



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

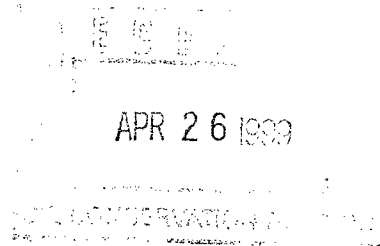
Elizabeth A. Casbeer
Regulatory/Compliance Analyst

DHC 5/17/99

2338

April 21, 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. 22 & 23
Artesia (QGSA) and Artesia (Glor-Yeso) Fields
Eddy Co., NM

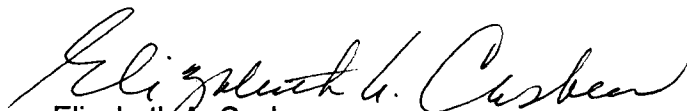
Mr. Catanach:

ARCO Permian respectfully requests administrative approval for downhole commingling on the Washington State "33" Well Nos. 22 and 23. 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. 22
API: 30-015-30196
1720' FSL & 330' FWL (L)

Well No. 23
API: 30-015-30333
975' FSL & 1060' FWL (M)

Surface Owners for Unit L:

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

Surface Owners for Unit M:

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

Offset Operators:

Kersey & Company
Attn: Harold Kersey
808 Grand
Artesia, NM 88210

Offset Operators:

Kersey & Company
Attn: Harold Kersey
808 Grand
Artesia, NM 88210

Altura Energy Ltd.
P. O. Box 4294
Houston, TX 77210-4294

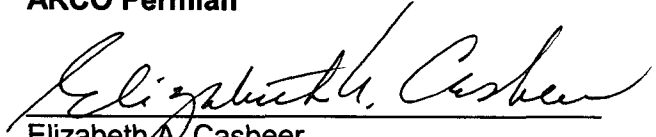
Jackie Brewer d/b/a
Sandlott Energy
1504 W. Madison
Lovington, NM 88260

STATE OF TEXAS

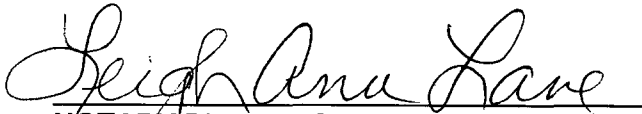
COUNTY OF MIDLAND

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 April 21, 1999, of the New Mexico Oil Conservation Division Form C-107 entitled, "Application For Downhole Commingling" for the Washington State "33" Well Nos. 22 and 23, located in Section 33, T17S, R28E, Eddy County New Mexico.

ARCO Permian


Elizabeth A. Casbeer

SUBSCRIBED AND SWORN TO before me on April 21, 1999, to certify which witness my hand and seal of office.


NOTARY PUBLIC, STATE OF TEXAS



LEIGH ANN LANE

Notary Public, State of Texas

My Commission Expires: 12-12-2000

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

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

Operator

Address

Washington "33" State No. 22 L-33-17S-28E

Eddy

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

OGRID NO. 000990 Property Code 22954

API NO. 30-015-30196

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, GRBG, SA)		Artesia (Glorieta-Yeso)
2. Top and Bottom of Pay Section (Perforations)			3632' - 3758'
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. 75 b.
6. Oil Gravity ($^{\circ}$ API) or Gas BTU Content	40-42 $^{\circ}$ API		42 $^{\circ}$ API
7. Producing or Shut-In?	Awaiting Perfs		Producing
Production Marginal? (yes or no)	Expected in 3 to 6 months		yes
* If Shut-In, give date and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data	Date: Rates: N/A	Date: Rates:	Date: Rates: N/A
* If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: Rates: N/A	Date: Rates:	Date: 4-9-99 Rates: 12 BOPD 121 BOPD 41 MCFGPD
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 ☐ No
11. Will cross-flow occur? ☐ Yes ☒ No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. ☐ Yes ☐ No (If No, attach explanation)
12. Are all produced fluids from all commingled zones compatible with each other? ☒ Yes ☐ No
13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)
14. If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. ☒ Yes ☐ No
15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S). _____
16. ATTACHMENTS:
- * C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
 - * Production curve for each zone for at least one year. (If not available, attach explanation.)
 - * For zones with no production history, estimated production rates and supporting data.
 - * Data to support allocation method or formula.
 - * Notification list of all offset operators.
 - * Notification list of working, overriding, and royalty interests for uncommon interest cases.
 - * Any additional statements, data, or documents required to support commingling.

