



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

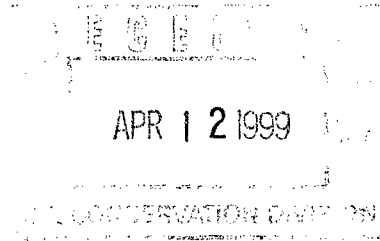
DHC

5/3/99

2328

April 9, 1999

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
Washington State "33" Well Nos. 13 & 14
Artesia (QGSA) and Artesia (Glor-Yeso) Fields
Eddy Co., NM

Mr. Catanach:

ARCO Permian respectfully requests administrative approval for downhole commingling on the Washington State "33" Well Nos. 13 and 14. 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: Larry Henson – EUN
Donald Knipe – 61323/MIO
Central Files - 041/MIO
R/C Files

ARCO Permian
Downhole Commingling
Washington State "33" Lease
Section 33, T-17S, R-28E
Eddy County, New Mexico

Well No. 13
API: 30-015-22524
1610' FNL & 250' FEL (N)

Well No. 14
API: 30-015-30194
2282' FNL & 970' FEL (H)

Surface Owners for Unit N & H:

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

Offset Operators:

Marbob Energy Corporation
P.O. Box 227
Artesia, NM 88211-0227

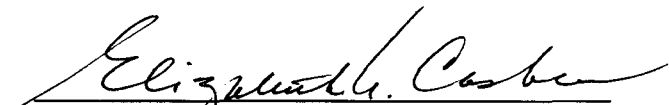
Lauretta Phillipa
715 N. Maple Drive
Beverly Hills, CA 90210

STATE OF TEXAS

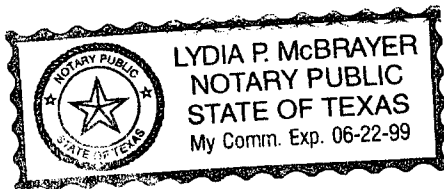
COUNTY OF MIDLAND

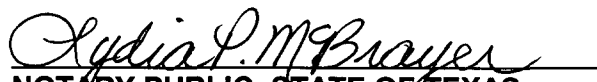
BEFORE ME, the undersigned authority on this day personally appeared Elizabeth A. Casbeer, an Regulatory Compliance Analyst with **ARCO Permian**, who being by me duly sworn, deposes and states that the persons listed on the foregoing attached list have been sent a copy on April 9, 1999, of the New Mexico Oil Conservation Division Form C-107 entitled, "Application For Downhole Commingling" for the Washington State "33" Well Nos. 13 and 14, located in Section 33, T17S, R28E, Eddy County New Mexico.

ARCO Permian


Elizabeth A. Casbeer

SUBSCRIBED AND SWORN TO before me on April 9, 1999, to certify which witness my hand and seal of office.




NOTARY PUBLIC, STATE OF TEXAS

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Dougherty
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State
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Am

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

APR 12 1999

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

OIL CONSERVATION DIVISION

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

APPROVAL PROCESS:

☒ Administrative ☐ Hearing

EXISTING WELLBORE

☒ YES ☐ NO

APPLICATION FOR DOWNHOLE COMMINGLING

Operator ARCO Permian Address P.O. Box 1610 Midland, TX 79702Lease Washington State "33" No.13 Well No. H-33-175-28E Unit Ltr. - Sec - Twp - Rge Eddy CountyOGRID NO. 000990 Property Code 22954 API NO. 30-015-22524 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	Artesia (Queen, Grog., S.A.)		Artesia (Glorieta, Yeso)
2. Top and Bottom of Pay Section (Perforations)	2326'-1910'		3700'-40201'
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) 70 b. (Original)	a. b.	a. 75 b.
6. Oil Gravity ($^{\circ}$ API) or Gas BTU Content	40-42 $^{\circ}$ API		42 $^{\circ}$ API
7. Producing or Shut-In?	Producing		Awaiting Perfs
Production Marginal? (yes or no)	yes		Expected in 3-6 months
* If Shut-In, give date and oil/gas/water rates of last production	Date: Rates: N/A	Date: Rates:	Date: Rates: N/A
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: 2/23/99 Rates: 13 BOPD 78 BOPD 79 MCEGPD	Date: Rates:	Date: Rates: N/A
8. Fixed Percentage Allocation Formula - % for each zone	Oil: 27 % Gas: 27 %	Oil: % Gas: %	Oil: 73 % Gas: 73 %

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 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.

