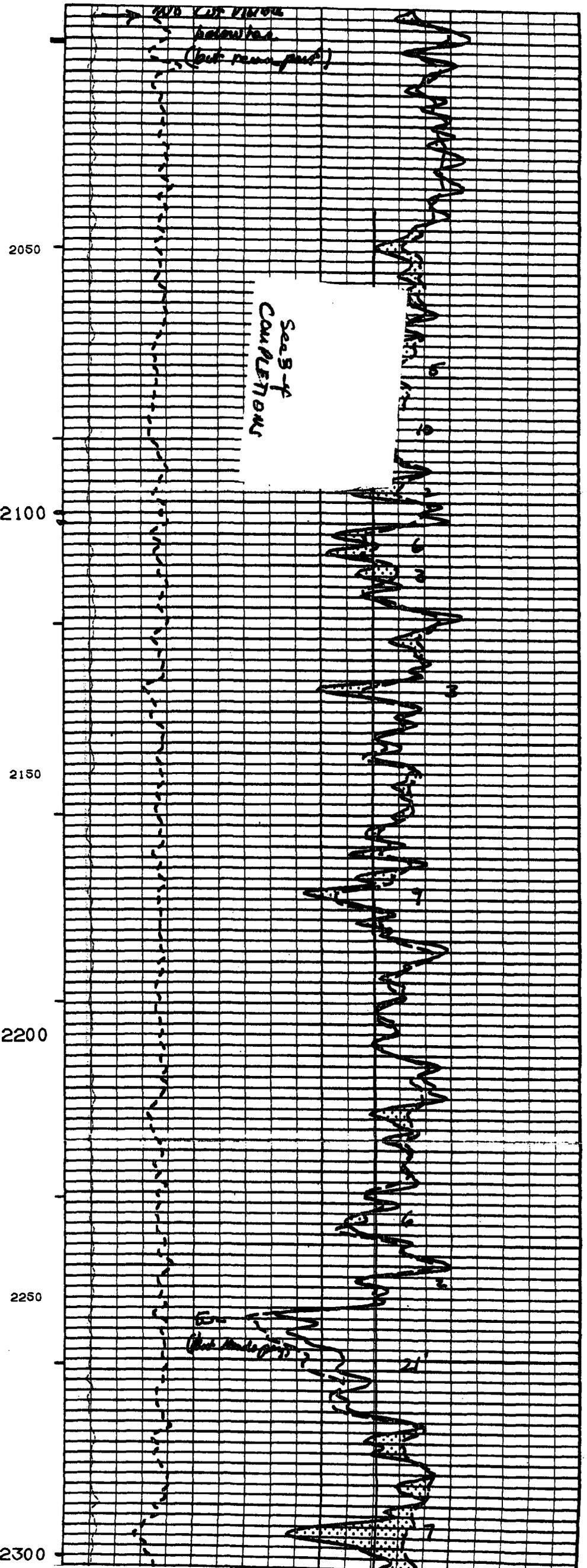
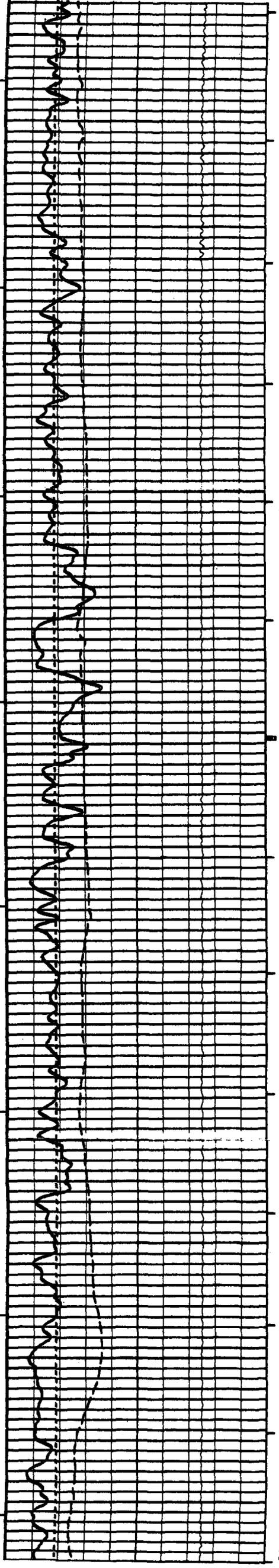
2000

