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FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellant,

vs. **No. D-0117-CV-2000-1449**

NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

NOTICE OF HEARING

A hearing in this case is set before the HONORABLE DANIEL A. SANCHEZ as follows:

Date of Hearing: DECEMBER 7, 2000

Time of Hearing: 9:00 A.M.

Length of Hearing: TEN MINUTES

Place of Hearing: JUDGE SANCHEZ' COURTROOM

Matter(s) to be Heard: PRESENTMENT OF ORDER TO INTERVENE AND CONSOLIDATE

THE HONORABLE DANIEL A. SANCHEZ

By _____

Notice mailed or delivered on date of filing to parties listed on attached sheet.

ALL PARTIES ENTITLED TO NOTICE

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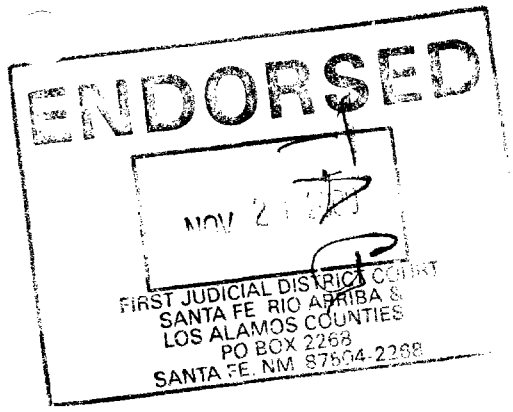

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

MOTION TO STRIKE WHITING'S PLEADINGS

Appellants Pendragon Energy Partners, Inc., Pendragon Resources LP, and Edwards Energy Corporation, ("Pendragon"), by counsel, pursuant to NMRA 1-012(F) submit this Motion to Strike Whiting Petroleum Corporation and Maralex Resources, Inc.'s ("Whiting") Motion to Dismiss Pendragon's Appeal and to strike its Response to Pendragon's Statement of Appellate Issues. As grounds, Pendragon states as follows:

Introduction

The case before this Court is the administrative appeal from the Commission's Order below. Whiting claims that it is entitled to intervene as a matter of right in this appeal under NMRA 1-024(A)(2), but this Court has not granted Whiting's application for intervention, and so Whiting is not a party to the appeal. Whiting was entitled to appeal as a matter of right from the Commission's Order, but for whatever reason it chose not to do so. Because Whiting has failed to show all of the elements required for intervention under Rule 24(A)(2), its Motion to Intervene

should be denied.

Argument

Yet even before its Motion to Intervene has been ruled upon, Whiting "jumps the gun" and files a Motion to Dismiss the Appeal. Without even waiting for permission to join this action as a party, Whiting presumptively seeks to barge in as an uninvited guest, not to contribute to the orderly resolution of this appeal, but rather to summarily end it.

It is the height of arrogance to file a motion to dismiss a proceeding in which the movant is not a party. Whiting's application to intervene has not been granted by the Court, and Whiting does not even extend the courtesy to the Court of waiting for the Court's ruling on Whiting's Motion to Intervene before seeking relief as if Whiting were a party.

In its Response to Pendragon's Statement of Appellate Issues, Whiting is attempting to address the merits of the appeal without leave to join the appeal as a party. Because Whiting is not a party to this appeal, it has no standing to participate in this appeal, much less request that the appeal be dismissed. Whiting's pleadings are simply premature, and they should be stricken.

Whether or not there is substantial evidence to support either the affirmance or the reversal of the Commission's Order will be decided in due course by this Court. Whiting apparently does not respect the orderly administration of justice, seeking instead to short-cut a proceeding to which Pendragon has an absolute right without even awaiting permission from this Court to join the proceeding as a party.

Whiting voluntarily elected not to appeal from the Commission, and actually tried to prevent Pendragon from exercising its automatic right to appeal. In its Motion to Dismiss and in its Response to Pendragon's Statement of Appellate Issues, however, Whiting is trying to join

the appeal through the back door, not to help the process along, but only to kill it.

If Whiting is allowed to intervene, however, Pendragon requests a reasonable amount of time thereafter within which to respond to Whiting's Motion to Dismiss and to file a Reply to its Response to Appellants' Statement of Issues.

