

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

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

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

**CASE NO. 12734
ORDER NO. R-11775-B**

ORDER OF THE OIL CONSERVATION COMMISSION

BY THE COMMISSION:

THIS MATTER came before the Oil Conservation Commission (hereinafter referred to as "the Commission") for evidentiary hearing on October 29, 30 and 31, 2002 at Santa Fe, New Mexico on application of Richardson Operating Company (hereinafter referred to as "Richardson"), *de novo*, opposed by San Juan Coal Company, a subsidiary of BHP Billiton Limited (hereinafter referred to as "San Juan"), and the Commission, having carefully considered the evidence, the pleadings and other materials submitted by the parties hereto, now, on this 19th day of December, 2002,

FINDS,

1. Notice has been given of the application and the hearing on this matter, and the Commission has jurisdiction of the parties and the subject matter herein.

2. In this matter, Richardson applies for an order creating a special infill area within the Basin-Fruitland Coal (Gas) Pool (hereinafter referred to as "the Pool"). Within the special infill area, Richardson requests that two producing coal gas wells be permitted within each 320-acre spacing unit. The proposed area encompasses Sections 4 through 6 of Township 29 North, Range 14 West, N.M.P.M., Section 1 of Township 29 North, Range 15 West, Sections 16, 19-21 and 28-33 of Township 30 North, Range 14 West, N.M.P.M. and Section 36 of Township 30 North, Range 15 West, N.M.P.M. San Juan opposes the application.

3. Richardson is the current operator of wells in the Pool and owns interests in both state and federal oil and gas leases within the proposed special infill area (hereinafter referred to as "the application area"). Richardson's rights under its leases extend from the surface to at least the base of the Pictured Cliffs formation.

4. The Pool is an unprorated gas pool and is governed by Rule 104.D(3) (19.15.3.104.D(3) NMAC) of the Rules and Regulations of the Oil Conservation Division. Rule 104.D(3) permits one well to be located within each 320-acre spacing unit.

5. The Pool is also governed by pool-specific rules, the "Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool" (hereinafter referred to as "the pool rules") established in Order No. R-8768 (and amended in Orders No. R-8768-A and R-8768-B). The pool rules require wells to be located in the northeast or southwest quarter of a single governmental section and no closer than 660 feet to the outer boundary of the unit nor closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary and permit an infill well to be drilled only after notice and hearing. Amendments to the pool rules have recently been enacted by the Oil Conservation Division in Order No. R-8768-C. The amendments permit one infill well to be drilled (or re-completed) within certain spacing units, but the Order of the Division expressly exempts the area encompassed by Richardson's application. Several applications for review *de novo* by the Commission have been filed in that matter.

6. If approved, Richardson's application would permit Richardson to re-complete eighteen existing Pictured Cliffs wells in the Fruitland formation; it would also permit Richardson to drill seven new wells and complete those wells in both formations.

7. Dugan Production Corp. (hereinafter referred to as "Dugan") forwarded a statement to the Commission after the hearing supporting Richardson's application. Dugan states that it owns oil and gas leases within the area covered by Richardson's application and believes that the application area should be developed on a well density of 160-acres or less to maximize recovery of coalbed methane prior to mining by San Juan.

8. San Juan opposes Richardson's application. San Juan is not an oil and gas operator; it is the operator of the San Juan Coal Mine. That mine is located approximately sixteen miles west of Farmington, New Mexico. San Juan holds leases to mine coal in the same area as the oil and gas operators hold leases to produce natural gas. San Juan claims that Richardson's application, seeking as it does increased well density in the Fruitland formation in the same area where coal mining is to occur, would make coal mining more

difficult and expensive, and that the hydraulic fracturing that would be used to stimulate the coalbed methane production would compromise mine safety. San Juan also claims that insufficient reserves of methane exist in the application area and therefore additional development is not warranted.

9. Well density in a specific pool may be increased when an operator is able to demonstrate that additional wells will increase the ultimate recovery of natural gas, not simply accelerate production. See, e.g., Order No. R-8768-C, NMSA 1978, § 70-2-17(B). Richardson seems to acknowledge that an application to accelerate production would not normally justify an increase in well density. However, Richardson (and Dugan) argue that this matter is unique --- accelerating production of natural gas from the Fruitland coal will prevent the waste of coalbed methane that will otherwise be destroyed when the coal is mined by San Juan. Richardson notes, and San Juan acknowledges, that gas found in the mine during operations by San Juan will simply be vented and owners of the gas not compensated for its loss. Thus, Richardson argues that its application will serve the goal of preventing waste of the natural gas in the coalbed while also protecting the correlative rights of the oil and gas leaseholders. Any acceleration of production that may occur, Richardson argues, is justified by the imminent destruction of the coal.

10. Richardson's point is well-taken and the application should be granted.

11. It is undisputed that San Juan intends to mine vast quantities of coal within the area encompassed by Richardson's application, and that San Juan intends to vent the coalbed methane rather than put it to beneficial use. It is also undisputed that the basal coal to be mined by San Juan is the source of a substantial proportion of the coalbed methane. The normal concern about the drilling of unnecessary wells does not arise when it is necessary to extract the resource quickly before its certain destruction. Prevention of waste is of greatest importance in this situation and is served by Richardson's application.

