



ENERGY CORPORATION

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

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

July 26, 1999

Certified Mail No. Z 781 289 742

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

JUL 29 1999

RE: Downhole Commingling
Hawk 9 H Federal #11
Section H-9-18S-27E
API #30-015-29156
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 July 14, 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)

Tonja Rutelonis
Engineering Tech.

/trr
Attachment

Is your RETURN ADDRESS completed on the reverse side?

Hawk 9H-11 Downhole Correlating Offset Operator Notification

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

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

4a. Article Number
Z 781 289 725

4b. Service Type

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

7. Date of Delivery
JUL 19 1999

5. Signature (Addressee)
[Signature]

6. Signature (Agent)
[Signature]

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

PS Form 3811, December 1991 ★U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

Hawk 9H-11 Downhole Correlating-Surface Owner Notification

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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):

- ☐ Addressee's Address
- ☐ 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 068 589 535

4b. Service Type

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

7. Date of Delivery
19 July 99

5. Signature (Addressee)
[Signature]

6. Signature (Agent)
[Signature]

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

PS Form 3811, December 1991 ★U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

devon
ENERGY CORPORATION

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

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

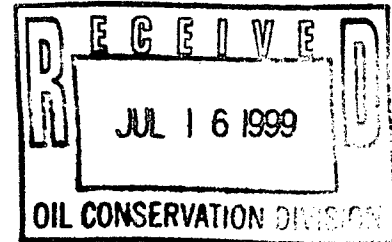
DHC 8/5/99

2421

July 14, 1999

Certified Mail No. Z 068 589 534

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 9 H Federal #11
Section H-9-18S-27E
API #30-015-29156
Red Lake (Q-GB-SA) and
Red Lake; Glorieta-Yeso, NE 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, appearing to read "Tonja Rutelonis".

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 87505-6429

Form 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 9 H Federal

11

H - 9-18S-27E

Eddy

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County
Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 6137

Property Code

19500

API NO.

30-015-29156

Federal X, 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)	1597'-2330'		To be perforated 2950'-3450'
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: Gas & Oil - Flowing: All Gas Zones: Estimated Current Measured Current Estimated Or Measured Original	a. (Current) 50 psi producing BHP	a.	a. 100 psi producing BHP
	b. (Original)	b.	b.
6. Oil Gravity ($^{\circ}$ API) or Gas BTU Content	38.5 $^{\circ}$		41.6 $^{\circ}$
7. Producing or Shut-In?	Producing		Awaiting perms
Production Marginal? (yes or no) • 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)	Yes		Expected to be marginal
	Date: N/A Rates:	Date: Rates:	Date: N/A Rates:
	Date: 5/23/99 Rates: 4 BOPD, 3 MCFGPD, 4 BWPD	Date: Rates:	Date: N/A Rates:
8. Fixed Percentage Allocation Formula - % for each zone (total of %'s to equal 100%)	Oil: 12 % Gas: 12 %	Oil: % Gas: %	Oil: 88 % Gas: 88 %

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 Tonia Rutelonis TITLE Engineering Technician DATE 7/14/99

TYPE OR PRINT NAME Tonia 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

OIL CONSERVATION DIVISION

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

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 Red Lake (Q-GB-SA) ² RED LAKE, GICKLETH-VESE, NE
Property Code	Property Name Hawk 9 "H" Federal	Well Number 11
OGRID No. 6137	Operator Name Devon Energy Corporation (Nevada)	Elevation 3518'

