

DHC-2343

devon

ENERGY CORPORATION

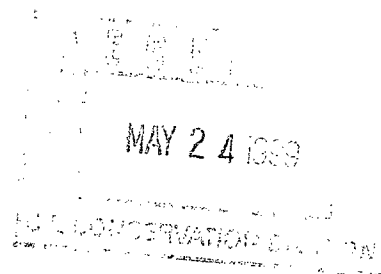
20 North Broadway, Suite 1500
Oklahoma City, Oklahoma 73102-8260

Telephone 405/235-3611
FAX 405/552-4550

May 20, 1999

Certified Mail No. Z 068 588 937

STATE OF NEW MEXICO
Energy, Minerals and Natural Resources Dept.
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505-6429



RE: Downhole Commingling
Hawk 8 K Federal #3
Section K-8-18S-27E
API #30-015-29014
Red Lake (Q-GB-SA) and
NE Red Lake (Glorieta-Yeso) Fields
Eddy County, NM

Gentlemen:

Devon Energy Corporation filed the above-referenced downhole commingling application (Form C-107-A) on April 30, 1999. The offset operators and surface owner were sent copies of the application. Attached please find proof of notification.

If you have any questions, please call me at (405) 552-4515.

Yours truly,

DEVON ENERGY CORPORATION (NEVADA)

A handwritten signature in cursive script, reading "Tonja Rutelonis". The signature is written in dark ink and is positioned above the printed name and title.

Tonja Rutelonis
Engineering Tech.

/trr
Attachment

Hawk 8 K Fed #3 Downhole Commingling - Offset operator notif.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

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

4a. Article Number

Z 068 588 930

4b. Service Type

- ☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

MAY 04 1999

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

X

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

102595-98-B-0229

Domestic Return Receipt

Hawk 8 K Fed #3 - Downhole Commingling - Surface owner notif.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

**Bureau of Land Management
2909 West Second Street
Roswell, NM 88201**

4a. Article Number

Z 068 588 929

4b. Service Type

- ☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5-4-99

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

X

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

102595-98-B-0229

Domestic Return Receipt

devon

ENERGY CORPORATION

20 North Broadway, Suite 1500
Oklahoma City, Oklahoma 73102-8260

Telephone 405/235-3611
FAX 405/552-4550

DHC 5/24/99
2343

April 30, 1999

Certified Mail No. Z 068 588 928

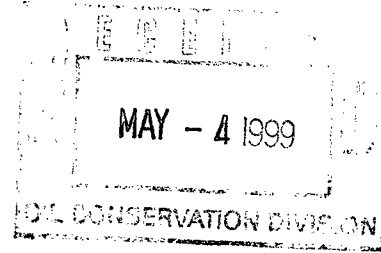
STATE OF NEW MEXICO

Energy, Minerals and Natural Resources Dept.

Oil Conservation Division

2040 S. Pacheco

Santa Fe, NM 87505-6429



RE: Downhole Commingling
Hawk 8 K Federal #3
Section K-8-18S-27E
API #30-015-29014
Red Lake (Q-GB-SA) and
NE Red Lake (Glorieta-Yeso) Fields
Eddy County, NM

Gentlemen:

Concerning the referenced, enclosed please find the Form C-107A Application for Downhole Commingling and attachments (and three copies). The offset operators and surface owner have been sent notification. We will forward the proof of notification to you as soon as we receive it.

Please direct inquiries concerning this report to Ernie Buttross at (405) 235-3611, X4509.

Yours truly,

DEVON ENERGY CORPORATION (NEVADA)

A handwritten signature in cursive script, reading "Tonja Rutelonis". The signature is written in dark ink and is positioned above the printed name and title.

Tonja Rutelonis
Engineering Tech.

/trr
Enclosures

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 87505-6429Form C-107-A
New 3-12-96

APPROVAL PROCESS:

☐ Administrative ☐ Hearing

EXISTING WELLBORE

☐ YES ☐ NO

APPLICATION FOR DOWNHOLE COMMINGLING

Devon Energy Corporation (Nevada)

20 N. Broadway, Suite 1500, Oklahoma City OK 73102-8260

Operator

Address

Hawk 8 K Federal

3

K - 8-18S-27E

Eddy

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 6137

Property Code

19139

API NO.

30-015-29014

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 (Q-GB-SA)		NE Red Lake (Glor-Yeso)
2. Top and Bottom of Pay Section (Perforations)	1567'-1966'		To be perforated 2750'-3050'
3. Type of production (Oil or Gas)	Oil		Oil
4. Method of Production (Flowing or Artificial Lift)	Artificial Lift		Artificial Lift
5. Bottomhole Pressure Oil Zones - Artificial Lift: Estimated Current Gas & Oil - Flowing: Measured Current All Gas Zones: Estimated Or Measured Original	a. (Current) 50 psi producing BHP b. (Original)	a. b.	a. 100 psi producing BHP b.
6. Oil Gravity (°API) or Gas BTU Content	38.5°		41.6°
7. Producing or Shut-In?	Producing		Awaiting perms
Production Marginal? (yes or no)	Yes		Expected to be marginal
• 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	Date: N/A Rates:	Date: Rates:	Date: N/A Rates:
• If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: 3/4/99 Rates: 3 BOPD, 27 MCFGPD, 16 BWPD	Date: Rates:	Date: N/A Rates:
8. Fixed Percentage Allocation Formula - % for each zone (total of %'s to equal 100%)	Oil: 19 % Gas: 40 % 18 %	Oil: % Gas: %	Oil: 81 % Gas: 60 % 81 %

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 ☐ No11. 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 ☐ No13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)14. If this well is on, or communited 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 Tonja Rutelonis TITLE Engineering Technician DATE 4/30/99TYPE OR PRINT NAME Tonja Rutelonis TELEPHONE NO. (405) 552-4515

