STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7754
Order No. R-7178

APPLICATION OF CHACE OIL COMPANY,
INC. FOR DOWNHOLE COMMINGLING,
SANDOVAL COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on December 16, 1982, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 5th day of January, 1983, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Chace Oil Company, Inc., is the owner and operator of the Chace Apache 15 Well No. 2, located in Unit I of Section 20, Township 23 North, Range 3 West, NMPM, Sandoval County, New Mexico.

(3) That the applicant seeks authority to commingle Gallup and Dakota production within the wellbore of the above-described well.

(4) That from the Gallup zone, the subject well is capable of low marginal production only.

(5) That from the Dakota zone, the subject well is capable of low marginal production only.

(6) That the proposed commingling may result in the recovery of additional hydrocarbons from each of the subject pools, thereby preventing waste, and will not violate correlative rights.

(7) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that the well is not shut-in for an extended period.

(8) That to afford the Division the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Aztec district office of the Division any time the subject well is shut-in for 7 consecutive days.

(9) That in order to allocate the commingled production to each of the commingled zones in the wells, applicant should consult with the supervisor of the Aztec district office of the Division and determine an allocation formula for each of the production zones.

IT IS THEREFORE ORDERED:

(1) That the applicant, Chace Oil Company, Inc., is hereby authorized to commingle Gallup and Dakota production within the wellbore of the Chace Apache 15 Well No. 2, located in Unit I of Section 20, Township 23 North, Range 3 West, NMPM, Sandoval County, New Mexico.

(2) That the applicant shall consult with the Supervisor of the Aztec district office of the Division and determine an allocation formula for the allocation of production to each zone in each of the subject wells.

(3) That the operator of the subject well shall immediately notify the Division's Aztec district office any time the well has been shut-in for 7 consecutive days and shall concurrently present, to the Division, a plan for remedial action.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY,
Director

S E A L

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

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

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE Nov. 17, 1982

RE: Proposed MC ______
Proposed DHC x
Proposed NSL ______
Proposed SWD ______
Proposed WFX ______
Proposed PMX ______

Gentlemen:

I have examined the application dated Nov. 15, 1982

for the Chace Oil Co. (Operator) Chace Apache ~~Jicarilla~~ 15 #2 (Lease and Well No.) I-20-23-3 (Unit, S-T-R)

and my recommendations are as follows:

Require data showing production from ~~[illegible]~~ Gallup zones

Yours truly,

[signature]

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF CHACE OIL COMPANY, INC.
FOR DOWNHOLE COMMINGLING

The applicant, Chace Oil Company, Inc., is the owner and operator of the Chace Oil Company, Inc. Jicarilla 15, Well No. 2.

The 15-2 well was completed in the Chacon Dakota Associated field September 25, 1977, and recompleted in the Gallup, Tocito, and Greenhorn formations November 8, 1982.

Applicant requests authority for downhole commingling in the subject well of the Gallup, Tocito, Greenhorn, and Dakota formation production.

The application is presented in the order that the requirements are outlined in the Oil Conservation Division's Rules and Regulations, dated March 1, 1982.

Rule: 303-C

Section 1

(a) For wells involving oil zones:

1. Bottom perforation. Bbl/day limit

Dakota	7278'	50
Greenhorn	7157'	50
Tocito	6874'	40
Gallup	6218'	40

None of the zones above are expected to exceed the Bbl/day limit.

2. All zones require artificial lift. None are capable of flowing.

3. "Neither zone produces more water than the combined oil limit as determined in paragraph (1) above."

4. The fluids from each zone are compatible with the fluids from the other zones and will not react with each other to cause damage in any of the reservoirs.

5. The total value of the crude will not be reduced by commingling.

6. Ownership of each zone is common.

7. The commingling will not jeopardize the efficiency of any future secondary recovery operations.

Section 2, paragraphs A-J 'For approval of downhole commingling':

(a) Chace Oil Company, Inc.
313 Washington, S. E.
Albuquerque, New Mexico 87108

(b) The applicant, Chace Oil Company, Inc., is the owner and operator of the Chace Oil Company, Inc. Jicarilla 15, Well No. 2.

Location: Unit 'I' 1775' FSL & 990' FEL
Section 20, Township 23 North, Range 3 West
Sandoval County, New Mexico

Pools to be commingled:

Gallup, Tocito, Greenhorn, Dakota

(c) Plat indicating location of 15-2 well and offsetting location ownership. Attached p. 4.

