

Entered September 21, 1984

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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. 8262  
Order No. R-7670

APPLICATION OF SHELL WESTERN  
E&P INC. FOR INFILL WELLS,  
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8 a.m. on July 11, 1984, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 21st day of September, 1984, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) Section 271.305(b) of the Rules of the Federal Energy Regulatory Commission promulgated pursuant to the Natural Gas Policy Act of 1978 provides that, in order for an infill well to qualify as a new, onshore production well under Section 103 of said Act, the Division must find that the infill well is necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit which cannot be so drained by any existing well within the proration unit.

(3) The Oil Conservation Commission of New Mexico, by its Order No. R-6198 dated November 30, 1979, approved statutory unitization for the North Hobbs Grayburg-San Andres Unit Area, Hobbs Grayburg-San Andres Pool, Lea County, New Mexico, and, by its Order No. R-6199 dated November 30, 1979, authorized institution of the North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project in the North Hobbs Grayburg-San Andres Unit Area.

(4) The applicant herein, Shell Western E&P Inc., proposes to drill 35 North Hobbs Grayburg-San Andres Unit wells at the unorthodox locations described in Exhibit "A" attached hereto, under authority of Division Order No. R-7628 dated August 10, 1984, and to directionally drill three North Hobbs Grayburg-San Andres Unit wells from the unorthodox surface locations to a point within 75 feet of the unorthodox bottomhole locations described in Exhibit "B" attached hereto, under authority of Division Order No. R-7629 dated August 10, 1984.

(5) Each well drilled under authority of Division Order No. R-7628 shall be drilled as an infill well, being the second or subsequent well drilled on an established proration unit, as described in Exhibit "A" attached hereto.

(6) Each well drilled under authority of Division Order No. R-7629 shall be drilled as an infill well, being the second or subsequent well drilled on an established proration unit, being the governmental quarter-quarter section wherein the well is ultimately bottomed as determined by means of a continuous multi-shot directional survey conducted subsequent to the directional drilling of the well pursuant to the order.

(7) The applicant herein, Shell Western E&P Inc., seeks a finding that each well drilled under authority of Division Order No. R-7628 or Division Order No. R-7629 is necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit for the well which cannot be so drained by any existing well within the proration unit.

(8) The North Hobbs Grayburg-San Andres Unit Area covers approximately 10,650 surface acres and is currently developed by 264 wells, including 191 producing wells, 68 injection wells, and 5 shut-in or temporarily abandoned wells.

(9) The proposed infill drilling program described in Finding Nos. (4), (5), and (6) above will be conducted in the San Andres pay of the Hcbbs Grayburg-San Andres Pool.

(10) The structure is a NW-SE trending anticline that is approximately 8 miles long and 3 1/2 miles wide with nearly 400 feet of closure above the original oil-water contact, which was located at 614 feet subsea.

(11) Although the lateral continuity of the San Andres pay is considered to be good in a gross sense, very rapid facies changes, both horizontally and vertically, make it difficult to correlate individual pay strings between wells and localized barriers to fluid flow do exist.

(12) As a result of competitive drilling prior to unitization, many wells in the North Hobbs Grayburg-San Andres Unit Area were drilled on offsetting locations only 330 feet from a corner of their respective proration units.

(13) As a result of the lenticular nature of the reservoir rock as described in Finding No. (11) above and primary development of the North Hobbs Grayburg-San Andres Unit Area on cluster well patterns as described in Finding No. (12) above, portions of the Hobbs Grayburg-San Andres Pool covered by established proration units on which wells will be drilled under authority of Division Order No. R-7628 or Division Order No. R-7629 have not been effectively and efficiently drained.

(14) Each well drilled under authority of Division Order No. R-7628 or Division Order No. R-7629 will result in more effective and efficient drainage of a portion of the Hobbs Grayburg-San Andres Pool covered by the established proration unit on which the well will be drilled by improving pay continuity.

(15) The current injection pattern in the North Hobbs Grayburg-San Andres Pressure Maintenance Project is a modified 160-acre 5-spot pattern with a producer located at each corner and the injection well in the center of the quarter section.

(16) The injection pattern described in Finding No. (15) above has not provided an effective and efficient sweep of portions of the Hobbs Grayburg-San Andres Pool between the 160-acre patterns when the 160-acre patterns abut between producing wells, due to a lack of pressure sink or drainage points in such areas.

(17) Wells drilled under authority of Division Order No. R-7628 or Division Order No. R-7629 will be located in the areas of poor sweep efficiency described in Finding No. (16) above, resulting in a more effective and efficient sweep of such areas.

(18) Each well drilled and completed under authority of Division Order No. R-7628 or Division Order No. R-7629 should result in the recovery of an additional 125,000 barrels of oil and 80 MMCF of gas which would not otherwise be recovered.

