

APPLICATION TO EXPAND THE BASIN FRUITLAND COAL GAS PARTICIPATING AREA
- RINCON UNIT - RIO ARriba COUNTY, NEW MEXICO

Duane Spencer
Chief of Reservoir Management
Bureau of Land Management - Minerals Division
1235 La Plata Highway
Farmington, New Mexico 87401

Union Oil Company of California, as unit operator of the Rincon Unit, respectfully submits for your approval the following described lands to constitute expansion to the participating area for the Basin Fruitland Coal Gas producing formation, to wit:

TOWNSHIP 27 NORTH, RANGE 6 WEST, N.M.P.M.

Section 23:

Containing 320 acres, more or less

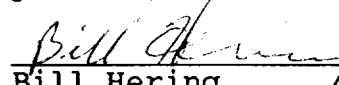
In support of this application, and in addition to the geologic and engineering reports, the following are attached:

- 1) Structure Top - Basin Fruitland Coal Gas Formation
- 2) Basin Fruitland Coal Gas Formation Gross Isopach
- 3) Type Log
- 4) Land Map - Rincon Unit
- 5) Rincon Unit #246 Fruitland Coal Gas Production Decline Curve
- 6) Rincon Unit #246 Fruitland Coal Gas Economics
- 7) Schedule of Lands and Working Interest Ownership in the expansion to the Basin Fruitland Coal Gas Participating Area (Participation Allocation Formula)
- 8) Applicant's Statement and Affidavit

This application is predicated on nine^{months} of actual production history from the Rincon Unit #246 well which first delivered on October 11, 1990.

Applicant respectfully requests your approval of the hereinabove selection of lands to constitute the expansion to the Basin Fruitland Coal Gas Formation participating area, to be effective October 1, 1990.

Dated this 27th day of September, 1991.



Bill Hering
District Petroleum Engineer
Union Oil Company of California

Well Summary

Well Name: Rincon Unit #246
Location: 1323'FNL, 1300'FEL, Sec 23, T27N, R6W
Elevation: 6630' GL
Total Depth: 3355'
Lease Number: SF-079365-A
Pool/Formation: Basin Fruitland Coal Gas
Spud Date: 7-24-90
Completion Date: 8-17-90
1st Delivery Date: 10-11-90
Perf'd Interval: 3215-3226, 3231-3236, 3241-3255, 3266-3269,
3273-3279, 3281-3299.

Geologic Summary

The Fruitland Formation was deposited in a coastal plain environment landward of the Pictured Cliffs strandline. It consists of shales, siltstones, sandstones and coal. The coals were deposited in low-lying areas such as lagoons, swamps and bayous behind the barrier islands, bars, and beaches of the Pictured Cliffs sandstone. The coal is best developed in the basal Fruitland, and extends aerially over the entire basin with the exception of a small region on the eastern margin. Net coal varies from 20 to 80 feet thick with the thickest sections being in the north-central part of the basin. The Rincon Unit coals range in thickness from 30 to 70 feet and in some areas of the unit are split into an upper and a basal coal zone. The coal itself is considered High Volatile C Bituminous in rank. Regional dip is 1 to 2 degrees to the northeast, and structure does not appear to be a factor in natural gas entrapment anywhere in the area of the unit.

Engineering Summary

The Rincon Unit #246 was drilled and completed by Union Oil Company of California as a Basin Fruitland Coal Gas producer in 1990. Surface pipe measuring 8-5/8" was set at 365 feet and cemented with 350 sacks to surface. Production casing measuring 4-1/2" was then set at 3355 feet and cemented in two stages to surface with 833 sacks cement. After drilling out to PBTD of 3350' the upper and lower coal zones were perforated from 3215'-3299' with 4 shots per foot and fracture stimulated with 320,000# 20/40 and 12,000# 100 mesh sand, 1.66 MMSCF N₂ and 34,125 gallons cross-linked gel water. The recorded initial potential and 24 hour shut-in pressure were 813 MCFD and 320 psi, respectively. The well was first delivered to the El Paso Natural Gas pipeline system on October 11, 1990. The current deliverability for the well against a 150# line pressure is 88 MCFD.