(d) Gas Oil Ratio Form C-116 dated November 2, 1982. Attached p. 5.

(e) Production decline curve for Dakota production only Attached p. 6.
Completion Report and Recompletion Report.

(f) Estimated Bottom Hole Pressure for each artificially lifted zone to be commingled, (PSIA):

Gallup	2030	
Tocito	2261	
Greenhorn	2366	
Dakota	2391	(Dakota adjusted due to partial depletion.)

(g) Fluid Characteristics:

All zones produce oil of 40°-45° gravity with little or no water.

(h) Individual production of each zone would not increase or decrease the value of the production. The price per barrel of oil is the same for each producing horizon.

(i) Allocation of Production:

Allocation of production is estimated from past experience in Chace field. Little data is available. It is estimated that the ratio would be:

Dakota	50%
Greenhorn	10%
Tocito	20%
Gallup	20%

(j) Notification of Proposed Commingling:

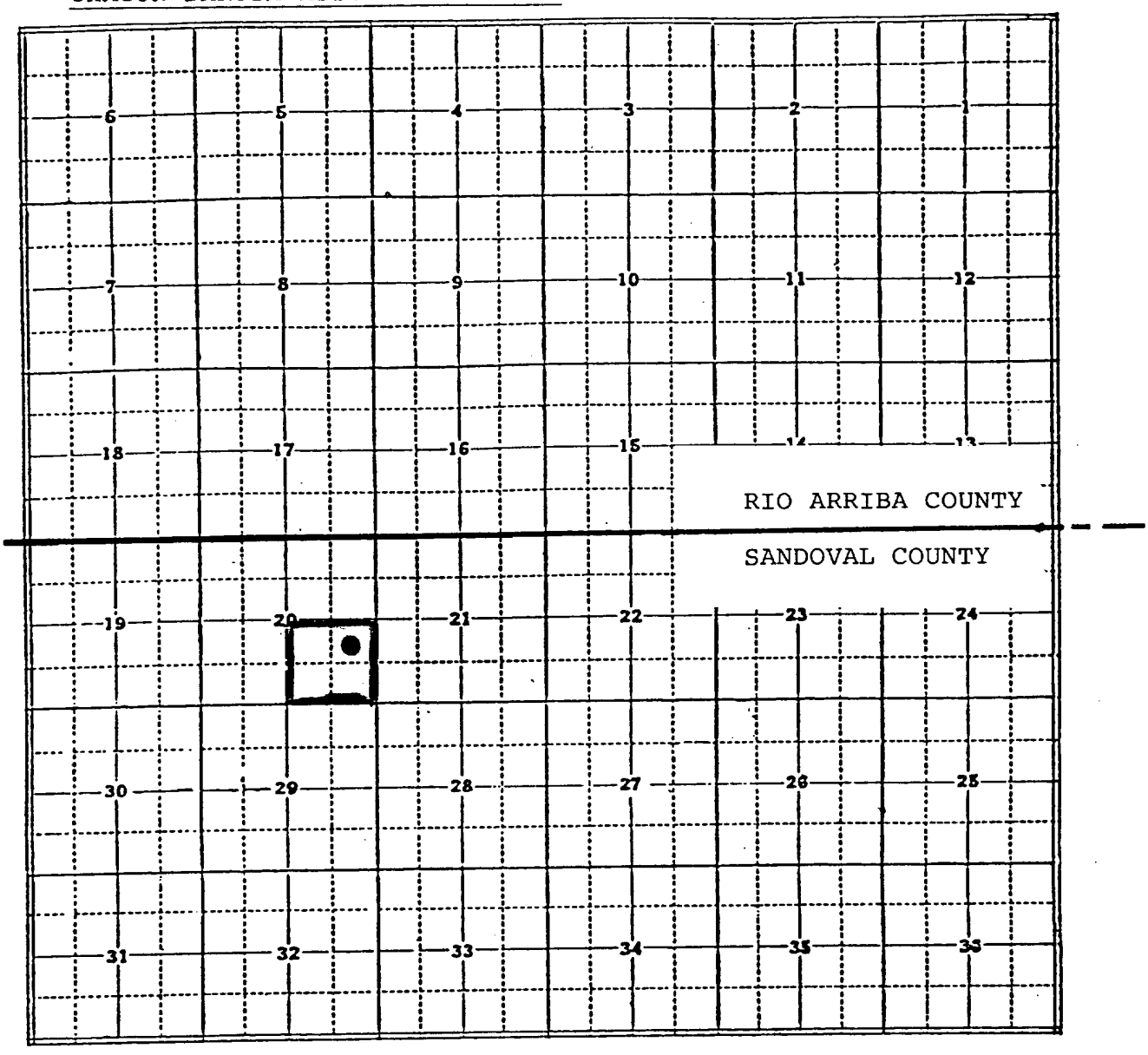
All offset owners have been notified by copy of Notification of Intent to Commingle Letter submitted to the Minerals Management Service.