12. Furthermore, the evidence presented during the three-day hearing in this matter confirms that there are substantial recoverable reserves of coalbed methane gas in the application area, and production from wells in the application area will be both economic and efficient. The production records from wells in the vicinity demonstrate the existence of these resources. For example, Richardson's Bushman 6-1 Well when initially drilled showed gas and did not require extensive dewatering, and is producing at a median rate of 321 mcf per day. The Pittam Pond No. 1 well started out with minimal production, but climbed to 70 mcf per day and is still inclining. The State 36-3, a well located very near the mining operation, produced slowly when first completed in July that climbed to a daily production rate of 150 mcf/day. The State 16-1 started production at very low rates, but increased to over 100 mcf/day. Wells farther east and north are

showing inclining production five years after completion, and some are showing inclining production seven to eight years after completion. The WF State 36-1, 36-2 and 36-3 all are producing gas from within the application area. Even by San Juan's analysis, numerous wells in the southeastern portion of the application area are producing commercial quantities of gas and have significant reserves.

13. Richardson's wells in the application area have produced over 2.5 bcf since inception of the project around the year 2000. The production pattern to date suggests that some wells are still being dewatered and performance of these wells may increase with time.

14. The geologic evidence further confirms the potential of the area. The evidence shows that the application area is in the southern part of the San Juan Basin, outside the so-called fairway. The coals in the area are somewhat thinner than in the fairway, and the average thickness of the upper and the lower coal together is twenty-eight feet. The basal coal is of a consistent thickness across the application area, while the upper coals are thinner and more discontinuous. But the geologic evidence shows that areas where the coalbed is two feet or more thick, it is potentially gas-productive, like coalbed producing zones present in other basins. The various isopach maps of the basal Fruitland coal presented indicate that the coalbed is relatively consistent across the application area, with a range of thickness between eight feet and eighteen feet, and an average thickness of fourteen feet. The isopach maps presented of the upper Fruitland coal indicate that the upper coalbeds have a range of thickness over the application area from three feet to twenty-one feet. Such geologic evidence corroborates the production data that commercial quantities of gas exist within the application area.

15. The other evidence presented by the parties (coring data, isopach analysis, pressure analysis) also confirms that the area is capable of coalbed methane production in commercial quantities.

16. San Juan responded to this evidence during the hearing by arguing that the bulk of the wells in the area will not be commercially viable, and also argued that the costs of water disposal will overwhelm the benefit of any gas production. The evidence does not support these arguments. Although some wells in the application area are not stellar performers, others produce very well and are undeniably commercial. The bulk of the wells Richardson proposes to add in the application area are re-completions and very little production is required to make a commercially viable re-completion. Several of the wells within the application area produce quantities of gas that could support a new well. The better conditions appear to be located in the southeastern portion of the application area, and commercial production is certainly to be had there.

17. Efficient disposal of water is a major issue in coalbed methane development. Richardson's water disposal system is evolving, and will eventually reduce the costs of water disposal. The Salty Dog No. 1 disposal well is in operation in the northeast quarter of Section 1 (T.29, R.14W), and the Salty Dog No. 2 is in operation in the southeast quarter of Section 5. The capacity of these wells is approximately 1,000 to 1,500 barrels per day. Richardson supplements these wells with commercial disposal services. Richardson plans to permit additional wells since the present system is running at capacity. These wells are to be located in Sections 28, 30 and 31 (T.30N, R.14W). One of these wells will be capable of disposing of 10,000 to 12,000 barrels per day, and the others approximately 1,000 to 1,500 barrels per day. The operating costs of Richardson's entire operation will be reduced ultimately from one dollar per barrel to twelve cents per barrel. This plan is reasonable, and Richardson uses his own forces and equipment to the extent possible to keep costs down.

18. While the evidence suggests that commercial production can be obtained within the application area, it is also clear that Richardson has overestimated the amount of gas which may ultimately be recovered within the application area. Some of San Juan's arguments concerning some of Richardson's evidence, in particular the simulation evidence, are well-taken.

19. Richardson's petroleum engineer Dave O. Cox presented testimony that turned out to have been based on a computer simulation of the predicted performance of wells within the Deep Lease and the Deep Lease Extension. From the simulation, Mr. Cox testified that 160-acre spacing in the application area resulted in a recovery of 1.1 bcf per well and 320-acre spacing resulted in a recovery of 1.29 bcf per well. Mr. Cox testified that the ultimate recovery in the application area on 160-acre spacing was 66 bcf, while at 320-acre spacing it was only 39 bcf. Thus, Mr. Cox testified that granting the application would increase the value of the ultimate production from the application area by \$27 million.

