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* NEW MEXICO BOARD OF SPECIALIZATION RECOGNIZED SPECIALIST IN NATURAL RESOURCES - OIL & GAS LAW
** NEW MEXICO BOARD OF SPECIALIZATION RECOGNIZED SPECIALIST IN REAL ESTATE LAW

September 3, 2002

HAND-DELIVERED
Mr. Michael Stogner
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: NMOCD Case No. 12888; Application of the Fruitland Coalbed Methane Committee To Amend Rules 4 and & of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool

Dear Mr. Stogner:

On Friday, August 30, 2002, you were provided with hard-copies and disk-copies of Phillips Petroleum Company Draft Orders versions "A" and "B" providing for amendments to the pool rules for the Basin-Fruitland Coal Gas Pool. I inadvertently sent you a hard-copy of draft order version "A" that was an earlier pre-edit draft. Accordingly, I am enclosing herewith a copy of the "final" of the version "A" draft order that you should have received. The disk-copy of the version "A" order that was delivered to you on Friday is the correct version.

I apologize for any inconvenience that may have resulted from my error.

Sincerely,

MILLER, STRATVERT & TORGERSON, P.A.

J. Scott Hall

JSH/glb
Enclosures
cc: Counsel of Record
Steve Hayden, NMOCD Aztec
David Brooks, Esq.
Bureau of Land Management, Farmington
Tim Brown, Esq.
Jim Ball
Steve Jones

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. 12888

ORDER NO. _____

APPLICATION OF THE FRUITLAND COALBED METHANE STUDY COMMITTEE TO AMEND RULE 4 AND 7 OF THE SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL AND FOR THE TERMINATION OF THE CEDAR HILLS-FRUITLAND BASAL COAL GAS 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

(Phillips Petroleum Company Draft A)
(Low Productivity Area Infill Drilling Only)

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 9th and 10th, 2002 at Farmington, New Mexico, before Examiner Michael E. Stogner.

NOW, on this ___ day of _____, 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 New Mexico Oil Conservation Division ("Division") has jurisdiction of this case and its subject matter.

(2) The applicant in this case seeks an order of the Division to amend the Special Rules and Regulations currently governing the Basin-Fruitland Coal Gas Pool as follows:

(a) Increase well density for coalbed methane wells by amending Rules 4 and 7 of the Special Rules and Regulations for the Basin-

Fruitland Coal Gas Pool located in Rio Arriba, San Juan, McKinley and Sandoval Counties, New Mexico to authorize under certain restrictions infill drilling of up to two wells within a standard 320-acre gas proration and spacing unit by increasing the well density from the current maximum of one (1) well provided in Order R 8768, as amended, to a maximum of two (2) wells (160-acre infill) per acre gas proration and spacing unit for wells located in the pool.

(b) ***Alternatively***, Applicant requests the adoption of the well density rules referenced in paragraph (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(a) of the Special Rules and Regulations to conform with the well location requirements for the Basin-Dakota pool as follows:

(d) To provide that wells located outside a federal exploratory unit may be drilled anywhere within a standard 320-acre GPU provided such wells are located no closer than 660 feet to the outer boundary of the GPU nor closer than 10 feet from any interior quarter or quarter-quarter section line or subdivision inner boundary; and

(e) 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 GPU containing any non-committed tract or partially committed tract shall be no closer than 660 feet to the outer boundary of such GPU; and

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

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

(3) In compliance with Division's notice rules, copies of the Application including the proposed rules and notice of hearing was sent to approximately ____ 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.

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

(a) Burlington Resources Oil and Gas Company as an operator of approximately _____ wells currently producing from the Basin-Fruitland Coal Gas Pool.

(b) BP America, Inc., as an operator of approximately ____ wells currently producing from the Basin-Fruitland Coal Gas Pool.

(c) Phillips Petroleum Company, as an operator of approximately ____ wells currently producing from the Basin-Fruitland Coal Gas Pool.

(d) Steve Hayden, District Geologist for the Division's Aztec District Office appeared in his capacity as Chairman of the Fruitland Coalbed Methane Committee.

(e) Williams Production Company, Chevron-Texaco, Dugan Production Corporation and Texacoma Oil and Gas Production, all of which operate wells currently producing from the Basin-Fruitland Coal Gas Pool also appeared at the hearing.

(f) 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.

(g) In addition to the parties of record, the hearing was attended by representatives of the U. S. Department of the Interior's Bureau of Land Management and the Division's Aztec district office who offered both written and verbal comments on the Application.

(h) Representatives from McElvain Oil and Gas and Synergy Operating Company, both operators of wells currently producing from the Basin-Fruitland Coal Gas Pool attended the hearing and offered verbal comments on the Application.

(i) 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, Tweetie Blancett, Bill Humphries (New Mexico Cattle Growers Association), Janet Reese, and Allen Ralston (San Juan Citizens Alliance).

(5) The horizontal boundaries of the Basin-Fruitland Coal Gas Pool were established by Division Order No. R-8768 dated October 17, 1988 as follows:

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, with the exception of Section 3 through 6 of Township 31 North, Range 10 West and Section 19 through 22, and 27 through 34 of Township 32 North, Range 10 West, San Juan County New Mexico, which said acreage currently comprises the Cedar Hill-Fruitland Basal Coal Gas Pool:

Township 19 North, Ranges 1 West through 6 West;
Township 20 North, Ranges 1 West through 8 West;
Township 21 North, Ranges 1 West through 9 West;
Township 22 North, Ranges 1 West through 11 West;
Township 23 North, Ranges 1 West through 14 West;
Township 24 North, Ranges 1 East through 16 West;
Township 25 North, Ranges 1 East through 16 West;
Township 26 North, Ranges 1 East through 16 West;

Township 27 North, Ranges 1 West through 16 West;
Township 28 North, Ranges 1 West through 16 West;
Township 29 North, Ranges 1 West through 15 West;
Township 30 North, Ranges 1 West through 15 West'
Township 31 North, Ranges 1 West through 15 West;
Township 32 North, Ranges 1 West through 13 West;

(6) In Order No. R-8768, the Division defined the vertical limits of the Basin Fruitland Coal Gas Pool as 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 Schneider Gas Com "B" Well No. 1 located 1110 feet from the south line and 1185 feet from the west line of Section 28, T-32-N, R-10-W, NMPM, San Juan County.

(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" (Rule 601-605). However, the Basin Fruitland Coal Gas Pool is subject to:

a) 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 acres spacing units (Rule 4); and

(ii) Wells to be located in 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 horizontal boundaries of the Cedar Hill-Fruitland Basal Coal Gas Pool were established by Division Order No. R-7588 dated July 9, 1984 as follows:

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

Comprising 10,240 acres, ±, in San Juan County.

(10) In Order No. R-7588-B dated October 19, 1988, the Division re-defined the vertical limits of the Cedar Hill-Fruitland Basal Coal Pool as comprising any and all coal seams within the stratigraphic interval from approximately 2450 feet to 2880 feet on the gamma ray-bulk density log of the Amoco Production Company Snyder Gas Com. B Well No. 1 located 1110 feet from the South line and 1185 from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(11) The New Mexico Oil & Gas Act specifically provides in Section 70-2-17.B, NMSA (1979) that:

> "*The Division may establish a proration unit for each pool, such being the area that can be efficiently and economically drained and developed by one well, and in so doing the Division shall consider the economic loss caused by the drilling of unnecessary wells, the protection of correlative rights, including those of royalty owners, the prevention of waste, the avoidance of the augmentation of risk arising from the drilling of an excessive number of wells and the prevention of reduced recovery which might result from the drilling of too few wells.*"

(12) Applicant Fruitland Coalbed Methane Committee is a voluntary study committee comprised of representatives from the Division's Aztec District office and from 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 Hills-Fruitland Basal Coal Gas Pool and make recommendations to the Division on the future development in the pools.

(13) 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.

(14) 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.

(15) BP America presented evidence to the Committee showing that wells making less than 2 mmcfpd were capable of draining only 200 acres. In recognition of the smaller drainage radii in those areas where wells producing less than 2 mmcfpd, the Committee established a boundary for what it has labeled as the "Low Productivity Area".

(16) For those areas outside of the Low Productivity Area where a single well is capable of draining in excess of 200 acres, the Committee established what it has labeled as the "High Productivity Area". The acreage in the High Productivity Area is identified as follows:

T29N, R6W	Sections 2-8, 11-12, 17-18
T29N, R7W	Sections 1, 12-13
T30N, R5W	Sections 19-21, 29-31
T30N, R6W	Sections 5-35
T30N, R7W	Sections 1-18, 22-26, 36
T30N, R8W	Sections 1-4,10-13
T30N, R9W	Sections 2
T31N, R6W	Sections 6, 31
T31N, R7W	Sections 1, 12-14, 19-36
T31N, R8W	Sections 4-10, 13-36
T31N, R9W	Sections 1-7, 11-14, 22-27, 34-36
T32N, R6W	Sections 19, 29-31
T32N, R7W	Sections 23-26, 36
T32N, R8W	Sections 19, 30-32
T32N, R9W	Sections 24-26, 30-32, 35-36
T32N, R10W	Sections 7-12; 14-25, 28-30
T32N, R11W	Sections 11-13, 24

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

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

(19) The Committee was unable to reach consensus on the propriety of infill development within the High Productivity Area. Two witnesses, Steve Hayden and Steve Jones, testified that there was a the lack of sufficient engineering data from wells located within the "fairway".

(20) 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. (TR p. 52.)

(21) In its Application, the Committee specifically proposed that the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool be amended to provide as follows:

> *Rule 4: Each standard gas proration unit (GPU) 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 locations:*
>
> *(i) wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.*
>
> *(ii) wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement t the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior*

quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area; and

(e) a well located within the unit area but in an existing or prospective GPU that is a nonparticipating GPU shall not be closer than 660 feet to the outer boundary of its GPU.

(iii) The operator filing an APD for any well within a unit area that is closer to the outer boundary of its assigned GPU than 660 feet shall provide proof in the form of an 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 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) Well Density in the "Low Productivity Area":

(i) no more than two (2) wells per GPU may be located in the "Low Productivity Area" of the pool;

(ii) the FIRST WELL drilled on a GPU shall be located in the quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

(iii) the optional INFILL WELL drilled on a GPU shall be located in a quarter section of the GPU not containing a Basin-Fruitland Coal Gas well.

Rule 7 (d) Well Density in the "High Productivity Area":

One optional infill well in the "High Productivity Are" may be drilled within a GPU in accordance with Rule 7(a) and 7(b) pursuant to the following procedures:

1. Operators of an existing GPU which contains an original coal gas well who desire to drill an optional infill well shall send a copy of its Application for Permit to Drill ("APD" including NMOCD form C-102 or Bureau of Land Management form 3160 to adjacent operators by certified mail-return receipt requested advising that they have twenty (20) days from receipt to file with the District Supervisor (OCD-Aztec) a written objection to the application.

2. An adjacent operator shall be any operator of a Basin-Fruitland Coal Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter section in which the proposed optional infill well is to be located.

3. The District Supervisor may approve the APD, which has been filed upon expiration of the twenty (20) day notice period and certification by the applicant that all adjacent operators have received notification and no objections have been received within the twenty (20) day notice period.

4. *In the event an objection is timely received, or upon the District Supervisor's own initiative, the application shall be set for a hearing before a District Examiner.*

(22) 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 further before proceeding to make any recommendation for infill development in that area.

(23) In Order No. R-8768 dated October 17, 1988, the Division found as follows:

"(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 declined curve analyses and volumetric calculations traditionally used to aid in the determination of proper well spacing, cannot be utilized."

(24) In Order No. R-11639 dated 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."

In Order No. R-8768-B dated February 10, 2000, based on geologic and engineering evidence presented by Burlington Resources, the Division found 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 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 a 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 from future development under 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 of between 200 and 300 psi;

(j) Permeability in the under pressured area is approximately .3 millidarcies.

(25) Burlington presented evidence in this case of the analysis of the data obtained from its infill pilot study establishing that current well density in the Low Productivity portion 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, Burlingtons's engineering witness testified that the results from the pilot project area studies should not be used to establish a basis for infill rules for the High Productivity Area for the reasons that 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 fairway.

In Order No. R-11639 dated August 22, 2001 the Division found that geologic and engineering evidence established the following:

(a) The Basin Fruitland Coal Gas Pool can be divided into an over pressured area, which is commonly referred 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 coalbed 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, know as Cedar Hills, within the fairway;

(e) Currently available data in the under pressured 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 over estimated and the current well density is adequate;

(f) The stratigraphic complexity in 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;

(g) There is an need for layered pressure evaluation which cannot be obtained from existing well bores.

(26) BPs petroleum engineering expert witness testified that wells with a 2 million cubic feet per day producing rate would drain between 320 and 240 acres. BP's engineering witness also testified that net coal thickness and gas content are poor indicators of a well's drainage radius.

(27) BP's engineering witness further testified that the effective permeability in the high productivity area can 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.

(28) BP's engineering witness testified that infill drilling would be necessary to recover an additional 1.5 trillion cubic feet of gas within the over pressured area that would not be accessible with existing wells. He further testified that there are significant incremental reserves within the high productivity area that are not being produced under the current drilling density rules. The witness's conclusions were based on infill drilling data from Colorado.

(29) 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.

(30) 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 will be encountered in infill wells in New Mexico.

(31) BP's graphic evidence of Colorado historical production (Exhibit 18) demonstrates the existence where parent wells began to experience a decline in production contemporaneously when infill wells started to come on line, indicating the possible existence of communication and interference between parent and infill wells.

(32) Graphic evidence presented by BP comparing drainage areas and highest producing rates (Exhibit 23) show a high degree of variability throughout the infill development area in Colorado. BP's engineering witness testified that you could reasonably expect to encounter similar variability within the high productivity area within New Mexico.

(33) BP's engineering witness testified that the company plans on drilling in excess of 150 infill wells in the future.

(34) The geologic evidence and testimony presented by Burlington Resources identified nine separate pool layers frequently encountered throughout the basin of which several are correlatable throughout the entirety of the basin. While the geologic evidence presented by Burlington established that infill drilling will 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.

(35) Geologic testimony and evidence presented by former U.S. Geological Survey, Geologist James Facett establish that it was possible to correlate over five or six miles in rare instances. Rather, the preponderance of the evidence establishes that the coal formations are dominated by more frequent discontinuities over significantly smaller cross section areas.

(36) 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.

(37) Burlington Resources presented petroleum engineering testimony establishing that current well density in the underpressured portion of the pool results in inadequate recovery of the reserves and that additional completions. one 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 Order No. R-11639.

(38) Using that data, and a proprietary simulation model, Burlington was able to estimate original gas in place and estimated ultimate recovery for the underpressured area.

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

(40) Burlington's analysis supports the conclusion that infill development will substantially increase incremental recovery in the underpressured envelope area. In the 28-6 Unit Area, it is estimated that one well for each 320 acre gas proration unit will recover approximately 29% of the original gas in place. With infill drilling, it is expected that the incremental recovery will increase to approximately 40% of original gas in place, a 37% increase. Similarly, pilot project data for the Davis 505S Area demonstrates that incremental recoveries will increase by approximately 68%. The pilot project wells

modeled by Burlington represent the range and production performance in estimated ultimate recovery for the offsetting producing wells.

