MERIDIAN OIL

July 22, 1986

New Mexico Oil Conservation Division P. O. Box 2088 Santa Fe, New Mexico 87501

Attention: Richard L. Stamets

RE: Application to Downhole Commingle Bone Spring and Wolfcamp Zones Aztec "22" Federal #1 South Corbin Field Lea County, New Mexico

Location: 1980' FN & WL, Sec. 22, T-18-S. R-33-E

Gentlemen:

Pursuant to the provisions of Statewide Rule 303-C, Meridian Oil Inc. (operated for Southland Royalty Company) respectfully requests administrative approval to commingle production within the wellbore from the Bone Spring and Wolfcamp zones of the subject well.

In review, the subject well was drilled as a step-out development well to 13,610' during June 1985 to test the Morrow. After completing the Morrow at 13,242-517' and Atoka at 12,734-48' both zones were abandoned due to noncommercial rates. The Strawn zone at 12,400-10' was then completed during November 1985 for a flowing initial potential of 62 BO + O BW + 80 MCF per day. This zone had produced 5,334 BO and was flowing 46 BO + O BW + 100 MCF per day when it was temporarily abandoned with a cast iron bridge plug, so that the Bone Spring and Wolfcamp zones could be tested. Southland Royalty Company undertook this testing of uphole potential since additional development drilling could not be justified solely on the Strawn zone. The data obtained was also required to properly evaluate expiring farmout acreage.

The recompletion and testing of 4 intervals, 2 each in the Wolfcamp and Bone Spring zones, was begun on January 16, 1986, and completed on February 17, 1986. The test results of these intervals are attached. The Wolfcamp perforations 10,745-11,332 were temporarily abandoned with a cast iron bridge plug prior to testing the Bone Spring formation. Pumping equipment was installed and the Bone Spring initial potentialed for 26 BO + 9 BW + 10 MCF per day on April 21, 1986. This zone is currently pumped every other day at 4 BO + 2 BW per day. The current well status is shown on the attached schematic.

New Mexico Oil Conservation Division Page 2

With the indicated marginal production from both zones, installation of dual equipment cannot be justified. Also, due to the current oil prices, a workover to cement squeeze the two Bone Spring perforated intervals and then drill out to the Wolfcamp is not feasible. In the interest of conservation and prevention of waste, we propose to downhole commingle the Bone Spring and Wolfcamp in the subject well.

Enclosed is pertinent data supporting this application as outlined in Rule No. 303-C. If additional information is necessary, please call John Stark at our Midland office.

Very respectfully yours,

R. L. Bradshaw

Sr. Staff Environmental/Regulatory

Specialist

RLB/JRS/cn

: '

Attachments

0079C:072186

Aztec 22 Federal #1

Elev: 3869 (KB) 3855 (GL) 340'- 133/8" 54.5 #K-55 CSG 4400'-85/8" CSG, Top: 1970-24# K-55 ST+C 606-24 5-80 Tubing : Ready for Pmpg Btm: 2138-28 N-80 325 Jts 27/8" 6.5 # N-80 TAC (Baker) Rods: 60% - 1" Fiberglass Mech. SN (@10,257') 1 J+ 27/8" W/ BP (@19218) 40%-7/8" steel Rod Pump: 21/2" x 11/4" x 36' TOC @ 7900' (by TS) Bone Spring 8927-42(32) \$ 10,024-216 (53) CIBP-10,710' Wolfcamp Pf@ 10,745-82 (22) + 11,072-332 (67) CIBP-12,350 Strawn Pfe 12,400-10 (20) 35'cm+ CIBP-12,6807 AtoK9 Pfe 12,734-48 (30) 35'cm+ CIBP-13,190 Morrow Pf@ 13,242-517 (35) PBTD@13,574 13,610'-512" CSG, TOP: 545'-17# P-110 BT+C 1590-17#5-95 BT+C 9431-17 N-80 LT+C Btm: 2045-17 5-95 LT+C