Surface Location

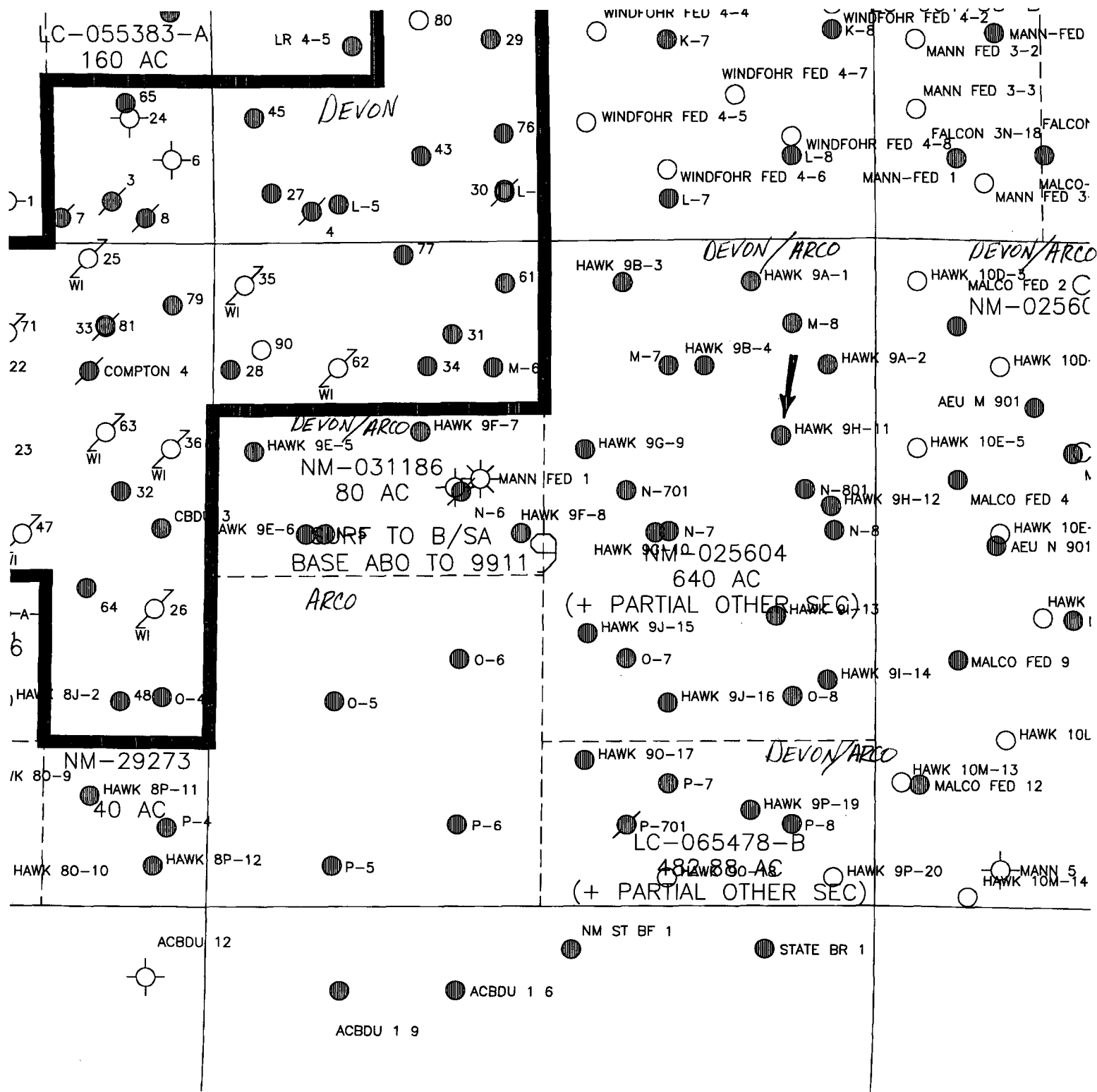
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	9	18 S	27 E		1550	North	750	East	Eddy

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.						

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 hereth is true and complete to the best of my knowledge and belief. <u>Candace R. Graham</u> Signature Candace R. Graham Printed Name Engineering Tech. Title August 2, 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. July 5, 1996 Date Surveyed
	Signature of Professional Surveyor
	Certificate No. 6202c4 BASIN SURVEYS



