Amoco Production Company

Petroleum Center Building
501 Airport Drive
Farmington, New Mexico 87401
505-325-8841

DHC –

R. W. Schroeder
District Superintendent

August 18, 1981

Mr. Joe D. Ramey
Secretary-Director
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

File: WLP-250-986.510.1

Proposed Downhole Commingling of Jicarilla Apache 102 Nos. 7E, 10E, 12E, and 14E, Rio Arriba County, New Mexico

Dear Sir:

Amoco Production Company requests approval from the Secretary-Director of the Oil Conservation Division to downhole commingle production from the B. S. Mesa Gallup and the Basin Dakota Pools in the following wells:

Jicarilla Apache 102 No. 7E	Unit D, Section 3, T26N, R4W
Jicarilla Apache 102 No. 10E	Unit K, Section 4, T26N, R4W
Jicarilla Apache 102 No. 12E	Unit O, Section 9, T26N, R4W
Jicarilla Apache 102 No. 14E	Unit M, Section 9, T26N, R4W

In Order No. R-4059 (Case No. 4443, November 10, 1970) a procedure was given whereby the Secretary-Director was empowered to administratively approve future downhole commingling applications on wells in the Jicarilla Apache 102 lease. In compliance with Order No. R-4059, we hereby submit the following data. Attachment No. 1 is a 24-hour productivity test on Commission Form C-116 that shows the amount of gas and water produced from each zone. Attachment No. 2 consists of resumes of the completion history of each of the subject wells. Attachment No. 3 includes wellbore diagrams depicting the mechanical arrangement of the Amoco wells. On the wellbore diagrams are the bottom hole pressures for each zone. These pressures are underlined in red.

The bottom hole pressures were calculated from surface shut in pressures by the use of pressure gradients. These shut in pressures, underlined in blue on the wellbore diagrams, were taken from the Initial Potential tests that were performed on these wells when each zone was completed.

Attachment No. 4 is a description of the characteristics of the fluids from each zone in this field. As can be seen, the Gallup and Dakota

#10 & 12: pressure differential between zones appears to be excessive. If they will calculate the Dakota pres at the DP datum - the differential may be acceptable.

zones have virtually the same composition. There are six other Amoco wells in Sections 3, 4, 9, and 10 (T26N, R4W) that are commingled in the Gallup and Dakota horizons (Attachment No. 5a-5d) and these wells do not suffer from precipitate problems due to incompatable waters. Therefore we feel there will be no precipitate problem in wells No. 7E, 10E, 12E or 14E.

Attachment No. 6 shows our computations which state that the value of the commingled production will not be less than the sum of the values of the individual streams for both wells. As can be seen from the attachment, gas compositions from the Gallup and Dakota horizons have approximately the same heating value and both gas streams are subject to the same pricing; therefore, the value of the commingled production should be the same as the value of the individual streams.

In accordance with Administrative Order No. R-4059, statements have been sent to all offset operators and the U. S. Geological Survey notifying them in writing of our proposed commingling.

Should the Secretary-Director of the Oil Conservation Division approve Amoco's downhole commingling, the Jicarilla Apache 102 Nos. 7E, 10E, 12E, and 14E will be operated in accordance to Administrative Order No. R-4059. Production from each zone in the subject wells will be allocated by the allocating formula specified by the Oil Conservation Division.

Thank you very much for your consideration.

Very truly yours,

R. W. Schroeder

RLR/tk

Enclosures

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

ATTACHMENT NO. Ia

Form C-116
Revised 10-1-78

GAS - OIL RATIO TESTS

Operator: Amoco Production Company
Pool: Basin Dakota
County: Rio Arriba
Address: 501 Airport Drive, Farmington, NM 87401
TYPE OF TEST - (X): Scheduled [ ] Completion [X] Special [ ]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL
Jicarilla Apache 102	7E	D	3	26N	4W	OK 1-14-81	F	Open	460		24	5		85	677	7965
	10E	K	4	26N	4W	OK 10-30-80	F	Open	240		24	2		10	133	13300
	12E	O	9	26N	4W	OK 12-04-80	F	Open	230		24	4		2	194	97000
	14E	M	9	26N	4W	OK 12-10-80	F	Open	250		24	3		7	300	42857

OK'ed 9/8/81 w/Dan

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 Division.

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 Division 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.

Wayne L Peterson
(Signature)

District Engineer
(Title)

August 18, 1981
(Date)

ATTACHMENT NO. 1b

C-116
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

Operator	Pool	County
Amoco Production Company	B. S. Mesa Gallup	Rio Arriba

Address: 501 Airport Drive, Farmington, NM 87401

TYPE OF TEST - (X): Scheduled [ ] Completion [X] Special [ ]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST: WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL
Jicarilla Apache 102	7E	D	3	26N	4W	OK 6-27-81	F	Open	250		24	0		15	225	15,000
	10E	K	4	26N	4W	OK 6-29-81	F	Open	100		24	0		1	149	149,000
	12E	O	9	26N	4W	7-31-81	F	Open	60		24	0		1	107	107,000
	14E	M	9	26N	4W	8-04-81	F	Open	265		24	0		1	293	293,000

OK'ed w/ Dan 9/8/81

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.

Wayne L Peterson
(Signature)

District Engineer
(Title)

August 18, 1981
(Date)

ATTACHMENT NO. 2a

Well Completion Data
Basin Dakota - B. S. Mesa Gallup

Well Name:	Jicarilla Apache 102, No. 7E
Location:	790' FNL, 1055' FWL, Sec. 3, T26N, R4W
Elevation:	7170' GL, TD 8407', PBTD 8385'
Casing and Cement:	9 5/8" 32.3# CSA 322' x 315 SX 7" 23.0# CSA 4250' x 820 SX 4 1/2" 10.5# CSA 8407' x 675 SX 2 3/8" Tbg. SA 8341 Pkr. at 8006.5 ft.
Completion Date:	4-11-81
Completion Interval:	Dakota: 8150-8354 Gallup: 7676-7688
Special Equipment:	Sliding Sleeve Set @ 7998' Baker Model D-P Retainer Production Pkr. Set at 8006.5'
Initial Potential:	Dakota 2921 MCFD at 3 hrs. x 3/4" choke Gallup: 368 MCFD at 3 hrs. x 3/4" choke
Logs Run:	Dual Induction Compensated Neutron - Compensated Fm. Density Gamma Ray
Original Completion:	
Dakota:	Perf. 8150-8202; 8290-8302; 8350-8354 with 2JSPF. Frac with 126,000 gal. crosslink gel 2% KCL; 5% condensate; 1 gal. surfactant per 1000 and 460,000 lb. 20-40 sand. Max. trt. pr. 3718 psi. Min. trt. pr. 2300 psi. Avg. trt. pr. 3000 psi. AIR 27 BPM
Gallup:	Perf. 7676-7688 with 4JSPF. Frac with 34,000 gal. crosslink gel 2% KCl; 1 gal. surfactant per 1000 gal. and 132,000 lb. 20-40 sand Max. trt. pr. 2300 psi. Min. trt. pr. 1900 psi Avg. trt. pr. 2100 psi. AIR 25 BPM
Present Status:	The Dakota Formation is being produced through the tubing. The Gallup Formation is shut in until commingling approval is received.