(19) Each well drilled under authority of Division Order No. R-7628 or Division Order No. R-7629 is necessary to effectively and efficiently drain a portion of the Hobbs Grayburg-San Andres Pool covered by the proration unit for the well

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which cannot be so drained by any existing well within the proration unit.

(20) Based on the geological and engineering evidence presented in this case, the application should be approved.

IT IS THEREFORE ORDERED:

(1) That each well drilled under authority of Division Order No. R-7628 or Division Order No. R-7629 is hereby found to be necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit for the well which cannot be so drained by any existing well within the proration unit, all within the Hobbs Grayburg-San Andres Pool, Lea County, New Mexico.

(2) 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



R. L. STAMETS  
Acting Director

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NORTH HOBBS GRAYBURG-SAN ANDRES UNIT AREA  
PRESSURE MAINTENANCE PROJECT

HOBBS GRAYBURG-SAN ANDRES POOL  
LEA COUNTY, NEW MEXICO

Infill Wells

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM

<u>Section No.</u>	<u>Unit Well No.</u>	<u>Unit Letter</u>	<u>Well Location</u>	<u>Proration Unit</u>
13	342	O	1200' FSL & 2500' FEL	SW/4 SE/4
13	442	P	1200' FSL & 220' FEL	SE/4 SE/4
24	212	C	1280' FNL & 2620' FWL	NE/4 NW/4
24	312	B	10' FNL & 2630' FEL	NW/4 NE/4
24	342	O	145' FSL & 1435' FEL	SW/4 SE/4
24	414	A	10' FNL & 1280' FEL	NE/4 NE/4
24	432	I	2480' FSL & 1280' FEL	NE/4 SE/4
24	442	P	1260' FSL & 200' FEL	SE/4 SE/4

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

<u>Section No.</u>	<u>Unit Well No.</u>	<u>Unit Letter</u>	<u>Well Location</u>	<u>Proration Unit</u>
19	212	C	160' FNL & 1460' FWL	NE/4 NW/4
19	232	K	2795' FNL & 1390' FWL	NE/4 SW/4
19	332	J	1430' FSL & 2535' FEL	NW/4 SE/4
19	442	P	1100' FSL & 380' FEL	SE/4 SE/4
20	132	L	2490' FSL & 180' FWL	NW/4 SW/4
28	122	E	1592' FNL & 200' FWL	SW/4 NW/4
29	122	E	1600' FNL & 180' FWL	SW/4 NW/4
29	322	G	1430' FNL & 2350' FEL	SW/4 NE/4
29	323	G	2540' FNL & 2500' FEL	SW/4 NE/4
29	442	P	1230' FSL & 170' FEL	SE/4 SE/4
30	112	D	200' FNL & 1310' FWL	NW/4 NW/4
30	113	D	1310' FNL & 195' FWL	NW/4 NW/4
30	233	K	2455' FSL & 1480' FWL	NE/4 SW/4
30	242	N	200' FSL & 1400' FWL	SE/4 SW/4
30	332	J	2470' FSL & 1600' FEL	NW/4 SE/4
30	432	I	2260' FSL & 180' FEL	NE/4 SE/4
30	444	P	215' FSL & 1255' FEL	SE/4 SE/4
31	422	H	2259' FNL & 600' FEL	SE/4 NE/4
32	143	M	1185' FSL & 300' FWL	SW/4 SW/4
32	223	F	2630' FNL & 1410' FWL	SE/4 NW/4
32	312	B	210' FNL & 1400' FEL	NW/4 NE/4
32	332	J	1550' FSL & 2350' FEL	NW/4 SE/4
32	422	H	1385' FNL & 110' FEL	SE/4 NE/4
32	423	H	2540' FNL & 1280' FEL	SE/4 NE/4
33	212	C	205' FNL & 1420' FWL	NE/4 NW/4
33	242	N	1280' FSL & 2530' FWL	SE/4 SW/4
33	323	G	2495' FNL & 1420' FEL	SW/4 NE/4

EXHIBIT "A"  
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NORTH HOBBS GRAYBURG-SAN ANDRES UNIT AREA  
PRESSURE MAINTENANCE PROJECT

HOBBS GRAYBURG-SAN ANDRES POOL  
LEA COUNTY, NEW MEXICO

INFILL WELLS

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

<u>Section</u> <u>No.</u>	<u>Unit</u> <u>Well No.</u>	<u>Surface</u> <u>Location</u>	<u>Bottomhole</u> <u>Location</u>
28	242	1163' FSL & 2014' FWL	1100' FSL & 2400' FWL
30	312	500' FNL & 1448' FEL	20' FNL & 1268' FEL
33	312	136' FNL & 1702' FEL	10' FNL & 1330' FEL

EXHIBIT "B"  
CASE NO. 8262  
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