Twp., 23 N. Rge. 3 West

Rio Arriba County

Sandoval County

CHACON DAKOTA ASSOCIATED FIELD



BLUE - El Paso Natural Gas Company (Jicarilla Contract #183)

YELLOW - Chace Oil Company, Inc. (Jicarilla Contract # 15)

RED - Acreage dedicated to Chace 15-2 well.

P. 4

NEW MEXICO OIL CONSERVATION COMMISSION
GAS – OIL RATIO TESTS

C-116
Revised 1-1-65

erator	Pool	County
Chace Oil Company, Inc.	Chacon Dakota Associated	Sandoval

dress	TYPE OF TEST – (X)	Scheduled [X]	Completion [ ]	Special [ ]
313 Washington, SE, Albuquerque, NM 87108				

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS – OIL RATIO CU.FT/BBL
Chace Apache 15	1	A	20	23N	3W	9/28/82	F	2"	400	6	24	0	44	4	1	250
Chace Apache 15	2	I	20	23N	3W	9/29/82	F	2"	198	6	24	1	44	12	1	83
Chace Apache 15	3	F	20	23N	3W	9/30/82	F	2"	210	5	24	0	44	5	14	2800

P. 3

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

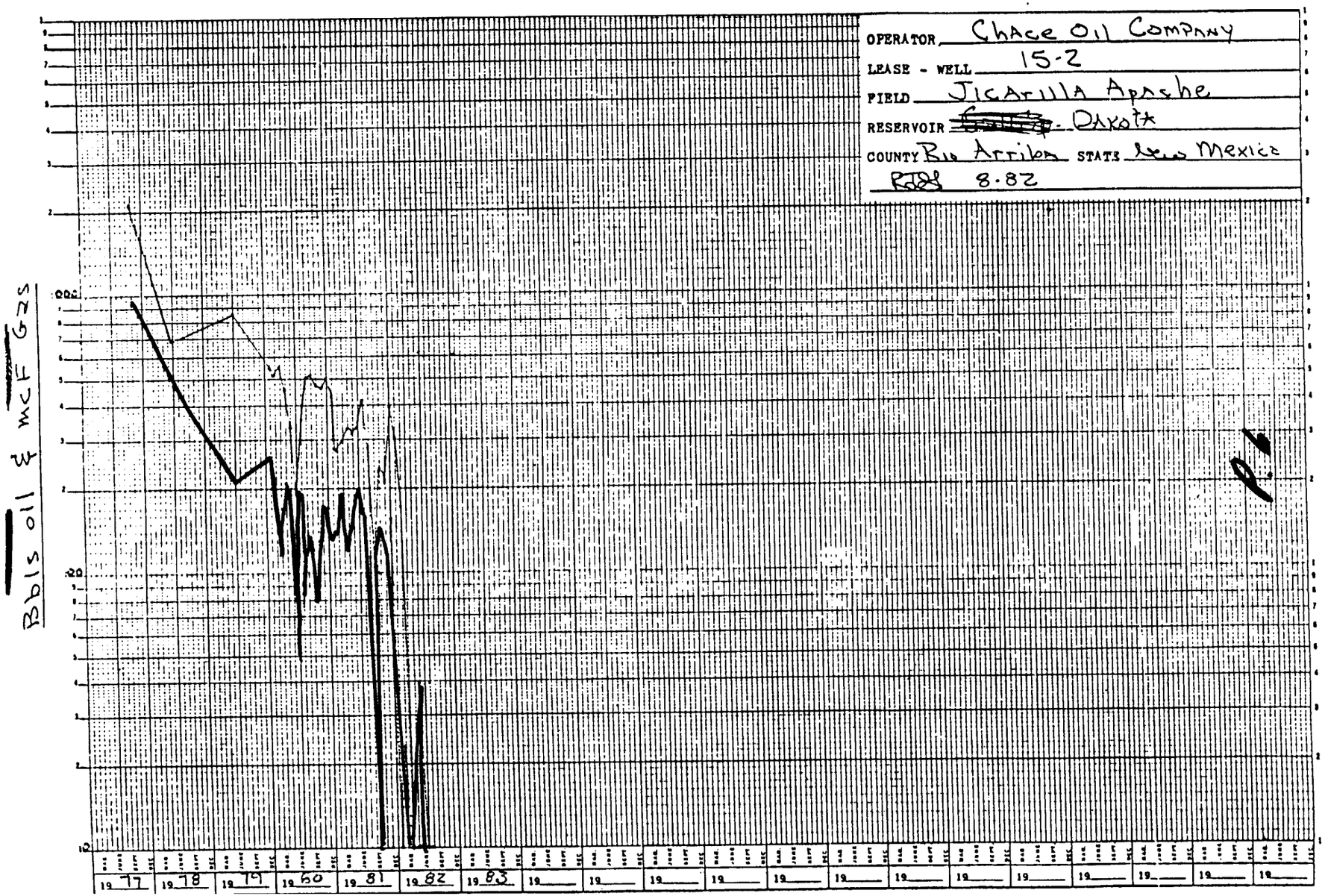
Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

