January 12, 1996

11463

To: Florene Davidson

Please Set for Examiner Hearing:

PENDING APPLICATION OF ROBERT L. BAYLESS TO DOWNHOLE COMMINGLE PRODUCTION FROM THE FULCHER KUTZ PICTURED CLIFFS AND AZTEC FRUITLAND SAND POOLS IN THE HORN CANYON WELL NO.1 IN SAN JUAN COUNTY, NEW MEXICO.

Brief:

Robert L. Bayless made application for administrative authorization to downhole commingle Pictured Cliffs and Fruitland Sand production in the above referenced well.

The application does not qualify for administrative approval due to the Pictured Cliffs interval having less than 50 percent of the bottomhole pressure of the Fruitland Sand interval.

In a January 11, 1996 telephone conservation with Mr. Kevin McCord, petroleum engineer for the company, he stated that he thought we were working on addressing the 50 percent criteria as well as other items applicable to administrative approval of downhole commingling. I informed him that the key phrase was 'working on', and until the new rules were in effect, my hands were tied. During the same conversation, Mr. McCord revealed his discontent with the process and asked if Mr. LeMay could grant administrative approval without hearing, as all offset operators had consented to the commingling. I told him that to my knowledge, this wasn't done and the only appellate process for administrative denial was the examiner hearing process. I did however, furnish Mr. LeMay's direct phone number and Mr. McCord indicated that he would call Mr. LeMay but at the same time, requested that the application be placed on the next available docket. I informed him of the date, February 8, 1996.

The application did not conform to specific criteria contained in the Division Rules and Regulations, item 303 C.(1)(b)(vi); Segregation of Production from Pools, Downhole Commingling, For Wells Involving a Gas Zone. As the bottomhole pressure differential between zones is greater than 50 percent, administrative approval of the application was denied.

DHC 1·9·96

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

DEC 21 1995

December 20, 1995

ADMINISTRATIVE APPROVAL
DENIED
ON 1-11-96

William J. LeMay, Chairman
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Request for Administrative
Approval to Downhole Commingle
Robert L. Bayless, Horn Canyon #1
Unit D, Sec. 15, T28N R11W
Fulcher Kutz Pictured Cliffs and Aztec Fruitland Sand Pools
San Juan County, New Mexico

Case 11463

Dear Mr. LeMay:

By this letter, Robert L. Bayless requests administrative approval to commingle production from the Pictured Cliffs and Fruitland Sand formations within the wellbore of the Horn Canyon #1. This well was drilled by Robert L. Bayless in July of 1995. Production casing, (5-1/2") was set and cemented at 1715 feet, with total depth of the well being 1745 feet.

The Pictured Cliffs interval (1562-1584 ft) was perforated and fracture stimulated with 35,000 gallons of 70-65 quality foam fluid containing 76,000 lbs of 12-20 sand. The Completion Report for the Pictured Cliffs zone in the Horn Canyon #1 is presented as Attachment #1. This zone was tested on October 16, 1995 by conducting a 3 hour flow test which resulted in an AOF of 1286 MCFD. The 7 day pressure buildup preceding this test was only 120 psi, suggesting this Pictured Cliffs interval has been severely drained. This AOF test is presented as Attachment #2. The Pictured Cliffs formation was first produced in this well on October 16, 1995, with the aid of a compressor. Without the compressor, this well wouldn't produce against the 185 psi line pressure in this area. The Pictured Cliffs zone in this well averaged 330 MCFD for the 36 days it produced before being shutin for recompletion. The flow test and resulting actual gas production from the Pictured Cliffs zone in this well indicates marginal gas production capability considering this is the well's initial production month and that a compressor is needed for any gas production to take place at all.

Bayless set a bridgeplug above the Pictured Cliffs zone and recompleted the Horn Canyon #1 well in the Fruitland Sand formation in late November of 1995. The interval from 1322-1339 ft was perforated and fracture stimulated with 12,750

gallons of 70 Quality foam containing 16,250 lbs of 12-20 mesh sand. The Completion Report for the Fruitland Sand zone in the Horn Canyon #1 is presented as Attachment #3. The Fruitland Sand zone was tested on December 1, 1995 by conducting a 3 hour flow test which resulted in an AOF of 1401 MCFD. The 7 day pressure buildup preceding this test was 380 psi, suggesting this interval is not drained. This AOF test on the Fruitland Sand is presented as Attachment #4. The Fruitland Sand formation was first produced in this well on December 1, 1995, without the aid of a compressor. To date, it has produced an average 327 MCFD for the 19 days it has produced, but this rate is rapidly dropping. A compressor has just been installed on this zone to keep production rates up. We expect this zone initially to produce approximately 500 MCFD with compression. The combined production from this new Fruitland Sand interval and the existing Pictured Cliffs interval should make the Horn Canyon #1 much more economic to produce compressed gas against the 185 psi line pressure in the area.

The quality of the gas produced from the Pictured Cliffs and Fruitland Sand formations is very similar in this area . The gas gravity for the Pictured Cliffs in the Horn Canyon #1 (Attachment #5) is 0.670 with an average BTU value of 1157, while the gas gravity for the Fruitland Sand interval in this well (Attachment #6) is 0.654, with a BTU of 1146. The small differences seen in gas gravity and BTU content from these two zones indicate that the gas produced from both zones is very similar and should not cause any damage should crossflow occur between zones. Both zones produce dry gas, so no condensate production is anticipated.

From the AOF tests presented in Attachment #2 and #4, the shutin pressures on the Pictured Cliffs zone and the Fruitland Sand zones in the Horn Canyon #1 well are 120 psi and 380 psi, respectfully. Even though the Pictured Cliffs shutin pressure is less than 50% of the Fruitland Sand shutin pressure, the gas from both zones is very similar. Any crossflow that may occur between zones will cause no damage to the formation.

Attachment #7 is an acreage plat showing the ownership of leases in the vicinity of the Horn Canyon #1 well. The ownership (working interest, royalty, and overriding royalty) of both the Pictured Cliffs and Fruitland Sand formations is common in the Horn Canyon #1 well. The leases surrounding this well are owned by Dugan Production Corp., Southland Royalty (Meridian Oil), Petrocorp, and Marathon Oil Company. These companies have been contacted by certified mail of this commingling application. An example of the letter sent to each of these companies is provided as Attachment #8. Copies of the Return Receipt slips are presented as Attachment #9. By copy of this application, we have also advised the BLM of our plans to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well.

The production from the Pictured Cliffs and Fruitland Sand zones can be allocated using the ratios of the rate of flow calculated during the AOF test on each formation. Based on these AOF's the allocation between zones will be approximately 48% of the commingled gas production allocated to the Pictured Cliffs formation, while 52% allocated to the Fruitland Sand formation. The ownership and value of the gas from each zone is the same, so the commingling of this natural gas will not decrease its sales value on the whole or to any one party.

The production test and actual gas production on the Pictured Cliffs formation in the Horn Canyon #1 indicate that gas production from this well will be low, resulting in marginal gas reserves and economics for the well. Further development and operational costs in this area will be substantially reduced by approval of downhole commingling of the production from the Pictured Cliffs and Fruitland Sand formations in this well. We would appreciate your administrative approval of this application.

Sincerely,

Kevin H. McCord
Petroleum Engineer

Attachments

Attachment #1

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPL. TE* (See other instructions on reverse side)

RECEIVED

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

5. LEASE DESIGNATION AND SERIAL NO.: NM-020498-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME, WELL NO.: Horn Canyon #1

9. API WELL NO.: 30-045-29266

10. FIELD AND POOL, OR WILDCAT: Fulcher Kutz PC

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Unit Letter D, Sec. 15, T 28 N, R 11 W

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: Robert L. Bayless

3. ADDRESS AND TELEPHONE NO.: P.O. Box 168 Farmington, NM 87499 (505)326-2659

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1190' FNL & 1055' FWL
At top prod. interval reported below: Same
At total depth: Same

14. PERMIT NO. / DATE ISSUED

12. COUNTY OR PARISH: San Juan
13. STATE: New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7/26/95	7/31/95	10/09/95	5550 RKB	5550 RKB

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
1745 ft. RKB	1670 ft. RKB	Single	→	XXX	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 1562 - 1584 Pictured Cliffs

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL; SDL; DSN

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J55	24 #/ft.	125 ft.	12 1/4"	80sx (94ft)class B; circ to surface	none
5 1/2" J55	15.5 #/ft.	1715 ft.	6 3/4"	315sx (428ft)50/50 pozmix, 2%gel, 10%salt-TOC @200ft	none from temp survey

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
None				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	1582	None

