

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:

NOMENCLATURE
CASE NO. 12888
ORDER NO. R-8768-C

APPLICATION OF THE FRUITLAND COALBED METHANE STUDY
COMMITTEE TO AMEND RULES 4 AND 7 OF THE SPECIAL RULES AND
REGULATIONS FOR THE BASIN-FRUITLAND COAL (GAS) POOL AND FOR
THE TERMINATION OF THE CEDAR HILL-FRUITLAND BASAL COAL POOL
AND THE CONCOMITANT EXPANSION OF THE BASIN-FRUITLAND COAL
(GAS) POOL, RIO ARRIBA, SAN JUAN, MCKINLEY, AND SANDOVAL
COUNTIES, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 9, 2002, at Farmington, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 15th day of October, 2002 the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) The applicant in this case, the Fruitland Coalbed Methane Study Committee ("Committee"), seeks an order of the Division to amend the "*Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool*" as promulgated by Division Order No. R-8768, as amended by Orders No. R-8768-A and R-8768-B, as follows:

(a) Increase well density for coalbed methane wells by amending Rules 4 and 7 of the special pool rules for the Basin-Fruitland Coal Gas Pool (71629) located in Rio Arriba, San Juan, McKinley and Sandoval Counties, New Mexico to authorize, under certain restrictions, infill development by increasing the well density from the current maximum of one (1) well provided in Order No. R-8768,

BEFORE THE
OIL CONSERVATION COMMISSION
Case No. 12734
Exhibit # **A-29**
Submitted By: Richardson Oper. Co.
Hearing Date: October 29, 2002

*Application of Richardson Operating
Co.
Record on Appeal, 844.*

as amended, to a maximum of two (2) wells (160-acre infill) per 320-acre gas spacing unit for wells located in the pool.

(b) In the alternative, Applicant requests the adoption of the well density rules referenced in subparagraph (a), above, for wells located in the "Low Productivity Area" of the pool and of special administrative notification procedures for infill wells proposed to be drilled in the "High Productivity Area" of the pool.

(c) Applicant further proposes to amend the well location provision of Rule 7 of the special pool rules to conform with the well location requirements for the Basin-Dakota Pool (71599) to provide that wells located outside a federal exploratory unit may be drilled anywhere within a standard 320-acre gas spacing unit provided such wells are located no closer than 660 feet to the outer boundary of the unit nor closer than 10 feet from any interior quarter or quarter-quarter section line or subdivision inner boundary; and to further provide that wells located within federal exploratory units may not be closer than 10 feet to any section, quarter section, or interior quarter-quarter section line or subdivision inner boundary, provided however that:

(i) wells shall not be closer than 660 feet to the outer boundary of a federal exploratory unit;

(ii) wells located within the unitized area but adjacent to an existing or prospective spacing unit containing any non-committed tract or partially committed tract shall be no closer than 660 feet to the outer boundary of such spacing unit; and further

(iii) wells located within the unitized area but within a non-committed or partially committed gas spacing unit shall not be closer than 660 feet to the outer boundary of that unit.

(d) Applicant also seeks to abolish the Cedar Hill-Fruitland Basal Coal Pool (74500) and incorporate the horizontal and vertical limits of the Cedar Hill-Fruitland Basal Coal Pool into the Basin-Fruitland Coal (Gas) Pool.

(3) The following parties of record entered their appearances in this case and participated at the hearing:

(a) Burlington Resources Oil and Gas Company ("Burlington"), BP America, Inc. ("BP"), and Phillips Petroleum Company ("Phillips"), as operators of wells currently producing from the Basin-Fruitland Coal (Gas) Pool, presented technical evidence.

(b) Steve Hayden, District Geologist for the Division's Aztec District Office, testified in his capacity as Chairman of the Committee.

(c) Williams Production Company, Chevron-Texaco, Dugan Production Corporation, Texakoma Oil and Gas Production, McElvain Oil and Gas, and Synergy Operating Company, all operators of wells currently producing from the Basin-Fruitland Coal (Gas) Pool, also appeared at the hearing.

(d) San Juan Coal Company, the operator of a coal mine and owner of a number of coal mining leases and interests, also appeared at the hearing.

(e) Representatives of the U. S. Department of the Interior's Bureau of Land Management and the Division's Aztec district office also appeared at the hearing and offered both written and verbal comments on the Application.