(41) Burlington's pilot project well data and conclusions were extrapolated and applied to the underpressured envelope area by comparing parent well recoveries in the pilot project area to parent well recoveries elsewhere in the underpressured envelope area in concluding that similar types of increased recovery could be expected due to infill drilling.

(42) 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.

(43) 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. However, Burlington is in the process of creating original gas in place mapping for the fairway but that the project is incomplete at the present time.

(44) The analysis of the data obtained from Burlington's infill pilot study established that current well density in the Low Productivity portion 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 for the reasons that 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 fairway.

(43) Phillips Petroleum Company 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 volume of 500 standard cubic feet per ton or 70 acres per well utilizing a Langmuir volume of 250 standard cubic feet per ton. Such evidence provides further justification for infill development in the under pressured area of the pool.

(44) 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 utilizing 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.

(45) 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, pressure data showed significant uniformity over a very large portion of the High Productivity Area.

(46) Phillips provided evidence of its analysis of an additional eighty-five wells located throughout the High Productivity Area. The average drainage radii 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.

(47) 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 pressure data and the evidence of communication establishes the probable existence of layering effects that require further study before it can be determined whether infill within the high productivity area is justified.

(48) Phillips Petroleum Company presented the only direct evidence and analysis of production data from producing wells located within the high productivity area.

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

(50) Cross examination testimony from the BP and Burlington witnesses established that those two companies have plans to drill as many as 300 infill well locations within the high productivity 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 will trigger the drilling of additional offset wells in order to protect 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 establishes a significant risk that the correlative rights of interest owners will be

adversely affected. Moreover, such accelerated drilling establishes a significant risk that an unacceptable number of unnecessary wells will be drilled. The drilling of unnecessary wells constitutes waste.

(51) Following the hearing in this matter, on August 14, 2002, the Bureau of Land Management submitted a letter to the Division setting forth its position. The BLM advocates that the High Productivity Area be excluded from the proposed rule to increase well density by infill well development until additional technical data justifies inclusion.

(52) Based on the relative lack of direct evidence of the potential affects 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. It is the more prudent course of action for the matter of infill drilling within the High Productivity Area to be referred back to the Committee for further study. Among other things, due to 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.

(53) The request to increase the well density within the High Productivity Area to allow for infill drilling on 160 acre spacing should be ***denied*** at this time.

(54) Phillips's witness testified that the notification procedure in the proposed amendments to Rule 7(d) as set forth in the Application would not result in adequate notice to other interest owners in the pool where the applicant proposing to drill an infill well in the High Productivity Area is also the operator of the adjoining GPU. Accordingly, Phillips proposed a further amendment to the provisions of Rule 7(d) as follows:

Rule 7 (d) Well Density in the "High Productivity Area":

One optional infill well in the "High Productivity Area" may be drilled within a GPU in accordance with Rule 7(a) and 7(b) pursuant to the following procedures:

> *1. Operators of an existing GPU which contains an original coal gas well who desire to drill an optional infill well shall send a copy of its Application for Permit to Drill ("APD" including NMOCD form C-102 or Bureau of Land Management from 3160-3) to adjacent operators by certified mail-return receipt requested advising that they have twenty (20) days from receipt to file with the District Supervisor (OCD-Aztec) a written objection to the application.*

2. An adjacent operator shall be any operator of a Basin-Fruitland Coal Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter section in which the proposed optional infill well is to be located.

In the event the operator of the proposed optional infill well is also the operator of an existing adjoining GPU, then a copy of the APD shall be sent to all working interest owners in that GPU

3. The District Supervisor may approve the APD, which has been filed upon expiration of the twenty (20) day notice period and certification by the applicant that all adjacent operators have received notification and no objections have been received within the twenty (20) day notice period.

4. In the event an objection is timely received, or upon the District Supervisor's own initiative, the application shall be set for a hearing before a Division Examiner.

(55) The Phillips witness testified that the additional notification requirement is patterned after the Division's current procedures for notifying adjoining interest owners of proposed unorthodox well locations under Rule 1207.A. The witness's testimony further established that compliance with the additional notification requirement would not result in any additional significant burden for either the applicant or the Division.

(56) The proposed amendment to Rule 7(d) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool providing for advance notification of infill drilling in GPUs within the High Productivity Area, is unnecessary until such time as infill drilling in the High Productivity Area is approved. Accordingly, the request to amend the notification provisions of the rules shall be limited to those instances where an operator makes application to the Division for hearing on a proposed a second well in a GPU within the High Productivity Area.

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

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

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application filed by the Fruitland Coalbed Methane Study Committee, amended Rules 4 and 7 of the "*Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool*" as set forth in Exhibit "A" of this order shall supersede the current Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool in Division Order No. R-8768, as amended by Orders No. R-8768-A and No. R-8768-B.

(2) The horizontal limits of the Cedar Hill-Fruitland Basal Coal Gas Pool are abolished and the horizontal limits of the Basin-Fruitland Coal Gas Pool are simultaneously expanded to include the following acreage:

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

Comprising 10.240 acres, ±, in San Juan County.

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:

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, with the exception of Section 3 through 6 of Township 31 North, Range 10 West and Section 19 through 22, and 27 through 34 of Township 32 North, Range 10 West, San Juan County New Mexico, which said acreage currently comprises the Cedar Hill-Fruitland Basal Coal Gas Pool:

Township 19 North, Ranges 1 West through 6 West;
Township 20 North, Ranges 1 West through 8 West;
Township 21 North, Ranges 1 West through 9 West;
Township 22 North, Ranges 1 West through 11 West;

Township 23 North, Ranges 1 West through 14 West;
Township 24 North, Ranges 1 East through 16 West;
Township 25 North, Ranges 1 East through 16 West;
Township 26 North, Ranges 1 East through 16 West;
Township 27 North, Ranges 1 West through 16 West;
Township 28 North, Ranges 1 West through 16 West;
Township 29 North, Ranges 1 West through 15 West;
Township 30 North, Ranges 1 West through 15 West'
Township 31 North, Ranges 1 West through 15 West;
Township 32 North, Ranges 1 West through 13 West;

(3) All other provisions applicable to the Basin-Fruitland Coal Gas Pool contained in Division Order No. R-8768, and as amended by Orders No. R-1878-A and No. R-8768-B not in conflict with this order shall remain in full force and effect until further notice.

(4) The request to allow infill drilling within the High Productivity Area of the pool is hereby ***denied***. The mater of infill drilling within this portion of the pool is referred back to the Fruitland Coalbed Methane Committee for further study and recommendation as the Committee may deem appropriate.

(5) 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.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

SEAL

EXHIBIT "A"
Case No. 12888
Order No. R-8768(C)

SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL

I. ACREAGE AND WELL LOCATION REQUIREMENTS

Rule 4: Each standard gas proration unit (GPU) 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 locations:

(i) wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

(ii) wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement t the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area; and

(e) a well located within the unit area but in an existing or prospective GPU that is a nonparticipating GPU shall not be closer than 660 feet to the outer boundary of its GPU.

(iii) The operator filing an APD for any well within a unit area that is closer to the outer boundary of its assigned GPU than 660 feet shall provide proof in the form of an 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 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":

High Productivity Area: There is established within the consolidated boundaries of the Basin Fruitland Coal Gas Pool and the Cedar Hills Basal Coal Gas Pool a "High Productivity Area" consisting of the following described acreage:

T29N, R6W	Sections 2-8, 11-12, 17-18
T29N, R7W	Sections 1, 12-13
T30N, R5W	Sections 19-21, 29-31
T30N, R6W	Sections 5-35

T30N, R7W	Sections 1-18, 22-26, 36
T30N, R8W	Sections 1-4,10-13
T30N, R9W	Sections 2
T31N, R6W	Sections 6, 31
T31N, R7W	Sections 1, 12-14, 19-36
T31N, R8W	Sections 4-10, 13-36
T31N, R9W	Sections 1-7, 11-14, 22-27, 34-36
T32N, R6W	Sections 19, 29-31
T32N, R7W	Sections 23-26, 36
T32N, R8W	Sections 19, 30-32
T32N, R9W	Sections 24-26, 30-32, 35-36
T32N, R10W	Sections 7-12; 14-25, 28-30
T32N, R11W	Sections 11-13, 24

Low Productivity Area: There is established within the consolidated boundaries of the Basin Fruitland Coal Gas Pool and the Cedar Hills Basal Coal Gas Pool a "Low Productivity Area" consisting of the following acreage: All acreage within the horizontal limits of the consolidated boundaries of the Basin Fruitland Coal Gas Pool and Cedar Hills Basal Coal Gas Pool, **less and except** those lands within the boundaries of the High Productivity Area described above.

Rule 7 (d) Well Density in the "Low Productivity Area":

(i) no more than two (2) wells per GPU may be located in the "Low Productivity Area" of the pool;

(ii) the FIRST WELL drilled on a GPU shall be located in the quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

(iii) the optional INFILL WELL drilled on a GPU shall be located in a quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

(iv) The plat (Form C-102) accompanying the "*Application for Permit to Drill ("APD")*" (Form C-101 or federal equivalent) for subsequent wells on a GPU shall have outlined the boundaries of the GPU and shall show the location (well name, footage location, API number) of

all existing Basin-Fruitland Coal Gas wells on the GPU plus the proposed new well.

Rule 7 (e) Well Density in the "High Productivity Area":

Each well completed or recompleted in the High Productivity Area of the Basin-Fruitland Coal Gas Pool shall be located on a standard unit containing 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 Land Survey.

Individual operators may apply to the Division for an exception to the requirements of Rule 7(e) to allow the drilling of a second well on standard 320 acre units or on approved non-standard units in specifically defined areas of the pool provided that:

(a) Any such application shall be set for hearing before a Division Examiner;

(b) Actual notice of such application shall be given to operators of Basin-Fruitland Coal Gas Pool wells, working interest owners of undrilled leases, and unleased mineral owners within the boundaries of the area for which the infill provision is requested, and to A***djacent Operators*** of Basin-Fruitland Coal Gas Pool wells.

(c) ***An Adjacent Operator shall be any operator of a Basin-Fruitland Coal Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter section in which the proposed second well is to be located. In the event the operator of the proposed second well is also the operator of the adjoining GPU, then notice shall sent to all working interest owners in that GPU.*** Provided, however, that any operator in the pool or other interested party may appear and participate in such hearing.

(d) Such notice shall be sent certified or registered mail or by overnight express with certificate of delivery and shall be given at least 20 days prior to the date of the hearing.

KELLAHIN AND KELLAHIN
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W. THOMAS KELLAHIN*
*NEW MEXICO BOARD OF LEGAL SPECIALIZATION RECOGNIZED SPECIALIST IN THE AREA OF NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

TELEPHONE (505) 982-4285
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August 30, 2002

HAND DELIVERED

Mr. Michael E. Stogner
Hearing Examiner
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: ***Burlington Resources Oil & Gas Company LP***
Proposed Order

NMOCD Case 12856

NMOCD Case 12888
Application of Fruitland Coalbed Methane
Study Committee to amend rules for the
Basin-Fruitland Coal Gas

02 SEP -3 PM 4:20

Dear Mr. Stogner:

On behalf of Burlington Resources Oil & Gas Company LP, please find enclosed a proposed Order for you consideration in the referenced cases.

Very truly yours,

W. Thomas Kellahin

cc: **David Brooks, Esq.**
Attorney for the Division
J. Scott Hall, Esq.
Attorney for Phillips Petroleum Company
William F. Carr, Esq.
Attorney for BP Amoco
Burlington Resources
Attn: Mike McGovern
Alan Alexander
Mr. Steve Hayden,
Committee Chairman
James Bruce, Esq.
Attorney for Cross Timbers
John A. Dean, Esq.
Attorney for Dugan Production Corporation

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. 12888

APPLICATION OF FRUITLAND COALBED METHANE STUDY COMMITTEE FOR A POOL ABOLISHMENT AND EXPANSION AND TO AMEND RULE 4 AND 7 OF THE SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL FOR PURPOSES FOR AMENDED WELL DENSITY REQUIREMENTS FOR COALBED METHANE WELLS, SAN JUAN, RIO ARRIBA, McKINLEY AND SANDOVAL COUNTIES, NEW MEXICO

CASE NO. 12856

APPLICATION OF BURLINGTON RESOURCES OIL & GAS COMPANY LP TO AMEND THE WELL LOCATION REQUIREMENTS AND ADMINISTRATIVE EXCEPTIONS OF SPECIAL RULES AND THE REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL TO CONFORM TO THE WELL LOCATIONS REQUIREMENTS AND ADMINISTRATIVE EXCEPTIONS OF THE SPECIAL RULES AND REGULATIONS FOR THE BASIN-DAKOTA GAS POOL AS PROMULGATED BY DIVISION ORDER R-10987-B(1) RIO ARRIBA AND SAN JUAN COUNTIES, NEW MEXICO

BURLINGTON RESOURCES PROPOSED ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 a. m. on July 9 and 8:15 a.m. on July 10, 2002, at Farmington, New Mexico, before Examiner Michael E. Stogner.

NOW, on this __day of September, 2002, 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.

SUBJECT OF HEARING

(2) In Case 12888, The Fruitland Coalbed Methane Gas Study Committee ("Committee"), seek an order amending Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool to authorize under certain restrictions infill drilling of up to two wells within a standard 320-acre gas proration and spacing unit by increasing the well density from the current maximum of one (1) well provided in Order R-8768, as amended, to a maximum of two (2) wells (160-acre infill) per 320-acre gas proration and spacing unit for wells located in a High Productivity Area and a Low Productivity Area of the pool. Applicant further seeks the termination of the Cedar Hill-Basal Coal Gas Pool and the concomitant expansion of the Basin-Fruitland Coal Gas Pool, Rio Arriba, San Juan, McKinley and Sandoval Counties, New Mexico.

(3) In Case 12956, Burlington Oil & Gas Company LP ("Burlington") applies to the New Mexico Oil Conservation Division to amend the Well location Requirements and Administrative Exception of the Special Rules and Regulations for Basin-Fruitland Coal Gas Pool to conform with Well Location Requirements and Administrative Exceptions of the Special Rules and Regulations for the Basing Dakota Gas Pool as promulgated by Division Order R-10987-B(1) issued January 29, 2002.

NOTICE OF HEARING

(4) In compliance with Division Rules 1207 and Rule 4 of the Special Rules and Regulations of the Basin-Fruitland Coal Gas Pool, Burlington, on behalf of the Committee, sent approximately 67 copies of its application, including its proposed rules and notice of hearing, to operators in the Basin-Fruitland Coal Gas Pool. Notice of this case was also published in the a newspaper of general circulation in the Counties were the Basin-Fruitland Coal Gas Pool is located and included on the Division's hearing docket which was mailed to approximately 300 operators in New Mexico.

PARTIES

(5) The Committee, Burlington, BP America, Inc ("BP"), and Phillips Petroleum Company ("Phillips") appeared and presented evidence.