ATTACHMENT NO. 2b

three

Well Completion Data
Basin Dakota - B.S. Messa Gallup

Well Name: Jicarilla Apache 102, No. 10E

Location: 1700' FSL, 1530' FWL, Sec. 4, T26N, R4W

Elevation: 7196' GL, TD 8410', PBTD 8364'

Casing and Cement:
9 5/8" 32.3# CSA 323' x 315 SX
7" 15.5# CSA 4250' x 720 SX
4 1/2" 10.5# CSA 8410' x 725 SX
2 3/8" Tbg. SA 8294' Pkr. at 8011'

Completion Date: 3-21-81 (Gallup) DK was compl 9/29/80

Completion Interval:
Dakota: 8110-8320
Gallup: 7308-7676

Special Equipment:
Sliding sleeve set at 8002
Baker Model D-P Paker set at 8011'

Initial Potential:
Dakota: 1017 MCFD at 3 hrs. x 3/4" choke
Gallup: 345 MCFD at 3 hrs. x 3/4" choke

Logs Run:
Dual Induction
Compensated Neutron - Compensated Fm. Density
Gamma Ray

Original Completion:

Dakota: First Stage

Perf: 8320-8314; 8300-8294; 8286-8283; 8278-8252 with 2 JSPF. Frac with 73,000 gal. crosslink gel; 1 gal. surfactant per 1000 gal.; 5% condensate and 210,000 lb. 20-40 sand. Max. trt. pr. 3800 psi. Min. trt. pr. 3000 psi. Avg. trt. pr. 3350 psi. AIR 31 BPM

Second Stage

Perf: 8164-8110 with 2 JSPF. Frac with 69,000 gal. crosslink gel; 1 gal. surfactant per 1000; 5% condensate and 190,000 lb. of 20-40 sand. Max. trt. pr. 3800 psi. Min. trt. pr. 2900 psi. Avg. trt. pr. 3000 psi. AIR 35 BPM

Gallup: First Stage

Perf. 7676-7664 with 4 JSPF. Frac with 17,000 gal. crosslink gel; 1 gal surfactant per 1000; 2% KCl and 60,000 lb. 20-40 sand.
Max. trt. pr. 2800 psi. Min. trt pr. 1900 psi
Avg. trt. pr. 2000 psi. AIR 40 BPM.

ATTACHMENT NO. 2b (Continued)

Second Stage

Perf: 7574-7544; 7500-7460; 7382-7376; 7342-7308 with 2 JSPF. Frac with 66,000 gal. 70 quality foam; 1 gal. surfactant per 1000; 2% KCl; and 64,470 lb. 20-40 sand. Frac sanded off.

Present Status: The Dakota Formation is being produced through the tubing. The Gallup Formation is shut in until commingling approval is received.

ATTACHMENT NO. 2c

Well Completion Data
Basin Dakota - B. S. Mesa Gallup

Well Name:	Jicarilla Apache 102, No. 12E
Location:	830' FSL, 1700' FEL, Sec. 9, T26N, R4W
Elevation:	7163' GL, TD 8306', PBTD 8250'
Casing and Cement:	9 5/8" 32.3# CSA 321' x 315 SX 7" 20.0# CSA 4212' x 810 SX 4 1/2" 10.5# CSA 8306' x 700 SX 2 3/8" Tbg. SA 8221 Pkr. at 7980'
Completion Date:	4-7-81
Completion Interval:	Dakota: 8225-8022 Gallup: 7566-7360
Special Equipment:	Sliding Sleeve at 7980' Baker Production Packer at 7980'
Initial Potential:	Dakota: 1274 MCFD at 3 hrs. x 3/4" choke Gallup: 346 MCFD at 3 hrs. x 3/4" choke
Logs Run:	Induction Electric Compensated Neutron-Compensated Formation Density Gamma Ray.

Original Completion:

Dakota: Perf. 8225-8205; 8189-8162; 8068-8022 with 2 JSPF Frac with 174,000 gal. crosslink gel; 1 gal. surfactant per 1000; 5% condensate and 441,000 lbs. 20-40 sand.

Gallup: <u>First Stage</u>

Per 7566-7576 with 4 JSPF. Frac with 17,000 gal. crosslink gel; 1 gal. surfactant per 1000 and 60,000 lbs. of 20-40 sand.
Max. trt. pr. 2400 psi. Min. trt. pr. 1500 psi.
Avg. trt. pr. 1900 psi. AIR 38 BPM.

<u>Second Stage</u>

Perf: 7360-7398; 7444-7472 with 2 JSPF. Frac with 60,000 gal. crosslink gel; 1 gal. surfactant per 1000; 2% KCl; and 188,000 lbs. 20-40 sand.
Max. trt. pr. 3400 psi. Min. trt. pr. 900 psi.
Avg. trt. pr. 1500 psi. AIR 35 BPM.

ATTACHMENT NO. 2c (Continued)

Present Status: The Dakota Formation is being produced through the tubing. The Gallup Formation is shut in until commingling approval is received.