(f) In addition to the parties of record and the representatives of industry and government referenced above, a number of individual surface owners and representatives of various interest groups also attended the hearing and offered their comments on the Application and on other matters beyond the scope of the proceeding and the Division's jurisdiction. These individuals and representatives included: Dr. Brooks Taylor; Ms. Tweetie Blancett; Commissioner Bill Humphries, former Commissioner of Public Lands of the State of New Mexico (appearing for the New Mexico Cattle Growers Association); Ms. Janet Reese; and Mr. Allen Ralston (appearing for the San Juan Citizens Alliance).

(4) In compliance with the Division's notice rules and Rule 4 of the Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool, Burlington, on behalf of the Committee, sent approximately 67 copies of this application, including its version of the proposed rule changes and notice of hearing to approximately 300 operators in the Basin-Fruitland Coal (Gas) Pool. Notice of this case was also published in the appropriate newspapers and on the Division's hearing docket.

(5) The horizontal limits of the Basin-Fruitland Coal (Gas) Pool currently comprise the following-described area in all or portions of San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico, with the exception of Sections 3 through 6 of Township 31 North, Range 10 West, NMPM and Sections 19 through 22 and 27 through 34 of Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico, which acreage (comprising approximately 10,240 acres) currently comprises the Cedar Hill-Fruitland Basal Coal Pool that was established by Division Order No. R-7588, issued in Case No. 8014 on July 9, 1984:

Township 19 North, Ranges 1 West through 6 West, NMPM;
Township 20 North, Ranges 1 West through 8 West, NMPM;
Township 21 North, Ranges 1 West through 9 West, NMPM;
Township 22 North, Ranges 1 West through 11 West, NMPM;
Township 23 North, Ranges 1 West through 14 West, NMPM;
Township 24 North, Ranges 1 East through 16 West, NMPM;
Township 25 North, Ranges 1 East through 16 West, NMPM;
Township 26 North, Ranges 1 East through 16 West, NMPM;
Township 27 North, Ranges 1 West through 16 West, NMPM;
Township 28 North, Ranges 1 West through 16 West, NMPM;
Township 29 North, Ranges 1 West through 15 West, NMPM;
Township 30 North, Ranges 1 West through 15 West, NMPM;
Township 31 North, Ranges 1 West through 15 West, NMPM; and
Township 32 North, Ranges 1 West through 13 West, NMPM.

(6) The vertical limits of both the Basin-Fruitland Coal (Gas) Pool and the Cedar Hill-Fruitland Basal Coal Pool include all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the well log from the Amoco Production Company Schneider Gas Com "B" Well No. 1 (API No. 30-045-22178) located 1110 feet from the South line and 1185 feet from the West line (Unit M) of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County (see Division Orders No. R-8768, issued in Case No. 9420 on October 17, 1988, and R-7588-B, issued in Case No. 9362 on October 19, 1988).

(7) The Basin-Fruitland Coal (Gas) Pool is an "unprorated gas pool" not subject to part H of the Division's statewide rules and regulations entitled "gas proration and allocation" (Rules 601-605). However, the Basin Fruitland Coal "Gas" Pool is subject to the "*Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool*," established by Division Order No. R-8768, as amended by Orders No. R-8768-A and R-8768-B, which rules provide for:

- (i) 320-acre spacing units (Rule 4); and
- (ii) wells to be located in either the NE/4 or SW/4 of a single governmental section and no closer than 660 feet to the outer boundary of the spacing unit nor closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary (Rule 7).

(8) Rule 4 of the "*Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool*" directs that each well to be completed in the pool is to be located on a standard unit containing 320 acres, more or less, comprising any two contiguous quarter sections of a single governmental section.

(9) The Committee is a voluntary technical study group comprised of representatives of the Division's Aztec District office and numerous operators in the San Juan Basin. The Committee's purpose is to evaluate past and ongoing development in the Basin-Fruitland Coal (Gas) Pool and the Cedar Hill-Fruitland Basal Coal Gas Pool and make recommendations to the Division on the future development in the pools.

(10) During the course of the Committee's deliberations, all of the Committee participants were in agreement that there are areas where 160-acre infill development is warranted.

(11) The Committee participants also agreed that there are other areas where one well would be capable of draining in excess of 320 acres. The Committee determined that in these areas, infill drilling could lead to the drilling of unnecessary wells.

(12) BP presented evidence to the Committee showing that wells making less than 2.0 million cubic feet per day were capable of draining only 200 acres. In recognition of the smaller drainage radii in those areas where wells produce less than 2.0 million cubic feet per day, the Committee established a boundary for what it has labeled the "Low Productivity Area."