(6) Burlington supported the Committee's compromise for infill development of both the High and Low Productivity Areas with notice to operators in the High Productivity Area.

(7) At the hearing, Burlington supported the recommendation of the Committee for field-wide infill development but also supported BP's recommendation that no High Productivity Area with special rules be created.

(8) BP America supported pool-wide infill development but opposed the creation of a High Productivity Area with special rules.

(9) During the Committee process Phillips supported the Committee's compromise for infill development of both the Low and High Productivity Area with special notice to offsetting operators in the High Productivity Area.

(10) At the end of the first day of the hearing, Phillips changed its position and contended that notice should be given to both operators and all working interest owners before an offsetting infill well was drilled in the High Productivity Area.

(11) At the conclusion of the hearing, Phillips recommended additional study of the High Productivity Area.

(12) Williams Production Company ("Williams"), Chevron-Texaco, Dugan Production Corporation ("Dugan"), Texakoma Oil and Gas Corporation and San Juan Coal Company appeared at the hearing through legal counsel but did not present evidence.

(13) At the conclusion of the presentation of evidence, statements were made by Dr. Brooks Taylor, Tweetie Blancett, Bill Humphries for the New Mexico Cattle Growers' Association, Synergy Operating, Mr. Tom Mullins, Janet Reese, Alan Ralston for the San Juan Citizen's Alliance, Williams and Dugan. Representatives of the Bureau of Land Management and the Division's Supervisor of the Aztec District Office attended the hearing.

JURISDICTION

(14) The Division has jurisdiction of this issue for the Oil & Gas Act specifically provides in Section 70-2-17.B, NMSA (1979) that:

> "The Division may establish a proration unit for each pool, such being the area that can be efficiently and economically drained and developed by one well, and in so doing the Division shall consider the economic loss caused by the drilling of unnecessary wells, the protection of correlative rights, including those of royalty owners, the prevention of waste, the avoidance of the augmentation of risk arising from the drilling of an excessive number of wells and the prevention of reduced recovery which might result from the drilling of too few wells.

BACKGROUND

(15) On October 17, 1988, the Division entered Order R-8768 in Case 9420 which created the Basin-Fruitland Coal Gas Pool and adopted 320-acre gas proration units ("GPU") for this pool, based upon the assumption that one well would drain and develop 320-acres.

(16) On July 16, 1991, the Division entered Order R-8768-A which found that:

> "(9) The results of the reservoir simulation study generally establish that one well in the subject pool can effectively drain and develop 320 acres."
>
> "(10) The results of the study further indicate however that there may be certain areas within the 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."

(17) The Rules and Regulations for the Basin-Fruitland Coal Gas Pool currently provide in part:

> "RULE 4. Each well completed or recompleted in the Basin Fruitland Coal Gas Pool shall be located on a standard unit containing 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. Wells drilled or recompleted on every standard or non-standard unit in the Basin-Fruitland Coal Gas Pool shall be located in the NE/4 or SW/4 of a single governmental section and shall be located no closer than 660 feet to any outer boundary of the proration unit nor closer than 10 feet to any interior quarter-quarter section line or subdivision inner boundary."

THE STUDY COMMITTEE

(18) The Fruitland Coalbed Methane Gas Study Committee was formed on August 4, 1999 to study well density in the Basin-Fruitland Coal Gas Pool. The Committee met on numerous occasions from August 4, 1999 through June 18, 2002. Hayden at ___, Tab 2, Exhibit 1.

(19) On August 22, 2001, the Division entered Order R-11639 in Case 12651 which granted Burlington's application to initiate a pilot project for the drilling of additional Basin-Fruitland Coal Gas Pool wells to acquire data for reservoir engineering and geological studies for the purposes of determining the proper well density in the pool.

(20) The data obtained from Burlington's pilot project along with data from other portions of the Fruitland Coal formation obtained by BP America and other operators was and studied by the Committee. Phillips attended Committee meetings but made no proposal during the Committee process concerning the development of this pool.

RECOMMENDATIONS OF THE STUDY COMMITTEE

(21) Based on its study of the geological and reservoir engineering data on the Fruitland Coal formation, the Committee recommended that to increase ultimate recovery of gas from the pool, Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool should be amended to authorize the infill drilling of an optional second well on each 320-acre gas proration and spacing unit in the pool with the second well to be located in the quarter section of the GPU not containing the first Basin-Fruitland Coal Gas well. The Committee also recommends that the pool be divided into a "High Productivity Area" and a "Low Productivity Area" based upon well producing rates of more or less than 2 million cubic feet of gas per day and that, prior to drilling an infill well in the "High Productivity Area," notice of the infill well be provided to adjacent operators and, if an objection to the application was received within 20 days, the application be set for a hearing before a Division Examiner.

(22) The Committee reached a consensus that 2 wells per GPU should be allowed in pool, however, it was divided concerning whether "infill wells" in the "High

Productivity Area" should be subject to notice to offset interest owners and possible hearing.

(23) The Committee, as a compromise, proposes rule changes, which include provisions for special notice in the "High Productivity Area," as set forth on Exhibit "A" attached to this order.

(24) In the alternative, Burlington and BP proposed that the Division adopt the attached Alternative Exhibit "A" in recognition of the fact that there is precedent in the Division infill orders for the Blanco-Mesaverde Gas Pool and the Basin-Dakota Gas Pool [Order Nos. R-10987-A and R-10981-B(1)] for the adoption of one set of operating procedures for the entire pool, where evidence clearly indicated certain areas of the pool were being drained by existing wells and infill wells were not needed. Adoption of either of the alternative rules would be compatible with the Committee findings that additional infill wells are needed in the both the "High Productivity Area" and the "Low Productivity Area" of the pool.

THE PRESENTATION OF EVIDENCE

(25) By agreement, the evidence in this case was presented as follows:

(A) the Division's Committee Facilitator presented the Committee's report, conclusions and recommendations;

(B) Mr. Jim Fassett presented a geological study of the Fruitland Coal formation in the San Juan Basin;

(C) Burlington presented the results of its pilot project in the "Underpressured" portion of the "Low Productivity Area" showing a need for infill drilling;

(D) Amoco presented its evidence in support of infill drilling in the "High Productivity Area and Low Productivity Area" without special notice rules; and

(E) Phillips present its evidence in support of infill drilling in the "Over pressured and Underpressured portion of the Low Productivity Area" and raised concerns over the technical justification of infill in the "High Productivity Area" and the need for special notice rules.

"LOW PRODUCTIVITY AREA" – "HIGH PRODUCTIVITY AREA"

(26) There are approximately 3,160 wells currently producing from Basin-Fruitland Coal Gas Pool, including approximately 2,704 wells in the "Low Productivity Area" and approximately 456 wells in the "High Productivity Area" of the pool.

(27) The Committee determined that Basin-Fruitland Coal Gas Pool can be divided into an "High Productivity Area" and "Low Productivity Area".

(A) Wells in the "High Productivity Area" are generally characterized as wells with historical peak average annual production rates in excess of 2 MMCFPD

(B) Wells in the "Low Productivity Area" are generally characterized as wells with historical peak average annual production rates less than 2 MMCFPD

(28) The "High Productivity Area" of this pool covers approximately 146,000 acres is as shown in the acreage description set forth in Exhibit "B".

(29) The "Low Productivity Area" is the balance of the pool remaining after deleting the High Productivity Area covers approximately 3,016,000 acres.

GEOLOGICAL FINDINGS:

(30) All geological evidence presented by the Study Committee, Burlington and BP America is in agreement on the characteristics of the Fruitland Coal formation. Phillips presented no geological evidence.

(31) The geological evidence establishes:

(A) The basement architecture does not change from the New Mexico to the Colorado portions of the Basin (Riese at p. 173);

(B) There is strong correlation between the locations of the high productivity areas and the underlying basement fractures and subtle faults (Reise at 174 Tab 10 Exhibit No. 1[Locator Map]);

(C) The depositional systems of the Fruitland formation consistently carried themselves from New Mexico into Colorado (Reise at 172-175, BP America, Tab 10, Exhibits 1and 2 [Location Map and Isopach Map]);

(D) Reservoir discontinuities exist from Colorado into New Mexico across the reservoir (Reise at Tr. 176, Exhibit 3 [Cross Section]);

FINDING: **The geological characteristics of the Fruitland Coal correlate cross the reservoir and are the same on both sides of the New Mexico-Colorado State line.**

(E) The Fruitland Coal formation is a multi-layered reservoir with a high degree of discontinuity, which is the result of:

(1) Variations in the vegetation when the coals were deposited which caused vertical discontinuity (Fassett at 62: Thibodeaux at 90, 101; Reise at 177-179, Exhibits No. 4 [Vegetation Map] and 5 through 9 [Photographs of mine longwalls which show the nature of the discontinuities]); and

(2) Faulting (lystric faults or growth faults at the time of sedimentation) which created structural discontinuities at the time of sedimentation (Reise at 184) and also post depositional and related faults (Reise at 187-188 [Photographs]);

(F) There are nine discrete coal packages, which can be found throughout the entire San Juan Basin (Thibodeaux at 760), and this vertical separation exists within and without the "High Productivity Area" of the reservoir (Fassett at 69; Tibodeaux at 76-77);

(G) Vertical and lateral discontinuity exists through out the reservoir (Tibodeaux at 101; Reise at 182);

FINDING: **The Fruitland Coal formation is multi-layered highly fractured reservoir with a high degree of vertical and lateral reservoir discontinuity in each coal layer across the entire San Juan Basin.**

(H) Stratigraphic variations in the Fruitland Coal result in small reservoir performance units which range in size from 80 acres to 320 acres in size (Reise at 182) which causes the reservoir to change from well to well in this pool (Fassett at 68; Thibodeaux at 90-91 [Burlington Cross Sections]);

(I) Variations in the Fruitland Coal formation constitute reservoir discontinuities sufficient to stop lateral flow of hydrocarbons (Reise at 178, 187);

FINDING: **Reservoir discontinuities in the Fruitland Coal formation stop the lateral flow of hydrocarbons and result in small reservoir performance units.**

(J) The reservoir discontinuities in the coal occur throughout the San Juan Basin (Fassett at 68, 70) and are the same in the "Low Productivity Area" and the "High Productivity Area" of the Basin-Fruitland Coal Gas Pool. (Fassett at 70; Thibodeaux at 78; Reise at p. 190 –192, BP America, Tab 10, Exhibit No. 3 [Cross Section], Exhibits 5 through 9 [Photographs]);

FINDING: **The reservoir heterogeneities are continuous across the reservoir and geological evidence cannot be used as a basis for separating the "High Productivity Area" from the "Low Productivity Area" in this pool.**

(K) The discontinuity of the Fruitland Coal requires additional wells to access reserves in the reservoir and infill drilling pool-wide is therefore needed. (Fassett at 70; Thibodeaux at 102; Reise at 190).

FINDING: **Approval of infill drilling in the Basin Fruitland Coal Gas Pool is needed to enable operators to produce the recoverable reserves from the small reservoir performance units in the pool.**

(32) The discontinuities in the Basin-Fruitland Coal Gas Pool cannot be mapped from the subsurface data acquired by the oil and gas industry. Reiseat 179.

(33) There is no seismic, the petrophysical or geologic mapping which is sufficiently detailed to identify these subsurface discontinuities and they can only be seen when they are actually encountered during drilling or are in such close proximity to a wellbore that they can be identified with pressure-transient testing. (Reise at 185, 190).

FINDING: No additional study or collection of additional information on the Fruitland Coal formation will change the current knowledge and understanding the geological characteristics of this reservoir.

(34) The engineering study of the Fruitland Coal formation rests on the known common geological characteristics of the reservoir and, therefore, all portions of the Basin should exhibit similar engineering characteristics. Reise at 172, 189.

FINDING: The engineering data on producing characteristics of the Fruitland Coal formation can be appropriately applied across the reservoir irrespective of where in the Basin-Fruitland Coal Gas Pool it is obtained.

PETROLEUM ENGINEERING FINDINGS--LOW PRODUCTIVITY AREA

(35) Pursuant to Division Order No. R-11639, Burlington has conducted an extensive study to determine if the current well density of 1 well per GPU is still appropriate for this pool. This study included drilling 5 pilot 160- acre infill wells at locations representative of the under pressured area of the pool identified as the "Low Productivity Area" .

(36) Burlington presented petroleum engineering evidence concerning areas in the underpressured portion of the "Low Productivity Area" and its reservoir simulation history matching of layer by layer reservoir pressures and production performance on 3 of 5 pilot wells demonstrates:

(A) current well density in the underpressured portion of the "Low Productivity Area" results in inadequate recovery;

(B) pilot wells are inadequately draining some or all coal layers;

(C) additional completions (one infill well per GPU) results in additional recovery ranging from 15% in the Huerfano pilot to 37% in the San Juan 28-6 pilot and 68% in the Davis pilot;

(D) infill drilling would recover additional reserves in the range of 0.27 BFC to 0.62 BFC of gas per GPU;

(E) the 2 wells that were not simulated were determined to be correlatable to the simulation areas that showed the least effective recovery of reserves on 320-acre spacing.

(F) pilot well results are transferable to the entire "Low Productivity Area." (Clarkson at 111, Tab. 6)

(37) Based upon this study of the data available from some 1270 existing "Low Productivity Area " wells covering 3.016 million acres of this pool, Burlington has concluded that:

(A) under current pool rules (1 wells per GPU density):

(i) the under-pressured portion of the pool originally contained 5.1 trillion cubic feet of gas ("OGIP") of which only 18% (0.92 TCF) will be recovered under the current well density leaving approximately 82% (4.18 TCF) unrecovered. See Burlington Exhibit Tab 6

(B) under the proposed pool rules (2 wells per GPU density):

(i) based upon the pilot studies, between 51% and 81% of the production from the increased density wells is expected to be new reserves which would not otherwise be recovered.

(38) BP America presented petroleum engineering evidence concerning its study of the Carracas Canyon Unit in the Low Productivity Area, which demonstrated infill development is needed in the Low Productivity Area because:

(A) there are substantial variations in well performance throughout the area studied in Carracas Canyon (Dinh at 202, Tab 11, Exhibit 11 [Carracas Canyon unit 2000 YTD Daily Gas Production] and Exhibit 12 [Carracas Canyon Unit 2000YTD Cumulative Production]); and

(B) new wells drilled in this area encounter close to original reservoir pressure, which shows there is insufficient recovery from the existing wells. Dinh at 204, Tab 11, Exhibit 14, [Carracas Canyon Unit Pressure Gradient

FINDING: Current wells are not draining the "Low Productivity Area" and infill development is needed to effectively drain the reservoir.

PETROLEUM ENGINEERING FINDINGS – HIGH PRODUCTIVITY AREA:

(39) BP presented petroleum engineering evidence from its studies of wells in the "High Productivity Area" of the reservoir in Colorado, which demonstrates that:

(A) The 2 MMCFD boundary is a boundary outside of which all technical data supports that additional drilling is justified, however additional technical data supports that additional wells are necessary in some areas inside the 2 MMCFD boundary.