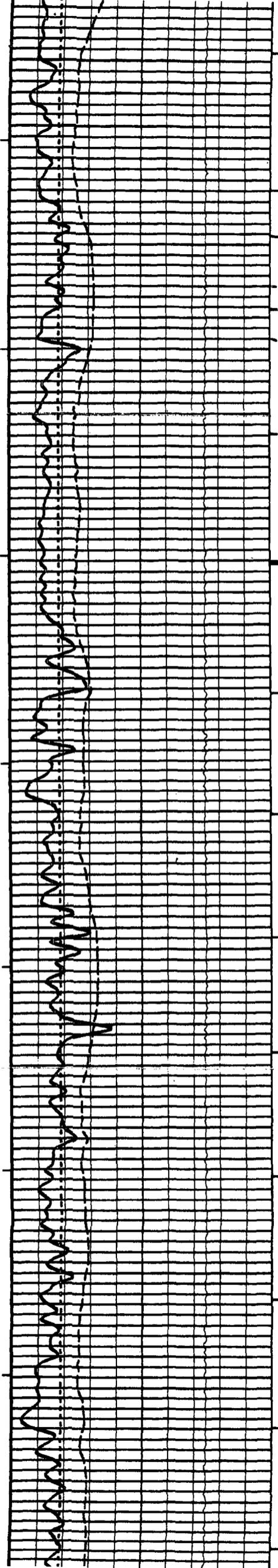
2050



→ 200 cut visible
below
(but same prod)