(13) The Committee labeled the area outside of the Low Productivity Area, where a single well is capable of draining in excess of 200 acres, the "High Productivity Area." The acreage in the High Productivity Area in both San Juan and Rio Arriba Counties, New Mexico, is identified as follows:

Township 29 North, Range 6 West, NMPM

Sections 2 through 8: All
Sections 11 and 12: All
Sections 17 and 18: All

Township 29 North, Range 7 West, NMPM

Section 1: All
Sections 12 and 13: All

Township 30 North, Range 5 West, NMPM

Sections 19 through 21: All
Sections 29 through 31: All

Township 30 North, Range 6 West, NMPM

Sections 5 through 35: All

Township 30 North, Range 7 West, NMPM

Sections 1 through 18: All
Sections 22 through 26: All
Section 36: All

Township 30 North, Range 8 West, NMPM

Sections 1 through 4: All
Sections 10 through 13: All

Township 30 North, Range 9 West, NMPM

Section 2: All

Township 31 North, Range 6 West, NMPM

Section 6: All
Section 31: All

Township 31 North, Range 7 West, NMPM

Section 1: All

Sections 12 through 14: All
Sections 19 through 36: All

Township 31 North, Range 8 West, NMPM

Sections 4 through 10: All
Sections 13 through 36: All

Township 31 North, Range 9 West, NMPM

Sections 1 through 7: All
Sections 11 through 14: All
Sections 22 through 27: All
Sections 34 through 36: All

Township 32 North, Range 6 West, NMPM

Section 19: All
Sections 29 through 31: All

Township 32 North, Range 7 West, NMPM

Sections 23 through 26: All
Section 36: All

Township 32 North, Range 8 West, NMPM

Section 19: All
Sections 30 through 32: All

Township 32 North, Range 9 West, NMPM

Sections 24 through 26: All
Sections 30 through 32: All
Sections 35 and 36: All

Township 32 North, Range 10 West, NMPM

Sections 7 through 12: All
Sections 14 through 25: All
Sections 28 through 30: All

Township 32 North, Range 11 West, NMPM

Sections 11 through 13: All
Section 24: All

(14) The Low Productivity Area is that acreage within the horizontal boundaries of the Basin-Fruitland Coal (Gas) Pool described in Paragraph 6, above, and the Cedar Hill-Basal Coal Pool described in Paragraph 10, above, excluding the High Productivity Area.

(15) The Committee participants were in unanimous agreement that effective 160-acre infill development in the Low Productivity Area is justified.

(16) The Committee was unable to reach consensus on the need for infill development within the High Productivity Area. Two witnesses, Steve Hayden of the Division's Aztec District Office and Steve Jones of Phillips, testified that there is a lack of sufficient engineering data from wells located within the High Productivity Area.

(17) There was disagreement among the Committee participants on the proper approach to development within the High Productivity Area. Some members advocated infill drilling within the high productivity area without limitation. Other members advocated infill drilling subject to the adoption of special notification rules and administrative procedures. Others asserted that additional data was needed and that further study was warranted. As a consequence of the disagreement, the Committee concluded that it would be appropriate to provide for the collection of additional engineering data in order to further study infill development within the high productivity area and to revisit the issue after one year's time.

(18) In its Application, the Committee specifically proposed that the "*Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool*" be amended to provide, inter alia, that operators proposing an optional infill well in a spacing unit within the High Productivity Area must notify offset operators, but that such Application for Permit to Drill ("APD") for such optional infill well could be approved by the Division's District Supervisor in Aztec in the absence of objection within twenty days after such notice.

(19) The testimony of witnesses who participated in the Committee deliberations establishes that the Application does not reflect the full range of views of the Committee participants or the scope of relief that the Committee resolved would be requested. Specifically, the Application fails to reflect the Committee's determination that additional production and engineering data from wells within the High Productivity Area should be obtained and studied before any recommendation is made for infill development in that area.

(20) In Division Order No. R-8768, issued in Case No. 9420 on October 17, 1988, the Division found that:

"(14) Further testimony and evidence indicates that due to the unique producing characteristics of coal seams (i.e. initial inclining production rates), engineering methods such as decline curve analysis and volumetric calculations traditionally used to aid in the determination of proper well spacing, cannot be utilized."

(21) In Division Order No. R-11639, issued in Case No. 12651 on August 22, 2001, the Division found as follows:

"(7) By Order No. R-8768-A, dated July 16, 1991, the Division made findings based on work presented by the "Fruitland Coalbed Methane Committee" concerning the Basin-Fruitland Coal (Gas) Pool showing that one well can generally drain and effectively develop 320 acres [see Finding Paragraphs No. 6 and 7 on page 2 of Order No. R-8768-A]; however, there may be certain areas within the San Juan Basin where reservoir parameters such as porosity, permeability, coal thickness, pressure, gas content, sorption isotherm and initial gas/water saturation may exist in certain combinations such that infill drilling may be required to increase gas recovery."