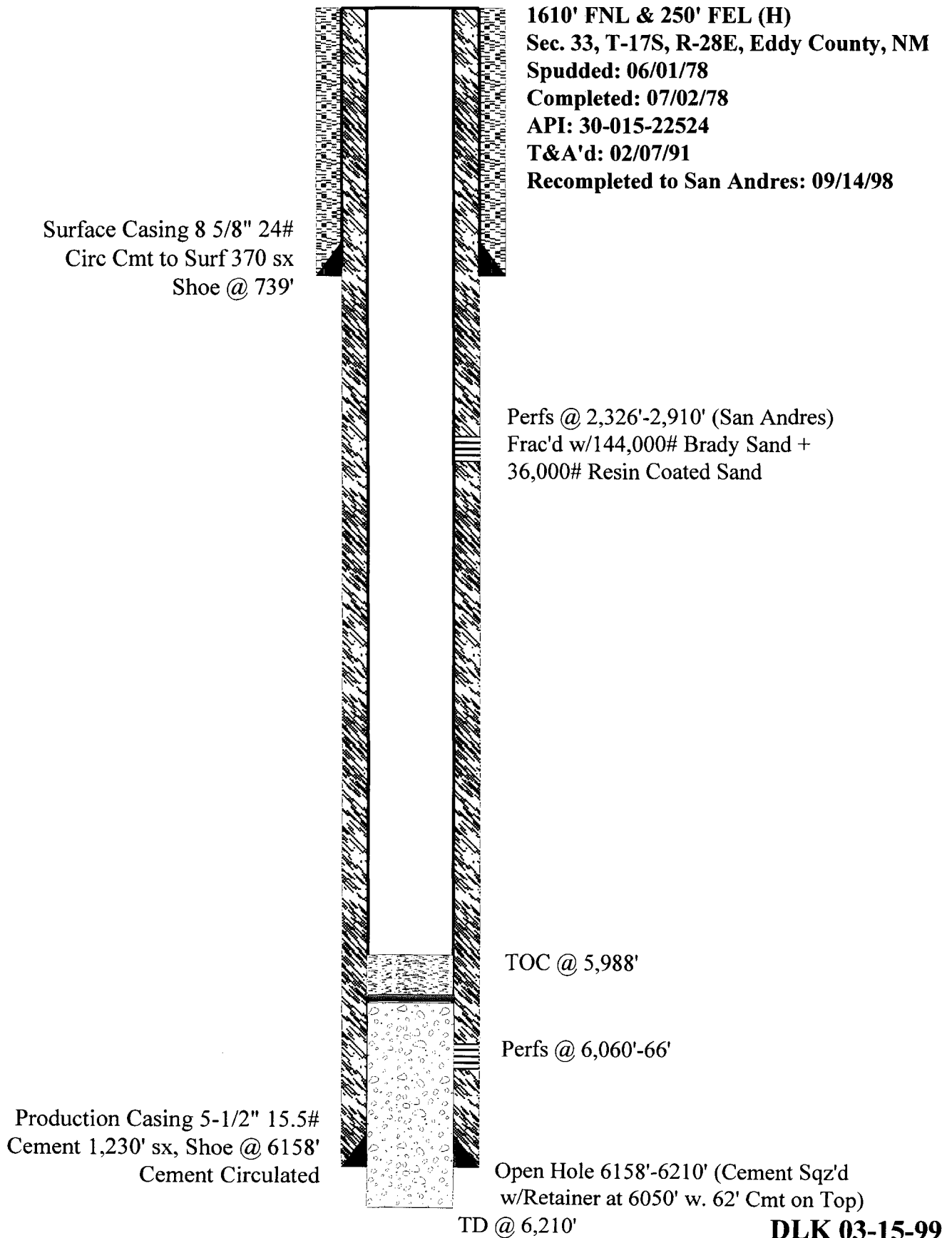
I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Elizabeth A. Casbeer TITLE Reg/Comp Analyst DATE 4-9-99TYPE OR PRINT NAME Elizabeth A. Casbeer TELEPHONE NO. (915) 688-5570

WELLBORE SCHEMATIC

Washington State "33" No. 13

(Empire Abo Unit F-321)



DLK 03-15-99

submit to Appropriate
District Office
State Lease - 6 copies
Fee Lease - 5 copies

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-105
Revised 1-1-89

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

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

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

OIL CONSERVATION DIVISION

2040 Pacheco St.
Santa Fe, NM 87505

WELL API NO.

30-015-22524

5. Indicate Type Of Lease

STATE ☒

FEE ☐

6. State Oil & Gas Lease No.

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 ☐ DEEPEN ☐ PLUG BACK ☒ DIFF RESVR ☐ OTHER _____

2. Name of Operator

ARCO Permian

3. Address of Operator

P.O. Box 1089 Eunice, NM 88231

4. Well Location

Unit Letter H : 1610 Feet From The N Line and 250 Feet From The E Line

Section 33

Township 17S

Range 28E

NMPM

Eddy

County

10. Date Spudded

11. Date T.D. Reached

12. Date Compl.(Ready to Prod.)

09/14/98

13. Elevations(DF & RKB, RT, GR, etc.)

3674' GL

14. Elev. Casinghead

15. Total Depth

6158

16. Plug Back T.D.

5377

17. If Multiple Compl. How Many Zones?

18. Intervals Drilled By

Rotary Tools

Cable Tools

19. Producing Interval(s), of this completion - Top, Bottom, Name

2326-2910' San Andres

20. Was Directional Survey Made

No

21. Type Electric and Other Logs Run

C.P.N.L.