20





2300

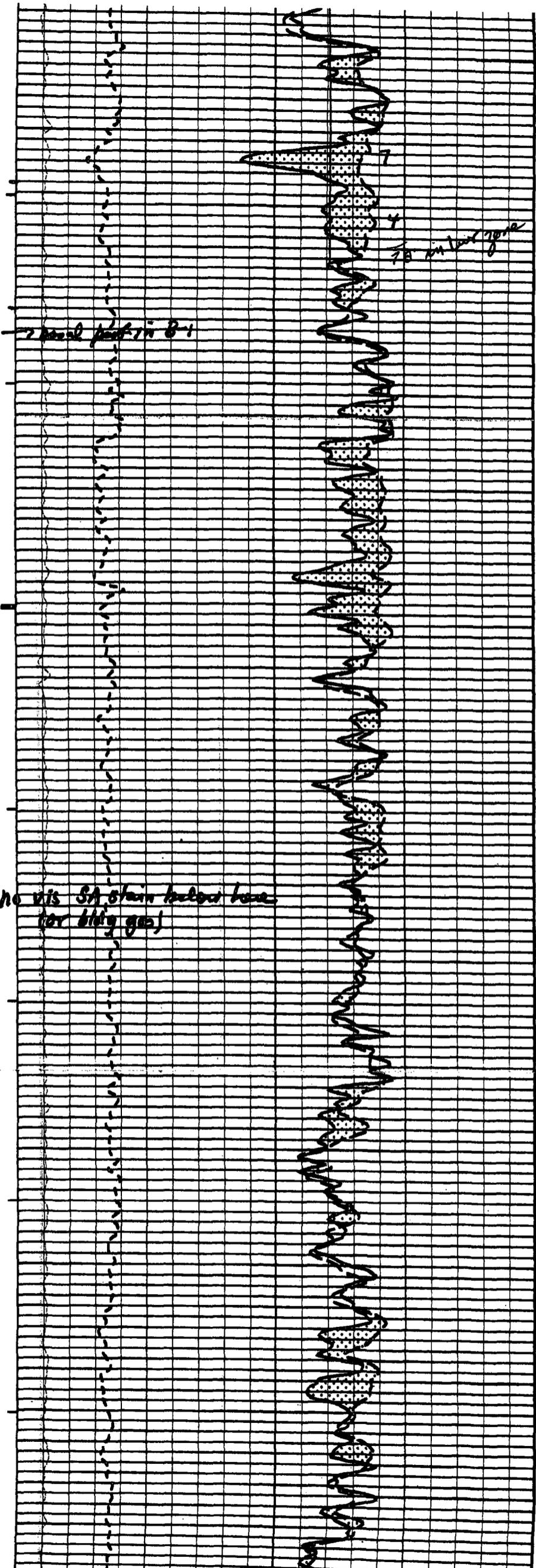
2350

2400

2450

2500

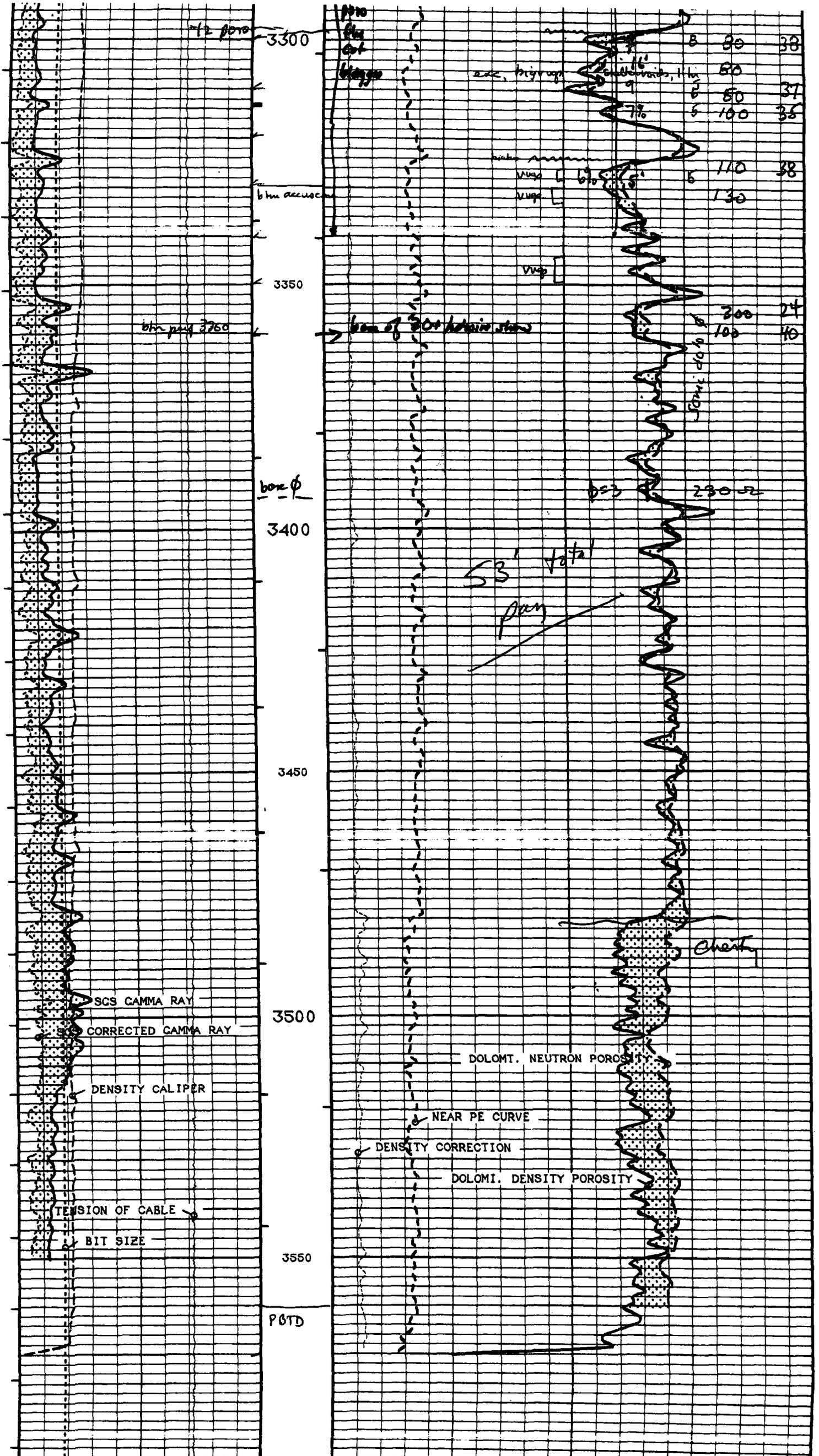
2550



2 sand part in 8-1

no vis SA stain below here
(or big gas)