31. PERFORATION RECORD (Interval, size and number)
1562 - 1584 22 ft. 88 holes
0.34" diameter

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1562 - 1584	750 gal 7½% HCL; 35,000 gal 70-65 quality foam; 76,000 lbs. 12/20 brady sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
10/09/95	FLowing	Shut-in

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
10/09/95	No flow				No flow		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				No flow		

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

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

ACCEPTED FOR RECORD
OCT 12 1995
FARMINGTON DISTRICT OFFICE
BY

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

SIGNED [signature] TITLE Petroleum Engineer DATE 10/10/95

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

OPERATOR

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Attachment #2

Submit in duplicate to appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator: Robert L. Bayless		Lease or Unit Name: Horn Canyon	
Type Test: X Initial ___ Annual ___ Special		Test Date: 10/16/95	Well No.: 1
Completion Date: 10/09/95	Total Depth: 1745	Plug Back TD: 1670	Elevation: 5550 RKB
Unit Ltr. - Sec. - TWP. - Rge.: D - 15 - 28N - 11W			
Csg. Size: 5 1/2"	Wt.: 15.5	d: 4.950"	Set At: 1715
Perforations: From: 1562 To: 1584		County: San Juan	
Tbg. Size: 2 3/8"	Wt.: 4.7	d: 1.995"	Set At: 1582
Perforations: From: none To:		Pool: Fulcher Kutz PC	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple: Single		Packer Set At: none	Formation: Pictured Cliffs
Producing Thru: Tubing	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press - P_a: 12.0 psia, est.
Connection: EPFS			
L	H	Gg: est 0.65	% CO_2
% N_2	% H_2S	Prover	Meter Run
Taps			

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					129		120		
1.	2 inch x .750"				35	60°F	80		3 hrs.
2.									
3.									
4.									
5.									

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg.	Super Compress. Factor, Fpv.	Rate of Flow Q, Mcfd
1.	12.365		47	1.000	1.240	1.014	731
2.							
3.							
4.							
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	0.07		1.39	0.973
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c 132 P_c^2 17,424

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1.		92	8,464	8,960
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.9446$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.7600$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1286$

Absolute Open Flow 1286 Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n 0.85

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Albert Aranda	Kevin McCord	

Attachment #3

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-020498-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME, WELL NO.: HORN CANYON #1

9. API WELL NO.: 30-045-29266

10. FIELD AND POOL, OR WILDCAT: AZTEC FRUITLAND

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: UNIT LETTER D SEC. 15, T28N, R11W

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☒ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: ROBERT L. BAYLESS

3. ADDRESS AND TELEPHONE NO.: PO BOX 168, FARMINGTON, NM 87499 (505) 326-2659

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1190' FNL and 1055' FWL
At top prod. interval reported below: SAME
At total depth: SAME

14. PERMIT NO. / DATE ISSUED:

12. COUNTY OR PARISH: SAN JUAN

13. STATE: NEW MEXICO

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7/26/95	7/31/95	11/24/95	5550 RKB	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
1745 FT.	1670ft. (bridge plug @ 1500ft)	single	→	XXX	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 1322-1339 FRUITLAND SAND

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL: SDL: DSN

27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J55	24 #/ft.	125 ft.	12 1/4"	80 sx (94ft³) class B; circ to surface	
5 1/2" J55	15.5 #/ft	1715 ft.	6 3/4"	315sx (428ft³) 50/50 pozmix, 2% gel, 10%sal -TOC @200ft from temp survey	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
NONE				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	1328	NONE

31. PERFORATION RECORD (Interval, size and number)

1322-1324	2ft	8 holes
1332-1339	7ft	28 holes
	9 ft	36 holes
	.34" diameter	

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1322-1339	500 gal 7 1/2% HCL; 12,750 gal 70 quality foam; 16,250 lbs 12/20 brady sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
11/24/95	FLOWING	SHUT IN

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
11/24/95					NO FLOW		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				NO FLOW		

ACCEPTED FOR RECORD
NOV 30 1995
FARMINGTON DISTRICT OFFICE
BY

APPROVED AS AMENDED
NOV 30 1995
DISTRICT MANAGER

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): TO BE SOLD

TEST WITNESSED

35. LIST OF ATTACHMENTS

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

SIGNED [signature] TITLE PETROLEUM ENGINEER DATE 11/28/95

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

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

OPERATOR

Attachment #4

Submit in duplicate to appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Depar nt

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator: Robert L. Bayless				Lease or Unit Name: Horn Canyon	
Type Test: X Initial / Annual / Special				Test Date: 12/01/95	Well No.: 1
Completion Date: 11/24/95	Total Depth: 1745	Plug Back TD: 1670 (BP @ 1500')	Elevation: 5550 RKB	Unit Ltr. - Sec. - TWP - Rge.: D 15 28N 11W	
Csg. Size: 5 1/2"	Wt.: 15.5	d: 4.950"	Set At: 1715	Perforations: From: 1322 To: 1339	County: San Juan
Tbg. Size: 2 3/8"	Wt.: 4.7	d: 1.995"	Set At: 1328	Perforations: From: None To:	Pool: Aztec Fruitland
Type Well - Single - Bradenhead - G.G. or G.O. Multiple: Single			Packer Set At: None		Formation: Fruitland Sand
Producing Thru: Tubing	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press - P_a: 12.0 PSIA, est.		Connection: EPFS

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
		0.65						

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI						380		380		
1.	2 inch	x .750"				70	60°F	115		3 hrs.
2.										
3.										
4.										
5.										

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg.	Super Compress. Factor, F pv.	Rate of Flow Q, Mcfd
1.	12-365		82	1.000	1.240	1.014	1275
2.							
3.							
4.							
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	0.12		1.39	0.973
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c 392 P_c^2 153,664

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1.		127	16,129	137,535
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.1173$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.0988$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1401$

Absolute Open Flow 1401 Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n 0.85

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Albert Aranda	Kevin McCord	

Report Date: 11/03/95
Report Time: 12:56:37

E L P A S O N A T U R A L G A S C O M P A N Y
Volume Calculation & Distribution Department
Monthly Volume and Analysis for November, 1995 thru November, 1995

REPORT NO: C6ME747 -01
Page No: 2

Meter: 97949 - HORN CANYON 1
Oper : 0538 - BAYLESS R L

Reporting party: - *** No Reporting Party ***
Mole % / GPM

Effective	CO2	H2S	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6P	BTU	Spec Grav	GPM
11/01/95	0.900	0.000	0.860	87.230	5.830	2.570	0.530	0.820	0.360	0.260	0.640	1157	0.670	3.205
	0.000	0.000	0.000	0.000	1.560	0.708	0.173	0.259	0.132	0.094	0.279			

Carmella - 505-326-6911

Attachment #5

Attachment #6

1115 Farmington Avenue
Farmington, N.M. 87401
(505) 325-6622

Analysis No. BAY50013
Cust. No. 14100-10240

WELL/LEASE INFORMATION

Company	: ROBERT L. BAYLESS, INC.	Source	:
Well Name	: HORN CANYON 1	Pressure	: 375 PSIG
County	: SAN JUAN	Sample Temp.	: N/A DEG.F
State	: NM	Well Flowing	: NO
Location	:	Date Sampled	: 11/28/95
Fld/Formation	:	Sampled By	: ALBERT ARANDA
Cust.Stn.No.	:	Foreman/Engr	:

Remarks: LEASE: NM-020498-A

ANALYSIS

COMPONENT	MOLE %	GPM**	B.T.U.*	SP.GR.*
NITROGEN	1.060	0.0000	0.00	0.0103
CO2	0.096	0.0000	0.00	0.0015
METHANE	87.242	0.0000	883.15	0.4832
ETHANE	6.902	1.8463	122.42	0.0717
PROPANE	2.849	0.7852	71.85	0.0434
I-BUTANE	0.493	0.1613	16.07	0.0099
N-BUTANE	0.696	0.2194	22.76	0.0140
I-PENTANE	0.234	0.0856	9.38	0.0058
N-PENTANE	0.166	0.0601	6.67	0.0041
HEXANES	0.262	0.1143	13.47	0.0084
TOTAL	100.000	3.2722	1145.77	0.6523

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
** @ 14.730 & 60 DEC. F

COMPRESSIBILITY FACTOR (1/Z)	1.0028
BTU/CU.FT. (DRY) CORRECTED FOR (1/Z)	1149.0
BTU/CU.FT. (WET) CORRECTED FOR (1/Z)	1129.0
REAL SPECIFIC GRAVITY	0.6539

