

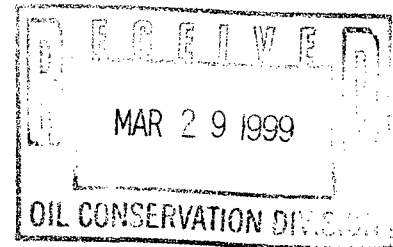


ARCO Permian

600 North Mariefeld
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 4/19/99



March 25, 1999

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

2300

RE: Application of ARCO Permian
for Downhole Commingling on
Washington State "33" Well No. 26
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 Number 26. 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

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

Operator ARCO Permian P.O. Box 1610 Midland, TX 79702 AddressLease Washington "33" No. 26 Well No. N-33-T17S-R28E Unit Ltr. - Sec - Twp - Rge

County

OGRID NO. 000990 Property Code 22954 API NO. 30-015-22464Spacing Unit Lease Types: (check 1 or more)
Federal ___ State X (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 (Q,G,SA)		Artesia (Glor-Yeso)
2. Top and Bottom of Pay Section (Perforations)	2614' - 2974'		To be perforated 3800-4150
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) 70 b. (Original)	a. b.	a. 70 after perf and placed on pump b.
6. Oil Gravity ($^{\circ}$ API) or Gas BTU Content	42 $^{\circ}$ API		40-42 $^{\circ}$ 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 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: 2/21/99 Rates: 1 BOPD 3 BOPD 36 MCFGPD	Date: Rates:	Date: Rates: N/A
8. Fixed Percentage Allocation Formula - % for each zone	Oil: % Gas: %	Oil: % Gas: %	Oil: % Gas: %

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? X Yes ___ No
If not, have all working, overriding, and royalty interests been notified by certified mail? X Yes ___ No
Have all offset operators been given written notice of the proposed downhole commingling? X Yes ___ No11. Will cross-flow occur? ___ Yes X 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? X Yes ___ No13. Will the value of production be decreased by commingling? ___ Yes X 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. X 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 3-25-99TYPE 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., Aztec, NM 87410

DISTRICT IV

P.O. BOX 2088, SANTA FE, N.M. 87504-2088

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-22464	Pool Code	Pool Name ARTESIA (A-G-SA)
Property Code 22954	Property Name WASHINGTON 33 STATE	Well Number 26
OGRID No. 000990	Operator Name ARCO PERMIAN	Elevation 3060

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	33	17 S	28 E		150	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.
------------------------------	-----------------	--------------------	-----------

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

		05	03	01
		06	04	02
07		09	11	13
08			12	14
21		19		
22			17	
	31		18	
23		35		
24				

← 1650' 26 150'

OPERATOR CERTIFICATION

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

Elizabeth A. Casbeer
Signature

ELIZABETH A. CASBEER
Printed Name

REG/COMP ANALYST
Title

5/20/98
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.

