

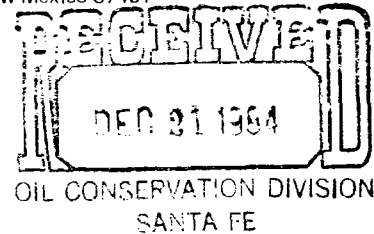


Amoco Production Company

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

W. J. Holcomb
District Manager

December 19, 1984



New Mexico Oil Conservation Division
Attn: David Catanach
P. O. Box 2088
Santa Fe, NM 87501

Case 8514

File: DDL-1293-400.1

Dear Sirs:

Commingling Application for the Rosa Unit 98
Section L23, T31N, R6W, Rio Arriba County, NM

Amoco Production Company requests approval to commingle production from the Flora Vista Gallup and Basin Dakota horizons in the subject well. Commingling is necessary due to producing rates from the Gallup that are too low to economically dual complete the well. There will be no crossflow between the two zones as neither zone is sensitive to produced liquids, and there will be no loss of value of production. Finally, the working interest and royalty of both zones are the same, and the bottom hole pressure of the Gallup is more than 50 percent of the bottom hole pressure of the Dakota. We therefore request approval of our commingling application.

As required by Rule 303C, we have attached two copies of the following:

1. Acreage Plat
2. Form C-107
3. Form 3160-4 Well Completion Report
4. Bottom hole pressures
5. Recommended allocation formula
6. Copy of notification to offset operators

This well is a new completion, and thus no production decline curves are supplied. Neither zone makes any condensate and there is no fluid compatibility problem. In conclusion, production from the Gallup is too low to warrant dual completion with the Dakota. Therefore, please approve our application to commingle at your earliest convenience.

Yours very truly,

W. J. Holcomb

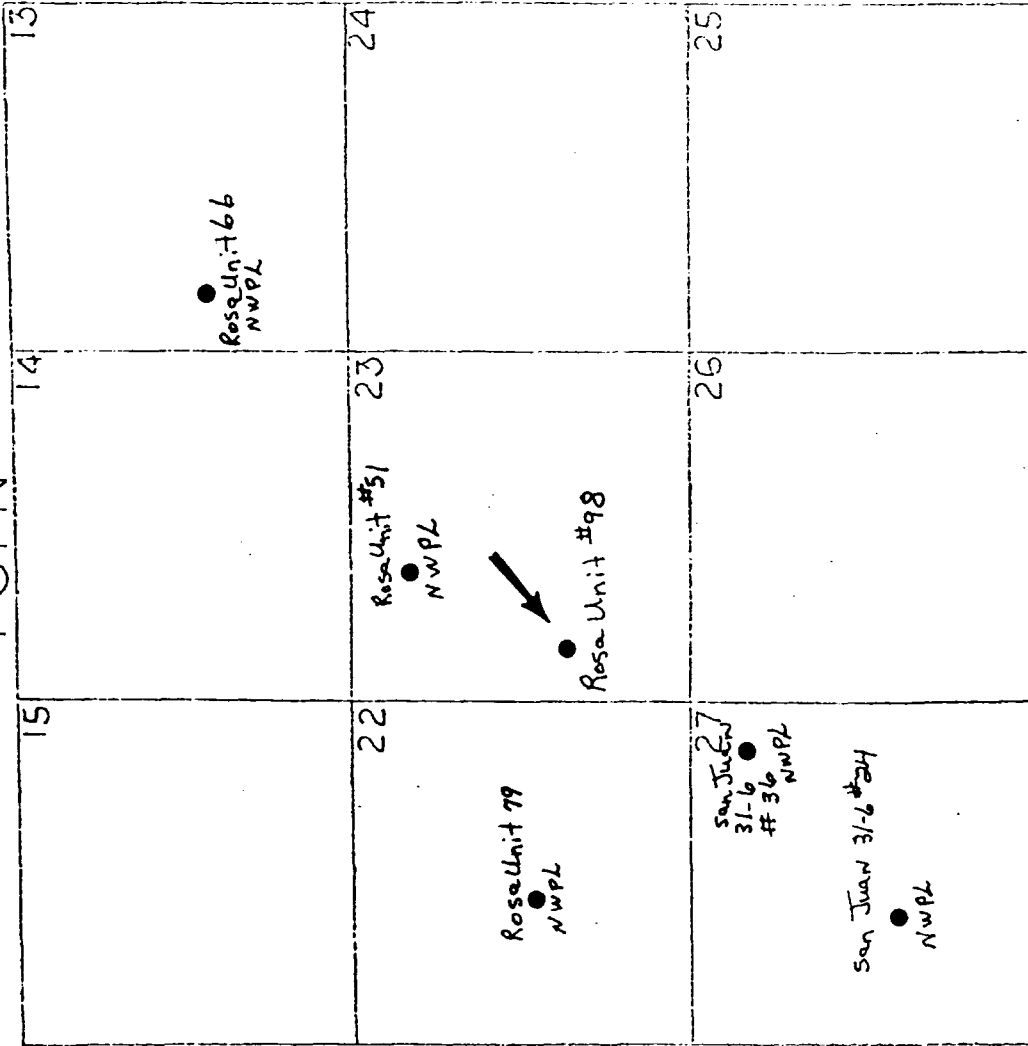
MEM/ct

cc: NMOCD - Aztec, NM (2)