ATTACHMENT NO. 2d

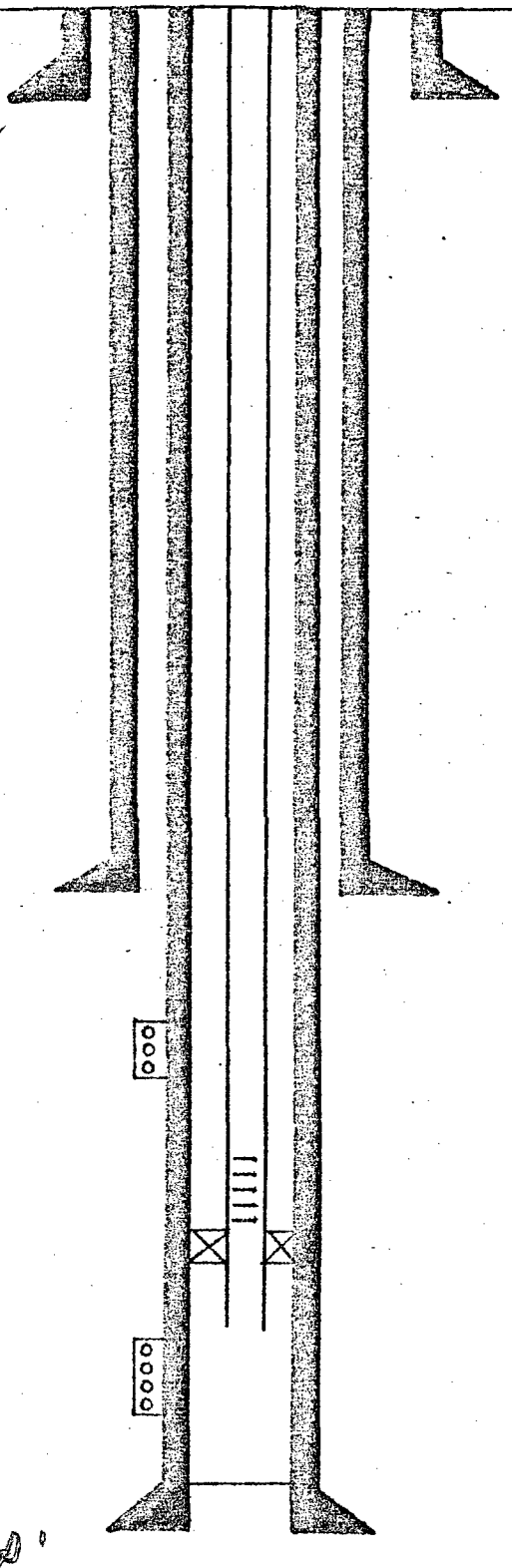
Well Completion Data
Basin Dakota - B. S. Mesa Gallup

Well Name:	Jicarilla Apache 102 No. 14E
Location:	1110' FSL, 800' FWL, Sec. 9, T26N, R4W
Elevation:	7123' GL, 8254' TD, 8230 PBTD
Casing and Cement:	9 5/8" 32.3# CSA 320' x 315 SX 7" 23.0# CSA 4100' x 560 SX 4 1/2" 10.5# CSA 8254' x 650 SX 2 3/8" Tbg. SA 8159' Pkr. at 7970'
Completion Date:	4-12-81
Completion Interval:	Dakota 8163'-8005' Gallup: 7532'-7524'
Special Equipment:	Sliding sleeve at 7970' Baker Production Packer 7970'
Initial Potential:	Dakota: 2366 MCFD at 3 hrs. x 3/4" choke Gallup: 395 MCFD at 3 hrs. x 3/4" choke
Logs Run:	Dual Induction Compensated Neutron - Compensated Fm. Density Gamma Ray
Original Completion:	
Dakota:	Perf. 8163-8142, 8036-8005 with 2 JSPF Frac with 106,000 gal. crosslink gel; 5% condensate; 1 gal. surfactant per 1000 and 364,000 lb. 20-40 sand Bkdn. Pr. 2500 psi. Max. trt. pr. 3400 psi. AIR 42 BPM.
Gallup:	Perf 7532-7524 with 4 JSPF. Frac with 34,000 gal. crosslink gel; 2% KCl; 1 gal. surfactant per 1000 and 132,000 lbs. 20-40 sand.
Present Status:	The Dakota Formation is being produced through the tubing. The Gallup Formation is shut in until commingling approval is received.

3 wks later

ATTACHMENT NO. 3a

Gallup P_c = 1402 PSIA
Dakota P_c = 1372 PSIA
1.3496



9 5/8" CSA 322'

7" CSA 4250'

7676'

GALLUP COMP
BHP=1743.6 PSIA
1000

7688'

1.370

DAKOTA COMP
BHP=2388.5 PSIA

SLIDING SLEEVE AT 7998'

PKR SET AT 8006.5'

2 3/8" TBG at 8341'

PBD 8385'

4 1/2" CSA 8407'

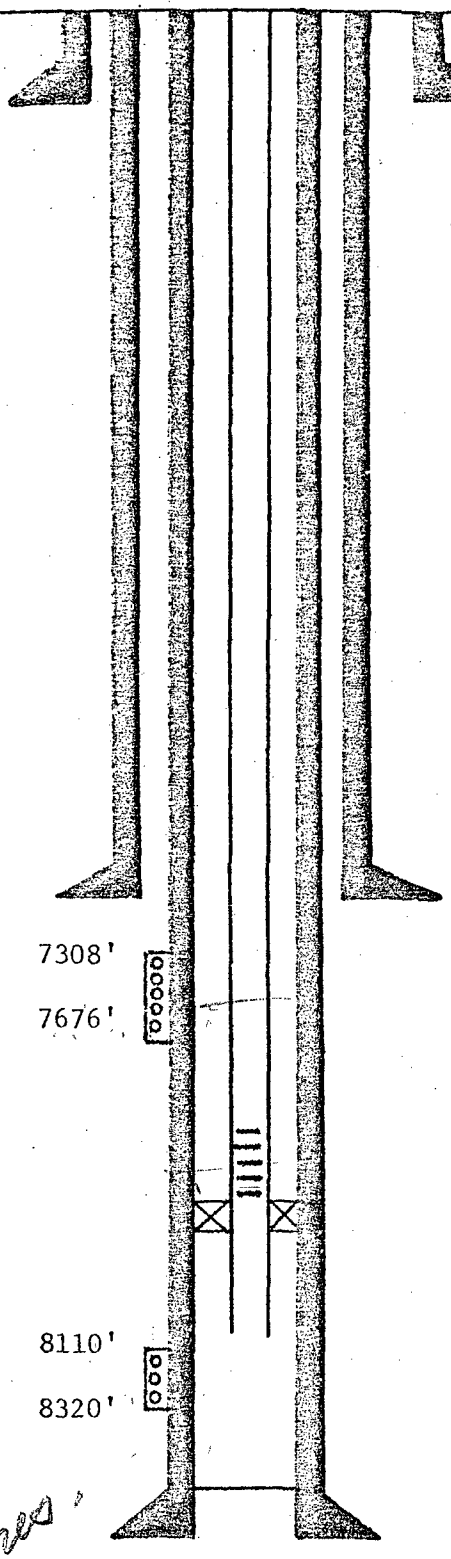
OK as to prod.

Amoco Production Company	SCALE:
JICARILLA APACHE 102 NO. 7E	DRG. NO.