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

State of New Mexico
Energy, Minerals and Natural Resources Department

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

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

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

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 51300	Pool Name + NE Red Lake Red Lake (Q-GB-SA) (Glorieta - Yeso)
Property Code	Property Name Higgins Federal Hawk "8K" Federal	Well Number -2 3
OGRID No. 6137	Operator Name Devon Energy Corporation (Nevada)	Elevation 3414'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	B	18 S	27 E		2310	South	1650	West	Eddy

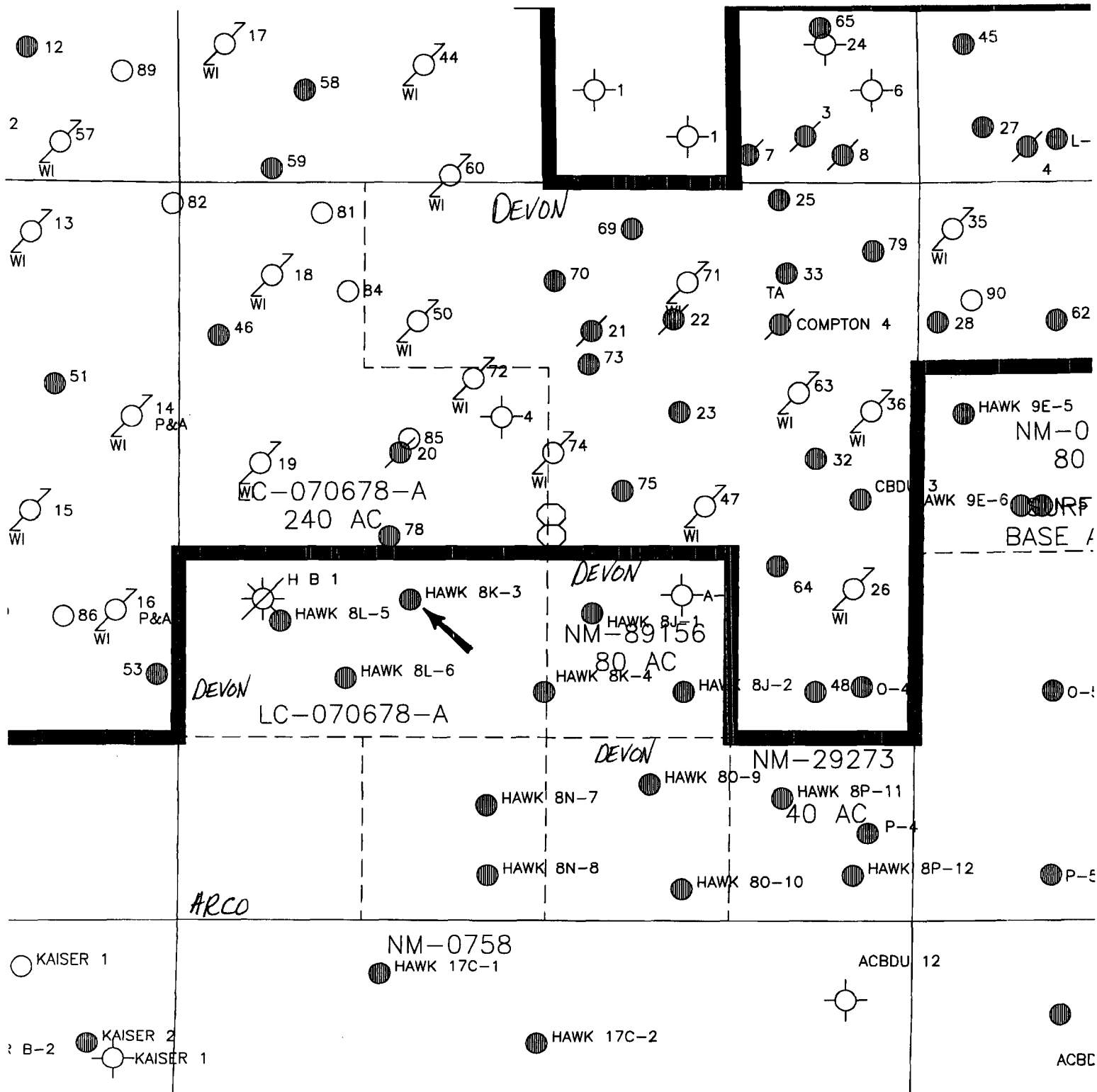
Bottom Hole Location If Different From Surface

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

Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
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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 the the information contained herein is true and complete to the best of my knowledge and belief. <i>E. L. Buttross Jr.</i> Signature E. L. Buttross, Jr. Printed Name District Engineer Title May 20, 1996 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. March 21, 1996 Date Surveyed Signature & Seal of Professional Surveyor <i>W. O. Jones</i> W.O. No. 8093F Certificate No. Gary L. Jones 7977 BASIN SURVEYS