Rule 303-C Required Data

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- a) Operator: Meridian Oil Inc. (previously Southland Royalty Company)
- b) Lease, Well, Location and Zones to be Commingled:

Aztec "22" Federal #1
1980' FNL & FWL, Section 22, T-18-S, R-33-E
Lea County, New Mexico
Bone Spring and Wolfcamp

c) Plat of Area showing offset operators and acreage dedicated:

Attached

- d&e) Because this is a newly recompleted well, we are submitting a BLM sundry notice showing the recompletion history, a summary of the swab tests taken of the individual Bone Spring and Wolfcamp intervals, a listing of production from the Bone Spring only and projected Wolfcamp production rates.
 - f) Estimated Bottom-hole pressures:

Calculated bottom-hole pressures for the Bone Spring and Wolfcamp zones are 2,983 psi and 3,574 psi, respectfully. Details of calculations are attached.

g) Fluid Description:

Oil samples were collected during the recompletion to the Bone Spring and Wolfcamp zones. These samples were then taken to a lab for evaluation. The results are on the attached lab report and show that the crudes are very similar, especially for such unstable test periods with no surface treating or separation equipment. Also, attached is a copy of a Wolfcamp oil sales ticket from the Federal "MA" #2, the west offset located 1980' FSL, 660' FEL, 21-18S-33E. This well currently pumps 7 BO + 4BW + 4 MCF per day from the Wolfcamp. Based on the API gravity from the sales ticket, the Wolfcamp oil appears to be more similar to the Bone Spring oil than the lab tests indicated.

h) Value of Commingled Fluid:

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The Bone Spring oil from the subject well and the Wolfcamp oil form the Federal "MA" #2 are both classified as intermediate (sweet) oil by the purchaser (The Permian Corp.). Also the below table shows that there is only a 3e/80 difference in value.

	Bone Spring	<u>Wolfcamp</u>
API Gravity	38.7	40.9
Crude Classification	Intermediate	Intermediate
Base Value (400 API), \$/BO	11.75	11.75
Corrections Below 40° API	-2.0¢/° API	-
Corrections 40° to 45° API	-	None (Flat
Current Value, \$/BO	11.72	price) 11.75

i) Allocation of Production:

Since the Wolfcamp zone was only swab tested for a very short period, no accurate allocation can currently be made. However, it is recommended that the two zones be commingled downhole and produced until stabilized rates are obtained. Then from the stabilized Bone Spring rates discussed earlier, the contribution from the Wolfcamp could be determined. A final allocation would then be submitted.

j) Notification of Offset Operators:

Copies of this application have been furnished to all offset operators by certified mail (see attached mailing list). Also, since the subject well is on Federal land, the United States Bureau of Land Management has also been notified.

k) Ownership and Royalty Interests:

Ownership of the two pools to be commingled is common and correlative rights will not be violated.

1) Future Secondary Operations:

Currently, there are no waterfloods in either zone and none are known to be in the planning. The proposed commingling would not jeopardize the efficiency of future secondary recovery operations in either zone.

m) Production Methods:

The commingled production will be pumped and the fluid level monitored to maintain a pumped off condition. This will also eliminate the possibility of cross flow between zones.