7
4
75 m 1/2 10/10



12 poro 3300

bhm accu

bhm pty 3250

bore φ

3400

3450

3500

3550

POTD

12 poro

acc. porosity

6%

vmap

bore of 30' hole in stone

53' data
pan

Some data

chert

SCS GAMMA RAY

CORRECTED GAMMA RAY

DENSITY CALIPER

TENSION OF CABLE

BIT SIZE

DOLOMI. NEUTRON POROSITY

NEAR PE CURVE

DENSITY CORRECTION

DOLOMI. DENSITY POROSITY



Laboratory Services, Inc.
1331 Tasker Drive
Hobbs, New Mexico 88240
Telephone: (505) 397-3713

SULFUR IN CRUDE OIL

ARCO Permian
Attention: Mr. Rolland Taylor
P. O. Box 1089
Eunice, New Mexico 88231

Jan 27, 1998

	Sulfur	API Gravity @ 60° F	Specific Gravity @ 60° F
Red Lake "3" #1 (YESO)	0.3826 wt. %	42.4	0.9137
Red Lake "3" #2 (YESO)	0.3323 wt. %	41.9	0.8160

Thank You,
Rolland Perry

YESO Oil Samples



Laboratory Services, Inc.
1331 Tasker Drive
Hobbs, New Mexico 88240
Telephone: (505) 397-3713

SULFUR IN CRUDE OIL

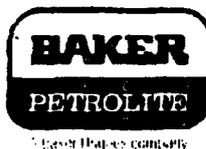
ARCO Permian
Attention: Mr. Roland Taylor
P. O. Box 1089
Eunice, New Mexico 88231

Jul 28, 1998
Sample Date: 7/27/98 2:00 PM

	Sulfur	API Gravity @ 60° F	Specific Gravity @ 60° F
→ West Red Lake 4 Fed. #1 San Andres	0.4943 wt. %	41.8	0.8165
West Red Lake 4 Fed. #2 Yeso	0.3687 wt. %	40.0	0.8251
→ Lago Rosa 4 Fed. #4 San Andres	0.4794 wt. %	40.2	0.8241
Lago Rosa 4 Fed. #5 Yeso	0.4332 wt. %	40.2	0.8241

Thank You,
Rolland Perry

Offset San Andres Oil Samples



Combined YESO & San Andres Offset Waters

(Scaling tendency decreases with mixing of San Andres)

Analysis: 22382

Water Analysis Report from Baker Petrolite

Summary of Mixing Waters

Sample Number	051873	106619
Company	ARCO PERMIAN	ARCO
Lease	REDLAKE	LAGO ROSA 4
Well	WELL #1	FED #4
Sample Location	WELLHEAD	WELLHEAD
Anions (mg/L)		
Chloride	122,233	39,939
Bicarbonate	1,039	1,000
Carbonate	0.00	0.00
Sulfate	3,611	4,596
Phosphate	0.00	0.00
Borate	0.00	0.00
Silicate	0.00	0.00
Cations (mg/L)		
Sodium	53,950	25,340
Magnesium	6,934	276
Calcium	11,969	2,150
Strontium	58.0	21.0
Barium	0.40	0.20
Iron	35.0	1.00
Potassium	899	229
Aluminum	0.00	0.00
Chromium	0.00	0.00
Copper	0.00	0.00
Lead	0.00	0.00
Manganese	0.00	0.00
Nickel	0.00	0.00
Anion/Cation Ratio	1.00	1.00
TDS (mg/L)	200,729	73,553
Density (g/cm)	1.13	1.05
Sampling Date	1/6/98	7/23/98
Account Manager		DON BLACKSTOCK
Analyst	DON BLACKSTOCK	SHEILA DEARMAN
Analysis Date		7/29/98
pH at time of sampling		5.90
pH at time of analysis	6.37	
pH used in Calculations	6.37	5.90