22. Was Well Cored

No

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8	24	739		circ surf	
5-1/2	15.5	6158		circ surf	

24. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	25. TUBING RECORD	SIZE	DEPTH SET	PACKER SET
						2-7/8	2441	

26. Perforation record (interval, size, and number)

2326-2910'

27. ACID, SHOT, FRACTURE, CEMENT, SOBEZE, ETC.

DEPTH INTERVAL

2326-2910

AMOUNT AND KIND MATERIAL USED

See Attached Detail

28. PRODUCTION

Date First Production 09/17/98 Production Method (Flowing, gas lift, pumping - Size and type pump) pumping Well Status (Prod. or Shut-in) producing

Date of Test 09/22/98 Hours Tested 24 Choke Size _____ Prod'n For Test Period _____ Oil - Bbl. 7 Gas - MCF 64 Water - Bbl. 320 Gas - Oil Ratio 9143

Flow Tubing Press. 70 Casing Pressure 70 Calculated 24-Hour Rate _____ Oil - Bbl. _____ Gas - MCF _____ Water - Bbl. _____ Oil Gravity - API (Corr.) _____

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

sold

Test Witnessed By _____

30. List Attachments

C.P.N.L.

31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature

Kellie D. Murrish

Printed Name

Kellie D. Murrish

Title

Admin. Asst.

Date

09/23/98

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

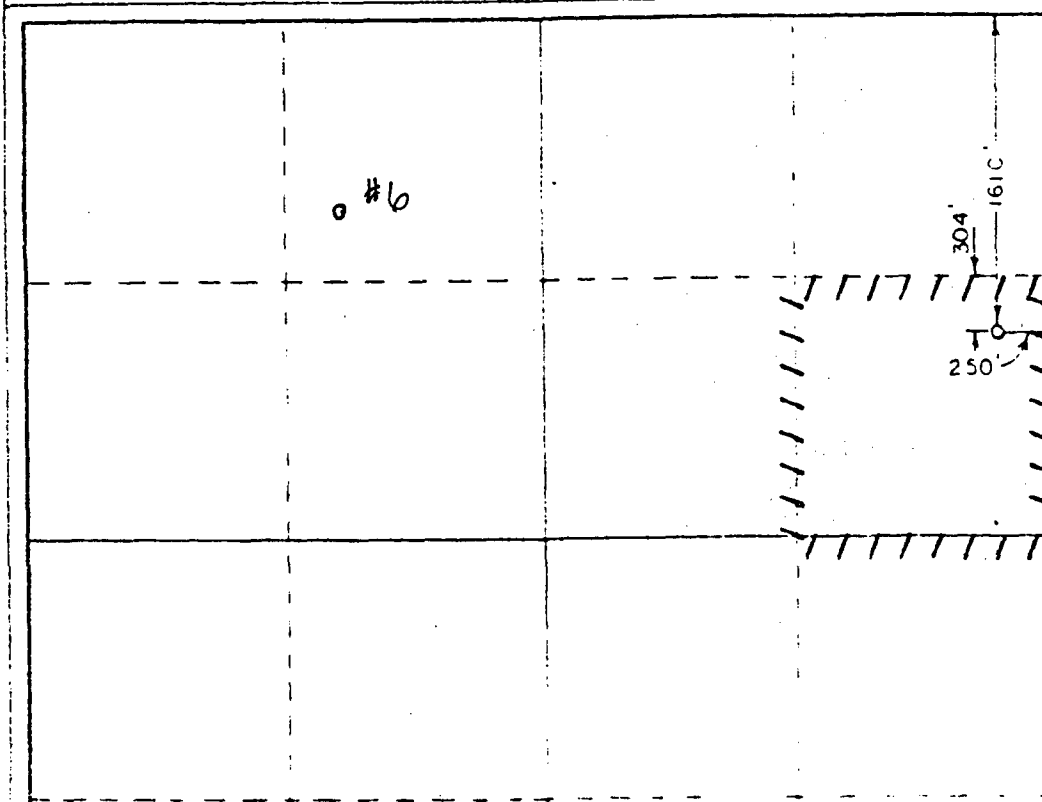
Operator ARCO PERMIAN		Lease WASHINGTON "33" STATE		Well No. 13	
Unit Letter H	Section 33	Township 17 South	Range 28 East	County Eddy	
Actual Surface Location of Well:					
1610 feet from the North		250 feet from the East			
Ground Level Elev. 3674.3	Producing Formation YESO	Form WILDCAT (YESO) ARTESIA (Q-C-SA)		Estimated Acreage 40	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Elizabeth A. Cashe