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

K. C. Miller
(Signature)

President
(Title)

Nov. 2, 1982


OPERATOR Chace Oil Company
LEASE - WELL 15-2
FIELD Jicarilla Apache
RESERVOIR [redacted] Dakota
COUNTY Rio Arriba STATE New Mexico
8-82
Bbls oil & mcf gas
200
20
2
19 77
19 78
19 79
19 80
19 81
19 82
19 83
19 84
19 85
19 86
19 87
19 88
19 89
19 90
19 91
19 92
19 93
19 94

CHACE OIL COMPANY, INC.

313 Washington S.E.

Albuquerque, New Mexico 87108

(505) 266-5562

CHACE APACHE 15-2 WELL

Location Unit I - 1775' SL & 990' EL
Section 20, T23N, R3W
Sandoval County, NM

Elevation 7250' GR

Lease: Jicarilla Apache Contract 15

Staked May 7, 1977 San Juan Engineering Co.

Location: Completed June 16, 1977 - D & R Construction Co.

Notification: Send all notices to Cities Service, Lou Bevactuq, Box 1919, Box 1919 - Midland, Texas 79701 500 VAUGHN Bldg

Reynolds Mining Corp., James K. Jones, P.O. Box 2346
Richmond, Virginia 22218

Data on wells and estimated tops for Chace Apache 15-2.

FORMATION	ESTIMATED TOPS Chace Apache 15-2	ACTUAL TOPS Chace Apache 15-1
Ojo	1856' +5394'	1920' +5404'
Pictured Cliffs	2957' +4293'	3020' +4304'
Lewis Shale	3057'	3120'
Chacra	3290'	3375'
Cliff House	4482'	4570'
Point Lookout Note Add LCM	5031' 5850'	5120'
Gallup	6010'	6100'
Greenhorn	7053'	7145'
Dakota "A"	7139'	7232'
Dakota "B"	7247'	7340'
Dakota "D"	7340'	7434'
Burro Canyon	7415'	7509'
Total Depth	7500'	7574'

Est. the Chace Apache
July 14, 1977 - Set Dead Men - Mo-Te Construction.

7-18-77 Rig on location @ 12:45 pm
Spudded at 8pm
Drilled 264' of 9 3/4"

7-19-77 Set 6 jts - 245.91' of 8 5/8" and cemented to surface with 155 sxs class B cement with 3% CC, KB=259'

7-20-77 Plug down at 3 am WOC - Will drill out at noon

7-21-77 Drilling ahead - bit #1 1377'
Water Log 4.4 CC
Mud wt. 8.5
Viscosity 40

7-22-77 Drilling ahead at 2870' Made trip for bit change
Bit #2. Had tight spot at 2200' Vis
Viscosity 41
W.L. 2 cc's
Mud Wt. 8.9#
18% oil in mud

7-23-77 Drilling ahead at 4470' Bit No. 4
Deviation 1 3/4 degree at 4165'
Mud wt. 9#
Vis. 45
Water Loss 8.5 cc's
Oil % 8