WHEREFORE, Pendragon respectfully requests that this Court enter an Order striking Whiting's Motion to Dismiss and its Response to Appellants' Statement of Appellate Issues; and awarding Pendragon its reasonable costs, including attorneys' fees for having to file this Motion seeking Whiting's compliance with the Rules of Civil Procedure; in the alternative, Pendragon requests that if Whiting is allowed to intervene, Pendragon requests a reasonable amount of time thereafter within which to respond to Whiting's Motion to Dismiss and to file a Reply to its Response to Appellants' Statement of Issues.

Respectfully Submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By_____

J. Scott Hall
Jeffrey E. Jones
Attorneys for Appellant
P.O. Box 1986
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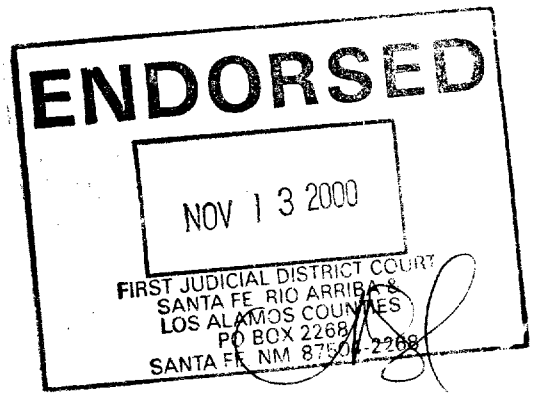
(505) 989-9614

I HEREBY CERTIFY that a true and correct copy of the foregoing Motion to Strike was mailed to all counsel of record on this 21st day of November 2000.

By_____
JEFFREY E. JONES

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE



PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

THE NEW MEXICO OIL CONSERVATION COMMISSION'S RESPONSE TO APPELLANTS' STATEMENT OF APPELLATE ISSUES

COMES NOW the New Mexico Oil Conservation Commission, by and through its attorney of record Stephen C. Ross, Special Assistant Attorney General, and, pursuant to SCRA 2000, Rule 1-074(L), submits the foregoing as its response to Appellants' Statement of Appellate Issues in this matter.

I. STATEMENT OF THE ISSUES.

This is an appeal of Order No. R-11133-A of the New Mexico Oil Conservation Commission (hereinafter referred to as "the Commission"). That Order required Pendragon Energy Partners, Pendragon Resources, Edwards Energy Corporation (hereinafter referred to collectively as "Pendragon" or "Appellants") to cease production of natural gas from four natural gas wells in San Juan County, New Mexico. *See* Exhibit A (Order of the Commission, attached for the convenience of the Court), also found in the Record Proper (hereinafter "RP") at 5220-5223. As the standard of review of such

orders is specified by NMSA 1978, § 39-3-1.1(D) (Supp. 2000) and Rule 1-074, SCRA 2000, review of Order No. R-11133-A is limited to the following issues:

1. Whether, based on the whole record on appeal, Order R-11133-A is supported by substantial evidence.

2. Whether Order R-1133-A is within the scope of authority of the Commission.

3. Whether the Commission acted "fraudulently, arbitrarily or capriciously" in entering the order.

4. Whether Order R-11133-A is otherwise in accordance with law.

Issue 1 is discussed in section III(D)(1), below and Issues 2, 3 and 4 are discussed in section III(D)(2).

II. SUMMARY OF PROCEEDINGS

Although styled as a dispute between Pendragon and the Commission, this case actually arises from a dispute between Pendragon and Whiting Petroleum Corporation/Maralex Resources, Inc. (hereinafter collectively referred to as "Whiting"). The subject of the dispute is natural gas Pendragon produced from four natural gas wells and is the subject of an ongoing case in this judicial district, *Whiting Petroleum Corporation and Maralex Resources, Inc. v. Pendragon Energy Partners, Inc. and J.K. Edwards Associates*, No. SF-CV-98-01295. On July 7, 1998, Judge Encinias entered a preliminary injunction in that case against Pendragon to "cease and desist all gas production [from its Chaco wells 1, 2-R, 4 and 5]." RP at 2926. Judge Encinias's order referred the matter to the "... New Mexico Oil Conservation Division or New Mexico Oil Conservation Commission on certain issues within their administrative jurisdiction." RP at 2926.

