ROBERT L. BAYLESS
PETROLEUM PLAZA BUILDING
P. O. BOX 168
FARMINGTON, NEW MEXICO 87499
(505) 326-2659

February 10, 1989

Mr. William J. LeMay
NM Oil Conservation Division
310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

RE: Request for Administrative Approval
of Downhole Commingling
Robert L. Bayless
Jicarilla 516 #1
Unit O, Section 7, T30N, R2W
Basin Fruitland Coal and
East Blanco Pictured Cliffs Pools
Jicarilla Contract #516
Rio Arriba County, New Mexico

Dear Mr. LeMay:

By this letter, Robert L. Bayless requests administrative approval to commingle production from the Fruitland Coal and Pictured Cliffs formations within the wellbore of the above-captioned well. Bayless would like to drill out the bridge plug separating the Fruitland Coal and Pictured Cliffs zones and produce both zones together.

The Jicarilla 516 #1 well was drilled by Robert L. Bayless in November of 1987. A complete daily activity report for this well is presented as Attachment #1. Production casing (4 1/2") was set and cemented to the surface from a depth of 4126 ft. RKB. This cementing job effectively isolated the production zones in this well from other water bearing zones in the well. The Pictured Cliffs interval from 3814'-3882' looked productive and was perforated and fracture stimulated with 22,000 gallons of 70 quality foam containing 30,000 lbs. of sand. After cleanup and an 8-day shut-in, Bayless ran a 3-hour flow test on the Pictured Cliffs zone, resulting in an AOF of 535 MCFGPD (Attachment #2).

The Fruitland Coal looked interesting in this well, so a drillable bridge plug was set at 3810 ft. RKB, above the Pictured Cliffs zone. The Fruitland Coal was perforated from 3750'-3794' RKB and subsequently fracture stimulated with 16,500 gallons of slick water and 34,585 gallons of 35#/1000 gal X-linked gel containing 83,880 lbs. of sand. The Fruitland Coal zone in this well was first produced on 5/10/88 and tested (to the sales line) 16 MCFGPD and 12 BWPD (load). The Completion Report (Form 3160-4) for this zone is presented as Attachment #3. The Fruitland formation has been producing in this well since May of 1988, having a current production rate of 7 MCFGPD and 1/2 BWPD and a cumulative gas production as of 4230 MCF as of 1/1/89.

The Fruitland Coal zone in this well has proven that it is capable of marginally economic production. The Pictured Cliffs zone, which is underneath a bridge plug at this time, is a major producing interval in this area and should help the economics of this well if downhole commingling is allowed. The small natural gas production rates seen from each zone do not economically justify separate production and monitoring facilities for each zone.

The AOF test performed in the Pictured Cliffs zone in this well is presented as Attachment #2. Typically, in this area, a Pictured Cliffs well will initially produce approximately 10% of its AOF flow rate capability into a sales line. This calculated starting rate of 54 MCFGPD for this well is reasonable for a well with the log characteristics of the Jicarilla 516 #1 well. A ratio of the production rates from each zone in this well would be a logical formula to use to allocate production from each zone. This ratio would be 7/61, or 11% of the commingled gas produced allocated to the Fruitland Coal and 54/61, or 89% of the gas from commingled production allocated to the Pictured Cliffs formation in this well.

Both zones in this well make, or will make, very little water and will have very similar natural gas characteristics from each zone. Attachment #4 is a gas analysis of Fruitland Coal gas from the 516 #1 well. Attachment #5 is a gas analysis of Pictured Cliffs formation gas from the Jicarilla 463 #1 well which is a close offset to the Jicarilla 516 #1. Comparison of these gas analyses indicate that there is not a significant difference between Fruitland Coal gas and Pictured Cliffs formation gas in this area. Due to the similarities of the gas from these formations and the small amount of water they produce, they should be compatible and not result in any damage to either reservoir.

Examination of Attachment #2 and Attachment #3 indicate that the Pictured Cliffs and Fruitland Coal formations have similar bottom-hole pressures. The flowing surface pressure on the Pictured Cliffs zone was 378 psi after its flow test, while the flowing pressure on the Fruitland Coal zone was 420 psi after its flow test. Corrected to bottom-hole pressures, the Pictured Cliffs has 416 psi flowing bottom-hole pressure while the Fruitland has 458 psi flowing bottom-hole pressure. The comparison of these two values indicates the bottom-hole pressure of the lower pressure zone is not less than 50% of the bottom-hole pressure of the higher pressure zone. The similarity of these pressures indicates that no crossflow will take place between zones.