NWPL - Farmington, NM

AM7

T 31 N



R 6 W

● PROPOSED DRILLING LOCATION

● EXISTING WELL SITES

NEW MEXICO
MINERALS DEPARTMENT

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

Form C-107
Revised 10-1-78

All distances must be from the center of the Section.

Case 5514 WF

Operator Amoco Production Company			Lease Rosa Unit		Well No. 98
Unit Letter L	Section 23	Township 31N	Range 6W	County Rio Arriba	
Actual Footage Location of Well: 1840' feet from the South line and 790' feet from the West line					
Ground Level Elev. 6267	Producing Formation Dakota/Gallup		Pool Basin Dakota/Undes. Gallup		Dedicated Acreage 5320/160 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes" type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

RECEIVED JUL 5 1983 U. S. GEOLOGICAL SURVEY FARMINGTON, N.M. NOV 01 1984 OIL CON. DIV. DIST. 3		Sec 23	
		790' 1840'	

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.
Original Signed By
D. H. SHOEMAKER

Name
D. H. Shoemaker

Position
District Engineer

Company
Amoco Production Company

Date
JUL 1 1983

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
June 25, 1983

Registered Professional Engineer and Land Surveyor
[Signature]

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE

(See other in-
structions on
reverse side)

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

5. LEASE DESIGNATION AND SERIAL NO.

SF-078771

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT NUMBER NAME

Rosa Unit

8. FARM OR LEASE NAME

9. WELL NO.

98

10. FIELD AND POOL, OR WILDCAT

Basin Dakota

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA

NW/SW, Sec. 23, T31N, R6W

12. COUNTY OR PARISH

Rio Arriba

13. STATE

NM

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

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

b. TYPE OF COMPLETION:

NEW WELL ☒ WORK OVER ☐ DEEP EN ☐ PLUG BACK ☐ DIFF. BEVER ☐ Other ☐

2. NAME OF OPERATOR

Amoco Production Company

3. ADDRESS OF OPERATOR

501 Airport Drive, Farmington, NM 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any local requirements)

At surface

1840' FSL X 790' FWL

At top prod. interval reported below same

At total depth same

BUREAU OF LAND MANAGEMENT
FARMINGTON RESOURCE AREA

14. PERMIT NO.

DATE ISSUED

15. DATE SPUDDED

9-13-84

16. DATE T.D. REACHED

10-19-83

17. DATE COMPL. (Ready to prod.)

12-21-83

18. ELEVATIONS (OF RKB, RT, GR, ETC.)

6280' KB

19. ELEV. CASINGHEAD

6267' GR

20. TOTAL DEPTH, MD & TVD

7958'

21. PLUG BACK T.D., MD & TVD

7950'

22. IF MULTIPLE COMPL., HOW MANY?

2

23. INTERVALS DRILLED BY

ROTARY TOOLS

O-TD

CABLE TOOLS

24. PRODUCING INTERVAL(S). OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*

7779'-7921' Basin Dakota

25. WAS DIRECTIONAL SURVEY MADE

Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN

DIL-SP-GR, CNL-FD -GR-Caliper, long spaced digital sonic

27. WAS WELL CORRED

No

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8"	48#, H-40	417	17-1/2"	480 cu. ft. Class B w/2% CaCl ₂	
8-5/8" 28# (S-80, J-55)		24# (J-55)	3794' 7-7/8"	reamed 1st 591 cu. ft. Class "B" 65/35	
			cut to 11'	poz (2nd) 924 cu. ft. Class "B" 50/50 poz	
4-1/2"	11.6# N-80	7958'	7-7/8"	(3rd) 240 cu. ft. Class "B" w/2% CaCl ₂	

29. LINER RECORD

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

30. TUBING RECORD (see reverse side)

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	7929'	7691'

31. PERFORATION RECORD (Interval, size and number)

7779'-7797', 7827'-7838', 7868'-7872',
7914'-7921', 2 jspf, .38", total of
80 holes

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
7779'-7921'	18,000 gal. 60# cross-linked gelled pad and 95,000 gal. 50# cross-linked gel w/2% KCL, 5% Methanol, and 205,000#

33. PRODUCTION

20-40 sand

DATE FIRST PRODUCTION

3-28-84

PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)

Flowing

WELL STATUS (Producing or shut-in)

Shut-in

DATE OF TEST

3-29-84

HOURS TESTED

3 hrs

CHOKE SIZE

.75

PROD'N. FOR TEST PERIOD

OIL—BBL.