MARCH 3, 1998

Date Surveyed _____ DMCC

Signature *Ronald J. Edson*
Professional Surveyor

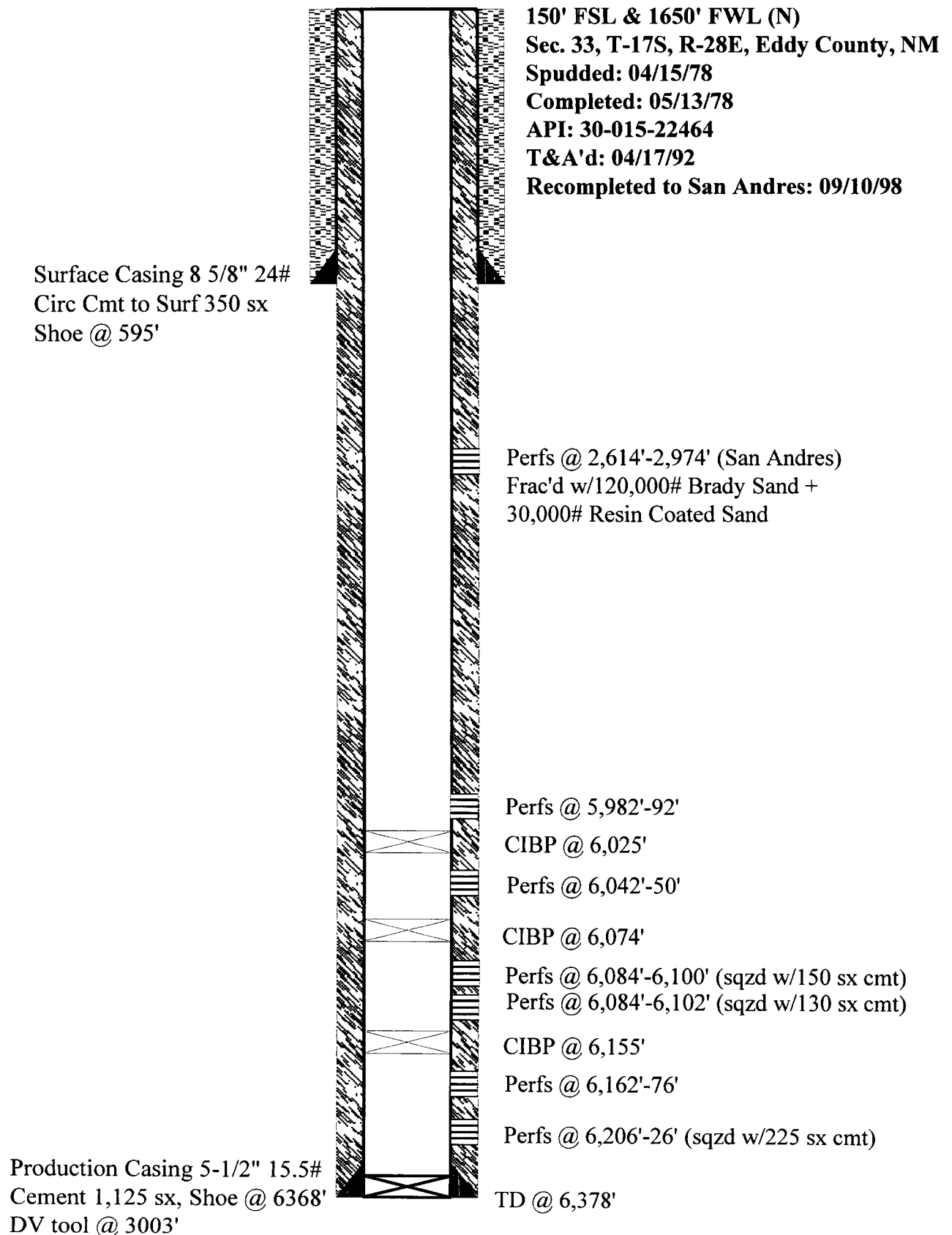
RONALD J. EDSON
NEW MEXICO
12339
88-11-035

Certificate No. **RONALD J. EDSON** 3239
12641
12185

WELLBORE SCHEMATIC

Washington State "33" No. 26

(Empire Abo Unit H-301)