Attachment #6 is an acreage plat showing the ownership of leases in the vicinity of the Jicarilla 516 #1 well. The ownership (working interest, royalty, and overriding royalty) of both the Pictured Cliffs formation and the Fruitland Coal is common in this well. The operator of each of the spacing units around this well is Robert L. Bayless. Because of this, no offset operators have been notified of this application. A copy of this application has been sent to the BLM to advise them of our intention to downhole commingle the Pictured Cliffs and Fruitland Coal zones in this well.

It is obvious from the low production and production test on the Fruitland Coal and Pictured Cliffs formations in this well that commingling production from these zones will enhance the economics of this well. I trust all information has been supplied to process and approve this application. Your attention to this matter would be appreciated.

Sincerely,

Kevin H. McCord
Petroleum Engineer

KHM/lmo

Enclosures: Attachments #1 thru #6

cc: BLM - Farmington

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JICARILLA 516 #1
Section 7, T30N, R2W
790' FSL & 1675' FEL
Rio Arriba County, New Mexico

DAILY REPORT

11/14/87 Spud well at 12:30 PM on 11/13/87. Drilled 148 feet of 9 7/8" surface hole. Ran three (3) joints (133 ft.) of 7 5/8" 26.4#/ft S-95 used casing and landed at 145 feet RKB. Cemented surface with 75 sacks (89 ft.^{3}) of Class B cement with 3% $CaCl_2$. Good circulation throughout job. Circulated cement to surface. Plug down at 5:30 PM on 11/13/87. Waited on cement 8 hours.

11/15/87 Drilling ahead at 1823'.

11/16/87 Drilling ahead at 2623'.

11/17/87 Drilling ahead at 3345'.

11/18/87 Trip out of hole with Bit #3 at 3738'. Trip in hole with Bit #4 to drill to core point at 3764'.

11/19/87 Drilled ahead to 3764'. Trip out of hole with Bit #4. Picked up core barrel. Washed and reamed to bottom with core barrel. Cored from 3764' to 3792'. Trip out of hole with core barrel.

11/20/87 Trip out of hole with core barrel. Laid down core barrel. Trip in hole with Bit #5. Drilled to TD at 4150'. Reached TD at 4:00 AM on 11/20/87. Circulated hole for 1 1/2 hours. Waiting on Welex loggers.

11/21/87 Circulated on bottom waiting on loggers. Trip out of hole. Rigged up Welex. Ran ICL, CDL and CNL logs from 4150' to surface. Trip in hole with drillpipe. Laid down drillpipe and collars. Ran 4 1/2" casing as follows:

Description	Length	Depth
KB to landing point	12.00	0- 12
105 jts. 4 1/2" 11.6#/ft J-55 new casing	4067.22	12-4079
1 - 4 1/2" differential fill float collar	3.75	4079-4083
1 jt. 4 1/2' 11.6#/ft J-55 new casing	42.09	4083-4125
1 - 4 1/2" cement-filled guide shoe	.90	4125-4126
	4125.96	

Centralizers at: 4104, 3868, 3826, 3783, 3741 and 3698.

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11/21/87 (Continued)

Rigged up Dowell. Pumped 10 bbls. of water ahead of cement. Cemented longstring with 300 sacks of Class B cement with 2% D-79 and 1/4# flocele/sack tailed by 150 sacks of 50/50 pozmix with 2% gel, 10% salt and 1/4# flocele/sack. Good circulation throughout job. Circulated cement to the surface. Bumped plug to 2250 psi--held OK. Plug down at 8:45 AM on 11/21/87. Released rig at 12:00 Noon on 11/21/87. Waiting on completion.

12/17/87 Move in and rig up Bayless Rig #4. Nipple up wellhead. Nipple up BOP. Pick up 4 3/4" bit and 2 3/8" tubing. Tag PBTD at 4071 ft. RKB. Shut down for night.

12/18/87 to 12/28/87 Shut down. Waiting on weather.