Hawk 9 H Federal #11

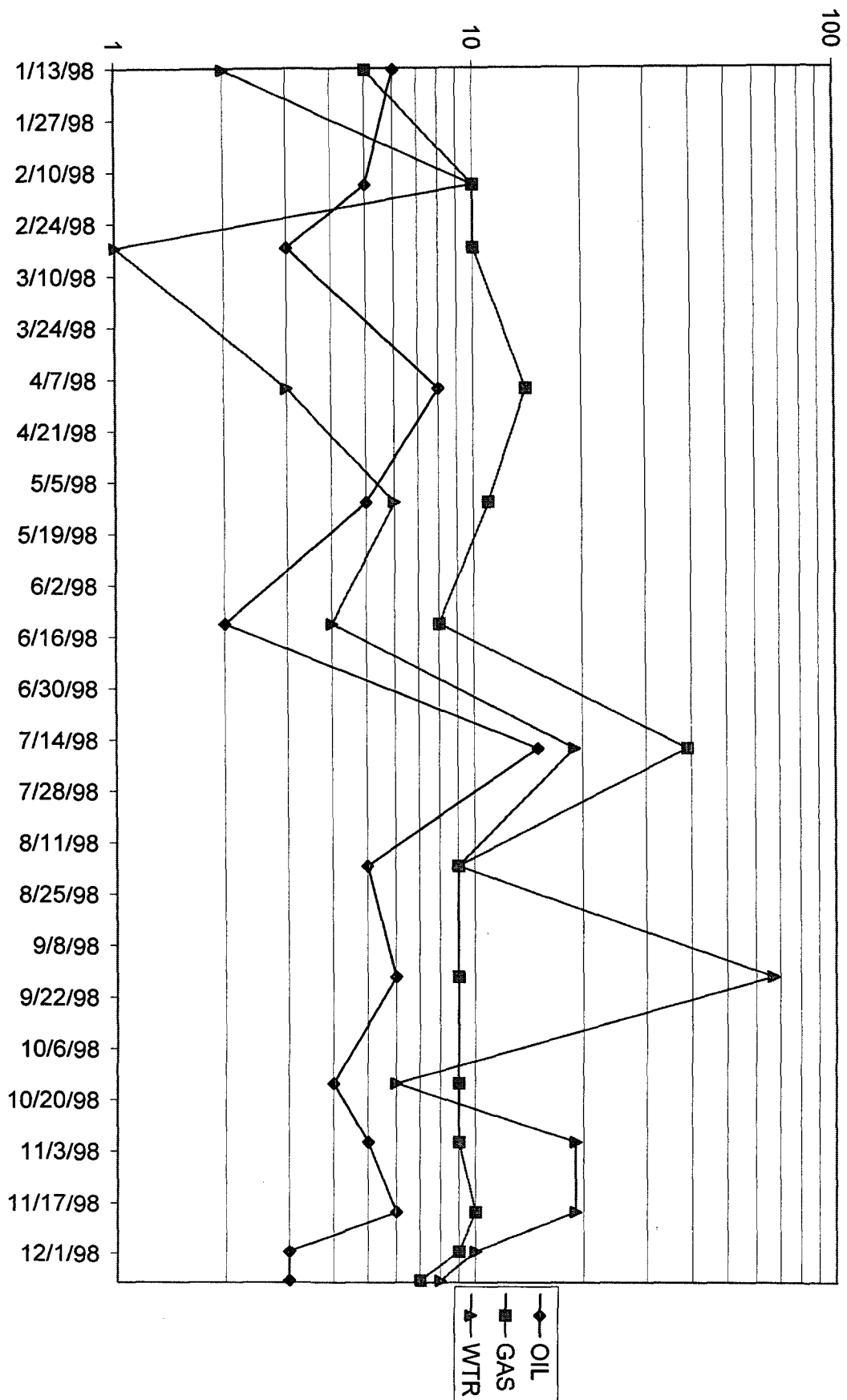
Allocation Formula

Well Name	Producing Formation	*Daily Production Test	% of Total
		3 mo. average	
Hawk 9 H Federal #11	Red Lake (Q-GB-SA)	4 BO/9 MCF/12 BW	12 %
ARCO-Lago Rosa 4 Federal #5 (offset Yeso producer)	NE Red Lake (Glor-Yeso)	30 BO/37 MCF/91 BW	88 %

* From attached production plots

The above production test represents stable production from a San Andres producer (Hawk 9 H Federal #11) 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 9 H Federal #11 (San Andres)



Devon Energy Corporation (Nevada)
Downhole Commingling
Hawk 9 H Federal #11
API 30-015-29156
1550' FNL & 750' FEL, Unit H
Section 9-T18S-R27E
Eddy County, New Mexico

Surface Owners for Unit H:

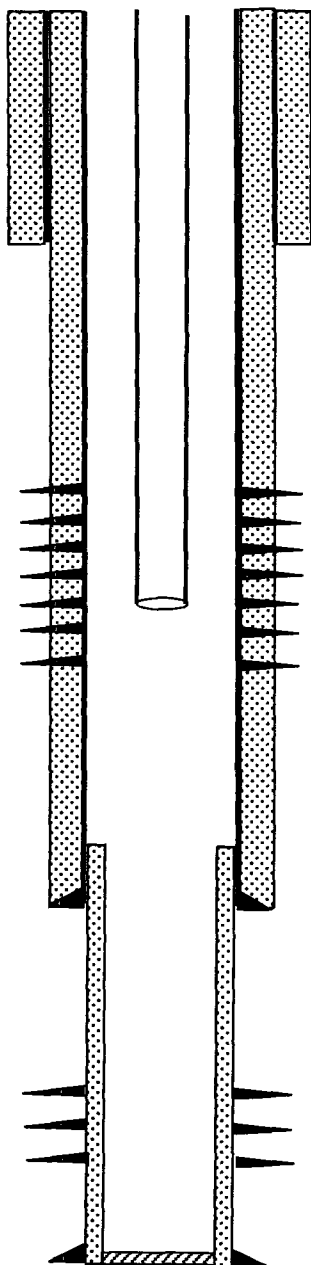
Bureau of Land Management
2909 West Second Street
Roswell, NM 88201

Offset Operators:

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

DEVON ENERGY CORPORATION - WELLBORE SCHEMATIC

WELL NAME: Hawk 9H Federal #11			FIELD: Red Lake			
LOCATION: 1550' FNL & 750' FEL, Sec. 9-18S-27E			COUNTY: Eddy			STATE: NM
ELEVATION: GL = 3518', KB 3524'			SPUD DATE: 11/25/96		COMP DATE: 12/12/96	
API#: 30-015-29156		PREPARED BY: T. Rutelonis			DATE: 6/25/99	
	DEPTH	SIZE	WEIGHT	GRADE	THREAD	HOLE SIZE
CASING:	0' - 1165'	8-5/8"	24#	J-55		12-1/4"
CASING:	0' - 2549'	5 1/2"	15.5#	J-55		7-7/8"
LINER:	2450'-4500'	4"	10.46#	J-55	FL4S	4-3/4"
TUBING:	0' - 2043'	2-7/8"	6.5#	J-55	8RD EUE	
TUBING:						