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18. I hereby certify that the foregoing is true and corr				Λ	120 106
11. RIH w/RHBM pmp, pony polish rods spa	iced out. Clamp off		·		
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10. Acdz w/2000 gals 15% NEFE HCl using w/thg. SITP 0#. NU BOP. RIH w/thg t.	60 BS. Good ball and catch RBP. POH w/	the & RRP Set CIRD A	3		
Oispi csg w/2% KCl wtr. Test RBP to w/tbg. Perf Bone Spring @ 8927-42'\(\)(8809'. Pmp acid away. Swb Testing.	(32 holes). RIH w/pk:	r, SN & tbg. Set pkr (•	• MA	Y 5 1986
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1 <u>0,024-10,216</u> (53 holes). Swb test 8. RIH w/pkr, SN & tbg. Set pkr @ 9909'	ting. '. Pmp-300 gals 15%		4/40 00	ACCEPT	ED FOR RECOR
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NEFE HCT acid @ 10.782'. POH w/tba. <	Perf 10.745-10.782	. RIH w/nkr. SN & tha	_	•	i 61, 5.
POH w/tbg & pkr. RIH w/tbg. Swb test 6. Acdz w/5000 gals 15% NEFE HCl acid u 7. Rise pkr. RIH w/RBP, SN & tbg. Set R	t. RIH w/pkr & tha.	Sat nier @ 10 945' Swi	tact	ļ	****
pkr @ 11,008'. Open by-pass. Swbd. C 5. SITP 275#. Ran temp background logs.	Close by-pass. Swbd.	EFL @ 25001. Swha.		7	IGY O 7 mg
valve. Test the in hole to 9000f S @ 11,135'. Break form 1/2 BPM @ 4000 4. Trip for pkr. POH w/the & pkr. Chang	O#. Pmp acid away.	• •	•		ALL Y
RIH w/tbg. Tag RBP @ 12,350'. Set RB - 11.332'. Set pkr @ 11.135'. Pmp acid	BP @ 11,413'. Spotte d. Had communication	ed 300 gals NEFE 15% H Reset okr. Oron st	Cl 0 andina	CHI	STATE
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Aztec "22" Federal #1 Recompletion/Testing of Wolfcamp & Bone Spring

Detail Tests of Recompleted Zones:

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1)	Lower Wolfcamp (Perf @ 11,072-332'): Swab 7 BO + 67 BLW/10 hrs with FFL @ 10,500'. 1st FL @ 2500'. Swab 8 BO + 8 BW/4 hrs with FFL @ 9500'. SITP = 275#. Acidized w/5000 gals. Swab 115 BLW/8 hrs with FFL @ 5400'. Swab 9 BO + 47 BLW/10 hrs with FFL @ 10,400'. Swab 30 BO + Tr Wtr/8 hrs with FFL @ 10,500'. SITP = 700#.
	1st FL @ 3000'.
2)	Swab 25 B0 + Tr Wtr/25 hrs with FFL @ 10,500'. Upper Wolfcamp (Perf @ 10,745-82'):
۷,	Swab 2 BO + 70 BLW/5 hrs with FFL @ 10,300'.
	Acidized w/2000 gals.
	Swab 2 BO + 71 BLW/5 1/2 hrs with FFL @ 10,500'.
- 1	Swab 5 BO + 5 BW/3 hrs with FFL @ 9200'.
3)	Lower Bone Spring (Perf @ 10,024-216'):
	Swab 28 BO + 73 BLW/6 hrs with FFL @ 3400'. Flow 20 BO + 0 BW/4 hrs. Died. FTP = 150 psi.
	Swab 30 B0 + 0 BW/4 $1/2$ hrs with FFL @ 9000'.
	Flow 26 B0/12 hrs by heads.
	Acidized w/4000 gals.
	Swab Tr oil + 98 BLW/7 hrs with FFL @ 4200'.
	Swab 5 BO + 20 BLW/6 hrs with FFL @ 6000'.
	Swab 23 B0 + 73 BLW/9 $1/2$ hrs with FFL @ 5900'. SITP = 0.
	1st FL @ 3000'.
4)	Swab 40 B0 + 31 BLW/7 1/2 hrs with FFL @ 6000'. Upper Bone Spring (Perf @ 8927-42'):
4)	Swab Tr oil + 50 BLW/4 hrs.
	Acidized w/2000 gals.
	Swab Tr oil + 80 BLW with FFL @ 6000'.
	Flow 4 BO + 2 BLW/40 min. Died.
	Swab 13 BO $+$ 4 BW/6 hrs with FFL @ 8500'.

Actual Bone Spring (Upper & Lower) Production:

Flow 7 B0 + 0 BW/41 hrs.