12/29/87 Rigged up the Western Company. Pressure tested casing and wellhead to 3500 psi--held OK. Circulated hole clean with 2% KCL water. Moved tubing to 3882 ft. RKB. Spotted 250 gallons of 7 1/2% DI HCL acid across perforations. Tripped tubing out of hole. Rigged up Basin Perforators. Ran GR-CLL-CBL from corrected PBTD of 4063 ft. RKB to 3300 ft. RKB (above Ojo Alamo). Very good cement bond all across this interval under 1000 psi pressure. Perforated Pictured Cliffs interval with 3 1/8" casing gun and 2 JSPF as follows:

3814 - 3819	5	11 holes	
3844 - 3847	3	7 holes	
3878 - 3882	4	9 holes	
	12'	27 holes	.34" diameter

Broke down Pictured Cliffs interval @ 2000 psi. Established an injection rate of 10 BPM @ 850 psi, ISIP = 500 psi. Acidized the Pictured Cliffs interval with 250 gallons of 7 1/2% weighted HCL acid containing 41 1.1 s.g. RCN ball sealers--10 BPM @ 950 psi. Saw little ball action. Balled off casing to 3500 psi. Surged ball sealers off perforations. Established injection rate of 4 BPM @ 1200 psi, ISIP = 650 psi. Ran junk basket. Recovered 41 ball sealers. Fracture stimulated Pictured Cliffs interval with 22,000 gallons of 70 quality foam containing 30,000 lbs. of 20-40 sand as follows:

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12/29/87 (Continued)

4500 gallons of 70 quality foam pad	30 BPM @	2500 psi
5000 gallons of 1 ppg 20-40 sand	30 BPM @	2600 psi
12,500 gallons of 2 ppg 20-40 sand	30 BPM @	2600 psi
2483 gallons of 70 quality foam flush	30 BPM @	2500 psi

ISIP = 2000 psi 10 min = 1750 psi
5 min = 1800 psi 15 min = 1750 psi

All water contained 2% KCL 1 1/2 gal/1000 day stabilization agent and 1 gal/1000 surfactant. Average rate 30 BPM. Average pressure 2600 psi. Maximum pressure 2600 psi. Minimum pressure 2500 psi. Nitrogen pump rate 16,300 scf/min. Total nitrogen pumped 316,546 scf. Total fluid to recover - 358 barrels. Shut well in for 3 hours. Opened well to atmosphere through 1/2" bullplug to clean up. Shut down for night.

12/30/87 to 1/03/88 Well flowing to clean up after frac.

1/04/88 Well blowing slightly. Run in hole with sinker bar on sandline. Tagged sand at 4001 ft. Trip in hole with tubing. Land to swab at 3879 ft. Rigged to swab. Made 10 swab runs. 100% water, slight gas cut. Made 25 bbls. of fluid in 2 1/2 hrs. Annulus pressure 70 psi. Shut well in. Shut down for the night.

1/05/88 Overnight pressures: tubing 40 psi, annulus 230 psi. Rigged to swab. Swabbed well as follows: (see Swab Report). Well made 33 1/2 bbls. swabbing, then kicked off flowing. Well made 38 1/2 bbls for day. Fluid level at 3200 ft. Annulus pressure was 175 psi when well left flowing--heavy gas cut water. Shut down for night.

1/06/88 Well flowing slightly this morning. Annulus pressure 210 psi. Well made 7 1/2 bbls of fluid overnight (15 1/2 hrs.). Shut well in.

1/07/88 Overnight pressures: tubing 200 psi, annulus 350 psi. Blew well down. Rigged to swab. Swabbed well as follows: (see Swab Report). Made 15.3 bbls of fluid in 6 1/2 hrs. Well stopped making fluid. Initial fluid level was 3000 ft. Final fluid level was gas cut at 3500 ft. Well was blowing after each run. Shut well in for 7-day buildup. Shut down for night.

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1/08/88 to 1/18/88 Well shut in. Building up for AOF test.

