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November 19, 2002

Ms. Lori Wrotenbery,Chairman — Hand Delivered
Ms. Jamie Bailey, Member — Hand Delivered
Dr. Robert Lee, Member — Federal Express
Oil Conservation Commission
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: 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 Members of the Commission:

On behalf of Richardson Operating Company please find enclosed our Closing Statement for the Commission's hearing heard October 28-29, 2002.

Very truly yours,

W. Thomas Kellahin

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

Application of Richardson Operating Co.
Record on Appeal, 2009.

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

CASE NO. 12734
(De Novo)

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

RICHARDSON OPERATING COMPANY'S CLOSING STATEMENT

Richardson Operating Company, in accordance with directions from the Commission, submits the following as its Closing Statement:

METHANE-COAL CONFLICT

There is no conflict between San Juan Coal Company ("SJCC"), the coal lessee, and Richardson Operating Company ("Richardson"), the methane gas lessee, over methane well density within SJCC's Deep Lease Extension.

SJCC has agreed that it will not interfere with Richardson's coalbed methane ("CBM") operations. SJCC protested the issuance by the BLM of 4 APDs to Richardson in an area where the coal company has plans to mine. SJCC based its position on four principal contentions: (1) the underground mine would yield greater economic returns than the CBM production; (2) the APD approvals did not comply with the relevant BLM resources management plan; (3) CBM production in advance of underground mining posed health, safety, and environmental risks; and (4) "first in time" principles should have applied to approval dates of the plans of development, not lease issuances dates.

The BLM denied the protest. In dismissing the SJCC arguments regarding priority and the BLM's implied obligation to resolve the dispute through an accommodation, the BLM found that the special coal lease stipulations recognized the relative rights of the parties and that a protocol agreed to by SJCC bound it to a process for addressing impacts to oil and gas operations. As a condition to amending the Farmington Field Office Resources Management Plan to allow the proposed coal mining operations, SJCC agreed to a protocol setting forth the commitment to mitigate potential impacts the underground coal mining operations may have on oil and gas production, gathering, or transportation.

DAVID VERSUS GOLIATH

This case is about David and Goliath. David is in an area not controlled by Goliath—he is minding his own business—the business of drilling and producing CBM wells. Then Goliath comes along and decides that he wants the coal from the area which David is extracting the CBM.

Goliath has a big appetite for coal and agrees to a federal coal lease that contains stipulation to protect David's right to the CBM before Goliath takes the coal. Goliath agrees to give David a chance to produce the CBM before Goliath mines the coal. Goliath agrees with the MSHA rules that are adopted to protect mine safety.

Then Goliath changes his mind and decides he will mine the coal and waste David's CBM. Goliath now is trying to change the rules it agreed to, after the game is being played, by opposing David's plans to produce the CBM. Goliath decides that the MSHA rules using a 300-foot protection pillar are not good enough, but fails to tell MSHA. Goliath wants the Commission to treat David's area differently than it treats the rest of the under-pressured area of the coal pool.

The Commission has the power to protect David from the wrongful actions of Goliath

TIMING IS EVERYTHING

Timing is everything in the CBM business. The rapid development of the CBM is essential to avoid wasting of the resources before the mine reaches the area of dispute. Any delay in infill wells for CBM production is a victory for Goliath. The worst thing that can happen is to space the wells too far apart, pump them for a year or two without seeing dewatering effects and without seeing gas production peak. At this point the Commission has stayed Richardson's plans while allowing Goliath to continue to mine the coal and waste the CBM.[1]

COAL IS NOT POTASH

"The Oil Conservation Commission is a creature of statute, expressly defined, limited and empowered by the laws creating it."[2] The Commission's jurisdiction, unlike Utah, does not include jurisdiction to prevent the waste of the coal. The Commission's jurisdiction is limited to the waste of methane and SJCC admits that it is now wasting the methane.

It may be tempting to "split the coal baby" by allowing Richardson to infill the coal outside the mine districts but allow SJCC to prevent Richardson from having infill wells in the mine district. But to do so requires that the Commission approve the waste of methane that the Oil and Gas Act mandates that the Commission protect.

Giving David a partial victory gives Goliath a total victory. Allowing infill wells in the areas outside the mine districts and not in the mine districts would create an even bigger mess.

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[1] Randy Allen, "Coalbed Methane Primer", Paper 8, page 9 (Rocky Mt. Min. L. Fdn. 2002)
[2] Continental Oil Co. v. Oil Conservation Comm'n, 70 N.M. 310 (1962).

WHOSE PROBLEM IS THIS?

This is a BLM problem. SJCC is unhappy with its deal with the BLM and now wants the Commission to tinker with the BLM's solution—a solution made by the BLM and agreed to by SJCC to resolve the methane-coal conflict that the BLM created. The Commission has serious jurisdictional problems in trying to resolve what SJCC wants the Commission to believe is a Commission problem.

The BLM solution is that Goliath can have the coal if its taking does not impair David's prior right to the methane. The Commission has no jurisdiction to overrule the BLM's decision about how the BLM has decided to manage conflicting resources—that the methane will be produced first or paid for by SJCC.

WHO'S IN CHARGE?

The rules of the Oil Conservation Division apply to all coalbed methane operations in the state, no matter who owns the minerals or the surface. Division rules, however, do not relieve a coalbed methane operator of the responsibility to comply with applicable rules of other state and federal agencies such as the State Land Office and the federal Bureau of Land Management.[3] The only issue before the Commission is the waste of methane gas, with SJCC arguing the methane gas it has and will continue wasting is not economic and Richardson's arguing that it is.

Goliath has violated Division rules by venting at least 2 million cubic feet of gas a day; drilling 6 gob vent wells without Division approve and dumping water on the ground and improperly plugging wells in ways that are contrary to Division rules.

[3] Lori Wrotenbery, "Who's in Charge? Role of the Oil Conservation Division, Regulations and Development of Coalbed Methane, Page 10F, page 2, Rocky Mt. Min. L. Fdn. 2002)

WHAT IS NOT IN DISPUTE

- Both sides agree that the coalbed methane production activities predate the coal mining activities. Mr. Richardson was here first, and the coal leases stipulate that.

- Both sides have nearly the same geologic interpretations. Geology is not the issue here.
  - The structure is about the same for all experts.
  - The thickness is really about the same in all the testimony you heard here.
  - Mr. Hively used log thickness that included ash, but Mr. Mercier used core data and took the ash out.
  - Mr. Hively said the basal coal is 14 ft thick, and Mr. Woomer and Mr. Abrahames said it is 13 ft thick.
  - Mr. Hattner said the S9 coal is thinner than Mr. Hively said the upper coal is, but Mr. Hively's picks on the upper coal included small stringers of coal that are not in either seam 8 or seam 9.
  - In the final analysis, there is not really any significant geological disagreement.

- Both sides agree that the Pictured Cliffs formation is a tight, low permeability reservoir that will only recover an average of about 100 MMcf per well.

- Both sides agree that current wells and spacing will not lead to efficient drainage of the coalbed methane.

- Both sides agree that most CBM wells show an initial incline before they reach peak production, but the Coal Company's experts say the decline began in the last year (Mr. Bertoglio) or today (Mr. Smith), while Mr. Cox notes that the closest wells with sufficient history demonstrate production inclines averaging 5 years.

- Both sides agree that the CBM wells will not be able to produce and recover for sale the methane that is vented into the atmosphere by the coal company.

- Both sides agree that no royalty or CBM working interest payments are made or contemplated for the coalbed methane that is being vented into the atmosphere.

- Both sides agree that a different density of wells in the Application Area than in the Fruitland Underpressured area will lead to concerns with correlative rights.