FORM 432 2-71

ATTACHMENT NO. 3b

Gallup P_c = 712 psia
Dakota P_c = 1577 psia
2,636



9 5/8" CSA 323'

7" CSA 4250'

7308'

GALLUP
BHP=861.3 PSIA

7676'

2.76

SLIDING SLEEVE AT 8002'

PKR SA 8011'

2 3/8" TBG AT 8294'

8110'

DAKOTA
BHP=2377.2 PSIA

8320'

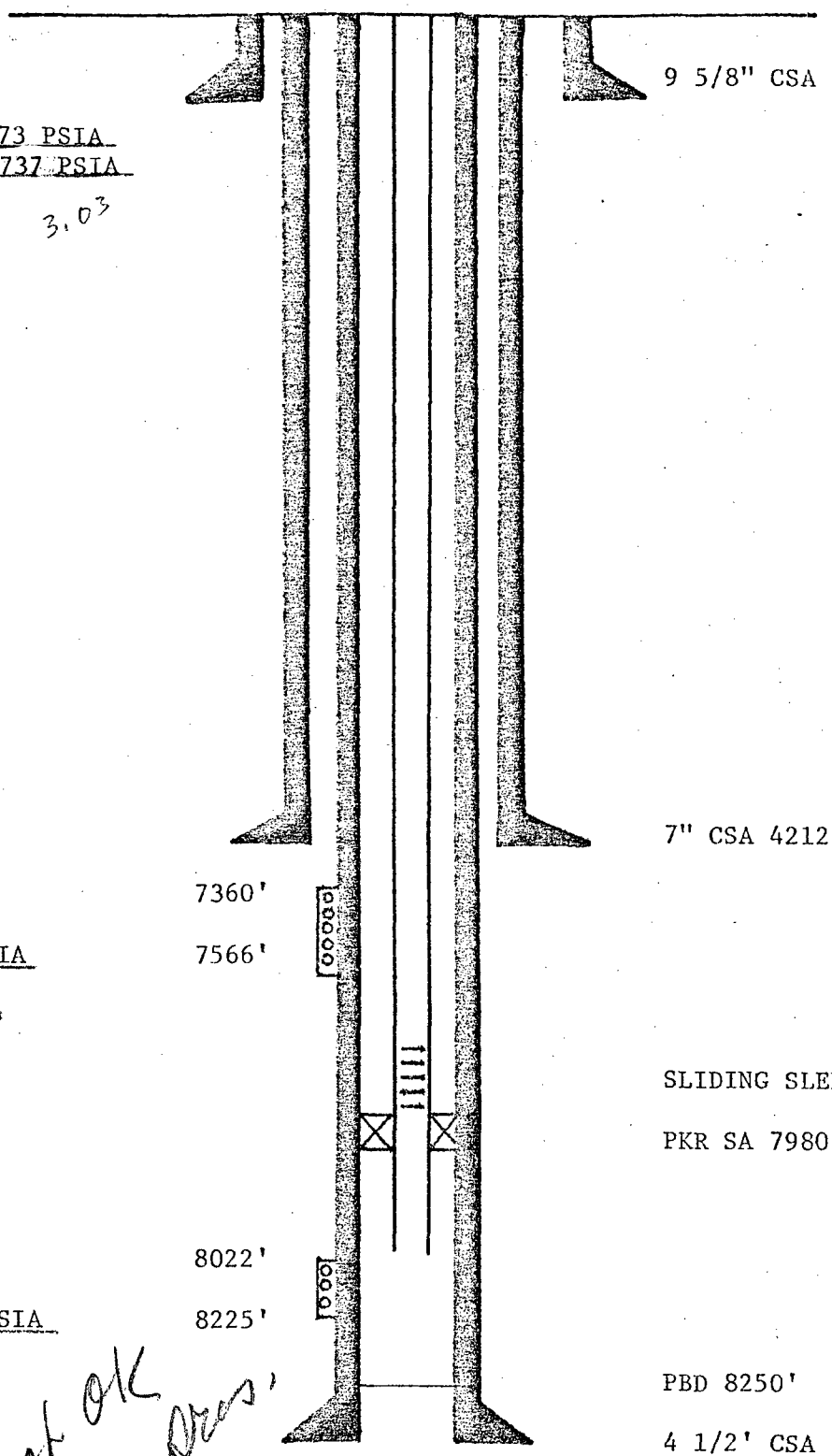
not OK as to pres.

PBD 8364'

4 1/2" CSA 8410'

Amoco Production Company	SCALE:
JICARILLA APACHE 102 #10E	DRG. NO.

ATTACHMENT NO. 3c



9 5/8" CSA 321'

GALLUP PC=573 PSIA
DAKOTA PC=1737 PSIA

3.03

7" CSA 4212'

7360'

GALLUP
BHP=691.8 PSIA

7566'

2.627

SLIDING SLEEVE AT 7980'

PKR SA 7980'

8022'

DAKOTA
BHP=1955.9 PSIA

8225'

not OK
as to pres.

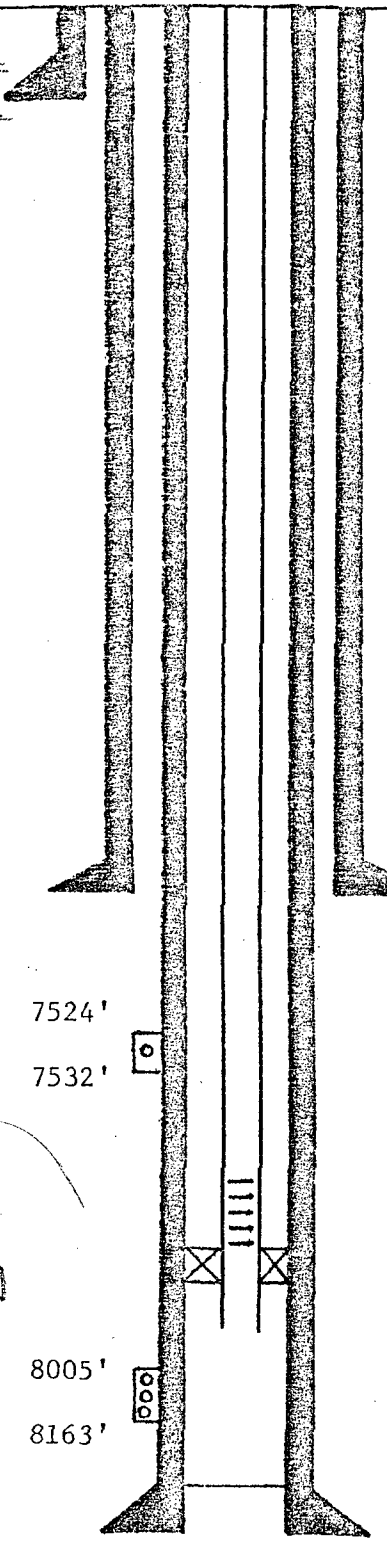
PBD 8250'

4 1/2' CSA 8306'

Amoco Production Company	SCALE:
JICARILLA APACHE 102 #12E	DRG. NO.