1/19/88 Shut in casing pressure 600 psi; tubing slight blow. Blow down well. Trip tubing out of hole. Rigged up Basin Perforators. Set drillable bridge plug at 3810 ft. RKB. Rigged up the Western Company. Pressure tested bridge plug to 3500 psi--held OK for 5 minutes. Perforated the Fruitland with 3 1/8" casing gun and 4 JSPF as follows:

3750 - 3766	16'	64 holes
3781 - 3794	13'	52 holes
	29'	116 holes (.34" diameter)

Tripped in hole with 2 3/8" tubing. Spotted 150 gallons of 7 1/2% DI HCL acid across perforation interval. Moved tubing to 3499 ft. Broke down perforation at 1800 psi. Established injection rate down tubing of 2.4 BPM @ 1150 psi, ISIP = 650 psi (FG = .61). Established injection rate again at 2.5 BPM @ 900 psi, ISIP = 450 psi (FG = .55). Acidized Fruitland zone with 250 gallons of 7 1/2% DI HCL weighted acid containing 174 1.1 s.g. RCN ball sealers - 2.5 BPM 950 psi. Saw 100 psi increase and small breakbacks when balls hit formation. Final injection rate 2.3 BPM @ 1050 psi, ISIP = 600 psi (FG = .59). Trip tubing out of hole. Run wireline junk basket and recover 159 ball sealers. Shut down for night.

1/20/88 Trip in hole with Amerada bombs, perforated sub, Baker fullface packer with "F" nipple. Set packer at 3726 ft. RKB (end of pressure bomb @ 3741 ft. RKB). Wait for 3 hours to allow wellbore to stabilize. Pump into formation for 8 hrs. at 1/2 bbl/min for injection test. Drop valve to shut off hydrostatic pressure from downhole bombs. Shut well in for pressure falloff.

1/21/88 to 1/24/88 Shut in--pressure falloff test.

1/25/88 Thaw out wellhead. Trip tubing out of hole. Recover Amerada pressure bombs. Shut well in. Shut down for night.

1/26/88 to 2/10/88 Wait on weather.

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2/11/88 Trip in hole with 2 3/8" tubing and land as follows:

Description	Length	Depth
KB to landing point	10.00	0- 10
120 jts. 2 3/8" 4.7#/ft J-55 EUE tubing	3743.49	10-3753
1 seating nipple	.75	3753-3754
1 perforated sub	4.00	3754-3758
1 jt. 2 3/8" mud anchor	31.65	3758-3790
	3789.89	

2/12/88 Overnight pressures: annulus 100 psi, tubing 5 psi. Blew down tubing. Rigged to swab. Swabbed well as follows: (see Swab Report). Swabbed 55 bbls. of water in 23 swab runs. Well had slight gas cut. Well making an average of 4 bbl/hr of water for last 3 hours of swabbing (96 bbl/day). Final fluid level at 3200 ft. Shut well in. Shut down for night.

2/13/88 Overnight pressures: annulus 75 psi, tubing 0 psi. Ran pump and rods and landed as follows:

Description	Length	Depth
KB to landing point	8.00	0- 8
1 - 1-1/4"x16' polished rod w/1-1/2" liner (6 ft. out)	16.00	8- 18
3 - 3/4" pony rods	12.00	18- 30
150 - 3/4" Class "C" plain rods	3750.00	30-3780
1 - 2"x1-1/4"x10x12x14 RHBC-EQ pump (bottom hold down)	14.00	3780-3794

(Note: Rod depths do not agree with tubing depths.)

Clamped off rods. Shut in well. Rigged down. Released rig. Wait on installation of pumping unit.

4/25/88 Move in and rig up Bayless Rig 4. Pull rods and pump. Nipple down wellhead. Nipple up BOP. Tag fill at 3809 ft. RKB (1 ft. of fill on top of bridgeplug). Trip tubing out of hole. Shut down for night.

4/26/88 to 4/27/88 Wait for frac.

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4/28/88 Rigged up the Western Company. Fracture stimulated the Fruitland interval (3750-3794) with 16,500 gallons of slick-water and 34,585 gallons of 35#/1000 gal of X-linked gel containing 83,880# of sand as follows:

16,500 gal. of prepad using slickwater 42 BPM @ 3100 psi
19,000 gal. of 35# X-linked gel pad 47 BPM @ 3400 psi
1,200 gal. of 35# X-linked gel containing
2 ppg 100 mesh 47 BPM @ 3300 psi
1,200 gal. of 35# X-linked gel containing
4 ppg 100 mesh 47 BPM @ 3400 psi
2,400 gal. of 35# X-linked gel containing
4 ppg 40/60 mesh 40 BPM @ 3500-3000 psi
2,400 gal. of 35# X-linked gel containing
4 ppg 20/40 mesh 41 BPM @ 2900 psi
4,800 gal. of 35# X-linked gel containing
6 ppg 20/40 mesh 41-46 BPM @ 2850-3300 psi
3,585 gal. of 35# X-linked gel containing
8 ppg 20/40 46-27 BPM @ 3300-2100 psi
2,448 gal. of flush using slickwater
27-22 BPM @ 2100-1650 psi