(1) The proposed boundary of the "High Productivity Area" is intended to carve out of the pool an area where wells produce 2 million cubic feet of gas per day or more. Dinh at 212;

(2) Wells, which produce at a rate of approximately 2 million cubic feet per day, drain approximately 240-acres. Dinh at 212, Tab 11, Exhibit 20 [Drainage Area vs. 1999 Average Daily Rate]

(3) 175 of the wells in the "High Productivity Area" and on tracts, which adjoin the boundary, produce at rates, which put them on the wrong side of the boundary. Hawkins at 258-259, Tab 12, Exhibit 30 [Fruitland Infill Boundary & Highest Annualized Daily Rate]

(4) Sixty-six percent of the wells inside the "High Productivity Area" produce at rates of less than 5 million cubic feet of gas per day, which is generally inadequate to efficiently produce the reserves under a 320-acre spacing units. Hawkins at 260-261, Tab 12, Exhibit 31 [High Productivity Area distribution of Well Rates];

FINDING: The technical data supports that additional wells are required inside the "High Productivity Area".

(B) Infill development is needed because wells in the "High Productivity Area" are not efficiently draining the reserves under the dedicated 320-acre spacing units:

(1) Production rate is the most reliable indicator of drainage area because both are strongly influenced by permeability in the reservoir. Dinh at 210, 213, Tab 11, Exhibit no. 20 [Drainage Area vs. 1999 Average Daily Rate] See, Dinh at 216-217, Tab 11, Exhibit 23 [Drainage Area Vs Highest Rate]

(2) Wells which produce at rates between 2 and 3 million cubic feet per day drain less than 320-acres. Dinh at 211, Tab 11 Exhibit 20 [Drainage Area vs. 1999 Average Daily Rate];

(3) Approximately 50% of the wells which produce at rates in the range of 3 to 5 million cubic feet a day in the "High Productivity Area" do not drain 320-acres. Dinh at 210, Tab 11, Exhibit 20 [Drainage Area s. 1999 Average Daily Rate];

(4) A production rate of more than 5 million cubic feet of gas per day is needed to drain 320-acres. Dinh at 211;

FINDING: **Wells in the High Productivity Area of the Basin-Fruitland Coal Pool are not effectively draining the gas reserves from this portion of the reservoir and there are substantial reserves that are not accessible with existing wells.**

(C) Infill development will result in the recovery of incremental reserves and rate acceleration.

(1) the initial pressure in infill wells drilled in the "High Productivity Area" is close to the original reservoir pressure. Dinh at 215, Tab 11, Exhibit 22 [Vastar Infill & Parent Well Initial Pressures];

(2) BP's well performance information from two spacing units in the "High Productivity Area" where infill wells have been drilled showed that on these spacing units, (i) the parent well had produced at a high rates (one in excess of 5 million cubic feet of gas per day and the other 3 million

cubic feet of gas per day), (ii) the drainage area of the parent well was much less than 320-acres (260-acres and 280-acres), (iii) production from the infill well did not affect the producing rate of the parent well, and (iv) the production from the infill well was incremental reserves (3.5 BCF and 1.5 BCF) not rate acceleration. Dinh at 217-222, Tab 11, Exhibits 24, 25, 26 and 27 [Material Balance Plots SU 21-2;32-9 and SU 21-6;32-9, SU 20-6;32-9 and SU 20-5; 32-9]

(3) Infill production from spacing units in the "High Productivity Area" does not affect the production rate of the parent wells on the spacing unit. Dinh at 214, Tab 11, Exhibit 21[CO/NM Border Fruitland Coal Infill Results];

(4) The large pressure differential between the infill and parent well on spacing units in the "High Productivity Area" show poor drainage is occurring and that significant gas reserves will not be recovered without infill development. Dinh at 215, Tab 11, Exhibit 22 [Vastar Infill & parent Well Initial Pressures];

(5) The evidence showed that where parent wells produce at rates of 1 million cubic feet of gas per day or less, 1.5 BCF of incremental gas production should be recovered by the infill well; where parent wells produce between 2 and 3 million cubic feet of gas per day, 2.5 BCF of incremental gas production should be recovered by the infill well, and where parent wells produce at rates between 3 and 5 million cubic feet of gas per day, 3 BCF of incremental gas production should be recovered from those spacing units where the parent well is draining less than 320-acres. Dinh at 222-225, Tab 11, Exhibit 28 [Vastar's IBF: Infill Reserves vs. Offset Gas Rate]and Exhibit 29 [NM Infill – Incremental Recovery (Over Pressure Area)].

(6) There is 500 BCF of incremental reserves potential in the "High Productivity Area" that can be accessed with infill drilling that cannot now be recovered. Dinh At 224, Tab 11 Exhibit 29 [NM Infill – Incremental Recovery (Over Pressure Area)].

(7) Although there is some uniformity of pressure across the "High Productivity Area," the pressures in the individual layers in this area range from 100 pounds to 900 pounds which shows that there are portions of the "High Productivity Area" which are not currently being drained. Hawkins at 267-268

FINDING: Infill development of the High Productivity Area in the Basin-Fruitland Coal Gas Pool will result in the recovery of substantial volumes of incremental gas that will not otherwise be produced thereby preventing waste and should be approved.

(40) Phillips presented petroleum engineering evidence for the under-pressured portion of the "Low Productivity Area" demonstrates that current well density provides for inadequate recovery of reserves. The average drainage areas in the San Juan 29-5 Unit and San Juan 29-6 Unit areas are in the range of 35 to 70 acres. Phillips Exhibit No. 2

FINDING: Infill development of the underpressured portion of the "Low Productivity Area" in the Basin-Fruitland Coal Gas Pool will result in the recovery of substantial volumes of incremental gas that will not otherwise be produced thereby preventing waste and should be approved.

(41) Phillips presented petroleum engineering data for the over-pressured portion of the "Low Productivity Area", that demonstrated that current well spacing is inadequate for effective recovery and in the over-pressured portion of the "Low Productivity Area".

(A) In Section 7 Township 32 North and Range 9 West, pressure transient analysis and p/z* analysis showed no apparent interference after 40 months of infill production. (Phillips Exhibit No. 4)

(B) Section 7 Township 32 North Range 9 West is located adjacent to the "High Productivity Area" line. (Phillips Exhibit No. 4) The well located in Section 7 has had an annual average production rate in excess of 2 MMCFD, and would thus be qualified as a "High Productivity Area' well.

(C) Drainage area estimates for 45 wells located in the over-pressured portion of the "Low Productivity Area" showed that the majority of wells are draining less than 320 acres. (Phillips Exhibit No. 8)

FINDING: The majority of wells in the over-pressured portion of the "Low Productivity Area" is draining less than 320 acres. The 2 MMCFGPD "Low Productivity/High Productivity Area" line is not a hard and fast line and should only be used to differentiate notice requirements.

(42) Phillips presented petroleum engineering data for the "High Productivity Area", demonstrated that current well spacing is inadequate in some cases in the "High Productivity Area", and offset owners should be notified and given the opportunity to contest.

(A) There is a significant distribution of wells draining less than 320 acres, (Phillips Exhibit No.10) based on drainage area estimates using an average langmuir volume of 506 scf/ton

(B) Langmuir Volumes measured on 81 coal samples yield a wide range of values from less than 150 scf/ton to over 900 scf/ton. The most frequent estimate is between 450 and 600 scf/ton (Phillips' Exhibit No. 7).

FINDING: A minority of wells in the "High Productivity Area" is draining less than 320 acres based on an uncertain langmuir volume estimate. Thus additional wells may not be necessary in some cases. A notice procedure should be applied to allow offset operators to contest wells (Phillips Exhibit No. 9).

(43) Phillips' evidence indicated that only a portion of the HPA was currently being adequately drained by existing wells.

(44) Phillips concurred with the Committee recommendation to allow infill drilling in the "High Productivity Area"

NOTICE FINDINGS:

(45) The Committee has proposed providing notice of proposed infill wells in the "High Productivity Area" to offset operators and provisions for objections and hearings for increased density applications.

(46) Although Phillips supports changing the pool rules to allow for two wells per spacing unit, it recommended the adoption of a notice requirement and objection procedure whereby the applicant for an increased density well in the "High Productivity Area" must notify all offset operators and working interest owners and, in the event of an objection, for any reason, the matter would be set for hearing before a Division Examiner.

(47) Burlington and BP have objected to Phillips' proposal on the grounds that special notice to working interest owners is arbitrary because:

> (A) the "High Productivity Area" is basically fully developed on 1well per GPU and the operators of Fruitland Coal wells should make the economic decision as to whether or not to drill increase density wells. This procedure has work well in other pools in the San Juan Basin.
>
> (B) the "High Productivity Area" is governed by existing joint operating agreements that provide for operator and working interest owner elections and decisions on a unit basis.
>
> (C) Adoption of the Phillips' proposal would require unnecessary notice and unfounded opportunities for potential hearing in areas of the "High Productivity Areas" where only limited drainage is occurring and where no correlative rights are at issue. Individual working interest owners could take advantage of the hearing procedures to block development of incrementally recoverable reserves for personal, political or monetary reasons.

FINDING: **The special notice procedures recommended by the Committee and Phillips are not needed and would result in the impairment of correlative rights and the potential waste of natural gas.**

(48) Burlington and BP oppose Phillips' request for special notice requirements in the "High Productivity Area" on the grounds that the proposed procedure for notice to working interest owners would defeat the adoption of the increased density rule in federal exploratory units. By allowing an objection and opportunity for hearing for a working interest owner (any percentage large or small) who does not want to pay its share of the cost of the infill well, despite the fact that owner is contractually obligated to pay pursuant to existing provisions of the Unit Agreement or Unit Operating Agreement, the notice procedure proposed by Phillips in the Federal Exploratory Units would put the Division in the middle of a potential dispute governed by existing contractual relationships.

ADDITIONAL STUDY FINDINGS:

(49) Additional study of the reservoir is unnecessary for the information that would be acquired with additional study, due to the complex nature of this reservoir, would be no different than what available today and would only result in delay in the approval of infill drilling in this portion of the pool. Hawkins at 266-267.

FINDING: Additional study of the Fruitland Coal would not change the result of the data available on this reservoir and therefore is unnecessary and should not be required.

CONCLUSIONS OF THE DIVISION:

(50) The Committee's recommendations are supported by the following technical evidence:

(A) The Basin-Fruitland Coal Gas Pool is a complex layered reservoir characterized by:

(1) reservoir simulation of the data from Burlington's pilot study demonstrates a range of recovery factors from 16% to 57% of original gas in place in the under-pressured portion of the LPA.

(2) the geologic and reservoir characteristics for this pool is similar between the High productivity Area and the Low Productivity Area;

(3) the difference between the sizes of drainage areas in the Low Productivity Area cannot be attributed to differences in matrix porosity, matrix permeability,

and reservoir structure or reservoir thickness.;

(4) the Low Productivity Area is characterized by very low permeability, which, in the absence of sufficient natural fractures, cannot be drained by the current well density.

(51) The Committee's position concerning the HPA is that the current 1 well per spacing unit density is not adequate for portions of the HPA and to increase well density in the HPA will allow the recovery of additional reserves by allowing the drilling of infill wells utilizing the special notice provisions recommended by the committee.

(52) The Committee's study is based upon modern methodologies of data collection and analysis of substantial evidence utilizing data which was not available 10 years ago when the Commission authorized 1 well density per GPU for this pool,

(53) The Committee's study, including the concurrent studies of Burlington, BP America and Phillips, demonstrates that it is now appropriate to adopt and amend rules and regulations for this pool in order to drill more wells per GPU than is currently permitted by Rule 4 of the pool rules.

(54) Based on the evidence presented in this case, the Division finds that:

(A) in order to comply with Section 70-2-17.B NMSA 1979, the Division needs to provide a procedure to protect portions of the "High Productivity Area" of the pool which are being adequately drained by the current 1 well per GPU density from having an excessive number of wells drilled.

(B) the Committee's proposed procedure for notice only to operators in the 160-acre tracts adjoining the 160-acre portion of the GPU containing an infill well is reasonable and necessary in order to comply with Section 70-2-17.B NMSA 1979)

(C) because of the contractual provisions of the unit agreements and operating agreements for the federal exploratory units, notice to individual working interest owners as proposed by Phillips should be denied.

(D) Phillips' objection is without merit and the Committee's proposal as set forth on Exhibit "A" to this order should be adopted in order to prevent the drilling of unnecessary wells, prevent waste and protect correlative rights.

(E) Phillips' position defeats the adoption of an increased well density rule which Phillips' supports and which the substantial and uncontested evidence demonstrates is necessary for 95% of this pool

(F) Phillips' position would cause the issue of increased well density for the pool to be examined on a well-by-well basis instead of on a pool wide basis;

(G) Phillips' notice procedure is unnecessary for 95% of the pool where infill wells are clearly needed for adequate recovery.

(H) Phillips' notice procedure would create the real risk that the development of increased density wells would not be uniformly applicable to a substantial majority of the pool

(I) Phillips' notice procedure would provide an overly burdensome procedure, which would disrupt the opportunity for orderly development of increased density wells;

(J) Phillips notice procedure would provide a procedure so that a working interest owner, by objecting, could arbitrarily use an objection to limit offset well development or avoid an obligation to develop its own acreage;

(K) the Phillips notice procedure would circumvent the Division's decision in accordance with Section 70-2-17.B NMSA 1979 concerning appropriate well density for this pool and allow individual operators to arbitrary limit and restrict development;

(L) Phillips' proposal is unreasonable, unnecessary and without merit.

(55) The special notice to operator's provisions as proposed by Committee and as set forth in Exhibit "A" to this order should be adopted in order to prevent waste and protect correlative rights.

(56) The current well density is inadequate for 95% of the pool and that by allowing operators the option on a pool wide basis to increasing well density to 2 wells per GPU creates an opportunity to substantially increase ultimate recovery from this pool which will prevent waste and protect correlative rights.

(57) There is no longer a need to maintain a separate pool for the Cedar Hill-Fruitland Basal Coal Pool. This pool should be abolished and the horizontal and vertical limits of this pool should be included in the Basin-Fruitland Coal Gas Pool.

(58) The amendments of the Rules and Regulations of the Basin Fruitland Coal Gas Pool as set forth in Exhibit "A" will (i) prevent the economic loss caused by the drilling of unnecessary wells, (ii) will avoid the risks associated with the drilling of an excessive number of wells, (iii) will increase the opportunity to produce new reserves and improve recovery of gas from this pool, (iv) will provide a workable, fair and efficient regulation of well locations and spacing units while preventing waste of valuable hydrocarbons and the protection of the correlative rights of the owners of that production.

IT IS THEREFORE ORDERED THAT:

(1) Effective on the first day of the month following the issuance of this order, the Rules and Regulations of the Basin-Fruitland Coal Gas Pool are hereby amended to conform to the rule changes as set forth in Exhibit "A" attached hereto and made part of this order.

(2) "High Productivity Area" and "Low Productivity Area" for the Basin-Fruitland Coal Gas Pool are hereby adopted and described as set forth on Exhibit "B" attached hereto and made part of this order.