GAS—MCF.

WATER—BBL.

GAS-OIL RATIO

502

FLOW, TUBING PRESS.

325 psig

CASING PRESSURE

CALCULATED 24-HOUR RATE

OIL—BBL.

GAS—MCF.

WATER—BBL.

OIL GRAVITY-API (CORR.)

4016

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

To be sold

TEST WITNESSED BY

J. J. Barnett

35. LIST OF ATTACHMENTS

ACCEPTED FOR RECORD

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

Original Signed By

SIGNED

B. D. Shaw

TITLE

Administrative Supervisor

DATE

4-5-84

FARMINGTON RESOURCE AREA

OVER

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

BY

SM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.6.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other ☐		FARMINGTON DISTRICT		5. LEASE DESIGNATION AND SERIAL NO. SF-078771	
1b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other ☐		7. UNIT, AGREEMENT, NAME Rosa Unit		6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
2. NAME OF OPERATOR Amoco Production Company		8. FARM OR LEASE NAME		9. WELL NO. 98	
3. ADDRESS OF OPERATOR 501 Airport Drive, Farmington, New Mexico 87401		10. FIELD AND POOL, OR WILDCAT Undes. Gallup		11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA NW/SW, Sec. 23, T31N, R6W	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements) At surface 1840' FSL x 790' FWL At top prod. interval reported below Same At total depth Same		14. PERMIT NO. JAN 20 1984		12. COUNTY OR PARISH Rio Arriba	
15. DATE RECDDED 9-13-83		16. DATE T.D. REACHED 10-19-83		17. DATE COMPL. (Ready to prod.) 12-21-83	
18. ELEVATIONS (DP, RES, RT, GR, ETC.) 6280' KB		19. ELEV. CASINGHEAD 6267' GL		20. TOTAL DEPTH, MD & TVD 7958'	
21. PLUG, BACK T.D., MD & TVD 7950'		22. IF MULTIPLE COMPL., HOW MANY? 2		23. INTERVALS DRILLED BY 0-TD	
24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 6310'-7592' Gallup		25. WAS DIRECTIONAL SURVEY MADE Yes		26. TYPE ELECTRIC AND OTHER LOGS RUN DIL-SP-GR, CNL FC-GR-Caliper, Long Spaced Digital Sonic	
27. WAS WELL CORRED No		28. CASING RECORD (Report all strings set in well)		29. CEMENTING RECORD	
CASING SIZE 13.375"		WEIGHT, LB./FT. 48#, H-40		DEPTH SET (MD) 417'	
HOLE SIZE 17-1/2"		CEMENTING RECORD 480 cu.ft. Class B W/2% CaCl2		AMOUNT POLLED CaCl2	
8.675"		28# (S-80, J-55) 24# 3794'		7.875" Reamed (1st) 591 cu.ft. Class B 65:35 POZ (2nd)	
4.5"		11.6# N-80 7958'		924 cu.ft. Class B 50:50 POZ (3rd) 240 cu.ft.	
7.875"		Class B w/2% CaCl2. (Cont. on back)			
30. TUBING RECORD		31. PERFORATION RECORD (Interval, size and number) See Attached Page for perforations		32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC. See Attached page for stimulation	
SIZE 2.375"		DEPTH SET (MD) 7929'		PACKER SET (MD) 7691'	
33. PRODUCTION		34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) To Be Sold.		TEST WITNESSED BY J.J. Barnett	
DATE FIRST PRODUCTION 1-10-84		PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Flowing		WELL STATUS (Producing or shut-in) Shut-in	
DATE OF TEST 1-11-84		HOURS TESTED 3 hrs.		CHOKE SIZE .75	
PROD'N. FOR TEST PERIOD 471		OIL—BBL. 3767		GAS—MCF. 471	
WATER—BBL.		OIL GRAVITY-API (CORR.)			
FLOW. TUBING PRESS. 305 psig		CASING PRESSURE 1250 psig		CALCULATED 24-HOUR RATE 3767	
35. LIST OF ATTACHMENTS None		36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records		ACCEPTED FOR RECORD APR 10 1984 FARMINGTON DISTRICT	
SIGNED D.D. Lawson		TITLE District Adm. Supervisor		DATE January 18, 1984	

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

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments. **Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool. **Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

(Cementing cont. - 4.5" Casing string) (1st) 770 cu.ft. Class B 50:50 POZ tailed in with 118 cu.ft. Class B Neat.
(2nd) 1675 cu.ft. Class B 65:35 POZ tailed in with 118 cu.ft. Class B Neat.