☐ CURRENT

☒ PROPOSED

OPERATOR: DEVON ENERGY CORPORATION

8-5/8" Casing, Set @ 1165' w/ 550 sxs cmt. TOC @ surface

SAN ANDRES PERFORATIONS:

1597'- 2330' (27 holes, .40", ALPHA, "A", "B", "C", & "D")

2-7/8" tbg w/ SN @ 2043'

TOL @ 2450'

5 1/2" 15.5# J-55 Casing Set @ 2549' w/ 450 sxs cmt. TOC @ surf.

YESO PERFORATIONS:

±2950'- ±3450' (20 HOLES, .38")

4" 10.46# J-55 FL4S liner set @ 2450'-4500' (TOC @ TOL)

TD @ 4500'

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

FORM APPROVED
OPERATOR'S COPYFILE
COPY

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. RESV. ☐ Other ☐

2. NAME OF OPERATOR

DEVON ENERGY CORPORATION (NEVADA)

3. ADDRESS AND TELEPHONE NO.

20 N. BROADWAY, SUITE 1500, OKC, OK 73102-8260 (405) 235-3611

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*

At surface 1550' FNL & 750' FEL; Unit "H"

At top prod. interval reported below (SAME)

At total depth (SAME)

ACCEPTED FOR RECORD

MAR 08 1997

14. PERMIT NO. 012 DATE ISSUED 9/9/96

BLM

5. LEASE DESIGNATION AND SERIAL NO.
NM-0256046. IF INDIAN, ALLOTTEE OR TRIBE NAME
NA7. UNIT AGREEMENT NAME
NA8. FARM OR LEASE NAME, WELL NO.
Hawk "9H" Federal #119. API WELL NO.
30-015-2915610. FIELD AND POOL, OR WILDCAT
Red Lake (Q-GB-SA)11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
"H"-9-T18S-R27E15. DATE SPUDDED
11/25/9616. DATE T.D. REACHED
11/30/9617. DATE COMPL. (Ready to prod.)
12/12/9618. ELEVATIONS (DF, RKB, RT, GR, ETC.)
KB 3524'; GL 3518'; DF 3523'

19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD
2550'21. PLUG, BACK T.D., MD & TVD
2507'22. IF MULTIPLE COMPL., HOW MANY?
NA23. INTERVALS
DRILLED BYROTARY TOOLS
X

CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
San Andres 1597-2330'25. WAS DIRECTIONAL SURVEY
MADE
No26. TYPE ELECTRIC AND OTHER LOGS RUN
LDT/CNL/DLL/MSFL/GR; CBL27. 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#	1165'	12-1/4"	surf; 350 sxs lite & 200 sxs "C"	NA
5-1/2" J-55	15.5#	2549'	7-7/8"	surf; 200 sxs lite C & 250 sxs "C"	NA

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2-7/8"	2043'	(OET)

30. TUBING RECORD

31. PERFORATION RECORD (Interval, size and number)

1597-1703' U. SAN ANDRES (3 - .40" EHD holes)
1823-1870' ALPHA (2 - .40" EHD holes)
2074-2078' "A" (3 - .40" EHD holes)
2126-2196' "B" (5 - .40" EHD holes)
2219-2248' "C" (5 - .40" EHD holes)
2274-2330' "D" (8 - .40" EHD holes)

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1597-2330'	2500 gals of 15% NeFe acid
1597-2330'	1,000 gals PrePad + 2 drum Pro-Kem scale inhibitor + 180,000 gals gel water + 6000# 100 mesh sand + 243,000# 20/40 Brady sand.

33.* PRODUCTION

DATE FIRST PRODUCTION 12/12/96		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 1/21/97	HOURS TESTED 24	CHOKE SIZE	PROD'N FOR TEST PERIOD —————→	OIL-BBL. 40	GAS-MCF. 20	WATER-BBL. 217	GAS-OIL RATIO 500/1	
FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE —————→	OIL-BBL. 40	GAS-MCF. 20	WATER-BBL. 217	OIL GRAVITY-API (CORR.) 38		

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
SoldTEST WITNESSED BY
Danny Hokett35. LIST OF ATTACHMENTS
Logs, Deviation Surveys

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

SIGNED

Diana Keys

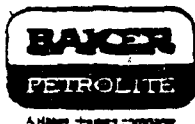
DIANA KEYS
TITLE ENGINEERING TECHNICIAN

DATE February 19, 1997

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

The 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

DISTRIBUTED
3-12-97



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	68,833
Magnesium	491	387
Calcium	2,287	2,062
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