A Baker Hughes Company

YESO Water

Water Analysis Report from Petrolite Corporation

ARCO PERMIAN

REDLAKE
WELL #1
WELLHEAD

Summary		Analysis: 51873					
Anion/Cation Ratio	1.00	Anions	mg/L	meq/L	Cations	mg/L	meq/L
TDS (mg/L or g/m ³)	200,729	Chloride	122,233	3,448	Sodium	53,950	2,347
Density (g/cm ³ or tonne/m ³)	1.127	Bicarbonate	1,039	17.0	Magnesium	6,934	571
Chemical Treatment		Carbonate	0.00	0.00	Calcium	11,969	597
Sample Condition		Sulfate	3,611	75.2	Strontium	58.0	1.32
Sampling Date	1/6/98	Phosphate	N/A	N/A	Barium	0.40	0.01
Sampled by		Borate	N/A	N/A	Iron	35.0	1.25
Submitted by	DON BLACKSTOCK	Silicate	N/A	N/A	Potassium	899	23.0
Analysis Date	1/15/98	Hydrogen Sulfide			Aluminum	N/A	N/A
Sample analysis number	51873	pH at time of sampling			Chromium	N/A	N/A
		pH at time of analysis		6.37	Copper	N/A	N/A
		pH used in Calculations		6.37	Lead	N/A	N/A
					Manganese	N/A	N/A
					Nickel	N/A	N/A

Predictions of Saturation Index and Amount of Scale in lb/1000bbl

Pressure (psi)		Temp.	Calcite CaCO ₃		Gypsum CaSO ₄ .2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
CO ₂	Total	°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
2.71	0.00	80	1.13	151	0.50	1,335	0.52	1,080	-0.14		0.79	0.18
3.34	0.00	100	1.22	161	0.44	1,235	0.52	1,085	-0.16		0.61	0.16
4.00	0.00	120	1.31	170	0.39	1,144	0.55	1,117	-0.17		0.44	0.14
4.66	0.00	140	1.39	179	0.35	1,063	0.61	1,169	-0.16		0.30	0.11

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: CO₂ Pressure is absolute pressure. Total Pressure is gauge pressure.

PRODUCT WARRANTY, DISCLAIMER AND LIMITATION OF LIABILITY ARE FOUND ON THE BACK OF THIS SHEET



Offset San Andres Water

Water Analysis Report by Baker Petrolite

ARCO
LAGO ROSA 4
FED #4
WELLHEAD

Account Manager
DON BLACKSTOCK

Summary		Analysis of Sample 106619 @ 75°F					
Sampling Date	7/23/98	Anions	<i>mg/l</i>	<i>meq/l</i>	Cations	<i>mg/l</i>	<i>meq/l</i>
Analysis Date	7/29/98	Chloride	39939	1127	Sodium	25340	1102
Analyst	HEILA DEARMAN	Bicarbonate	1000	16.4	Magnesium	276	22.7
		Carbonate	0.00	0.00	Calcium	2150	107
TDS (mg/l or g/m ³)	73552.6	Sulfate	4596	95.7	Strontium	21.0	0.48
Density (g/cm ³ or tonne/m ³)	1.046	Phosphate	N/A	N/A	Barium	0.20	0.00
Anion/Cation Ratio	1.00	Borate	N/A	N/A	Iron	1.00	0.04
		Silicate	N/A	N/A	Potassium	229	5.86
Carbon Dioxide	0 PPM				Aluminum	N/A	N/A
Oxygen		Hydrogen Sulfide		100 PPM	Chromium	N/A	N/A
					Copper	N/A	N/A
					Lead	N/A	N/A
		pH at time of sampling		5.90	Manganese	N/A	N/A
		pH at time of analysis			Nickel	N/A	N/A
		pH used in Calculations		5.90			