Judge Encinias's Order prompted Pendragon to file an application with the Oil Conservation Division for a declaration that its wells were producing from "the appropriate source of supply." RP at 5217-5219. The quoted language is from Pendragon's application and refers to Rule 303 of the Rules and Regulations of the Commission (19 NMAC 15.N.303), which requires that each natural gas pool be produced separately from other pools.[1] By applying to the Division to confirm the appropriate source of supply under Rule 303, Pendragon requested that the Division determine whether Pendragon was producing gas from the formations which it owned or from formations Whiting owned.

The Oil Conservation Division heard the matter during an administrative hearing in July of 1998 and the Division issued an order, which is not at issue here. RP at 4337. Appellants were aggrieved by the Division's Order and requested review by the Commission. The case was heard by the Commission *de novo*. After a lengthy hearing spanning five days in August 1999, the Commission decided that the evidence supported the conclusion that Pendragon's wells were perforated in the Pictured Cliffs formation, the "appropriate source of supply," but nevertheless were producing natural gas from a formation owned by Whiting. Exhibit A.

III. ARGUMENT

A. Introduction.

Like crude oil, natural gas exists in rocks and coal below the surface of the earth where organic matter decayed over time, and with time and pressure, formed

[1] Similar language appears in the Commission's Order No. 8768, which established special rules for the Basin-Fruitland Coal Gas Pool. RP at 5212-5216.

hydrocarbons. 1 Williams & Meyers, *Oil and Gas Law*, §§ 101-102 (pages 1-3)(1989). When a pool of natural gas forms, it is differentiated from other pools by the specific sedimentary layers in which the gas was created and now exists. *Id.*, pages 2-3. Pendragon and Whiting own natural gas trapped in layers that were deposited right on top of one another. Whiting owns the mineral rights from the surface of the earth to the base of the Fruitland coal. RP at 4897, ¶ 6 (Stipulation of Facts). Whiting's ownership permits it to produce natural gas trapped in the Fruitland coal formation. The Fruitland coal is quite literally a bed of coal, laid directly atop the natural gas producing sandstone of the Pictured Cliffs. Whiting drilled and produced 17 wells into the Fruitland coal formation commencing in 1991. RP at 2893, 4900-4901. Pendragon owns the mineral rights from the base of the Fruitland coal to the base of the Pictured Cliffs formation. RP at 4896. Pendragon's ownership permits it to produce natural gas trapped within this formation. Pendragon purchased its wells in December 1994 at auction from previous operators; the wells had been drilled and produced two decades earlier. RP at 2894, 3249, 4899-4900.

The parties each sought to prove to the Commission that the other party was producing its gas. Two general theories were presented. The first theory was geological in nature; the parties claimed that wells were "perforated" in the wrong geologic formation. Natural gas is produced from wells just like oil, and enters the well through "perforations" in the steel well casing. 1 Williams & Meyers, § 103 at 10. The perforations are holes blown through the casing into the formation with explosives. *Id.* Thus, in the case of Whiting's wells, perforations have been created in Whiting's well casings alongside the Fruitland Coal formation. RP at 4900-4901. Pendragon's wells are

perforated somewhat lower in the earth, in the Pictured Cliffs sandstone. RP at 4899-4900. The Commission determined in Order No. R-11133-A that the perforations in each party's wells were properly placed; that issue is not before the Court.

The second general theory presented to the Commission concerned completion practices and the possibility that such practices created fractures that extended from one formation to another. This issue, which the Commission referred to as "the Engineering Issue," is the issue before the Court in this appeal. Whiting claimed that a completion practice called "hydraulic fracturing" caused fractures in the rocks from Pendragon's wells into the Fruitland coal and caused an escape of gas into Pendragon's wells. Whiting presented evidence that Pendragon's hydraulic fracturing created cracks and fissures upward into the Fruitland coal formations and that Pendragon was producing Whiting's natural gas. *See* RP at 4954 (Whiting's Closing Statement Memorandum). Pendragon claimed that Whiting's hydraulic fracturing of its Fruitland coal wells had created cracks and fissures which extended *downward* into the Pictured Cliffs formation; Pendragon's witnesses and evidence suggested that Whiting was producing Pendragon's Pictured Cliffs natural gas from its wells. RP at 5105 (Closing Statement of Pendragon).

