STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 11625
ORDER NO. R-10720

APPLICATION OF BURLINGTON RESOURCES OIL & GAS COMPANY FOR APPROVAL OF A PILOT PROJECT INCLUDING AN EXCEPTION FROM RULE 2(b) OF THE SPECIAL RULES AND REGULATIONS FOR THE BLANCO-MESAVERDE GAS POOL FOR PURPOSES OF ESTABLISHING A PROGRAM IN ITS SAN JUAN 29-7 UNIT TO DETERMINE PROPER WELL DENSITY AND WELL LOCATION REQUIREMENTS IN MESAVERDE WELLS, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on October 17, 1996, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 9th day of January, 1997, 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) The Blanco-Mesaverde Gas Pool is currently governed by the General Rules for the Prorated Gas Pools of New Mexico/Special Rules and Regulations for the Blanco-Mesaverde Gas Pool as contained within Division Order No. R-8170, as amended. Rule Nos. 2(a) and 2(b) of the Special Rules and Regulations for the Blanco-Mesaverde Gas Pool require that a standard gas proration unit (GPU) comprise 320 acres, that the initial well on a GPU be located no closer than 790 feet from the outer boundary of the quarter section on which the well is located nor closer than 130 feet from any quarter-quarter section line or subdivision inner boundary, and that the infill well within a standard GPU be located in the quarter section not containing a Mesaverde well at a location which conforms to the setback requirements described above.

(3) The applicant, Burlington Resources Oil & Gas Company (Burlington), seeks authority to institute a pilot infill drilling program within its San Juan 29-7 Unit whereby up to four wells may be drilled on a standard gas proration unit. The applicant further seeks:

a) to establish a ½ mile buffer zone within the outer boundary of the San Juan 29-7 Unit in which area standard well density for the Blanco-Mesaverde Gas Pool shall apply in order to protect the correlative rights of offset operators;

b) an exception to Rule No. 2(b) of the Special Rules and Regulations for the Blanco-Mesaverde Gas Pool whereby the applicant may locate the proposed infill wells anywhere within the proration unit provided that such wells are located no closer than 10 feet from any section, quarter-section or quarter-quarter section line;

c) authority to commence drilling the following described eight wells within Phase I of its proposed infill drilling program:

WELL NAME	WELL LOCATION
SJ 29-7 Unit No. 37B	2370' FNL & 805' FWL (E) 12-29N-7W
SJ 29-7 Unit No. 37C	2630' FNL & 2630' FWL (F) 12-29N-7W
SJ 29-7 Unit No. 47B	2610' FSL & 2200' FEL (J) 2-29N-7W
SJ 29-7 Unit No. 57B	(Surf.) 1500' FSL & 1660' FEL (J) 11-29N-7W (BH) 465' FSL & 2340' FWL (N) 11-29N-7W
SJ 29-7 Unit No. 64B	(Surf.) 1510' FSL & 1640' FEL (J) 11-29N-7W (BH) 820' FSL & 150' FEL (P) 11-29N-7W
SJ 29-7 Unit No. 64C	225' FNL & 1995' FEL (B) 11-29N-7W
SJ 29-7 Unit No. 85B	(Surf.) 1795' FSL & 1510' FWL (K) 1-29N-7W (BH) 285' FSL & 245' FWL (M) 1-29N-7W
SJ 29-7 Unit No. 85C	(Surf.) 1820' FSL & 1520' FWL (K) 1-29N-7W (BH) 2630' FNL & 300' FWL (E) 1-29N-7W

d) no increase in the gas allowable or in the method of calculating gas allowables in the Blanco-Mesaverde Gas Pool for any of the standard gas proration units targeted for the proposed infill drilling.

(4) The applicant is the current operator of the San Juan 29-7 Unit, a Federal exploratory unit comprising some 22,500 acres and encompassing Sections 1 through 36, Township 29 North, Range 7 West, NMPM, Rio Arriba County, New Mexico.

(5) According to applicant's testimony, its plan of development for the San Juan 29-7 Unit includes drilling fourteen (14) 160-acre infill Mesaverde wells in 1997, at which point the unit will be fully developed in the Blanco-Mesaverde Gas Pool.

(6) Applicant testified that the Mesaverde Participating Area (PA) and consequently the Mesaverde interest ownership within the San Juan 29-7 Unit has been fixed since 1959 and is not subject to further revisions.

(7) The evidence and testimony presented indicates that the applicant has undertaken a study to analyze the drainage efficiency of Mesaverde gas wells in the San Juan Basin. As part of this study, the applicant has examined various geologic and engineering factors which may affect ultimate gas recoveries.

(8) In its investigation, the applicant gathered initial shut-in wellhead pressure data from both the initial and infill wells on approximately 1,200 standard gas proration units within the San Juan Basin. Applicant then utilized this data to construct pressure drop maps.

(9) Applicant's data indicates that there are considerable pressure drop differences between areas in the San Juan Basin. Pressure drops range from greater than 30 psi/year to less than 5 psi/year.

(10) The pressure drop within the San Juan 29-7 Unit is relatively low ranging from approximately 5-15 psi/year.

(11) Applicant, utilizing core data from the Mesaverde formation taken from wells in both the high and low pressure drop areas of the basin, as well as other geologic data, has reached the following geologic conclusions:

a) the calculated pressure drops are a good indication of effective permeability in the Mesaverde reservoir;

b) areas with low pressure drops are most likely not being efficiently and effectively drained by existing well density;

c) the difference between areas of high and low pressure drop cannot be attributed to differences in matrix porosity and permeability, reservoir structure or reservoir thickness;

d) the presence and density of natural fractures in the Mesaverde reservoir appear to account for the differences between areas of high and low pressure drop, and resulting differences in drainage efficiency;

e) data from applicant's Mesaverde Strat Test Well No. 2, a pressure observation well, indicates that the Menefee interval, one of the primary producing intervals in the Mesaverde formation, exhibits near virgin reservoir pressure even though this interval has been produced in offset wells for a considerable period of time; and,

f) the Menefee, Cliffhouse and Point Lookout to a lesser extent, can be laterally discontinuous from one well location to another.