Volumetrics calculated on the below-listed parameters yields a recoverable gas volume of 0.59 Bcf.

Net Pay: 72 ft
Drainage area: 160 acres
Gas Content: 152 SCF/ton
Tonnage Factor: 1996 tons/acre-feet (from density log)
Recovery Factor: 17%

Economics

Completion Cost: \$294,000
Royalty Burden: 19.00%
Gas Price: \$1.20/MMBTU
Operating Cost: \$300/month
Tax Credit: \$0.84/MMBTU, \$0.92/MMBTU 1991-2003.
Production Rate: Maximum - 160 MCFD, Current - 55 MCFD,
No associated water production.

Economics based on the above are attached. Given the investment cost to complete this well payout should occur in 9.3 years. Compared with net total revenue this Basin Fruitland Coal Gas well produces in economic quantities above operating costs.

STATE OF NEW MEXICO

COUNTY OF SAN JUAN

APPLICANT'S STATEMENT AND AFFIDAVIT

BEFORE ME, the undersigned authority on this day personally appeared Bill Hering, District Petroleum Engineer, known to me to be the person whose name is subscribed to this instrument, who, having been by me first duly sworn, upon oath states as follows:

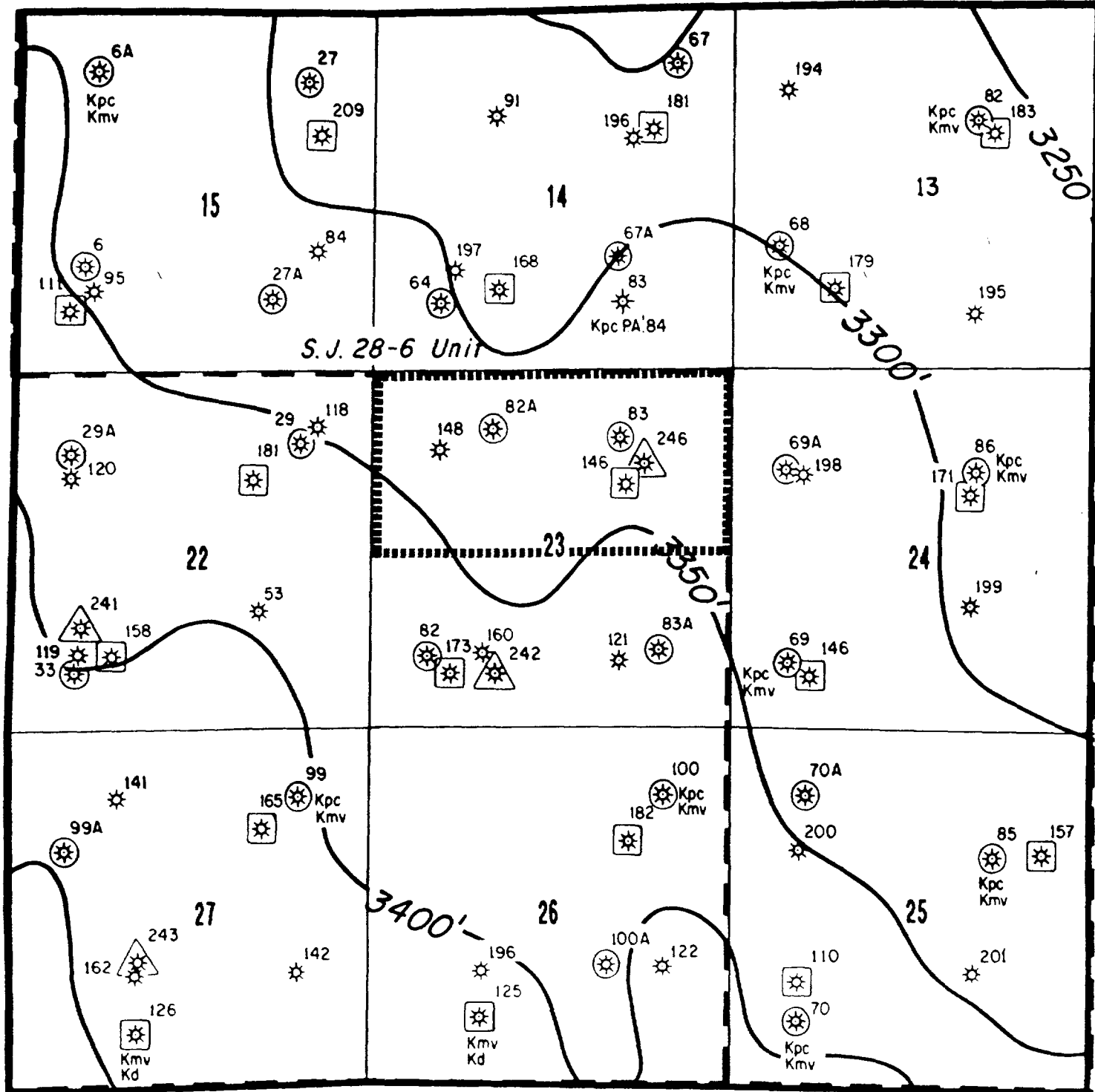
- 1) That this Statement and Affidavit is made concerning this application for expansion to the Basin Fruitland Coal Gas participating area in the Rincon Unit, in Section 23, T27N-R6W, comprising 320 acres.
- 2) That to the best of his information, knowledge and belief, the information supplied is true.
- 3) That notice of this application has been mailed or delivered to the Rincon Unit working interest owners in accordance with the unit agreement and the unit operating agreement.
- 4) That he certifies that the information and data contained in the application are true and correct and that all copies of records or summaries of such records relied upon in the application are true, correct and authentic copies of documents on file in the offices of Union Oil Company of California.
- 5) That he is of lawful age, that he is a responsible official of Union, that he is duly authorized to make this Statement and Affidavit on behalf of Union, that he has knowledge of the facts contained herein, that this Statement and Affidavit is true and correct, and that he adopts the allegations herein as his sworn statement.

