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December 9, 2002

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OIL CONSERVATION DIV

**Via Hand Delivery**

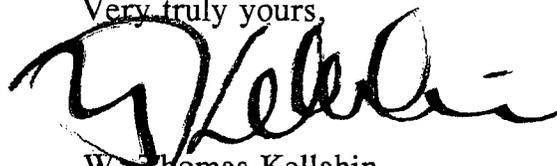
Ms. Lori Wrotenbery, Chairman  
Oil Conservation Commission  
1220 South Saint Francis Drive  
Santa Fe, New Mexico 87505

Re: **Richardson's Reply to San Juan Coal Company  
objection and motion to strike Richardson's response to Dr. Lee**  
NMOCD Case: 12734 (De Novo)  
Application of Richardson Operating Company  
to establish a Special "Infill Well" Area within  
the Basin-Fruitland Coal Gas Pool as provided in  
Rule of the special rule for this pool,  
San Juan County, New Mexico

Dear Ms. Wrotenbery:

On behalf of Richardson Operating Company ("Richardson") please find enclosed our reply to San Juan Coal Company's ("SJCC") objection and motion to strike Richardson's response to Dr. Lee filed by SJCC on November 19, 2002

Very truly yours,



W. Thomas Kellahin

cc: Steve Ross  
Attorney for the Commission  
James Bruce, Esq.,  
Attorney for San Juan Coal Company  
Richardson Operating Company  
Attn: David Richardson

*Application of Richardson Operating  
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**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION COMMISSION**

**IN THE MATTER OF THE APPLICATION OF  
RICHARDSON OPERATING COMPANY TO  
ESTABLISH A SPECIAL "INFILL WELL"  
AREA WITHIN THE BASIN-FRUITLAND  
COAL GAS POOL AS PROVIDED BY RULE 4  
OF THE SPECIAL POOL RULES,  
SAN JUAN COUNTY, NEW MEXICO**

**CASE NO. 12734  
(De Novo)**

**RICHARDSON OPERATING COMPANY'S  
REPLY TO  
SAN JUAN COAL COMPANY'S  
OBJECTION AND MOTION TO STRIKE  
RICHARDSON'S RESPONSE TO DR. LEE**

Richardson Operating Company ("Richardson"), by its attorneys, Kellahin and Kellahin, hereby reply to the New Mexico Oil Conservation Commission ("Commission") concerning San Juan Coal Company's ("SJCC") objection and motion to strike Richardson's response to Dr. Lee and states:

**SJCC TELLS THE COMMISSION TO IGNORE THE  
RELEVANT ORDERS AND FINDINGS OF ITS DIVISION**

SJCC wants the Commission to stick its head in the sand and ignore the prior orders and findings of the Division and Commission concerning reservoir simulation of coalbed methane ("CBM") wells. Richardson does not need to request that these other cases be incorporated into the record of this case. Richardson simply did what Dr. Lee asked. As always, the Commission can take administrative notice of the order and findings of the Division and of the Commission with or without the consent of SJCC and with or without a motion or a request by any party.

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To do otherwise is to dispute the regulatory process and invite inconsistent decisions which are contrary to past precedence. SJCC invites the Commission to be arbitrary and capricious.

#### THE ORDERS RELIED UPON BY RICHARDSON ARE RELEVANT

SJCC now contends that the evidence relied upon by the Division in its past CBM orders as substantial evidence to support Division findings and its ultimate conclusion in prior Fruitland coal hearings is outdated and irrelevant. The answer is a resounding "NO". Richardson's Exhibit E has already answered that question.

#### SJCC'S OBJECTION IS TO LATE

SJCC is too late with its objection. For more than 12 months, SJCC has known that Richardson's estimates of the amount of CBM at risk was based upon Richardson's reservoir simulation model. SJCC did not challenge the basis for Richardson's conclusions at the Division Examiner's hearing held November, 2001. SJCC did not challenge Mr. Dave Cox about the validity of his model at the Commission hearing on October 29-31, 2002. Either Dan Paul Smith or Paul Bertilogo, SJCC two petroleum engineering witnesses who testified at the Commission hearing, chose to rebut the validity of Mr. Cox's work.

At the time of the hearing, SJCC did not object to Richardson's filing post hearing answer to Dr. Lee. At the time of the hearing, SJCC did not object to Mr. Cox's testimony based upon reservoir simulation. SJCC was provided ample time prior to the hearing to prepare its case and voluntarily chose not to dispute Mr. Cox's model.

Now, some 20 days after the Commission hearing, SJCC for the first time complains about Mr. Cox's reservoir simulation model. SJCC as waived any objection to how Richardson responded to Dr. Lee's questions.