(22) In Division Order No. R-8768-B, issued in Case No. 12296 on February 10, 2000, based on geologic and engineering evidence presented by Burlington, the Division found [see Finding Paragraph No. (15) on pages 4 and 5] that:

"(a) the Basin-Fruitland Coal (Gas) Pool can be divided into an over-pressured area and an under-pressured area;

(b) the over-pressured area is located in the north central portion of the pool and currently comprises all or portions of the following described area in San Juan and Rio Arriba Counties, New Mexico;

*Township 29 North, Ranges 5 West through 8 West, NMPM;
Township 30 North, Ranges 4 West through 9 West, NMPM;
Township 31 North, Ranges 5 West through 10 West,*

NMPM; and

Township 32 North, Ranges 5 West through 12 West,

NMPM;

(c) *nearly all of the acreage in the over-pressured area has been developed and adequately drained. The area drained by individual wells in the over-pressured area of the pool is approximately 320 acres;*

(d) *initial completions in the over-pressured area experienced reservoir pressures of approximately 1600 psi; currently new completions experience reservoir pressures of between 400 and 500 psi;*

(e) *permeability in the over-pressured area is approximately 4.5 millidarcies;*

(f) *because the over-pressured area has essentially been developed and the reservoir pressure has decreased substantially, relaxing the setback requirements in the over-pressured area will not violate correlative rights;*

(g) *the under-pressured area includes the remainder of the acreage in the Basin-Fruitland Coal (Gas) Pool;*

(h) *the under-pressured area is not fully developed and is the area of primary concern for future development under the proposed setback changes. The area drained by individual wells in the under-pressured area of the pool is approximately 160 acres;*

(i) *initial completions in the under-pressured area experienced reservoir pressures of less than 600 psi; currently new completions experience reservoir pressures of between 200 and 300 psi; [and]*

(j) *permeability in the under-pressured area is approximately .3 millidarcies."*

(23) In Division Order No. R-11639, issued in Case No. 12651 on August 22, 2001, the Division found that geologic and engineering evidence established the following [see Finding Paragraph No. (9) on pages 4 and 5]:

"(a) the Basin-Fruitland Coal (Gas) Pool can be subdivided into an over-pressured area, which is commonly referred [sic] to as the

"fairway," which trends northwest-southeast and splits the basin into a northeastern one-third and southwestern two-thirds, and under-pressured areas on either side of this trend;

(b) the cumulative production from the Basin-Fruitland Coal (Gas) Pool has served to highlight the sharp contrast and characteristics of coal bed methane production between the fairway and the under-pressured areas;

(c) producing wells within the fairway appear to be draining 320 acres under the existing well density rules of one well per 320-acre spacing unit, while wells in the under-pressured areas appear not to be adequately draining 320 acres;

(d) most of the reservoir engineering data and well simulation information in the original pool cases were based upon well performance and production data in a particular area, known as Cedar Hill, within the fairway; [and]

(e) currently available data in the under-pressured area is not adequate to determine whether: (i) conventional calculations of original gas in place are correct and more wells are needed; or (ii) those reserves are substantially overestimated and the current well density is adequate."

It was further determined in this finding that:

"(h) the stratigraphic complexity and grouping relationships observed in each pilot area will dictate the number of layers that are tested and ultimately modeled separately for coal quality, isotherm development, current levels of depletion, gas content, and productive potentials; [and]

(i) there is a need for layered pressure evaluation, which cannot be obtained from existing wellbores."

(24) BP's petroleum engineering expert witness testified that wells capable of producing 2.0 million cubic feet per day would drain between 240 and 320 acres. BP's engineering witness also testified that net coal thickness and gas content are poor indicators of a well's drainage radius.

(25) BP's engineering witness further testified that the effective permeability in the High Productivity Area could be as high as 100 millidarcies. The witness noted a correlation between permeability and producing rates, concluding that drainage areas are strongly influenced by permeability. He further noted the existence of significant areas of high permeability within the High Productivity Area.

(26) BP's engineering witness testified that infill drilling would be necessary to recover an additional 500 billion cubic feet of gas within the High Productivity Area that would not be accessible with existing wells. The witness's conclusions were based on infill drilling data from Colorado.

(27) BP's engineering witness testified that without frequent and accurate pressure measurement it was not possible to conduct a correct material balance calculation in order to determine drainage radii for infill development wells. The witness admitted that he did not have actual pressure data from wells within the High Productivity Area in New Mexico that would have enabled him to conduct a correct material balance calculation.