Hawk 8 K Federal #3

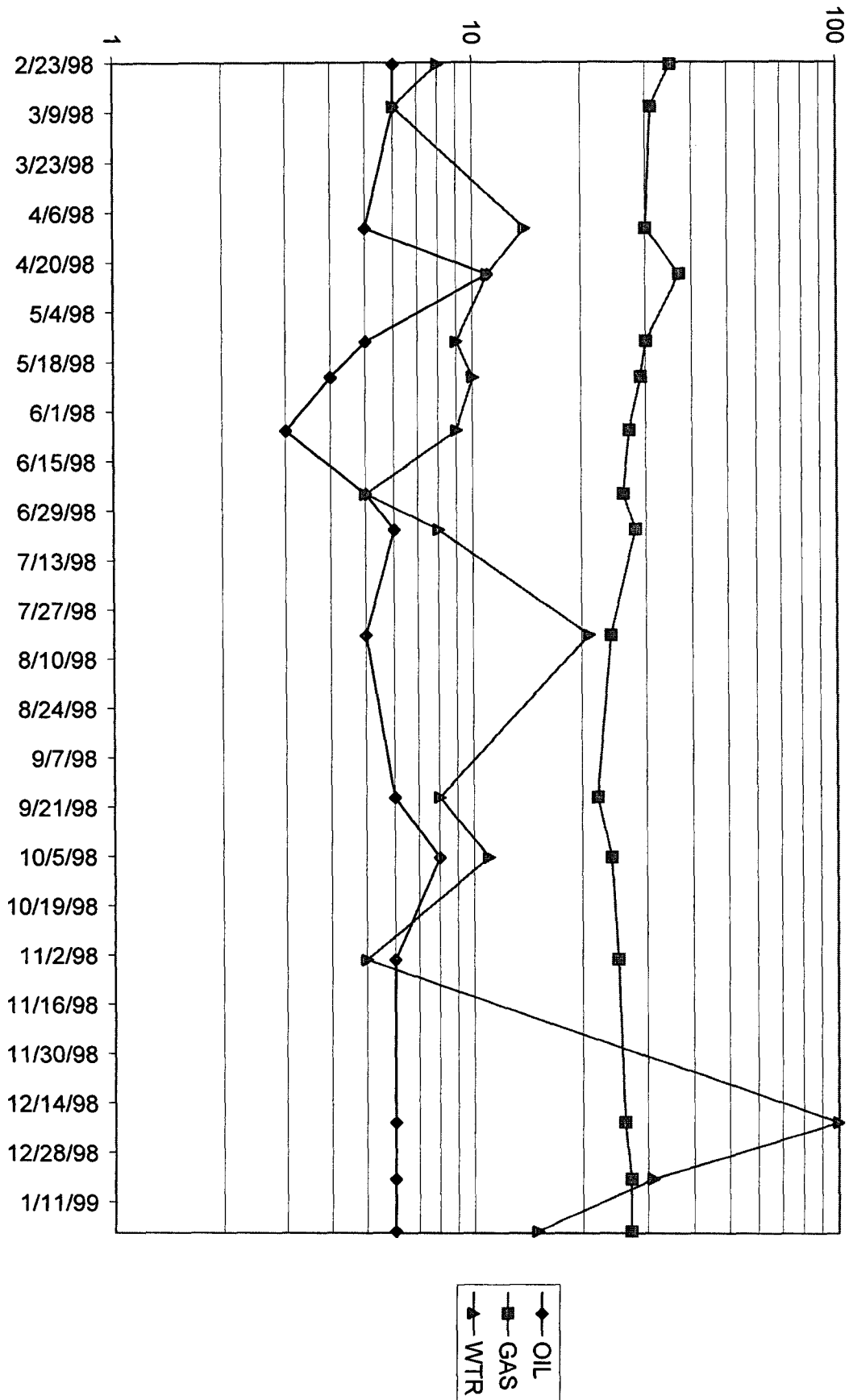
Allocation Formula

Well Name	Producing Formation	*Daily Production Test	% of Total
		3 mo. average	
Hawk 8 K Federal #3	Red Lake (Q-GB-SA)	7 BO/25 MCF/39 BW	19 %
ARCO-Lago Rosa 4 Federal #5 (offset Yeso producer) (30-015-30234)	NE Red Lake (Glor-Yeso)	30 BO/37 MCF/91 BW	81 %

* From attached production plots

The above production test represents stable production from a San Andres producer (Hawk 8 K Federal #3) and a Yeso producer (ARCO-Lago Rosa 4 Federal #5). We believe these rates of production represent an acceptable means to allocate production. **ARCO has previously received approval for downhole commingling in these fields utilizing a similar allocation method.**

Hawk 8 K Federal #3 (San Andres)



Devon Energy Corporation (Nevada)
Downhole Commingling
Hawk 8 K Federal #3
API 30-015-29014
990' FSL & 1650' FWL, Unit K
Section 8-T18S-R27E
Eddy County, New Mexico

Surface Owners for Unit K:

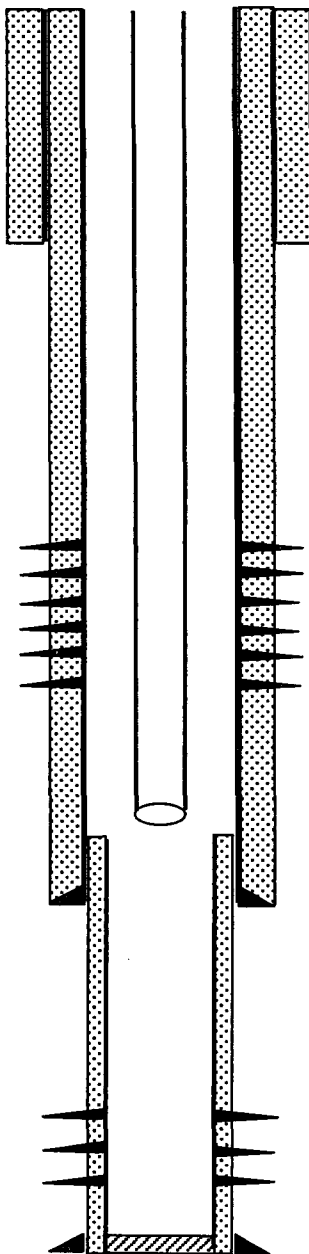
Bureau of Land Management
2909 West Second Street
Roswell, NM 88201

Offset Operators:

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

DEVON ENERGY CORPORATION - WELLBORE SCHEMATIC

WELL NAME: Hawk 8K Federal #3			FIELD: Red Lake			
LOCATION: 990' FSL & 1650' FWL, Sec. 8-18S-27E			COUNTY: Eddy			STATE: NM
ELEVATION: GL = 3414', KB = 3423'			SPUD DATE: 8/2/96		COMP DATE: 9/1/96	
API#: 30-015-29014		PREPARED BY: T. Rutelonis			DATE: 4/9/99	
	DEPTH	SIZE	WEIGHT	GRADE	THREAD	HOLE SIZE
CASING:	0' - 1044'	8-5/8"	24#	J-55		12-1/4"
CASING:	0' - 2199'	5 1/2"	15.5#	J-55		7-7/8"
LINER:	2100' - 3350'	4"	10.46#	J-55	FL4S	4-3/4"
TUBING:	0' - 2070'	2-7/8"	6.5#	J-55	8RD EUE	
TUBING:						