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000bbl										
Temp.	Gauge Press.	Calcite CaCO3		Gypsum CaSO4.2H2O		Anhydrite CaSO4		Celestite SrSO4		Barite BaSO4		CO2 Press.
		Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	
°F	psi											psi
80	0.	-0.12		0.11	387	0.08	212	-0.13		0.98	0.10	10.6
100	0.	-0.00		0.07	251	0.10	276	-0.14		0.80	0.10	13.4
120	0.	0.12	28.2	0.04	148	0.15	399	-0.14		0.65	0.09	16.4
140	0.	0.24	56.5	0.02	76.3	0.22	561	-0.13		0.52	0.08	19.5

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

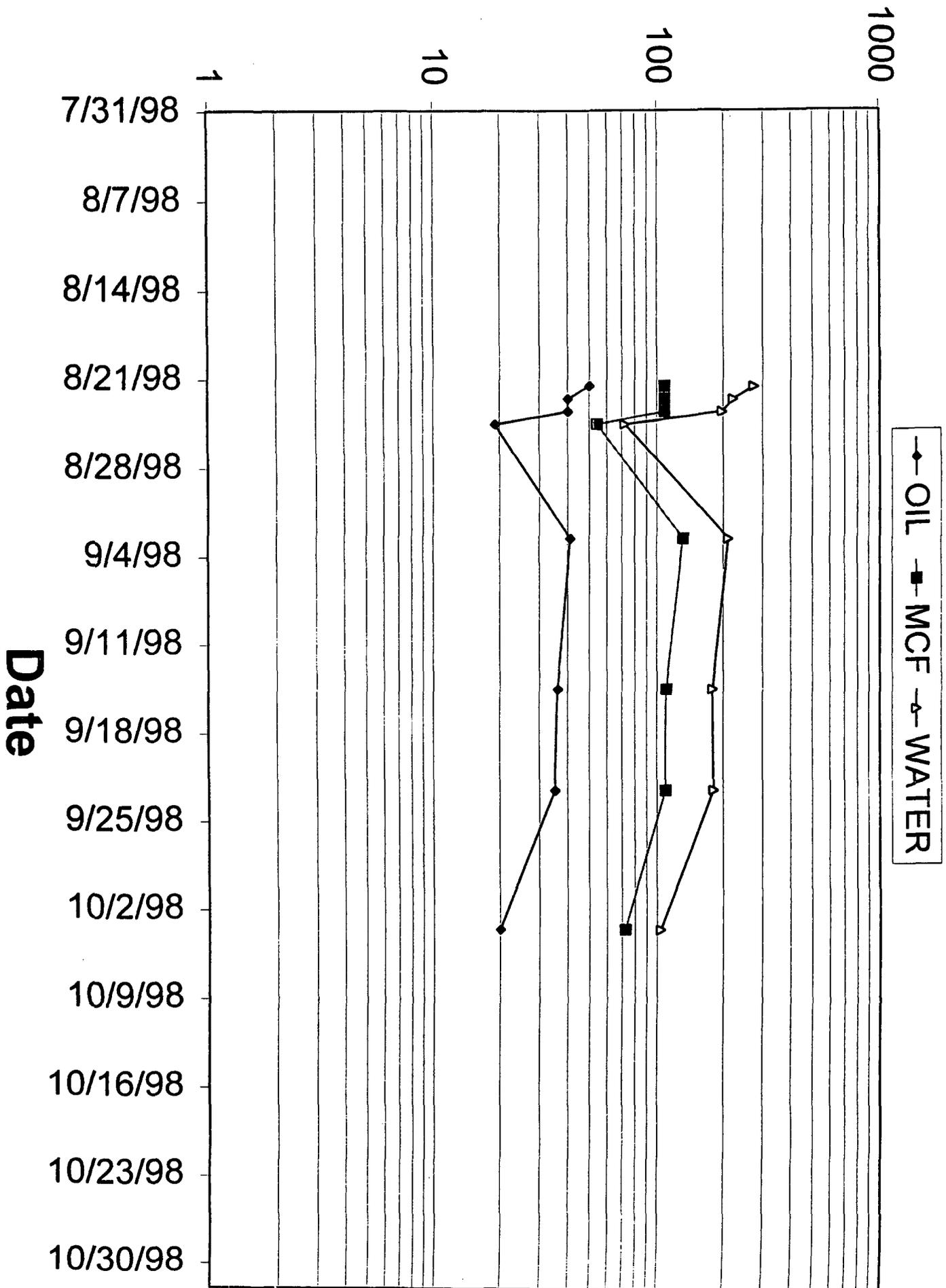
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