Washington State "33" No. 26

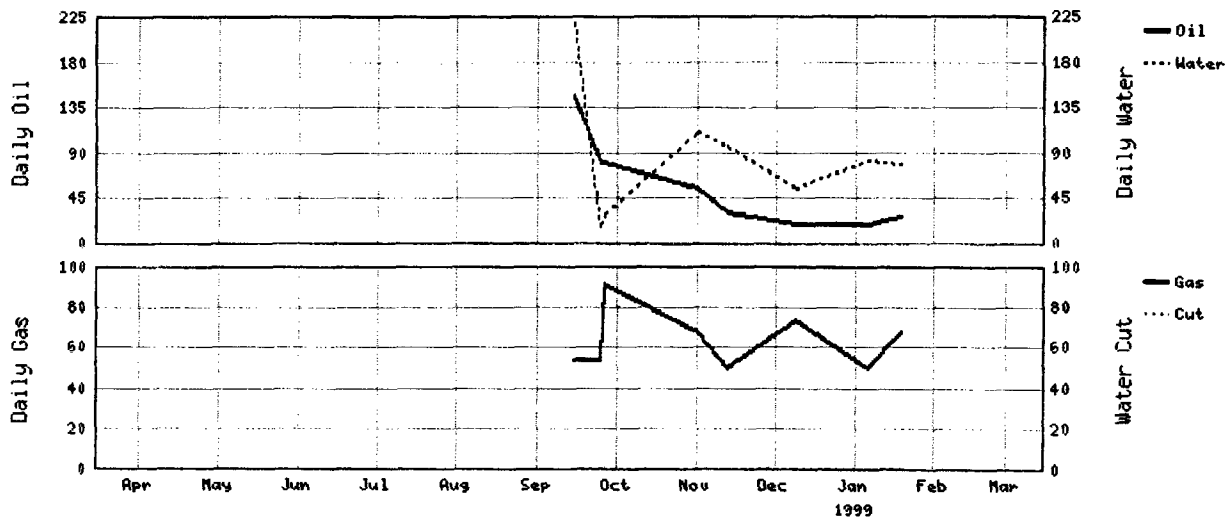
Allocation Formula

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.

Mon Mar 15, 1999
3:08:12 PM**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