WHAT IS IN DISPUTE?

There are three main technical points of disagreement.

- How much gas is there? (Is the coal saturated or undersaturated?)
  - Coal Company desorption measurements suggest it is undersaturated.
  - Richardson's well performance proves that it is saturated.

- What will CBM reserves be? (Is production still rising, or is it now declining?)
  - The Coal Company experts say production is now declining.
  - Richardson's experts showed production is still inclining, and with additional coal completions and 160-acre spacing, it will go up even more. Mr. Richardson is working to install additional water disposal capacity. Until he gets that in, the wells cannot be fully dewatered and gas production is thereby delayed.

- A third point of disagreement is the contention by the Coal Company that Mr. Richardson's Pictured Cliffs wells are already connected to the coal. However,
  - There is not an operator in the basin that tries to complete the coal by fracturing the Pictured Cliffs.
  - It is hard to believe that the coal company's experts can say that Mr. Richardson's correlative rights are being protected if an offset well is perforated and stimulated in the coal, and Mr. Richardson is only allowed to get whatever accidental, minimal connection to the coal that may inadvertently occur when he stimulates the Pictured Cliffs.
  - Mr. Smith testified that many or most of Mr. Richardson's wells are uneconomic as they currently exist, but he cannot know what they will produce when they are properly frac'ed until those frac jobs in the coal are done.
  - Mr. Cox, on the other hand, presented testimony that by recompleting Pictured Cliffs wells into the coal, and finishing development on 160-acre spacing, an addition 27 Bcf worth more than $27 million could be recovered.

MSHA CONTROLS

MSHA control mine safety. MSHA's 300 foot rule is enough to protect SJCC. David's project only involves 3 new wells and 5 recompletions proposed by Richardson that conflict with SJCC mine district.

INADEQUATE COAL CORE DATA

SJCC has based its technical case on the assumption that its desorption measurements of the gas content per ton of coal. That assumption is wrong and the performance of Richardson's wells proves that it is wrong.

SJCC has assumed that it has accurately determined the methane content of the coal based upon desorption measurements from coal core-holes. In theory, the tests for methane gas content by measurement should show the ultimate recovery and expected recovery, but they are not without significant problem: (a) because coal is not homogenous, the small sample from a given seam may not reflect the conditions of the entire reservoir, (b) the lost gas that leaks out of the sample before it can be placed in the container, or because that particular chunk of coal may have lost gas in-situ; (c) or because of contamination.

Because of problems with the direct measurement of methane gas core samples, Mr. Cox testified that adsorption isotherm is the best method in this case to show how much methane the coal will hold at varying pressures.

GOLIATH'S VOLUMETRICS

Mr. Smith, Goliath's petroleum engineer, conceded that his calculations of recovery methane were based upon well performance that had not yet reached its peak rates and establish a reliable production decline. Mr. Smith admitted the best method to determine reserves is an extended production test, which Goliath has prevented from occurring.

RICHARDSON'S DESORPTION ISOTHERMS

Best method.[4]

RICHARDSON'S SIMULATION

Simulation is a methodology accepted in formulating Division orders, including specifically the basin wide infill applications for the under-pressed Fruitland Coal.[5]

GOB GAS

SJCC contends that Richardson can still recovery the gob gas left after the coal mining is completed. The Environmental Protection Agency states "After a coal seam is mined for coal and the supports are removed, or following completions of mining of a longwall panel, the shaft collapses, leaving debris, and pockets of gas mixtures. Id. This is gob gas, one type of CMM. Id. Wells can be used to capture the gob gas, but in many cases the methane gas has already mixed with oxygen and other gases and most be processed to remove the contaminants." "The technology for commercial utilization of sub-pipeline-quality gob gas is still being developed."[6]

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[4] Randy Allan, supra, page 8
[5] See Richardson Response to Dr. Lee, filed November 12, 2002
[6] William B. Prince, "Joint Development of Coal and Coalbed Methane" Paper 8, page 3, 10 (Rocky Mt. Min. L. Fdn. 2002)

WELL DENSITY

Coalbed Methane projects are unique. Proper well spacing ensures optimum subsurface communication. As a general rule, the Division's well spacing (density) is an attempt to locate wells close enough that all of the commercially recoverable hydrocarbon is ultimately extracted but not so close that too many wells are drilled. From this perspective, CBM spacing may seem counter-intuitive. Since the key to coalbed methane production is maintaining the lowest possible reservoir pressure, thereby allowing gas desorption, some subsurface communication between wells earlier in the life may prevent waste of the resource.[7]

The Division has already determined that well density needed to be increased in the under-pressured portion of the Pool. David demonstrated, and Goliath could not dispute, that his area should be treated like the rest of the under-pressured portions of the pool. It is essential that wells be close enough to communicate.

WASTE OF METHANE

The reserves for David's area are not the issue—whether estimated by reservoir simulation or by decline curve analysis—both conclude that the CBM will be wasted.

CONCLUSIONS

With great power comes great responsibility[8]—the Commission has the power to protect Richardson and the responsibility to do so.

This is a case of David versus Goliath, with David being David Richardson and Goliath being the San Juan Coal Company.

- David is the owner of a small but growing oil and gas company employing 27 workers in the oil and gas industry.

[7] See Allen, supra note page 13
[8] Spiderman's father to Spiderman, Spiderman the Movie

- He wants the opportunity to continue the development of his CBM leases that he began working on before the miners came along.

- You saw the production curve of the Ropco 6 No. 1, that rose from a few Mcf per day to 1.2 million cubic feet per day. Mr. Richardson was the one who originally drilled that well, and he knows what it has done.

- He wants the opportunity to try to maximize the production from his wells in the Application Area. Mr. Richardson's rights under his oil and gas leases are supposed to allow him to do this, and the Rules and Regulations of the State of New Mexico are designed to promote such orderly and efficient development.

- Mr. Richardson also has a duty to many other interested parties, who were not present for this hearing: the royalty owners. The state, the federal government, and private royalty owners should be allowed to receive their just share of the proceeds from the gas that will be recovered if Mr. Richardson is allowed to complete his development of these lands.

- Mr. Richardson is the only person at this hearing who has his own personal livelihood at stake here. He is putting his own money into these wells.

- All he asks is that the Commission allow him to do what they are now allowing every other operator in the Basin to do: drill, stimulate and produce his underpressured Fruitland coal wells on 160 acre spacing.

• Goliath:

- They are putting 300 people to work, and have invested $150 million.

- They couldn't make deals to extend their surface mines so now they are trying to push Mr. Richardson out of the way, and they want you, the Commission to help them do this.

- Their stated reason for this relates to concerns about possible increased risk of roof falls and spontaneous combustion. But there is a huge risk of roof falls and spontaneous combustion before any wells are even considered. Mr. Abrahames said they have had 5 roof falls already and they have only just started this mine.

- There are more than 20 existing wells in their mine districts that they'll have to deal with, but they say that Mr. Richardson's request for 3 additional wells there is too risky.

- And they don't stop there. They are protesting Mr. Richardson's wells more than 2 miles from any currently proposed mine workings, because they say they don't know how far hydraulic fractures travel from the wells, and they ***might*** someday want to mine there.

- There has never before been an infill drilling request decided on the basis that a coal mine doesn't want the wells to be there. The Coal Company is trying to rewrite the rules and regulations of the Commission to allow them to do this.

- If you grant the Coal Company their request, where does it stop? They don't want Mr. Richardson to have his wells outside their planned mine area because they ***might*** someday want to mine there.

