

JAMES BRUCE  
ATTORNEY AT LAW

POST OFFICE BOX 1056  
SANTA FE, NEW MEXICO 87504

369 MONTEZUMA, NO. 213  
SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone)  
(505) 660-6612 (Cell)  
(505) 982-2151 (Fax)

[jamesbruc@aol.com](mailto:jamesbruc@aol.com)

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June 19, 2007

Hand Delivered

Mark E. Fesmire, P.E.  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Dear Mr. Fesmire:

Enclosed for filing are an original and five copies of BP America Production Company's application for re-hearing.

Very truly yours,

  
James Bruce

Attorney for BP America Production Company

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

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

APPLICATION OF KOCH EXPLORATION COMPANY,  
LLC FOR AN ORDER AUTHORIZING INCREASED  
WELL DENSITY AND SIMULTANEOUS DEDICATION  
ON CERTAIN NON-STANDARD SPACING UNITS IN  
THE BASIN-FRUITLAND COAL GAS POOL, SAN JUAN  
COUNTY, NEW MEXICO.

Case No. 13841 (*de novo*)  
Order No. R-12723-A

APPLICATION FOR REHEARING

Pursuant to NMSA 1978 §70-2-25, applicant BP America Production Company ("BP")  
applies for a rehearing on the above order. In support thereof, BP states:

I. INTRODUCTION.

Koch Exploration Company, LLC ("Koch") filed an application to approve a third  
Fruitland Coal well on three non-standard well units in Township 31 North, Range 9 West,  
N.M.P.M. The non-standard units comprise portions of the following sections:

- (i) §6 & §7: 332.94 acres
- (ii) §7 & §18: 330.16 acres
- (iii) §19 & §30: 336.56 acres

These well units already have one infill well on them.

Each of Koch's well units is slightly larger than a standard 320 acre well unit for the  
Basin-Fruitland Coal Gas Pool. **Order No. R-8768, as amended.** Koch essentially argued that

its well units each had three "quarter sections," that it should be allowed a well on each quarter section, and that it would recover incremental reserves from each additional well.

BP opposed Koch's application, based on three main issues:

1. The pool rules for the Basin-Fruitland Coal Gas Pool allow two wells per standard spacing unit. The offset well units are allowed 2 wells/spacing unit, while Koch is seeking 3 wells/spacing unit.
2. The Fruitland Coal reservoir in this area is continuous, and essentially forms one large pool, which is highly competitive.
3. Koch's well units are recovering their fair share of reserves from the pool. Allowing additional wells on Koch's spacing units will give them an unfair advantage over offsetting well units.

The Division denied Koch's application. However, by Order No. R-12723-A, the Commission reversed the Division, and approved Koch's application. BP asserts that the findings on which the Commission granted Koch's application are contradictory and/or not supported by evidence in the record. Therefore, a re-hearing should be granted and the Commission should re-consider this matter.

## II. COMMISSION AUTHORITY.

The Commission's mandate is to prevent waste and protect correlative rights. **NMSA 1978 §70-2-11.** In furtherance of this mandate, the Commission has the right to:

- A. Fix the spacing of wells. **NMSA 1978 §70-2-12.B(10);** and
- B. Establish proration units, "such being the area that can be efficiently and economically drained and developed by one well." **NMSA 1978 §70-2-17.B.**

Pursuant to this authority, the Division and/or Commission, in Order No. R-8768, as amended, fixed spacing in the Basin-Fruitland Coal Gas Pool at 320 acres, with one infill gas well per well unit.

### III. ARGUMENT.

There are several findings in Order No. R-12723-A that are incorrect, and do not support the Commission's granting of Koch's application. They are discussed below.

#### A. BP Used All Available Data, While Koch Did Not.

The most important finding in the Commission's order is Finding 17, which states:

BP's drainage area calculations are not persuasive. In the first place, the testimony indicates that the gas-in-place estimates on which they were based were made before the drilling of existing infill wells in the area, so that these estimates do not reflect all currently available information. Second, the high recovery factors calculated from these estimates for many of the existing wells indicate that gas in place may have been underestimated.