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

SIGNATURE Elizabeth A. Casbeer TITLE Reg/Comp Analyst DATE 4-21-99TYPE OR PRINT NAME Elizabeth A. Casbeer TELEPHONE NO. (915) 688-5570

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

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

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

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	Pool Name
Property Code	Property Name WASHINGTON 33 STATE	Well Number 22
OGRID No.	Operator Name ARCO PERMIAN	Elevation 3674'

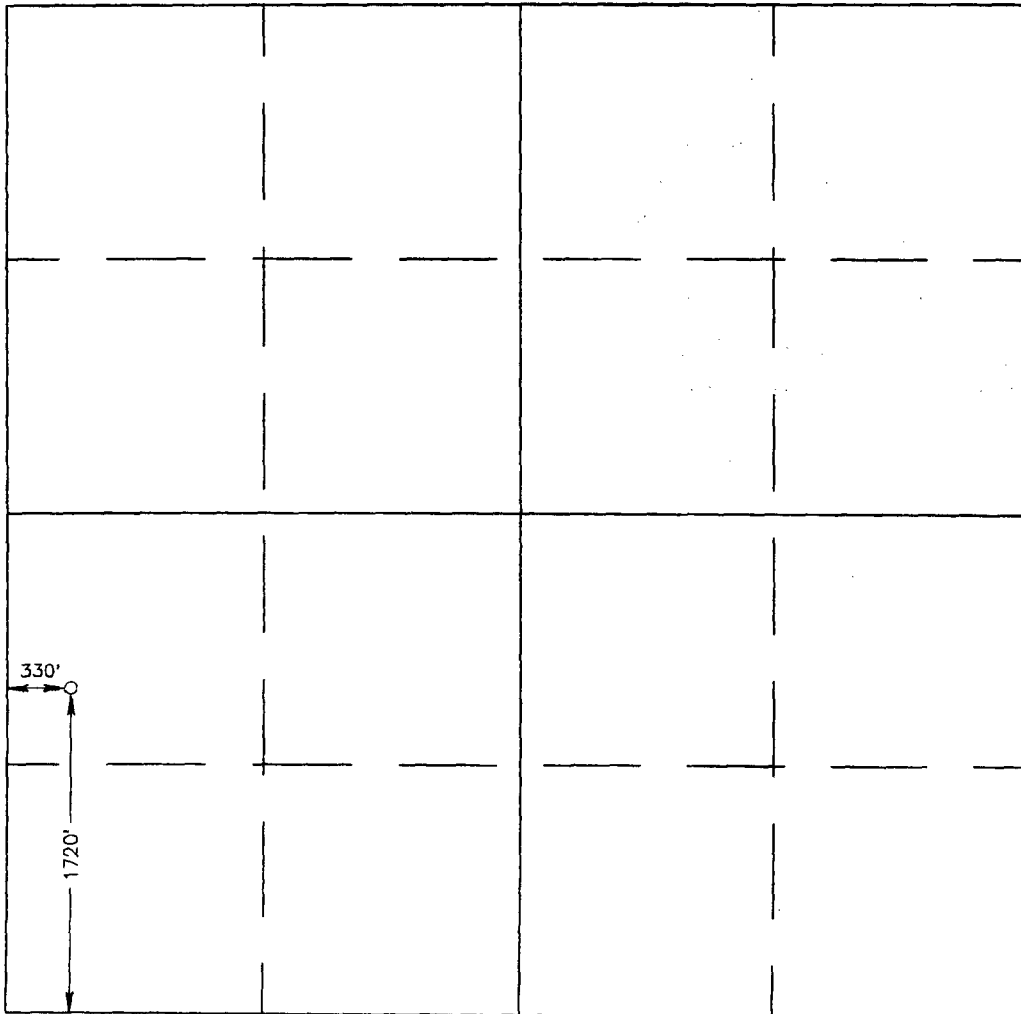
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	33	17 S	28 E		1720	SOUTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