Month (1986)		Monthly Volumes Average Daily Ra				ily Rates	
	<u>B0</u>	BW	MCF	# Days On	<u>B0</u>	BW	MCF
April	138	114	92	13	10.6	8.8	7
May	115	82	117	31	3.7	2.6	3.8
June	109	65	NA	30	3.6	2.2	NA

Projected Wolfcamp Production:

Pump 40 B0 + 1 BW + 50 MCF/Day

Estimated Bottom-hole Pressure Calculations

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Wolfcamp (Perfs 11,072-332') SITP (overnight) = 700 psi, 1st fluid level = 3000' FS Swabbed 30 BO + Tr wtr/8 hrs. Final fluid level = 10,400'. Prsrv = PSIBHP = Pliq. Hydr. + PSITP + Pgas Hydr. Pliq. Hydr. = (Liquid Gradient) x (Liquid Head) Liquid - oil (40.90 API) only Gradient = 0.356 psi/ft Head = (11.072-3000') = 8072'Pliq. Hydr. = (0.356 psi/ft) (8072')= 2874 psiPSITP = 700 psi (measured)Pgas Hydr.: Neglected due to not having adequate gas gravity data and usually is negligible. Also, it is accounted for by using the whole liquid gradient which usually is gas cut. Prsrv = 2874 + 700 + NA = 3574 psiBone Spring (Perfs 10,024-216') SITP (Overnight) = 0, 1st fluid level = 3000' FS Swabbed 23 BO + 73 BLW/9 1/2 hrs. Final fluid level = 10.400' Prsrv = PSIBHP = Pliq. Hydr + PSITP + Pgas Hydr. Pliq. Hydr = Liquid Gradient x Liquid Head Liquid Gradient: % oil = 23 = 24% 23+73 % water = 76% oil gradient (38.70 API) = 0.360 psi/ftwater gradient (2% KC1 load) = 0.438 psi/ft Average Gradient = $(.24 \times .360) \times (.76 \times .438) = 0.419 \text{ psi/ft}$ Liquid Head = 10,120-3000' = 7120' Pliq. Hydr. = 0.419 psi/ft x 7120' = 2983 psi PSITP = 0Pgas Hydr = Neglected (See previous explanation)

Psrv = 2983 + 0 + NA = 2983 psi



Home Office 707 N. Leech, P.O. Box 1499 / Hobbs, NM 88240 / Ph. 505/393-7751, TWX 910/986-0010

March 6, 1986

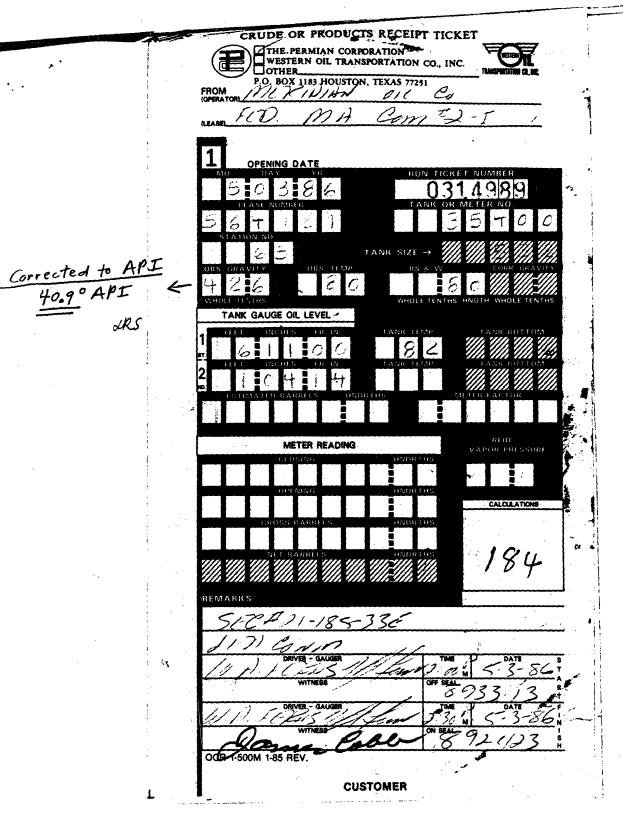
Southland Royalty Company 21 Desta Drive Midland, TX 79702