20. The simulation however is misleading and the results cannot be accepted. Computer simulations (or "models") can be very helpful in predicting future performance so long as certain basic facts are known. But simulations rely heavily on the assumptions that the computer is asked to make; if few facts are known and too many assumptions are made, the accuracy and reliability of the results suffers. In his simulation Mr. Cox made far too many assumptions, based to be sure on his extensive experience in the San Juan Basin, but such evidence is more properly presented as engineering judgments and opinions, not as a simulation of actual results. In many cases, the results obtained by the computer simulation were identical to the assumptions the computer was required to make in the input deck --- and the same data that was fed into the computer was then presented as "results." The presentation of engineering opinions through a simulation

seems misleading under these circumstances, particularly as many of the assumptions themselves are reasonable and based on experience within the San Juan Basin.

21. Other issues with the simulation were pointed out during Commissioner Lee's discussion of the results with Mr. Cox during the hearing, and satisfactory resolution of those issues has not been reached either.

22. Although from the foregoing it is apparent that Richardson has overestimated the amount of gas present within the application area, it also appears that the estimates of San Juan are overly pessimistic and the truth lies somewhere in between. In any event, as noted earlier, determining precisely the level of production that is deemed "commercial" within the Deep Lease, the Deep Lease Extension and the Twin Peaks area is an academic exercise because of the impending destruction of the coal by mining. If Richardson is willing to accept the risk, the application should be approved. However, the evidence also points to some level of commercial production, and the experience of Richardson and others in the area demonstrates that this finding is sound.

23. Richardson's application achieves accelerated production so as to prevent the waste of the coalbed methane resources and the evidence demonstrates that coalbed methane resources exist in the application area. Richardson's application will prevent waste of the coalbed methane resources by accelerating the production of gas from the Fruitland formation prior to San Juan mining the coal and venting the methane gas.

24. San Juan's principal objections to Richardson's application seem to be that Richardson's proposed activities will compromise mine safety and increase the cost to the mine of conducting mining operations.

25. San Juan presented testimony that coal from the San Juan Coal Mine is the sole source of coal for the San Juan Generating Station, a power station owned by Public Service Company of New Mexico and others. A contract between San Juan and Public Service Company of New Mexico obligates San Juan to supply approximately 100 million tons of coal to the San Juan Generating Station through the year 2017.

26. Until recently the San Juan Coal Mine operated as a strip mine, but the dip of the coal seams towards the east made further strip mining economically infeasible. San Juan developed an underground mine so that mining could continue. The strip mine (and an adjoining strip mine known as the La Plata Mine) will be closed.

27. In the strip mine, San Juan mined coal from the "8" and "9" coal seams; in the underground operation, San Juan will mine only the "8" seam, the basal coal seam.

28. The underground mine of San Juan will progress through longwall mining of "panels" 1,000 feet wide by 10,000 feet long. The mine is separated into "mining districts" that are connected by "mains" and "gate roads" that are tunnels excavated in the coal by means of continuous mining machines. The panels themselves are removed during mining by an immense longwall mining apparatus. The longwall mining apparatus is 1,000 feet long (the width of the panel) and it progresses 10,000 feet through the coal until it reaches the end of the panel. The roof immediately over the machine is supported during mining by 178 shields that are part of the longwall mining apparatus; once the coal is removed the shields are moved forward and the remaining coal and the roof above the coal are permitted to collapse. This collapsed area behind the apparatus is called the "gob"; it is comprised of loose coal and rock that collapses following removal of the coal and the shield. Removal of a single panel by the longwall mining machine can take an entire year. San Juan intends to mine in each district, mining in an easterly direction through the Deep Lease, the Deep Lease Extension and, perhaps, the Twin Peaks area if leases are granted there.

29. San Juan began underground mining in a pilot project around 1997. At the same time, San Juan began planning the full-blown underground mine, which is now in operation.

30. San Juan has leases to mine coal issued by the United States and the State of New Mexico, State Land Office. The "Deep Lease" consists of a lease from the United States issued in 1980, and permits mining of coal in Township 30 North, Range 15 West, Sections 13 (S/2), 14 (S/2), 23, 24, 25, 26 and 35 (Lots 1-4, N/2, N/2S/2). See San Juan's Exhibit No. 2. The "Deep Lease Extension" is a lease from the United States issued in March 2001, and permits mining of coal in Sections 17, 18, 19, 20, 29, 30 and 31 (Lots 1-4, N/2, N/2S/2). See San Juan's Exhibit No. 3. A lease from the State of New Mexico was issued in 1991, and permits mining of coal in portions of Section 32. See San Juan's Exhibit No. 4. Another lease from the State of New Mexico was issued in 1991 that permits mining of coal in portions of Section 36. See San Juan's Exhibit No. 5. It seems to be undisputed that Richardson's oil and gas leases pre-date San Juan's coal leases. *

31. Within San Juan's leases, approximately seventy-six oil and gas wells exist.

32. San Juan is also interested in obtaining leases east of the Deep Lease Extension, an area referred to during the proceedings as the "Twin Peaks" area. San Juan plans to acquire leases to the two sections east of and adjoining the Deep Lease Extension by lease from the federal government.