(3) Any Division approved infill well to be drilled or completed in this pool prior to the effective date of an order approving this application shall be deemed to have also approved such existing infill wells.

(4) 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 hereinafter designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY, DIRECTOR

EXHIBIT "A"
NEW RULES

Rule 4: Each well completed or recompleted in the Basin-Fruitland Coal Gas Pool shall be located on a standard spacing unit ("GPU") contained 320 acre, more or less, comprising any two contiguous quarter sections in a single governmental section.

Rule 7: (a) Well Locations:

(i) wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

(ii) well locations inside federal exploratory units: Wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement to the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area;

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

(iii) The operator filing an APD for any well within a unit area that is closer to the outer boundary of its assigned GPU 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 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) Well Density in the Low Productivity Area:

(i) No more than two (2) wells per GPU may be located in the Low Productivity Area

(ii) the optional INFILL WELL drilled on a GPU shall be located in the quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

Rule 7 (d) Well Density in the HPA (High Productivity Area):

One optional "infill" well in the High Productivity Area may be drilled within a GPU in accordance with Rule 7(a) and 7(b) pursuant to the following procedures:

1. Operators of an existing GPU which contains an original coal gas well who desire to drill an optional infill well shall send a copy of its Bureau of Land Management or New Mexico Oil Conservation Division Application for Permit to Drill ("APD") to adjacent operators by certified mail-return receipt requested advising that they have twenty (20) days from receipt to file with the District Supervisor (OCD-Aztec) a written objection to the application.

2. An adjacent operator shall be any operator of a Basin-Fruitland Coal-Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter-quarter section in which the proposed optional infill well is to be located.

3. The District Supervisor may approve the application for permit to drill ("APD") upon receipt of the APD and certification by the applicant that all adjacent operators have received notification and no objections have been received within a twenty (20) day notice period.

4. In the event an objection is timely received, or the District Supervisor upon his own initiative, the application shall be set for a hearing before a Division Examiner.

EXHIBIT "A"
ALTERNATIVE NEW RULES

Rule 4: Each well completed or recompleted in the Basin-Fruitland Coal Gas Pool shall be located on a standard spacing unit ("GPU") contained 320 acre, more or less, comprising any two contiguous quarter sections in a single governmental section.

Rule 7: (a) Well Locations:

(i) wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

(ii) well locations inside federal exploratory units: Wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement to the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area;

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

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

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William F. Carr

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August 30, 2002

VIA HAND DELIVERY

Michael E. Stogner
Chief Hearing Officer.Engineer
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: New Mexico Oil Conservation Division Case No. 12888: Application of the Fruitland Coalbed Methane Study Committee for pool abolishment and expansion and to amend the special rules and regulations for the Basin-Fruitland Coal Gas Pool for purposes of amended well density requirements for coalbed methane wells, San Juan County, New Mexico.

Dear Mr. Stogner:

Pursuant to your directive, I enclosed BP America, Inc.'s Proposed Order of the Division in the above-referenced case.

Your attention to this matter is appreciated.

Very truly yours,

William F. Carr

Enclosure
cc: Steven Hayden
David K. Brooks, Esq.
J. Scott Hall, Esq.
W. Thomas Kellahin, Esq.
James Bruce, Esq.
John Dean, Esq.
James A. Gillespie, Esq.
Don J. Duhrkopf
J. W. Hawkins

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. 12888
ORDER NO. R-_____

APPLICATION OF THE FRUITLAND COALBED METHANE STUDY COMMITTEE FOR POOL ABOLISHMENT AND EXPANSION AND TO AMEND RULE 4 AND 7 OF THE SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL FOR PURPOSES OF AMENDING WELL DENSITY REQUIREMENTS FOR COALBED METHANE WELLS, SAN JUAN, RIO ARRIBA, MCKINLEY AND SANDOVAL COUNTIES, NEW MEXICO.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of BP America, Inc.'s Proposed Order of the Division was mailed or hand delivered to counsel of record on this 30th Day of August, 2002, as follows:

David K. Brooks, Esq.
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William F. Carr

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. 12888
ORDER NO. R-_____

APPLICATION OF THE FRUITLAND COALBED METHANE STUDY COMMITTEE FOR POOL ABOLISHMENT AND EXPANSION AND TO AMEND RULE 4 AND 7 OF THE SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL FOR PURPOSES OF AMENDING WELL DENSITY REQUIREMENTS FOR COALBED METHANE WELLS, SAN JUAN, RIO ARRIBA, MCKINLEY AND SANDOVAL COUNTIES, NEW MEXICO.

BP AMERICA, INC.'S
PROPOSED ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 a. m. on July 9 and 8:15 a.m. on July 10, 2002, at Farmington, New Mexico, before Examiner Michael E. Stogner.

NOW, on this ___day of September, 2002, 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, the New Mexico Oil Conservation Division ("Division") has jurisdiction of this case and its subject matter.

SUBJECT OF HEARING

(2) The applicant, the Fruitland Coalbed Methane Study Committee ("Committee"), seeks an order amending Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool to authorize under certain restrictions infill drilling of up to two wells within a standard 320-acre gas proration and spacing unit by increasing the well density from the current maximum of one (1) well provided in Order R-8768, as amended, to a maximum of two (2) wells (160-acre infill) per 320-acre gas proration and spacing unit for wells located in the pool. Applicant requests the adoption of these rule changes for wells located in a "Low Productivity Area" of the pool and for special administrative procedures for infill wells in a "High Productivity Area" of the

pool. Applicant also seeks the termination of the Cedar Hill Fruitland Basal Coal Gas Pool and the concomitant expansion of the Basin-Fruitland Coal Gas Pool.

NOTICE OF HEARING

(3) In compliance with Division Rule 1207 and Rule 4 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool. Burlington Resources Oil & Gas Company, LP ("Burlington"), on behalf of the Committee, sent approximately 67 copies of its application, including its proposed rules and notice of hearing, to operators in the Basin-Fruitland Coal Gas Pool. Notice of this case was also published in the a newspaper of general circulation in the counties were the Basin-Fruitland Coal Gas Pool is located and included on the Division's hearing docket which was mailed to approximately 300 operators in New Mexico.

PARTIES

(4) The Committee, Burlington, BP America, Inc. ("BP America"), and Phillips Petroleum Company ("Phillips") appeared and presented evidence at the hearing. Burlington supported the recommendation of the Committee for field-wide infill development and presented evidence in support of infill drilling in the "Low Productivity Area". BP America supported pool-wide infill development and presented evidence in support of infill drilling in the "High Productivity Area". Burlington, and BP America with testimony, and Williams Production Company ("Williams") in the statement it presented at the close of the hearing, opposed the creation of a "High Productivity Area" with special notice rules. Phillips supported infill development in the "Low Productivity Area" and recommended the adoption of special notice rules for infill development within the "High Productivity Area." Williams, Chevron-Texaco, Dugan Production Corporation, Texakoma Oil and Gas Corporation, and San Juan Coal Company appeared at the hearing through legal counsel but did not present evidence. At the conclusion of the presentation of evidence, statements were made by Dr. Brooks Taylor, Tweetie Blancett, Bill Humphries for the New Mexico Cattle Growers' Association, Synergy Operating, Mr. Tom Mullins, Janet Reese, Alan Ralston for the San Juan Citizens' Alliance, Williams and Dugan.

JURISDICTION

(5) The Division has jurisdiction of this issue for the Oil & Gas Act specifically provides in Section 70-2-17.B, NMSA (1979) that:

> "The Division may establish a proration unit for each pool, such being the area that can be efficiently and economically drained and developed by one well, and in so doing the Division shall consider

the economic loss caused by the drilling of unnecessary wells, the protection of correlative rights, including those of royalty owners, the prevention of waste, the avoidance of the augmentation of risk arising from the drilling of an excessive number of wells and the prevention of reduced recovery which might result from the drilling of too few wells".

BACKGROUND

(6) On October 17, 1988, the Division entered Order R-8768 in Case 9420 which created the Basin-Fruitland Coal Gas Pool and adopted 320-acre gas proration units ("GPU") for this pool, based upon the assumption that one well would drain and develop 320-acres.

(7) On July 16, 1991, the Division entered Order R-8768-A which found that:

"(9) The results of the reservoir simulation study generally establish that one well in the subject pool can effectively drain and develop 320 acres."

"(10) The results of the study further indicate however that there may be certain areas within the 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."

(8) The Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool currently provide in part:

"RULE 4. Each well completed or recompleted in the Basin-Fruitland Coal Gas Pool shall be located on a standard unit containing 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. Wells drilled or recompleted on every standard or non-standard unit in the Basin-Fruitland Coal Gas Pool shall be located in the NE/4 or SW/4 of a single governmental section and shall be located no closer than 660 feet to any outer boundary of the proration

unit nor closer than 10 feet to any interior quarter-quarter section line or subdivision inner boundary."

THE STUDY COMMITTEE

(9) The Fruitland Coalbed Methane Study Committee was formed on August 4, 1999 to study well density in the Basin-Fruitland Coal Gas Pool. The Committee met on numerous occasions from August 4, 1999 through June 18, 2002. (Hayden at 15-16, Tab 2, Exhibit 1)

(10) On August 22, 2001, the Division entered Order R-11639 in Case 12651 which granted Burlington's application to initiate a pilot project for the drilling of additional Basin-Fruitland Coal Gas Pool wells to acquire data for reservoir engineering and geological studies for the purposes of determining the proper well density in the pool.

(11) The data obtained from Burlington's pilot project along with data from other portions of the Fruitland Coal formation obtained by BP America and other operators was studied by the Committee. Phillips attended Committee meetings but made no proposal during the Committee process concerning the development of this pool.

RECOMMENDATIONS OF THE STUDY COMMITTEE

(12) Based on its study of the geological and reservoir engineering data on the Fruitland Coal formation, the Committee recommends that to increase ultimate recovery of gas from the pool Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool should be amended to authorize the infill drilling of an optional second well on each 320-acre gas proration and spacing unit in the pool with the second well to be located in the quarter section of the GPU not containing the first Basin-Fruitland Coal Gas well. The Committee also recommends that the pool be divided into a "High Productivity Area" and a "Low Productivity Area" based upon well producing rates of more or less than 2 million cubic feet of gas per day and that, prior to drilling an infill well in the "High Productivity Area," notice of the infill well be provided to adjacent operators and, if an objection to the application is received within 20 days, the application be set for a hearing before a Division Examiner.

(13) The "High Productivity Area" of this pool is described as follows and the "Low Productivity Area" includes all other acreage in the pool:

Township 29 North, Range 6 West, NMPM
Sections 2-8, 11-12, 17-18

Township 29 North, Range 7 West, NMPM
Sections 1, 12-13
Township 30 North, Range 5 West, NMPM
Sections 19-21, 29-31
Township 30 North, Range 6 West, NMPM
Sections 5-35
Township 30 North, Range 7 West, NMPM
Sections 1-18, 22-26, 36
Township 30 North, Range 8 West, NMPM
Sections 1-4, 10-13
Township 30 North, Range 9 West, NMPM
Section 2
Township 31 North, Range 6 West, NMPM
Sections 6, 31
Township 31 North, Range 7 West, NMPM
Sections 1, 12-14, 19-36
Township 31 North, Range 8 West, NMPM
Sections 4-10, 13-36
Township 31 North, Range 9 West, NMPM
Sections 1-7, 11-14, 22-27, 34-36
Township 32 North, Range 6 West, NMPM
Sections 19, 29-31
Township 32 North, Range 7 West, NMPM
Sections 23-26, 36
Township 32 North, Range 8 West, NMPM
Sections 19, 30-32
Township 32 North, Range 9 West, NMPM
Sections 24-26, 30-32, 35-36
Township 32 North, Range 10 West, NMPM
Sections 7-12, 14-25, 28-30
Township 32 North, Range 11 West, NMPM
Sections 11-13, 24

(14) The members of the Committee are in agreement that infill drilling is needed throughout the pool. The members disagree on whether a "High Productivity Area" should be created. As a compromise, the Committee proposes the creation of the "High Productivity Area" and the adoption of rules which provide that development in this area should be subject to special notice rules and possible hearings. (Hayden at 20)

GEOLOGICAL FINDINGS:

(15) All geological evidence presented by the Study Committee, Jim Fassett, Burlington and BP America is in agreement on the geological characteristics of the Fruitland Coal formation. Phillips presented no geological evidence.

(16) The geological evidence establishes that:

(a) the basement architecture does not change from the New Mexico to the Colorado portions of the Basin (Riese at p. 173);

(b) the depositional systems of the Fruitland formation consistently carried themselves from New Mexico into Colorado (Riese at 172-175, Tab 10, Exhibits 1and 2 [Location Map and Isopach Map]);

(c) reservoir discontinuities exist from Colorado into New Mexico across the reservoir (Riese at Tr. 176, Exhibit 3 [Cross Section]);

FINDING: **The geological characteristics of the Fruitland Coal correlate across the reservoir and are the same on both sides of the New Mexico-Colorado state line.**

(e) The Fruitland Coal formation is a multi-layered reservoir with a high degree of discontinuity which is the result of:

(1) variations in the vegetation through time as the coals were deposited and which caused vertical discontinuity (Fassett at 62: Thibodeaux at 90, 101; Riese at 177-179, Exhibits No. 4 [Vegetation Map] and 5 through 9 [Photographs of mine longwalls which show the nature of the discontinuities]); and

(2) faulting (listric faults or growth faults at the time of sedimentation) which created structural discontinuities at the time of sedimentation (Riese at 184) and also post depositional and related faults (Riese at 187-188 [Photographs]);

(f) there are nine discrete coal packages which can be found throughout the entire San Juan Basin (Thibodeaux at 760) and this vertical separation exists within and without the "High Productivity Area" of the reservoir (Fassett at 69; Tibodeaux at 76-77);

(g) vertical and lateral discontinuity exists through out the reservoir (Tibodeaux at 101; Riese at 182);

FINDING: The Fruitland Coal formation is a multi-layered internally faulted reservoir with a high degree of vertical and lateral reservoir discontinuity in each coal layer across the entire San Juan Basin.

(h) stratigraphic variations in the Fruitland Coal result in small reservoir performance units which range in size from 80 acres to 320 acres (Riese at 182); this causes reservoir attributes to change from well to well in this pool (Fassett at 68; Thibodeaux at 90-91 [Burlington Cross Sections]);

(i) variations in the Fruitland Coal formation constitute reservoir discontinuities sufficient to stop lateral flow of hydrocarbons (Riese at 178, 187).

FINDING: Reservoir discontinuities in the Fruitland Coal formation stop the lateral flow of hydrocarbons and result in small reservoir performance units.

(j) the reservoir discontinuities in the coal occur throughout the San Juan Basin (Fassett at 68, 70) and are the same in the "Low Productivity Area" and the "High Productivity Area" of the Basin-Fruitland Coal Gas Pool (Fassett at 70; Thibodeaux at 78; Riese at p. 190–192, Tab 10, Exhibit No. 3 [Cross Section], Exhibits 5 through 9 [Photographs]);

FINDING: The reservoir heterogeneities are persistent throughout the reservoir; and geological evidence cannot be used as a basis for separating the "High Productivity Area" from the "Low Productivity Area" in this pool.