ATTACHMENT NO. 3d

Gallup P_c = 1262 psia
Dakota P_c = 1967 psia
1,558



9 5/8" CSA 320'

7" CSA 4100'

7524'

GALLUP
BHP=1557.5 PSIA

7532'

SLIDING SLEEVE AT 7970'

1,588

OK as to psi

PKR SA 7970'

8005'

DAKOTA
BHP=2473.8 PSIA

8163'

PBD 8230'

4 1/2" CSA 8254'

Amoco Production Company	SCALE:
JICARILLA APACHE 102 #14E	DRG. NO.

ATTACHMENT NO. 4

Fluid Characteristics of Jicarilla Apache 102 Lease

B. S. Mesa Gallup

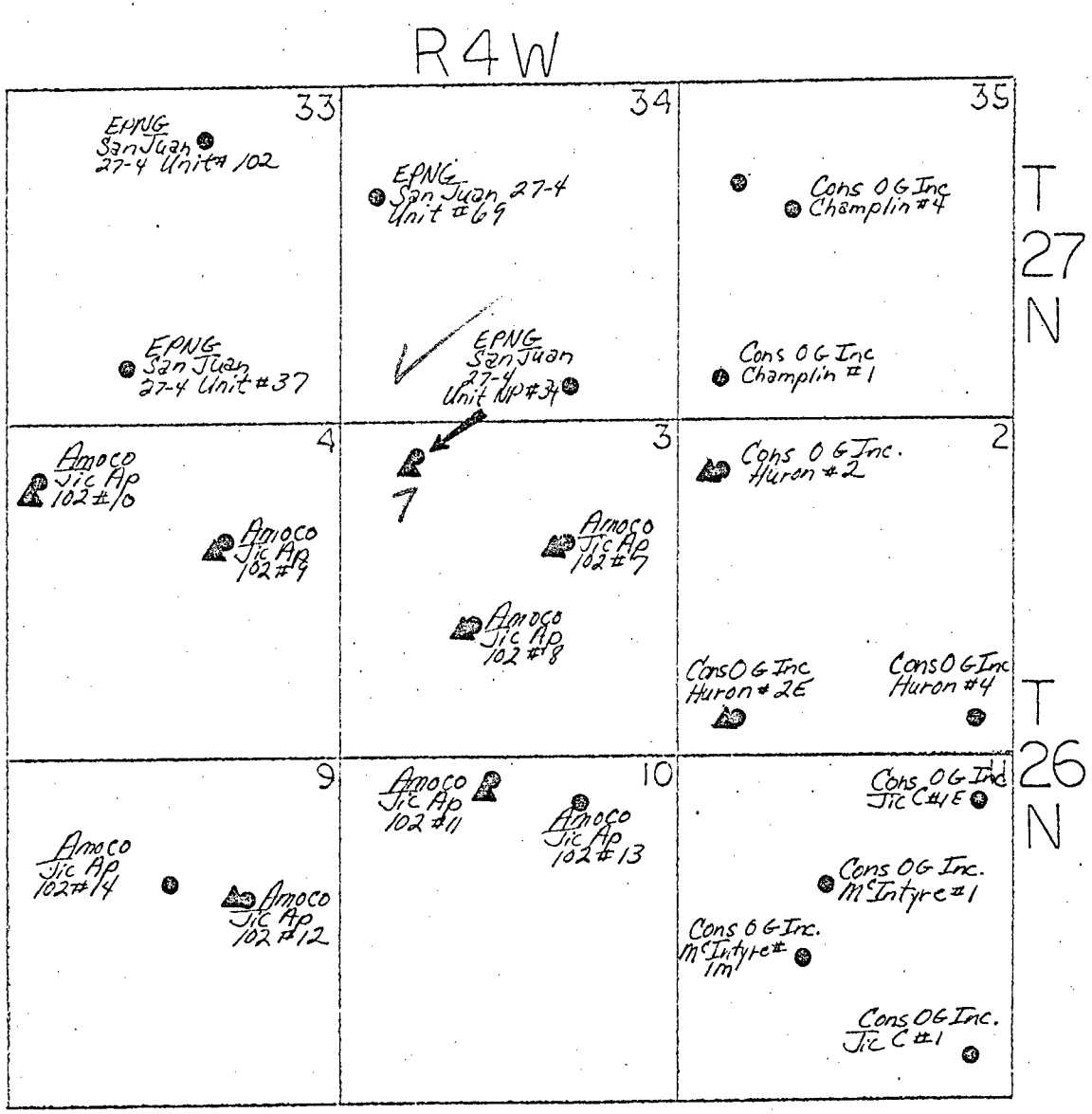
Component	BTU	MOL %
N_2	0	.25
CH_4	793	78.328
C_2	219	12.368
CO_2	0	.757
C_3	125	4.948
IC_4	27	.826
NC_4	46	1.422
IC_5	19	.488
NC_5	12	.294
C_6+	17	.319
	1258	100.00

Basin Dakota

Component	BTU	MOL %
N_2	0	.333
CH_4	790	78.110
C_2	219	12.352
CO_2	0	.938
C_3	128	5.044
IC_4	24	.733
NC_4	45	1.393
IC_5	18	.437
NC_5	13	.338
C_6+	17	.322
	1254	100.00