Hydraulic fracturing involves pumping liquids into a well in such volume and under such pressure that the rock breaks or fractures, creating cracks from which natural gas can migrate to the wellbore for production, a practice which greatly increases the area from which a natural gas well produces. 1 Williams & Meyers, § 103 at 10. The parties stipulated that each applied this technique to their wells. RP at 4899-4901.

B. The Commission's Order

In Order No. R-11133-A, the Commission addressed this issue and found the preponderance of the engineering evidence established that fracture stimulation of *both* parties established communication between the Pictured Cliffs and Fruitland coal formations. Exhibit A, ¶ 33. The Commission found treatment of Whiting's wells in 1992 created communication channels near the wellbore, but very little gas escaped. ¶ 34. As Whiting's wells began commercial production with the dewatering[2] of the coal, higher gas pressure in the coal prevented Pictured Cliffs gas from migrating to Whiting's wells through the communication channels. ¶ 35. During the dewatering process, the pressure in the Fruitland coal formation decreased so that gas began to free itself from the coal, setting the stage for gas migration to Pendragon's wells. ¶ 36. Then, Pendragon performed fracture stimulation of its wells, which broke into high-pressure gas in the Fruitland coal formation. ¶ 37. Following this event, production from Pendragon's wells increased many times over what the wells had produced previously. ¶ 38. The Commission indicated the most likely explanation was that hydraulic fractures created by Pendragon had extended upwards from Pendragon's wells into the Fruitland coal. ¶ 39.

These findings, together with a finding that the Pictured Cliffs formation had been depleted by Pendragon's wells prior to 1995 (¶ 45), and the finding that Pendragon had already produced more than its fair share of the gas (¶ 46), led to the Commission's order that Pendragon stop producing from four wells (Order, ¶ 5).

The Commission found unpersuasive Pendragon's argument that the production increase resulted from repair of reservoir damage. ¶ 40. The Commission found it

[2] The concept of dewatering and its importance on production from a coal formation is discussed at page 17, below.

unlikely that damage was present in this reservoir to the extent claimed. *Id.* The Commission found unpersuasive the parties' computer fracture simulation demonstrations because of the ease of manipulating data to obtain the desired result. ¶ 42. And, the Commission found support for its findings and conclusions in the Btu data presented, which showed the hydrocarbon content of Pendragon's wells decreased as the Pictured Cliffs gas mixed with the lower-Btu Fruitland coal gas. ¶ 41.

As will be seen below, these findings and conclusions are supported by substantial evidence in the record of the proceedings and were made within the scope of the Commission's statutory authority and in accordance with established procedures.

C. Standard of Review

Decisions of the Oil Conservation Commission may be reversed by the District Court on four very limited grounds: (1) if, based on the whole record on appeal, the "decision of the agency was not supported by substantial evidence"; (2) if the agency acted "fraudulently, arbitrarily or capriciously"; (3) if the action "was outside the scope of authority of the agency"; or (4) if the action of the agency "was otherwise not in accordance with law." *See* NMSA 1978, § 70-2-25(B) (Supp. 2000); NMSA 1978, § 39-3-1.1(D) (Supp. 2000) and Rule 1-074, SCRA 2000.

An agency's decision is supported by "substantial evidence" if evidence presented to the agency is such that "a reasonable mind might accept [it] as adequate to support a conclusion." *Fugere v. State Taxation and Revenue Department*, 120 N.M. 29, 33, 897 P.2d 216 (Ct.App. 1995); *Rutter & Wilbanks Corp. v. Oil Conservation Commission*, 87 N.M. 286, 290, 532 P.2d 582, 586 (1975). In determining whether evidence is

substantial, reviewing courts do not re-weigh the evidence the agency received, but only consider whether it is adequate to support the decision:

> "Substantial evidence" means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. [citation omitted] In resolving those arguments of the appellant, *we will not weigh the evidence. By definition, the inquiry is whether, on the record, the administrative body could reasonably make the findings.*

Grace v. Oil Conservation Commission of New Mexico, 87 N.M. 205, 208, 531 P.2d 939 (1975)(emphasis added). While the substantial evidence standard does not require a Court to ignore contradictory evidence if it undermines the reasonableness of a decision, contradictory evidence is viewed in the light most favorable to upholding the agency decision according to the general standard of reasonableness:

> [W]e view the evidence in a light most favorable to upholding the agency determination, but do not completely disregard conflicting evidence. [citation omitted] The agency decision will be upheld if we are satisfied that evidence in the record demonstrates the reasonableness of the decision.