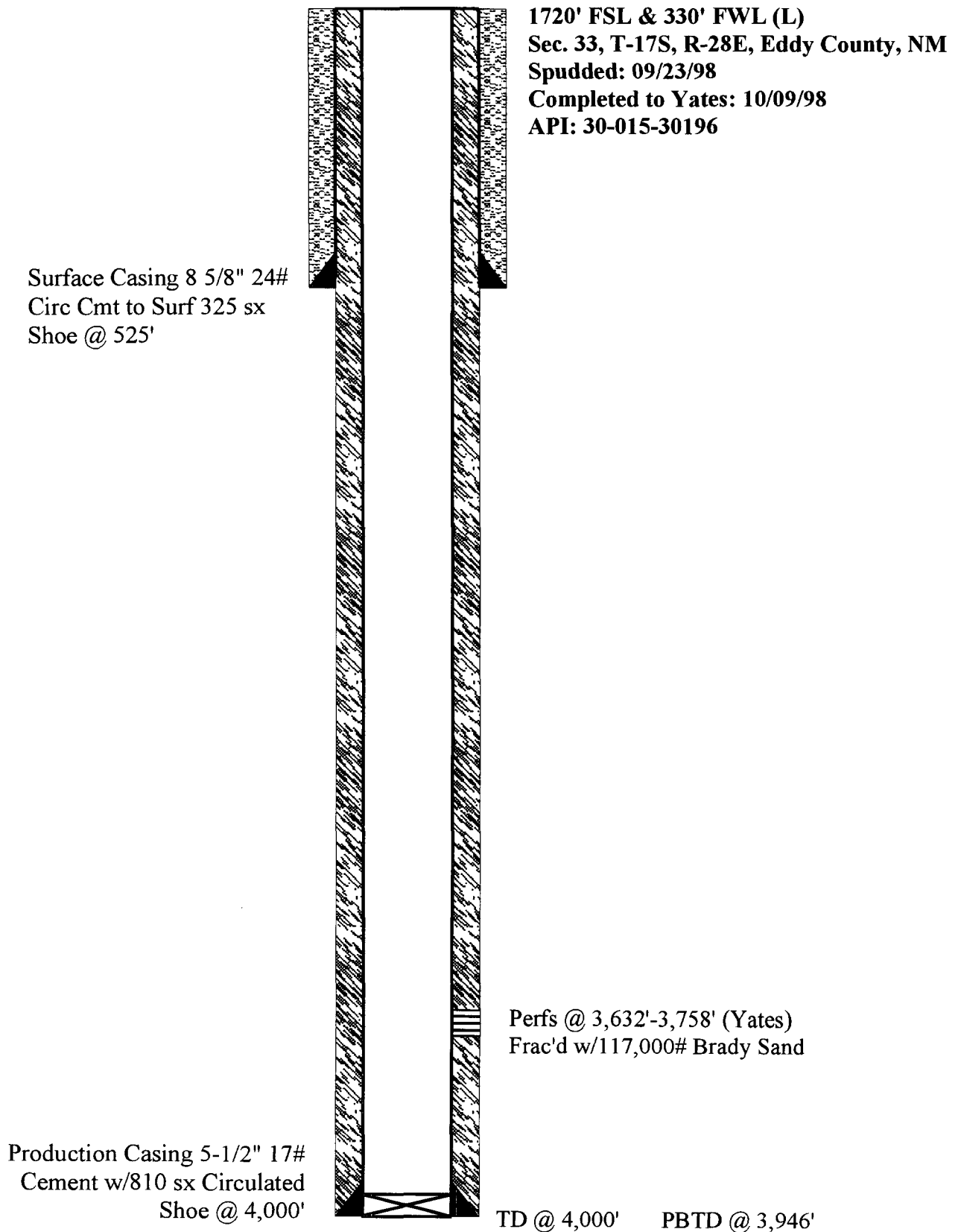
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