execution time = 2 seconds

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

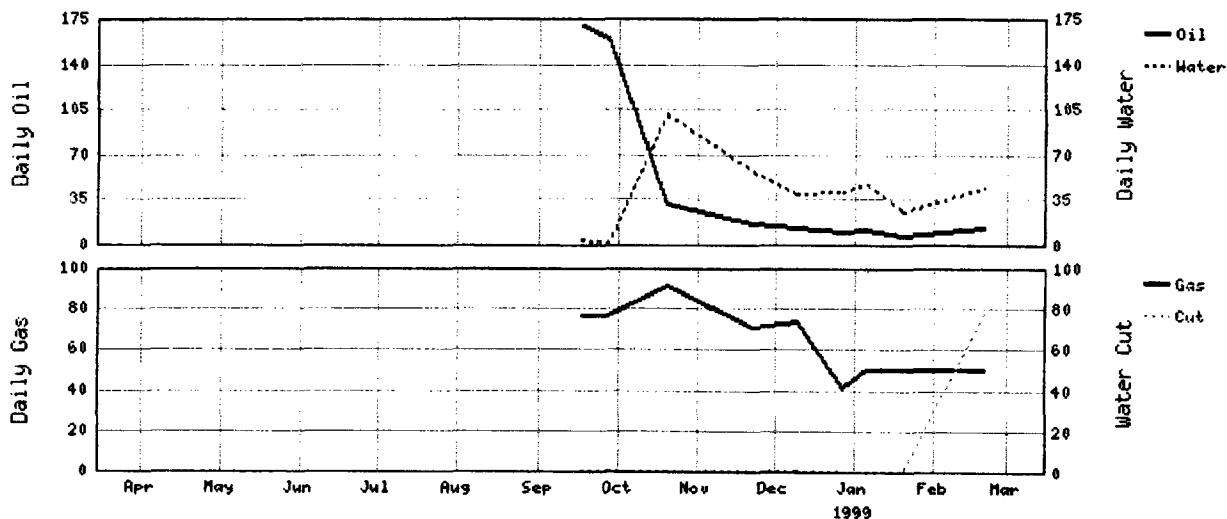


Mon Mar 15, 1999
3:06:54 PM

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



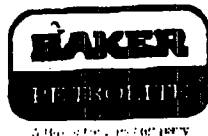
Date	Oil	Water	Gas	Cut	Fl	Pd	%CO2	GasGr	GDur
02/20/1999	13	43	50	77	0	0.000	0	0	0
01/20/1999	6	25	50	0	0	0.000	0	0	0
01/06/1999	11	46	50	0	0	0.000	0	0	0
12/28/1998	10	40	41	0	0	0.000	0	0	0
12/10/1998	12	39	73	0	0	0.000	0	0	0
11/23/1998	16	56	70	0	0	0.000	0	0	0
10/20/1998	31	100	91	0	0	0.000	0	0	0
09/27/1998	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	<i>mg/l</i>	<i>meq/l</i>	Cations	<i>mg/l</i>	<i>meq/l</i>
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	8.25
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.

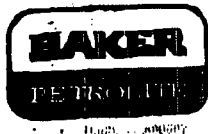
Note 3: The reported CO₂ pressure is actually the calculated CO₂ fugacity. It is usually nearly the same as the CO₂ partial pressure.

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

RECEIVED TIME MAR. 1. 4:12PM

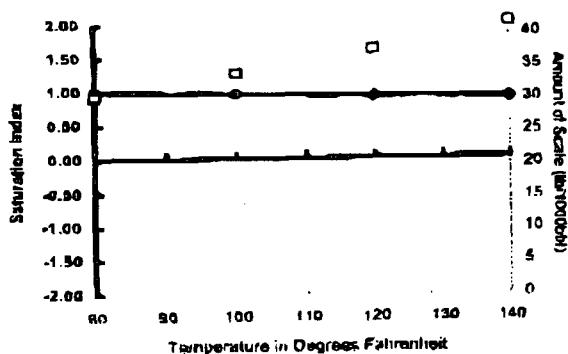
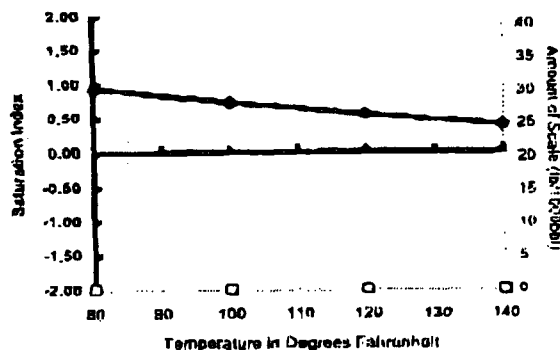
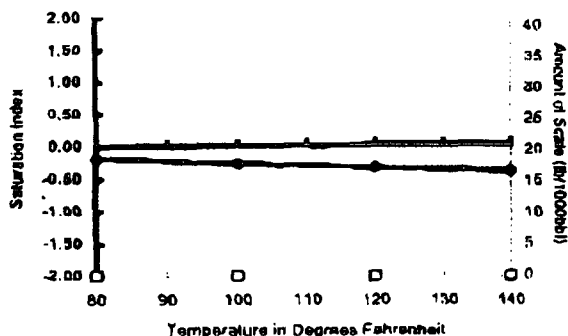
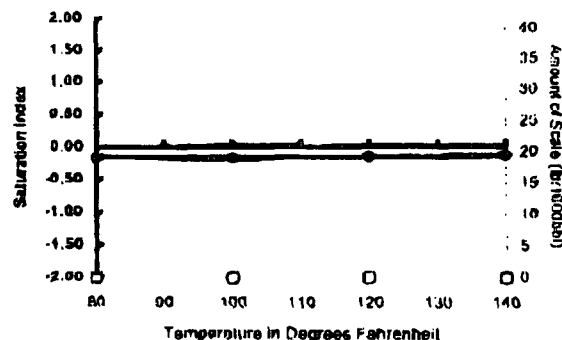
PRINT TIME MAR. 1. 4:15PM