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

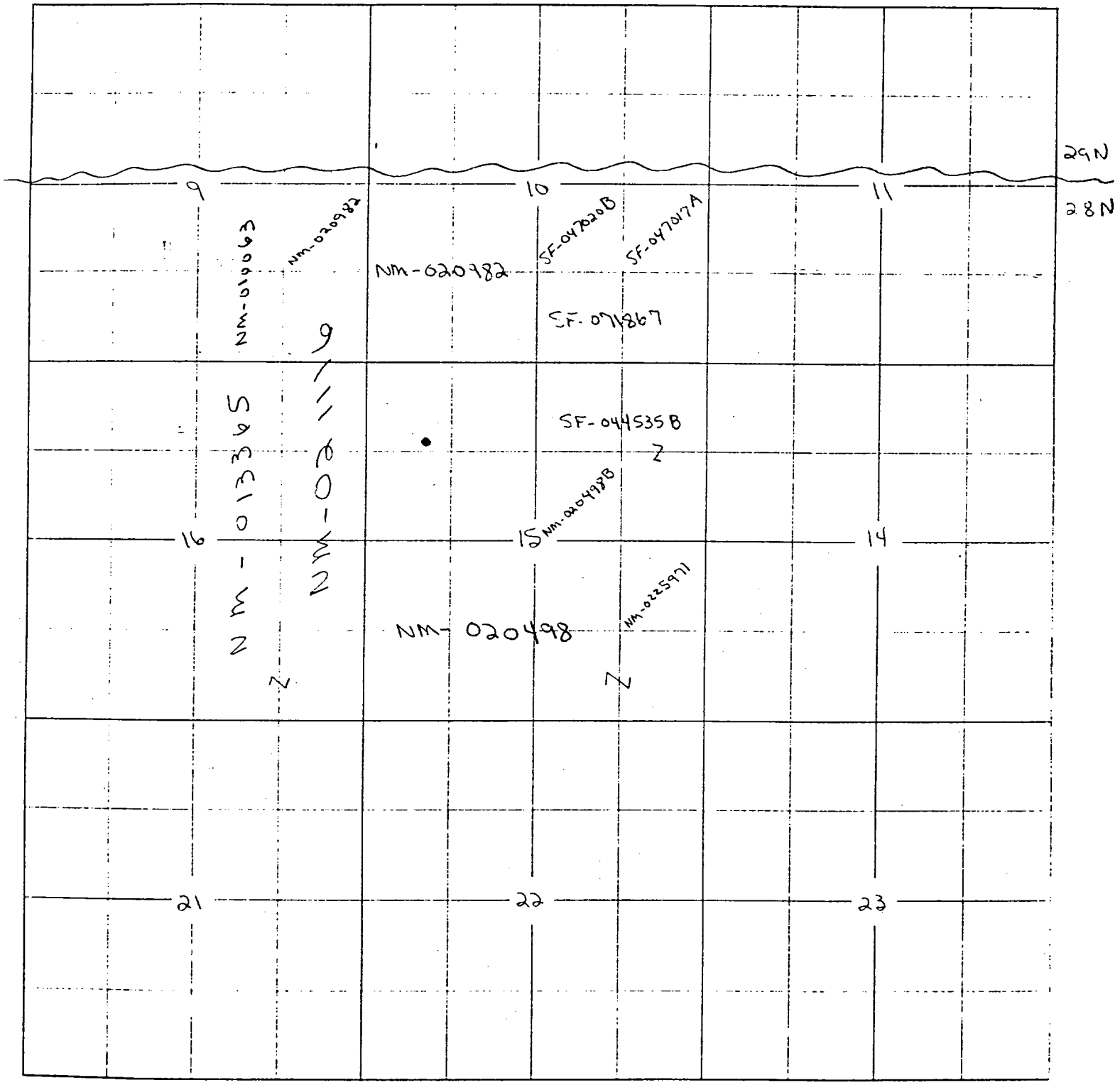
CYLINDER #	: AZT034
CYLINDER PRESSURE	: 384 PSIG
DATE RUN	: 11/28/95
ANALYSIS RUN BY	: BOB DURBIN

NINE SECTION PLAT
Scale: 4 inches = 1 mile
Printed in U.S.A.

Horn Canyon #1

Attachment #7

TOWNSHIP 28N RANGE 11W COUNTY San Juan STATE NM



Operators

Sec. 9 = Dugan (Fr., Fmg., Pc.)

Sec. 10 = So. Rey. (Fr, Pc)
Meridian (Pc)
Petrocorp (Pc)

Sec. 15 = Petrocorp (Pc)
Marathon (Pc)

Sec. 16 = Dugan (Pc, Fmg.)

Attachment #8

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

December 20, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED #P565392391

Dugan Production Company
P.O. Box 420
Farmington, N.M. 87499

RE: Proposed Downhole Commingling
Robert L. Bayless
Horn Canyon #1
Unit D, Sec. 15, T28N, R11W
San Juan County, New Mexico

Gentlemen:

Our records indicate your company owns offset acreage to our Horn Canyon #1 well. We plan to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well and have requested the New Mexico Oil Conservation Division to administratively approve this commingling of production. A copy of this application is enclosed.

In order to obtain approval from the Oil Conservation Division Director, we must obtain waivers of objection from offset lease holders. If you have no objection to our plans, please execute the waiver portion of this letter and return one copy to us at the above address and another copy to the Division Director, Oil Conservation Division, 2040 South Pacheco, Santa Fe, NM 87505.

If you require additional information, please advise.

Sincerely,

Kevin H. McCord
Petroleum Engineer

I have no objection to the above stated plans.

Dugan Production Company

By: _____ Title: _____ Date: _____

ATTACHMENT #9

P 565 392 391

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to DUGAN PRODUCTION CO.	
Street and No. P.O. BOX 420	
P.O. State and ZIP Code FARMINGTON, NM 87499	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

P 565 392 392

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to MARATHON OIL CO.	
Street and No. P.O. Box 552	
P.O. State and ZIP Code MIDLAND, TX 79702-0522	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

P 565 392 394

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to SOUTHLAND ROYALTY CO.	
Street and No. P.O. BOX 4289	
P.O. State and ZIP Code FARMINGTON, NM 87499	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

P 565 392 393

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to PETROCORP	
Street and No. 210 W. PARK AVE., #2100	
P.O. State and ZIP Code OKLAHOMA CITY, OK 73102	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

DEC 21

December 20, 1995

Case 11463

William J. LeMay, Chairman
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Request for Administrative
Approval to Downhole Commingle
Robert L. Bayless, Horn Canyon #1
Unit D, Sec. 15, T28N R11W
Fulcher Kutz Pictured Cliffs and Aztec Fruitland Sand Pools
San Juan County, New Mexico

Dear Mr. LeMay:

By this letter, Robert L. Bayless requests administrative approval to commingle production from the Pictured Cliffs and Fruitland Sand formations within the wellbore of the Horn Canyon #1. This well was drilled by Robert L. Bayless in July of 1995. Production casing, (5-1/2") was set and cemented at 1715 feet, with total depth of the well being 1745 feet.

The Pictured Cliffs interval (1562-1584 ft) was perforated and fracture stimulated with 35,000 gallons of 70-65 quality foam fluid containing 76,000 lbs of 12-20 sand. The Completion Report for the Pictured Cliffs zone in the Horn Canyon #1 is presented as Attachment #1. This zone was tested on October 16, 1995 by conducting a 3 hour flow test which resulted in an AOF of 1286 MCFD. The 7 day pressure buildup preceding this test was only 120 psi, suggesting this Pictured Cliffs interval has been severely drained. This AOF test is presented as Attachment #2. The Pictured Cliffs formation was first produced in this well on October 16, 1995, with the aid of a compressor. Without the compressor, this well wouldn't produce against the 185 psi line pressure in this area. The Pictured Cliffs zone in this well averaged 330 MCFD for the 36 days it produced before being shutin for recompletion. The flow test and resulting actual gas production from the Pictured Cliffs zone in this well indicates marginal gas production capability considering this is the well's initial production month and that a compressor is needed for any gas production to take place at all.

Bayless set a bridgeplug above the Pictured Cliffs zone and recompleted the Horn Canyon #1 well in the Fruitland Sand formation in late November of 1995. The interval from 1322-1339 ft was perforated and fracture stimulated with 12,750

gallons of 70 Quality foam containing 16,250 lbs of 12-20 mesh sand. The Completion Report for the Fruitland Sand zone in the Horn Canyon #1 is presented as Attachment #3. The Fruitland Sand zone was tested on December 1, 1995 by conducting a 3 hour flow test which resulted in an AOF of 1401 MCFD. The 7 day pressure buildup preceding this test was 380 psi, suggesting this interval is not drained. This AOF test on the Fruitland Sand is presented as Attachment #4. The Fruitland Sand formation was first produced in this well on December 1, 1995, without the aid of a compressor. To date, it has produced an average 327 MCFD for the 19 days it has produced, but this rate is rapidly dropping. A compressor has just been installed on this zone to keep production rates up. We expect this zone initially to produce approximately 500 MCFD with compression. The combined production from this new Fruitland Sand interval and the existing Pictured Cliffs interval should make the Horn Canyon #1 much more economic to produce compressed gas against the 185 psi line pressure in the area.