ISIP = 1100 psi 10 min. = 800 psi
5 min. = 900 psi 15 min. = 700 psi

All water contained 2% KCL. Average rate-45 BPM Average pressure-3200 psi Maximum rate-54 BPM Minimum rate-22 BPM Maximum pressure-3550 psi Minimum pressure-1600 psi Load fluid to recover-1240 bbls. Shut in well overnight to allow fracture to heal. Shut down for night.

4/29/88 Overnight shut in pressure was 150 psi. Opened well to pit. Well flowed for 30 minutes. Trip in hole with sawtooth collar on tubing. Tag sand fill at 2716 ft. Circulated out 1094 ft. of sand (not solid sand) to bridgeplug at 3810 ft. Moved tubing to 3749 ft. Shut down for night.

4/30/88 Overnight shut in pressure was 0 psi tubing, 0 psi casing. Rigged to swab. Made 21 swab runs in 8 total hours of swabbing. Recovered 221.5 bbls. of water. Initial fluid level at surface. Final fluid level at 1000 ft. from surface. Well was not making any sand or gas. Approximate swabbing rate at end of day was 9 bbls. per hour. Shut down for night.

5/01/88 Shut down - Sunday.

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5/02/88 Shut in pressure was 0 psi tubing, 0 psi casing. Rigged to swab. Made 7 swab runs. Recovered 44.5 bbls. of fluid. Lost sinker bars in hole. Trip tubing out of hole. Recovered swab tools. Trip tubing back in hole. Land tubing at 3749 ft. Rigged to swab. Made 6 more swab runs. Recovered 45.5 bbls. of fluid in 2 hours. Final fluid level at 700 ft. Shut well in. Shut down for night.

5/03/88 Shut in pressure was 0 psi tubing, 0 psi casing. Rigged to swab. Initial fluid level at 400 ft. Made 10 swab runs in 2 1/2 hours. Recovered 87 1/2 bbls. of fluid. Well started flowing. Made 5 bbls. flowing in 1 hour, then died. Swabbed remainder of day. Made 25 swab runs in 6 hours. Recovered 78 bbls. of gas cut fluid. Annulus pressure built to 75 psi. Shut down for night.

5/04/88 Tag fill in hole at 3804' RKB (6' of fill on top of bridge-plug). Tripped tubing out of hole. Trip in hole and land tubing as follows:

Description	Length	Depth
KB to landing point	10.00	0- 10
120 jts. 2 3/8" 4.7#/ft J-55 EUE tubing	3742.47	10-3752
1 seating nipple	1.08	3752-3753
1 perforated sub	3.02	3753-3757
1 jt. 2 3/8" mud anchor	31.95	3757-3789
	3788.52	

Nipple down BOP. Nipple up wellhead. Ran pump and rods as follows:

Description	Length	Depth
KB to landing point	8.00	0- 8
1 - 1-1/4"x16' polished rod w/1-1/2" liner (6 ft. out)	16.00	8- 18
3 - 3/4" pony rods	12.00	18- 30
150 - 3/4" Class "C" plain rods	3750.00	30-3780
1 - 2"x1-1/4"x10x12x14 RHBC-EQ pump (bottom hold down)	14.00	3780-3794

(Note: Rod depths do not agree with tubing depths.)

Rigged down and released rig.

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5/25/88 Moved Rig #4 to location. Blow down well. Fill mud holes. Rig up unit. Take off horse's head. Pull out of hole with polish rod, 1 - 6 ft. 3/4" sub, 1 - 4 ft. 3/4" sub, 148 - 3/4" rods, and pump. Rig up swab equipment. Make 1 swab run. No fluid. Trip in hole with pump, 148 - 3/4" rods, 1 - 4 ft. sub, and 1 - 6 ft. sub. Seat pump. Pick up 6 inches. Install horse's head. Repack stuffing box. Hang off well. Rig down unit. Move off location.

7/14/88 Bayless Rig 4 roaded to location.