37. SUMMARY OF POROUS ZONES:		38. GEOLOGIC MARKERS	
FORMATION	TOP	MEAS. DEPTH	TRUE VERT. DEPTH
Pictured Cliffs	3100'		
Lesaverde	5277'		
Callup	6310'		
Greenhorn	7592'		
Graneros Shale	7648'		
Main Dakota	7823'		
	7930'		

0 + 4 BLM-Farmington
1 - J.C. Burnside-Denver
1 - Open
1 - MW PL

(Casing string (1st) 4-1/2" casing string (1st) 770 cu. ft. Class "B" 50/50 poz tailed in with 118 cu. ft. Class "B" Neat
(2nd) 1675 cu. ft. Class "B" 65/35 poz tailed in with 118 cu. ft. Class "B" Neat

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

38. GEOLOGIC MARKERS			
FORMATION	TOP	BOTTOM	NAME
			MEAS. DEPTH
Pictured Cliffs	3100'	3300'	TRUE VERT. DEPTH
tesaverde	5277'	5872'	
hally	6310'	7592'	
greenhorn	7592'	7648'	
braneros Shale	7648'	7823'	
ain Dakota	7823'	7930'	

0 + 4 BLM-Farmington
1 - J.C. Burnside-Denver
1 - Open
1 - P.O.S.

Rosa Unit No. 98

Stimulation:

- (6310'-6540') 89,572 gal. 50# gelled water with 2% KCL, 1 gal. surfactant/1000 gals. fluid and 64,000# 20-40 mesh sand.
- (6838'-7194') 165,000 gal. 50# gelled water with 2% KCL, 1 gal. surfactant/1000 gals. fluid and 150,000# 20-40 mesh sand.
- (7258'-7428') 95,000 gal. 50# gelled water with 2% KCL, 5% condensate, and 65,000# 20-40 mesh sand.
- (7452'-7592') mini-frac 50,000 gal. 30# gelled water with 2% KCL, 1 gal. surfactant/1000 gal. fluid, and 1 millicurie of radioactive iodine/1000 gal. fluid.
- (7452'-7592') 36,340 gal. 30# gelled water with 2% KCL, 1 gal. surfactant/1000 gal. fluid, 1 millicurie of radioactive iodine/1000 gal. fluid and 32,680# 20-40 sand.

Rosa Unit No. 98

Perforations: Gallup

<u>Interval</u>	<u>Spacing</u>	<u>Diameter of Hole</u>	<u>Total Shots</u>
6310'-6324'	1 jsp2f	.39"	7
6326'-6348'	1 jsp2f	.39"	11
6350'-6372'	1 jsp2f	.39"	11
6374'-6396'	1 jsp2f	.39"	11
6398'-6416'	1 jsp2f	.39"	9
6420'-6444'	1 jsp2f	.39"	12
6446'-6468'	1 jsp2f	.39"	11
6470'-6492'	1 jsp2f	.39"	11
6494'-6516'	1 jsp2f	.39"	11
6518'-6540'	1 jsp2f	.39"	11
6838'-6862'	1 jsp2f	.39"	12
6864'-6886'	1 jsp2f	.39"	11
6888'-6910'	1 jsp2f	.39"	11
6912'-6934'	1 jsp2f	.39"	11
6936'-6958'	1 jsp2f	.39"	11
6960'-6982'	1 jsp2f	.39"	11
6983'-7003'	1 jsp2f	.39"	10
7010'-7026'	1 jsp2f	.39"	8
7028'-7050'	1 jsp2f	.39"	11
7052'-7074'	1 jsp2f	.39"	11
7076'-7098'	1 jsp2f	.29"	11
7100'-7122'	1 jsp2f	.29"	11
7124'-7146'	1 jsp2f	.29"	11
7148'-7170'	1 jsp2f	.29"	11
7172'-7194'	1 jsp2f	.29"	11
7258'-7428'	1 jsp2f	.38"	85
7452'-7592'	1 jspf	.38"	140
			492 total shots

WELL NAME

Rosa # 98

DATE _____

12-17-84

FIELD

Gallup

SHUT-IN TUBING

SHUT-IN CASING

TYPE OF INSTRUMENT USED

RP G-3

PRESSURE RANGE OF ELEMENT

3000 PSI

DATE ELEMENT CALIBRATED _____

1-11-84

ВНР

SI DATE _____

COMMENTS

[illegible]

Recommended Allocation Formula

Amoco Production Company recommends the following percentages to be used to allocate hydrocarbons to the Gallup and Dakota horizons in the Rosa Unit 98.

	<u>Gas</u>
Gallup	48%
Dakota	52%

Note: The gas allocation percentages were calculated using initial potential test results.

MEM

December 18, 1984

El Paso Natural Gas Company
P. O. Box 990
Farmington, NM 87499

File: DDL-1279-400.1

Dear Sirs:

Commingling Application
Rosa Unit 98
Section L23, T31N, R6W
Rio Arriba County, New Mexico

Amoco Production Company has applied for approval to commingle the Gallup and Dakota horizons in the subject well. If you have any objections, you have 20 days to notify the New Mexico Oil Conservation Division. If you do not respond within 20 days, your approval will be assumed.