☐ CURRENT

☒ PROPOSED

OPERATOR: DEVON ENERGY CORPORATION

8-5/8" Casing, Set @ 1044' w/ 500 sxs cmt. TOC @ surface

SAN ANDRES PERFORATIONS:

1567'- 1966' (27 holes, .40", ALPHA, "A", "B", "C", & "D")

2-7/8" tbg w/ SN @ 2070'

TOL @ 2100'

5 1/2" 15.5# J-55 Casing Set @ 2199' w/ 400 sxs cmt. TOC @ surf.

YESO PERFORATIONS:

±2750'- ±3050' (20 HOLES, .38")

PBTD @ 3310'

4" 10.46# J-55 FL4S Liner set @ 2100'- 3350' (TOC @ TOL)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE*

FORM APPROVED

(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. RESVR ☐ Other ☐

2. NAME OF OPERATOR
DEVON ENERGY OPERATING CORPORATION

3. ADDRESS AND TELEPHONE NO.
20 N. BROADWAY, SUITE 1500, OKC, OK 73102-8260 (405) 552-4530

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface **2310' FSL & 1650' FWL "K"**
At top prod. interval reported below (SAME)
At total depth (SAME)

5. LEASE DESIGNATION AND SERIAL NO.
LC-070678-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
N/A

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME, WELL NO.
Hawk "8K" Federal #3

9. API WELL NO.
30-015-29014

10. FIELD AND POOL, OR WILDCAT
Red Lake (Q-GB-SA)

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
Sec. 8-18S-27E

14. PERMIT NO. **6/21/96**

12. COUNTY OR PARISH
Eddy County

13. STATE
NM

15. DATE SPUDDED
8/2/96

16. DATE T.D. REACHED
8/6/96

17. DATE COMPL. (Ready to prod.)
9/1/96

18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*
KB 3423'; GL 3414'; DF 3422'

19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD
2199'

21. PLUG, BACK T.D., MD & TVD
2156'

22. IF MULTIPLE COMPL., HOW MANY*
NA

23. INTERVALS DRILLED BY
→

ROTARY TOOLS
X

CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
San Andres 1567-1966'

25. WAS DIRECTIONAL SURVEY MADE
No

26. TYPE ELECTRIC AND OTHER LOGS RUN
CN/LD/GR; DL/MSLF/GR

27. WAS WELL CORED
No

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" J-55	24#	1044'	12 1/4"	surf/300 sx Poz-C + 200 sx Cl C	None
5 1/2" J-55	15.5#	2199'	7 7/8"	surf/150 sx Poz-C + 250 sx Cl C	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8 "	2117'	OET

31. PERFORATION RECORD (Interval, size and number)

1567-1647' (6 - .40" EHD holes)

1731-1784' "A" (5 - .40" EHD holes)

1802-1882' "B" (7 - .40" EHD holes)

1904-1940' "C" (5 - .40" EHD holes)

1948-1966' "D" (4 - .40" EHD holes)

32. ACID SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1567-1966'	2500 gals of 15% NeFe acid
1567-1966'	1,000 gals PrePad + 2 drum Pro-Kem scale inhibitor + 180,000 gals gel water + 6000# 100 mesh sd + 237,000# 20/40 Brdv sd

33.* PRODUCTION

DATE FIRST PRODUCTION
9/4/96

PRODUCTIONS METHOD **1 (Flowing, gas lift, pumping—size and type of pump)**
pumping (2-1/2" x 2" x 12' RWTC pump)

WELL STATUS (Producing or shut-in)
producing

DATE OF TEST
9/13/96

HOURS TESTED
24

CHOKE SIZE

PROD'N FOR TEST PERIOD
→

OIL-BBL.
48

GAS-MCF.
847

WATER-BBL.
101

GAS-OIL RATIO
17645/1

FLOW. TUBING PRESS.
N/A

CASING PRESSURE
N/A

CALCULATED 24-HOUR RATE
→

OIL-BBL.
48

GAS-MCF.
847

WATER-BBL.
101

OIL GRAVITY-API (CORR.)
39°

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

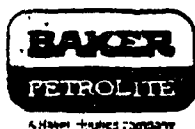
TEST WITNESSED BY
Danny Hokett

35. LIST OF ATTACHMENTS
logs and deviation survey report

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

SIGNED Diana Keys for E.L. BUTTROSS, JR.
TITLE DISTRICT ENGINEERDATE September 16, 1996

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



Analysis: 22526

Water Analysis Report from Baker Petrolite

Summary of Mixing Waters		
Sample Number	105254	114048
Company	DEVON ENERGY	DEVON ENERGY
Lease Well Sample Location	FALCON FED (SAN ANDRES) INJECTION PLANT FWKO	LOGAN 35 (YESO) FEDERAL # 9 WELLHEAD
Anions (mg/L)		
Chloride	113,807	103,984
Bicarbonate	634	1,000
Carbonate	0.00	0.00
Sulfate	4,235	4,864
Phosphate	0.00	0.00
Borate	0.00	0.00
Silicate	0.00	0.00
Cations (mg/L)		
Sodium	72,258	66,833
Magnesium	491	387
Calcium	2,287	2,063
Strontium	49.0	39.0
Barium	0.10	0.30
Iron	0.20	5.00
Potassium	390	302
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)	194,151	179,478
Density (g/cm)	1.13	1.12
Sampling Date	7/20/98	12/8/98
Account Manager	CURRY FRUIT	STEVE STROUD
Analyst	SHEILA DEARMAN	SHEILA HERNANDEZ
Analysis Date		12/19/98
pH at time of sampling	6.70	6.10
pH at time of analysis		
pH used in Calculations	6.70	6.10