The quality of the gas produced from the Pictured Cliffs and Fruitland Sand formations is very similar in this area . The gas gravity for the Pictured Cliffs in the Horn Canyon #1 (Attachment #5) is 0.670 with an average BTU value of 1157, while the gas gravity for the Fruitland Sand interval in this well (Attachment #6) is 0.654, with a BTU of 1146. The small differences seen in gas gravity and BTU content from these two zones indicate that the gas produced from both zones is very similar and should not cause any damage should crossflow occur between zones. Both zones produce dry gas, so no condensate production is anticipated.

From the AOF tests presented in Attachment #2 and #4, the shutin pressures on the Pictured Cliffs zone and the Fruitland Sand zones in the Horn Canyon #1 well are 120 psi and 380 psi, respectfully. Even though the Pictured Cliffs shutin pressure is less than 50% of the Fruitland Sand shutin pressure, the gas from both zones is very similar. Any crossflow that may occur between zones will cause no damage to the formation.

Attachment #7 is an acreage plat showing the ownership of leases in the vicinity of the Horn Canyon #1 well. The ownership (working interest, royalty, and overriding royalty) of both the Pictured Cliffs and Fruitland Sand formations is common in the Horn Canyon #1 well. The leases surrounding this well are owned by Dugan Production Corp., Southland Royalty (Meridian Oil), Petrocorp, and Marathon Oil Company. These companies have been contacted by certified mail of this commingling application. An example of the letter sent to each of these companies is provided as Attachment #8. Copies of the Return Receipt slips are presented as Attachment #9. By copy of this application, we have also advised the BLM of our plans to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well.

The production from the Pictured Cliffs and Fruitland Sand zones can be allocated using the ratios of the rate of flow calculated during the AOF test on each formation. Based on these AOF's the allocation between zones will be approximately 48% of the commingled gas production allocated to the Pictured Cliffs formation, while 52% allocated to the Fruitland Sand formation. The ownership and value of the gas from each zone is the same, so the commingling of this natural gas will not decrease its sales value on the whole or to any one party.

The production test and actual gas production on the Pictured Cliffs formation in the Horn Canyon #1 indicate that gas production from this well will be low, resulting in marginal gas reserves and economics for the well. Further development and operational costs in this area will be substantially reduced by approval of downhole commingling of the production from the Pictured Cliffs and Fruitland Sand formations in this well. We would appreciate your administrative approval of this application.

Sincerely,

Kevin H. McCord
Petroleum Engineer

Attachments

Attachment #1

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPL. (See other instructions on reverse side)

RECEIVED

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

5. LEASE DESIGNATION AND SERIAL NO.: NM-020498-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

8. FARM OR LEASE NAME, WELL NO.: Horn Canyon #1

2. NAME OF OPERATOR: Robert L. Bayless

9. API WELL NO.: 30-045-29266

3. ADDRESS AND TELEPHONE NO.: P.O. Box 168 Farmington, NM 87499 (505)326-2659

10. FIELD AND POOL, OR WILDCAT: Fulcher Kutz PC

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 1190' FNL & 1055' FWL
At top prod. interval reported below
At total depth Same

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Unit Letter D Sec. 15, T 28 N, R 11 W

14. PERMIT NO. Same | DATE ISSUED

12. COUNTY OR PARISH: San Juan | 13. STATE: New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7/26/95	7/31/95	10/09/95	5550 RKB	5550 RKB

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
1745 ft. RKB	1670 ft. RKB	Single	→	XXX	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 1562 - 1584 Pictured Cliffs

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL; SDL; DSN

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J55	24 #/ft.	125 ft.	12 1/4"	80sx (94ft)class B; circ to surface	none
5 1/2" J55	15.5 #/ft.	1715 ft.	6 3/4"	315sx (428ft)50/50 pozmix, 2%gel, 10%salt-TOC @200ft	none from temp survey

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
None				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	1582	None

31. PERFORATION RECORD (Interval, size and number)
1562 - 1584 22 ft. 88 holes
0.34" diameter

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1562 - 1584	750 gal 7½% HCL; 35,000 gal 70-65 quality foam; 76,000 lbs. 12/20 brady sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
10/09/95	FLowing	Shut-in

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
10/09/95	No flow				No flow		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				No flow		

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): To be sold — TEST WITNESSED BY

ACCEPTED FOR RECORD
OCT 12 1995
FARMINGTON DISTRICT OFFICE
BY

35. LIST OF ATTACHMENTS

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

SIGNED [signature] TITLE Petroleum Engineer DATE 10/10/95

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

OPERATOR

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Attachment #2

Submit in duplicate to appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator: Robert L. Bayless				Lease or Unit Name: Horn Canyon	
Type Test: X Initial / Annual / Special				Test Date: 10/16/95	Well No.: 1
Completion Date: 10/09/95	Total Depth: 1745	Plug Back TD: 1670	Elevation: 5550 RKB	Unit Ltr. - Sec. - TWP. - Rge.: D 15 28N 11W	
Csg. Size: 5 1/2" / Wt.: 15.5 / d: 4.950" / Set At: 1715		Perforations: From: 1562 To: 1584		County: San Juan	
Tbg. Size: 2 3/8" / Wt.: 4.7 / d: 1.995" / Set At: 1582		Perforations: From: none To:		Pool: Fulcher Kutz PC	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple: Single		Packer Set At: none		Formation: Pictured Cliffs	
Producing Thru: Tubing	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press - P_a: 12.0 psia, est.	Connection: EPFS	
L	H	Gg: est 0.65	% CO_2	% N_2	% H_2S / Prover / Meter Run / Taps

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					120		120		
1.	2 inch x .750"				35	60°F	80		3 hrs.
2.									
3.									
4.									
5.									

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg.	Super Compress. Factor, Fpv.	Rate of Flow Q, Mcfd
1.	12.365		47	1.000	1.240	1.014	731
2.							
3.							
4.							
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	0.07		1.39	0.973
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c 132 P_c^2 17,424

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1.		92	8,464	8,960
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.9446$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.7600$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1286$

Absolute Open Flow 1286 Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n 0.85

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Albert Aranda	Kevin McCord	

Attachment #3

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-020498-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME, WELL NO.: HORN CANYON #1

9. API WELL NO.: 30-045-29266

10. FIELD AND POOL, OR WILDCAT: AZTEC FRUITLAND

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: UNIT LETTER D SEC. 15, T28N, R11W

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☒ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: ROBERT L. BAYLESS

3. ADDRESS AND TELEPHONE NO.: PO BOX 168, FARMINGTON, NM 87499 (505) 326-2659

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1190' FNL and 1055' FWL
At top prod. interval reported below: SAME
At total depth: SAME

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: SAN JUAN | 13. STATE: NEW MEXICO

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7/26/95	7/31/95	11/24/95	5550 RKB	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
1745 FT.	(bridge plug @ 1670ft. 1500ft)	single	→	XXX	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 1322-1339 FRUITLAND SAND

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL: SDL: DSN

27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J55	24 #/ft.	125 ft.	12 1/4"	80 sx (94ft³) class B; circ to surface	
5 1/2" J55	15.5 #/ft.	1715 ft.	6 3/4"	315sx (428ft³) 50/50 pozmix, 2% gel, 10%sal -TOC @200ft from temp survey	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
NONE				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	1328	NONE

31. PERFORATION RECORD (Interval, size and number)

1322-1324	2ft	8 holes
1332-1339	7ft	28 holes
	9 ft	36 holes
	.34" diameter	

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1322-1339	500 gal 7 1/2% HCL; 12,750 gal 70 quality foam; 16,250 lbs 12/20 brady sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
11/24/95	FLOWING	SHUT IN

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
11/24/95					NO FLOW		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				NO FLOW		

ACCEPTED FOR RECORD
NOV 30 1995
FARMINGTON DISTRICT OFFICE
BY

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): TO BE SOLD

TEST WITNESSED

APPROVED AS AMENDED
NOV 30 1995
DISTRICT MANAGER

35. LIST OF ATTACHMENTS

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

SIGNED [signature] TITLE PETROLEUM ENGINEER DATE 11/28/95

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

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

OPERATOR

Attachment #4

Submit in duplicate to appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Depa nt

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator: Robert L. Bayless		Lease or Unit Name: Horn Canyon	
Type Test: X Initial / Annual / Special		Test Date: 12/01/95	Well No.: 1
Completion Date: 11/24/95	Total Depth: 1745	Plug Back TD: 1670 (BP @ 1500')	Elevation: 5550 RKB
Unit Ltr. - Sec. - TWP - Rge.: D 15 28N 11W			
Csg. Size: 5 1/2"	Wt.: 15.5	d: 4.950"	Set At: 1715
Perforations: From: 1322 To: 1339			County: San Juan
Tbg. Size: 2 3/8"	Wt.: 4.7	d: 1.995"	Set At: 1328
Perforations: From: None To:			Pool: Aztec Fruitland
Type Well - Single - Bradenhead - G.G. or G.O. Multiple: Single		Packer Set At: None	Formation: Fruitland Sand
Producing Thru: Tubing	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press - P: 12.0 PSIA, est.
Connection: EPFS			
L	H	Gg: 0.65	% CO_2
% N_2	% H_2S	Prover	Meter Run
Taps			

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					380		380		
1.	2 inch x .750"				70	60°F	115		3 hrs.
2.									
3.									
4.									
5.									