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

	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. <i>Elizabeth A. Casboer</i> Signature <i>Elizabeth A. Casboer</i> Printed Name <i>Regulatory Compliance Analyst</i> Title <i>4/2/98</i> 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 CDG Signature & Seal of Professional Surveyor <i>Ronald J. Edson</i> 3-05-98 08-11-0373 Certificate No. RONALD J. EDSON 3239 GARY EDSON 12641	

WELLBORE SCHEMATIC

Washington State "33" No. 22



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

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-105
Revised 1-1-89

OIL CONSERVATION DIVISION

2040 Pacheco St.
Santa Fe, NM 87505

WELL API NO.
015-30196

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 1610 Midland, TX 79702

4. Well Location
Unit Letter L : 1720 Feet From The SOUTH Line and 330 Feet From The WEST Line

Section 33 Township 17S Range 28E NMPM EDDY County

10. Date Spudded 9/23/98 11. Date T.D. Reached 10/2/98 12. Date Compl(Ready to Prod.) 10/9/98 13. Elevations(DF & RKB, RT, GR, etc.) 3674' 14. Elev. Casinghead

15. Total Depth 4000 16. Plug Back T.D. 3956 17. If Multiple Compl. How Many Zones? 18. Intervals Drilled By Rotary Tools Cable Tools X

19. Producing Interval(s), of this completion - Top, Bottom, Name 3632-3758 20. Was Directional Survey Made NO

21. Type Electric and Other Logs Run CPNL 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	525	12-1/4	CL C-325 SX	
5-1/2	17	4000	7-7/8	810 SX	

LINER RECORD				TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET
					2 7/8"	3634

26. Perforation record (interval, size, and number) 3632-3758 15 HOLES	27. ACID, SHOT, FRACTURE, CEMENT, SOEEZE, ETC.	
	DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
	3632-3758	2000 GAL 15%
		10000 GAL VIK I-25
		117000 #SD

PRODUCTION

28. Date First Production 10/21/98 Production Method(Flowing, gas lift, pumping - Size and type pump) PUMPING Well Status(Prod. or Shut-in) PRODUCING

Date of Test 10/25/98 Hours Tested 24 Choke Size Prod'n For Test Period Oil - Bbl. 1 Gas - MCF 42 Water - Bbl. 274 Gas - Oil Ratio 42000

Flow Tubing Press. 60 Casing Pressure 60 Calculated 24-Hour Rate Oil - Bbl. Gas - MCF Water - Bbl. Oil Gravity - API(Corr.) 34.8

29. Disposition of Gas(Sold, used for fuel, vented, etc.) SOLD Test Witnessed By

30. List Attachments

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 Elizabeth A. Casbeer Printed Name ELIZABETH A. CASBEER Title REG./COMP. Date 11/2/98

Washington State "33" No. 25

Allocation Formula

Well Name	Producing Formation	Daily Production Test	% of Total
		(3 mo. Avg. Nov, Dec. 98', Jan. 99')	
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.