(12) Applicant testified that in its reservoir modeling for the proposed pilot project, it will utilize geostatistics and stochastic modeling to input geologic parameters. According to applicant's evidence and testimony, this method of analyzing geologic data allows you to capture and quantify the correlatability and directionality of existing data, and distribute this data in a non-averaging method between data points.

(13) Utilizing geostatistics and stochastic modeling allows the input of more realistic geologic data which should ultimately result in a much more accurate and realistic flow simulation within the Mesaverde reservoir.

(14) Applicant presented engineering evidence and testimony which indicates that:

a) in high pressure drop areas, (i.e. those areas containing natural fractures in the Mesaverde formation), the recovery rates of gas, based upon volumetrics and decline curve analysis, range from approximately 60-80 percent of the original gas in place. Correspondingly, those areas of low pressure drop typically exhibit low recovery rates of gas in the range of approximately 20-50 percent of original gas in place;

b) the recovery rate of gas from the San Juan 29-7 Unit, subsequent to the completion of 160-acre infill drilling, will be approximately 51 percent of the original gas in place.

(15) Due to the low recovery rates within the San Juan 29-7 Unit, applicant has determined this to be an ideal location to conduct the pilot infill drilling study.

(16) The applicant presented the results of a reservoir simulation study conducted on that portion of the San Juan 29-7 Unit comprising Sections 1, 2, 11 and 12. The simulation was conducted using runs which assume 1, 2, 3 and 4 additional wells are drilled per section. The results indicate that significant increases in ultimate gas recovery are achieved by drilling one and two additional wells per section, and that lesser increases in ultimate gas recovery are achieved by drilling more than two additional wells per section.

(17) Applicant estimates that by drilling an additional two wells per section within the San Juan 29-7 Unit, ultimate gas recovery from the unit will increase from approximately 63 BCFG to approximately 74 BCFG.

(18) Applicant has notified all interest owners in the San Juan 29-7 Unit as well as all operators in the Blanco-Mesaverde Gas Pool of its application in this case.

(19) No offset operator and/or interest owner appeared at the hearing in opposition to the application.

(20) Preliminary geologic and engineering data indicate that the proposed pilot infill drilling program within the San Juan 29-7 Unit will allow the applicant the opportunity to test the effectiveness of its geostatistics and stochastic modeling, will allow the applicant the opportunity to gather additional geologic and engineering data to determine proper well density in this portion of the Blanco-Mesaverde Gas Pool, will allow the recovery of additional gas reserves from the San Juan 29-7 Unit which may otherwise not be recovered, thereby preventing waste, and will not violate correlative rights.

(21) The applicant should be authorized to conduct its pilot infill drilling program within its entire San Juan 29-7 Unit area with the exception of the following described "buffer zone":

TOWNSHIP 29 NORTH, RANGE 7 WEST, NMPM

Section 1: N/2, SE/4
Sections 2 through 5: N/2
Section 6: N/2, SW/4
Sections 7, 18, 19, 30: W/2
Section 31: W/2, SE/4
Sections 32 through 35: S/2
Section 36: S/2, NE/4
Sections 12, 13, 24, 25: E/2

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Burlington Resources Oil & Gas Company, is hereby authorized to conduct a pilot infill drilling program within its San Juan 29-7 Unit whereby up to four wells may be drilled on a standard gas proration unit in the Blanco-Mesaverde Gas Pool.

(2) The pilot project area shall comprise applicant's entire San Juan 29-7 Unit area with the exception of the following described "buffer zone", in which area standard well density for the Blanco-Mesaverde Gas Pool shall apply:

TOWNSHIP 29 NORTH, RANGE 7 WEST, NMPM
Section 1: N/2, SE/4
Sections 2 through 5: N/2
Section 6: N/2, SW/4
Sections 7, 18, 19, 30: W/2
Section 31: W/2, SE/4
Sections 32 through 35: S/2
Section 36: S/2, NE/4
Sections 12, 13, 24, 25: E/2

(3) As an exception to Rule No. 2(b) of the Special Rules and Regulations for the Blanco-Mesaverde Gas Pool, the applicant is hereby authorized to drill the infill wells within the pilot project area anywhere within a standard gas proration unit provided that such wells are located no closer than 10 feet from any section, quarter-section or quarter-quarter section line.

(4) The applicant is hereby further authorized to commence drilling the following described infill wells within Phase I of its pilot project, provided however, that such wells shall be located at a location in conformance with the setback requirements described above:

WELL NAME	WELL LOCATION
SJ 29-7 Unit No. 37B	2370' FNL & 805' FWL (E) 12-29N-7W
SJ 29-7 Unit No. 37C	2630' FNL & 2630' FWL (F) 12-29N-7W
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SJ 29-7 Unit No. 85C	(Surf.) 1820' FSL & 1520' FWL (K) 1-29N-7W (BH) 2630' FNL & 300' FWL (E) 1-29N-7W

(5) The wells and/or standard gas proration units within the pilot project area shall not receive a gas allowable greater than that which would normally be assiged a proration unit containing two wells in the Blanco-Mesaverde Gas Pool.

(6) 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

WILLIAM J. LeMAY
Director

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