JICARILLA APACHE 102 #7E

ATTACHMENT NO. 5a

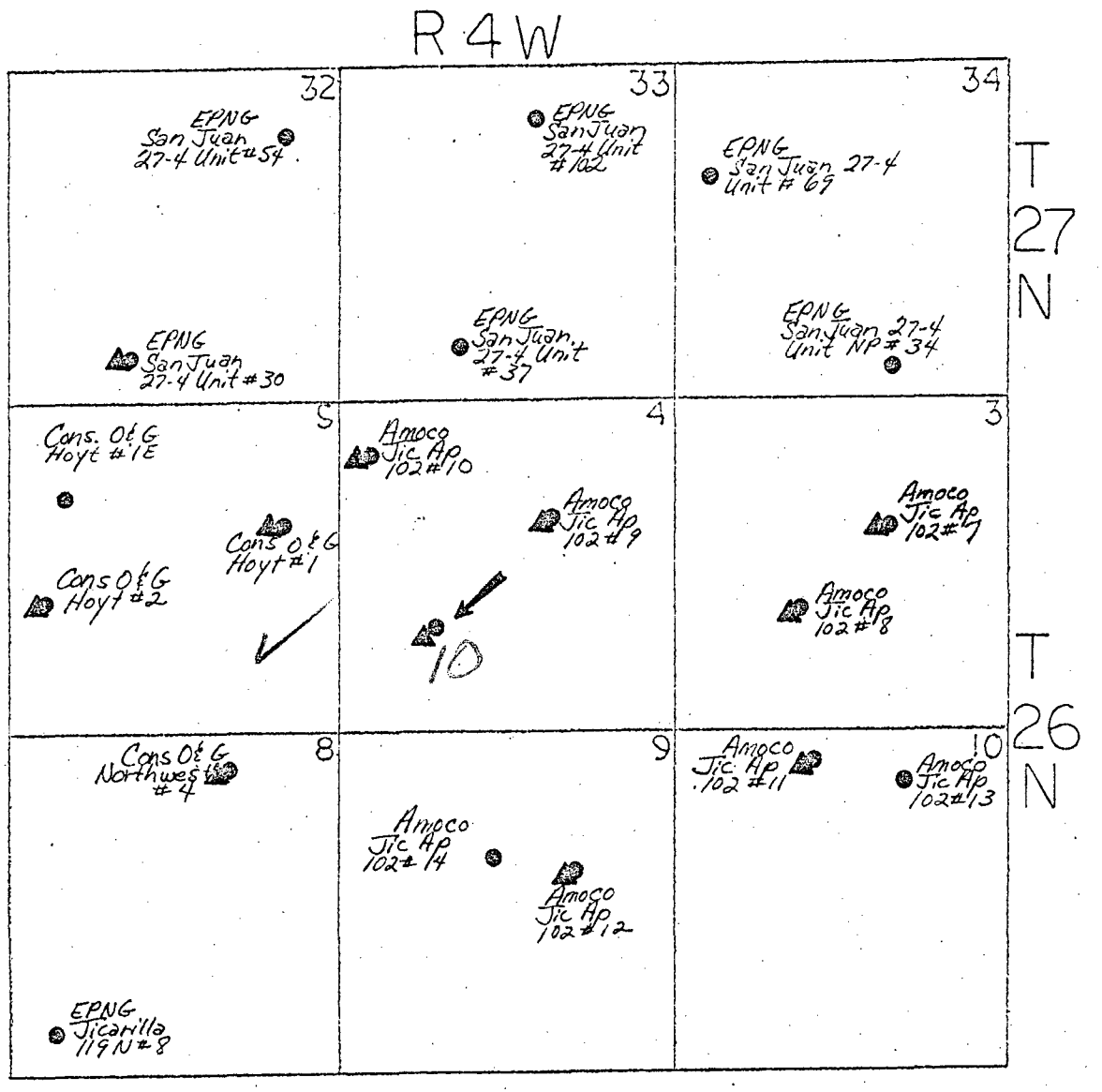


● BASIN DAKOTA WELLS

▲ B. S. MESA GALLUP WELLS

JICARILLA APACHE 102 #10E

ATTACHMENT NO. 5b

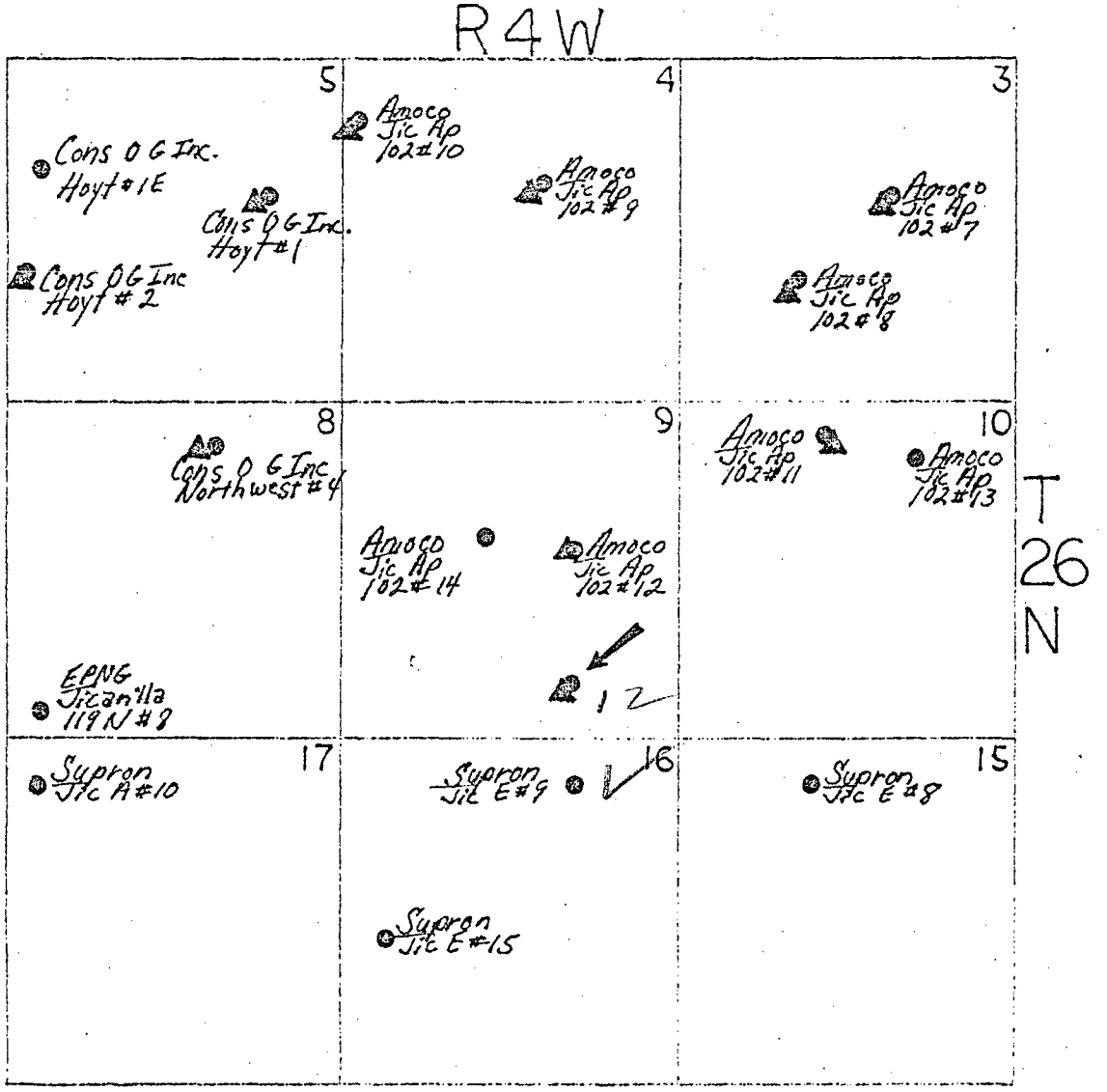


● BASIN DAKOTA WELLS

▲ B. S. MESA GALLUP WELLS

ATTACHMENT NO. 5c

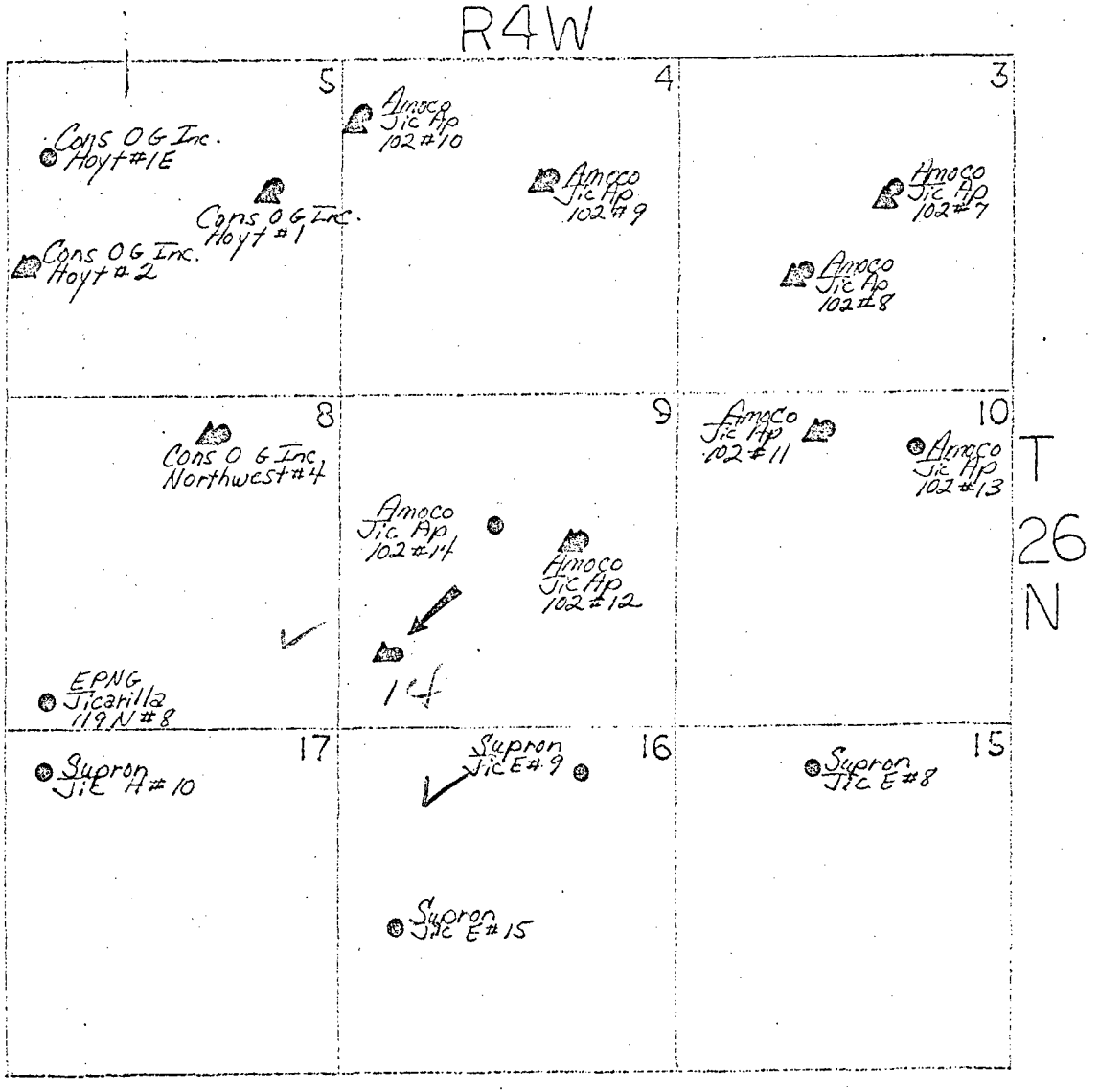
JICARILLA APACHE 102 #12E



● BASIN DAKOTA WELLS

▲ B. S. MESA GALLUP WELLS

JICARILLA APACHE 102 #14E



● BASIN DAKOTA WELLS

▲ B. S. MESA GALLUP WELLS

ATTACHMENT NO. 6

Value of Commingled Gas

This section will shows that the value of the commingled production will not be less than the sum of the values of the individual streams of gas for Jicarilla Apache 102 No. 7E, 10E, 12E, and 14E.

The following data applies to our computation:

Gallup Production:

Price: Interstate gas prices ~ approximately $3.00/MCF based on 1000 BTU/SCF*. Condensate = $35.00/bbl.

Dakota Production:

Price: Interstate gas prices ~ approximately $3.00/MCF based on 1000 BTU/SCF*. Condensate = $35.00/bbl.

As can be seen from Attachment No. 4, the gas from both zones in the Jicarilla 102 Lease is very similar in composition. Using the BTU values from Attachment 4, the gas price for each zone is calculated below:

Gallup Zone:

$$\$3.00/MCF \left(\frac{1258}{1000}\right) = \$3.77/MCF$$

Dakota Zone

$$\$3.00/MCF \left(\frac{1254}{1000}\right) = \$3.76/MCF$$

These prices show that the value for commingled gas will be the same as the values of the individual streams.