33. The coal lease granted to San Juan by the United States in 2001 contains conditions or stipulations regarding the pre-existing oil and gas leases. The lease is made "... subject to all prior existing rights including the right of oil and gas lessees & [sic] other *

mineral lessees and surface owners." The lease also specifies that it is the "sole responsibility" of San Juan "to clear the coal tract of any legal encumbrances or pre-existing land uses that would impede or prevent coal mining on the tract." Coalbed methane is specifically excluded from the State leases, except incidental amounts that may have to be vented or flared in connection with mining.

34. In addition, San Juan agreed with the Bureau of Land Management in 1998 in connection with an amendment to the Farmington Area Resource Management Plan that San Juan would mitigate adverse impacts of the coal mining activities on oil and gas production. San Juan pledged to "take all reasonable steps to avoid adverse impacts on oil and gas resource production, gathering and transportation facilities." Among the steps discussed was "mining around existing wellbores...". San Juan pledged to compensate producers in appropriate circumstances if coal mining affects or destroys the productive capacity of oil and gas wells. See Richardson's Exhibit A-8.

35. After the Deep Lease Extension was approved by the Bureau of Land Management, San Juan lodged a protest with the Bureau concerning Richardson's and Dugan's applications for permits to drill within the area, claiming that the steel casing would have an adverse impact on the continuous mining machines and that hydraulic fracturing would have an adverse impact on roof stability and that the risk of spontaneous combustion would increase if hydraulic fracturing were performed. San Juan requested that stipulations be placed on the permits to drill to address these concerns. The Farmington Field Office denied the protest, noting the stipulation contained in the 2001 lease for the Deep Lease Extension and stating that the proposed stipulations would render the leases uneconomic and "constitute an unfair burden on the oil and gas lessees who have priority rights in developing their associated mineral resource." See Richardson, Exhibit A-26. The decision was appealed to the State Office (which largely affirmed the decision but remanded it for further examination of an environmental assessment the Field Office had performed) and the matter was apparently settled after an appeal to the Interior Board of Land Appeals.

36. Initially, San Juan, together with the Bureau of Land Management, sought to accelerate production of natural gas within the mine area, believing that the accelerated production would enhance the safety of the mining operations by lessening the risk of explosions and fire from the methane gas, some of which would be removed by the oil and gas operators. However, in August 2001, San Juan changed its position and claimed it had concerns that the hydraulic fracturing and de-watering operations inherent in coalbed methane production would elevate the risk of spontaneous combustion. During the hearing of this matter, San Juan reiterated some of these concerns and also complained that Richardson's activities would increase the probability of roof collapse, and that the existing well casings would require use of large protection pillars rendering mining less efficient.

37. The Bureau of Land Management apparently still desires accelerated production of coalbed methane in advance of mining.

38. One of San Juan's principal concerns about the application is with hydraulic fracturing. Hydraulic fracturing is necessary in most cases to achieve optimal production of coalbed methane. See Order No. R-11133-A, pages 10-12. Coal is already naturally fractured, through its cleat system, and oil and gas operators use hydraulic fracturing to enhance the natural cleat system --- proppants in the fracturing fluids help hold the resulting fissures open.

39. Before San Juan's claims concerning hydraulic fracturing are addressed, it should be noted that mining the basal coal already presents a number of engineering challenges for San Juan. Tests of the coal in the mine area indicate that an elevated level of hydrogen sulfide is present, and as a result the mining environment is highly corrosive. The environment has apparently proved more corrosive than originally believed, as San Juan's equipment is corroding quickly and roof bolts have failed. San Juan does not allege that any of these conditions are exacerbated by Richardson's activities.

40. Mine safety appears to be the sole responsibility of the mine operator. The federal Mine Safety and Health Act of 1977 (hereinafter referred to as "the Act") and safety regulations of the Mine Safety and Health Administration (hereinafter referred to as "MSHA") require that an underground coal mine operator locate and avoid each existing oil and natural gas well when mining:

(a) Each operator of a coal mine shall take reasonable measures to locate oil and gas wells penetrating coalbeds or any underground area of a coal mine. When located, such operator shall establish and maintain barriers around such oil and gas wells in accordance with State laws and regulations, except that such barriers shall not be less than three hundred feet in diameter, unless the Secretary or his authorized representative permits a lesser barrier consistent with the applicable State laws and regulations where such lesser barrier will be adequate to protect against hazards from such wells to the miners in such mine, or unless the Secretary or his authorized representative requires a greater barrier where the depth of the mine, other geologic conditions, or other factors warrant such a greater barrier.

30 U.S.C. § 877(a). Regulations of MSHA are identical. See 30 C.F.R. § 75.1700.

41. San Juan's witness testified that the Act and MSHA's regulations require the mine to leave a protection pillar around each oil and gas well in the area where

underground coal mining will occur. According to witnesses testifying at the hearing, MSHA has interpreted 30 U.S.C. § 877(a) as requiring that the minimum radius of the pillar to the open face be no less than 300 feet (or 600 feet in total *diameter*). While the Act and regulations do not seem to require a 600-foot diameter pillar, the witnesses seemed to agree that MSHA personnel interpret the regulations in this manner.