(k) the discontinuity of the Fruitland Coal requires additional wells to access reserves in the reservoir and infill drilling pool-wide is therefore needed. (Fassett at 70; Thibodeaux at 102; Riese at 190)

FINDING: Approval of infill drilling in the Basin-Fruitland Coal Gas Pool is needed to enable operators to produce the recoverable reserves from the small reservoir performance units in the pool.

(17) The engineering study of the Fruitland Coal formation rests on the geological characteristics of the reservoir and, since the geological characteristics of this formation are consistent across the Basin, the engineering characteristics of the pool should also be similar. (Riese at 172, 189, Dinh at 234)

FINDING: The engineering data on producing characteristics of the Fruitland Coal formation can be appropriately applied across the reservoir irrespective of where in the Basin-Fruitland Coal Gas Pool it is obtained.

PETROLEUM ENGINEERING FINDINGS--LOW PRODUCTIVITY AREA

(18) Pursuant to Division Order No. R-11639, Burlington has conducted an extensive study to determine if the current well density of one well per GPU is still appropriate for this pool. This study included drilling 5 pilot 160-acre infill wells at locations representative of the under pressured area of the pool identified as the "Low Productivity Area".

(19) Burlington presented petroleum engineering evidence on the "Low Productivity Area" and its reservoir simulation history matching of layer by layer reservoir pressures and production performance on 3 of 5 pilot wells. This evidence demonstrates that:

(a) based on decline curve analysis of 1270 wells, the original gas in place in the pool was 5.1 trillion cubic feet of gas of which only 18% (0.92 TCF) will be recovered under the current well density leaving approximately 82% (15.96 TCF) unrecovered (Clarkson at 122-124, Tab 6, Exhibit 5, [Current Density Results In Inadequate Recovery]);

(b) wells on 320-acre spacing in this pool are inadequately draining some or all coal layers (Clarkson at 125-128, Tab 6, Exhibits 6 through 9 [Pilot Wells Demonstrate Inadequate Drainage in Some/All Coal Layers]);

FINDING: **Current well density in the "Low Productivity Area" results in inadequate drainage and gas recovery.**

(c) additional completions (one infill well per GPU) results in additional recovery ranging from 15% in the Huerfano pilot to 37% in the San Juan 28-6 pilot and 68% in the Davis pilot (Clarkson at 128-129, Tab 6, Exhibit 10 [Additional Completions Result In Additional Recovery]);

(d) pilot well results are transferrable to the entire "Low Productivity Area". (Clarkson 131-132, Tab 6, Exhibit 11 [Pilot Results Are Transferable to UPE])

FINDING: **Infill drilling would recover additional reserves throughout the "Low Productivity Area" of the pool.**

(20) Based on data available from 1270 wells in this pool, the evidence establishes that it is economic to drill up to 2 wells per 320-acres in the pool. (Clarkson at 154-159, Tab 8, Exhibit 22 [Infill Recompletes Are Economic] and Exhibit 23-28 [Pilot Testing/Simulation/Economics Results])

FINDING: **Infill drilling of the pool is economic and will result in the recovery of reserves that otherwise would not be produced thereby preventing waste.**

(21) BP America presented petroleum engineering evidence concerning its study of the Carracas Canyon Unit which demonstrates infill development is needed in the "Low Productivity Area" because:

(a) there are substantial variations in well performance throughout the area studied in Carracas Canyon Unit Area (Dinh at 202, Tab 11, Exhibit 11 [Carracas Canyon Unit 2000 YTD Daily Gas Production] and Exhibit 12 [Carracas Canyon Unit 2000 YTD Cumulative Production]) with 82 of the 85 wells studied in this area draining less than 160-acres (Dinh at 207, Tab 11, Exhibit 17[Carracas Canyon Unit One Well per 320 ac. Is Insufficient]); and

(b) new wells drilled in this area encounter close to original reservoir pressure which shows there is insufficient recovery from the existing wells. (Dinh at 204, Tab 11, Exhibit 14, [Carracas Canyon Unit Pressure Gradient])

FINDING: Current wells are not draining the "Low Productivity Area" and infill development is needed to effectively drain the reservoir.

PETROLEUM ENGINEERING FINDINGS – HIGH PRODUCTIVITY AREA:

(22) The petroleum engineering evidence presented by all parties from studies of wells in the "High Productivity Area" and analogous portions of the reservoir in Colorado demonstrates that:

(a) Infill development is needed because there are wells in the "High Productivity Area" that are not efficiently draining the reserves under the dedicated 320-acre spacing units:

(1) production rate is the most reliable indicator of drainage area because both production rate and drainage area are strongly influenced by permeability in the reservoir (Dinh at 210, 213, Tab 11, Exhibit No. 20 [Drainage Area vs. 1999 Average Daily Rate] See, Dinh at 216-217, Tab 11, Exhibit 23 [Drainage Area Vs Highest Rate]) whereas net coal thickness and gas content are poor indicators of what a well's drainage will be (Dinh at 213);

(2) wells which produce at rates between 2 and 3 million cubic feet of gas per day drain significantly less than 320-acres (Dinh at 211, Tab 11 Exhibit 20 [Drainage Area vs. 1999 Average Daily Rate]);

(3) approximately 50% of the wells which produce at rates in the range of 3 to 5 millon cubic feet of gas per day in the "High Productivity Area" do not drain 320-acres (Dinh at 210, 223, Tab 11, Exhibit 20 [Drainage Area vs. 1999 Average Daily Rate]);

(4) a production rate of more than 5 million cubic feet of gas per day is needed to drain 320-acres (Dinh at 211);

(5) sixty-six percent of the wells inside the "High Productivity Area" produce at rates of less than 5 million cubic feet of gas per day which is generally inadequate to efficiently produce the reserves under a 320-acre spacing units (Hawkins at 260-261, Tab 12, Exhibit 31 [High Productivity Area Distribution of Well Rates]); and

(6) thirty-six percent of the 85 wells studied by Phillips in the "High Productivity Area" drain less than 320-acres which shows infill development is needed. (Jones at 312, Tab 13, Exhibit 10 [Distribution of Calculated Drainage Areas In High Productivity Area])

FINDING: Wells in the "High Productivity Area" of the Basin-Fruitland Coal Pool are not efficiently draining the gas reserves from all coal layers in this portion of the reservoir and there are substantial reserves that are not accessible with existing wells.

(b) Infill development will result in the recovery of incremental reserves not rate acceleration:

(1) BP America's well performance information from two spacing units representative of the Fruitland Coal in the "High Productivity Area" where infill wells have been drilled showed that on these spacing units, **(i)** the parent well had produced at high rates (one in excess of 5 million cubic feet of gas per day and the other 3 million cubic feet of gas per day), **(ii)** the drainage area of the parent well was much less than 320-acres (260-acres and 280-acres), **(iii)** production from the infill well did not affect the producing rate of the parent well, and **(iv)** the production from the infill well was incremental reserves (3.5 BCF and 1.5 BCF) not rate acceleration (Dinh at 217-222,234, Tab 11, Exhibits 24, 25, 26 and 27 [Material Balance Plots SU 21-2;32-9 and SU 21-6;32-9, SU 20-6;32-9 and SU 20-5; 32-9]);

(2) Phillips' analysis of New Mexico wells directly offsetting the spacing units studied by BP America also did not show interference from the BP America infill wells (Jones at 305, Tab 13, Exhibit 4 [Affect of Colorado Infills]);

(3) the large pressure differential between the initial infill pressure and pressure in the parent well on spacing units in the "High Productivity Area" show poor drainage is occurring and that significant gas reserves will not be recovered without infill development (Dinh at 219, Tab 11, Exhibit 22 [Vastar Infill & Parent Well Initial Pressures]);

(4) infill production from spacing units in the "High Productivity Area" does not affect the production rate or drainage area of the parent well on the spacing unit (Dinh at 220, Tab 11, Exhibit 21 [CO/NM Border Fruitland Coal Infill Results]);

(5) the evidence showed that where parent wells produce at rates of 1 million cubic feet of gas per day or less, 1.5 BCF of incremental gas production should be recovered by the infill well; where parent wells produce between 2 and 3 million cubic feet of gas per day, 2.5 BCF of incremental gas production should be recovered by the infill well, and where parent wells produce at rates between 3 and 5 million cubic feet of gas per day, 3 BCF of incremental gas production should be recovered from those spacing units where the parent well is draining less than 320-acres (Dinh at 222-225, Tab 11, Exhibit 28 [Vastar's IBF: Infill Reserves vs. Offset Gas Rate] and Exhibit 29 [NM Infill – Incremental Recovery-Over Pressure Area]);

(6) there is over 500 BCF of incremental reserve potential in the "High Productivity Area" that can be accessed with infill drilling that cannot now be recovered (Dinh At 224, Tab 11 Exhibit 29 [NM Infill – Incremental Recovery-Over Pressure Area]);

(7) although there is some uniformity of single well pressures across the "High Productivity Area," the pressures in the individual layers in this area range from 100 pounds to 900 pounds which shows that there are coal layers in portions of the "High Productivity Area" which are not currently being efficiently drained (Hawkins at 267-268);

(8) the pressure differentials between the parent and infill well in the areas studied by BP America show that parent well is not recovering the gas at the infill location (Dinh at 238, Tab 11, Exhibit 22 [Vastar Infill & Parent Well Initial Pressures]); and

(9) infill development is the only way the incremental reserves in these layers can be produced. (Dinh at 236)

FINDING: Infill development of the "High Productivity Area" in the Basin-Fruitland Coal Gas Pool will result in the recovery of substantial volumes of incremental gas that will not otherwise be produced thereby preventing waste and should be approved.

(c) There is no engineering basis for the proposed boundary of the "High Productivity Area" for it is arbitrary and does not separate high productivity wells from low productivity wells (Dinh at 212):

(1) the proposed boundary of the "High Productivity Area" is intended to carve out of the pool an area where wells produce 2 million cubic feet of gas per day or more (Dinh at 212);

(2) wells which produce at a rate of approximately 2 million cubic feet per day only drain an average of 240-acres (Dinh at 212, Tab 11, Exhibit 20 [Drainage Area vs. 1999 Average Daily Rate]);

(3) a production rate of more than 5 million cubic feet of gas per day is needed to drain 320-acres (Dinh at 211);

(4) it would be difficult to draw boundaries in the pool which separate wells that drain 320-acres from those that do not. Based on current drainage information, the boundaries would have to carve twelve small islands out of the pool (Hawkins at 258, 259); and

(5) 175 wells currently in the "High Productivity Area" and on tracts which adjoin its boundary produce at rates which put them on the wrong side of the boundary. (Hawkins at 258-259, Tab 12, Exhibit 30[Fruitland Infill Boundary & Highest Annualized Daily Rate])

FINDING: There is no technical basis for the boundary of the "High Productivity Area" in the Basin-Fruitland Coal Gas Pool, it is arbitrary, unworkable, does not separate high productivity wells from low productivity wells, and should not be adopted by the Division.

NOTICE FINDINGS:

(23) The Committee recommended the adoption of rules which require notice of proposed infill wells in the "High Productivity Area" be provided to offset operators and provisions for objections and hearings for increased density applications.

(24) The evidence established that the Committee's recommendation for notice to offset operators of proposed wells in the "High Productivity Area" would only affect approximately 30% of the tracts in this area because 70% of the acreage is within federal units where notice to offsets, except along the unit boundary, would be meaningless for the offset operator and the operator which is proposing the well are the same. (Hawkins at 262, Tab 12, Exhibit 32 [Proposed Boundary & Units])

(25) Requiring notice to only certain operators in the "High Productivity Area" puts these operators at an unfair disadvantage for it permits offset operators to delay or prevent that operator from producing its fair share of the reserves under its lands thereby impairing its correlative rights and potentially causing waste. (Hawkins at 265, 269, 296)

(26) Phillips recommends the adoption of a notice requirement and objection procedure whereby an operator proposing an increased density well in the "High Productivity Area" must notify all offset working interest owners as well as offset operators and, in the event of an objection, for any reason, the matter would be set for hearing before a Division Examiner.

(27) Most of the "High Productivity Area" is developed with one well per GPU and the operators of Fruitland Coal wells should be allowed to make the decision on whether or not to drill an increased density well. This procedure has worked well in other pools in the San Juan Basin.

(28) Approximately 70% of the "High Productivity Area" is committed to federal units where the unit agreement and unit operating agreement govern how additional development decisions are made. To authorize an objection and opportunity for hearing for any working interest owner in a federal unit that does not want to pay its share of the cost of the infill well, allows a working interest owner to use the Division to circumvent its contractual obligations.

(29) Adoption of the Phillips' proposal would require unnecessary notice and hearings in the portion of the "High Productivity Area" where only limited drainage is occurring and where no correlative rights are being impaired. It could enable individual owners to take advantage of the

hearing procedure to block the development of incremental reserves for personal, political or monetary reasons. (Hawkins at 264)

FINDING: The special notice procedures recommended by the Committee and by Phillips are not needed and would result in the impairment of correlative rights and the potential waste of natural gas.

(30) The evidence establishes that there are areas within the "High Productivity Area" where wells drain less than 320-acres as well as areas where wells drain more than 320-acres. The evidence also showed that there are GPU's outside the "High Productivity Area" where wells drain more than 320-acres.

(31) The relationship between the size of a spacing unit and a well's drainage area is not exact and there are many defined gas pools where geologic conditions result in larger or smaller drainage areas than the spacing rules contemplate. The technical evidence and supporting data in this case demonstrate that within the proposed "High Productivity Area" there are spacing units which are efficiently drained by one well and areas in which two wells are required to efficiently and economically drain the spacing unit.

(32) It is unnecesary and probably administratively unworkable to have a "High Productivity Area" within the pool developed under different rules than the rest of the pool. Individual operators are capable of evaluating whether the specific geology of a particular 320-acre GPU justifies the drilling of additional wells. Creating a "High Productivity Area" and adopting the special rules therefore as proposed by either the Committee or Phillips would be unduly burdensome for both industry and the Division, would create confusion, would result in two sets of rules for the development of the pool, would be difficult to administer, and is not supported by the drainage evidence of the parties.

(33) The requests of the Committee and Phillips for the creation of a "High Productivity Area" within the Basin-Fruitland Coal Gas Pool with special procedures for obtaining authority to drill complete or recomplete optional second wells should be **denied.**

ADDITIONAL STUDY FINDINGS:

(34) Phillips recommended that there be additional study of wells in the "High Productivity Area". (Jones at 396)

(35) The discontinuities in the Basin-Fruitland Coal Gas Pool cannot be mapped from the subsurface data acquired by the oil and gas industry. (Riese at 179)

(36) There is no seismic, petrophysical or geologic mapping which is sufficiently detailed to identify these subsurface discontinuities; they can only be seen when they are actually encountered during drilling or are in such close proximity to a wellbore that they can be identified with pressure-transient testing. (Riese at 185, 190)

FINDING: No additional study or collection of additional information on the Fruitland Coal formation will change the current knowledge and understanding the geological characteristics of this reservoir.