REGULATORY/COMP. ANALYST

ARCO PERMIAN

3/5/98

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 knowledge and belief

December 15, 1977

Washington State "33" No. 13

Allocation Formula

Well Name	Producing Formation	Daily Production Test (3 mo. Avg. Nov, Dec. 98', Jan. 99')	% of Total
Washington State "33" No. 24	Artesia (Glorieta, Yeso)	29 BO/61 MCF/84 BW	72.5 %
Washington State "33" No. 25	Artesia (Queen, Grayburg, SA)	11 BO/57 MCF/41 BW	27.5 %

The above production test represents stable production from a San Andres producer (Washington State "33" No. 25) and a Yeso producer (Washington State "33" No. 24) . We believe these rates of production represent an acceptable means to allocate production. See attached production plots.

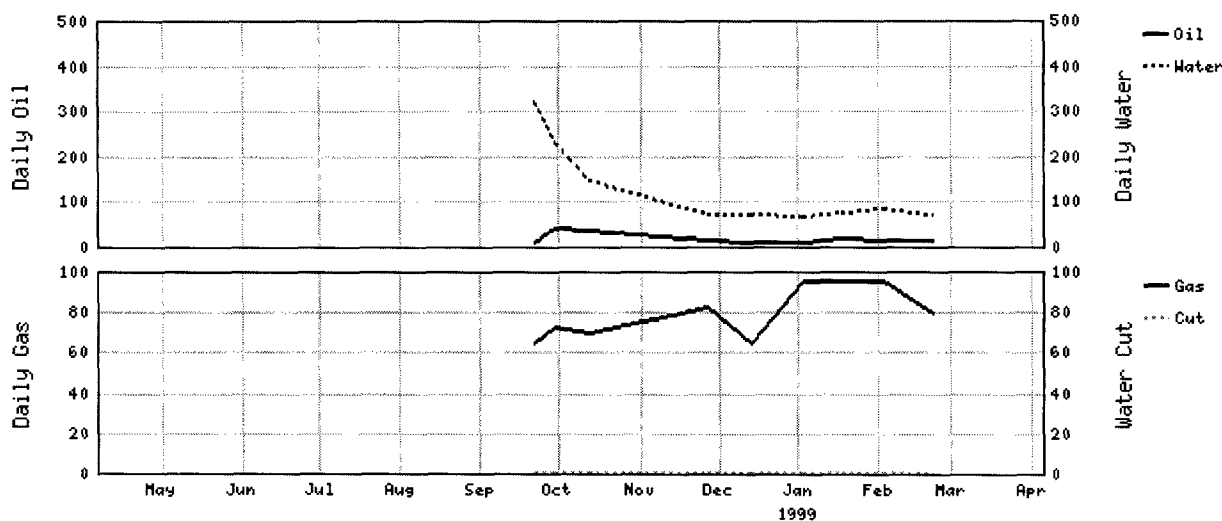


Tue Apr 6, 1999
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**Well Test Data for SE NEW MEXICO: ARTESIA: QUEEN GRAYBURG SAN
ANDRES
WASHINGTON 33 STATE #13 - 300152252400 - PO - AC**



Date	Oil	Water	Gas	Cut	Fl	Pd	%C02	GasGr	GDur
02/23/1999	13	70	79	0	0	0	0.000	0	0
02/04/1999	15	86	95	0	0	0	0.000	0	0
01/19/1999	18	77	95	0	0	0	0.000	0	0
01/04/1999	9	66	95	0	0	0	0.000	0	0
12/15/1998	11	69	64	0	0	0	0.000	0	0
11/28/1998	12	70	82	0	0	0	0.000	0	0
10/13/1998	37	145	69	0	0	0	0.000	0	0
09/30/1998	38	230	72	0	0	0	0.000	0	0
09/22/1998	7	320	64	0	0	0	0.000	0	0
Average:	18	126	79	0	0	0	0.000	0	0



execution time = 8 seconds

For questions or comments regarding this program, contact pagemaster@permian.arco.com