- This is the reason why you, the Commission, should not try to judge this case like Solomon and offer to cut up the baby. If you grant the coal mine a new right that is superior to the previously existing rights of the oil and gas lessee, you should expect protests to the Fruitland Basin wide rules, you should expect protests to individual well APDs, and you should expect proceedings like this one over and over again.

- They have already lost this issue once, and we appeared before the Commission again in this hearing because they protested that order.

Mr. Richardson is requesting that you protect ***his*** correlative rights and the rights of the royalty owners and allow him to produce coalbed methane in accordance with his oil and gas leases.

He only wants the same rights that all the other operators in the basin now have, nothing more and nothing less.

He wants to be able to produce the gas, instead of letting it literally blow away in the wind.

He has presented evidence that shows that the existing wells are not efficiently draining the Application Area, and that therefore additional Fruitland completions are necessary for this purpose.

He has presented evidence that indicates these wells and completions will be economic.

He has shown that granting the proposed application will prevent the waste of the resource by recovering the gas economically through wells rather than letting it be vented into the atmosphere.

Respectfully Submitted,

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Attorneys for Richardson Operating Company

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing pleading was send to all counsel of record on November 19, 2002.

W. Thomas Kellahin

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.

Case No. 12734 (De Novo)

CLOSING ARGUMENT OF SAN JUAN COAL COMPANY

This Closing Argument is submitted by San Juan Coal Company ("San Juan") as requested by the Commission at the close of hearing.

I. The Commission has Jurisdiction Under the Oil and Gas Act to Consider and Address San Juan's Positions

Richardson Operating Company ("Richardson") has previously sought to preclude the Commission from considering many concerns of San Juan about the September 11, 2001 Application of Richardson to Establish a Special "Infill Well" Area ("Infill Application") by asserting that the Commission lacks jurisdiction over San Juan's coal resource and that San Juan has no standing to contest this application. In San Juan's September 11, 2002 Response to Richardson's Motion to Dismiss, San Juan established that the Commission has jurisdiction and San Juan has standing. However, the evidence presented at hearing further emphasizes that San Juan's concerns are not only important, but are also well within the Commission's jurisdiction. As an introduction to San Juan's Closing Argument, this Section I demonstrates that, based on key evidence presented at hearing, San Juan's concerns fit within the Commission's jurisdictional charge.

A. Waste

The Commission has broad authority to prevent waste, and the definition of "waste" in the Oil and Gas Act is not limited to gas. NMSA 1978 § 70-2-2 and § 70-2-3. This matter is the first instance in which the Commission has been called upon to decide issues of waste arising from conflict between an underground coal mine and coalbed methane wells. Even though the Commission has never before been called upon to prevent waste of such a coal resource by coalbed methane development, the Commission has ample authority to do so. Testimony of Lynn Woomer and Jacques Abrahamse established that drilling additional wells under Richardson's Infill Application would require bypass of coal and pose risks that threaten severe waste of the vastly more valuable coal resource. Pursuant to NMSA 1978 § 70-2-2, the production or handling of natural gas "in such manner or under such conditions or in such amounts as to constitute or result in waste is each hereby prohibited." Section 70-2-3 defines waste with a non-exclusive list that does not itself specifically mention coal. However, the statute makes clear that the list is "in addition to [waste's] ordinary meaning." The ordinary meaning of "waste" under Webster's Dictionary specifically includes a "disused part of a coal mine." See San Juan's September 11, 2002 Response to Richardson's Motion to Dismiss.

B. Efficient and Economic Well Development

Central to this proceeding is NMSA 1978 § 70-2-17.B, which provides the criteria for establishing a proration unit for each pool. In that Richardson's Infill Application seeks to change the spacing in the Basin-Fruitland Coal Gas Pool, § 70-2-17.B provides important guidance for testing whether Richardson has met its burden of proof. Section 70-2-17.B provides that the Division may establish a proration unit for each pool as:

> ...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 risks arising from the drilling of an excessive number of wells**, and the prevention of reduced recovery which might result from drilling of too few wells.

(Emphasis added.)

San Juan's objections address the criteria of Section 17.B. First, it is important to recognize that even if, as a technical matter, a well may drain 160 acres, and not 320 acres, it must be "efficient" and "economic" to drill and produce the well before the Commission should allow it. Evidence at hearing established that many of Richardson's wells, and therefore many of his infill wells, are not economic. (See, e.g., San Juan Coal Co. Exhibit No. 59.) Indeed, as shown in Section II.B.3 of this Closing Argument, the current actual value of infill wells to Richardson is essentially zero. Second, the Commission should consider and avoid "economic loss caused by the drilling of unnecessary wells." It is particularly nonsensical to allow Richardson to drill uneconomic wells when those additional wells also will inflict economic loss on the holder of the coal resource, on the State of New Mexico in lost royalty revenue, and potentially on others. Third, Section 17.B requires the Commission to avoid "augmentation of risks;" multiple risks will be augmented if Richardson's additional wells are drilled, not the least of which is the risk of spontaneous combustion and mine fire.

C. Prevention of Fires

Under NMSA 1978 § 70-2-12.B(5), the Commission is authorized to make orders to "prevent fires." San Juan raises serious safety concerns regarding the effect of additional wellbores and coal seam fracturing on the safety of the underground mine. Exacerbation by wells of the potential for spontaneous combustion and roof instability were discussed at length

by San Juan's witnesses. A fire at the mine could lead to the loss of life, and the loss of the entire underground mine.

D. Prevention of Injury to Neighboring Properties

Under NMSA 1978 § 70-2-12.B(7), the Commission is authorized to "require wells to be drilled, operated and produced in such manner as to prevent injury to neighboring leases or property." Substantial testimony describes that the fracturing of wells will cause serious injury to the coal resource resulting in roof instability and increasing the risk of spontaneous combustion. In Amoco Production Co. v. Southern Ute Indian Tribe, 526 U.S. 865, 879; 119 S. Ct. 1719, 1727 (1999) ("Southern Ute"), the Supreme Court discusses the conflict between the right to develop coal and the right to develop gas and states that the right of a coal mine to vent CBM gas reflects the right of the owner of one mineral estate to use and even damage "a neighboring estate." Therefore, the Supreme Court has recognized that the coalbed and the gas within it are neighboring estates.

E. Protection of Public Interest

Under NMSA 1978 § 70-2-26, Secretarial review is available "to determine whether an order or decision issued by the Commission contravenes the public interest."[1] The Oil and Gas Act does not define the term "public interest," and San Juan's research discloses no judicial interpretation of that term in the context of the Oil and Gas Act. Consequently, the Commission may look to the manner in which the term has been defined in other contexts in New Mexico to ascertain the proper scope of the "public interest" inquiry.

In the important context of water rights administration, the "public interest" is to be considered in certain situations. In the early, but vibrant case of Young & Norton v. Hinderlider,

[1] The Commission should also consider the "public interest" in making its decision. For the Commission to ignore the "public interest" is both nonsensical and bad public policy.

15 N.M. 666, 110 P. 1045 (1915), the New Mexico Supreme Court considered what factors should be considered in determining the "public interest." There, the Territorial Engineer (the case arose initially before New Mexico became a state; the officer is now the State Engineer), applying a "public interest" analysis, rejected an application for the diversion of water for an irrigation project on the basis that the project would require the price of water delivered to irrigators to be twice as high as a competing project for which an application had been filed. See 15 N.M. at 670.

On appeal, the Supreme Court of New Mexico determined that "public interest" considerations include even more than public health and safety matters, and embrace economic considerations, including the cost of projects and the price of commodities. Id. at 677-80. Applied here, it is clear that the Commission should consider public health and safety, employment, and royalty and tax revenue impacts on the State and local communities in determining whether allowing infill CBM development is in the "public interest."