(37) BP America's well performance information from the two spacing units on the New Mexico-Colorado state line and the data from the offsetting New Mexico wells operated by Phillips is representative of well performance in the "High Productivity Area" for:

(a) like wells in the "High Productivity Area," the wells studied are in an area where wells produce at rates in excess of 2 million cubic feet of gas per day (Dinh at 217-222,234, Tab 11, Exhibits 24, 25, 26 and 27 [Material Balance Plots SU 21-2;32-9 and SU 21-6;32-9, SU 20-6;32-9 and SU 20-5; 32-9], Jones at 305, Tab 13, Exhibit 4 [Affect of Colorado Infills]);

(b) the characteristics of the coal in the area studied is the same as the coal throughout the "High Productivity Area" (Dinh At 234); and

(c) the information that would be acquired with additional study, due to the complex nature of this reservoir, would be no different than what is available today and would only result in delaying the approval of infill drilling in this portion of the pool. (Hawkins at 266-267)

FINDING: Additional pilot projects and study of the Fruitland Coal formation would not change the current understanding of this reservoir and therefore are unnecessary and should not be required.

(38) The Committee's study, including the concurrent studies of Burlington, BP America and Phillips, demonstrates that it is now appropriate to adopt and amend rules and regulations for this pool in order to drill more wells per GPU than is currently permitted by Rule 4 of the pool rules.

(39) The current well density is inadequate for the pool and by allowing operators the option on a pool wide basis to increasing well density to 2 wells per GPU creates an opportunity to substantially increase ultimate recovery from this pool which will prevent waste and protect correlative rights.

(40) There is no longer a need to maintain a separate pool for the Cedar Hill-Fruitland Basal Coal Pool. This pool should be abolished and the horizontal and vertical limits of this pool should be included in the Basin-Fruitland Coal Gas Pool.

(41) The amendments of the Rules and Regulations of the Basin-Fruitland Coal Gas Pool as set forth in Exhibit "A" will **(i)** prevent the economic loss caused by the drilling of unnecessary wells, **(ii)** will avoid the risks associated with the drilling of an excessive number of wells, **(iii)** will increase the opportunity to produce new reserves and improve recovery of gas from this pool, **(iv)** will provide a workable, fair and efficient regulation of well locations and spacing units while preventing waste of valuable hydrocarbons and the protection of the correlative rights of the owners of that production and should be **approved**.

IT IS THEREFORE ORDERED THAT:

(1) Effective on the first day of the month following the issuance of this order, the Rules and Regulations of the Basin-Fruitland Coal Gas Pool are hereby amended to conform to the rule changes as set forth in Exhibit "A" attached hereto and made part of this order.

(2) The recommendation of the Committee for the creation of a "High Productivity Area" and a "Low Productivity Area" within the Basin-Fruitland Coal Gas Pool and the recommendations of the Committee and Phillips for special notice rules within a "High Productivity Area" within the pool are hereby **denied.**

(3) The Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool shown on Exhibit "A" shall supersede Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool. All other provisions of these rules shall remain in full force and affect until further notice.

(4) 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 hereinafter designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

S E A L

EXHIBIT "A"
CASE NO. 12888
ORDER NO. R-_____

SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL

RULE 4: Each well completed or recompleted in the Basin-Fruitland Coal Gas Pool shall be located on a standard spacing unit ("GPU") contained 320 acre, more or less, comprising any two contiguous quarter sections in a single governmental section.

RULE 7(A) WELL LOCATIONS:

(1) Wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

(2) Wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement to the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area;

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

(3) The operator filing an APD for any well within a unit area that is closer to the outer boundary of its assigned GPU 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) WELL DENSITY:

(1) Two (2) wells may be drilled on a standard GPU in the Basin-Fruitland Coal Gas Pool, provided the second well shall be located in the quarter section not containing the initial Fruitland Coal Gas well.

(2) Any deviation from the above-described well density requirement shall be authorized only after hearing.

MILLER, STRATVERT & TORGERSON, P.A.

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PLEASE REPLY TO SANTA FE

August 8, 2002

HAND-DELIVERED
Mr. Michael Stogner
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: NMOCD Case No. 12888; Application of the Fruitland Coalbed Methane Committee To Amend Rules 4 and & of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool

Dear Mr. Stogner:

On behalf of Phillips Petroleum Company, enclosed in hard-copy and on disk are two versions of draft orders for your review and consideration in the above-referenced case.

Phillips Petroleum Company Draft "A" generally provides for an amendment to the pool rules to allow infill drilling only in the Low Productivity Area of the Basin-Fruitland Coal Gas Pool and recommends the further study by the Fruitland Coalbed Methane Committee of the effects of infill development in the High Productivity Area. It is Phillips's position that this version more closely conforms to the Committee's determination and is best supported by the evidence presented at the hearing.

Phillips Petroleum Company Draft "B" provides for pool-wide infill development and adopts Special Notice provisions for infill well locations proposed to be drilled in the High Productivity Area of the pool. The Special Notice provisions in this version also address the problems of "self-notification" that arise when an operator proposing an infill well is also the operator of the adjacent spacing unit by expanding the requirement for notice to be given to the working interest owners.

Also, both versions address the incorporation of the Cedar Hill-Fruitland Basal Coal Gas Pool into the horizontal limits of the Basin-Fruitland Coal Gas Pool.

Thank you for your consideration of these proposed orders.

Sincerely,

MILLER, STRATVERT & TORGERSON, P.A.

J. Scott Hall

JSH/glb
Enclosures
cc: Counsel of Record
Steve Hayden, NMOCD Aztec
David Brooks, Esq.
Bureau of Land Management, Farmington
Tim Brown, Esq.
Jim Ball
Steve Jones

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. 12888

ORDER NO. _____

APPLICATION OF THE FRUITLAND COALBED METHANE STUDY COMMITTEE TO AMEND RULE 4 AND 7 OF THE SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL AND FOR THE TERMINATION OF THE CEDAR HILLS-FRUITLAND BASAL COAL GAS 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

(Phillips Petroleum Company Draft A)
(Low Productivity Area Infill Drilling Only)

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 9th and 10th, 2002 at Farmington, New Mexico, before Examiner Michael E. Stogner.

NOW, on this ___ day of _____, 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 New Mexico Oil Conservation Division ("Division") has jurisdiction of this case and its subject matter.

(2) The applicant in this case seeks an order of the Division to amend the Special Rules and Regulations currently governing the Basin-Fruitland Coal Gas Pool as follows:

(a) Increase well density for coalbed methane wells by amending Rules 4 and 7 of the Special Rules and Regulations for the Basin-

Fruitland Coal Gas Pool located in Rio Arriba, San Juan, McKinley and Sandoval Counties, New Mexico to authorize under certain restrictions infill drilling of up to two wells within a standard 320-acre gas proration and spacing unit by increasing the well density from the current maximum of one (1) well provided in Order R 8768, as amended, to a maximum of two (2) wells (160-acre infill) per acre gas proration and spacing unit for wells located in the pool.

(b) ***Alternatively***, Applicant requests the adoption of the well density rules referenced in paragraph (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(a) of the Special Rules and Regulations to conform with the well location requirements for the Basin-Dakota pool as follows:

(d) To provide that wells located outside a federal exploratory unit may be drilled anywhere within a standard 320-acre GPU provided such wells are located no closer than 660 feet to the outer boundary of the GPU nor closer than 10 feet from any interior quarter or quarter-quarter section line or subdivision inner boundary; and

(e) 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 GPU containing any non-committed tract or partially committed tract shall be no closer than 660 feet to the outer boundary of such GPU; and

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

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

(3) In compliance with Division's notice rules, copies of the Application including the proposed rules and notice of hearing was sent to approximately ____ 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.

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

(a) Burlington Resources Oil and Gas Company as an operator of approximately _____ wells currently producing from the Basin-Fruitland Coal Gas Pool.

(b) BP America, Inc., as an operator of approximately ____ wells currently producing from the Basin-Fruitland Coal Gas Pool.

(c) Phillips Petroleum Company, as an operator of approximately ____ wells currently producing from the Basin-Fruitland Coal Gas Pool.

(d) Steve Hayden, District Geologist for the Division's Aztec District Office appeared in his capacity as Chairman of the Fruitland Coalbed Methane Committee.

(e) Williams Production Company, Chevron-Texaco, Dugan Production Corporation and Texacoma Oil and Gas Production, all of which operate wells currently producing from the Basin-Fruitland Coal Gas Pool also appeared at the hearing.

(f) 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.

(g) In addition to the parties of record, the hearing was attended by representatives of the U. S. Department of the Interior's Bureau of Land Management and the Division's Aztec district office who offered both written and verbal comments on the Application.

(h) Representatives from McElvain Oil and Gas and Synergy Operating Company, both operators of wells currently producing from the Basin-Fruitland Coal Gas Pool attended the hearing and offered verbal comments on the Application.

(i) 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, Tweetie Blancett, Bill Humphries (New Mexico Cattle Growers Association), Janet Reese, and Allen Ralston (San Juan Citizens Alliance).

(5) The horizontal boundaries of the Basin-Fruitland Coal Gas Pool were established by Division Order No. R-8768 dated October 17, 1988 as follows:

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, with the exception of Section 3 through 6 of Township 31 North, Range 10 West and Section 19 through 22, and 27 through 34 of Township 32 North, Range 10 West, San Juan County New Mexico, which said acreage currently comprises the Cedar Hill-Fruitland Basal Coal Gas Pool:

Township 19 North, Ranges 1 West through 6 West;
Township 20 North, Ranges 1 West through 8 West;
Township 21 North, Ranges 1 West through 9 West;
Township 22 North, Ranges 1 West through 11 West;
Township 23 North, Ranges 1 West through 14 West;
Township 24 North, Ranges 1 East through 16 West;
Township 25 North, Ranges 1 East through 16 West;
Township 26 North, Ranges 1 East through 16 West;

Township 27 North, Ranges 1 West through 16 West;
Township 28 North, Ranges 1 West through 16 West;
Township 29 North, Ranges 1 West through 15 West;
Township 30 North, Ranges 1 West through 15 West'
Township 31 North, Ranges 1 West through 15 West;
Township 32 North, Ranges 1 West through 13 West;

(6) In Order No. R-8768, the Division defined the vertical limits of the Basin Fruitland Coal Gas Pool as 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 Schneider Gas Com "B" Well No. 1 located 1110 feet from the south line and 1185 feet from the west line of Section 28, T-32-N, R-10-W, NMPM, San Juan County.

(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" (Rule 601-605). However, the Basin Fruitland Coal Gas Pool is subject to:

a) 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 acres spacing units (Rule 4); and

(ii) Wells to be located in 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 horizontal boundaries of the Cedar Hill-Fruitland Basal Coal Gas Pool were established by Division Order No. R-7588 dated July 9, 1984 as follows:

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

Comprising 10,240 acres, ±, in San Juan County.

(10) In Order No. R-7588-B dated October 19, 1988, the Division re-defined the vertical limits of the Cedar Hill-Fruitland Basal Coal Pool as comprising any and all coal seams within the stratigraphic interval from approximately 2450 feet to 2880 feet on the gamma ray-bulk density log of the Amoco Production Company Snyder Gas Com. B Well No. 1 located 1110 feet from the South line and 1185 from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(11) The New Mexico Oil & Gas Act specifically provides in Section 70-2-17.B, NMSA (1979) that:

> "*The Division may establish a proration unit for each pool, such being the area that can be efficiently and economically drained and developed by one well, and in so doing the Division shall consider the economic loss caused by the drilling of unnecessary wells, the protection of correlative rights, including those of royalty owners, the prevention of waste, the avoidance of the augmentation of risk arising from the drilling of an excessive number of wells and the prevention of reduced recovery which might result from the drilling of too few wells.*"

(12) Applicant Fruitland Coalbed Methane Committee is a voluntary study committee comprised of representatives from the Division's Aztec District office and from 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 Hills-Fruitland Basal Coal Gas Pool and make recommendations to the Division on the future development in the pools.

(13) 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.

(14) 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.

(15) BP America presented evidence to the Committee showing that wells making less than 2 mmcfpd were capable of draining only 200 acres. In recognition of the smaller drainage radii in those areas where wells producing less than 2 mmcfpd, the Committee established a boundary for what it has labeled as the "Low Productivity Area".

(16) For those areas outside of the Low Productivity Area where a single well is capable of draining in excess of 200 acres, the Committee established what it has labeled as the "High Productivity Area". The acreage in the High Productivity Area is identified as follows:

T29N, R6W	Sections 2-8, 11-12, 17-18
T29N, R7W	Sections 1, 12-13
T30N, R5W	Sections 19-21, 29-31
T30N, R6W	Sections 5-35
T30N, R7W	Sections 1-18, 22-26, 36
T30N, R8W	Sections 1-4,10-13
T30N, R9W	Sections 2
T31N, R6W	Sections 6, 31
T31N, R7W	Sections 1, 12-14, 19-36
T31N, R8W	Sections 4-10, 13-36
T31N, R9W	Sections 1-7, 11-14, 22-27, 34-36
T32N, R6W	Sections 19, 29-31
T32N, R7W	Sections 23-26, 36
T32N, R8W	Sections 19, 30-32
T32N, R9W	Sections 24-26, 30-32, 35-36
T32N, R10W	Sections 7-12; 14-25, 28-30
T32N, R11W	Sections 11-13, 24

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

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

(19) The Committee was unable to reach consensus on the propriety of infill development within the High Productivity Area. Two witnesses, Steve Hayden and Steve Jones, testified that there was a lack of sufficient engineering data from wells located within the "fairway".

(20) 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. (TR p. 52.)

In its Application, the Committee specifically proposed that the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool be amended to provide as follows:

Rule 4: Each standard gas proration unit (GPU) 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 locations:

(i) wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

(ii) wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement t the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area; and

(e) a well located within the unit area but in an existing or prospective GPU that is a nonparticipating GPU shall not be closer than 660 feet to the outer boundary of its GPU.

(iii) The operator filing an APD for any well within a unit area that is closer to the outer boundary of its assigned GPU than 660 feet shall provide proof in the form of an 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 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) Well Density in the "Low Productivity Area":

(i) no more than two (2) wells per GPU may be located in the "Low Productivity Area" of the pool;

(ii) the FIRST WELL drilled on a GPU shall be located in the quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

(iii) the optional INFILL WELL drilled on a GPU shall be located in a quarter section of the GPU not containing a Basin-Fruitland Coal Gas well.

Rule 7 (d) Well Density in the "High Productivity Area":

One optional infill well in the "High Productivity Are" may be drilled within a GPU in accordance with Rule 7(a) and 7(b) pursuant to the following procedures:

1. Operators of an existing GPU which contains an original coal gas well who desire to drill an optional infill well shall send a copy of its Application for Permit to Drill ("APD" including NMOCD form C-102 or Bureau of Land Management from 3160__ to adjacent operators by certified mail-return receipt requested advising that they have twenty (20) days from receipt to file with the District Supervisor (OCD-Aztec) a written objection to the application.

2. An adjacent operator shall be any operator of a Basin-Fruitland Coal Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter section in which the proposed optional infill well is to be located.