PRODUCT WARRANTY, DISCLAIMER AND LIMITATION OF LIABILITY ARE FOUND ON THE BACK OF THIS SHEET

Rate per day

Offset San Andres Rate Plat Vermillion "3" Federal No. 4 (San Andres)



ARCO Permian
Downhole Commingling
Red Lake "3" Federal Well No. 1
API: 30-015-29801
1650' FNL & 330' FWL (E)
Section 3, 18-S, 27-E
Eddy County, New Mexico

Surface Owners for Unit E (Lot 5):

Bureau of Land Management
Carlsbad Resource Area
P. O. Box 1778
Carlsbad, NM 88220

Bogle, Ltd.
P. O. Box 460
Dexter, NM 88230-0460

Offset Operators:

Altura Energy, Ltd.
Attn: Mr. Jerry D. West
P.O. Box 4294
Houston, TX 77210-4294

Devon Energy Corp.
Attn: Mr. Ken Gray
20 North Broadway #1500
Oklahoma City, OK 73102

Ben J. Forston, John L. Marion, & Ann B. Windfohr, Trustees of the
Ann Valliant Burnett Windfohr Trust
c/o Burnett Companies
801 Cherry Street, Suite 1500
Fort Worth, TX 76102

Ann W. Sowell & Edward R. Hudson, Jr., Trustees of the
Anne Burnett Tandy Testamentary Trust
1500 Interfirst Tower
801 Cherry Street
Fort Worth, TX 76102

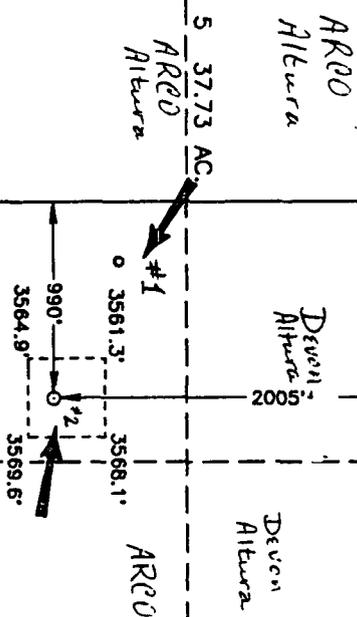
Robert H. Ziegler, Jr.
P. O. Box 8621
Ketchikan, AK 99901

Ann Z. Bradford
1036 Bell Street
Edmonds, WA 98020

ARCO Permian
P. O. Box 1610
Midland, TX 79702

ARCO Permian
Red Lake "3" Federal
Red Lake (QCSA) & NE Red Lake (GLOR-YESO) Fields
E-3-T185-R27E
Eddy Co., NM

Sec. 4		Sec. 3	
LOT 8 39.92 AC.	LOT 7 39.37 AC.	LOT 4 38.58 AC.	LOT 3 38.87 AC.
LOT 9 38.93 AC.	LOT 10 38.43 AC.	LOT 12 37.28 AC.	LOT 11 37.23 AC.
LOT 16 38.85 AC.	LOT 15 38.64 AC.	LOT 14 37.82 AC.	LOT 13 37.61 AC.
LOT 17 38.64 AC.	LOT 18 38.43 AC.	LOT 19 38.01 AC.	LOT 20 37.80 AC.



DEVIA
 Altura
 NAD 27 NME
 Y=846665.16 N
 X=519088.56 E

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