7-24-77 Drilling at 5205'
Mud wt. 9#
Vis. 37
W.L. 11 cc's
Oil % 11

7-26-77 Drilling ahead 5865' Bit #4
M.W. 8.9
Vis. 38
W.L. 7.2
Oil 14%
Add LCM 4%

7-27-77 Drilling at 6370'
M.W. 9.9
Vis. 40
W.L. 9.6
Oil 10%

7-28-77 Drilling ahead @ 7143' - Made trip for bit No. 5-no trouble
M.W. 8.9
Vis. 58
W.L. 8 cc's
Oil 12%
Will reach total depth about noon 7-30-77
Should be logging 7-31-77

7-30-77 8 a.m. Drilling at 7385' Bit No. 5
M.W. 8.9
Vis. 60
W.L. 4.5 cc's
Oil 12%
3 P.M. Reached total depth of 7525'
circulated 7 hours. Made short trip 15 stands
Went back to bottom Hole in good shape
Came out hole with drill pipe 12 midnight

7-31-77 1 A.M. Started logging - Schlumberger ran Induction & Density logs - completed logging at 6 a.m. Going back in hole with drill pipe to come out and lay pipe down. 5 P.M. started running 4½" 10.6# casing. Ran 222 joints of 4½" csg (7410.19') Set at 7412.49') Measured from KB (13.50') Float collar set at 7384' with Stage collar set at 3094'. pumped 500 bbls mud flush, cemented with 575 sxs 50-50 posmix with 2% gel and six pounds of salt and 6¼ pounds Gilsonite per sack. Plug down at 11 p.m. Circulated 3 hrs thru Stage collar , cemented with 325 sxs 65-35 posmix 12% gel and 6¼ pounds Gilsonite per sack. Plug down 2:45 a.m., 8-1-77
WORT - No more reports till completion rig moves in.

8-4-77 Moved Aztec completion rig on well. Ran bit and tubing to drill out cement stage collar at 3094'. Drilled out stage collar went on to bottom and cleaned out well to 7342' circulated 2 hrs. Hole clean. Spotted 250 gallons of 15% HCL from 7300-7100'. Came out of hole with tubing. Tested csg to 4000'psia held 15 minutes. Went in with strip gun. Perforated Dakota D zone from 7264-7278 with 3½" jet bullets - 2 shots per foot. Frac'ed zone with 83,400#s of 20-40 sand and 84,252 gallons slick water.
Max treating press. 3300#
Min treating press. 3000#
Aug treating press. 3300# (?)
Aug. Inj. Rate 42BPM
ISDP - 1900#
FSIP after 15 min. 1800#

8-5-77 Went in hole with bridge plug. Set at 7250' - Hung tool in hole due to excessive sand. Pulled cable out socket with 6000# pull. Went in with tubing to wash sand out and fish for tool. Made three runs - no luck.

8-6-77 9 am recovered tool after 4th trip using a grapple with skirt. Pressured up on casing to 3900 psig - held 2 minutes.
Went in with perforating gun and perforated from 7154-7182 and 7203-7209 one shot per foot. Western frac'ed zone with 111,400# 20-40 sand and 106,222 gal. of slick water. Dropped 10-7/8" balls no results.
Treating Press. Max 3600 psig
Treating Press Min 3300 psig
Treating Press Avg. 3500 psig
Treating rate 40 BPM
ISDP 1900 psig
FSIP after 15 min. 1750 psig

8-6-77 Cont'd	Shut in for 4 hours. 5pm went back in hole with tubing and bit to drill out bridge plug.
8-7-77	Drilled out bridge plug-well kicking badly.
8-8-77	400# tubing 580 csg Flowing 2" stream of frac water
8-9-77	Shut in overnight - 700 psig on csg 300 psig on tubing Opened well on 3/4" CK Flowing Frac water (2" stream)with streak of oil
8/10/77	Well dead. 800# on csg 0# on tbg Calling for swabbing unit.
8-11-77	975# on csg 200# on Tbg Rigging up swab unit to swab it
8-12-77	850# on casing 400# on tubing
8-15-77	1125# csg 375# tbg Flowed for 20 mins. and died.
8-26-77	900# on csg 600# on tubing Flowed for 25 minutes and piston came. Shut it in 715# on csg After 1 hr shut we had 810# on csg, 200# on tubing

15-2 Recompletion Report

11/02/82:

8:30 A. M. Start pulling tubing out of hole.