When one considers the "public interest" here, there is no question but that the Application should be denied. The evidence at hearing was clear that the "public interest" is served by the denial of Richardson's Infill Application. Granting the application threatens the loss to the State of tens, and perhaps hundreds, of millions of dollars in royalty revenue. Such a decision is hardly in the public interest. Moreover, additional wells can impact San Juan and San Juan Generating Station, affecting employment and reliability of electricity.

F. Conservation of All Mineral Resources

The Oil and Gas Act, in discussing the Secretary's oversight of the Commission, provides that the Secretary must exercise "due regard for the conservation of the state's oil, gas, **and mineral resources**." (Emphasis added.) NMSA 1978 § 70-2-26. The jurisdiction of the

Commission clearly extends beyond oil and gas to other mineral resources. Coal is a mineral resource, and the coal resource at San Juan Mine promises to be one of the most valuable mineral resources of any kind in the state, far exceeding the value of the relatively marginal gas resource found there.

II. Under the Oil and Gas Act, Infill Spacing Should be Denied for Two Reasons: Impact on the Mine and Richardson's Failure to Establish Entitlement to Infill Spacing Under NMSA 1978 § 70-2-17.B

For two different reasons, the Infill Application should be denied. First, the impact of infill spacing on San Juan's coal mine, which includes impact to the coal resource, justifies denial. Second, regardless of the mine, Richardson has not met its burden to establish that the additional infill wells are economic or efficient pursuant to the standard criteria of the Oil and Gas Act, NMSA 1978 § 70-2-17.B. This Section II of San Juan's closing argument first addresses the impact of infill spacing on the coal mine (in Section II.A), and then, the argument focuses upon Richardson's failure to establish its infill wells are economic or efficient (in Section II.B).

A. Additional Infill Wells Will Inflict Risk and Economic Loss on the Mine

This Section II.A summarizes in three parts the evidence presented establishing the impact of CBM wells on San Juan's underground mine. First, the argument summarizes the types of impacts created by infill wells. Second, the argument compares differing risks posed by different well development scenarios. Third, the argument describes the consequences of the identified risks.

1. Types of impacts created by the CBM Conflict

Several different types of impacts are created by the coal/CBM conflict. These and the evidence addressing them are described below.

a. Additional wellbores cause economic loss and waste of coal

As Lynn Woomer and Jacques Abrahamse described, the mere existence of a wellbore in the coal seam, whether or not it is fractured in the coal, can inflict substantial impact upon the mine. Additional wellbores placed in the coal pursuant to the Infill Application create additional problems. Upon encountering a wellbore in the coal seam, San Juan has two options.

The first option is to acquire rights to the well in order that it might assure the well is plugged and abandoned and the casing milled out according to Mine Safety and Health Administration ("MSHA") requirements. Then, San Juan may safely mine through the well. San Juan's efforts to reach an accommodation agreement or acquire rights to Richardson's existing wells have been unavailing. Richardson has refused arbitration under the BLM Protocol for the Mediation of Adverse Impacts on Oil and Gas Revenues and has rejected San Juan's buyout offers. (The Protocol is at the end of Richardson Exhibit A-8, and the binding arbitration provision of the BLM Protocol is at ¶ 2 on page 3, the last page of Richardson Exhibit A-8.)

Failing agreement to acquire the rights to mine through a wellbore, San Juan must bypass the wellbore. The evidence shows that under MSHA regulations, a 600 ft. coal block around a well must be bypassed (see San Juan Coal Co. Exhibit No. 13).[2] Because the longwall apparatus and the coal panels it mines are 1000 feet wide, the effective dimensions of the bypassed coal is 600 ft. by 1000 ft. It is extremely cumbersome, time consuming, and potentially risky for the

[2] 30 CFR § 75.1700 contains the bypass requirements. Lynn Woomer testified that MSHA regulators interpret those regulations to require a barrier of 300 feet in diameter from the wellbore to the nearest face for a total of 600 feet surrounding the wellbore.

1000 foot wide longwall apparatus to be stopped, disassembled and reassembled in order to bypass a wellbore. As Lynn Woomer testified, if too many wellbores exist in a given coal panel, the entire coal panel must be bypassed because bypass of each well would be cost prohibitive. The extent of the coal that would be bypassed as a result is described on San Juan Coal Co. Exhibit No. 13, and the economic consequences of bypassing this coal are described in Section II.A.3.d of this Closing Argument.

b. Coalbed hydraulic fracturing associated with wellbores compounds economic loss and risk

In addition to the problems inherent in bypassing a mere wellbore in the coal seam, additional problems for the San Juan mine are posed by the hydraulic fracturing in the coalbed associated with the wellbore itself. Jacques Abrahamse, San Juan's ventilation engineer, testified that to prevent spontaneous combustion, explosion, and mine fires, the ventilation engineer of the mine must control carefully the movement and concentration of gases in the mine. Using the fire triangle as an illustration of how ignition, fuel and oxygen can combine to create dangerous conditions in the mine, Mr. Abrahamse explained that San Juan seeks to prevent any combination of these factors that could pose significant risk of spontaneous combustion, explosion and mine fire. Central to the ventilation engineer's task is limiting the concentration of oxygen in key parts of the mine, such as the "gob", which is the collapsed rock and coal that accumulates behind the longwall apparatus as it moves through the coal. The wrong mix of coal, oxygen and methane could lead to spontaneous combustion and explosion, prompting injury or fatalities in the mine. For example, San Juan has gone to great effort and expense to protect its workers and its mine with the design and implementation of a bleederless ventilation system that helps keep oxygen out of the gob. However, fracturing of the coalbed

creates uncontrolled pathways for the flow of gases and inhibits the ventilation system's ability to control concentrations of oxygen in the mine.

Hydraulic fracturing can cause problems for the underground coal mine in a number of ways. Differing problems arise from fracturing coal panels and gate roads.

Fracturing of coal in the coal panels is problematic because, as Jacques Abrahamse described, it can lead to roof instability, which in turn can cause roof falls that stop the longwall miner and inhibit proper ventilation in the mine. The height of the longwall apparatus is flexible to a point, but it has a maximum extension height of 13 feet. The longwall shields are extended upward until they make contact with the roof and are then cantilevered into the roof of the coal mine, which consists of remaining coal and a mudstone layer above that. (Both the animation that is San Juan Coal Co. Exhibit No. 14 and also the schematic that is San Juan Coal Co. Exhibit No. 16, illustrate this connection of the shields to the mine roof.) This connection between the longwall shields and the roof is important because it keeps the longwall apparatus moving; Mr. Abrahamse explained that if the apparatus comes to a halt, an explosive mixture of gases can accumulate in the gob. The connection with the roof is also important because it forms a seal that helps control ventilation in the mine and prevent dangerous concentrations of methane and oxygen in the gob. Testimony shows that hydraulic fracturing can create roof instability that can cause roof falls. Roof falls leave a concave void in the roof so that the surface of the roof is no longer in contact with the fully extended longwall shields. This roof void is depicted in cross-hatching above the longwall apparatus shown on San Juan Coal Co. Exhibit No. 16. When this roof fall occurs, the longwall mining apparatus stops, gases can accumulate in the gob, and the risk of spontaneous combustion increases significantly.