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



Analysis: 22526

Water Analysis Report from Baker Petrolite

Mixes at 80°F and 0 psi

Predictions of Carbon Dioxide Pressure, Saturation Index and Amount of Scale in lb/1000bbl												
Mix Waters		CO ₂	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
105254	114043	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
0%	100%	6.06	0.19	33.0	-0.04		-0.02		-0.08		0.92	0.14
25%	75%	4.83	0.22	33.8	-0.04		-0.02		-0.08		0.82	0.11
50%	50%	3.56	0.28	35.8	-0.05		-0.02		-0.07		0.70	0.08
100%	0%	0.96	0.66	45.6	-0.06		-0.03		-0.07		0.36	0.03

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

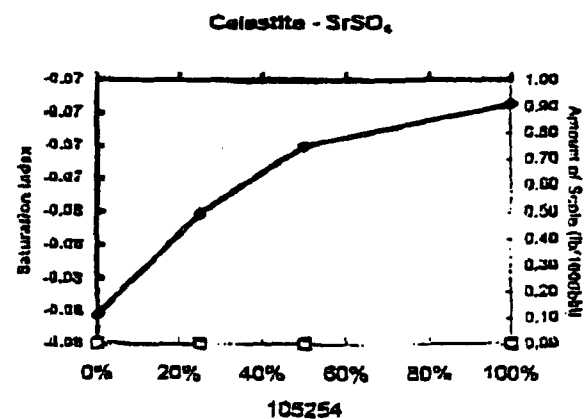
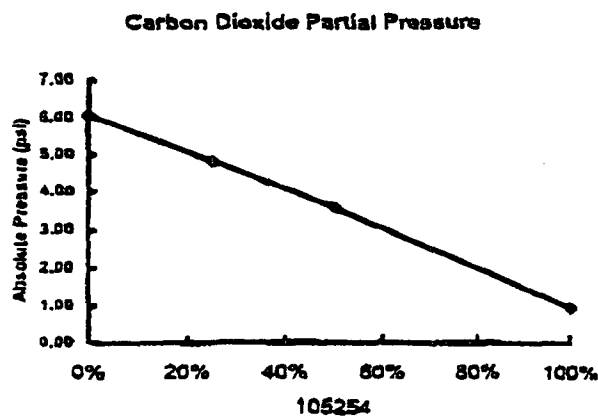
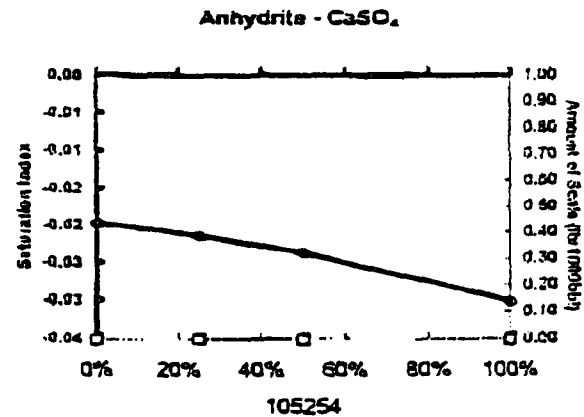
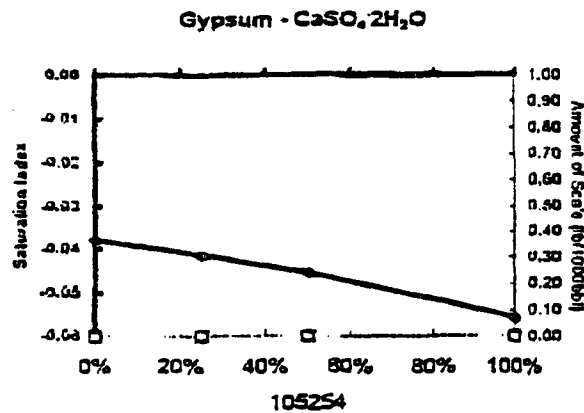
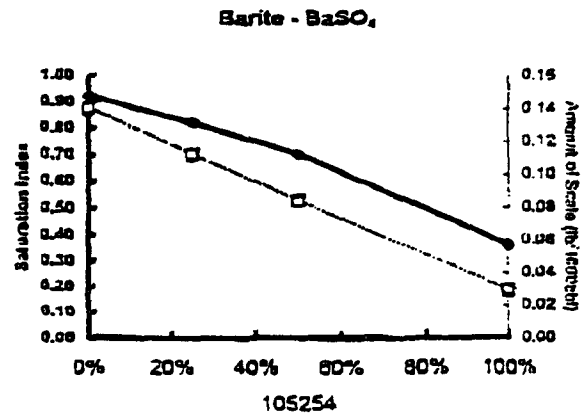
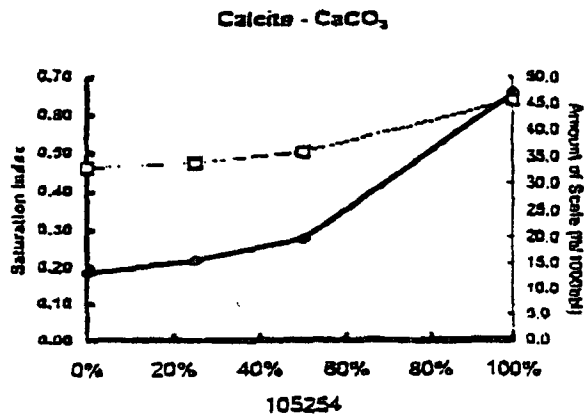
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

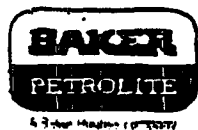
PRODUCT WARRANTY, DISCLAIMER AND LIMITATION OF LIABILITY ARE FOUND ON THE BACK OF THIS SHEET