42. Witnesses testified that MSHA permits coal mining right through an oil or gas well if the casing is milled out within the coal seam and the wellbore is plugged with expanding cement, apparently pursuant to the provision in the Act that permits a smaller barrier if it "... will be adequate to protect against hazards ...". The witnesses testified that a well cannot be prepared in this manner and mined through without the consent of the oil and gas operator, and witnesses further testified that San Juan has not acquired rights to any of the oil and gas wells in the application area (although San Juan has apparently been negotiating with Richardson on this issue). Of the seventy-six oil and gas wells present in the coal leases, only three have been re-entered and prepared for mining (the New Mexico Federal K-3, in District 1 of the mine plan, and two other unspecified wells), and these wells will be mined through. Unless and until an agreement is reached with Richardson, San Juan's witnesses testified it will be obligated to leave protection pillars around each well owned by Richardson. However, it appears from the testimony that only wells actually located in the mining districts or within 300 feet of a district must be protected with protection pillars or milled and plugged in the manner described.

43. With respect to oil and gas wells that San Juan is unable to acquire, the Act and the MSHA regulations require that the mine operator leave a protection pillar as described above. The small size of the wellbore and/or casing, and the typical length of a fracture in the Fruitland coal, argues that the margin of safety set forth in the Act and regulations is more than adequate for these wells.

44. San Juan also seems to claim that the Act and regulations themselves are inadequate. The evidence and testimony do not support this argument. It is extremely unlikely that a normal hydraulic fracturing job will create fractures that extend 300 feet from a wellbore. The evidence suggests that fractures will not travel into the shales and mudstones above the basal coal, but instead will progress through the coal to the boundary with the rock layers above (the "roof") and run along this boundary. The fractures are unlikely to leave the coal. Thus, it appears that in most cases, fractures should not extend beyond the protection pillars required by MSHA, will not extend into the rocks above the coal, and will not otherwise endanger the mining operations. If San Juan is concerned that fractures may extend further, its obligation under the Act seems to be to leave a larger barrier to assure that the mine workers and the mine are protected.

45. San Juan's argument that the MSHA regulations are inadequate suffers also from a lack of credibility because San Juan has not alerted MSHA to its concerns related to hydraulic fracturing and the inadequacy of the regulations. Although one of San Juan's witnesses stated that the matter had been discussed with an employee of the Bureau of Land Management and seemed to argue that this was tantamount to addressing the matter with MSHA, it seems that such an important issue should have been addressed directly with MSHA.

46. With respect to oil and gas wells that San Juan is able to acquire and properly prepare for mining, San Juan hopes to dispense with the required protection pillar. San Juan's argument with respect to these situations is that the hydraulic fracturing required to stimulate the coalbed methane wells will weaken the already weak roof and cause the gob seals to leak. San Juan claims the fractures will affect the load transferring capabilities of support structures. San Juan identified the introduction of water during hydraulic fracturing as another concern.

47. As has been noted several times now, San Juan's plan to mine through the area around each existing oil and gas well can only be exercised so long as the miners are protected against the hazards of the existing oil and gas wells, and it appears to be San Juan's sole responsibility to do so.

48. On the roof stability issue, it is evident that San Juan is more than capable of addressing any incremental increase in roof instability caused by hydraulic fracturing. As San Juan's witness Mr. Abrahamse pointed out, the roof of the major passageways consists of only two feet of coal and the roof above the coal consists of loose mudstones and shales, and is already unstable even without fractures. The mine experienced an unusual number of roof falls (five) during the development of the gate roads and mains. These conditions are apparently not unique to San Juan; the western region of the United States seems to be prone to poor roof conditions.

49. To address the unstable roof conditions, San Juan has taken numerous additional safety measures. It has enhanced its roof control systems. Additional bolting, cribbing and meshing are being installed. Bolts are now installed using a dry drilling process to prevent introducing water into the rocks. Eight-foot roof bolts are used with wire mesh (to prevent fretting), and monster mats and beams are used as well. Cribbing (direct support of the roof from the floor) is now placed in appropriate circumstances. During the development of the main heading roads, San Juan cut openings through the coal seam that were only nine to ten feet high in the fourteen foot seam, leaving a more secure roof of up to five feet thick.

50. These extensive precautions appear more than adequate to address any incremental increased risk posed by additional hydraulic fracturing in the application area. Not only are the locations of each well known to San Juan and mapped as required by the Act and MSHA regulations, but San Juan seems to have extensive knowledge of mine safety practices and techniques and uses a range of tools to address roof stability issues. Special precautions such as those described by Mr. Abrahamse can be taken to prevent falls in areas where a well bore is located. And, if conditions are too difficult, San Juan always has the option of leaving a protection pillar to further enhance safety.

51. San Juan's witness identified another issue related to roof falls, and that was the potential for a roof failure in front of the shields at the longwall machine. San Juan's concerns on this point were indefinite. Although San Juan's witness testified that fractures near a well bore might fail to transfer the load properly to rocks ahead of the longwall apparatus, San Juan seemed more concerned with the potential for spontaneous combustion after temporary suspension of operations while rock is cleared. The spontaneous combustion issue is addressed below, and, as discussed in paragraph 46, it is highly unlikely that fractures will travel in the rock strata above the coal; since the fractures will remain in the coal, the failures described by San Juan are not likely to occur.