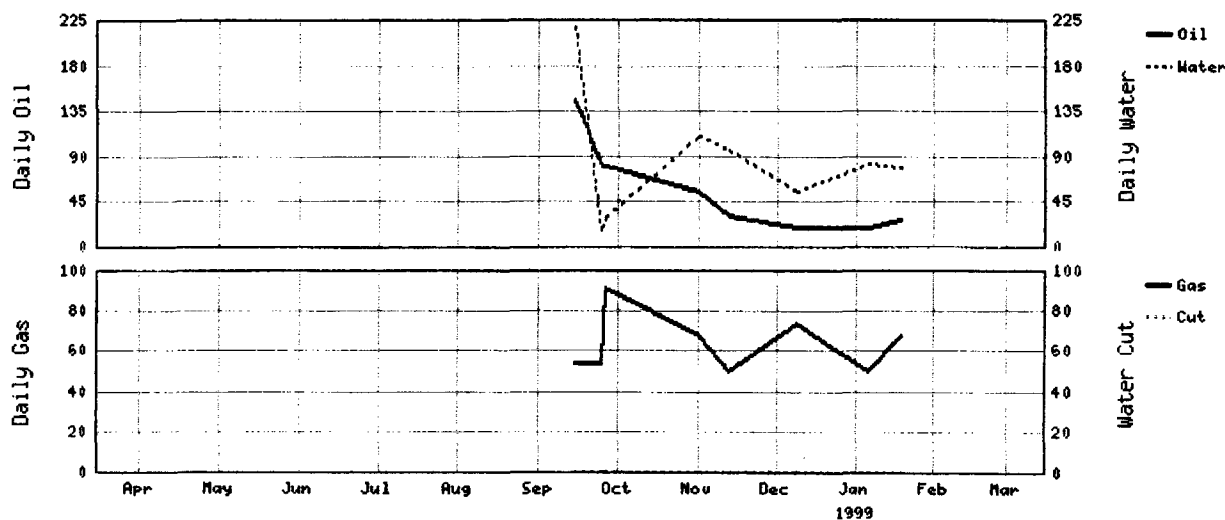


Mon Mar 15, 1999
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Well Test Data for SE NEW MEXICO: ARTESIA: YESO WASHINGTON 33 STATE #24 - 300153033400 - PO - AC



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

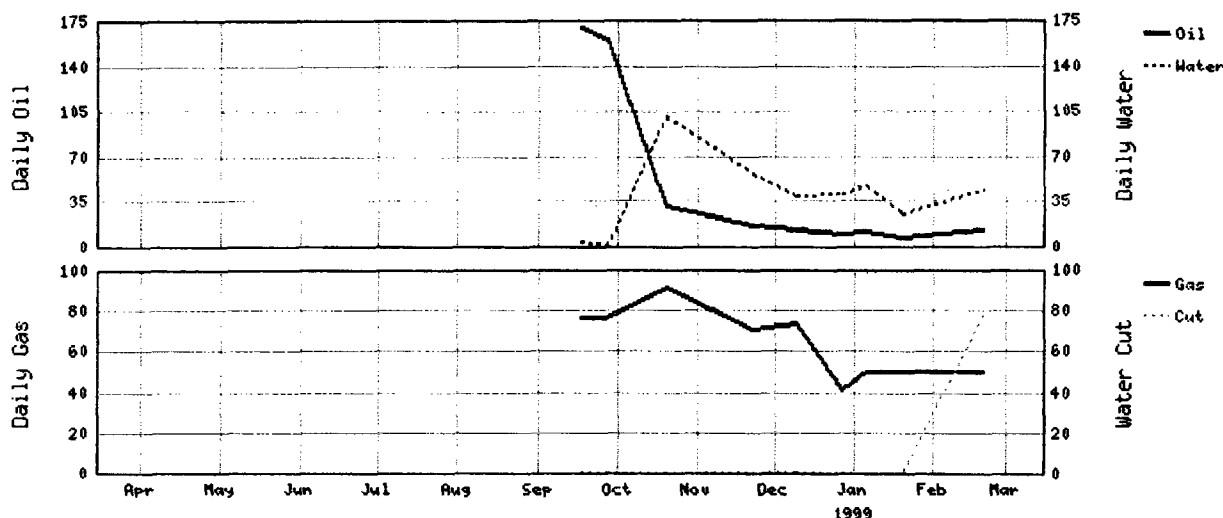


Mon Mar 15, 1999
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**Well Test Data for SE NEW MEXICO: ARTESIA: QUEEN GRAYBURG SAN
ANDRES
WASHINGTON 33 STATE #25 - 300150169000 - PO - AC**