11:30 A. M. Go back in hole with bit and scraper on tubing. Clean out to bottom. Tag bottom @ 7332'.

4:45 P. M. Load hole with Kcl H_2O. Circulate 25 bbl. oil to stock tank.

6:06 P. M. Spot 350 gal. of 7½% Hcl from 7276' to 6754'.

6:34 P. M. Trip out of hole with tubing.

8:15 P. M. Go in hole with logging tools to run gamma ray correlation and gas spectrum log.

10:15 P. M. Out of hole with gas spectrum log.

10:35 P. M. Go in hole with CBL tool. Fluid in hole was too gas cut for CBL tool to work.

11/03/82:

12:22 A. M. Come out of hole with CBL tool.

1:24 A. M. Go in hole to perforate Greenhorn formation @ 7092', 7097', 7101', 7103', 7108', 7111', 7114', 7116', 7118', 7155' 7157'.

1:48 A. M. Perforate above footages - 4 shots per foot.

2:26 A. M. Perforate Dakota "A" zone @ 7159', 7161', 7167', 7171', 7173', 7175', 7177', 7179', 7206', 7208', 7258'. 4 SPF.

3:05 A. M. Perforate Dakota "B" zone @ 7266', 7268', 7270', 7272', 7274', 7276'. 4 SPF.

4:06 A. M. Break down formation.

Establish rate @ 39 BPM and 3750 PSI
ISIP = 1500 PSI

4:16 A. M. Start balls. Drop 85 balls. 28 BPM 2860 PSI
Run 20 bbl spacer.
Drop remaining 105 balls @ 2 balls/bbl 13 BPM 2000 PSI
No ball off. Shut down.
Total fluid for ball off and break down: 385 bbls.
Recovered 189 balls.

Dakota frac:

5:45 A. M. Start pad. 37.7 BPM @ 3690 PSI
200 bbl gone 37.4 BPM @ 3620 PSI
350 bbl gone 37.1 BPM @ 3640 PSI
450 bbl gone 35.1 BPM @ 3560 PSI

6:02 A. M.	571 bbls pad gone.	
	Start 1/2 lb/gal sand	35 BPM @ 3590 PSI
6:05 A. M.	1/2 lb/gal sand on formation	34.6 BPM @ 3570 PSI
6:07 A. M.	Start 1 lb/gal sand	34.8 BPM @ 3510 PSI
6:10 A. M.	1 lb/gal sand on formation	34.7 BPM @ 3470 PSI
6:15 A. M.	Start 1 1/2 lb/gal sand	34.5 BPM @ 3500 PSI
6:18 A. M.	1 1/2 lb/gal sand on formation	35.4 BPM @ 3420 PSI
	1250 bbls away	35 BPM @ 3500 PSI
	1370 bbls away	35 BPM @ 3400 PSI
	1504 bbls away. Start flush.	19.7 BPM @ 3320 PSI

6:35 A. M. Flush away. Shut down.

Total fluid for frac: 1624 bbls.

Total sand: 44,935 lbs.
ISIP = 1100 PSI
5 min = 800 PSI
10 min = 750 PSI

7:45 A. M. Set bridge plug @ 7000'.

8:25 A. M. Pressure test bridge plug to 3800 PSI.
Bridge plug would not pressure test.
Pumped into casing @ 3 BPM 800 PSI.

8:40 A. M. Run back in hole with wireline casing collar tool to tag bridge plug. Tagged B. P. @ 7000'.

10:30 A. M. Go in hole with packer to hunt for hole.

1:09 P. M. Found holes from 4646' to 4737'.
Go in hole with packer. Set packer @ 4025'

6:25 P. M. Start cement. 4 BPM @ 1600 PSI.

7:00 P. M. With 37 bbls. of cement mixed, packer lets loose.
4 BPM @ 1600 PSI.
Pumped 15 bbls slurry into formation. Leave 22 bbls. in pipe.

7:12 P. M. Try to reverse circulate the tubing, but pump into formation @ 1400 PSI. Shut down.

7:18 P. M. Pull tubing and packer out of hole.
WOC.

11/04/82:

3:00 A. M. Trip in hole with tubing and bit.

4:30 A. M. Tag cement @ 3496'; 1240' of cement in casing.
Start drilling.

7:25 P. M. Drill out all cement. Circulate hole.