PRIVACY WARRANTY, DISCLOSURE 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	33.3	-0.04		-0.02		-0.08		0.82	0.11
50%	50%	3.56	0.28	35.3	-0.05		-0.02		-0.07		0.70	0.08
100%	0%	0.96	0.66	45.5	-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

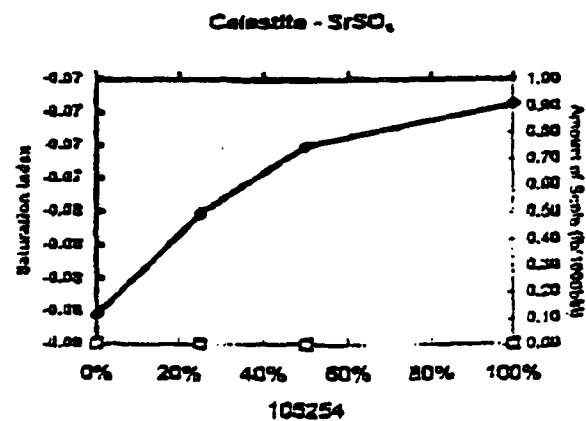
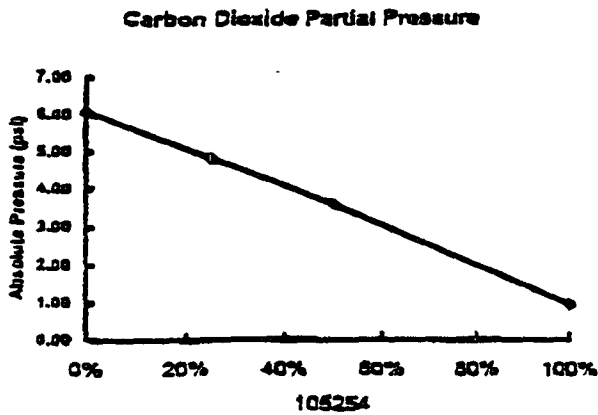
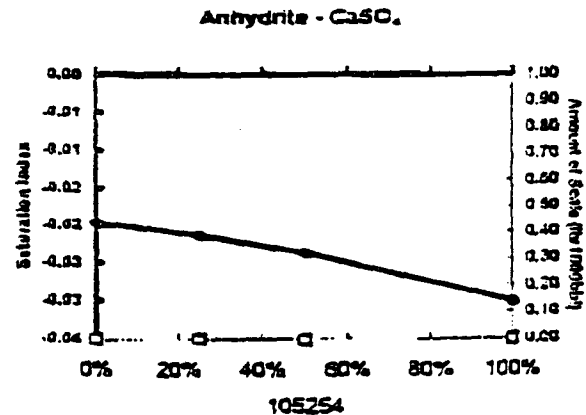
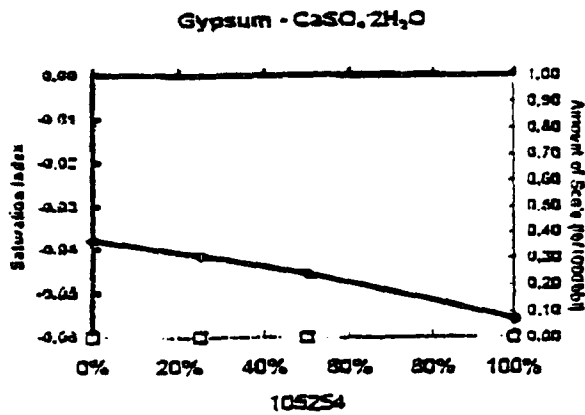
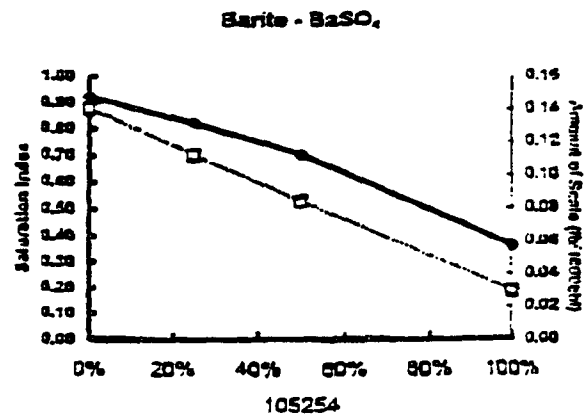
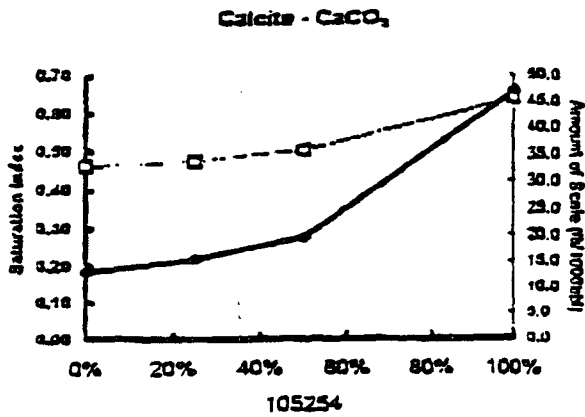
Sent by: BAKER PETROLITE 19155637942

01/06/99 2:27PM Job 389

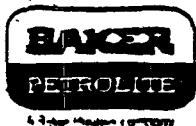
Page 7/11

Mixture Predictions from Baker-Petrolite

105254 with 114048 at 80°F and 0 psi



PRODUCT WARRANTY, TEST LIMITS 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	48.0	-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.