(28) BP's material balance exhibits for the Colorado wells show widely variable drainage areas for parent and infill wells. BP's engineering witness testified that it is likely that as much variability in the drainage area would be encountered in infill wells in New Mexico.

(29) BP's graphic evidence of Colorado* historical production demonstrates that parent wells began to experience a decline in production when infill wells started to come on line, indicating the possible existence of communication and interference between parent and infill wells.

(30) Graphic evidence presented by BP comparing drainage areas and highest producing rates shows a high degree of variability throughout the infill development area in Colorado. BP's engineering witness testified that one could reasonably expect to encounter similar variability within the high productivity area in New Mexico.

(31) BP's engineering witness testified that the company plans to drill in excess of 150 infill wells in the future within the High Productivity Area.

(32) The geologic evidence and testimony presented by Burlington identified nine separate pool layers frequently encountered in the San Juan Basin that can be correlated throughout the basin. While the geologic evidence presented by Burlington established that infill drilling would add additional reserves, the evidence also showed that

the coal formations within the pool exhibit significant heterogeneity on both a vertical and lateral basis and that significant discontinuities exist throughout the major coal layers.

(33) Geologic testimony and evidence presented by former U.S. Geological Survey Geologist James Facett establish that it is rarely possible to correlate specific coal strata over five or six miles. The preponderance of the evidence establishes that the coal formations are usually characterized by more frequent discontinuities over significantly smaller cross-section areas.

(34) The data supporting Burlington's geologic conclusions was derived from five pilot project areas, all of which were located in the under-pressured "non-fairway" coals located primarily outside of the High Productivity Area.

(35) Burlington presented petroleum engineering testimony establishing that current well density in the under-pressured portion of the pool results in inadequate recovery of the reserves and that an additional well per spacing unit is justified. Burlington's conclusions were derived from data obtained from five pilot wells authorized by the Division in 2001 pursuant to Division Order No. R-11639, issued in Case No. 12651 on August 22, 2001.

(36) Using that data, and a proprietary simulation model, Burlington was able to estimate original gas in place and ultimate recovery for the under-pressured area.

(37) The data obtained from Burlington's pilot project wells and the conclusions they support were extrapolated and applied to the under-pressured area only.

(38) Burlington's analysis supports the conclusion that infill development will substantially increase incremental recovery in the under-pressured area. In the 28-6 Unit Area, it is estimated that one well for each 320-acre gas spacing unit will recover approximately 29% of the original gas in place. With infill drilling, it is expected that the recovery will increase to approximately 40% of original gas in place, a 37% increase. Similarly, pilot project data for the Davis 505S Area demonstrate that recoveries will increase by approximately 68%. The pilot project wells modeled by Burlington are representative of the range and production performance in estimated ultimate recovery for the offsetting producing wells.

(39) Burlington's engineering witness testified that the nature of coal bed methane production in the over-pressured area is such that traditional decline curve analysis cannot be used to determine estimated ultimate recovery.

(40) Burlington's engineering witness further testified that there does not presently exist sufficient pressure data to accurately determine ultimate recoveries for the fairway area. Moreover, the Burlington witness testified that original gas in place calculations have not been utilized to determine the estimated ultimate recovery for the fairway. Burlington is in the process of creating original gas in place mapping for the fairway, but that project is incomplete at the present time.

(41) The analysis of the data obtained from Burlington's infill pilot study established that current well density in the Low Productivity Area of the pool results in inadequate recovery of reserves. The pilot well test data demonstrate that inadequate drainage occurs in some or all of the coal layers as represented by measured pressure data. Data from the study further establishes that additional completions will result in additional recovery of reserves in the Low Productivity Area. However, Burlington's engineering witness testified that the results from the pilot area project studies should not be used to establish a basis for infill rules for the High Productivity Area because there were insufficient data in the form of multi-layer pressures in reservoir simulations to legitimately extrapolate and apply these analyses to the High Productivity Area.

(42) Phillips presented testimony and evidence through its engineering witness establishing that the average recovery to date from twenty-seven wells in the under-pressured area south of the fairway is only 0.23 BCF per well and that the estimated average ultimate recovery will be only 0.4 BCF per well with an average estimated drainage area of 35 acres per well using a Langmuir coal gas content of 500 standard cubic feet per ton or 70 acres per well using a Langmuir coal gas content of 250 standard cubic feet per ton. Such evidence provides further justification for infill development in the under-pressured area of the pool.