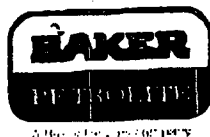
Date	Oil	Water	Gas	Cut	Fl	Pd	%CO2	GasGr	GDur
02/20/1999	13	43	50	77	0	0.000	0	0	
01/20/1999	6	25	50	0	0	0.000	0	0	
01/06/1999	11	46	50	0	0	0.000	0	0	
12/28/1998	10	40	41	0	0	0.000	0	0	
12/10/1998	12	39	73	0	0	0.000	0	0	
11/23/1998	16	56	70	0	0	0.000	0	0	
10/20/1998	31	100	91	0	0	0.000	0	0	
09/27/1998	160	0	76	0	0	0.000	0	0	
09/17/1998	169	3	76	0	0	0.000	0	0	
Average:	48	39	64	9	0	0.000	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	8.25
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.

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

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PRINT TIME MAR. 1. 4:15PM

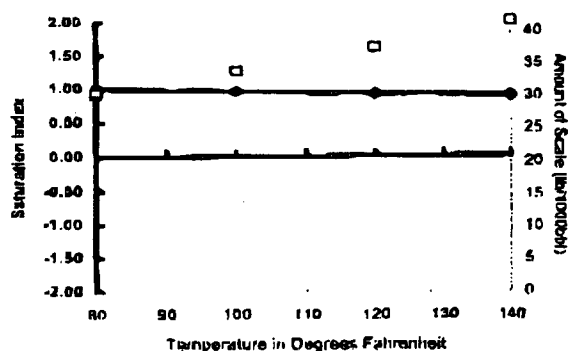
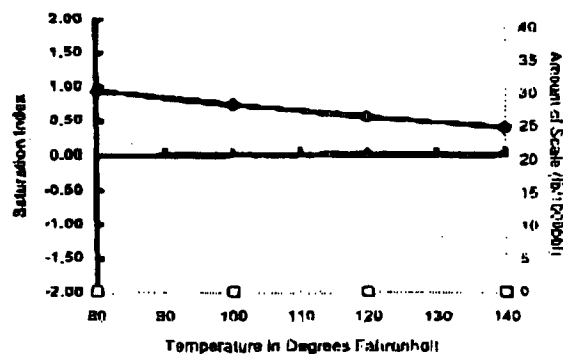
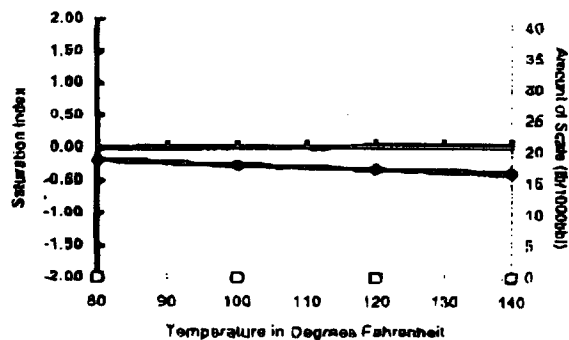
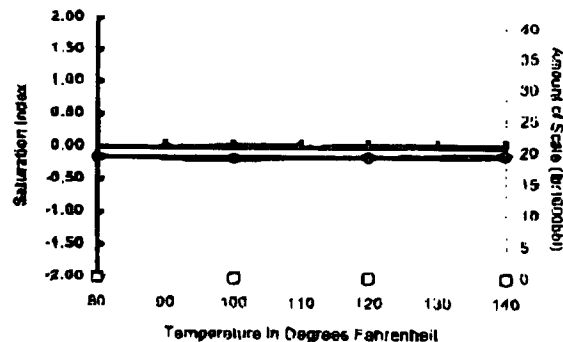
sent by: BAKER PETROLITE 19155837942