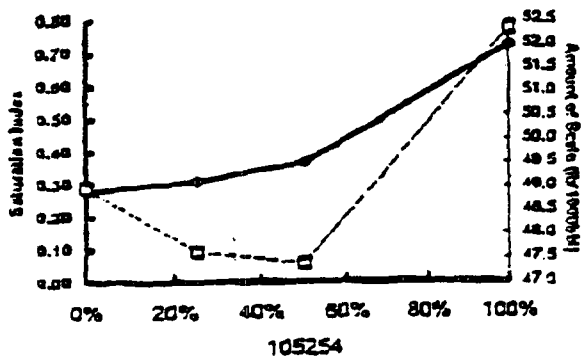
Note 3: CO₂ Pressure is absolute pressure. Total Pressure is gauge pressure.

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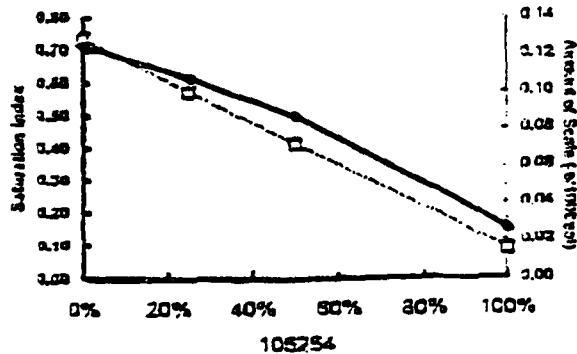
INITIAL PREDICTIONS FROM BAKER-PETROLITE

105254 with 114048 at 100°F and 0 psi

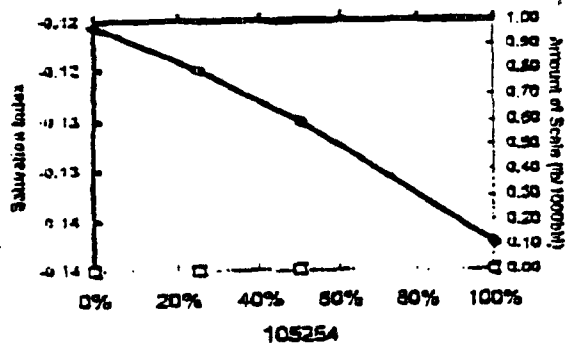
Calcite - CaCO_3



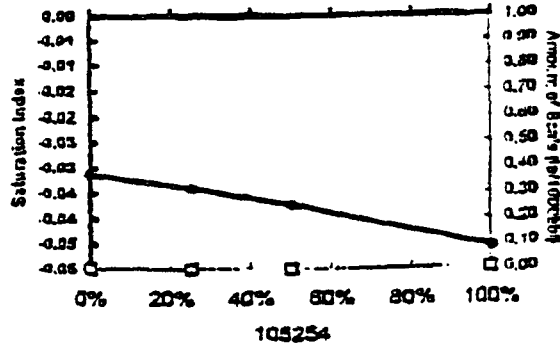
Barite - BaSO_4



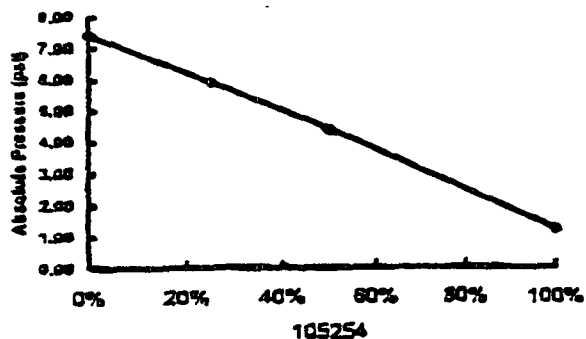
Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$



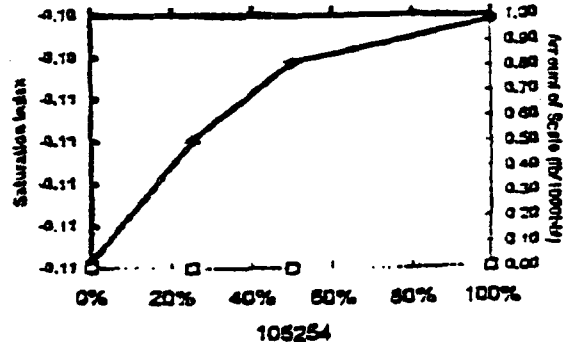
Anhydrite - CaSO_4



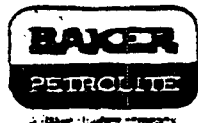
Carbon Dioxide Partial Pressure



Celestite - SrSO_4



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Analysis: 22526

Water Analysis Report from Baker Petrolite

Mixed 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	81.7	-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	0.79	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.