Attention: John Stark

Dear Mr. Stark:

On February 21, 1986, oil samples from the Aztec Federal 22 #1, were submitted to our laboratory for the following analyses:

LOCATION	API GRAVITY @ 60°F	COMPLETE OIL RESULTS
W.C. 11,000'-11,300'	35.7	85°F Cloud Point
		25°F Pour Point
		0.51% Paraffin
		171°F Melting Point of Paraffin
B.S. 8,900'	39.3	85°F Cloud Point
		-15°F Pour Point
		0.27% Paraffin
		172°F Melting Point of Paraffin
B.S. 10,029'-10,216'	32.4	78°F Cloud Point
		10°F Pour Point
		0.08% Paraffin
		Not Enough Paraffin for Melting Point
Strawn 12,400'	39.8	92°F Cloud Point
· · · · · · · · · · · · · · · · · · ·		-1°F Pour Point
	•	0.27% Paraffin
		176°F Melting Point of Paraffin



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Southland Royalty Company/Meridian Oil Inc. Aztec "22" Federal #1

Offset Operator List

Certified Mail - Return Receipt Requested

Sun Exploration and Production Co. P. O. Box 1861 Midland, Texas 79702

Depco, Inc. 800 Central Odessa, Texas 79761

Pennzoil P. O. Drawer 1828 Midland, Texas 79702

SUNDRY NOTICES AND REPORTS ON WELLS (Do not use this form for proposale to drill or to deepen or plug back to a different recorvoir. Oit	-33-E
OUL IX WELL OTHER 2. NAME OF OPERATOR SOUTH AND ROYALTOR SOUTH AND ROYALTOR 3. ADDRESS OF OPERATOR 2. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* 5. Corbin (Bone Sp. 1.0. FIRL AND POOL, OR WILLD St. AND STATE AND	<u>ring &</u> WI1
Southland Royalty Company 3. ADDRESS OF OPERATOR 21 Desta Drive, Midland, Texas 79705 4. Location of well. (Report location clearly and in accordance with any State requirements.* 4. Location of well. (Report location clearly and in accordance with any State requirements.* 4. Location of well. (Report location clearly and in accordance with any State requirements.* 4. Location of well. (Report location clearly and in accordance with any State requirements.* 5. Corbin (Bone Sp. 11. Bec. T., B., M., OR BLE. AM SUBJECT OF JUNES OF AREA STATE AND AREA A	<u>ring &</u> WI1
21 Desta Drive, Midland, Texas 79705 4. Location of well, Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface 1980' FNL & 1980' FWL, Sec. 22, T-18-S, R-33-E 14. PERMIT NO. 30-025-29216 15. ELEVATIONS (Show whether OF, RT, CR. etc.) 16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data NOTICE OF INTENTION TO: TEST WATER SEUT-OFF PRACTURE TREAT SILD TOPP SILD AND SILD TOPP SILD AND FOOL, OR WILL SILD TOPP SILD TOPP SILD TOPP SILD TOPP SILD AND FOOL, OR WILL SILD TOPP SILD T	<u>ring &</u> WI1
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18. I hereby certify that the foregoing is true and correct	
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(This space for Federal or State office use)	

*See Instructions on Reverse Side

DATE .



STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION HOBBS DISTRICT OFFICE

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AUG - 4 1986

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August 1, 1986

POST OFFICE BOX 1980 HOBBS, NEW MEXICO 88240 (505) 393-6161

OIL CONSERVATION DIVISION P. O. BOX 2088 SANTA FE, NEW MEXICO 87501 Proposed: RE: MC DHC NSL NSP SWD WEX PMX Gentlemen: I have examined the application for the: Southland Royalty Company Aztec 22 Federal #1-F 22-18-33 Operator Lease & Well No. S-T-R and my recommendations are as follows: OK -- Jerry Sexton

Supervisor, District 1

/mc

Sexton