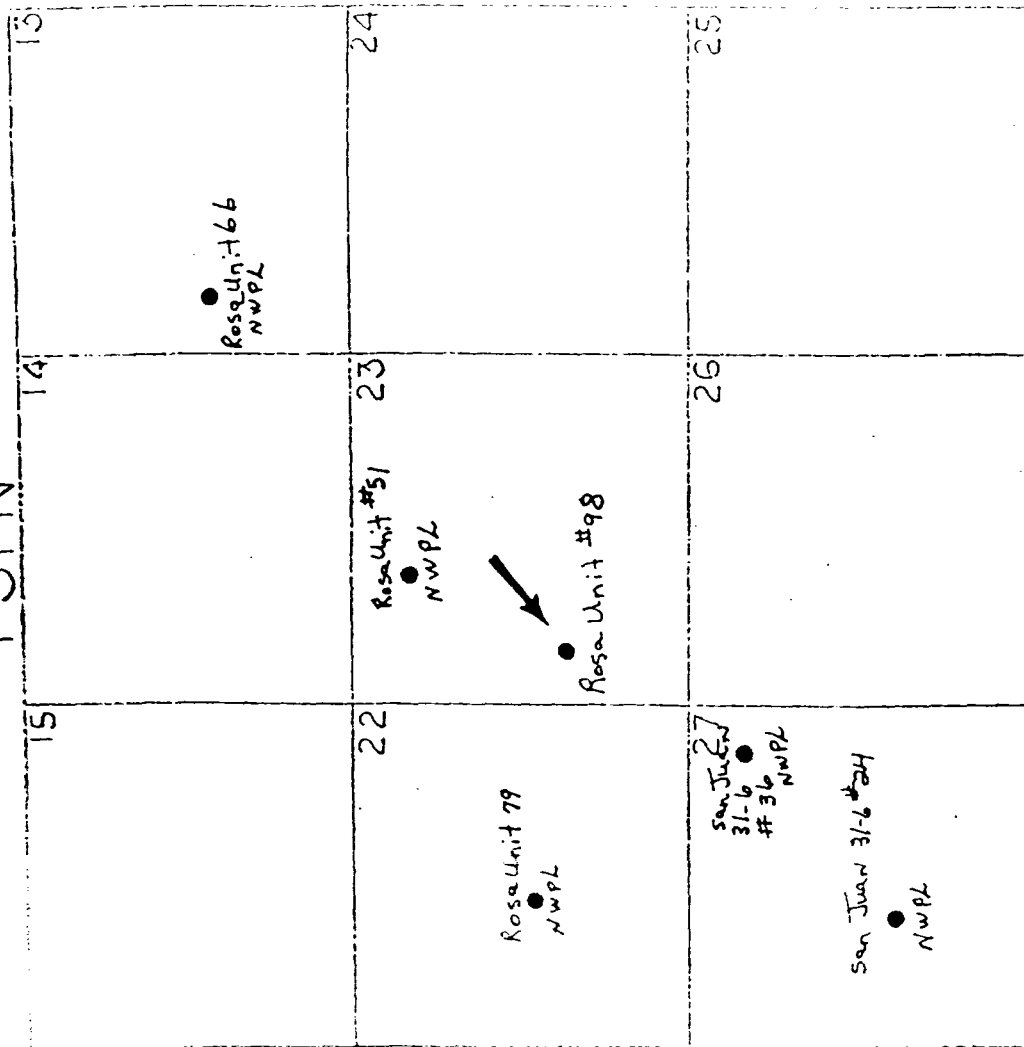
Yours very truly,

Original signed
W. J. Holcomb
by DDI.

MEM/ct

AM7

T 31 N



R 6 W

➔ ● PROPOSED DRILLING LOCATION

● EXISTING WELL SITES

NEW MEXICO
MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-73

All distances must be from the sub-surface of the Section.

Operator Amoco Production Company			Lease Rosa Unit		Well No. 98
Unit Letter L	Section 23	Township 31N	Range 6W	County Rio Arriba	
Actual Footage Location of Wells 1840 feet from the South line and 790 feet from the West line					
Ground Level Elev. 6267	Producing Formation Dakota/Gallup		Pool Basin Dakota/Undes. Gallup		Dedicated Acreage 5-320/160 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

RECEIVED

JUL 5 1983

U. S. GEOLOGICAL SURVEY
FARMINGTON, N.M.

RECEIVED

NOV 01 1984
OIL CON. DIV.
DIST. 3

Sec

23

790'

1078'

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.
Original Signed By
D. H. SHOEMAKER