Fracturing of wells in the gate roads is also problematic because it augments risk of roof falls and ventilation system malfunction. Jacques Abrahamse' testimony and San Juan Coal Co. Exhibit No. 19 describes the location of gate roads on either side of the coal panel. San Juan Coal Co. Exhibit No. 18 pictures one of five roof falls that San Juan has experienced in the gate roads. As Mr. Abrahamse explained, the construction of seals by San Juan between the coal pillars is critical to the mine ventilation system's ability to limit the flow of oxygen into the gob. (See San Juan Coal Co. Exhibit No. 19.) The fractures in the gate roads create pathways for oxygen to flow around the seals and reach the gob area, increasing the risk of spontaneous combustion.

San Juan's great precaution and expense to avoid spontaneous combustion is particularly justified in light of site specific conditions encountered at the San Juan underground mine. Jacques Abrahamse and Lynn Woomer testified about San Juan's evolving understanding of conditions at the mine, and demonstrated that although the San Juan Underground mine is potentially a world class mine, the coal seam there presents certain substantial challenges. For example, the rank of this coal is prone to spontaneous combustion, and the coal has an unusually soft roof. Fracturing of CBM wells can exacerbate these already difficult conditions.

Richardson presented no credible evidence to rebut the very intensive and site specific studies of San Juan evaluating the spontaneous combustion risk of hydraulic fracturing on the coal seam. Mr. Cox admits that evaluation of the effects of coal fracturing on mine operations is outside of his expertise. The report he came across and introduced is not credible evidence rebutting San Juan's concerns. It addresses eastern coals which can be different than western coals, and the report is not site specific. Mr. Cox admits that geology may vary. Moreover, that report recognizes that in 50% of the cases, fractures penetrate the strata above the coal beds.

c. Acceleration of CBM production by new wells increases rather than mitigates the coal/CBM conflict

San Juan recognizes that after the initial stages of mine development, it changed its views about the advisability of accelerating coalbed methane development in advance of mining. Initially, San Juan believed that coalbed methane production could be safely accelerated in advance of mining as a method to lessen the conflict between development of coal and CBM. As Mr. Woomer explained, these views changed when Jacques Abrahamse, ventilation engineer, joined the mine staff in the summer of 2001, and San Juan learned more about coal and mine conditions. Mine safety is paramount, and San Juan adjusted its views in the interest of safety.

Even with the extensive expertise, planning and investment of San Juan, it is still learning as it proceeds with this unique underground mine. San Juan recognizes that it would be ideal if CBM development could be safely accelerated in advance of mining. Indeed, acceleration of gas development in advance of mining has been a helpful device to lessen coal/CBM conflicts involving surface coal mines elsewhere. Unfortunately, as Mr. Woomer explained, San Juan has learned that, in this underground mine, acceleration of CBM development in advance of coal mining significantly augments the risk of spontaneous combustion. It has been almost 1½ years ago, in the summer of 2001, that San Juan recognized the need to adjust its plans in the interest of safety. Those concerns are increasingly well developed.

Moreover, these concerns have been known by both parties for this entire proceeding; Mr. Richardson testified that these concerns were made known to him by San Juan before Richardson filed the Infill Application on September 11, 2001. It is clear in light of these circumstances and this testimony that statements in Richardson's prehearing statement that the Infill Application was filed as an "attempt to accommodate" to San Juan have no basis in fact. (See Richardson's Prehearing Statement, ¶ 7.)

2. Different well development scenarios pose varying levels of risk

In Section II.A.1 above, San Juan described different problems inherent in the drilling of additional CBM wells and associated fracturing in the coalbed. Having described these types of impacts, San Juan summarizes here which well development scenarios pose the greatest risk. The Commission has authority to avoid augmentation risk by additional wells pursuant to NMSA 1978 § 70-2-17.B.

a. Existing wells fractured in the coal seam within the Deep Lease and Deep Lease Extension are relatively few, and Richardson's Infill Application would at least double the problems posed by existing wells

Richardson asserts in its prehearing statement that within Richardson's Special Infill Well Area, 76 existing wellbores "penetrate" the coal. (Richardson Prehearing Statement, ¶ 19.) (The Richardson testimony at hearing was that 71 wellbores penetrate coal.) The implication in Richardson's argument is that if there are 70 wellbores that "penetrate" the coal already, then what relative harm would just a few more infill wells cause? That implication is misleading because it does not take into consideration (1) the location of existing wellbores, or (2) whether the wellbores are active or fractured into the Fruitland coal. These two factors significantly influence the risk posed by any given well. Most of the existing wells pose lesser risk than those wells that Richardson seeks to add by its Infill Application.

Richardson Exhibit A-1 and San Juan Coal Co. Exhibit No. 6 show the location of various wells and the mine plan area. It depicts in red and blue the existing wells that are completed in the Fruitland coal. There are only 10 Fruitland completions and 7 proposed recompletions within the coal lease area.[3] Only 11 of those existing and proposed wellbores are

[3] The area of San Juan's existing leases is shown by the blue line on San Juan Coal Co. Exhibit No. 6. All of the area within the blue line is covered by San Juan's two federal coal leases – the

within the area of the mine plan area as depicted on Richardson Exhibit A-1. By way of its Infill Application, Richardson seeks essentially to double its Fruitland coal completions in the area of coal leases with 11 more wells completed in the coal in the Deep Lease and Deep Lease Extension, and most of those would be within the mine plan area consisting of several mining districts shown on Richardson Exhibit A-1. It is clear from Mr. Richardson's testimony and San Juan Coal Co. Exhibit No. 6 that in the infill area, Richardson has more production outside the coal leases than within them; many proposed infill wells and much of the infill area lies outside of the area of the coal leases. It is true that additional wells, other than Richardson's, penetrate the coalbed within the Deep Lease and Deep Lease Extension and the mine plan area within those leases, but a number of these are not fractured in the coalbed, or are completed in different horizons, or are plugged and abandoned. (See San Juan Coal Co. Exhibit No. 6.) Therefore, the Commission should recognize that Richardson's Infill Application seeks essentially to increase by two-fold or more the existing difficulties faced by San Juan within the area of San Juan's coal lease.[4]

Deep Lease to the east, and the Deep Lease Extension to the west – except for Section 36, T30N R15W and Section 32, T32N R14W. These two sections are covered by San Juan's two state coal leases. The legend indicates Fruitland completions and recompletions. Various old wells, most of which are plugged and abandoned or otherwise not producing, are shown on the map in the lease area.

[4] San Juan's mining operations would likely not be significantly impacted by the granting of infill spacing within the infill area to the south of the Deep Lease and Deep Lease Extension (Sections 1, 5, 6 and 4). San Juan's future operations could be impacted, however, by the grant of infill in the "buffer" of the infill area that extends one mile east of the eastern boundary of the Deep Lease Extension. As explained in testimony by Lynn Woomer and others, this buffer area to the east of the Deep Lease Extension and beyond, commonly known as the Twin Peaks area, contains coal that San Juan may pursue when existing supplies are exhausted or otherwise.

b. The increasing potential for risk and economic loss posed by different well development scenarios

Not only does the location of various wells affect the level of risk they pose to the mine, but the type of well encountered by the mine also affects the level of risk and potential for economic loss it presents. The potential for risk and economic loss varies depending on the type of well, or well development scenario, that is encountered by the mine. It is important to recognize that the most problematic type of well – an active well fractured in the coal seam – is precisely the type of well that Richardson seeks to add by infill.