### SJCC HAS WAIVED ANY OPPORTUNITY TO OBJECT

At the Hearing, Richardson requested and obtained, without any objection from SJCC, the Commission's approval to provide a written response to Dr. Lee's questions. SJCC failed at the time of the Commission's hearing to object and may not do so now.

### DAN PAUL'S AFFIDAVIT IS NOT EVIDENCE

Post hearing, SJCC finally decide to dispute the reliability and validity of Mr. Cox's reservoir simulation and it now chooses to do so with an affidavit from Dan Paul Smith. Now, SJCC wants to amend the testimony of Mr. Dan Paul Smith with a post-hearing affidavit and thereby alter his testimony and deny Richardson its right to cross-examine Mr. Smith about his new opinions and conclusions.

SJCC had more than a year to dispute, contest, rebut and argue about Mr. Cox's reservoir simulation. SJCC's affidavit of Dan Paul Smith denies Richardson its right to cross-examine Mr. Smith about his statements and opinions contained in the affidavit.

MR. DAVE COX'S REBUTTAL

Richardson has attached hereto Mr. David Cox's affidavit in rebuttal.

**See Exhibit A**

SUMMARY

It is not the responsibility of the Commission to cure the defects in SJCC case or to allow a party the opportunity after the hearing to correct its intentional mistakes, or to attempt to rehabilitate its witness.

Richardson's requests that the Commission deny SJCC's motion to strike and overrule its objection to Richardson's filings in response to Dr. Lee's questions.

Respectfully submitted,



W. Thomas Kellahin  
P. O. Box 2265  
Santa Fe, New Mexico 87504

**CERTIFICATE OF SERVICE**

I certify that a copy of the foregoing pleading was transmitted by facsimile this 9th day of December, 2002 to James Bruce, attorney for San Juan Coal Company.



W. Thomas Kellahin

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

IN THE MATTER OF THE APPLICATION OF  
RICHARDSON OPERATING COMPANY TO  
ESTABLISH A SPECIAL "INFILL WELL" AREA  
WITHIN THE BASIN FRUITLAND COAL GAS  
POOL AS PROVIDED BY RULE 4  
OF THE SPECIAL RULES FOR THIS POOL,  
SAN JUAN COUNTY, NEW MEXICO



CAUSE NO. 12734 (DE NOVO)

AFFIDAVIT OF DAVE O. COX

I, Dave O. Cox, being first duly sworn, state the following based on my experience and personal knowledge:

I have reviewed the Affidavit of Mr. Dan Paul Smith relating to his examination of the materials that were provided by my firm on behalf of Richardson Operating at the request of Commissioner Dr. Lee. It is my professional opinion that a number of the statements presented by Mr. Smith in his Affidavit are based on incomplete understanding of the materials or of my testimony at the Commission Hearing, while other statements of his refer to fundamental differences between his analysis and mine.

I believe that it is important to recognize that the model used was prepared earlier this year prior to the San Juan Coal Company's request for a hearing de novo. Accordingly, it was based on information available through about December 2001. As such, it contemplated recompletions and activities would occur at certain points in time, but those activities were in fact delayed because of the San Juan Coal Company's request for a hearing de novo. Because that detailed model was available, however, its results were used to compare the relative effects of 160-acre spacing versus 320-acre spacing in a consistent manner utilizing sound engineering principles and practices.

The following discussion lists specific points of disagreement or misunderstanding between myself and Mr. Smith, and is referenced to the points laid out in his Affidavit:

**Smith Points 1 and 2:** No comment.

**Smith Point 3:** Mr. Smith apparently disagrees with using a model, and he did not indicate that he had attempted to model 320-acre or 160-acre locations in his analysis. I disagree with his contention that the model is unreliable for the purpose which it was used in this hearing. His statement regarding gas content relates to his contention that the

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reservoir is highly undersaturated, which is contrary to the observed pressure during a buildup of well 36-3, and is inconsistent with observed production occurring shortly after wells are brought on production.

**Smith Point 4:** By design, the model covered the portions of the Deep Lease and Deep Lease Extension that were the subject of the previous hearing, and therefore of this hearing.

**Smith Point 5:** The model grid blocks are 880 feet squares. Normally in simulation, large grid blocks are used for initial analysis, and smaller blocks are used where a more detailed reservoir description is available. No such detailed description was available in this case, and furthermore, the relative permeability relationships used were based on the 3M analysis which utilized 880-foot square grid blocks. The use of smaller grid blocks should not materially affect the conclusion that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

**Smith Point 6:** There was one layer for the Basal Coal and one layer for the Upper Coal. No information was available regarding vertical variation in reservoir properties, so there was no need for additional layers. Incorporation of additional layers would not materially affect the conclusion that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

**Smith Point 7:** Mr. Smith and I disagree about the gas content, as was shown in the hearing testimony. However, even with his low gas contents, he was showing low recovery efficiencies on his Exhibit 54, which are consistent with the need for 160-acre spacing in this area.