(43) The Phillips engineering witness further testified that drainage areas were calculated for forty-five wells in the area north of the High Productivity Area using material balance estimates based on a coal gas content of 500 standard cubic feet per ton. Utilizing these values, Phillips determined that approximately 69% of those wells are draining less than 320 acres providing further justification for infill drilling in this area.

(44) Phillips provided additional evidence of its analysis of wells located within the High Productivity Area. The evidence of that analysis establishes that on average wells in that area are draining at least 320 acres. In addition, the Phillips pressure data showed significant uniformity over a very large portion of the High Productivity Area.

(45) Phillips provided evidence of its analysis of an additional eighty-five wells

located throughout the High Productivity Area. The average drainage radius for all 85 wells was 389 acres. Of those wells draining more than 320 acres, the average drainage radius was 481 acres. Only 36% of the wells studied were draining less than 320 acres.

(46) Phillips presented additional evidence of reservoir pressures establishing the existence of communication across a very large area in one or more of the coal formation layers. A further analysis of offsetting wells reflected a fairly rapid equilibration of pressures, providing further evidence of the existence of communication. The reservoir pressure data and other evidence of communication establishes the probable existence of layering effects that require further study before it can be determined whether infill development within the High Productivity Area is justified.

(47) Phillips presented the only direct evidence and analysis of production data from producing wells located within the High Productivity Area.

(48) A preponderance of the evidence establishes that current 320-acre spacing is adequate in the High Productivity Area.

(49) Testimony from the BP and Burlington witnesses on cross examination established that those two companies have plans to drill as many as 300 infill well locations within the High Productivity Area in 2003. The plans for other operators within the High Productivity Area are not presently known. The testimony of other witnesses including the Phillips witness established the probability that a significant number of those 300 planned infill wells would trigger the drilling of additional offset wells to protect the correlative rights of owners in the offsetting acreage as well as to satisfy drilling and drainage demands from other interest owners, including the Bureau of Land Management. The drilling of such a significant number of wells within the High Productivity Area in a relatively short timeframe would create a significant risk that the correlative rights of interest owners would be adversely affected. Moreover, such accelerated drilling would create a significant risk that an unacceptable number of unnecessary wells would be drilled. The drilling of unnecessary wells constitutes waste.

(50) Based on the relative lack of direct evidence of the potential effects from infill drilling within the High Productivity Area, it would not be prudent for the Division to amend the pool rules to provide for increased density within the High Productivity Area at this time. The more prudent course of action would be to refer the matter of infill drilling within the High Productivity Area back to the Committee for further study. Among other things, due to the highly competitive nature of the pool and its multi-layered geology, the Committee should consider modeling a significantly larger, more representative area within the High Productivity Area evaluating the effect of production on wells over a greater

distance than just an infill well location.

(51) The request to increase the well density within the High Productivity Area through infill development on effective 160-acre spacing should be *denied* at this time.

(52) The reservoir and production studies demonstrate that it is now appropriate to amend the pool rules for the Low Productivity Area of the pool in order to increase the infill well density to an effective 160-acre spacing while preserving 320-acre spacing units to maintain the integrity of the Basin-Fruitland Coal (Gas) Pool and to promote orderly depletion of the remaining reserves.

(53) The preponderance of the geologic and engineering evidence establishes that 160-acre infill development is justified in the Low Productivity Area.

(54) By Division Order No. R-11775, issued in Case No. 12734 on June 6, 2002, Richardson Operating Company was granted authorization to develop the Basin-Fruitland Coal (Gas) Pool underlying the following-described area in San Juan County, New Mexico with two wells per 320-acre gas spacing unit:

TOWNSHIP 29 NORTH, RANGE 14 WEST, NMPM

Sections 4 through 6: All

TOWNSHIP 29 NORTH, RANGE 15 WEST, NMPM

Section 1: All

TOWNSHIP 30 NORTH, RANGE 14 WEST, NMPM

Section 16: All

Sections 19 through 21: All

Sections 28 through 33: All

TOWNSHIP 30 NORTH, RANGE 15 WEST, NMPM

Section 36: All.

This area is within the Low Productivity Area that is the subject of this case.

(55) At the request of San Juan Coal Company the Division's order issued in Case No. 12734 is currently on appeal before the New Mexico Oil Conservation Commission ("Commission"). Prior to the July 9, 2002 hearing in this matter, San Juan Coal Company requested that the area covered by Case No. 12734 be excluded from the general infill application in Case No. 12888. On July 2, 2002, this request was presented

before the Examiner and was verbally granted. On July 26, 2002, the Commission issued Order No. R-11775-A staying the effect of Division Order No. R-11775 pending review by the Commission.