*In the event the total gross heating value of gas delivered from a well shall be either more or less than 1000 BTU/SCF, then price payable for gas delivered from either well shall be either increased or reduced. Such a reduced or increased price shall be determined by multiplying the pirce otherwise payable by a fraction, the numerator of which is the actual total gross heating value of such gas expressed in British thermal units per cubic foot, and the denominator of which is one thousand (1000).

Amoco Production Company
Petroleum Center Building
501 Airport Drive
Farmington, New Mexico 87401
505-325-8841

R. W. Schroeder
District Superintendent

20 days waiting for Supt letter

August 18, 1981

Consolidated Oil & Gas Company
P.O. Box 2038
Farmington, NM 87401

Supron Energy Corporation
P.O. Box 808
Farmington, NM 87401

El Paso Natural Gas Company
P.O. Box 990
Farmington, NM 87401

File: WLP-254-986.501.1

Proposed Downhole Commingling of Jicarilla Apache 102 Nos. 7E, 10E, 12E, and 14E, Rio Arriba County, New Mexico

Dear Sir:

This is to advise you that the Farmington District office of Amoco Production Company is requesting administrative approval from the Secretary-Director of the New Mexico Oil Conservation Division to downhole commingle production from the four gas wells below:

Jicarilla Apache 102 No. 7E	Unit D, Section 3, T26N, R4W
Jicarilla Apache 102 No. 10E	Unit K, Section 4, T26N, R4W
Jicarilla Apache 102 No. 12E	Unit O, Section 9, T26N, R4W
Jicarilla Apache 102 No. 14E	Unit M, Section 9, T26N, R4W

These wells are completed in the B. S. Mesa Gallup and Basin Dakota wells.