9:20 P. M. Pressure test casing to 1500 PSI. Held pressure for 5 min. without any leakoff.

10:00 P. M. Come out of hole with tubing and bit.

11:25 P. M. Go in hole with tubing and mill to drill out bridge plug @ 7000'.

11/05/82:

1:05 A. M. Tag fill on top of bridge plug @ 6085'. Fill is sand.
Start milling.

7:33 A. M. Milling on part of bridge plug @ 7159'.
Bridge plug moving down hole. COOH with tubing and mill.

1:55 P. M. Go in hole with tubing and packer.

7:58 P. M. Run packer and tubing below perforations. Circulate hole. Cleaned. Set packer @ 6511'.

10:23 P. M. Put 1000 PSI on backside.

11:10 P. M. Establish rate. 8 BPM @ 3400 PSI

11:15 P. M. Drop 30 balls.
Start acid. Run 2 balls/bbl 3 BPM, 1190 PSI.

11:20 P. M. Establish rate. 10 BPM @ 3780 PSI.
11.1 BPM @ 3670 PSI.

11:36 P. M. No ball off. Shut down. Knock balls off perforation with packer.

11/06/82:

12:54 A. M. Set packer @ 6511'.
Pressure up to 1000 PSI on casing.

Dakota frac

1:12 A. M. Start pad. 9.5 BPM @ 3910 PSI
10.1 BPM @ 3920 PSI

1:55 A. M. 10.1 BPM @ 3850 PSI

2:00 A. M.	Start 1/2 lb/gal sand	10.1 BPM @ 3840 PSI
2:04 A. M.	1/2 lb/gal sand on formation	9.9 BPM @ 3790 PSI
2:09 A. M.		10.0 BPM @ 3750 PSI
2:14 A. M.		9.9 BPM @ 3720 PSI
2:25 A. M.	Start 1 lb/gal sand	9.9 BPM @ 3730 PSI
2:28 A. M.	1 lb/gal sand on formation	9.9 BPM @ 3740 PSI
2:36 A. M.		9.9 BPM @ 3820 PSI
2:38 A. M.	145 bbls. into 1 lb Go back to 0.5 lb/gal	9.9 BPM @ 3850 PSI
	25 bbls. 0.5 lb/gal away	
2:41 A. M.	Go to flush.	
2:46 A. M.	Flush away. Shut down. ISIP = 2300 PSI 5 min = 1720 PSI 10 min = 1500 PSI	
	Total fluid: (slurry) 946 bbls.	
	Total sand: 11,500 lbs.	
5:45 A. M.	Tubing pressure 1100 PSI. Flow back.	
7:45 A. M.	Come out of hole with tubing.	
9:29 A. M.	Go in hole with drillable bridge plug.	
9:48 A. M.	Hit something in hole @ 3400'. Come out of hole with bridge plug.	
10:03 A. M.	Go in hole with junk basket to 7092'.	
10:40 A. M.	Come out of hole with junk basket. Picked up packer. Rubbers off of RTTS packer.	
10:50 A. M.	Go back in hole with drillable bridge plug.	
11:22 A. M.	Set plug @ 6992'.	
11:39 A. M.	Pressure test bridge plug to 1000 PSI. Held without any leakoff.	
12:03 P. M.	Shoot perforations in Tocito @ 6741', 6751', 6753', 6773', 6779', 6794', 6808', 6812', 6817', 6819', 6827', Misshot @ 6725.5'. (Bluejet gun fired wrong barrel.)	

1:28 P. M. Shoot perforations in Tocito @ 6829', 6847', 6853', 6855', 6862', 6864', 6866', 6868', 6870', 6872, 6874'.

2:15 P. M. Go in hole with tubing and packer.

5:09 P. M. Spot 250 gal. 7½% Hcl from 6874', to 6501'.
Set packer @ 6173'.

6:33 P. M. Pressure up to 1000 PSI on casing.
Have communication between casing and tubing.
Pull tubing and packer.

11:10 P. M. Replace packer. Set @ 6173'. Pressure up to 1000 PSI on casing, and held.

11:22 P. M. Establish rate. 10.8 BPM @ 4100 PSI
Breakdown formation.
ISIP = 1600 PSI

11:33 P. M. Drop balls. 30 balls in 2 bbls. 9.0 BPM @ 3390 PSI
Run 15 bbl. spacer. 10.4 BPM @ 3440 PSI
Drop 2 balls/bbl. Additional 100 balls.