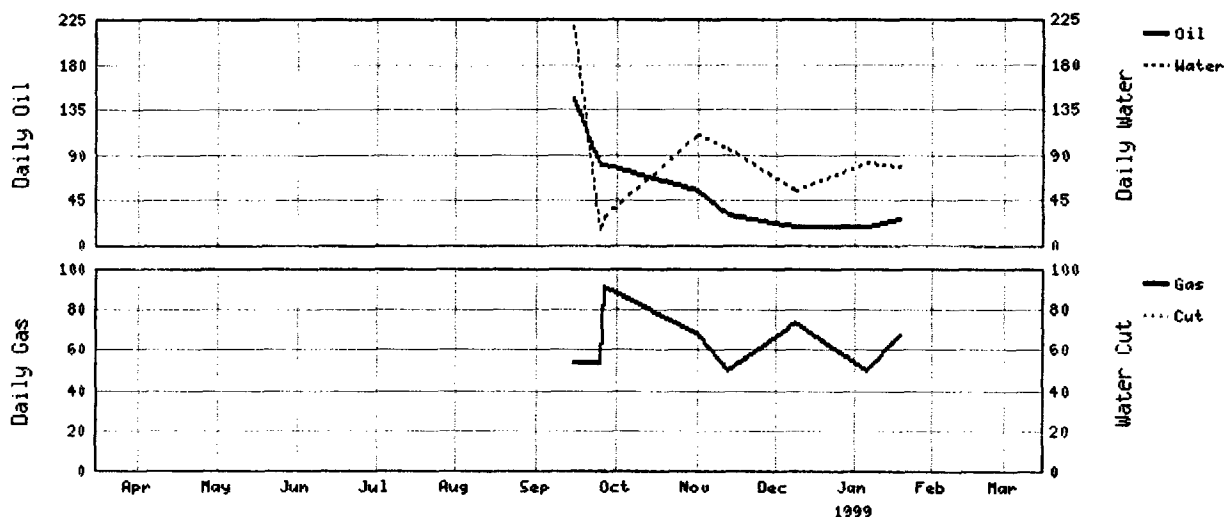


Mon Mar 15, 1999
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**Well Test Data for SE NEW MEXICO: ARTESIA: YESO
WASHINGTON 33 STATE #24 - 300153033400 - PO - AC**



Date	Oil	Water	Gas	Cut	Fl	Pd	%C02	GasGr	GDur
01/19/1999	26	78	67	0	0	0	0.000	0	0
01/06/1999	18	82	50	0	0	0	0.000	0	0
12/09/1998	18	53	73	0	0	0	0.000	0	0
11/13/1998	29	96	50	0	0	0	0.000	0	0
11/01/1998	54	109	67	0	0	0	0.000	0	0
09/26/1998	80	27	91	0	0	0	0.000	0	0
09/25/1998	80	15	53	0	0	0	0.000	0	0
09/15/1998	146	218	53	0	0	0	0.000	0	0
Average:	56	85	63	0	0	0	0.000	0	0



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For questions or comments regarding this program, contact pagemaster@permian.arco.com

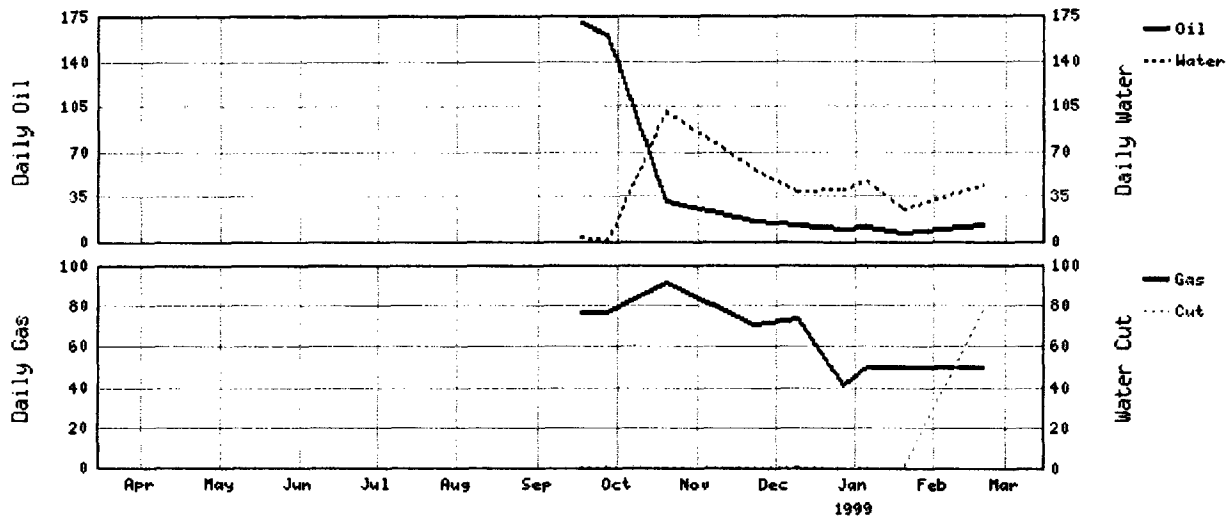


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**Well Test Data for SE NEW MEXICO: ARTESIA: QUEEN GRAYBURG SAN
ANDRES
WASHINGTON 33 STATE #25 - 300150169000 - PO - AC**