First, Finding 17 is incorrect from a geological standpoint. The geology presented by BP shows as follows:

- (a) BP's geologist, J.M. Perkins, testified at the hearing that in preparing BP Exhibit 2 (the coal thickness map) and BP Exhibit 3 (the original gas in place map), he used only wells which had density logs. This covered 126 wells out of the 243 wells identified on his maps. All other wells had only gamma ray and/or mud logs available (four wells had no data).
- (b) Approximately 6 wells on these maps with density logs were drilled after infill drilling was approved in the Basin-Fruitland Coal Gas Pool. All of this data was used by Mr. Perkins in mapping gas in place.
- (c) The only accurate way to measure coal thickness and gas in place is to use wells on which density logs were prepared.

Mr. Perkins testified about this at hearing. **Transcript at 104.** These matters are re-iterated in Mr. Perkins' affidavit attached hereto. **Exhibit 1.** Exhibit 1 also shows how a mud log alone, without a density log, is completely unreliable in measuring coal thickness. (The mud log on the subject well shows 31 feet less coal than is actually present.) Thus, BP used all available data in preparing its maps, including all reliable data which became available *after* the infill hearing in 2003.

While the Commission accuses BP of not using all available data after 2003, it approvingly quotes Koch's assertion that, *based solely on the testimony in the 2003 infill hearing*, the three infill wells should result in recovery of incremental reserves.<sup>1</sup> **Finding 10(c) and Finding 19.** *Thus, the Commission agrees with Koch when it uses the 2003 data (not updated), but castigates BP when it uses that same 2003 data (updated with all available data).* That is contradictory, and cannot support the Commission's decision.

Second, Finding 17 is incorrect from an engineering standpoint. BP presented uncontested pressure data. **Finding 11(d).** Koch admitted that it had no pressure data and did not calculate gas in place. **Transcript at 80-81.** BP's pressure data supports the BP gas in place figures. **Transcript at 139-151.** Despite the uncontested data, Finding 17 states that gas in place may be underestimated.<sup>2</sup> *However, if gas in place figures were underestimated, measured pressures would be **higher** than the figures presented by BP, because there would be less pressure depletion.* Thus, again, Finding 17 contradicts the uncontested evidence.

Finally, the Commission apparently relied on the rebuttal testimony presented by Koch as to underestimation of gas in place. BP reiterates its position at hearing that Koch knew the "rebuttal" issues would come up in direct testimony, and only presented them in a fashion where BP could not rebut them before the Commission. This is unfair to BP, and BP must be allowed to address the matters discussed in Koch's "rebuttal."

B. Other Non-Standard Units In The Pool Are Not Comparable To This Case.

The next incorrect finding is Finding 11(b), which states:

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<sup>1</sup> BP also notes that the testimony for the 2003 hearing showed there would be incremental recovery from two wells per well unit, not three wells per well unit as sought by Koch. Thus, the record from the 2003 pool rules hearing **cannot** support Koch's application.

<sup>2</sup> Koch's only gas in place numbers are in its Rebuttal Exhibit No. 5, which *theorized* twice the calculated numbers from the 2003 hearings in order to cut drainage areas in half. Such numbers are not credible.

Many of the wells that have been authorized on quarter-section equivalents comprising less than 160 acres in the high productivity area are located in federal exploratory units. **However, those units are also adjacent to private or state lands.** (Emphasis added.)

There is no testimony or exhibit in the record supporting the second sentence of Finding 11(b). Koch did submit its Exhibit 7, highlighting other non-standard well units in the high productivity area of the pool. *However, the Division's own well records, taken from ONGARD filings, show as follows:*

1. The non-standard units in the northwest part of Koch Exhibit 7 are in the San Juan 32-9 Unit, and are completely surrounded by other San Juan 32-9 Unit wells.
2. The non-standard units in the north part of Koch Exhibit 7 are in the San Juan 32-8 Unit or are on federal land, and are completely surrounded by other federal or San Juan 32-8 Unit wells, except for the wells in §32-32N-8W (which is state land).
3. The non-standard units in the east part of Koch Exhibit 7 are in the San Juan 30-6 Unit, and are completely surrounded by other San Juan 30-6 Unit wells, or wells in the San Juan 31-6 Unit and San Juan 30-5 Unit, which are also federal units.