11:38 P. M. Balls should be on perforation.
Good ball action.

11:53 P. M. Shut down @ 3900 PSI.

11:56 P. M. Surge balls back.

11/07/82:

Tocito frac Pad 357 bbls.

12:19 A. M.	Start pad.	12.7 BPM @ 3840 PSI
12:25 A. M.		12.6 BPM @ 3770 PSI
12:31 A. M.		12.4 BPM @ 3800 PSI
12:43 A. M.		12.9 BPM @ 3840 PSI
12:48 A. M.	Start 0.5 lb/gal sand	12.9 BPM @ 3850 PSI
12:51 A. M.	0.5 lb/gal sand on formation	12.6 BPM @ 3820 PSI
12:57 A. M.	2500 lbs. sand away.	
1:04 A. M.	Slow rate to	11.8 BPM @ 3760 PSI
1:08 A. M.	Slow rate to	11.0 BPM @ 3770 PSI
1:10 A. M.	Slow rate to	9.8 BPM @ 3710 PSI
1:12 A. M.	289 bbls. sand laden fluid. on flush	Cut sand 2.7 BPM @ 3540 PSI

1:17 A. M. Shut down. Reach max. pressure.
ISIP = 1970 PSI
5 min. = 1970 PSI
10 min. = 1940 PSI

Total fluid and slurry pumped: 665 bbls.
6000 lbs. sand pumped into formation

2:30 A. M. Flow well back. Good show of gas. Slight show of oil.

7:30 A. M. Come out of hole with tubing and packer.

9:24 A. M. Go in hole with retrievable bridge plug.

10:11 A. M. Set packer @ 6400'.

10:31 A. M. Pressure test bridge plug to 1000 PSI.
Held pressure.

10:38 A. M. Go in hole with perforating gun to perforate the Gallup form.

10:54 A. M. Perforate @ 6218', 6216', 6210', 6208', 6206', 6202', 6194', 6192', 6190', 6188', 6176'.

11:16 A. M. Go in hole with 2nd perforating gun.

11:30 A. M. Perforate @ 6174', 6170', 6168', 6166', 6164', 6078', 6060', 6058', 6050', 6005', 5994'.

1:17 P. M. Spot 250 gal. 7½% Hcl from 6218' to 5845'.

2:09 P. M. Set packer @ 5444'.

2:13 P. M. Pressure up to 900 PSI on casing.

2:20 P. M. Break down formation.
Establish rate. 16.8 BPM @ 3640 PSI
17.0 BPM @ 3720 PSI
ISIP = 500 PSI

2:23 P. M. Drop balls. 33 in 15 bbls.
Run 15 bbl. spacer.
Run 2 balls/bbl. Additional 100 blls.

2:38 P. M. Shut down. No ball off.
Surge balls off perforation. Wait 15 min. for balls to fall.

Gallup frac

2:57 P. M. Start pad. 13.8 BPM @ 3820 PSI
19.9 BPM @ 3700 PSI
20.8 BPM @ 3860 PSI

3:10 P. M. Start 0.5 lb/gal sand 19.6 BPM @ 3660 PSI

3:13 P. M. 0.5 lb/gal sand
on formation 19.0 BPM @ 3510 PSI

3:20 P. M.	Start 1 lb/gal sand	19.1 BPM @ 3580 PSI
3:22 P. M.	1 lb/gal sand on formation	19.0 BPM @ 3700 PSI
3:28 P. M.	On 1 lb/gal sand	18.4 BPM @ 3670 PSI
3:30 P. M.	200 bbls. into 1 lb/gal Go to 3/4 lb/gal sand 12,000 lbs. sand in	18.0 BPM @ 3620 PSI
3:33 P. M.	3/4 lb/gal on formation	18.3 BPM @ 3130 PSI
3:42 P. M.	200 bbls into 3/4 lb/gal sand 18,200 lbs sand in	17.7 BPM @ 3460 PSI
3:48 P. M.	Go to flush 318 bbls. 3/4 lb. sand 22,000 lbs. sand in formation	15.0 BPM @ 3920 PSI
3:51 P. M.	Flush away. Shut down. ISIP = 400 PSI 5 min. = 310 PSI 10 min. = 310 PSI	

11/08/82:

Retrieved retrievable bridge plug. Milled drillable bridge plug. Cleaned out bottom. Landed tubing at 7242'.