Mixture Predictions from Baker-Petrolite

105254 with 114048 at 80°F and 0 psi



PRODUCT WARRANTIES, DISCLOSURES AND LIMITATION OF LIABILITY ARE FOUND ON THE BACK OF THIS SHEET



Analysis: 22526

Water Analysis Report from Baker Petrolite

Mixes at 100°F and 0 psi

Predictions of Carbon Dioxide Pressure, Saturation Index and Amount of Scale in lb/1000bbl

Mix Waters		CO ₂	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
105254	114048	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
0%	100%	7.42	0.28	49.0	-0.12		-0.03		-0.11		0.72	0.13
25%	75%	5.91	0.31	47.6	-0.12		-0.03		-0.11		0.61	0.10
50%	50%	4.36	0.36	47.4	-0.13		-0.04		-0.10		0.50	0.07
100%	0%	1.21	0.72	52.3	-0.14		-0.05		-0.10		0.15	0.02

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

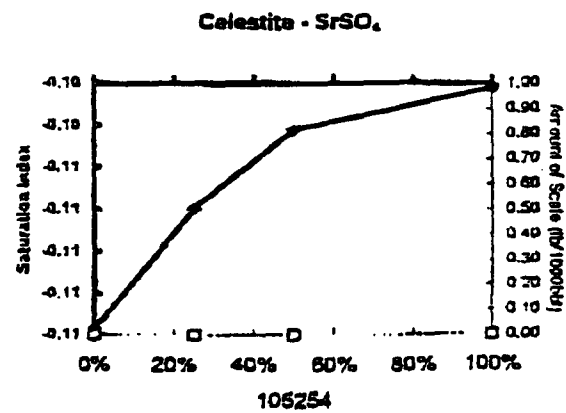
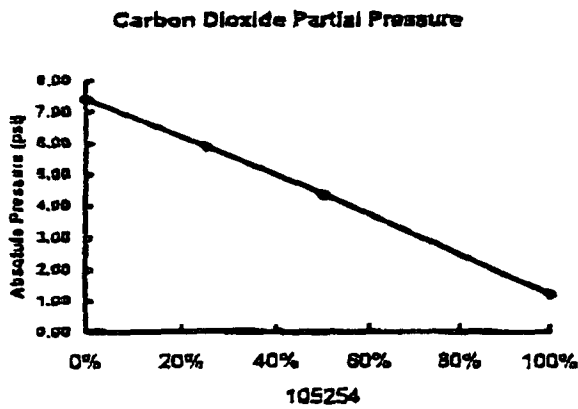
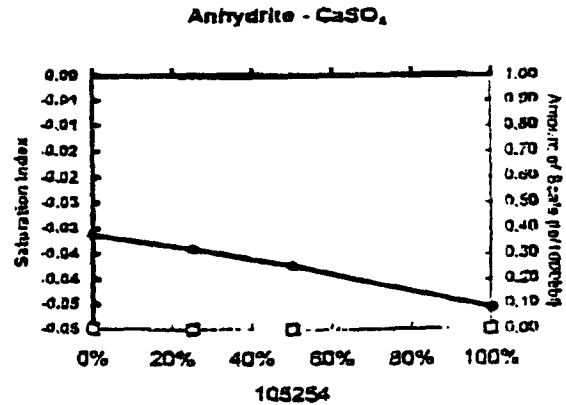
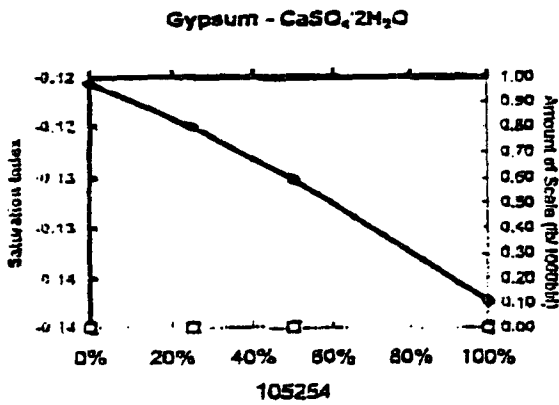
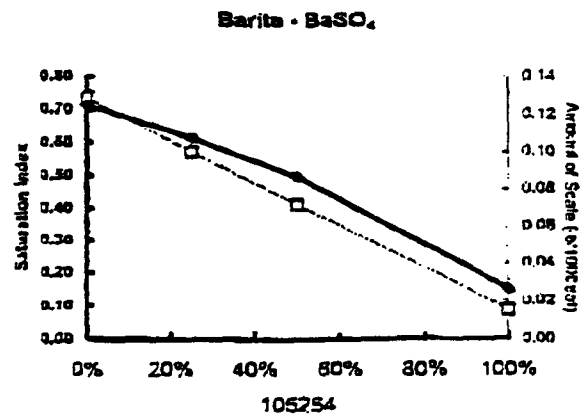
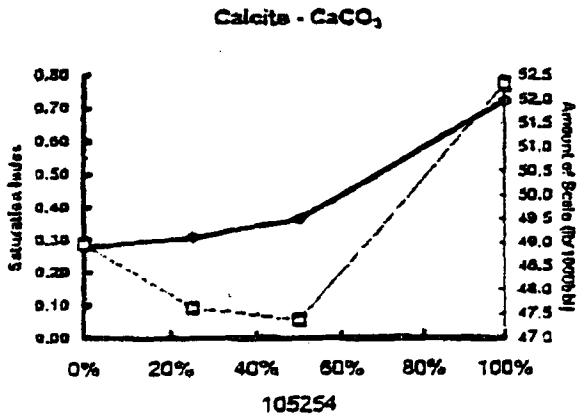
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

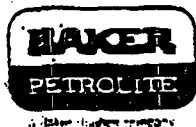
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INITIAL PREDICTIONS FROM BAKER-PETROLITE