**Smith Point 8:** Gas rates were not arbitrarily increased over 5 years based on the Ropco Fee 6-1. In fact, as stated in my testimony, my analysis of the 51 nearest wells with at least 5 years of production indicated that the majority of those well showed substantial increases over time, and reached a median rate of over 600 Mcfd with an average incline period of over 5 years. Mr. Smith's contention that the analogy wells are in deeper, higher pressure, higher permeability areas in communication with more prolific Pictured Cliffs sections is not supported by any evidence presented in the hearing or his Affidavit.

**Smith Point 9:** Model rates for 80% of the wells were designed to reach 500 Mcfd per well combined for the Basal and Upper Coals, based on my analysis of 51 wells with at least 5 years of history, not a single well as contended by Mr. Smith. The reason that none of the wells has yet reached this level is because they have not yet produced for five years, and have not yet had the Upper Coals completed.

**Smith Point 10:** As I testified at the hearing, model permeability rates were increased to account for the phenomenon of matrix shrinkage, which has been demonstrated to exist in the San Juan Basin, as shown by the Palmer-Mansoori paper presented as Cox Exhibit C-25, and the 3M report on the 3M Project—CBM Model Final Report website included in the response to Dr. Lee's request. The increase in permeability is indicated by the

performance of 51 wells that had increasing producing rates for an average of more than 5 years.

**Smith Point 11:** Model permeability is not directional. No actual information from this area was available to demonstrate the degree or direction of directional permeability. The use of isotropic permeability in the model should not materially affect the conclusion that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

**Smith Point 12:** There has not yet been sufficient production to define complete reservoir-scale relative permeability relationships in the Application Area. "Wet" relative permeability curves were selected based on observed gas-water ratios. The relative permeability curves used should not materially affect the conclusion that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

**Smith Point 13:** Infill wells were started at 20 bwpd, because much of the water production from existing wells was interpreted to be coming from wetter portions of the Pictured Cliffs Formation, with little associated gas production. The assumed starting rates for infill wells has a negligible affect on long-term reserves and production, and would therefore not affect the conclusion that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

**Smith Point 14:** The infill wells should have better skin factors than the existing wells, because they will be completed specifically for the Fruitland Coal.

**Smith Point 15:** The model does not match historical water production, by design. Much of the water production from existing wells was interpreted to be coming from wetter portions of the Pictured Cliffs Formation, with little associated gas production.

**Smith Point 16:** Well 30-1 has a damaged completion, and Richardson intends to redrill this well. This activity was delayed. This assumption does not affect the conclusion that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

**Smith Point 17:** The model is a dual porosity model that properly models the interaction between the coal matrix and cleats.

**Smith Point 18:** The model was run for 40 years (not 20 years), and economic limit considerations were used to cut off production before that time where indicated. Mr. Smith is correct that the 320-acre model shows higher pressure after 20 years than the 160-acre model. This occurs because more gas is recoverable with 160-acre spacing than with 320-acre spacing, which is the reason that Richardson wants to use 160-acre spacing to more efficiently and more economically drain the reservoir.

**Smith Point 19:** Mr. Smith states "The model can be characterized as a big cup with the 160-acre case having more straws than the 320-acre case." This is also true of the reservoir. In fact, if the 160-acre application is approved and those wells are drilled,

there will be more "straws" in the reservoir. This is the reason that Richardson wants to use 160-acre spacing to more efficiently and more economically drain the reservoir.

**Smith Point 20:** As stated in my testimony, the model includes connection to the Pictured Cliffs by combining the Pictured Cliffs with the Basal Coal.

**Smith Point 21:** A no-flow boundary was selected to avoid having gas migration from outside the model area potentially skewing the model comparison between 160-acre and 320-acre spacing. Interference between wells creates interference boundaries between the wells. In this case, if the Application is not approved, the presence of 160-acre wells outside the model as approved by the recent Fruitland Underpressured Area Spacing order will actually cause gas to drain from the Application Area because of a greater well density outside the Application Area.

**Smith Point 22:** There is no isolated production at this time from the Upper Coal. However, there is no reason to believe that the Upper Coal is not productive, and it has been completed in many wells outside the Application Area. Even if the Basal Coal alone is considered, the conclusion is still reached that wells on 160-acre spacing will recover more gas than wells on 320-acre spacing.

\_\_\_\_\_  
Dave O. Cox

STATE OF COLORADO    )  
  ) ss.  
COUNTY OF JEFFERSON )

This instrument was acknowledged before me on December   , 2002, by Dave O. Cox.

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Notary Public

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