Santa Fe Exploration Co. v. Oil Conservation Commission of the State of New Mexico et al., 114 N.M. 103, 114, 835 P.2d 819 (1992).

An "arbitrary or capricious" administrative action is an "illegal action." *Zamora v. Village of Ruidoso Downs*, 120 N.M. 778, 783, 907 P.2d 182 (1995). *See also Regents of the University of New Mexico v. Hughes*, 114 N.M. 304, 309, 838 P.2d 458, 463 (1992)(formulation of judicial review of administrative agency in terms of "arbitrary, unlawful, unreasonable, capricious or not based on substantial evidence" is synonymous with illegality).

D. Application of the Standard of Review to the Commission's Order.

1. The Commission's Order was Supported by Substantial Evidence.

If any case exists in which "substantial evidence" supports the Commission's Order, this is it. The hearing spanned five days, and that was just the cross-examination; witnesses' direct testimony was presented in written form prior to the hearing. Fifteen persons testified, most experts in either petroleum engineering, geological engineering, chemistry, geology or well completion. The transcript of the live testimony exceeds 1,600 pages. Hundreds of exhibits were admitted. As a result, the Record on Appeal now exceeds 5,000 pages. Most importantly, both Whiting and Pendragon were represented by counsel during the hearing, and each insured that its position was well supported by evidence in the record.

Yet, it is this very record which Pendragon now argues is insufficient to support the Commission's order. However, in arguing the insufficiency of the evidence, Pendragon discusses only the evidence Pendragon presented during the hearing. To read Pendragon's account of the hearing and evidence presented, it is as if Whiting had not been present. Therefore, a more detailed review of the evidence presented than would normally be necessary follows, with apologies to the Court. As will be seen, the evidence presented during the hearing was more than sufficient for a reasonable mind to accept as adequate to support the conclusions reached. *Fugere, supra.*

a. Evidence of Pendragon's Sudden, Unexpected Production Increases

Evidence was presented to the Commission that four of Pendragon's wells had experienced sudden, unexpected and unprecedented production increases in 1995 immediately following hydraulic fracturing. Witnesses concluded that the coincidental

timing of the production increase and the degree of the increase could not be explained unless Pendragon had fractured into another, highly pressurized, gas reservoir.

The parties stipulated that Pendragon's wells were drilled two decades ago, between February, 1977 and April, 1982. RP at 4899-4900. Three of the wells were hydraulically fractured in January, 1995 and a fourth was fractured in May, 1995.[3] RP at 4899-4900. Whiting's wells were drilled in December, 1992 and subsequently fracture stimulated. RP at 4900-4901. *See also* RP at 2893-98 (testimony of Alexis M. O'Hare).

Evidence was presented that, after fracturing, Pendragon's wells began to produce as they had never produced previously. Wells which had been producing at 0-15 Mcf[4] per day, suddenly began producing 250 Mcf (Chaco No. 1), 90 Mcf per day (Chaco No. 2-R), 425 Mcf per day (Chaco No. 4) and 370 Mcf per day (Chaco No. 5). RP at 2949-2952. Given the fact that these wells had produced 80 Mcf per day, 70 Mcf per day, 200 Mcf per day and 190 Mcf respectively *when first produced*, and given the evidence and testimony which showed a consistent decline since, this production was unprecedented, and significant. RP at 2911, 2949-52, 3253. Exhibits 7 through 10 to the testimony of James T. Brown, an engineer with expertise in well completion, production and facility engineering, dramatically demonstrate the unprecedented production increase of the wells, copies of which are attached for the Court's convenience as Exhibit B. RP at 3267-3270. Mr. Brown testified that from their peak production in late 1978, the Chaco wells

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[3] Pendragon owns more than four wells but only the four ordered shut-in (the Chaco 1, 2-R, 4 and 5) are apparently at issue.