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1.	12-365		82	1.000	1.240	1.014	1275
2.							
3.							
4.							
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	0.12		1.39	0.973
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c 392 P_c^2 153,664

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1.		127	16,129	137,535
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2}$ = 1.1173 (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 1.0988

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 1401

Absolute Open Flow 1401 Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n 0.85

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Albert Aranda	Kevin McCord	

Report Date: 11/03/95
Report Time: 12:56:37

E L P A S O N A T U R A L G A S C O M P A N Y
Volume Calculation & Distribution Department
Monthly Volume and Analysis for November, 1995 thru November, 1995

REPORT NO: C6ME747 -01
Page No: 2

Meter: 97949 - HORN CANYON 1
Oper : 0538 - BAYLESS R L

Reporting party: - *** No Reporting Party ***
Mole % / GPM

Effective	CO2	H2S	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6P	BTU	Spec Grav	GPM
11/01/95	0.900	0.000	0.860	87.230	5.830	2.570	0.530	0.820	0.360	0.260	0.640	1157	0.670	3.205
	0.000	0.000	0.000	0.000	1.560	0.708	0.173	0.259	0.132	0.094	0.279			

Carmella – 505-326-6911

Attachment #5

Attachment #6

GAS ANALYSIS SERVICE

1115 Farmington Avenue
Farmington, N.M. 87401
(505) 325-6622

Analysis No. BAY50013
Cust. No. 14100-10240

WELL/LEASE INFORMATION

Company	: ROBERT L. BAYLESS, INC.	Source	:
Well Name	: HORN CANYON 1	Pressure	: 375 PSIG
County	: SAN JUAN	Sample Temp.	: N/A DEG.F
State	: NM	Well Flowing	: NO
Location	:	Date Sampled	: 11/28/95
Fld/Formation	:	Sampled By	: ALBERT ARANDA
Cust.Stn.No.	:	Foreman/Engr	:

Remarks: LEASE: NM-020498-A

ANALYSIS

COMPONENT	MOLE %	GPM**	B.T.U.*	SP.GR.*
NITROGEN	1.060	0.0000	0.00	0.0103
CO2	0.096	0.0000	0.00	0.0015
METHANE	87.242	0.0000	883.15	0.4832
ETHANE	6.902	1.8463	122.42	0.0717
PROPANE	2.849	0.7852	71.85	0.0434
I-BUTANE	0.493	0.1613	16.07	0.0099
N-BUTANE	0.696	0.2194	22.76	0.0140
I-PENTANE	0.234	0.0856	9.38	0.0058
N-PENTANE	0.166	0.0601	6.67	0.0041
HEXANES	0.262	0.1143	13.47	0.0084
TOTAL	100.000	3.2722	1145.77	0.6523

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
** @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR	(1/Z)	1.0028
BTU/CU.FT. (DRY) CORRECTED FOR	(1/Z)	1149.0
BTU/CU.FT. (WET) CORRECTED FOR	(1/Z)	1129.0
REAL SPECIFIC GRAVITY		0.6539

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

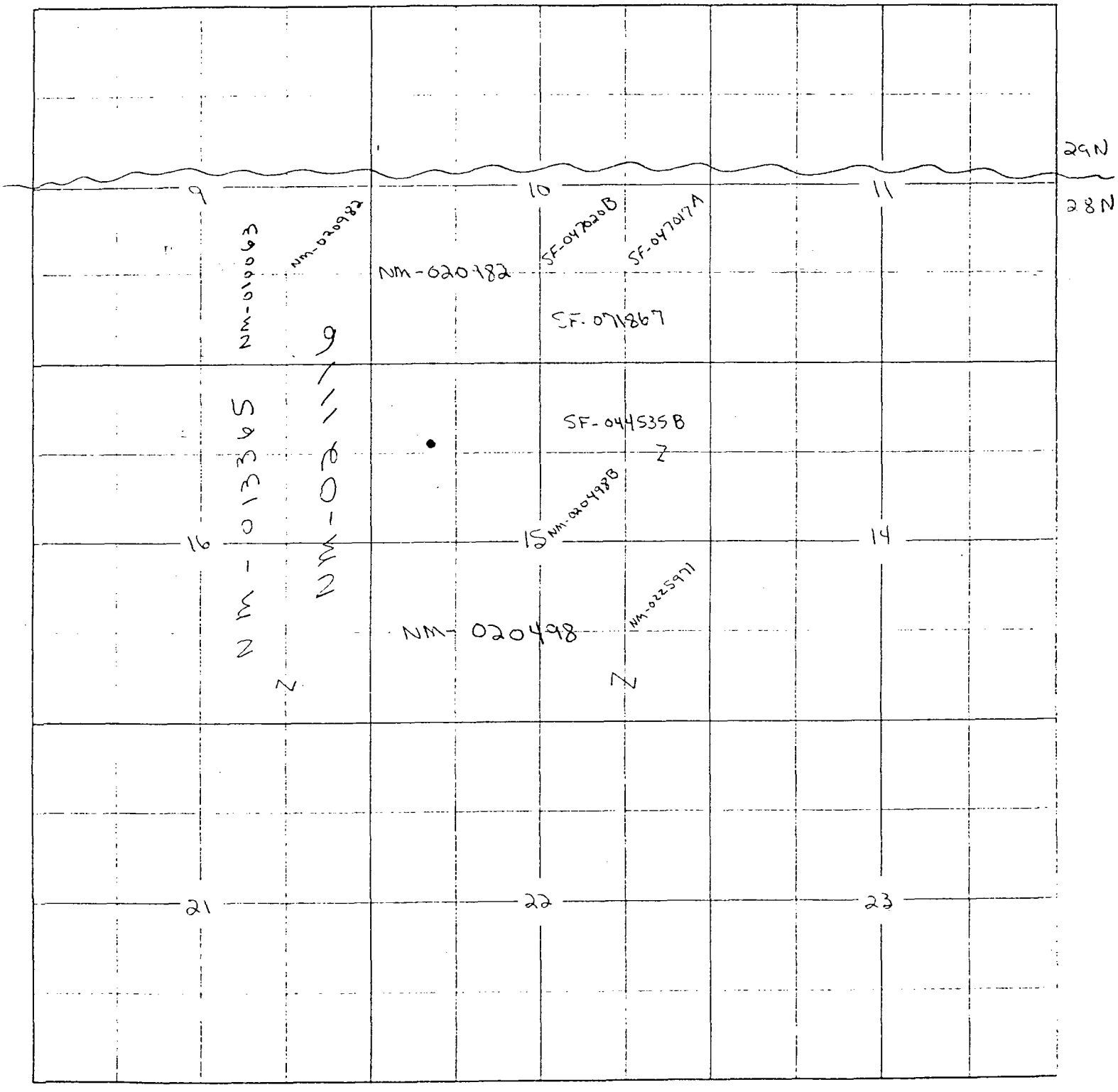
CYLINDER #	: AZT034
CYLINDER PRESSURE	: 384 PSIG
DATE RUN	: 11/28/95
ANALYSIS RUN BY	: BOB DURBIN

NINE SECTION PLAT
Scale: 4 inches = 1 mile
Printed in U.S.A.

Horn Canyon #1

Attachment #7

TOWNSHIP 28N RANGE 11W COUNTY San Juan STATE NM



Operators

Sec. 9 = Dugan (Fr., Fmg., Pc.)
Sec. 10 = So. Kay. (Fr, Pc)
Meridian (Pc)
Petrocorp (Pc)
Sec. 15 = Petrocorp (Pc)
Marathon (Pc)
Sec. 16 = Dugan (Pc, Fmg.)