3. The District Supervisor may approve the APD, which has been filed upon expiration of the twenty (20) day notice period and certification by the applicant that all adjacent operators have received notification and no objections have been received within the twenty (20) day notice period.

4. *In the event an objection is timely received, or upon the District Supervisor's own initiative, the application shall be set for a hearing before a District Examiner.*

(21) 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 further before proceeding to make any recommendation for infill development in that area.

In Order No. R-8768 dated October 17, 1988, the Division found as follows:

"(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 declined curve analyses and volumetric calculations traditionally used to aid in the determination of proper well spacing, cannot be utilized."

In Order No. R-11639 dated 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."

In Order No. R-8768-B dated February 10, 2000, based on geologic and engineering evidence presented by Burlington Resources, the Division found 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 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 a 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 from future development under 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 of between 200 and 300 psi;

(j) Permeability in the under pressured area is approximately .3 millidarcies.

22) Burlington presented evidence in this case of the analysis of the data obtained from its infill pilot study establishing that current well density in the Low Productivity portion 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, Burlingtons's engineering witness testified that the results from the pilot project area studies should not be used to establish a basis for infill rules for the High Productivity Area for the reasons that 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 fairway.

In Order No. R-11639 dated August 22, 2001 the Division found that geologic and engineering evidence established the following:

a. The Basin Fruitland Coal Gas Pool can be divided into an over pressured area, which is commonly referred 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 coalbed 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, know as Cedar Hills, within the fairway;

(e) Currently available data in the under pressured 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 over estimated and the current well density is adequate;

(f) The stratigraphic complexity in 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;

(g) There is an need for layered pressure evaluation which cannot be obtained from existing well bores.

(23) BPs petroleum engineering expert witness testified that wells with a 2 million cubic feet per day producing rate would drain between 320 and 240 acres. BP's engineering witness also testified that net coal thickness and gas content are poor indicators of a well's drainage radius.

(24) BP's engineering witness further testified that the effective permeability in the high productivity area can be as high as 100 milladarcies. 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.

(25) BP's engineering witness testified that infill drilling would be necessary to recover an additional 1.5 trillion cubic feet of gas within the over pressured area that would not be accessible with existing wells. He further testified that there are significant incremental reserves within the high productivity area that are not being produced under the current drilling density rules. The witness's conclusions were based on infill drilling data from Colorado.

(26) 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.

(27) 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 will be encountered in infill wells in New Mexico.

(28) BP's graphic evidence of Colorado historical production (Exhibit 18) demonstrates the existence where parent wells began to experience a decline in production contemporaneously when infill wells started to come on line, indicating the possible existence of communication and interference between parent and infill wells.

(29) Graphic evidence presented by BP comparing drainage areas and highest producing rates (Exhibit 23) show a high degree of variability throughout the infill development area in Colorado. BP's engineering witness testified that you could reasonably expect to encounter similar variability within the high productivity area within New Mexico.

(30) BP's engineering witness testified that the company plans on drilling in excess of 150 infill wells in the future.

(31) The geologic evidence and testimony presented by Burlington Resources identified nine separate pool layers frequently encountered throughout the basin of which several are correlatable throughout the entirety of the basin. While the geologic evidence presented by Burlington established that infill drilling will 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.

(32) Geologic testimony and evidence presented by former U.S. Geological Survey, Geologist James Facett establish that it was possible to correlate over five or six miles in rare instances. Rather, the preponderance of the evidence establishes that the coal formations are dominated by more frequent discontinuities over significantly smaller cross section areas.

(33) 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.

(34) Burlington Resources presented petroleum engineering testimony establishing that current well density in the underpressured portion of the pool results in inadequate recovery of the reserves and that additional completions, one 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 Order No. R-11639.

(35) Using that data, and a proprietary simulation model, Burlington was able to estimate original gas in place and estimated ultimate recovery for the underpressured area.

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

(37) Burlington's analysis supports the conclusion that infill development will substantially increase incremental recovery in the underpressured envelope area. In the 28-6 Unit Area, it is estimated that one well for each 320 acre gas proration unit will recover approximately 29% of the original gas in place. With infill drilling, it is expected that the incremental recovery will increase to approximately 40% of original gas in place, a 37% increase. Similarly, pilot project data for the Davis 505S Area demonstrates that incremental recoveries will increase by approximately 68%. The pilot project wells

modeled by Burlington represent the range and production performance in estimated ultimate recovery for the offsetting producing wells.

(38) Burlington's pilot project well data and conclusions were extrapolated and applied to the underpressured envelope area by comparing parent well recoveries in the pilot project area to parent well recoveries elsewhere in the underpressured envelope area in concluding that similar types of increased recovery could be expected due to infill drilling.

(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. However, Burlington is in the process of creating original gas in place mapping for the fairway but that the 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 portion 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 for the reasons that 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 fairway.

(42) Phillips Petroleum Company 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 volume of 500 standard cubic feet per ton or 70 acres per well utilizing a Langmuir volume 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 utilizing 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, 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 radii 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 pressure data and the evidence of communication establishes the probable existence of layering effects that require further study before it can be determined whether infill within the high productivity area is justified.

(47) Phillips Petroleum Company 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) Cross examination testimony from the BP and Burlington witnesses established that those two companies have plans to drill as many as 300 infill well locations within the high productivity 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 will trigger the drilling of additional offset wells in order to protect 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 establishes a significant risk that the correlative rights of interest owners will be

adversely affected. Moreover, such accelerated drilling establishes a significant risk that an unacceptable number of unnecessary wells will be drilled. The drilling of unnecessary wells constitutes waste.

(50) Following the hearing in this matter, on August 14, 2002, the Bureau of Land Management submitted a letter to the Division setting forth its position. The BLM advocates that the High Productivity Area be excluded from the proposed rule to increase well density by infill well development until additional technical data justifies inclusion.

(51) Based on the relative lack of direct evidence of the potential affects 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. It is the more prudent course of action for the matter of infill drilling within the High Productivity Area to be referred back to the Committee for further study. Among other things, due to highly competitive and 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.

(52) The request to increase the well density within the High Productivity Area to allow for infill drilling on 160 acre spacing should be ***denied*** at this time.

(53) Phillips's witness testified that the notification procedure in the proposed amendments to Rule 7(d) as set forth in the Application would not result in adequate notice to other interest owners in the pool where the applicant proposing to drill an infill well in the High Productivity Area is also the operator of the adjoining GPU. Accordingly, Phillips proposed a further amendment to the provisions of Rule 7(d) as follows:

Rule 7 (d) Well Density in the "High Productivity Area":

One optional infill well in the "High Productivity Area" may be drilled within a GPU in accordance with Rule 7(a) and 7(b) pursuant to the following procedures:

> *1. Operators of an existing GPU which contains an original coal gas well who desire to drill an optional infill well shall send a copy of its Application for Permit to Drill ("APD" including NMOCD form C-102 or Bureau of Land Management from 3160-3) to adjacent operators by certified mail-return receipt requested advising that they have twenty (20) days from receipt to file with the District Supervisor (OCD-Aztec) a written objection to the application.*

2. An adjacent operator shall be any operator of a Basin-Fruitland Coal Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter section in which the proposed optional infill well is to be located.

In the event the operator of the proposed optional infill well is also the operator of an existing adjoining GPU, then a copy of the APD shall be sent to all working interest owners in that GPU

3. The District Supervisor may approve the APD, which has been filed upon expiration of the twenty (20) day notice period and certification by the applicant that all adjacent operators have received notification and no objections have been received within the twenty (20) day notice period.

4. In the event an objection is timely received, or upon the District Supervisor's own initiative, the application shall be set for a hearing before a Division Examiner.

(54) The Phillips witness testified that the additional notification requirement is patterned after the Division's current procedures for notifying adjoining interest owners of proposed unorthodox well locations under Rule 1207.A. The witness's testimony further established that compliance with the additional notification requirement would not result in any additional significant burden for either the applicant or the Division.

(55) The proposed amendment to Rule 7(d) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool providing for advance notification of infill drilling in GPUs within the High Productivity Area, is unnecessary until such time as infill drilling in the High Productivity Area is approved. Accordingly, the request to amend the notification provisions of the rules shall be limited to those instances where an operator makes application to the Division for hearing on a proposed a second well in a GPU within the High Productivity Area.

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

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

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application filed by the Fruitland Coalbed Methane Study Committee, amended Rules 4 and 7 of the "*Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool*" as set forth in Exhibit "A" of this order shall supersede the current Rules 4 and 7 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool in Division Order No. R-8768, as amended by Orders No. R-8768-A and No. R-8768-B.

(2) The horizontal limits of the Cedar Hill-Fruitland Basal Coal Gas Pool are abolished and the horizontal limits of the Basin-Fruitland Coal Gas Pool are simultaneously expanded to include the following acreage:

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

Comprising 10,240 acres, ±, in San Juan County.

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:

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, with the exception of Section 3 through 6 of Township 31 North, Range 10 West and Section 19 through 22, and 27 through 34 of Township 32 North, Range 10 West, San Juan County New Mexico, which said acreage currently comprises the Cedar Hill-Fruitland Basal Coal Gas Pool:

Township 19 North, Ranges 1 West through 6 West;
Township 20 North, Ranges 1 West through 8 West;
Township 21 North, Ranges 1 West through 9 West;
Township 22 North, Ranges 1 West through 11 West;

Township 23 North, Ranges 1 West through 14 West;
Township 24 North, Ranges 1 East through 16 West;
Township 25 North, Ranges 1 East through 16 West;
Township 26 North, Ranges 1 East through 16 West;
Township 27 North, Ranges 1 West through 16 West;
Township 28 North, Ranges 1 West through 16 West;
Township 29 North, Ranges 1 West through 15 West;
Township 30 North, Ranges 1 West through 15 West'
Township 31 North, Ranges 1 West through 15 West;
Township 32 North, Ranges 1 West through 13 West;

(3) All other provisions applicable to the Basin-Fruitland Coal Gas Pool contained in Division Order No. R-8768, and as amended by Orders No. R-1878-A and No. R-8768-B not in conflict with this order shall remain in full force and effect until further notice.

(4) The request to allow infill drilling within the High Productivity Area of the pool is hereby ***denied***. The matter of infill drilling within this portion of the pool is referred back to the Fruitland Coalbed Methane Committee for further study and recommendation, as the Committee may deem appropriate.

(5) 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.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

SEAL

EXHIBIT "A"
Case No. 12888
Order No. R-8768(C)

SPECIAL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL

I. ACREAGE AND WELL LOCATION REQUIREMENTS

Rule 4: Each standard gas proration unit (GPU) 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 locations:

(i) wells drilled on a GPU shall be located not closer than 660 feet to the outer boundary of a GPU and not closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

(ii) wells located within federal exploratory units are permitted an exception to the 660-feet setback requirement t the outer boundary of a GPU and shall be permitted to be no closer than 10 feet to any section, quarter section or interior quarter-quarter section line or subdivision inner boundary, provided, however:

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

(b) a well located within the unit area but adjacent to an existing or prospective GPU containing a non-committed tract or partially committed tract shall not be closer than 660 feet to the outer boundary of its GPU;

(c) a well located within a non-committed or partially committed GPU shall not be closer than 660 feet to the outer boundary of its GPU;

(d) a well located within a participating area but adjacent to an existing or prospective GPU that is not within the same participating area shall not be closer than 660 feet to the outer boundary of the participating area; and

(e) a well located within the unit area but in an existing or prospective GPU that is a nonparticipating GPU shall not be closer than 660 feet to the outer boundary of its GPU.

(iii) The operator filing an APD for any well within a unit area that is closer to the outer boundary of its assigned GPU than 660 feet shall provide proof in the form of an 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 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":

High Productivity Area: There is established within the consolidated boundaries of the Basin Fruitland Coal Gas Pool and the Cedar Hills Basal Coal Gas Pool a "High Productivity Area" consisting of the following described acreage:

T29N, R6W	Sections 2-8, 11-12, 17-18
T29N, R7W	Sections 1, 12-13

T30N, R5W	Sections 19-21, 29-31
T30N, R6W	Sections 5-35
T30N, R7W	Sections 1-18, 22-26, 36
T30N, R8W	Sections 1-4,10-13
T30N, R9W	Sections 2
T31N, R6W	Sections 6, 31
T31N, R7W	Sections 1, 12-14, 19-36
T31N, R8W	Sections 4-10, 13-36
T31N, R9W	Sections 1-7, 11-14, 22-27, 34-36
T32N, R6W	Sections 19, 29-31
T32N, R7W	Sections 23-26, 36
T32N, R8W	Sections 19, 30-32
T32N, R9W	Sections 24-26, 30-32, 35-36
T32N, R10W	Sections 7-12; 14-25, 28-30
T32N, R11W	Sections 11-13, 24

Low Productivity Area: There is established within the consolidated boundaries of the Basin Fruitland Coal Gas Pool and the Cedar Hills Basal Coal Gas Pool a "Low Productivity Area" consisting of the following acreage: All acreage within the horizontal limits of the consolidated boundaries of the Basin Fruitland Coal Gas Pool and Cedar Hills Basal Coal Gas Pool, **less and except** those lands within the boundaries of the High Productivity Area described above.

Rule 7 (d) Well Density in the "Low Productivity Area":

(i) no more than two (2) wells per GPU may be located in the "Low Productivity Area" of the pool;

(ii) the FIRST WELL drilled on a GPU shall be located in the quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

(iii) the optional INFILL WELL drilled on a GPU shall be located in a quarter section of the GPU not containing a Basin-Fruitland Coal Gas well;

(iv) The plat (Form C-102) accompanying the "*Application for Permit to Drill ("APD")*" (Form C-101 or federal equivalent) for subsequent wells on a GPU shall have outlined the boundaries of the GPU and

shall show the location (well name, footage location, API number) of all existing Basin-Fruitland Coal Gas wells on the GPU plus the proposed new well.

Rule 7 (e) Well Density in the "High Productivity Area":

Each well completed or recompleted in the High Productivity Area of the Basin-Fruitland Coal Gas Pool shall be located on a standard unit containing 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 Land Survey.

Individual operators may apply to the Division for an exception to the requirements of Rule 7(e) to allow the drilling of a second well on standard 320 acre units or on approved non-standard units in specifically defined areas of the pool provided that:

(a) Any such application shall be set for hearing before a Division Examiner;

(b) Actual notice of such application shall be given to operators of Basin-Fruitland Coal Gas Pool wells, working interest owners of undrilled leases, and unleased mineral owners within the boundaries of the area for which the infill provision is requested, and to A***djacent Operators*** of Basin-Fruitland Coal Gas Pool wells.

(c) ***An Adjacent Operator shall be any operator of a Basin-Fruitland Coal Gas GPU whose side boundary or corner adjoins the side boundary or corner of the quarter section in which the proposed second well is to be located. In the event the operator of the proposed second well is also the operator of the adjoining GPU, then notice shall sent to all working interest owners in that GPU.*** Provided, however, that any operator in the pool or other interested party may appear and participate in such hearing.

(d) Such notice shall be sent certified or registered mail or by overnight express with certificate of delivery and shall be given at least 20 days prior to the date of the hearing.