[4] An "Mcf" is equivalent to 1,000 cubic feet. Thus, "15 Mcf per day" is 15,000 cubic feet of natural gas per day.

declined to a non-economic, depleted state by 1986. He testified: "There is absolutely no scientific explanation for the reservoir to some way 'recharge' so that in 1995 the rates and pressures of these Chaco wells *significantly exceeded initial, virgin gas flow and pressure.*" RP at 3254. *See also* RP at 856-57, 2898, 3267-76, 3276-3302

Evidence was also presented that wells like Chaco Nos. 1, 2-R, 4 and 5 exhibit a characteristic decline curve from first production, and the production of the Chaco wells after hydraulic fracturing was highly uncharacteristic, perhaps impossible. Bradley M. Robinson, a petroleum engineer with expertise in completion, evaluation and stimulation of unconventional reservoirs, hydraulic fracturing, well completion and reservoir engineering, testified that the average flow rate of the Pendragon wells increased *500-fold* after the treatment, *from an average flow rate of 20 Mcf/month to in excess of 10,000 Mcf/month.* RP at 3404, lines 12-16. He characterized a 500-fold increase as "not obtainable" through fracture stimulation. *Id.* On cross examination, he called a thousandfold increase in productivity "impossible" and stated the only explanation for such a phenomenon is fracturing into a new strata:

> All right, let's go out here to about year 17 and look at what [the Chaco wells] did after the hydraulic fracture treatments. Before fracturing they were producing, on average, 20 to 30 MCF a month. After fracturing they jumped up here to over 10,000 MCF per month. Now notice . . . we go up a factor of . . . 500-fold increase in production, in the average production of these wells. And that doesn't even account for the pressure increase. As stimulation engineers and completions engineers, we look at the productivity. And you have to take into account the pressure. So the productivity of these wells is several thousandfold over what they were prior to stimulation. *And I've never seen, in my 20 years, a well that has increased several thousandfold that was fracture stimulated in the same zone. Now, I've seen it when they fracture into new zones, but not in the same zone, it's impossible. I've never seen it in 20 years.*

RP at 1271 -1272 (emphasis added). Similarly, Alexis M. O'Hare, President of Maralex Resources, Inc. and a petroleum engineer with expertise in reservoir engineering and development of coal seam gas wells, testified that the production volumes seen in the Chaco wells after 1995 exceeded production rates when the wells were first completed. Mr. O'Hare testified this is not consistent with normal production patterns exhibited by Pictured Cliffs wells and can only be explained by communication with the Fruitland coal formation:

> Second, the series of production charts on the Chaco wells, which are Exhibits JTB 7-14 [RP 3267-3274], demonstrate that after Pendragon performed its fracture stimulation on the Chaco wells those wells produced gas at volumes in excess of their production rates and production volumes under virgin reservoir conditions when they were first completed. Such production is entirely inconsistent with flow of conventional gas from the depleted Pictured Cliffs formation. Fracture stimulation of those wells could not have resulted in the extraordinary pressure and production response seen unless the wells were in communication with the Basin-Fruitland Coal Gas Pool.

RP at 2911. *See also* RP at 2911 and 3253 (Pictured Cliffs wells typically produce best when first completed and show the highest pressures at this time).

b. Communication Demonstrated by Pressure Response

Evidence was presented that other wells were not hydraulically fractured and did not demonstrate the large, unexpected pressure and production increases of Chaco Nos. 1, 2-R, 4 and 5. Evidence was presented that after Pendragon's wells were shut down by Judge Encinias, pressures in those wells responded to changes in production from Whiting's wells, a clear indication of communication between the two sets of wells. Evidence was also presented that Whiting's wells produced more gas after Pendragon's wells were shut down, an indication that Pendragon had been diverting gas.

Mr. O'Hare testified that comparing the behavior of Pendragon's wells that had been fractured with Pendragon's wells that had not been fractured illustrates the uncharacteristic behavior of Pendragon's newly stimulated wells:

> First, as I previously indicated, the immediate pressure and production response in the Chaco wells after Pendragon acidized and/or frac'd those wells is one factor that clearly indicates that the Pendragon stimulations caused communication. *The Chaco wells, which Pendragon did not stimulate, showed no pressure or production response during the period 1993 to the present.*

RP at 2910-2911 (emphasis added). *See also* RP at 3275 (exhibit prepared by Mr. Brown comparing production between stimulated and non-stimulated wells).