105254 with 114048 at 100°F and 0 psi



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Analysis: 22526

Water Analysis Report from Baker Petrolite

Mixes at 120°F and 0 psi

Predictions of Carbon Dioxide Pressure, Saturation Index and Amount of Scale in lb/1000bbl												
Mix Waters		CO ₂	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
105254	114048	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
0%	100%	8.77	0.37	65.2	-0.18		-0.02		-0.13		0.53	0.11
25%	75%	6.98	0.40	61.7	-0.19		-0.02		-0.13		0.43	0.08
50%	50%	5.16	0.45	59.1	-0.19		-0.03		-0.12		0.31	0.05
100%	0%	1.50	0.78	59.3	-0.21		-0.04		-0.12		0.04	

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

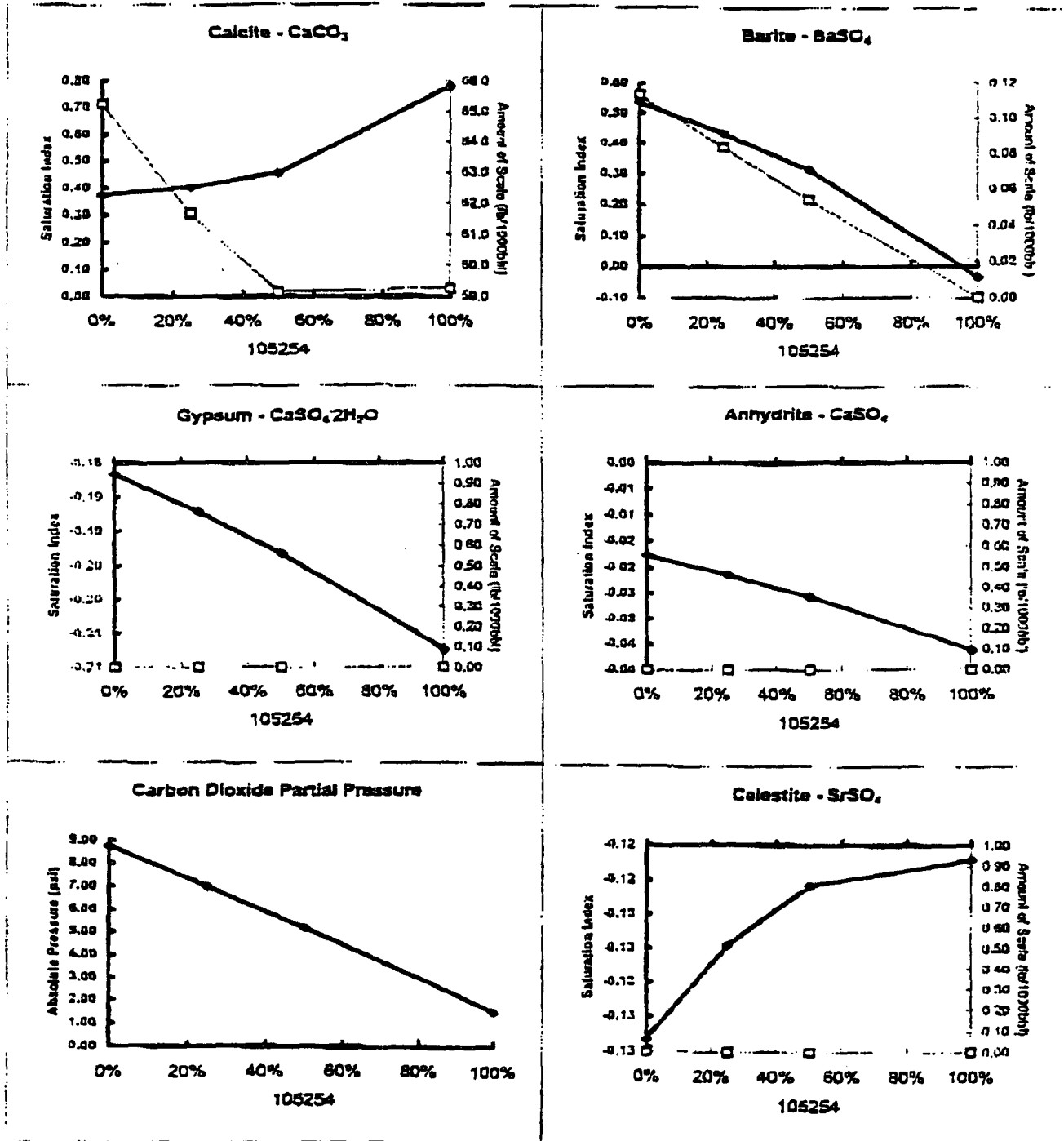
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

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Mixture Predictions from Baker-Petrolite

105254 with 114048 at 120°F and 0 psi



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Analysis: 22526

Water Analysis Report from Baker Petrolite

Mixes at 140°F and 0 psi

Predictions of Carbon Dioxide Pressure, Saturation Index and Amount of Scale in lb/1000bbl

Mix Waters		CO ₂	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
105254	114048	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
0%	100%	10.1	0.47	81.8	-0.24		0.02	45.8	-0.14		0.38	0.09
25%	75%	8.0	0.50	76.1	-0.24		0.01	33.6	-0.14		0.27	0.06
50%	50%	5.9	0.55	71.3	-0.25		0.01	20.0	-0.13		0.15	0.03
100%	0%	1.8	0.84	66.6	-0.27		-0.00		-0.13		0.21	