Attachment # 8

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

December 20, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED #P565392391

Dugan Production Company
P.O. Box 420
Farmington, N.M. 87499

RE: Proposed Downhole Commingling
Robert L. Bayless
Horn Canyon #1
Unit D, Sec. 15, T28N, R11W
San Juan County, New Mexico

Gentlemen:

Our records indicate your company owns offset acreage to our Horn Canyon #1 well. We plan to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well and have requested the New Mexico Oil Conservation Division to administratively approve this commingling of production. A copy of this application is enclosed.

In order to obtain approval from the Oil Conservation Division Director, we must obtain waivers of objection from offset lease holders. If you have no objection to our plans, please execute the waiver portion of this letter and return one copy to us at the above address and another copy to the Division Director, Oil Conservation Division, 2040 South Pacheco, Santa Fe, NM 87505.

If you require additional information, please advise.

Sincerely,

Kevin H. McCord
Petroleum Engineer

I have no objection to the above stated plans.

Dugan Production Company

By: _____ Title: _____ Date: _____

ATTACHMENT #9

P 565 392 391

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to DUGAN PRODUCTION CO.	
Street and No. P.O. BOX 420	
P.O., State and ZIP Code FARMINGTON, NM 87499	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985
U.S.G.P.O. 1989-234-555

P 565 392 392

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to MARATHON OIL CO.	
Street and No. P.O. Box 552	
P.O., State and ZIP Code MIDLAND, TX 79702-0522	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985
U.S.G.P.O. 1989-234-555

P 565 392 394

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to SOUTHLAND ROYALTY CO.	
Street and No. P.O. BOX 4289	
P.O., State and ZIP Code FARMINGTON, NM 87499	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985
U.S.G.P.O. 1989-234-555

P 565 392 393

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to PETROCORP	
Street and No. 210 W. PARK AVE., #2100	
P.O., State and ZIP Code OKLAHOMA CITY, OK 73102	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985
U.S.G.P.O. 1989-234-555

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

DEC 2 1 1995

December 20, 1995

William J. LeMay, Chairman
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Request for Administrative
Approval to Downhole Commingle
Robert L. Bayless, Horn Canyon #1
Unit D, Sec. 15, T28N R11W
Fulcher Kutz Pictured Cliffs and Aztec Fruitland Sand Pools
San Juan County, New Mexico

Dear Mr. LeMay:

By this letter, Robert L. Bayless requests administrative approval to commingle production from the Pictured Cliffs and Fruitland Sand formations within the wellbore of the Horn Canyon #1. This well was drilled by Robert L. Bayless in July of 1995. Production casing, (5-1/2") was set and cemented at 1715 feet, with total depth of the well being 1745 feet.

The Pictured Cliffs interval (1562-1584 ft) was perforated and fracture stimulated with 35,000 gallons of 70-65 quality foam fluid containing 76,000 lbs of 12-20 sand. The Completion Report for the Pictured Cliffs zone in the Horn Canyon #1 is presented as Attachment #1. This zone was tested on October 16, 1995 by conducting a 3 hour flow test which resulted in an AOF of 1286 MCFD. The 7 day pressure buildup preceding this test was only 120 psi, suggesting this Pictured Cliffs interval has been severely drained. This AOF test is presented as Attachment #2. The Pictured Cliffs formation was first produced in this well on October 16, 1995, with the aid of a compressor. Without the compressor, this well wouldn't produce against the 185 psi line pressure in this area. The Pictured Cliffs zone in this well averaged 330 MCFD for the 36 days it produced before being shutin for recompletion. The flow test and resulting actual gas production from the Pictured Cliffs zone in this well indicates marginal gas production capability considering this is the well's initial production month and that a compressor is needed for any gas production to take place at all.

Bayless set a bridgeplug above the Pictured Cliffs zone and recompleted the Horn Canyon #1 well in the Fruitland Sand formation in late November of 1995. The interval from 1322-1339 ft was perforated and fracture stimulated with 12,750

gallons of 70 Quality foam containing 16,250 lbs of 12-20 mesh sand. The Completion Report for the Fruitland Sand zone in the Horn Canyon #1 is presented as Attachment #3. The Fruitland Sand zone was tested on December 1, 1995 by conducting a 3 hour flow test which resulted in an AOF of 1401 MCFD. The 7 day pressure buildup preceding this test was 380 psi, suggesting this interval is not drained. This AOF test on the Fruitland Sand is presented as Attachment #4. The Fruitland Sand formation was first produced in this well on December 1, 1995, without the aid of a compressor. To date, it has produced an average 327 MCFD for the 19 days it has produced, but this rate is rapidly dropping. A compressor has just been installed on this zone to keep production rates up. We expect this zone initially to produce approximately 500 MCFD with compression. The combined production from this new Fruitland Sand interval and the existing Pictured Cliffs interval should make the Horn Canyon #1 much more economic to produce compressed gas against the 185 psi line pressure in the area.

The quality of the gas produced from the Pictured Cliffs and Fruitland Sand formations is very similar in this area . The gas gravity for the Pictured Cliffs in the Horn Canyon #1 (Attachment #5) is 0.670 with an average BTU value of 1157, while the gas gravity for the Fruitland Sand interval in this well (Attachment #6) is 0.654, with a BTU of 1146. The small differences seen in gas gravity and BTU content from these two zones indicate that the gas produced from both zones is very similar and should not cause any damage should crossflow occur between zones. Both zones produce dry gas, so no condensate production is anticipated.

From the AOF tests presented in Attachment #2 and #4, the shutin pressures on the Pictured Cliffs zone and the Fruitland Sand zones in the Horn Canyon #1 well are 120 psi and 380 psi, respectfully. Even though the Pictured Cliffs shutin pressure is less than 50% of the Fruitland Sand shutin pressure, the gas from both zones is very similar. Any crossflow that may occur between zones will cause no damage to the formation.

Attachment #7 is an acreage plat showing the ownership of leases in the vicinity of the Horn Canyon #1 well. The ownership (working interest, royalty, and overriding royalty) of both the Pictured Cliffs and Fruitland Sand formations is common in the Horn Canyon #1 well. The leases surrounding this well are owned by Dugan Production Corp., Southland Royalty (Meridian Oil), Petrocorp, and Marathon Oil Company. These companies have been contacted by certified mail of this commingling application. An example of the letter sent to each of these companies is provided as Attachment #8. Copies of the Return Receipt slips are presented as Attachment #9. By copy of this application, we have also advised the BLM of our plans to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well.

The production from the Pictured Cliffs and Fruitland Sand zones can be allocated using the ratios of the rate of flow calculated during the AOF test on each formation. Based on these AOF's the allocation between zones will be approximately 48% of the commingled gas production allocated to the Pictured Cliffs formation, while 52% allocated to the Fruitland Sand formation. The ownership and value of the gas from each zone is the same, so the commingling of this natural gas will not decrease its sales value on the whole or to any one party.

The production test and actual gas production on the Pictured Cliffs formation in the Horn Canyon #1 indicate that gas production from this well will be low, resulting in marginal gas reserves and economics for the well. Further development and operational costs in this area will be substantially reduced by approval of downhole commingling of the production from the Pictured Cliffs and Fruitland Sand formations in this well. We would appreciate your administrative approval of this application.