In Order No. R-4059 (Case No. 4443, November 10, 1970) a procedure was given whereby the Secretary-Director was empowered to administratively approve downhole commingling on wells in the Jicarilla Apache 102 lease. To date, all B. S. Mesa Gallup-Basin Dakota completions in the Jicarilla Apache 102 lease have received administrative commingling approval.

Enclosed are well diagrams of the subject wells and maps showing the locations of these and offset wells.

If you, as an offset operator, have no objections to the commingled production of the B. S. Mesa Gallup and Basin Dakota from the subject wells please sign the waiver below and send to:

New Mexico Oil Conservation Division
Attn: Joe D. Ramey
Box 2088
Santa Fe, NM 87501

We would appreciate your returning one executed copy to the undersigned.

Very truly yours,

R. W. Schroeder

RLR/tk

Enclosure

WAIVER

We hereby waive any objections to Amoco Production Company's application for commingled production as set forth above.

El Paso Natural Gas Co.
Company

Carl E. Matthews
By

8/24/81
Date

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 4443
Order No. R-4059

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR DOWN-HOLE COMMINGLING,
RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 28, 1970, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 10th day of November, 1970, the Commission, a quorum being present, 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 Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Pan American Petroleum Corporation, is the owner and operator of the Jicarilla Apache 102 Lease comprising Sections 3, 4, 9, and 10, Township 26 North, Range 4 West, NMPM, Rio Arriba County, New Mexico.

(3) That the applicant seeks authority to commingle production from the BS Mesa-Gallup and Basin-Dakota Gas Pools in the well-bores of four wells located on said lease as follows:

Jicarilla Apache Well No. 7 - Unit G - Section 3
Jicarilla Apache Well No. 9 - Unit G - Section 4
Jicarilla Apache Well No. 12 - Unit G - Section 9
Jicarilla Apache Well No. 11 - Unit C - Section 10

(4) That the applicant further seeks a procedure whereby other wells on said Jicarilla Apache 102 Lease may be approved administratively for down-hole commingling.

(5) That the applicant proposes, as to each of said wells, to produce the commingled production through a single string of tubing set in a packer just above the Dakota perforations.

(6) That each of the above-described four wells is capable of producing only a very small amount of gas from either or both of the subject pools.

(7) That it is uneconomical to produce each of the above-described four wells as dual completions.

(8) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling.

(9) That the proposed commingling may result in the recovery of additional gas from each of the subject pools as to each of said four wells, thereby preventing waste, and will not violate correlative rights.

(10) That production tests should be conducted prior to commingling, to determine the production from each zone in each well.

(11) That a procedure should be adopted whereby other wells on said Jicarilla Apache 102 Lease having the same characteristics as the above-described four wells may be approved administratively for down-hole commingling.

(12) That Administrative Orders Nos. MC-1798 and MC-1858 should be superseded.

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, is hereby authorized to complete each of the following-described four wells located in Township 26 North, Range 4 West, NMPM, Rio Arriba County, New Mexico, in such a manner as to produce gas from the BS Mesa-Gallup and Basin-Dakota Gas Pools through a

single string of tubing, commingling in the well-bore the production from each of said zones until further order of the Commission:

Jicarilla Apache Well No. 7 - Unit G - Section 3
Jicarilla Apache Well No. 9 - Unit G - Section 4
Jicarilla Apache Well No. 12 - Unit G - Section 9
Jicarilla Apache Well No. 11 - Unit C - Section 10

(2) That the production of each zone in each of the above-described wells shall be established and future production allocated to the Gallup and Dakota zones in each of the subject wells in accordance with the following procedure:

1. Prior to commingling, the daily rate of flow from the Dakota formation shall be established by employing the last 24 hours of a seven-day flow period of said zone. (Test #1.)

2. Subsequent to commingling, the daily rate of flow from the commingled Dakota and Gallup zones shall be established by employing the final 24 hours of a seven-day flow test of the commingled zones. (Test #2.)

3. Determine the BS Mesa-Gallup allocation of production factor as follows:

$$(\text{Gallup}_f) = \frac{\text{Test \#2 - Test \#1}}{\text{Test \#2}}$$

4. Determine the monthly allocation of production as follows:

   a. BS Mesa-Gallup gas production = Gallup_f x commingled gas production.

   b. Basin-Dakota gas production = commingled gas production less calculated BS Mesa-Gallup gas production.

(3) That the Secretary-Director of the Commission may approve the down-hole commingling of BS Mesa-Gallup and Basin-Dakota gas production in other wells located on the Jicarilla 102 Lease comprising Sections 3, 4, 9, and 10 of said Township and Range,

provided such commingling is reasonably necessary to prevent waste and will not violate correlative rights.

(4) To obtain approval for down-hole commingling, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission plus one copy to the appropriate District Office of the Commission:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

(c) Names of the pools the well is completed in and the Commission order number which authorized the dual completion.

(d) A current (within 30 days) 24-hour productivity test on Commission Form C-116 showing the amount of oil, gas, and water produced from each zone.

(e) A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed with in the case of a newly completed or recently completed well which has little or no production history. However, a complete resume of the well's completion history including description of treating, testing, etc., of each zone, and a prognostication of future production from each zone shall be submitted.)

(f) Estimated bottom-hole pressure for each artificially lifted zone. A current (within 30 days) measured bottom-hole pressure for each zone capable of flowing.

(g) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

(h) A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

(i) A statement that all offset operators and, in the case of a well on Federal land, the United States Geological Survey, have been notified in writing of the proposed commingling.

(5) The Secretary-Director of the Commission may approve the proposed down-hole commingling in the absence of a valid objection within 20 days after the receipt of the application if, in his opinion, there is no disqualifying disparity of bottom-hole pressures or other reservoir characteristics, waste will not result thereby, and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all parties mentioned in Order (4), paragraph (i).

(6) Upon such approval, the well shall be operated in accordance with the provisions of the administrative order which authorized the commingling, and allocation of the commingled production from the well to each of the producing zones shall be in accordance with the allocation formula set forth in the order.

(7) The Secretary-Director may rescind authority to commingle production in the well-bore and require both zones to be produced separately, if, in his opinion, waste or reservoir damage is resulting thereby.

(8) That the operator shall file with the Santa Fe Office of the Commission semi-annually a report showing the monthly Gallup production, the monthly Dakota production, and the monthly commingled production for each well during the preceding six months. Said report to be filed as stated until further order of the Commission.

(9) That the provisions of Order No. R-333-F shall continue to apply to the subject wells.

(10) That Administrative Orders Nos. MC-1798 and MC-1858 are hereby superseded.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

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