52. San Juan's complaint about the use of water during hydraulic fracturing is not convincing. Use of water during hydraulic fracturing does not seem to pose much of an additional hazard to coal mining, because most of the frac fluids are recovered immediately following fracturing. Moreover, the coal already contains substantial amounts of water, substantially more than is introduced in a fracturing operation.

53. The paper of William P. Diamond (Richardson's Exhibit C-28) supports the view that hydraulic fracturing is not a threat to coal mining operations; its conclusion (although based on coal mines in other states and regions) seems to suggest that roof instability cannot be definitively tied to hydraulic fracturing of wells. The operations described in Mr. Diamond's paper involved fractures that were actually mined through --- and in those cases roof stability was not affected.

54. San Juan also seems more than capable of addressing any incremental risk of spontaneous combustion resulting from hydraulic fracturing.

55. Spontaneous combustion in coal is caused by oxidation and hydration. The risk of spontaneous combustion increases whenever loose material is present such as in the gob, where water or oxygen are present or where the coal is dry. The risk of spontaneous combustion in the San Juan Coal Mine is considered to be slightly greater than in the eastern United States. Apparently the risk of spontaneous combustion is

independent of the danger of a build up of explosive concentrations of methane gas (which San Juan discussed very little). San Juan claims that the fractures created by fracturing will aerate the coal, and permit air to leak through seals into the gob.

56. San Juan conceded that wells outside of the mining districts do not create a risk of spontaneous combustion (or of roof instability).

57. Within mining districts, MSHA regulations require methane gas to be vented to prevent development of an explosive concentration of methane. San Juan's witnesses described the extensive ventilation program at the mine that includes direct ventilation and monitoring. San Juan has sunk a large ventilation shaft from the surface to the mine near Panel 101, and has created six gob vent boreholes in Panel 101 that will be exposed to the surface as mining progresses. San Juan is venting approximately 800,000 to 1 million cubic feet of methane gas each day through the ventilation system.

58. A ventilation circuit is also used to prevent combustion of methane gas at the mining face. The air is pumped into the five portal areas of the mine, travels into the mine and passes across the face at the longwall machine. The air is then exhausted through the various gate roads to the ventilation shaft. If, during monitoring through the atmospheric monitoring system, or after sampling with a bag or tube bundle, the methane concentration is found to be too high at the working face, curtains must be installed or auxiliary fans installed to bring the concentration down. If concentrations are high enough, personnel are evacuated until the situation can be controlled.

59. Unfortunately, although ventilation controls the buildup of methane gas, the risk of spontaneous combustion increases with exposure to oxygen. Thus, the gob is carefully controlled to guard against spontaneous combustion through what was described as a "bleederless" ventilation system. The bleederless system at San Juan seals off the blocks of coal in the adjoining gate roads and limits the air-flow across the gob. See San Juan's Exhibit No. 19. The blocks of coal serve as anchor points for the seals, which are permanent walls built of concrete blocks or poured concrete. They are sealed to the adjoining rock with special materials and their construction is strictly governed by MSHA regulations. Pure nitrogen is pumped into the area behind the seals to neutralize the atmosphere and prevent combustion. The nitrogen displaces the oxygen and thus reduces the potential for spontaneous combustion. It is injected some distance behind the longwall face so that the air at the face is fresh enough for the workers. The gases in the gob are carefully monitored and analyzed. MSHA has approved the use of the bleederless system at San Juan, the second coal mine in the United States to utilize such a system.

60. These measures, particularly the monitoring efforts, convince this body that the risk of combustion (either of methane or from spontaneous combustion of coal) will be

carefully controlled by San Juan. Even assuming cracks left from hydraulic fracturing exist in some protection pillars or blocks of coal near the gob left by hydraulic fracturing, the location of each wellbore will be known to San Juan and special precautions can be taken if needed (including leaving a protection pillar around the wellbore if needed). Nothing presented by San Juan during the hearing of this matter suggests that the precautionary measures described will fail to control the risk presented by Richardson's wells.

* 61. Finally, as noted, San Juan argues that coal will be more difficult and expensive to extract if protection pillars must be left in the mine. The apparent argument is that the Commission must consider the "waste" of the coal resource.

* 62. However, the Commission lacks jurisdiction to consider such a claim. To be sure, the Commission has jurisdiction to prevent "waste." NMSA 1978, § 70-2-11(A). But "waste" protected by the Oil and Gas Act is defined in terms of "crude petroleum oil or natural gas," not coal. See NMSA 1978, § 70-2-2. The definitions of "waste" contained in section 70-2-3 refer to waste as it is "generally understood in the oil and gas business," not the coal business. And the Oil and Gas Act expressly provides the Commission with jurisdiction to consider waste of potash if affected by oil and gas operations (NMSA 1978, § 70-2-6(A)) but fails to provide parallel authority to consider waste of coal.