Sincerely,

Kevin H. McCord
Petroleum Engineer

Attachments

Attachment #1

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPL. TE* (See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-020498-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME, WELL NO.: Horn Canyon #1

9. API WELL NO.: 30-045-29266

10. FIELD AND POOL, OR WILDCAT: Fulcher Kutz PC

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Unit Letter D, Sec. 15, T 28 N, R 11 W

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: Robert L. Bayless

3. ADDRESS AND TELEPHONE NO.: P.O. Box 168 Farmington, NM 87499 (505)326-2659

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1190' FNL & 1055' FWL
At top prod. interval reported below
At total depth: Same

14. PERMIT NO. / DATE ISSUED: Same

12. COUNTY OR PARISH: San Juan
13. STATE: New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7/26/95	7/31/95	10/09/95	5550 RKB	5550 RKB

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
1745 ft. RKB	1670 ft. RKB	Single	→	XXX	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 1562 - 1584 Pictured Cliffs

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL; SDL; DSN

27. WAS WELL CORED: No

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J55	24 #/ft.	125 ft.	12 1/4"	80sx (94ft)class B; circ to surface	none
5 1/2" J55	15.5 #/ft.	1715 ft.	6 3/4"	315sx (428ft)50/50 pozmix, 2%gel, 10%salt-TOC @200ft	none from temp survey

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
None				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	1582	None

31. PERFORATION RECORD (*Interval, size and number*): 1562 - 1584 22 ft. 88 holes 0.34" diameter

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1562 - 1584	750 gal 7½% HCL; 35,000 gal 70-65 quality foam; 76,000 lbs. 12/20 brady sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
10/09/95	FLowing	Shut-in

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
10/09/95	No flow				No flow		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				No flow		

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*): To be sold

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

ACCEPTED FOR RECORD
OCT 12 1995
FARMINGTON DISTRICT OFFICE
BY

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

SIGNED [signature] TITLE Petroleum Engineer DATE 10/10/95

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

OPERATOR

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Attachment #2

Submit in duplicate to appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator: Robert L. Bayless		Lease or Unit Name: Horn Canyon	
Type Test: X Initial / Annual / Special		Test Date: 10/16/95	Well No.: 1
Completion Date: 10/09/95	Total Depth: 1745	Plug Back TD: 1670	Elevation: 5550 RKB
Unit Ltr. - Sec. - TWP. - Rge.: D 15 28N 11W			
Csg. Size: 5 1/2" / Wt.: 15.5 / d: 4.950" / Set At: 1715	Perforations: From: 1562 To: 1584	County: San Juan	
Tbg. Size: 2 3/8" / Wt.: 4.7 / d: 1.995" / Set At: 1582	Perforations: From: none To:	Pool: Fulcher Kutz PC	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple: Single	Packer Set At: none	Formation: Pictured Cliffs	
Producing Thru: Tubing	Reservoir Temp. °F:	Mean Annual Temp. °F:	Baro. Press - P_a: 12.0 psia, est.
Connection: EPFS			
L:	H:	Gg: est 0.65	% CO_2:
% N_2:	% H_2S:	Prover:	Meter Run:
Taps:			

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					120		120		
1.	2 inch x .750"				35	60°F	80		3 hrs.
2.									
3.									
4.									
5.									

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg.	Super Compress. Factor, Fpv.	Rate of Flow Q, Mcfd
1.	12.365		47	1.000	1.240	1.014	731
2.							
3.							
4.							
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	0.07		1.39	0.973
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c 132 P_c^2 17,424

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1.		92	8,464	8,960
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.9446$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.7600$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1286$

Absolute Open Flow 1286 Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n 0.85

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Albert Aranda	Kevin McCord	

Attachment #3

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-020498-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME, WELL NO.: HORN CANYON #1

9. API WELL NO.: 30-045-29266

10. FIELD AND POOL, OR WILDCAT: AZTEC FRUITLAND

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: UNIT LETTER D SEC. 15, T28N, R11W

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☒ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: ROBERT L. BAYLESS

3. ADDRESS AND TELEPHONE NO.: PO BOX 168, FARMINGTON, NM 87499 (505) 326-2659

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1190' FNL and 1055' FWL
At top prod. interval reported below: SAME
At total depth: SAME

14. PERMIT NO.: | DATE ISSUED:

12. COUNTY OR PARISH: SAN JUAN | 13. STATE: NEW MEXICO

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7/26/95	7/31/95	11/24/95	5550 RKB	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
1745 FT.	(bridge plug @ 1500ft) 1670ft.	single	→	XXX	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 1322-1339 FRUITLAND SAND

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL: SDL: DSN

27. WAS WELL CORED: NO

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J55	24 #/ft.	125 ft.	12 1/4"	80 sx (94ft³) class B; circ to surface	
5 1/2" J55	15.5 #/ft.	1715 ft.	6 3/4"	315sx (428ft³) 50/50 pozmix, 2% gel, 10%sal -TOC @200ft. from temp survey	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
NONE				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	1328	NONE

31. PERFORATION RECORD (*Interval, size and number*)

1322-1324	2ft	8 holes
1332-1339	7ft	28 holes
	9 ft	36 holes
	.34" diameter	

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1322-1339	500 gal 7 1/2% HCL; 12,750 gal 70 quality foam; 16,250 lbs 12/20 brady sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
11/24/95	FLOWING	SHUT IN

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
11/24/95					NO FLOW		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
				NO FLOW		

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*): TO BE SOLD

TEST WITNESSED BY:

ACCEPTED FOR RECORD
NOV 30 1995
FARMINGTON DISTRICT OFFICE
BY

APPROVED AS AMENDED
NOV 30 1995
DISTRICT MANAGER

35. LIST OF ATTACHMENTS:

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

SIGNED: William H. McCoy TITLE: PETROLEUM ENGINEER DATE: 10/28/95

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

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

OPERATOR

Attachment #4

Submit in duplicate to appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Depar nt

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator: Robert L. Bayless				Lease or Unit Name: Horn Canyon	
Type Test: X Initial / Annual / Special				Test Date: 12/01/95	Well No.: 1
Completion Date: 11/24/95	Total Depth: 1745	Plug Back TD: 1670 (BP @ 1500')	Elevation: 5550 RKB	Unit Ltr. - Sec. - TWP - Rge.: D 15 28N 11W	
Csg. Size: 5 1/2" / Wt.: 15.5 / d: 4.950"	Set At: 1715	Perforations: From: 1322	To: 1339	County: San Juan	
Tbg. Size: 2 3/8" / Wt.: 4.7 / d: 1.995"	Set At: 1328	Perforations: From: None	To:	Pool: Aztec Fruitland	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple: Single		Packer Set At: None		Formation: Fruitland Sand	
Producing Thru: Tubing	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press - P_a: 12.0 PSIA, est.	Connection: EPFS	
L	H	Gg: 0.65	% CO_2	% N_2	% H_2S
Prover	Meter Run	Taps			

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					380		380		
1.	2 inch x .750"				70	60°F	115		3 hrs.
2.									
3.									
4.									
5.									

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg.	Super Compress. Factor, F pv.	Rate of Flow Q, Mcfd
1.	12-365		82	1.000	1.240	1.014	1275
2.							
3.							
4.							
5.							

NO.	P_r	Temp. °R	T_r	Z
1.	0.12		1.39	0.973
2.				
3.				
4.				
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
Critical Temperature _____ R _____ R

P_c 392 P_c^2 153,664

NO.	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1.		127	16,129	137,535
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.1173$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.0988$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1401$

Absolute Open Flow 1401 Mcfd @ 15.025 | Angle of Slope θ _____ | Slope, n 0.85

Remarks: _____

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Albert Aranda	Kevin McCord	

Report Date: 11/03/95
Report Time: 12:56:37

E L P A S O N A T U R A L G A S C O M P A N Y
Volume Calculation & Distribution Department
Monthly Volume and Analysis for November, 1995 thru November, 1995

REPORT NO: C6ME747 -01
Page No: 2

Meter: 97949 - HORN CANYON 1
Oper : 0538 - BAYLESS R L

Reporting party: - *** No Reporting Party ***
Mole % / GPM

Effective	CO2	H2S	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6P	BTU	Spec Grav	GPM
11/01/95	0.900	0.000	0.860	87.230	5.830	2.570	0.530	0.820	0.360	0.260	0.640	1157	0.670	3.205
	0.000	0.000	0.000	0.000	1.560	0.708	0.173	0.259	0.132	0.094	0.279			

Cornelia - 505-326-6911

Attachment #5

Attachment #6

GAS ANALYSIS SERVICE

1115 Farmington Avenue
Farmington, N.M. 87401
(505) 325-6622

Analysis No. BAY50013
Cust. No. 14100-10240

WELL/LEASE INFORMATION

Company	: ROBERT L. BAYLESS, INC.	Source	:
Well Name	: HORN CANYON 1	Pressure	: 375 PSIG
County	: SAN JUAN	Sample Temp.	: N/A DEG.F
State	: NM	Well Flowing	: NO
Location	:	Date Sampled	: 11/28/95
Fld/Formation	:	Sampled By	: ALBERT ARANDA
Cust.Stn.No.	:	Foreman/Engr	:

Remarks: LEASE: NM-020498-A

ANALYSIS

COMPONENT	MOLE %	GPM**	B.T.U.*	SP.GR.*
NITROGEN	1.060	0.0000	0.00	0.0103
CO2	0.096	0.0000	0.00	0.0015
METHANE	87.242	0.0000	883.15	0.4832
ETHANE	6.902	1.8463	122.42	0.0717
PROPANE	2.849	0.7852	71.85	0.0434
I-BUTANE	0.493	0.1613	16.07	0.0099
N-BUTANE	0.696	0.2194	22.76	0.0140
I-PENTANE	0.234	0.0856	9.38	0.0058
N-PENTANE	0.166	0.0601	6.67	0.0041
HEXANES	0.262	0.1143	13.47	0.0084
TOTAL	100.000	3.2722	1145.77	0.6523