SUBSCRIBED AND SWORN TO before me, this undersigned authority, on this day of Sept. 27, 1991.

Ardena K. Lenz
Notary Public in and for
San Juan County, New Mexico

My Commission Expires:

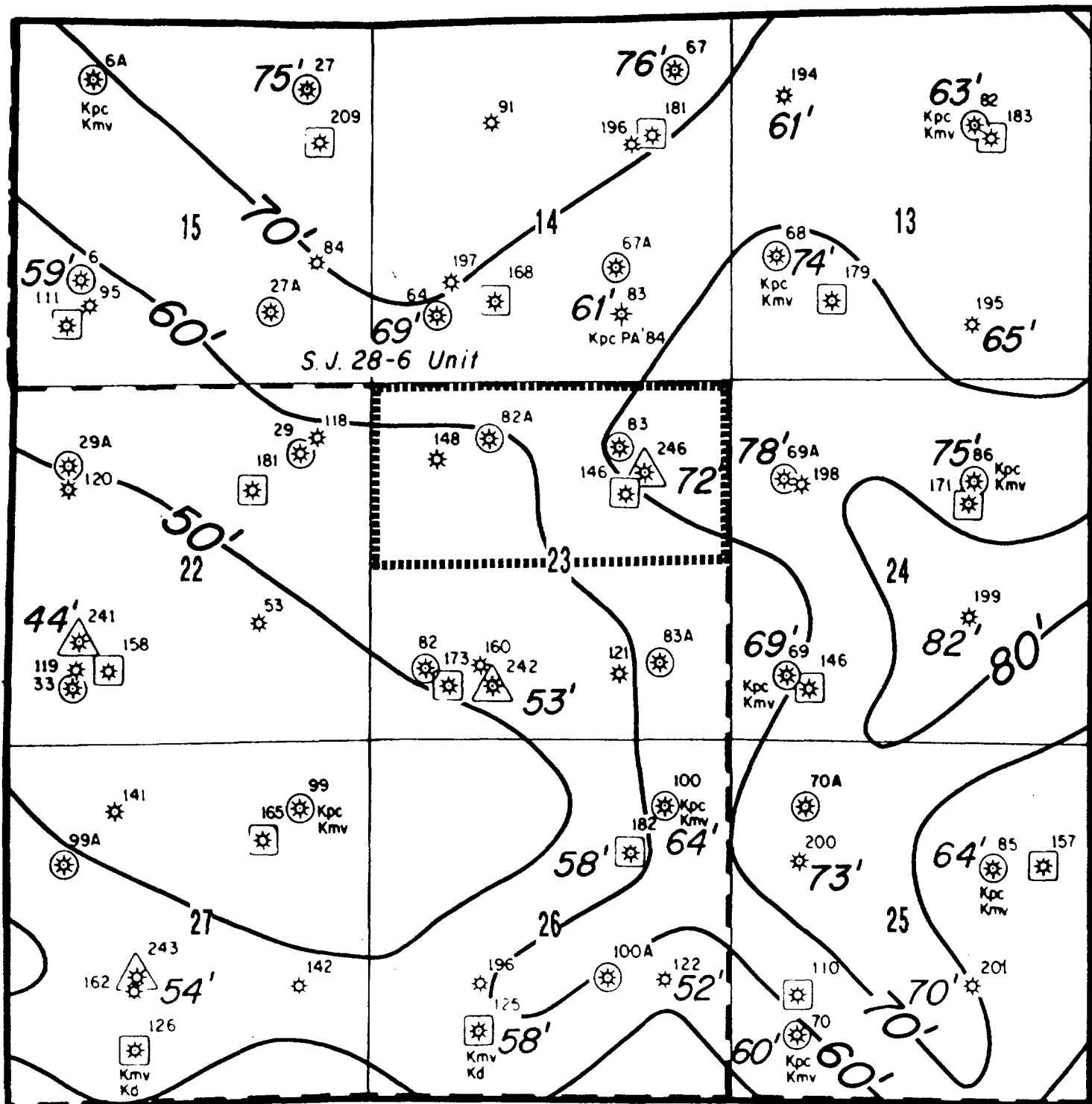
6/2/94



PRODUCING INTERVAL

Kfm	FARMINGTON	Kfm
Kk	KIRTLAND	Kk
Kf	FRUITLAND	Kf
Kpc	PICTURED CLIFFS	Kpc
Kc	CHACRA	Kc
Klv	LA VENTANA	Klv
Kmv	MESAVERDE	Kmv
Kg	GALLUP	Kg
Kd	DAKOTA	Kd
		Kch CLIFFHOUSE
		Km MENEFEE
		Kpl POINT LOOKOUT
		Kt TOCITO
		Kg GREENHORN

UNOCAL 76	
NORTH AMERICAN OIL & GAS DIVISION SOUTHWESTERN REGION	
RINCON UNIT	
RIO ARRIBA COUNTY, NEW MEXICO	
STRUCTURE	
BASE OF FRUITLAND COAL	