63. San Juan argues that the Commission must consider the possibility that Richardson's operations will threaten "injury to neighboring leases or properties." See NMSA 1978, § 70-2-12(B)(7)). It not necessary to directly address this argument, as the evidence does not support a finding that granting Richardson's application will harm San Juan's operations (see above). Moreover, it is most likely that the statement in section 70-2-12(B)(7) applies solely to neighboring oil and gas leases and properties, and that the words "lease" and "property" have the meanings as understood in the oil and gas industry. See 8 Williams & Myers, Oil and Gas Law (definitions of "lease" and "property").

* 64. San Juan also argues that NMSA 1976, § 70-2-26 permits the Commission to consider San Juan's objections. That section permits secretarial review of a decision of the Commission, and provides that *the Secretary* may enter such order as may be required under the circumstances in the "public interest" and "... having due regard for the conservation of the state's oil, gas and mineral resources ...". However, that section does not on its face apply to *the Commission*. Even assuming it did and the Commission could consider the coal resource, "conservation" of the state's mineral resources is not at issue since the MSHA regulations require the use of protection pillars or other measures adequate to protect worker safety. The conflict here is not between oil and gas producers and coal miners, but between San Juan's obligation to its workers under the Act and MSHA regulations and its plan of operations.

65. The application of Richardson should be granted, for the reasons discussed above.

66. Prior to the hearing in this matter, Richardson filed a motion to dismiss the protest of San Juan. Richardson argues in the motion that San Juan's protest must be denied because San Juan lacks standing in this matter. San Juan argues that Richardson's application put the coal mining plans and activities at issue, and that Richardson's application has the potential to harm San Juan's interests.

67. Rule 1203.A of the Rules and Regulations of the Oil Conservation Division (19.15.14.1203.A NMAC) provides that "... any ... person may apply for a hearing." Moreover, Rule 4(b) of the pool rules permit an "interested party" to appear and participate. These rules explicitly permit San Juan to appear and participate in these matters.

68. In order to obtain standing for *judicial* review in New Mexico, litigants must allege that a direct injury might occur as a result of the court proceeding. See *New Mexico Right to Choose/NARAL v. Johnson*, 1999-NMSC-5, paragraph 61, 126 N.M. 788, 975 P.2d 841; *De Vargas Savings & Loan Ass'n v. Campbell*, 87 N.M. 469, 472, 535 P.2d 1320, 1323 (1975); *Ramirez v. City of Santa Fe*, 115 N.M. 417, 420, 852 P.2d 690, 693 (Ct. App. 1993); *City of Las Cruces v. El Paso Elec. Co.*, 1998-NMSC-6, P16, 124 N.M. 640, 954 P.2d 72. San Juan's allegations herein (that if Richardson's application were approved it would suffer injury) seem adequate to meet the judicial test. Between Rule 103.A., Rule 4(b) of the pool rules, and the allegations of injury by San Juan, it seems certain that San Juan has standing in this administrative proceeding, whatever the applicable standard.

* 69. Richardson also argues in the motion that San Juan's protest must be denied because of the priority of Richardson's rights under the various oil and gas leases and the various stipulations imposed in those leases. However, this body has explained recently that its function is not to determine the validity of any title, or the validity or continuation in force and effect of any oil and gas lease. See Order No. R-11700-B ("Conclusion of Law"). The conflicting leases present a very difficult problem; the problem seems to be an emerging one in the concurrent development of coalbed methane and coal. See 6 *American Law of Mining* § 200.04[2][c] (1997) ("Coal v. Oil and Gas Development"). However, the priority of the various leases is a matter for the courts, is not a matter that this body can address, and is not a matter upon which a decision in this matter should be based.

70. The other grounds asserted in the motion to dismiss are also unavailing and the motion to dismiss should be denied.

- Parties agree re priorities

71. So that the Commission could understand the assumptions upon which Mr. Cox' simulation was based, Mr. Cox was requested to provide back-up data, which Richardson submitted on November 12. San Juan subsequently filed an objection to the data, and filed a Motion to Strike all the supplemental materials. San Juan argues that some of the material is from other proceedings before the Division and Richardson did not make the material a part of the record during the hearing.

72. The material submitted by Mr. Cox is not particularly relevant and, as noted above, the Commission specifically rejects the results of the computer simulation that the material purports to support. The material was requested by the Commission and Exhibit E in particular has been very helpful in assessing the results of the simulation and therefore should become a part of the record of these proceedings. However, Exhibit E-4 is a portion of the transcript from Case No. 12888, a case that is presently before the Commission on several applications for review *de novo*. While the Commission may agree to take administrative notice of the Division's record in Case No. 12888 during its review *de novo*, it is premature to address that issue. This material should not become a matter of record and should not be considered. The Motion to Strike should be granted with respect to Exhibit E-4, and denied with respect to the remaining "E" exhibits.