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

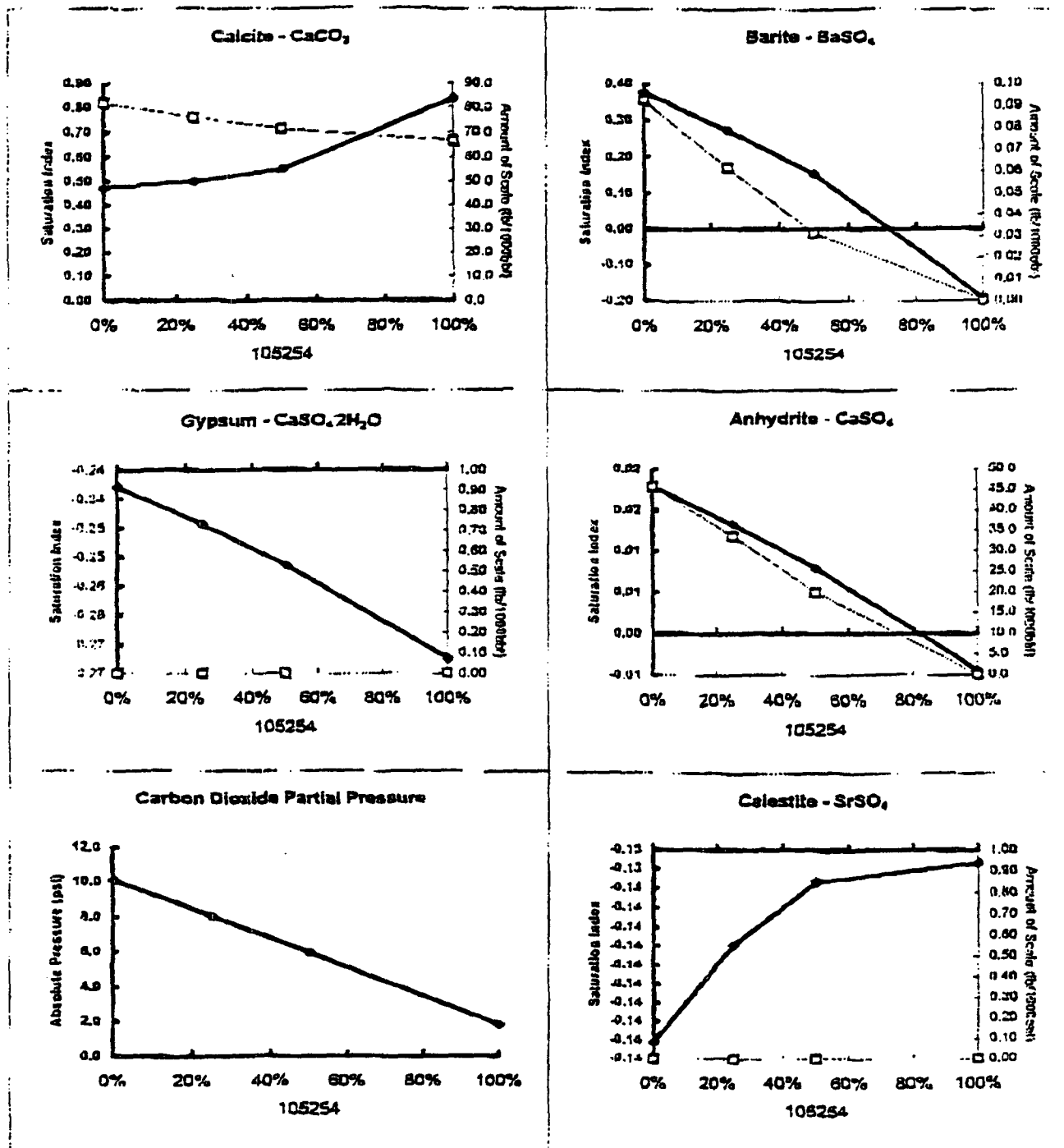
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

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Mixture Predictions from Baker-Petrolite

105254 with 114048 at 140°F and 0 psi



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Laboratory Services, Inc.
4016 Fiesta Drive
Hobbs, New Mexico 88240
Telephone: (505) 367-3713

SULFUR IN CRUDE OIL

Devon Energy
P. O. Box 250
Ariesia, New Mexico 88211-0250

Dec 18, 1998

Total Sulfur	API Gravity @ 60° F	Specific Gravity @ 60° F
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Logan 35-9	0.4888 wt. %	41.8	0.8174
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(YESO)

Thank You,
Rolland Perry

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From	Buttore
To	
Co.	
Phone #	
Fax #	

*Mobile Analytical Laboratories*LABORATORIES IN ODESSA, BIDDINGS & STACY DAM
WEST UNIVERSITY AND WESTOVER STREET

P.O. BOX 69210

ODESSA, TEXAS 79769-0210

PHONE 337-4744

FAX 337-8787

MR. ROLLAND W. PERRY
LABORATORY SERVICES
1331 TASKER DR.
HOBBS, NEW MEXICO 88240

FEBRUARY 07, 1997

DEAR MR PERRY:

THE FOLLOWING ARE THE RESULTS OF THE FOUR OIL SAMPLES FOR SULFUR
CONTENT AND GRAVITY, RECEIVED 02/03/97, LAB NOS. 260-263:

	SULFUR	API GRAVITY @ 60 °F	SPECIFIC GRAVITY @ 60 °F
LAB NO. 260: DEVON ENERGY FALCON 3 "B" FED #1 (SAN ANTOES) 01/30/97	0.547 wt%	38.5	0.8325
LAB NO. 261: DEVON ENERGY EAGLE 33 "O" FED #11 01/30/97	0.556 wt%	38.4	0.8327
LAB NO. 262: DEVON ENERGY EAGLE 33 "N" FED #9 01/30/97	0.651 wt%	37.4	0.8377
LAB NO. 263: DEVON ENERGY EAGLE 34 "M" FED #25 01/30/97	0.563 wt%	37.3	0.8384

TEST METHOD: SULFUR ASTM D-4294

WE APPRECIATE THE OPPORTUNITY TO WORK WITH YOU ON THESE TESTS.
IF YOU HAVE ANY QUESTIONS OR REQUIRE ANY FURTHER INFORMATION, PLEASE
FEEL FREE TO CONTACT ME AT ANY TIME.

SINCERELY,

STEPHEN REID
SR/dt