7/15/88 Rigged up to pull rods and pump. Both pump and rods stuck in tubing. Rig up to pull tubing; tubing also stuck. Rigged up to jar tubing and started jarring. Tubing came free, stripped tubing out of hole. Shut well in for night.

7/16/88 Ran hydrostatic bailer in hole, tagged sand and cleaned hole to 4061 ft., bottom perf. @ 3882 ft. Pulled out of hole, laid down hydrostatic bailer. Picked up mud anchor, perforated sub, seating nipple and tripped in hole with 120 jts. tubing. Landed tubing, nippled up wellhead and rigged up rod equipment. Picked up new 2"x1-1/4"x10"x12"x14" RHBC-EQ pump, ran rods. Stroked pump with rig. Hung rods on pumping unit. Rigged down rig and moved off. (Replaced 1 jt. of 2-3/8" tubing - old joint 31.05 ft. new joint 30.93 ft.)

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

ATTACHMENT #2
Form C-122
Revised 10-1-78

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date: 1/15/88	
Company: Robert L. Bayless		Connection: None			
Pool: Wildcat Pictured Cliffs		Formation: Pictured Cliffs			Unit
Completion Date: 1/7/88	Total Depth: 4150	Plug Back TD: 4071		Elevation: 7533	Farm or Lease Name: Jicarilla 516
Csg. Size: 4 1/2 / Wt.: 11.6 / d: 4.000 / Set At: 4126		Perforations: From 3814 To 3882			Well No.: #1
Tbg. Size: 2 3/8 / Wt.: 4.7 / d: 1.995 / Set At: 3879		Perforations: From To			Unit: O / Sec.: 7 / Twp.: 30N / Rge.: 2W
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single		Packer Set At: None			County: Rio Arriba
Producing Thru: Tubing	Reservoir Temp. °F	Mean Annual Temp. °F	Baro. Press. – P_a: 12.0 psia (est)		State: New Mexico
L / H / Gg: .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	8 days				640		642		Shut-in.
1.	2" x .750				12	60°	378		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		24	1.0000	1.240	1.000	368
2.							
3.							
4.							
5.							

NO.	P_t	Temp. °R	T_t	Z
1	.02		1.39	1.000
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 654 P_c^2 427.716

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		390	152.100	275.616
2				
3				
4				
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.5519$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.4529$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 535$

Absolute Open Flow 535 Mcfd @ 15.025 Angle of Slope θ _____ Slope, n .85

Remarks: Heavy mist of water produced during test.

Approved By Division	Conducted By:	Calculated By:	Checked By:
	David Ball	Kevin McCord	

Form 3160-4
(November 1983)
(formerly 9-330)

Form approved. ATTACHMENT #3
Budget Bureau No. 1004-0137
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE (See other instructions on reverse side)

RECEIVED
88 MAY 20 PM 1:09
070 FARMINGTON, NM

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: Jicarilla Contract 516

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Jicarilla Apache Tribe

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

7. UNIT AGREEMENT NAME

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

8. FARM OR LEASE NAME: Jicarilla 516

2. NAME OF OPERATOR: Robert L. Bayless

9. WELL NO.: 1

3. ADDRESS OF OPERATOR: P.O. Box 168, Farmington, NM 87499

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 790' FSL & 1675' FEL
At top prod. interval reported below: same
At total depth: same

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Section 7, T30N, R2W

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
		Rio Arriba	NM

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
11/13/87	11/20/87	5/4/88	7533' GL 7545' 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
4150' KB	3810' (bridgeplug)		→	0-TD	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: Fruitland 3750-3794 ft.

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: Induction, Density, Neutron, Sandcal

27. WAS WELL CORED: Yes

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

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
7-5/8"	26.4#/ft.	145' KB	9-7/8"	75 sx, 89 ft^3 Class B w/3% $CaCl_2$	
4-1/2"	11.6#/ft.	4126' KB	6-3/4"	300 sx, 618 ft^3 Class B w/2% D-79, 1/4# flocele/sx; 150 sx, 189 ft^3 50/50 pozmix w/2% gel, 10% salt, 1/4# flocele/sx	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	3790' KB	none

31. PERFORATION RECORD (Interval, size and number)
Fruitland w/3-1/8" gun - 4 JSPF
3750-3766 - 64 holes
3781-3794 - 52 holes (.34" diameter)