Of course, the scenario with lowest risk is for the Infill Application to be denied so that no additional wells or fractures will be encountered by the mine as a result of the Infill Application. A second well development scenario that imposes cost (to mill out casing and meet MSHA requirements) but little or no significant risk to the safety of the San Juan mine is the encountering of plugged and abandoned wells that have not been fractured in the coalbed. Existing wells that are fractured in the coal seam and then plugged and abandoned before mining encounters them pose substantially greater impediment to mining operations. Plugged and abandoned wells that have been fractured in the coal seam are perhaps less problematic than active, producing wells because no operational conflicts exist, but the fractures in the coal pose the problems related to spontaneous combustion and bypass described above. The most problematic type of well for coal mining is precisely the type of well that the Infill Application seeks to double – active wells with fractures in the coal seam. These wells are the most problematic because bypass may be required, the risk of spontaneous combustion is increased by the fractures, and significant operational conflict is enhanced because, unlike plugged and abandoned wells, simple discussions with the BLM or State to arrange a mine through agreement

are not sufficient. To mine through such a well requires an arrangement that involves the operator of the well, and discussions with Richardson have been unavailing.

Richardson's attempt to minimize the comparative impact of infill wells by calling the Commission's attention to existing wells outside the coal leases or the Twin Peaks[5] area or wells that are not fractured in the coal is misplaced. The infill wells Richardson seeks will permanently introduce problems into the coal seam by adding additional active wellbores and fracturing in the coal. Even if the wells are later plugged and abandoned, the fractures remain in the coal. San Juan asks that the Commission not make the problem worse by allowing additional active, fractured wells in the coal seam.

3. The consequences of CBM wells are both severe and squarely within the authority of the Commission to prevent

The argument above has explained both the types of impediments created by CBM wells (Section II.A.1) and how risk to the mine varies with different kinds of wells (Section II.A.2). With that background, this Section II.A.3 of the argument highlights the evidence that defines the consequences of the problem caused by the CBM wells the mine may encounter. Prevention of these consequences is squarely within the authority of the Commission.

a. Protection of worker safety is paramount

First and foremost, additional wells in the coal seam within the mine present risks whose potential consequences are worker injuries or fatalities. Safety is the first priority for San Juan, and San Juan recognizes that safety is also important for the Commission. Under the Oil and Gas Act, the Commission is charged with prevention of fires, and the Secretary is to consider

[5] The Twin Peaks area is depicted on San Juan Coal Co. Exhibit Nos. 50 through 53, and is the coal-bearing area immediately east of the Deep Lease Extension in which San Juan has an interest in mining in the future.

protection of the public interest. (See, NMSA 1978 § 70-2-12.B.5 concerning fires and NMSA 1978 § 70-2-26 concerning public interest.)

b. Infill spacing augments risk and threatens economic loss to San Juan Generating Station

As Lynn Woomer explained, a second possible consequence of the problems presented by additional CBM wells encountered by mining is the potential failure of coal supply to the San Juan Generating Station. The San Juan Generating Station, operated by the Public Service Company of New Mexico ("PNM"), is the largest supplier of power to New Mexico, with over 400 employees (San Juan Coal Co. Exhibit No. 8). Mr. Woomer testified that San Juan Generating Station is the sole source of supply to the Generating Station, and if mine closure or curtailment of supply resulted from problems created by CBM wells, the supply of low cost fuel and perhaps the very viability of the Generating Station is put at stake. In the context of NMSA 1978 § 70-2-17, additional CBM wells augment risk and threaten economic loss to the Generating Station, PNM, and electric customers throughout New Mexico. In the context of NMSA 1978 § 70-2-26, such additional CBM wells would be contrary to the public interest.

c. Infill threatens economic loss and risk to San Juan Coal Company

Economic loss and augmentation of risk to San Juan is another important consequence of the conflict between mining and additional CBM wells. Lynn Woomer described that in longwall mining, it can be prohibitively costly and time consuming to bypass wellbores. The bypass of coal results in inability to mine a block of coal, or perhaps a coal panel with multiple wells is far more valuable than the gas wells that prompt the need to bypass. Too many wells fractured in the coal seam threatens the viability of the mine with attendant economic loss and

harm to the public interest. The relative magnitude of impact upon San Juan is, in part, an extension of the detailed description of impact on royalty below.

d. Infill will reduce royalty to the State of New Mexico and the United States

The potential adverse economic consequences of bypassing coal extend not only to San Juan Generating Station and San Juan Coal Company, but also to the State of New Mexico and the United States. Bypass of coal blocks or entire coal panels results in significant loss of royalty, and tax revenue.

San Juan requests that the Commission compare generally, as an order of magnitude, the estimated royalty generated from CBM infill wells with that generated from the coal mine. In making this comparison, it is useful to consider three conflict perspectives: (1) a single wellbore vs. the coal block around it; (2) multiple wellbores vs. an entire coal panel; and (3) the royalty stream of the mine area vs. the royalty stream potentially generated by a very optimistic projection of coalbed methane production. These three show increasing disparity in value of the coal royalty and CBM royalty.

(i) Favoring a wellbore over its surrounding coal block costs an estimated net $675,000 in lost royalty per well

The schematic at the top of San Juan Coal Co. Exhibit No. 13 shows the estimated royalty stream that otherwise would be generated from a bypassed block of coal, 600 ft. by 1000 ft., around a wellbore.[6] If the bypassed block of coal is on one of the two large federal leases, one-half of the royalty stream shown on San Juan Coal Co. Exhibit No. 13 would go to the State of New Mexico and one-half to the United States. 30 U.S.C. § 191. If the bypassed coal were

[6] The royalty figures contained on San Juan Coal Co. Exhibit No. 13 are estimates that are subject to change. For example, San Juan has filed a request for royalty rate reduction with the BLM. This request has not been acted upon, and the outcome is uncertain. The lowest possible reduction would be to drop the rate from 8% to 5% on federal lands

on either of the two state leases (Sections 32 and 36), 100% of the royalty would go to the State of New Mexico. Based on the testimony of Dan Smith about value of CBM, an optimistic assessment of the gas royalty stream to be produced from a wellbore depicted on that San Juan Coal Co. Exhibit No. 13 would be only in the range of $125,000. Of course, this amount is an estimate only, and its purpose is simply to provide an order of magnitude comparison with estimated coal royalty. It uses, without independent verification, certain optimistic assumptions provided by Richardson. It is speculative whether many of the Richardson existing wells (and hence potential infill well locations), have any value at all. Unlike the coal mine which is proven and established as a result of over $150 million in capital investment, the economic viability of many of the wells that Richardson seeks is doubtful. (See San Juan Coal Co. Exhibit No. 59.) However, Mr. Smith testified that based on optimistic assumptions and production projections, a good viable well of Richardson's in this area could have an estimated $1 million in total revenue over its life. One-eighth royalty of that estimated life of well revenue stream is $125,000.

Richardson is asking the Commission to favor it with an infill order that provides the uncertain opportunity to generate in the range of $125,000 in royalty for a well vs. a relatively certain coal royalty of $800,000 for the corresponding bypassed coal block. This could result in a net royalty loss of $675,000. The differential between severance taxes would further exaggerate this difference in value.

(ii) Favoring multiple wellbores over an entire coal panel costs over $12.5 million in royalty

The comparison of royalty value shows even greater disparity when bypass of an entire coal panel is considered. This scenario is depicted at the bottom of San Juan Coal Co. Exhibit No. 13. Lynn Woomer testified about this San Juan Coal Co. Exhibit No. 13 and explained that where multiple wells are located in a coal panel or gate road, the lost time and cost necessary to

avoid the wells is prohibitive, and bypass of an entire coal panel could result. The bottom portion of San Juan Coal Co. Exhibit No. 13 shows the potential lost royalty resulting from the bypass of an entire coal panel as a result of multiple wells in the panel or in the gate roads. Assuming that the multiple wells shown at the bottom of San Juan Coal Co. Exhibit No. 13 are located in a panel or gate road so as to necessitate the bypass of the entire panel of coal, the royalty comparison of CBM vs. lost coal would be in the range of:

$125,000 in royalty per well X 3 wells = $375,000 in total royalty stream

vs.