Name

D. H. Shoemaker

Position

District Engineer

Company

Amoco Production Company

Date

JUL 1 1983

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

June 15, 1983

Registered Professional Engineer
and Land Surveyor

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

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1. TYPE OF WELL:		OIL WELL ☐ GAS WELL ☒ DRY ☐ Other ☐		2. NAME OF OPERATOR		3. ADDRESS OF OPERATOR		4. LOCATION OF WELL (Report location clearly and in accordance with any local regulations)		5. FIELD NO.		6. FIELD AND POOL, OR WILDCAT		7. SEC. T. R. M. OR BLOCK AND SURVEY OR AREA		8. COUNTY OR PARISH		9. STATE									
1. TYPE OF COMPLETION:		NEW WELL ☒ WORK OVER ☐ DEEP EN ☐ PLUG BACK ☐ DIFF. EXCAV ☐ Other ☐		Amoco Production Company		501 Airport Drive, Farmington, NM 87401		At surface 1840' FSL X 790' FWL		At top prod. interval reported below same		At total depth same		Basin Dakota		NW/SW, Sec. 23, T31N, R6W		Rio Arriba		NM							
14. PERMIT NO.		DATE ISSUED		15. DATE SPUNDED		16. DATE T.D. REACHED		17. DATE COMPL. (Ready to prod.)		18. ELEVATIONS (OF. RKB, RT. OR, ETC.)		19. ELEV. CASINGHEAD		20. TOTAL DEPTH, MD & TVD		21. PLUG BACK T.D., MD & TVD		22. IF MULTIPLE COMPL. HOW MANY?		23. INTERVALS DRILLED BY		24. ROTARY TOOLS		25. CABLE TOOLS			
				9-13-84		10-19-83		12-21-83		6280' KB		6267' GR		7958'		7950'		2		O-TD							
26. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*														27. WAS DIRECTIONAL SURVEY MADE													
7779'-7921' Basin Dakota														Yes													
28. TYPE ELECTRIC AND OTHER LOGS RUN														29. WAS WELL CORRED													
DIL-SP-GR, CNL-FD-GR-Caliper, long spaced digital sonic														No													
30. CASING RECORD (Report all strings set in well)																											
CASING SIZE		WEIGHT, LB./FT.		DEPTH SET (MD)		HOLE SIZE		CEMENTING RECORD								AMOUNT PULLED											
13-3/8"		48#, H-40		417		17-1/2"		480 cu. ft. Class B w/2% CaCl ₂								18,000 gal. 60# cross-linked											
8-5/8" 28#		(S-80, J-55)		24# (J-55)		7-7/8"		reamed 1st 591 cu. ft. Class "B" 65/35								gelled pad and 95,000 gal.											
4-1/2"		11.6# N-80		7958'		7-7/8"		(3rd) 240 cu. ft. Class "B" w/2% CaCl ₂								50# cross-linked gel w/2% KCL,											
31. LINER RECORD																											
SIZE		TOP (MD)		BOTTOM (MD)		SACKS CEMENT*		SCREEN (MD)		SIZE		DEPTH SET (MD)		PACKER SET (MD)		32. TUBING RECORD (see reverse s)											
										2-3/8"		7929'		7691'		20-40 sand											
33. CORPORATION RECORD (Interval, size and number)												34. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.															
7779'-7797', 7827'-7838', 7868'-7872', 7914'-7921', 2 jspf, .38", total of 80 holes												<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>DEPTH INTERVAL (MD)</td> <td>AMOUNT AND KIND OF MATERIAL USED</td> </tr> <tr> <td>7779'-7921'</td> <td>18,000 gal. 60# cross-linked gelled pad and 95,000 gal. 50# cross-linked gel w/2% KCL, 5% Methanol, and 205,000#</td> </tr> </table>												DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED	7779'-7921'	18,000 gal. 60# cross-linked gelled pad and 95,000 gal. 50# cross-linked gel w/2% KCL, 5% Methanol, and 205,000#
DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED																										
7779'-7921'	18,000 gal. 60# cross-linked gelled pad and 95,000 gal. 50# cross-linked gel w/2% KCL, 5% Methanol, and 205,000#																										
35. PRODUCTION												36. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.															
DATE FIRST PRODUCTION												PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)															
3-28-84												Flowing															
DATE OF TEST												WELL STATUS (Producing or shut-in)															
3-29-84												Shut-in															
HOURS TESTED												GAS-OIL RATIO															
3 hrs																											
CHOKE SIZE												OIL—BRL.															
.75												502															
PROD'N. FOR TEST PERIOD												GAS—MCF.															
												4016															
OIL—BRL.												WATER—BRL.															
CALCULATED 24 HOUR RATE												OIL GRAVITY-API (CORR.)															
325 psig																											
37. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)																											
To be sold																											
38. SIGNATURE OF ATTACHMENT																											
J. J. Barnett																											
ACCEPTED FOR RECORD																											