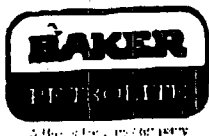
Date	Oil	Water	Gas	Cut	Fl	Pd	%C02	GasGr	GDur
02/20/1999	13	43	50	77	0	0.000	0	0	0
01/20/1999	6	25	50	0	0	0.000	0	0	0
01/06/1999	11	46	50	0	0	0.000	0	0	0
12/28/1998	10	40	41	0	0	0.000	0	0	0
12/10/1998	12	39	73	0	0	0.000	0	0	0
11/23/1998	16	56	70	0	0	0.000	0	0	0
10/20/1998	31	100	91	0	0	0.000	0	0	0
09/27/1998	160	0	76	0	0	0.000	0	0	0
09/17/1998	169	3	76	0	0	0.000	0	0	0
Average:	48	39	64	9	0	0.000	0	0	0



execution time = 9 seconds

For questions or comments regarding this program, contact pagemaster@permian.arco.com

Sent by: BAKER PETROLITE 19155637942



Water Analysis Report by Baker Petrolite

ARCO

WASHINGTON 33

WELL # 24

WELLHEAD

Account Manager
STEVE THOMAS

YESO

Summary			Analysis of Sample 108815 @ 75°F					
Sampling Date	2/18/99		Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date	2/24/99		Chloride	121426	3425	Sodium	77942	3390
Analyst	JOANNA RAGAN		Bicarbonate	444	7.28	Magnesium	425	35.0
			Carbonate	0.00	0.00	Calcium	1698	84.7
TDS (mg/l or g/m ³)	206471		Sulfate	4174	86.9	Strontium	36.0	0.82
Density (g/cm ³ or tonne/m ³)	1.136		Phosphate	N/A	N/A	Barium	0.40	0.01
Anion/Cation Ratio	1.00		Borate	N/A	N/A	Iron	2.00	0.07
			Silicate	N/A	N/A	Potassium	324	8.29
Carbon Dioxide						Aluminum	N/A	N/A
Oxygen						Chromium	N/A	N/A
						Copper	N/A	N/A
			pH at time of sampling			Lead	N/A	N/A
			pH at time of analysis		7.33	Manganese	N/A	N/A
			pH used in Calculations		7.33	Nickel	N/A	N/A

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000bbl										
Temp.	Gauge Press.	Calcite CaCO ₃		Gypsum CaSO ₄ · 2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄		CO ₂ Press.
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0.	1.01	30.7	-0.18		-0.15		-0.22		0.94	0.19	0.17
100	0.	0.95	34.2	-0.27		-0.17		-0.26		0.73	0.17	0.27
120	0.	0.91	37.8	-0.34		-0.17		-0.28		0.54	0.15	0.42
140	0.	0.87	41.8	-0.41		-0.14		-0.29		0.38	0.12	0.60

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.

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

RECEIVED TIME MAR. 1. 4:12PM

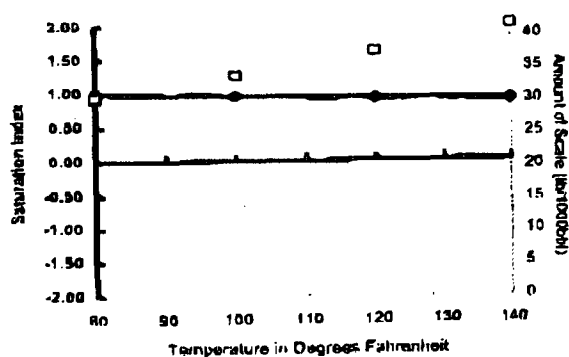
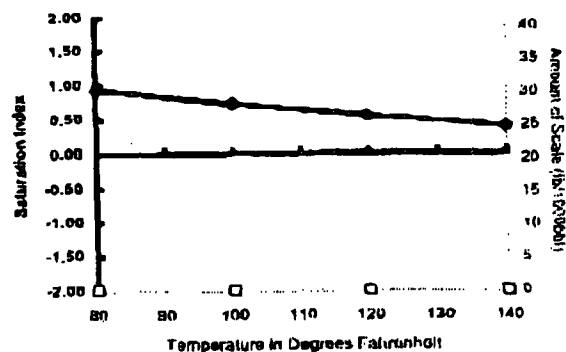
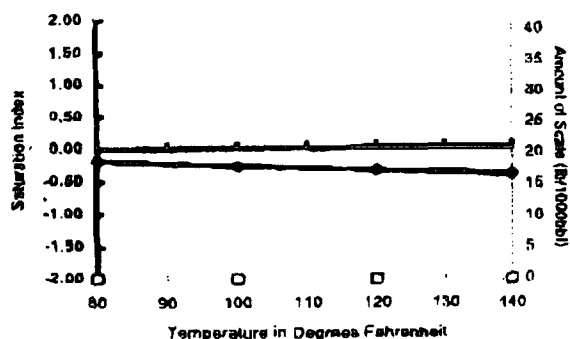
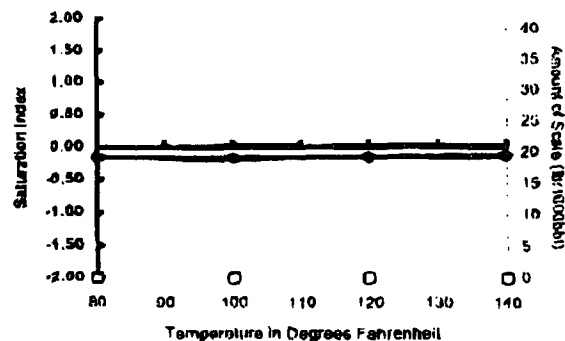
PRINT TIME MAR. 1. 4:15PM