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
** @ 14.730 & 60 DEC. F

COMPRESSIBILITY FACTOR (1/Z)	1.0028
BTU/CU.FT. (DRY) CORRECTED FOR (1/Z)	1149.0
BTU/CU.FT. (WET) CORRECTED FOR (1/Z)	1129.0
REAL SPECIFIC GRAVITY	0.6539

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

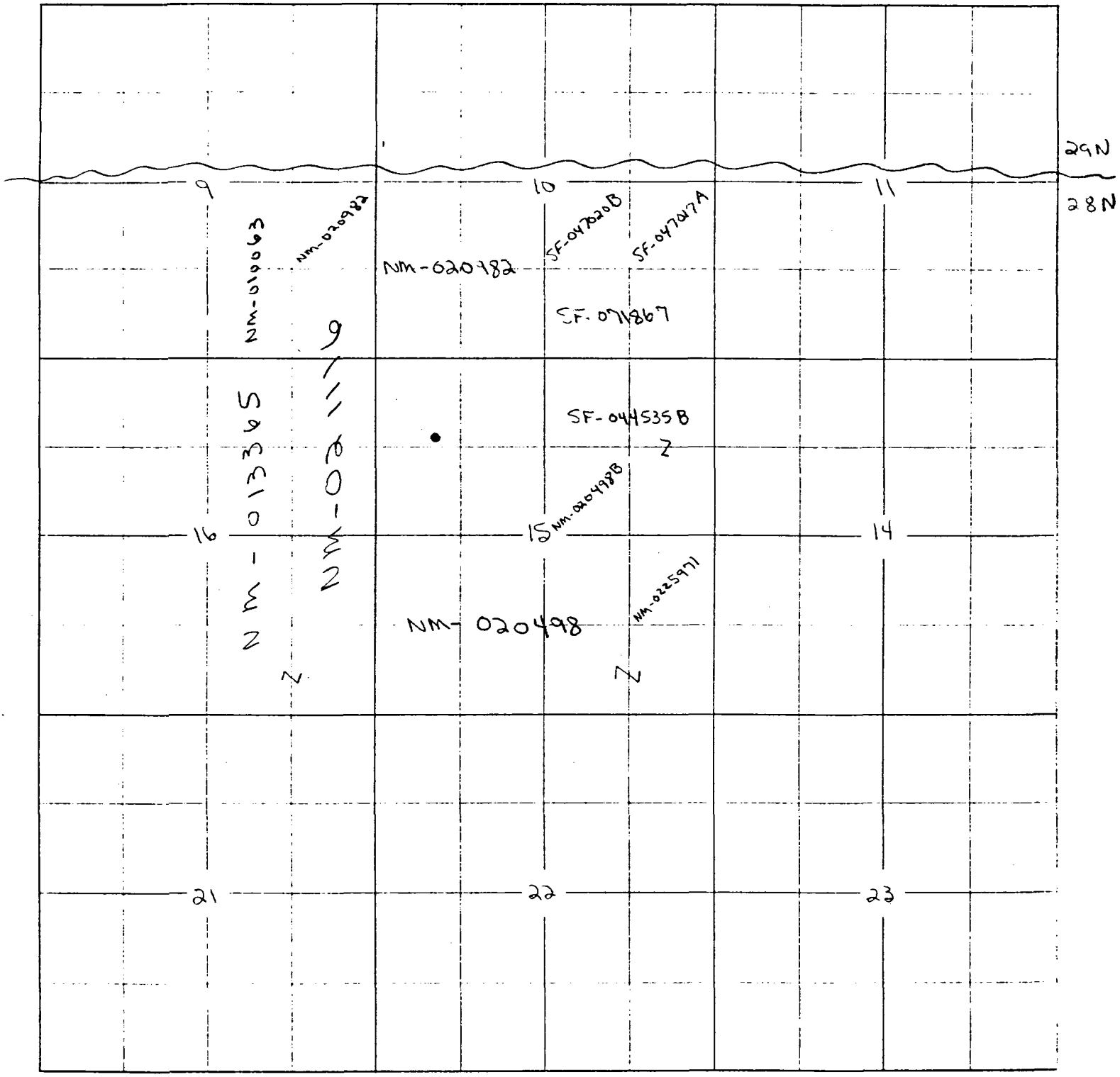
CYLINDER #	: AZT034
CYLINDER PRESSURE	: 384 PSIG
DATE RUN	: 11/28/95
ANALYSIS RUN BY	: BOB DURBIN

NINE SECTION PLAT
Scale: 4 inches = 1 mile
Printed in U.S.A.

Horn Canyon #1

Attachment #7

TOWNSHIP 28N RANGE 11W COUNTY San Juan STATE NM



Operators

Sec. 9 = Dugan (Fr, Fmg, Pc.)

Sec. 10 = So. Kay. (Fr, Pc)
Meridian (Pc)
Petroco p (Pc)

Sec. 15 = Petroco p (Pc)
Marathon (Pc)

Sec. 16 = Dugan (Pc, Fmg.)

Attachment #8

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

December 20, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED #P565392391

Dugan Production Company
P.O. Box 420
Farmington, N.M. 87499

RE: Proposed Downhole Commingling
Robert L. Bayless
Horn Canyon #1
Unit D, Sec. 15, T28N, R11W
San Juan County, New Mexico

Gentlemen:

Our records indicate your company owns offset acreage to our Horn Canyon #1 well. We plan to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well and have requested the New Mexico Oil Conservation Division to administratively approve this commingling of production. A copy of this application is enclosed.

In order to obtain approval from the Oil Conservation Division Director, we must obtain waivers of objection from offset lease holders. If you have no objection to our plans, please execute the waiver portion of this letter and return one copy to us at the above address and another copy to the Division Director, Oil Conservation Division, 2040 South Pacheco, Santa Fe, NM 87505.

If you require additional information, please advise.

Sincerely,

Kevin H. McCord
Petroleum Engineer

I have no objection to the above stated plans.

Dugan Production Company

By: _____ Title: _____ Date: _____

ATTACHMENT #9

P 565 392 391

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to DUGAN PRODUCTION CO.	
Street and No. P.O. BOX 420	
P.O., State and ZIP Code FARMINGTON, NM 87499	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

P 565 392 392

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to MARATHON OIL CO.	
Street and No. P.O. Box 552	
P.O., State and ZIP Code MIDLAND, TX 79702-0522	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

P 565 392 394

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to SOUTHLAND ROYALTY CO.	
Street and No. P.O. BOX 4289	
P.O., State and ZIP Code FARMINGTON, NM 87499	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

P 565 392 393

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to PETROCORP	
Street and No. 210 W. PARK AVE., #2100	
P.O., State and ZIP Code OKLAHOMA CITY, OK 73102	
Postage	$ .78
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.10
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.98
Postmark or Date 12/20/95	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO.
(505) 326-6911

OFFICE NO
(505) 326-2659

December 20, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED #P565392391

Dugan Production Company
P.O. Box 420
Farmington, N.M. 87499

RE: Proposed Downhole Commingling
Robert L. Bayless
Horn Canyon #1
Unit D, Sec. 15, T28N, R11W
San Juan County, New Mexico

Gentlemen:

Our records indicate your company owns offset acreage to our Horn Canyon #1 well. We plan to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well and have requested the New Mexico Oil Conservation Division to administratively approve this commingling of production. A copy of this application is enclosed.

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If you require additional information, please advise.

Sincerely,

Kevin H. McCord
Petroleum Engineer

I have no objection to the above stated plans.

Dugan Production Company

By: Thomas A. Dugan Title: President Date: 12-28-95

ROBERT L. BAYLESS
P. O. BOX 168
FARMINGTON, NM 87499

FAX NO
(505) 326-6911

OFFICE NO
(505) 326-2659

December 20, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED #P565392394

Southland Royalty Company
P.O. Box 4289
Farmington, N.M. 87499

JAN 1996

RE: Proposed Downhole Commingling
Robert L. Bayless
Horn Canyon #1
Unit D, Sec. 15, T28N, R11W
San Juan County, New Mexico

Gentlemen:

Our records indicate your company owns offset acreage to our Horn Canyon #1 well. We plan to downhole commingle the Pictured Cliffs and Fruitland Sand formations in this well and have requested the New Mexico Oil Conservation Division to administratively approve this commingling of production. A copy of this application is enclosed.

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If you require additional information, please advise.

Sincerely,

Kevin H. McCord
Petroleum Engineer

I have no objection to the above stated plans.

Southland Royalty Company

By: Dean Pens Title: Senior Landman Date: 1/4/96