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

Original Signed By

SIGNED B. D. Shaw

TITLE Administrative Supervisor

DATE 4-5-84

DATE 4-5-81
ADMINISTRATIVE RESOURCE AREA

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

(Cemented string (1st) 4-1/2" casing string (1st) 770 cu. ft. Class "B" 50/50 poz tailed in with 118 cu. ft. Class "B" Neat (2nd) 1675 cu. ft. Class "B" 65/35 poz tailed in with 118 cu. ft. Class "B" Neat

2. SUMMARY OF POROUS ZONES (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem tests, including depth interval tested, cushion used, flowing and shut-in pressures, and recoveries)				38. GEOLOGIC MARKERS		
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
Cutured Cliffs	3100'	3300'				
Saverde	5877'	5872'				
1110	6810'	7592'				
denhorn	7892'	7648'				
aneros Shale	7648'	7823'				
in Dakota	7823'	7930'				

0 + 4 BLM-Farmington
 1 - J.C. Burnside-Denver
 1 - Open
 1 - 1200'

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.6

5. LEASE DESIGNATION AND SERIAL NO.

SF-078771

6. IF INDIAN, ALIOTTEE OR TRIBE NAME

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other ☐		FARMINGTON DISTRICT		7. UNIT AGREEMENT NAME Rosa Unit	
b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other ☐		DS DAS DE NOE SIC DPS		8. FARM OR LEASE NAME	
2. NAME OF OPERATOR Amoco Production Company				9. WELL NO. 98	
3. ADDRESS OF OPERATOR 501 Airport Drive, Farmington, New Mexico 87401				10. FIELD AND POOL, OR WILDCAT Undes Gallup	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements) At surface 1840' FSL x 790' FWL At top prod. interval reported below Same At total depth Same		11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA NW/SW, Sec. 23, T31N, R6W			
14. PERMIT NO.		DATE ISSUED JAN 20 1984		12. COUNTY OR PARISH Rio Arriba	
BUREAU OF LAND MANAGEMENT FARMINGTON RESOURCE AREA				13. STATE New Mexico	
15. DATE SPECIFIED 9-13-83	16. DATE T.D. REACHED 10-19-83	17. DATE COMPL. (Ready to prod.) 12-21-83	18. ELEVATIONS (DP, RES, RT, GR, ETC.) 6280' KB	19. ELEV. CASINGHEAD 6267' GL	
20. TOTAL DEPTH, MD & TVD 7958'	21. PLUG, BACK T.D., MD & TVD 7950'	22. IF MULTIPLE COMPL., HOW MANY? 2	23. INTERVALS DRILLED BY →	ROTARY TOOLS 0-TD	CABLE TOOLS
24. PRODDING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD) 6310'-7592' Gallup					25. WAS DIRECTIONAL SURVEY MADE Yes
26. TYPE ELECTRIC AND OTHER LOGS RUN DIL-SP-GR, CNL FC-GR-Caliper, Long Spaced Digital Sonic					27. WAS WELL CORED No
28. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13.375"	48#, H-40	417'	17-1/2"	480 cu.ft. Class B W/2% CaCl2	
8.675"	28#(S-80, J-55) (J-55)	524# 3794'	7.875" Reamed (1st) out to 11"	591 cu.ft. Class B 50:50	B 65:35 POZ (2)
4.5"	11.6#, N-80	7958'	7.875"	924 cu.ft. Class B w/2% CaCl2. (Cont. on back)	POZ (3rd) 240 cu.
29. LINER RECORD			30. TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT	SCREEN (MD)	SIZE
					2.375"
					DEPTH SET (MD) 7929'
					PACKER SET (MD) 7691'
31. PERFORATION RECORD (Interval, size and number) See Attached Page for perforations			32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC. See Attached page for stimulation		
33. PRODUCTION DATE FIRST PRODUCTION 1-10-84 PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Flowing WELL STATUS (Producing or shut-in) Shut-in					
DATE OF TEST 1-11-84	HOURS TESTED 3 hrs.	CHOSE SIZE .75	PROD'N. FOR TEST PERIOD →	OIL—RBL. 471	GAS—MCF. 3767
FLOW TUBING PRESS. 305 psig	CASING PRESSURE 1250 psig	CALCULATED 24-HOUR RATE →	OIL—RBL.	GAS—MCF.	WATER—RBL.
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) To Be Sold.			TEST WITNESSED BY J.J. Barnett		
35. LIST OF ATTACHMENTS			ACCEPTED FOR RECORD APR 06 1984 JANUARY 18, 1984		
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records SIGNED By U.D. Lawson			TITLE District Adm. Supervisor		

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filled prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, or each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above).

(Cementing cont. - 4.5" Casing string) (1st) 770 cu.ft. Class B 50:50 POZ tailed in with 118 cu.ft. Class B Neat.
(2nd) 1675 cu.ft. Class B 65:35 POZ tailed in with 118 cu.ft. Class B Neat.