02/24/99 5:34PM Job 573

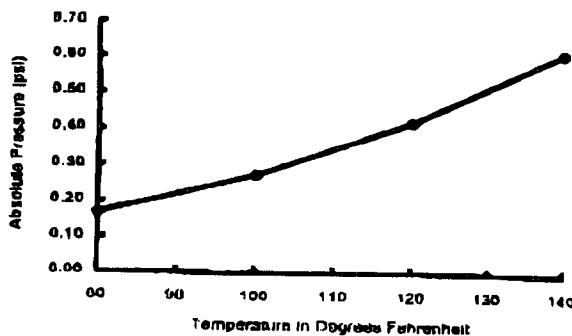
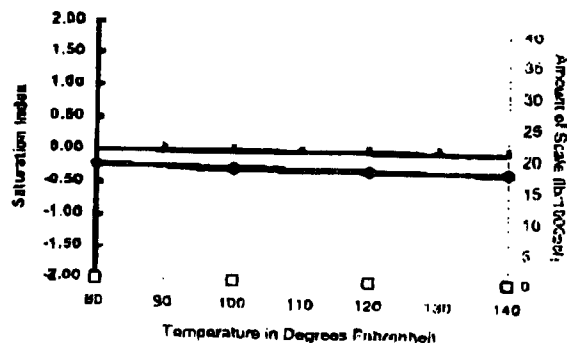


Scale Predictions from Baker Petrolite

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

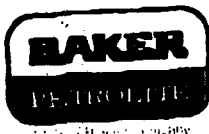
Calcite - CaCO_3 Barite - BaSO_4 Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ Anhydrite - CaSO_4 

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	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date	2/24/99	Chloride	106506	3004	Sodium	87398	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	84.9	Strontium	45.0	1.02
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	12.7
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		0.5	
100	0.	1.01 70.8	-0.16	-0.08	-0.13	0.16 0.02		0.7	
120	0.	1.03 78.3	-0.23	-0.07	-0.15	-0.02		0.9	
140	0.	1.05 86.2	-0.29	-0.03	-0.16	-0.18		1.3	

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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PRINT TIME MAR. 1. 4:15PM