Sent by: BAKER PETROLITE 19155637942

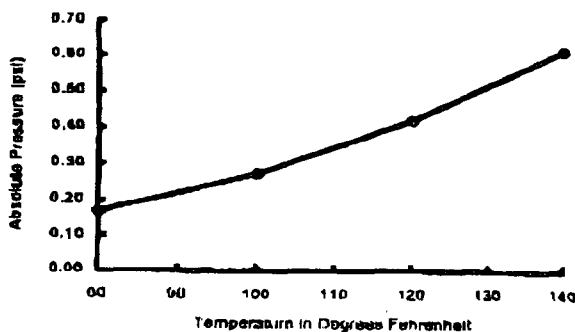
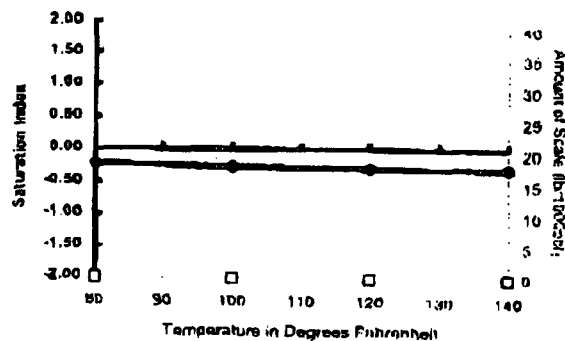


Scale Predictions from Baker Petrolite

Analysis of Sample 108815 @ 75°F for ARCO, Feb/24/99

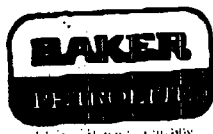
Calcite - CaCO_3 Barite - BaSO_4 Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ Anhydrite - CaSO_4 

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	0.29
		Silicate	N/A	N/A	Potassium	475	12.1
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		7.02	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	Index Amount	ps	
80	0.	0.98 63.6	-0.09	-0.07	-0.10	0.36 0.03		0.50	
100	0.	1.01 70.8	-0.16	-0.08	-0.13	0.16 0.02		0.70	
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.

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

Sent by: BAKER PETROLITE 19155637942

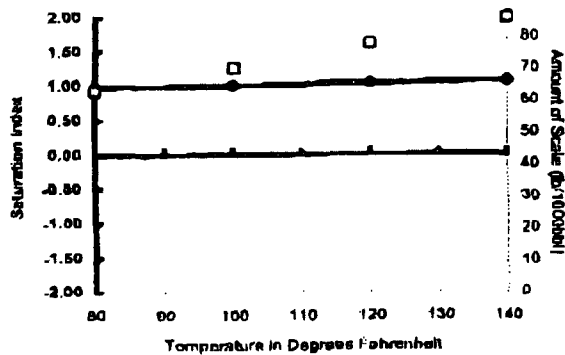
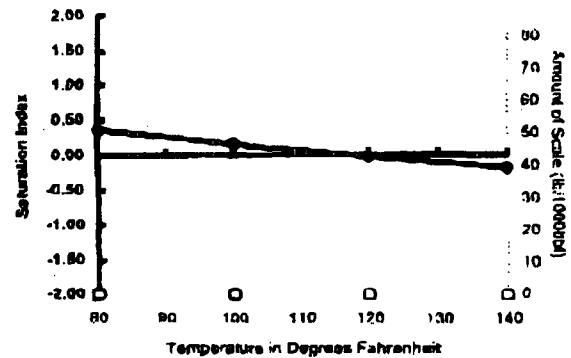
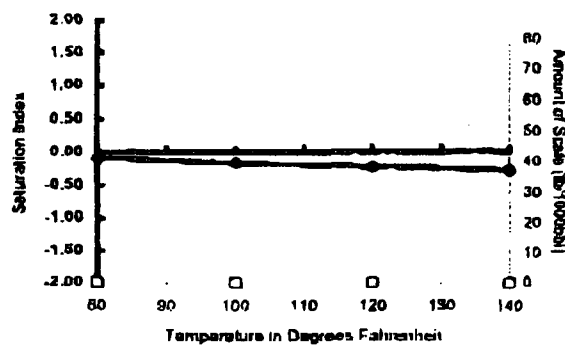
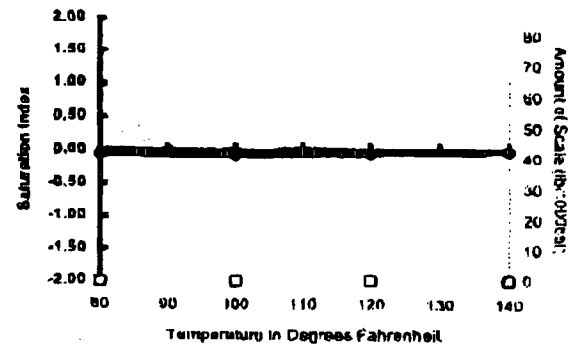
02/24/99 5:33PM Job 573