Mr. Brown testified that after Pendragon's wells were shut down by order of Judge Encinias, there was a sudden and dramatic pressure increase whenever the adjoining Whiting Fruitland coal wells were shut down, evidence that the two sets of wells and formations were communicating:

> On July 8, 1998, the Santa Fe County district court, after hearing evidence, entered a Preliminary Injunction against Pendragon and Edwards requiring that the Chaco wells be shut-in. Since that time there have been instances of the El Paso Field Services gathering system being down when the Chaco processing plant was off-line. Those plant down times resulted in the Gallegos Federal wells being shut-in. Exhibit JTB-5A [RP at 3264] demonstrates that each time there is a significant shut down of the gathering system and the coal wells stop producing[,] the shut-in casing pressure (SICP) on the four reworked Chaco wells immediately increases. This phenomena reflects effective communication between the Chaco wells and the Fruitland coal exists.

RP at 3253, lines 15-23.

Pendragon's expert David O. Cox, an engineer, also testified to this effect and admitted that Pendragon's wells responded very quickly each time the adjoining coal wells were shut down, over periods as short as 1-2 days. *See* RP at 651-652.

Mr. Brown testified that Whiting's production *increased* after Pendragon's wells were shut down. *See* R.P. at 3254, lines 9-18. *See also* RP at 2909, ll. 4-10. A reasonable conclusion that can be drawn from such testimony is that Pendragon's wells had been diverting gas that should have been produced in Whiting's wells. Mr. Brown explicitly testified to this theory. *See* RP at 1085 ll. 24-25, 1086, ll. 1-5.

c. The Connection Between Pendragon's Fracturing and Communication

Evidence was presented that Pendragon's hydraulic fracturing of its wells was responsible for the communication. While this is also evident from the pressure and production response of Pendragon's wells, additional technical evidence was presented by Whiting to this effect.

Testimony and evidence showed that great care is taken when designing hydraulic fracturing work so as to avoid extending fractures into other formations. *See e.g.* RP at 2895-2896, 319 (fracture treatments designed to keep fractures within zone). Even so, fracturing can create communication between zones as occurred here; Mr. Conway, Pendragon's fracturing expert, even assumed for purposes of his work that the Pictured Cliffs and the Fruitland coal communicate. RP at 324.

Both parties used computer-modeling techniques during the hearing before the Commission to illustrate that fractures did not migrate into other formations, evidence that the Commission did not entirely accept. *See* RP at 305-402 (testimony of Michael W. Conway), 1255-1416 (testimony of Bradley M. Robinson), 3393-3409 (same). Nevertheless, substantial evidence supports the Commission's finding that Pendragon fractured into the Fruitland coal. Mr. Robinson testified the hydraulic fracturing treatments on the Chaco Nos. 1, 2-R, No. 4 and No. 5 established direct communication

with the Fruitland Coal. RP at 3396, lines 9-15. His conclusions were reached utilizing computer modeling techniques with data obtained and recorded during the actual fracturing. *Id.*, lines 15-18. Based on such simulations, Mr. Robinson concluded that the hydraulic fracturing of Chaco No. 1 produced a fracture in the rock which extended 1,050 feet up into the Fruitland Coal. RP at 3397, lines 21-23. Similar results obtained for the other wells. RP at 3398, lines 1-5. Mr. Robinson also testified that the model predicted that the fracture stimulation of the Whiting well called the Gallegos Federal 26-12-5 No. 2 had "likely" extended from the Fruitland Coal into the Pictured Cliffs. RP at 3399-3400.

The Commission found that Whiting had fractured into the Pictured Cliffs as well, but also found that Whiting had not produced any significant amounts of Pictured Cliffs gas. Substantial evidence exists for the Commission's conclusions in this regard. *See* RP at 861-862, 1080, 2908-2909, 3267-88 (no pressure response in Pendragon's wells after Whiting's fracturing --- suggests little if any gas flow occurred even if Whiting's wells communicated with the Pictured Cliffs).

d. Pressure and Btu Content of Pendragon's Wells Resembles Fruitland Coal Wells

Evidence was presented that pressures recorded in Pendragon's wells and the Btu content of the gas from those wells were consistent with the recovery of gas from the Fruitland coal, not the Pictured Cliffs. Mr. Robinson testified that the pressures recorded in Pendragon's wells after hydraulic fracturing were consistent with pressures in the Fruitland coal formation, not the Pictured Cliffs:

> The pressure measured on all the Chaco wells now is also about what it is in the coal, and you've heard all sorts of arguments about fluid levels and this and that and, well, this pressure was measured before or after the frac. *After the frac, the pressures in the Chaco wells are about equal to the*