Sent by: BAKER PETROLITE 19155837942

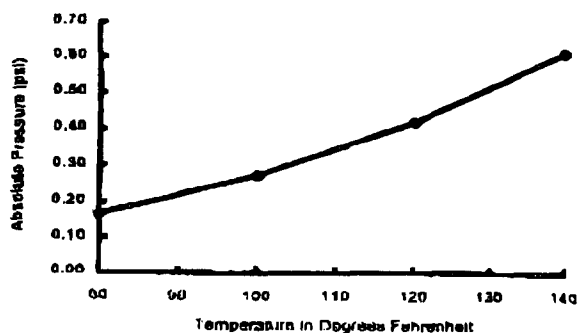
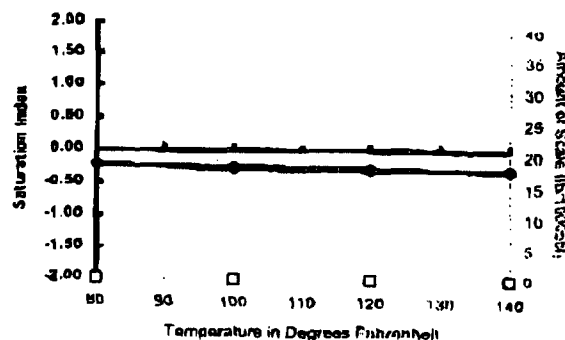


Scale Predictions from Baker Petrolite

Analysis of Sample 100815 @ 75°F for ARCO, Feb/24/99

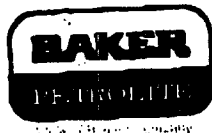
Calcite - CaCO_3 Barite - BaSO_4 Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ Anhydrite - CaSO_4 

Carbon Dioxide Partial Pressure

Celestite - SrSO_4 

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

Sent by: BAKER PETROLITE 19155637942



Water Analysis Report by Baker Petrolite

ARCO
WASHINGTON 33
WELL # 25
WELLHEAD

Account Manager
STEVE THOMAS

SAN ANDRES

Summary		Analysis of Sample 108814 @ 75°F					
Sampling Date	2/18/99	Anions	<i>mg/l</i>	<i>meq/l</i>	Cations	<i>mg/l</i>	<i>meq/l</i>
Analysis Date	2/24/99	Chloride	106506	3004	Sodium	67398	2932
Analyst	JOANNA RAGAN	Bicarbonate	714	11.7	Magnesium	565	46.5
		Carbonate	0.00	0.00	Calcium	2187	109
TDS (mg/l or g/m ³)	181974	Sulfate	4076	84.8	Strontium	45.0	1.03
Density (g/cm ³ or tonne/m ³)	1.120	Phosphate	N/A	N/A	Barium	0.10	0.00
Anion/Cation Ratio	1.00	Borate	N/A	N/A	Iron	8.00	0.28
Carbon Dioxide		Silicate	N/A	N/A	Potassium	475	12.7
Oxygen					Aluminum	N/A	N/A
					Chromium	N/A	N/A
					Copper	N/A	N/A
		pH at time of sampling			Lead	N/A	N/A
		pH at time of analysis		7.02	Manganese	N/A	N/A
		pH used in Calculations		7.02	Nickel	N/A	N/A

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000bbl										
Temp.	Gauge Press.	Calcite CaCO ₃		Gypsum CaSO ₄ · 2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄		CO ₂ Press.
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0.	0.98	63.6	-0.09		-0.07		-0.10		0.36	0.03	0.52
100	0.	1.01	70.8	-0.16		-0.08		-0.13		0.16	0.02	0.72
120	0.	1.03	78.3	-0.23		-0.07		-0.15		-0.02		0.98
140	0.	1.05	86.2	-0.29		-0.03		-0.16		-0.18		1.30

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.