SUMMARY OF FORMER ZONES				38. GEOLOGIC MARKERS	
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES					
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	MEAN DEPTH
atured Cliffs	3100'	3300'			
averde	5277'	5872'			
lup	6310'	7592'			
enhorn	7592'	7648'			
neros Shale	7648'	7823'			
n Dakota	7823'	7930'			

0 + 4 BLM-Farmington
1 - J.C. Burnside-Denver
1 - Open
1 - MW PL

Rosa Unit No. 98

Stimulation:

- (6310'-6540') 89,572 gal. 50# gelled water with 2% KCL, 1 gal. surfactant/1000 gals. fluid and 64,000# 20-40 mesh sand.
- (6838'-7194') 165,000 gal. 50# gelled water with 2% KCL, 1 gal. surfactant/1000 gals. fluid and 150,000# 20-40 mesh sand.
- (7258'-7428') 95,000 gal. 50# gelled water with 2% KCL, 5% condensate, and 65,000# 20-40 mesh sand.
- (7452'-7592') mini-frac 50,000 gal. 30# gelled water with 2% KCL, 1 gal. surfactant/1000 gal. fluid, and 1 millicurie of radioactive iodine/1000 gal. fluid.
- (7452'-7592') 36,340 gal. 30# gelled water with 2% KCL, 1 gal. surfactant/1000 gal. fluid, 1 millicurie of radioactive iodine/1000 gal. fluid and 32,680# 20-40 sand.

Rosa Unit No. 98

Perforations: Gallup

<u>Interval</u>	<u>Spacing</u>	<u>Diameter of Hole</u>	<u>Total Shots</u>
6310'-6324'	1 jsp2f	.39"	7
6326'-6348'	1 jsp2f	.39"	11
6350'-6372'	1 jsp2f	.39"	11
6374'-6396'	1 jsp2f	.39"	11
6398'-6416'	1 jsp2f	.39"	9
6420'-6444'	1 jsp2f	.39"	12
6446'-6468'	1 jsp2f	.39"	11
6470'-6492'	1 jsp2f	.39"	11
6494'-6516'	1 jsp2f	.39"	11
6518'-6540'	1 jsp2f	.39"	11
6838'-6862'	1 jsp2f	.39"	12
6864'-6886'	1 jsp2f	.39"	11
6888'-6910'	1 jsp2f	.39"	11
6912'-6934'	1 jsp2f	.39"	11
6936'-6958'	1 jsp2f	.39"	11
6960'-6982'	1 jsp2f	.39"	11
6983'-7003'	1 jsp2f	.39"	10
7010'-7026'	1 jsp2f	.39"	8
7028'-7050'	1 jsp2f	.39"	11
7052'-7074'	1 jsp2f	.39"	11
7076'-7098'	1 jsp2f	.29"	11
7100'-7122'	1 jsp2f	.29"	11
7124'-7146'	1 jsp2f	.29"	11
7148'-7170'	1 jsp2f	.29"	11
7172'-7194'	1 jsp2f	.29"	11
7258'-7428'	1 jsp2f	.38"	85
7452'-7592'	1 jspf	.38"	140
			492 total sh.

WELL NAME Ross # 98 DATE 12-17-84
FIELD Gallup
SHUT-IN TUBING — SHUT-IN CASING —
TYPE OF INSTRUMENT USED RPG-3
PRESSURE RANGE OF ELEMENT 3000 PSI
DATE ELEMENT CALIBRATED 1-11-84
BHP _____
SI DATE _____
COMMENTS _____

[illegible]

WELL NAME Rosa 98 DATE 12-1784
FIELD Basin Dakota
SHUT-IN TUBING _____ SHUT-IN CASING _____
TYPE OF INSTRUMENT USED RPG 3
PRESSURE RANGE OF ELEMENT 4000 PSI
DATE ELEMENT CALIBRATED 3-28-24
BHP _____
SI DATE _____
COMMENTS _____

[illegible]

Recommended Allocation Formula

Amoco Production Company recommends the following percentages to be used to allocate hydrocarbons to the Gallup and Dakota horizons in the Rosa Unit 98.

	<u>Gas</u>
Gallup	48%
Dakota	52%

Note: The gas allocation percentages were calculated using initial potential test results.

MEM

December 18, 1984

El Paso Natural Gas Company
P. O. Box 990
Farmington, NM 87499

File: DDL-1279-400.1

Dear Sirs:

Commingling Application
Rosa Unit 98
Section L23, T31N, R6W
Rio Arriba County, New Mexico

Amoco Production Company has applied for approval to commingle the Gallup and Dakota horizons in the subject well. If you have any objections, you have 20 days to notify the New Mexico Oil Conservation Division. If you do not respond within 20 days, your approval will be assumed.

Yours very truly,

Original signed

W. J. Holcomb

by DDL

MEM/ct

AM7