Royalty for the entire coal panel of $13 million

Taxes would further exacerbate this difference. It makes no economic or policy sense for the Commission to make a decision that could cause the State of New Mexico and the United States to forego coal royalty in the range of $13 million in exchange for a speculative gas royalty in the range of $375,000.

(iii) total coal royalty from the coal mine exceeds total royalty from gas wells by over $270 million

The greatest disparity in value arises from comparing the estimated royalty stream from the mine area vs. the total royalty to be generated from Richardson's operations in the infill area. The royalty stream for the mine area over the life of the mine is estimated to be $250 million on federal lands and $25 million on state lands for a total of $275 million (see San Juan Coal Co. Exhibit No. 9). Estimating royalty value for Richardson's production is speculative given its marginal and partially uneconomic nature. Nevertheless, for purposes of an order of magnitude comparison, Dan Smith testified that the potential revenue stream, using optimistic and untested assumptions (and without regard for costs), might be from $16 to $29 million over the life of

Richardson's wells in the infill area, depending upon the definition of "reserves." One-eighth royalty of that revenue stream would be in the range of $2 million to less than $4 million. Based on an order of magnitude comparison, San Juan asks that the Commission not put at risk a coal royalty stream of $275 million – of which the State of New Mexico gets over one-half – in favor of a speculative royalty stream for gas in the possible range of $2 million to less than $4 million at best.

(iv) under several provisions of the Oil and Gas Act, the Commission should give strong weight to the fact that San Juan's coal resource is worth far more than Richardson gas

Richardson would have the Commission believe that because its mineral resource is gas, the Commission should favor production of that resource over the exponentially more valuable coal resource. The Oil and Gas Act does not provide support for this position. Section 70-2-2 prohibits waste, and Section 70-2-3 includes in the definition of waste "its ordinary meaning," which under Webster's dictionary includes "a disused part of a coal mine." It is waste to favor a resource with a $2 million to less than $4 million royalty value over a resource with a royalty value of $275 million.

Regardless of the issue of waste, Section 70-2-17.B of the Oil and Gas Act requires the Commission to consider economic loss and avoidance of augmentation of risk caused by excessive wells. Bypass of more valuable coal for less valuable gas causes economic loss. Excessive infill wells augment risk of spontaneous combustion and its catastrophic results.

Under § 70-2-26 of the Oil and Gas Act, the Secretary is authorized to consider the "public interest." It is not in the public interest of the citizens of New Mexico to favor development of gas with a royalty value to the State that is a mere small fraction of the value of coal royalty.

The Secretary must exercise "due regard for the conservation of the State's oil, gas, and mineral resources" (emphasis added). The mandate to conserve all mineral resources – not just oil and gas – is a standard that requires the Commission to consider Richardson's threatened damage to the coal resource and its associated royalty.

e. Only Richardson benefits from infill

In seeking the right to drill additional infill wells, Richardson puts it's alleged economic interests above all others. San Juan Generating Station loses. San Juan loses. The State of New Mexico loses. The United States loses. The public loses. Only Richardson stands to benefit from the Infill Application, and even that benefit is uncertain given the poor or marginal economics of many of its wells. The Commission should not allow it.

f. Venting of gas is permissible

In the hearing, Commissioners asked questions about venting of gas by the mine. It is appropriate that the Commission consider venting, but San Juan requests that the Commission consider the issue of venting gas in its proper context. First, San Juan has the right to vent gas under the Supreme Court decision of Amoco Production Co. v. Southern Ute Indian Tribe, 526 U.S. 865, 879 (1999) ("Southern Ute"), the terms of its state leases, and other authority. Second, it is appropriate to vent the less valuable gas resource as a necessary step in the development of the much more valuable coal resource. San Juan requests that the Commission contrast the slight and speculative value of vented gas (most of which would not be economically recoverable by conventional CBM wells) with the far greater value of coal whose recovery requires the venting of the gas.

The law consistently recognizes that the right to mine coal includes the right to vent gas. In the recent Supreme Court decision involving CBM, Southern Ute, 526 U.S. 865, 879 (1999),

the Supreme Court recognizes:

> It may be true, nonetheless, that the right to mine the coal implies the right to release gas incident to coal mining where it is necessary and reasonable to do so. The right to dissipate the CBM gas where reasonable and necessary to mine the coal does not, however, imply the ownership of the gas in the first instance. Rather, it simply reflects the established common law right of the owner of one mineral estate to use, and even damage a neighboring estate as necessary and reasonable to the extraction of his own minerals.

Decisions from other jurisdiction reflect what the Supreme Court referred to as "the established common law right" to vent gas. A quite recent decision involving the conflict between development of coal and coalbed methane was rendered this summer by the Supreme Court of Wyoming in the case of Newman v. RAG Wyoming Land Co., 2002 Wyo. 132 (2002): "No one questions the coal owner's right to ventilate coalbed methane in the course of mining. 'The grant of coal mining rights would be useless if it did not include the right to ventilate methane gas from the coal mining area.'" Newman, ¶ 30. The Wyoming court cites the decision of the Alabama Supreme Court in NCB Texas Nat'l Bank v. West, 631 So.2d 212, 229 (Ala. 1993), which holds that "[t]he grant of all the coal and mining rights includes the grant of those rights incident to, necessary to, mining coal, which include a qualified right to properly ventilate existing or proposed coal mining operations." San Juan's right to ventilate gas is well recognized in case law. The venting of gas is both necessary and customary in the underground coal mining industry. Indeed, it is required by MSHA as Lynn Woomer testified. See 30 CFR § 75.1700. Moreover, surface coal mines across New Mexico and the West have long liberated CBM to the air; royalties are not paid on that released gas.

San Juan's State coal leases expressly give San Juan the right to vent gas (San Juan Coal Co. Exhibit No. 4). Those leases provide:

> Coalbed methane gas is specifically excluded and reserved from this lease, except for small incidental quantities which may have to be vented or flared to achieve access to coal. This provision of the coal lease is consistent with the requirements of the New Mexico Coal Leasing Act which provides: "except for small incidental quantities which may be vented or flared to achieve access to the coal, any coalbed methane gas is excluded and reserved from the coal lease.

NMSA 1978, § 19-9-10(G).

In addition to San Juan's legal right to vent, it makes economic sense to do so. The amount and value of gas vented is small in comparison to the amount and value of coal recovered. Testimony established that the value of gas is small, in part because much of the gas vented could not be commercially produced. The volumes of gas that San Juan mine has vented historically have been in the range of 800,000 to 1,000,000 cubic feet per day, but this volume comes from up to 14 miles of gate roads, which provide far larger exposure to the migration of gas than any array of conventional CBM wells could provide. Mining acts as an enormous fracture, liberating far more gas than would conventional CBM wells. Even without the mine, most of the CBM that is vented would never be produced. Fortunately for the State, the coal provides great value to lands that show very little promise for gas development. San Juan requests the Commission recognize that value. In sum, the beneficiaries of the coal royalty stand to receive $275 million for the coal, and in the process, a relatively small amount of gas, much of it uneconomic to produce by conventional methods, is vented.

B. Richardson Has Not Met Its Burden to Establish that Two Wells Will Efficiently and Economically Drain 320 Acres

Regardless of the existence of San Juan's underground mine, and apart from the waste and safety issues discussed above, Richardson has not met its burden under the Oil and Gas Act to justify infill drilling. NMSA 1978 § 70-2-17.B provides:

> 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 shall consider the economic loss caused by the drilling of unnecessary wells, the protection of correlative rights..., the prevention of waste, the avoidance of the augmentation of risks 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.