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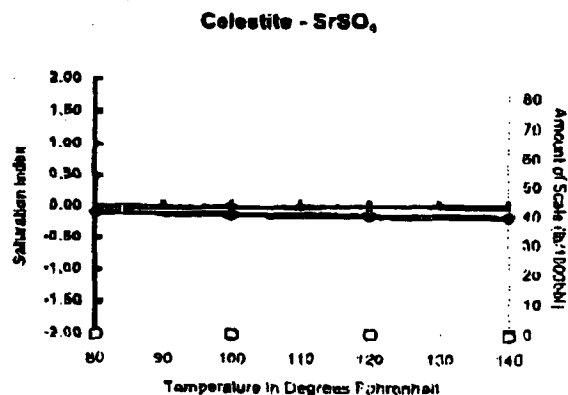
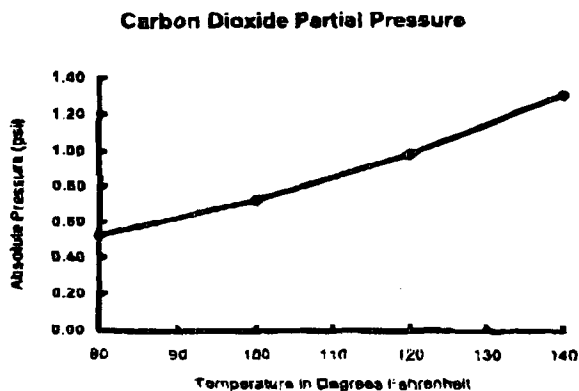
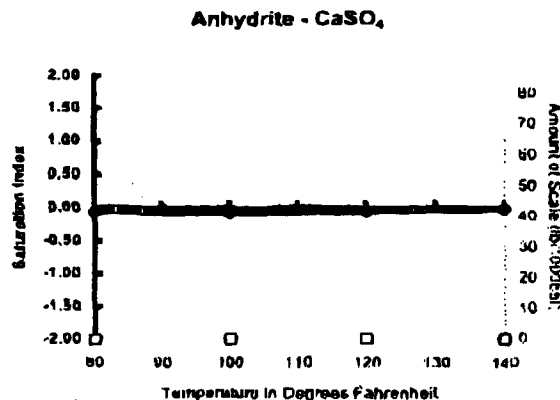
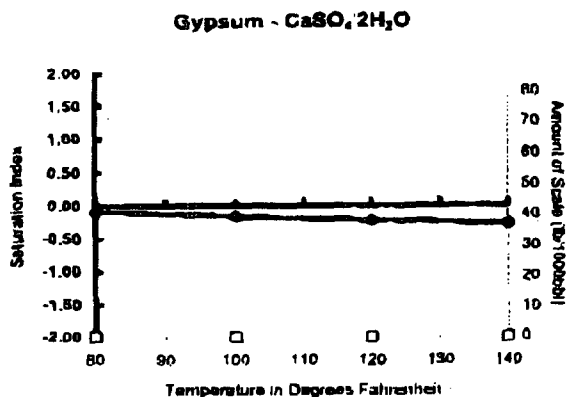
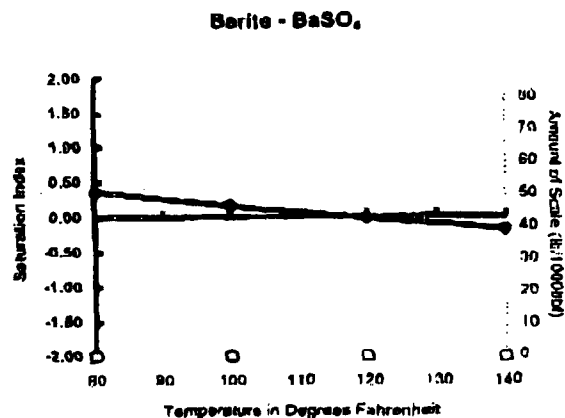
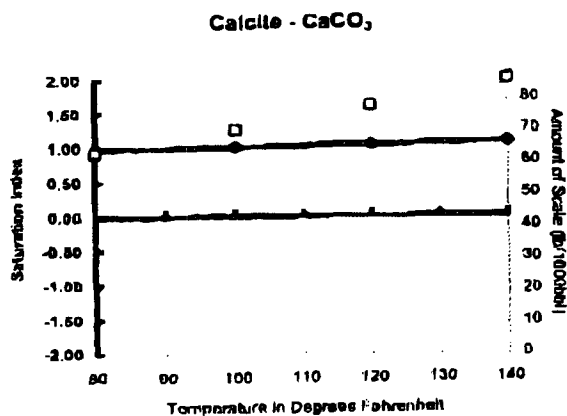
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Page 2/4



Scale Predictions from Baker Petrolite

Analysis of Sample 108814 @ 75°F for ARCO - Feb/24/99



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