73. Subsequent to Mr. Cox's filing, San Juan filed a Motion to Supplement the record with the Affidavit of Dan Paul Smith, a witness for San Juan during the hearing of this matter. San Juan argues that Mr. Smith's affidavit is necessary to supplement his testimony during the hearing concerning desorption data. During questioning by Commissioner Lee, Mr. Smith had testified that he did not have the desorption data available and had left the data at his office in Houston. Commissioner Lee did not request to look at any material and San Juan made no mention of the need to supplement the record on this point during the hearing. San Juan argues that since Mr. Cox was permitted to submit additional data, Mr. Smith should also be permitted to do so. Richardson opposes this supplementation of the record, pointing out that this material should have been submitted during the hearing, and that to permit supplementation would deny Richardson the right to cross examine Mr. Smith concerning it.

74. San Juan's motion should be denied. Just because Mr. Cox was asked to provide additional data does not mean that each party should now be permitted to provide additional materials and testimony that were not presented during the hearing. The Commission did not request additional data from Mr. Smith like it did from Mr. Cox. San Juan did not object to the Commission's request of Mr. Cox. With the exception of the data supplied by Mr. Cox, the record was closed following the three-day hearing and additional evidentiary submissions are not appropriate.

* 75. Two additional points need to be made. It is evident that San Juan has failed to plan for the disposition of the oil and gas wells in the application area. San Juan planned its underground mining operation beginning in 1997 and committed huge financial resources to the underground mine: the longwall mining apparatus alone cost over \$150 million. Yet, during the hearing it became apparent that San Juan still has no discernable plan for dealing with the seventy-six existing oil and gas wells present within its coal leases. San Juan's failure to plan for these wells is more puzzling because of the stakes: San Juan is the only source of coal for a major power station that provides a great deal of the electricity used in the State of New Mexico. Richardson's proposal to drill seven additional wells and re-complete eighteen more has to be viewed with these facts in mind. Seven additional wellbores and eighteen re-completions will not add appreciably to San Juan's difficulties, and restricting Richardson's development will not ameliorate San Juan's failure to reasonably plan its underground mining operation. San Juan's argument that severe economic consequences will flow from the granting of Richardson's application is thus severely strained; but it is also apparent that it is a problem largely of its own making.

* 76. Second, coalbed methane development and coal mining have been performed cooperatively in other parts of the country, and nothing in the record of these proceedings suggests a technical impediment to similar coordinated development is present here. Many of the technical obstacles identified by San Juan have already been addressed in its extensive roof protection program and the implementation of the new bleederless ventilation system. Cooperation with the oil and gas industry could lead to additional innovative techniques to further improve safety. The resources, coal and coalbed methane, are simply too valuable to the nation's energy security to simply dismiss one resource (coalbed methane) as "not as valuable" as another. San Juan's extensive planning for this project should have included a plan that would permit both coal mining and the development of the coalbed methane resource so waste of either could be avoided. The Bureau of Land Management sought to accomplish just that objective by encouraging Richardson to recover as much coalbed methane as possible; San Juan should not only follow the Bureau's lead, but should also seek ways to put the methane it will otherwise vent and waste to beneficial use.

IT IS THEREFORE ORDERED THAT:

1. An exception to Rule 4 of the Special Rules and Regulations for the Basin-Fruitland Coal (Gas) Pool and Rule 104.D(3) (19.15.3.104.D(3) NMAC) shall be and hereby is granted. The applicant, Richardson Operating Company, is hereby authorized to drill, complete and produce an optional infill well within each 320-acre gas spacing unit within the previously described special infill area.

2. The following conditions shall apply to the authority granted by this Order:

a. The initial coalbed methane well located on a 320-acre spacing unit shall be located in compliance with the setback and quarter section placement requirements set forth in Rule 7 of the pool rules.

b. An infill coalbed methane well on an existing 320-acre unit shall be located in the quarter section of the unit not already containing a Basin-Fruitland coal gas well, and shall be located in compliance with the setback requirements set forth in Rule 7 of the pool rules.

c. The plat (Form C-102) accompanying an Application for Permit to Drill for a subsequent infill well on an existing unit shall have outlined thereon the boundaries of the unit and shall show the location of the existing Basin-Fruitland coal gas well plus the proposed new infill well.

3. The Motion to Dismiss filed by Richardson shall be and hereby is denied, for the reasons set forth above.

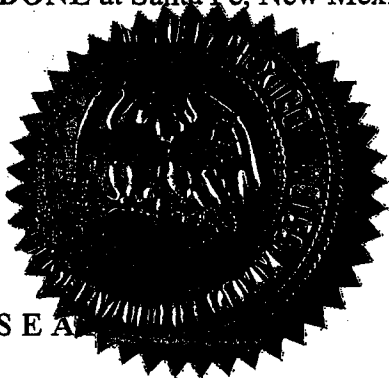
4. The Motion to Strike of San Juan shall be and hereby is granted and denied in part, as set forth above.

5. The Motion to Supplement the Record of San Juan shall be and hereby is denied.

6. Inasmuch as Commissioner Lee is participating in the meeting during which this order is issued by conference telephone, and will be unable to execute the Order, the Chair is hereby delegated to execute the Order on behalf of the Commission.

7. Jurisdiction is retained for the entry of such further orders in this matter as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Lori Wrotenbery
By: LORI WROTENBERY, CHAIR

SEAL