(Emphasis added.) Pursuant to Section 17.B, the proposed additional Richardson wells are neither "efficient" nor "economic." It is not enough for Richardson to establish that wells in the infill area can drain 160 acres and not 320 acres. Even if the geology of the resource and the drainage radius of wells in parts of the infill area were compatible with infill spacing, Richardson must also establish that drilling infill wells is economic and efficient. Richardson has not met its burden. Testimony shows that infill wells would be neither economic nor efficient.

1. The Cox model is not reliable

Richardson relies on the model presented by its consultant, Mr. Cox, to justify the economics of drilling additional Fruitland coal wells in the application area. The model has many deficiencies, as probed by Commissioner Lee, and it is not a reliable or scientifically valid basis for quantifying the gas resource or establishing economics of the wells. After the hearing, Mr. Cox was given the opportunity to supplement the inadequacies of his model, but the information presented post-hearing does not correct the deficiencies.[7]

The model is faulty in many respects. Its more prominent deficiencies are outlined below:

1. The model has no boundary conditions, and thus it is not properly calibrated.

[7] Initially, San Juan notes that of the five booklets of data submitted to the Commission by Richardson on November 12, 2002, four are completely irrelevant, or contain outdated materials. Only Exhibit E contains any useable data, but as further demonstrated here and in the Affidavit of Dan Paul Smith on this subject, Exhibit E does not remedy the deficiencies of the model.

2. The model uses as its basis "analogy wells" 15 miles away. Those wells are located in a better part of the reservoir, with a much different regime of pressure and coal thickness, together with a superior Pictured Cliffs reservoir underlying the coal.

3. The model essentially uses the performance of the ROPCO Fee 6-1 Well, which is the best well in the so-called "analogy area." Using this well, when no well in the application area comes close to its production performance, obviously skews modeling results.

4. The model assumes that 80% of the wells in the application area will have inclining production for five years, while 20% will have flat production. However, in reviewing Richardson Exhibit C-10, 60% of Richardson's wells have either flat or declining production. Thus, the model ignores the actual production data from the application area.

5. The model does not match actual water production from existing wells. Also, Richardson could not inform the Commission of water rates used in the model. In fact, any water production data is suspect. Richardson's witnesses testified that water is not individually metered, but centrally collected from a number of wells and then arbitrarily allocated back to a well. Mr. Cox could also not inform the Commission of the effect of increasing or decreasing water production on his model.

6. The permeability used in the model is based on data from other regions of the San Juan Basin, which are inapplicable here. Also, how permeability, or permeability changes, may affect well performance in the model could not be explained.

7. Mr. Cox willfully ignored the substantial desorption data offered to Richardson by San Juan, which shows that the coal is (a) undersaturated, and (b) contains substantially lower gas content than Richardson asserts. (See Section II.B.2 of Closing Argument below).

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8. Richardson assumes that 30% of future production will come from the upper coal seams. However, in the years that coalbed methane wells have been developed in the mine area, neither Richardson nor any other operator has seen fit to complete a well in the thin upper coals in the area of San Juan's leases. There are no wells in this area completed in the upper coals. Richardson's actions is failing to complete wells in the upper coals speak more accurately to the economics of gas in those coals than does Mr. Cox's mathematical conjecture.

9. Deficiencies in the model of Mr. Cox are further described in San Juan's Motion to Strike, filed together with this Closing Argument, and the Affidavit of Dan Paul Smith that is attached to it.

The end result of the model is that Richardson derives a figure of 7.5 BCF of coal gas in place per section, when the actual figure is less than half that amount, as demonstrated by Dan Paul Smith and NSAI. In any event, most of the gas in place cannot be economically recovered.

2. Desorption data demonstrates that the model's hypothetical gas content is too high

Extensive desorption data collected by San Juan demonstrates that the coals are not saturated as Mr. Cox assumes and that the model's hypothetical gas content is too high. The work of Dan Paul Smith and NSAI, based on actual desorption data, shows much lower gas contents than those hypothesized by the Cox model. (See San Juan Coal Co. Exhibit Nos. 44-58.) As explained by San Juan witnesses, desorption data is a reliable measure of gas content. This testimony is corroborated by the very recent article by Walter B. Ayers, Jr. concerning coalbed gas in the San Juan and Powder River Basins. (See San Juan Coal Co. Exhibit No. 26.) Mr. Ayers states "...gas content of coal must be measured by desorbing samples in the laboratory. Core samples provide the most accurate results...." Ayers at p. 1881. The article also recognizes that, contrary to Mr. Cox's hypothesis, Fruitland coal is undersaturated (p. 1864).

The desorption data from San Juan Mine comes from 95 samples taken from 18 holes spread throughout the mine area. (See San Juan Coal Company's Motion to Supplement the Record, filed November 12, 2002.) Not only the data itself, but Mr. Cox's refusal of the opportunity to review this data casts further doubt upon the validity of the model. Mr. Cox's inflated estimate of gas content dramatically overstates the potential economics of Richardson's wells.

3. The infill wells are not economic

Mr. Cox's gas in place figures do not take into account the economics involved in recovering the gas; much of the gas in place is not economic to recover. Simply put, Richardson's numbers are not credible.

Even if the Commission assumed that Mr. Cox's Exhibit C-26 was correct, it still leads to little or no value for the coal gas. Mr. Cox stated that, the incremental gas recovered by infill drilling was 27 BCF, and that, assuming a gas price of $3.50/MCF, Richardson gets $1.00/MCF, for a total of $27 million dollars. Based on this statement, simple arithmetic shows that, of the $3.50 gas price, $2.50/MCF goes for royalty and other payments, operational costs, overhead, transportation, etc. Unfortunately, as Mr. Smith testified, current gas prices in the San Juan Basin are $2.40/MCF. Thus, the current value to Richardson is zero. As a result, there is no value to the gas, and Richardson cannot show that infill drilling is either economic or efficient.

Consistently, Mr. Smith and Mr. Bertoglio have established that many of Richardson's coal seam completions are not economic. Appropriate reduction of Mr. Cox's inflated gas content values further undercuts the economics of Richardson's infill wells. Under Section 17.B, it is neither economic nor efficient to drill additional wells.

The primary effect of infill drilling is to inflict damage on the more valuable coal resource. The primary impact of the wells is not to generate economic return to Richardson, but is to "augment risk" and inflict economic loss on San Juan and the State of New Mexico – a result not allowed by Section 17.B.

4. **Existing Pictured Cliffs wells already effectively provide Richardson with the drainage he seeks**

The application requests approval for four Fruitland coal wells per section. However, the data, and testimony by Mr. Bertoglio on behalf of San Juan, demonstrated that the "Pictured Cliffs" wells already drilled by Richardson are producing from the Fruitland coal. Moreover, Richardson's "Pictured Cliffs" wells are the better producers. (See Richardson Exhibit C-10.) Richardson' witness, Mr. Cox, admitted in the closing questioning that the Fruitland Coal and Pictured Cliffs are in communication. Thus, Richardson has already obtained the relief it has requested, and no additional Fruitland coal wells should be allowed in the application area. Moreover, the Pictured Cliffs wells serve to protect Richardson's correlative rights, even if other neighboring property owners were allowed, and decided to drill, two wells in the Fruitland coal per 320 acres. In addition, Richardson should be required to reclassify his "Pictured Cliffs' wells as Fruitland coal wells.

III. CONCLUSION

For the reasons stated, the Infill Applications should be denied.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing pleading was served upon the following counsel of record via first class mail this 19th day of November, 2002:

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