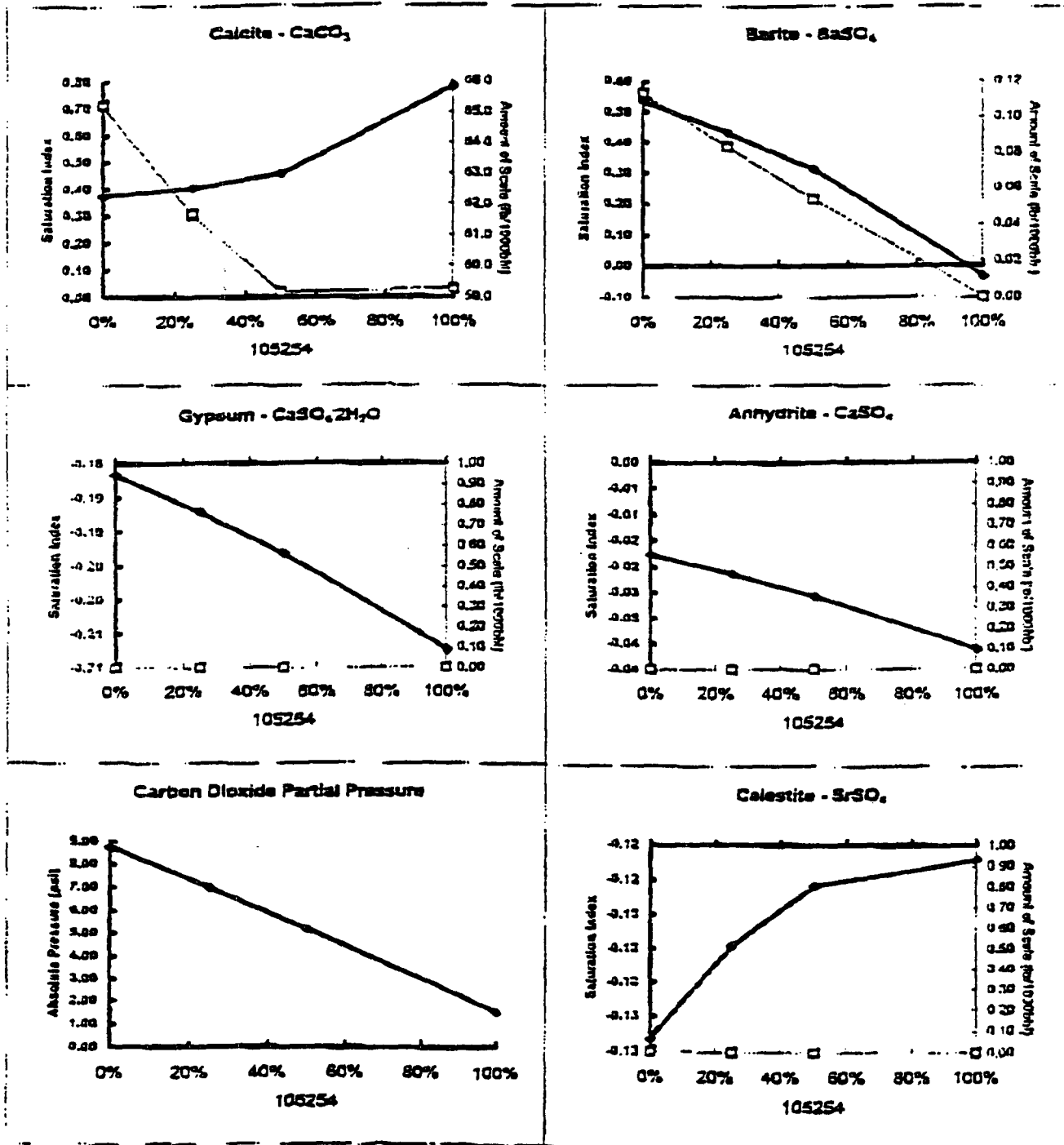
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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	81.3	-0.24		0.02	45.3	-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		0.02	

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.

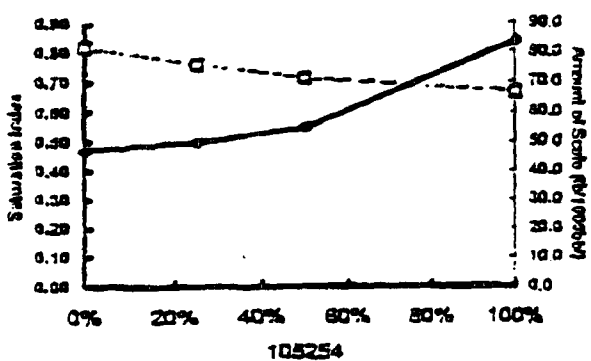
Note 3: CO₂ Pressure is absolute pressure. Total Pressure is gauge pressure.