Sent by: BAKER PETROLITE 19155637942

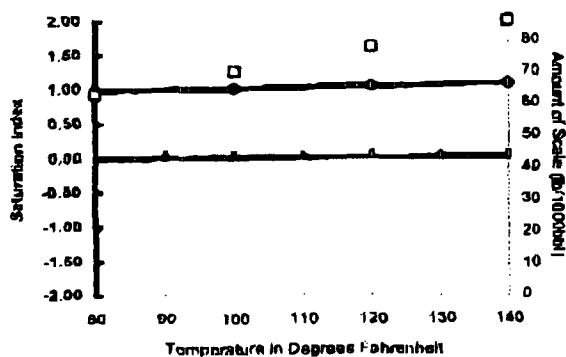
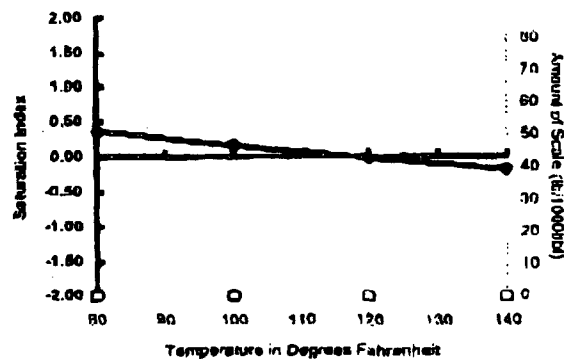
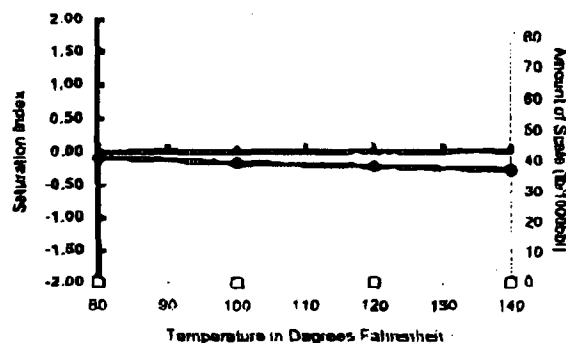
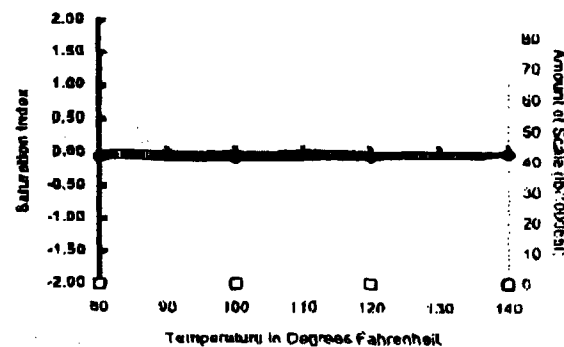
02/24/99 5:33PM Job 573

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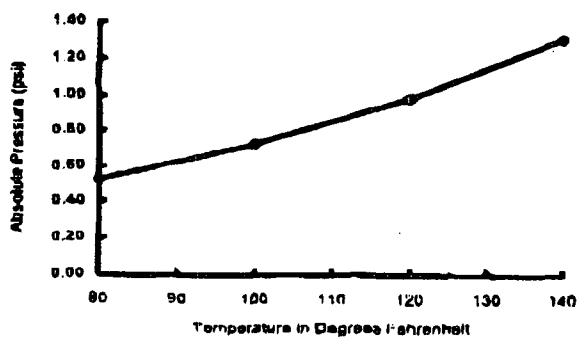
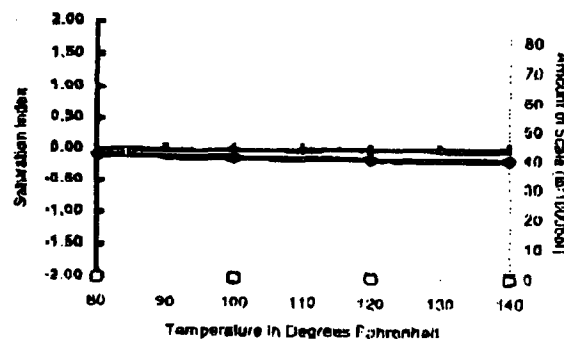


Scale Predictions from Baker Petrolite

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

ARCO Permian
Downhole Commingling
Washington State "33" Well Mo. 22
API: 30-015-30196
1720' FSL & 330' FWL (L)
Section 33, T-17S, R-28E
Eddy County, New Mexico

Surface Owners:

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

Offset Operators:

Kersey & Company
Atn: Harold Kersey
808 Grand
Artesia, New Mexico 88210

US 1 HBP
Morbo 647
20 & Com L 31
Delhi-St
TJ-St
51

Costilla
Delhi
Washington
A. R. Co
Tr. F
Tr. G
JEM
10 4000
BSOI
James
N.W. ARTESIA UNIT
T.M.
T. H
Vintage
Pet
ARCO
Empire

FLUG AE (KOXY)
T.L. Ingram
BEWOil
Smith St.
2029
Corfer
Dougherty
D2300
State
Am