Page 2/4

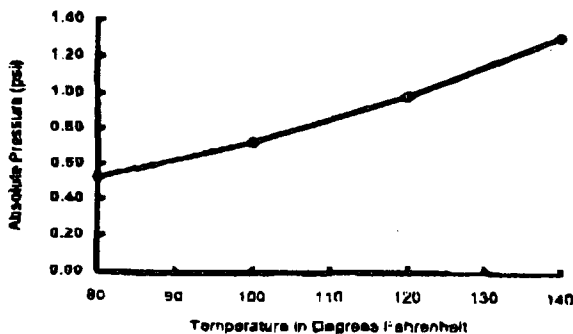
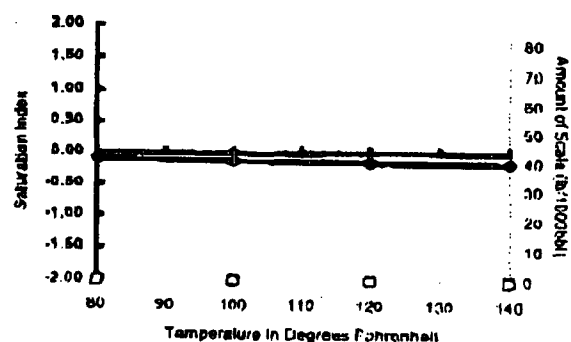


Scale Predictions from Baker Petrolite

Analysis of Sample 108814 @ 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 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

Marble
Perfor
5.09
4573

746
● 33
● 332
330

33 11
77 33
1 8 AR
33 Go

2 TO

SPX
420
570V

TO
43
12
Am

ARCO Permian
Downhole Commingling
Washington State "33" Well No. 26
API: 30-015-22464
150' FSL & 1650' FWL (N)
Section 33, T-17S, R-28E
Eddy County, New Mexico

Surface Owners for Unit N:

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

Offset Operators:

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

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

Bulldog Energy Corp.
P. O. Box 668
Artesia, NM 88210

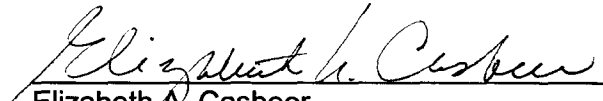
Jackie Brown
d/b/a Sandlott Energy
1504 W. Madison
Lovington, NM 88260

STATE OF TEXAS

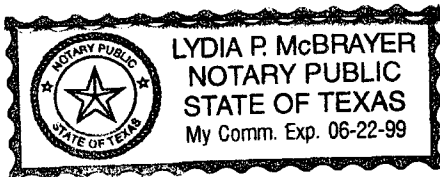
COUNTY OF MIDLAND

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 March 25, 1999, of the New Mexico Oil Conservation Division Form C-107 entitled, "Application For Downhole Commingling" for the Washington State "33" Well No. 26, located in Section 33, T17S, R28E, Eddy County New Mexico.

ARCO Permian


Elizabeth A. Casbeer

SUBSCRIBED AND SWORN TO before me on March 25, 1999, to certify which witness my hand and seal of office.




NOTARY PUBLIC, STATE OF TEXAS