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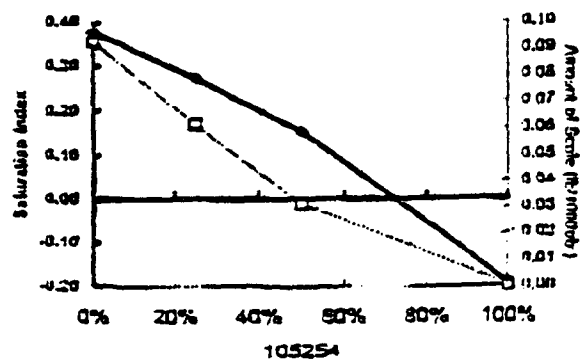
Mixture Predictions from Baker-Petrolite

105254 with 114048 at 140°F and 0 psi

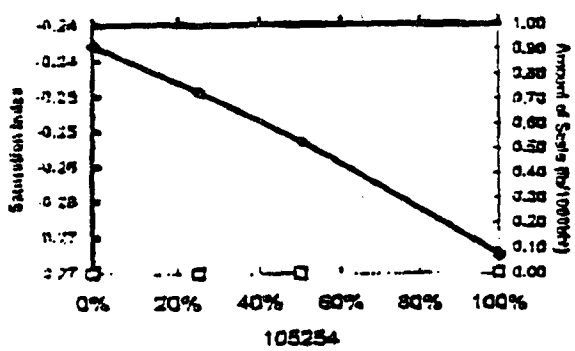
Calcite - CaCO_3



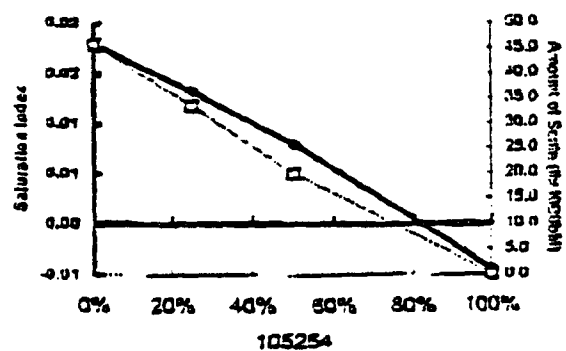
Barite - BaSO_4



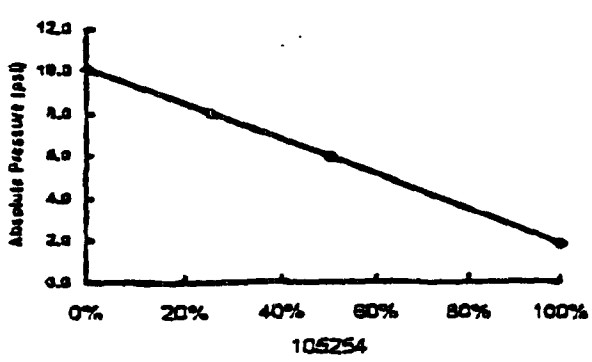
Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$



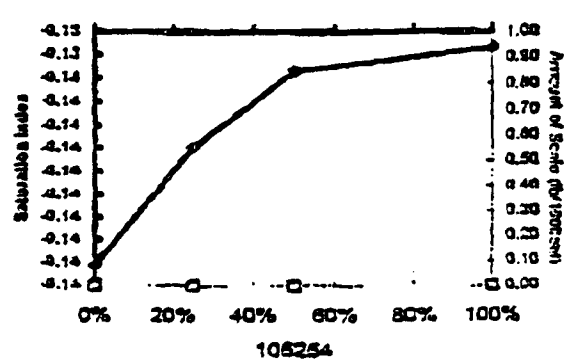
Anhydrite - CaSO_4



Carbon Dioxide Partial Pressure



Celestite - SrSO_4



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W
L
S

Laboratory Services, Inc.
4016 Fiesta Drive
Hobbs, New Mexico 88240
Telephone: (805) 367-3713

SULFUR IN CRUDE OIL

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

Dec 15, 1998

Total Sulfur	API Gravity @ 60° F	Specific Gravity @ 60° F
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Logan 35-9

0.4888 wt. %

41.9

0.8174

(YESO)

Thank You,
Rolland Perry

Post-It™ brand fax transmittal memo 757	1
1 of 1 pages	
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2002	



Mobile Analytical Laboratories

LABORATORIES IN COESSA, BIDDINGS & STACY DAM
WEST UNIVERSITY AND WESTOVER STREET
P.O. BOX 69210
COESSA, TEXAS 79769-0210
PHONE 337-4744
FAX 337-6781

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 ANTONIO) 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	0.565 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