RINCON UNIT # 246	
N¹/₂ SEC. 23 -T27N R6W	
INTERP BY DV.H	SCALE 2 1/2" = 1 Mi. 1" = 50'
DRAFT BY	DATE 9-26-90 PREP NO. 1A184



PRODUCING INTERVAL

●	FARMINGTON	Kfm
●	KIRTLAND	Kk
●	FRUITLAND	Kf
●	PICTURED CLIFFS	Kpc
●	CHACRA	Kc
●	LA VENTANA	Klv
●	MESAVERDE	Kmv
●	GALLUP	Kgi
●	DAROTA	Kd

Kch CLIFFHOUSE
 Kmf MENEFEE
 Kpl POINT LOOKOUT
 Kt TOCITO
 Kgn GREENHORN

UNOCAL 76

NORTH AMERICAN OIL & GAS DIVISION
SOUTHWESTERN REGION

RINCON UNIT

RIO ARRIBA COUNTY, NEW MEXICO

ISOPACH

FRUITLAND COAL

RINCON UNIT # 246

N $\frac{1}{2}$ SEC. 23 -T27N R6W

INTERP BY D.V.H. SCALE 2 1/2" = 1 Mi. 1" = 10'
 DRAFT BY DATE 9-26-90 PRE NO. (A) 1