IT IS THEREFORE ORDERED THAT:

(1) The Cedar Hill-Fruitland Basal Coal Pool (74500), comprising the following described 10,240 acres, more or less, in San Juan County, New Mexico, is hereby abolished. Concomitantly, the Basin-Fruitland Coal (Gas) Pool (71629), as heretofore classified, defined, and described, is hereby extended to include therein the horizontal limits comprising this same area:

TOWNSHIP 31 NORTH, RANGE 10 WEST, NMPM

Sections 3 through 6: All

TOWNSHIP 32 NORTH, RANGE 10 WEST, NMPM

Sections 19 through 22: All

Sections 27 through 34: All.

(2) Hereafter, the horizontal limits of the Basin-Fruitland Coal (Gas) Pool shall comprise the following-described area in all or portions of San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico:

Township 19 North, Ranges 1 West through 6 West, NMPM;
Township 20 North, Ranges 1 West through 8 West, NMPM;
Township 21 North, Ranges 1 West through 9 West, NMPM;
Township 22 North, Ranges 1 West through 11 West, NMPM;
Township 23 North, Ranges 1 West through 14 West, NMPM;
Township 24 North, Ranges 1 East through 16 West, NMPM;
Township 25 North, Ranges 1 East through 16 West, NMPM;
Township 26 North, Ranges 1 East through 16 West, NMPM;
Township 27 North, Ranges 1 West through 16 West, NMPM;
Township 28 North, Ranges 1 West through 16 West, NMPM;
Township 29 North, Ranges 1 West through 15 West, NMPM;
Township 30 North, Ranges 1 West through 15 West, NMPM;
Township 31 North, Ranges 1 West through 15 West, NMPM; and
Township 32 North, Ranges 1 West through 13 West, NMPM.

(3) The request to allow infill drilling within the "High Productivity Area" of the pool, as further described in Finding Paragraph No. (13) above, is hereby *denied*. The

matter of infill drilling within this portion of the pool is referred back to the Fruitland Coalbed Methane Committee ("Committee") for further study.

(4) Pursuant to the Committee's application, Rules 4 and 7 of the "*Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool*," as promulgated by Division Order No. R-8768, as amended by Orders No. R-8768-A and R-8768-B, are hereby amended in their entirety to read as follows:

"RULE 4: Each standard gas spacing unit will consist of 320 acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the United States Public Lands Survey. * *

RULE 7 (a): WELL LOCATION

(1) A well drilled or recompleted on a standard or non-standard spacing unit in the Basin-Fruitland Coal (Gas) Pool shall be located no closer than 660 feet to the outer boundary of the spacing unit and no closer than 10 feet to any interior quarter-quarter section line or sub-division inner boundary.

(2) A well drilled or recompleted within a federal exploratory unit is not subject to the 660-foot setback requirement to the outer boundary of the spacing unit, provided however:

(i) the well shall not be closer than 10 feet to any section, quarter section, or interior quarter-quarter section line or subdivision inner boundary;

(ii) the well shall not be closer than 660 feet to the outer boundary of the federal exploratory unit;

(iii) if the well is located within the federal exploratory unit area but adjacent to an existing or prospective spacing unit containing a non-committed tract or partially committed tract, it shall not be closer than 660 feet to the outer boundary of its spacing unit;

(iv) if the well is located within a non-committed or partially committed spacing unit, it shall not be closer than 660 feet to the outer boundary of its spacing unit;

(v) if the well is located within a participating area but adjacent to an existing or prospective spacing unit that is not within the same participating area, it shall not be closer than 660 feet to the outer boundary of the participating area; and

(v) if the well is located within an exploratory unit area but in an existing or prospective spacing unit that is a non-participating spacing unit, it shall not be closer than 660 feet to the outer boundary of its spacing unit.

(3) The operator filing an Application for Permit to Drill ("APD") for any well within a federal exploratory unit area that is closer to the outer boundary of its assigned spacing unit than 660 feet shall provide proof in the form of a participating area plat that such well meets the requirements of Rule 7 (a).

RULE 7 (b): ADMINISTRATIVE EXCEPTIONS

The Division Director, in accordance with Division Rule 104, may administratively grant an exception to the well location requirements of Rule 7 (a) upon application to the Division which includes notification by certified mail-return receipt requested to affected parties [see Division Rule 1207.A (2)].