**BP requests the Commission to take notice of its own files to confirm this data.** Based on the foregoing, the only potentially adversely affected acreage is §32-32N-8W. However, the “offending” undersized quarter sections are approximately a mile to the west of the wells located in §32-32N-8W, and thus do not adversely affect the correlative rights of the state acreage.

In addition, the undersized well units cited by Koch contain two wells on 280-300 acre well units, resulting in “quarter sections” of 140-150 acres. In this instance, as the Commission recognized, the Koch well units have quarter sections approximately 110 acres in size. **Finding 13.** These “quarter sections” are significantly smaller than the examples cited by Koch. As a result, drainage effects from the proposed Koch wells are more severe, leading to an impairment of BP’s correlative rights if the third infill wells are approved.

IV. CONCLUSION.

For the reasons stated above, BP requests that the Commission grant a rehearing in this matter.

Respectfully submitted,



James Bruce  
Post Office Box 1056  
Santa Fe, New Mexico 87504  
(505) 982-2043

Attorney for BP America Production  
Company

CERTIFICATE OF SERVICE

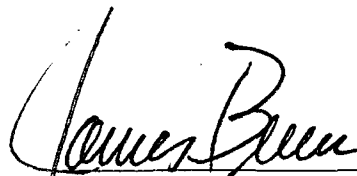
The foregoing pleading was served upon the following counsel of record this 19<sup>th</sup> of July, 2007 in the manner indicated:

U.S. Mail

J. Scott Hall  
Suite 300  
150 Washington Avenue  
Santa Fe, New Mexico 87501

Hand Delivery

Cheryl L. Bada  
Oil Conservation Commission  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505



James Bruce

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

**APPLICATION OF KOCH EXPLORATION COMPANY,  
LLC FOR AN ORDER AUTHORIZING INCREASED  
WELL DENSITY AND SIMULTANEOUS DEDICATION  
ON CERTAIN NON-STANDARD SPACING UNITS IN THE  
BASIN-FRUITLAND COAL GAS POOL, SAN JUAN  
COUNTY, NEW MEXICO.**

**Case No. 13,841 (*de novo*)**

**AFFIDAVIT OF J.M. PERKINS**

COUNTY OF HARRIS       )  
                                  ) ss.  
STATE OF TEXAS        )

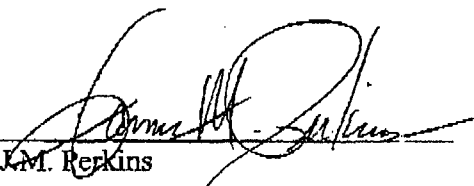
J.M. Perkins, being duly sworn upon his oath, deposes and states:

1. I am over the age of 18, and have personal knowledge of the matters stated herein.
2. I am the geologist for BP America Production Company ("BP") who testified in this matter before the Division and the Commission.
3. In preparing BP Exhibit 2 (the coal thickness map) and BP Exhibit 3 (the original gas in place map) I used only wells which had density logs. This covered 126 wells out of the 243 wells identified on the maps. All other wells had only gamma ray and/or mud logs available (four wells had no data).
4. Approximately 6 wells on these maps with density logs were drilled after infill drilling was approved in the Basin-Fruitland Coal Gas Pool. They were all used by me in mapping gas in place.
5. I did not use data from wells which only had mud logs because mud logs are unreliable in determining coal thickness. For example, attached as Exhibit A is a comparison of a density log and mud log for the Burlington San Juan 32-8 Unit Well No. 249, located in §3-31N-8W. The density log shows 59 feet of coal, while the mud log for the same well shows only 18 feet of coal. Mud loggers vary from well to well, and there is a wide variation in estimated net coal thickness on mud logs.
6. Based on these factors, which I discussed in my testimony at the Commission hearing, the only accurate way to measure coal thickness and gas in place is to use wells on which density logs were prepared.