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
3750-3794	250 gal. 7½% DI HCL weighted acid w/174 1.1 s.g. RCN ball sealers; 16,500 gal. slickwater & 34,585 gal. of 35#/1000 gal. X-linked gel w/83,880# sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
5/10/88	flowing	producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
5/11/88	16 3/4	.250		-0-	16	11.7 (load)	N/A

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
410	420		-0-	23	16.8 (load)	N/A

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented

TEST WITNESSED BY: David Ball

35. LIST OF ATTACHMENTS

ACCEPTED FOR RECORD
MAY 23 1988
FARMINGTON RESOURCE AREA
BY

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

SIGNED Kevin H. McCord (Kevin H. McCord) TITLE Petroleum Engineer DATE 5/19/88

*(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

Tech Inc.
333 E. Main St.
Farmington, NM 87401

DATE: 6 ~~May~~ June 1988

Gas Analysis

Company name: R. L. Bayless Production

Well Name: Jicarilla 516-1 Formation:

Well Location : County/state :

Submitted by :

Date sampled: 6-2-88 Cylinder No.:

Depth (ft): Sample temp. (deg F):

Est. Production Rate (MCFD): Sample Pressure (PSIG):

Analysis date: 6-6-88 Sampled by:

Gas	Mole %	B.T.U.	G.P.M.	Sp. Gr.
1. Oxygen	0.000	0.000	0.000	0.0000
2. Nitrogen	0.961	0.000	0.000	0.0092
3. Methane	90.554	914.320	0.000	0.5015
4. CO2	0.162	0.000	0.000	0.0024
5. Ethane	5.654	100.000	0.000	0.0586
6. Propane	1.643	41.350	0.451	0.0250
7. Isobutane	0.308	10.010	0.101	0.0061
8. Butane	0.351	11.440	0.006	0.0070
9. i-Pentane	0.120	4.790	0.044	0.0029
10. Pentane	0.075	3.000	0.027	0.0018
11. Hexanes	0.172	8.180	0.071	0.0051
12. H2S	0.000	0.000	0.000	0.0000
Totals	**100.000**	**1093.090**	**0.804**	**0.6196**

Net (dry) heating value per cu. ft. @ 14.696 PSIA.

Note: B.T.U, G.P.M., and Sp. Gr. are calculated values based on ideal gas c stants in the Engineering Data Book of the GPSA, 1981. Saturated gross heat value @ 14.696 PSIA may be determined by multiplying by 0.9826.

ATTACHMENT #5

Tech Inc.
333 E. Main St.
Farmington, NM 87401

DATE: 19 May 1988

Gas Analysis

Company name: K M Production/R.L. Bayless

Well Name: Jicarilla 463-1 Formation:

Well Location : County/state :NMm

Submitted by :

Date sampled: 5-16-88 Cylinder No.:

Depth (ft): Sample temp. (deg F):

Est. Production Rate (MCFD): Sample Pressure (PSIG):