RULE 7 (c): ESTABLISHMENT OF THE "HIGH PRODUCTIVITY AREA" AND "LOW PRODUCTIVITY AREA"

(1) High Productivity Area: There is established within the consolidated boundaries of the Basin Fruitland Coal

(Gas) Pool a "High Productivity Area" consisting of the following-described acreage in both San Juan and Rio Arriba Counties, New Mexico:

Township 29 North, Range 6 West, NMPM

Sections 2 through 8: All

Sections 11 and 12: All

Sections 17 and 18: All

Township 29 North, Range 7 West, NMPM

Section 1: All

Sections 12 and 13: All

Township 30 North, Range 5 West, NMPM

Sections 19 through 21: All

Sections 29 through 31: All

Township 30 North, Range 6 West, NMPM

Sections 5 through 35: All

Township 30 North, Range 7 West, NMPM

Sections 1 through 18: All

Sections 22 through 26: All

*Section 36: * All*

Township 30 North, Range 8 West, NMPM

Sections 1 through 4 : All

Sections 10 through 13: All

Township 30 North, Range 9 West, NMPM

Section 2: All

Township 31 North, Range 6 West, NMPM

Section 6: All

Section 31: All

Township 31 North, Range 7 West, NMPM

Section 1: All

Sections 12 through 14: All

Sections 19 through 36: All

Township 31 North, Range 8 West, NMPM

Sections 4 through 10: All

Sections 13 through 36: All

Township 31 North, Range 9 West, NMPM

Sections 1 through 7: All

Sections 11 through 14: All

Sections 22 through 27: All

Sections 34 through 36: All

Township 32 North, Range 6 West, NMPM

Section 19: All

Sections 29 through 31: All

Township 32 North, Range 7 West, NMPM

Sections 23 through 26: All

Section 36: All

Township 32 North, Range 8 West, NMPM

Section 19: All

Sections 30 through 32: All

Township 32 North, Range 9 West, NMPM

Sections 24 through 26: All

Sections 30 through 32: All

Sections 35 and 36: All

Township 32 North, Range 10 West, NMPM

Sections 7 through 12: All

Sections 14 through 25: All

Sections 28 through 30: All

Township 32 North, Range 11 West, NMPM

Sections 11 through 13: All

Section 24: All

- (2) Low Productivity Area: There is established within the consolidated boundaries of the Basin-Fruitland Coal (Gas) Pool a "Low Productivity Area" consisting of that

acreage within the horizontal limits of the Basin-Fruitland Coal (Gas) Pool that is not included within the High Productivity Area described above.

RULE 7 (d): WELL DENSITY

(1) Well density within the "Low Productivity Area":
No more than two (2) wells per standard 320-acre gas spacing unit may be located in the "Low Productivity Area" of the pool as follows:

(i) *the OPTIONAL INFILL WELL drilled on an existing spacing unit shall be located in the quarter section not containing the INITIAL Fruitland coal gas well;*

(ii) *the plat (Form C-102) accompanying the "Application for Permit to Drill ("APD")" (Form C-101 or federal equivalent) for the optional infill well within an existing spacing unit shall have outlined the boundaries of the unit and shall show the location (well name, footage location, API number) of the initial Fruitland coal gas well plus the proposed infill well; and*

(iii) *any deviation from the above-described well density requirements shall be authorized only after hearing.*

(2) Well density within the "High Productivity Area":
Only one well per standard 320-acre spacing unit may be located in the "High Productivity Area" of the pool. Any deviation therefrom shall be authorized only after hearing."

IT IS FURTHER ORDERED HOWEVER THAT:

(5) The following-described area in San Juan County, New Mexico, which is the subject of an appeal pending before the New Mexico Oil Conservation Commission in Case No. 12734, is hereby excluded from the infill development provisions of Rule 7 (a), as

amended by this order:

TOWNSHIP 29 NORTH, RANGE 14 WEST, NMPM

Sections 4 through 6: All

TOWNSHIP 29 NORTH, RANGE 15 WEST, NMPM

Section 1: All

TOWNSHIP 30 NORTH, RANGE 14 WEST, NMPM

Section 16: All

Sections 19 through 21: All

Sections 28 through 33: All

TOWNSHIP 30 NORTH, RANGE 15 WEST, NMPM

Section 36: All.

(6) Development within the area described above in Ordering Paragraph No. (5) shall continue to be governed by the "*Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool*" in effect immediately prior to issuance of this Order unless and until otherwise ordered by the Commission.

(7) The infill development provisions of Rule 7 (a), as amended by this order, do not apply to Indian Lands. Until further order, Indian Lands in the Basin-Fruitland Coal (Gas) Pool shall continue to be governed by the "*Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool*" in effect immediately prior to issuance of this Order.

(8) Jurisdiction is hereby 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.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

A handwritten signature in cursive script that reads "Lori Wrotenbery".

LORI WROTENBERY
Director