EXHIBIT

1



  
J.M. Perkins

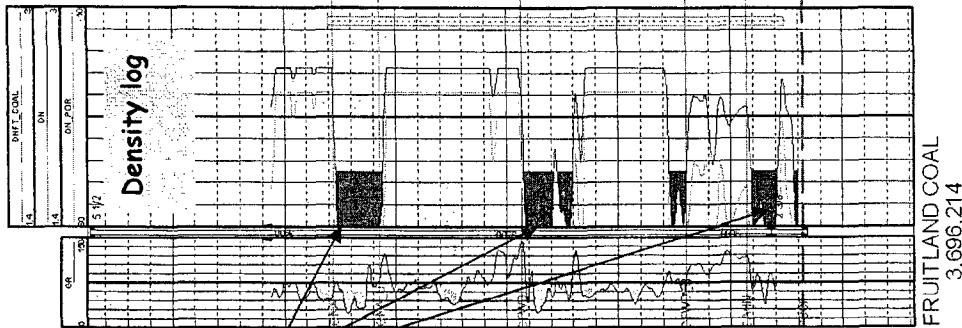
SUBSCRIBED AND SWORN TO before me this 18 day of July, 2007 by J.M. Perkins.

My Commission Expires: \_\_\_\_\_

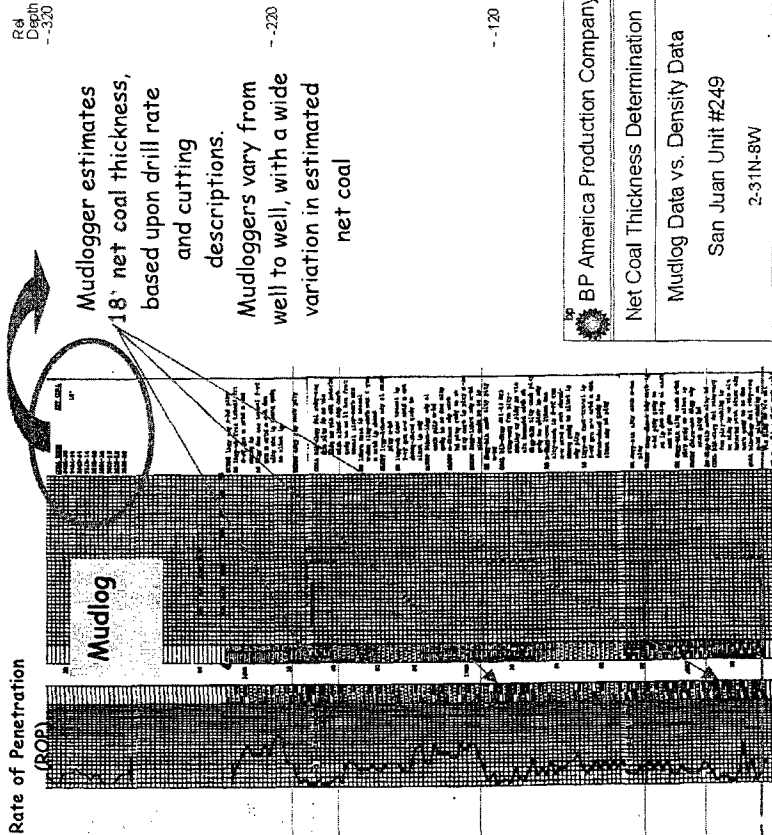
\_\_\_\_\_  
Notary Public

# Justification for data used for the construction of net coal isopach and original gas-in-place maps

SAN JUAN 32-8 UNIT #249  
30045283060000  
T31N R8W S3



Formation Density logs show the distribution and quality of coal seams. In this log the shaded area represents very 'clean' coal (density  $< 1.8 \text{ gm/cc}$ ; 59' net coal) that is directly related to gas generation and storage. These are the data that are used in the net coal isopach and gas-in-place maps. The more recent, infill wells commonly have only mudlogs available (no electric logs were run in the well) and are unreliable for map construction.



Mudlogger estimates 18' net coal thickness, based upon drill rate and cutting descriptions. Mudloggers vary from well to well, with a wide variation in estimated net coal

BP America Production Company
Net Coal Thickness Determination
Mudlog Data vs. Density Data
San Juan Unit #249
2-31N-8W
Horizontal Scale = 1.0 Vertical Scale = 20.0 Vertical Exaggeration = 0.1x
Comparison of the net thickness determined by the onsite mudlogger with the open hole density log. Please note the significant discrepancy between the mudlog thickness (18') and the density log data (cut-off = 1.8 gm/cc. indicates 58' net coal). The updated maps used only open hole log data for isopach and OGIP.
By: J. M. Perkins July 17, 2007 3:49 AM

EXHIBIT

A