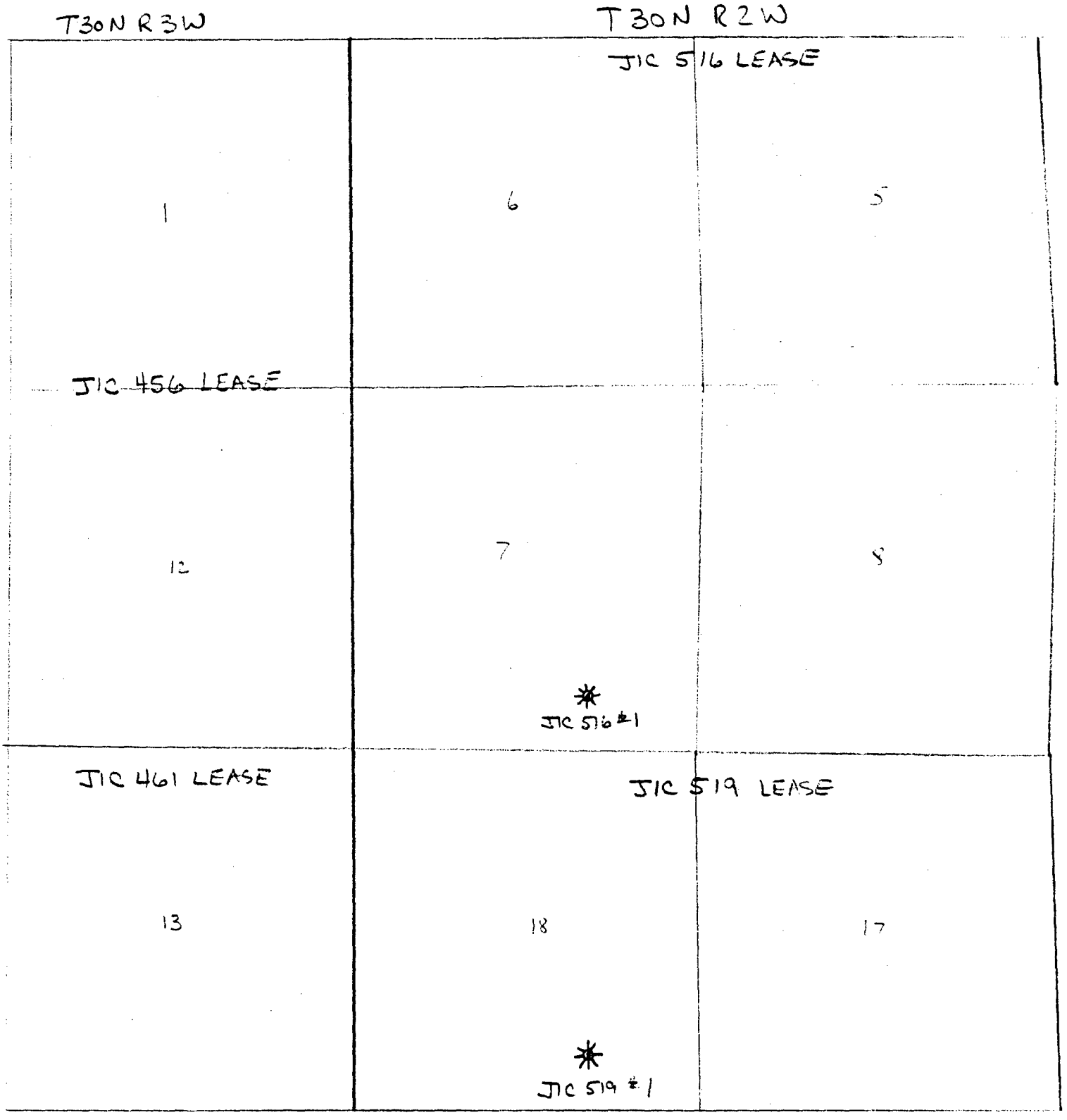
Analysis date: 5-18-88 Sampled by:

Gas	Mole %	B.T.U.	G.P.M.	Sp. Gr.
1. Oxygen	0.000	0.000	0.000	0.0000
2. Nitrogen	6.079	0.000	0.000	0.0587
3. Methane	83.270	840.770	0.000	0.4612
4. CO2	0.101	0.000	0.000	0.0015
5. Ethane	5.351	94.640	0.000	0.0555
6. Propane	2.842	71.530	0.781	0.0432
7. Isobutane	0.518	16.840	0.169	0.0103
8. Butane	0.913	29.780	0.010	0.0183
9. i-Pentane	0.321	12.830	0.117	0.0079
10. Pentane	0.254	10.180	0.092	0.0063
11. Hexanes	0.351	16.690	0.144	0.0104
12. H2S	0.000	0.000	0.000	0.0000
Totals	100.000	1093.260	1.589	0.6733

Net (dry) heating value per cu. ft. @ 14.696 PSIA.

Note: B.T.U, G.P.M., and Sp. Gr. are calculated values based on ideal gas constants in the Engineering Data Book of the GPSA, 1981. Saturated gross heating value @ 14.696 PSIA may be determined by multiplying by 0.9826.

ATTACHMENT #6



note: all leases are operated by Robert L. Bayless

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

Date: 8-1-89

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

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AUG 4 1989
OIL CONSERVATION DIV.
SANTA FE

Re: Proposed MC_____
Proposed DHC X
Proposed NSL_____
Proposed SWD_____
Proposed WFX_____
Proposed PMX_____

Gentlemen:

I have examined the application dated 7-18-89
for the Robert L. Bayless (Operator) Tivarilla 516 #1 (Lease & Well No.)
O-7-30N-R2W (Unit, S-T-R) and my recommendations are as follows:

Approve

Yours truly,

Ernie Busch