> *pressure in the coal. And the production after the frac was almost identical to the average production in the Fruitland Coal, after the fracture treatment of the Chaco wells.*

RP at 1275, ll. 1-9 (emphasis added). Mr. Brown testified that the gas composition of the gas being recovered from Pendragon's wells after the 1995 well stimulation resulted in a significant change in the content of gas recovered:

> Further confirmation of the communication is provided by examining the composition of the gas from the Chaco 1, 4 and 5 wells before and after the 1995 rework. Exhibit JTB-4 [RP at 3263] reveals that before the fracture treatments the gas from these wells reflected the typical Pictured Cliffs formation Btu range of 1100-1150. After, the fractures the gas composition was reflective of coal gas in the 1000-1025 Btu range.

RP at 3253, lines 10-14. *See also* 3276-3302. Mr. Brown testified further on cross-examination that the Btu evidence showed that gas produced by Pendragon's wells after the 1995 stimulation was Fruitland, not Pictured Cliffs gas:

> [Exhibit] JTB-4 [RP at 3263] is a plot of the measured BTU value for the Chaco wells as a function of time. The BTU value for the PC gas is generally in the range of 1075 -- excuse me, is 1075 to 1150. The BTU range for the Fruitland gas is 1000 to 1050. Based on the data presented, the gas produced from the Chaco wells since the fractures is Fruitland Coal gas.

RP at 1087, lines 1-7. Mr. O'Hare's Exhibit, RP 3172, depicts the Btu decline graphically. *See also* RP at 3277-3280 (exhibits of Mr. Brown depicting Btu decline).

Even Roland Blauer, a engineer and rheologist called by Pendragon, who testified concerning gas content, agreed on cross-examination that the composition of the gas from

the Pendragon's wells after it fractured its wells was "similar" to gas found in the Fruitland coal:

> Q. ... So the answer is yes, the heating value, the gas composition from the coal wells and the Chaco wells during that period were very similar?
>
> A. They were similar.

RP at 267.

e. The Commission's Theory of the Sequence of Events

Substantial time at the hearing was devoted to the method by which coal and conventional reservoirs produce natural gas and how that process played into the events at issue. Evidence was presented that the Pictured Cliffs is a conventional gas reservoir and produces gas upon completion. RP at 910, 1057. Mr. O'Hare described the typical Pictured Cliffs production pattern:

> In a typical conventional sand, like the Pictured Cliffs formation, gas production will start off at its highest point immediately upon completion of the well. It will decline from that point until it reaches its economic limit and is abandoned.

RP at 2897, lines 4-7.

Evidence was also presented that Fruitland coal formation cannot produce natural gas without first being rid of water, a process called "dewatering." Once water is removed, gas will leave the coal:

> The typical coal well will start producing minimal volumes of gas and very high volumes of water. As the water quantity declines the gas will begin an incline that will eventually peak and then start a decline to the end of the life of the well.

RP at 2897, lines 1-4. The gas forms because natural gas (methane) is fixed, or adsorbed, to the surface of the coal; the methane will leave the pores and become free gas only when the pressure is reduced by dewatering. RP at 1082-83. This process is called

"desorption." If production ceases, the gas pressure gradually increases until it reaches a point beyond which no more methane can desorb from the coal. *Id.* The pressure stabilizes at that point. *Id.* Mr. Brown described how the process evolves in various pressure states:

> Coal reservoirs produce via a different mechanism than conventional rock reservoirs. * * * When a coal reservoir is essentially dewatered, as the Gallegos Federal wells are, the pressure in the cleat system is a direct function of the bottomhole pressure in producing well, the cleat permeability, and how rapidly this gas is desorbing from the coal. The pressure in the cleat system has to be below the desorption pressure to allow methane to be produced. However, when the well is shut-in, the methane does not stop desorbing. Methane will continue to desorb from the coal until the reservoir pressure is equal to or greater than the desorption pressure. This is the cause for the pressure responses observed in Chaco 4 and 5.

R.A. at 1082-83.

The Commission reasoned that the adsorbed gas in the coal stayed within the Fruitland coal formation until the pressure was lowered enough through the dewatering process for gas to desorb. Exhibit A, page 10, ¶ 34. Once the dewatering process progressed, the Commission reasoned that substantial amounts of desorbed gas escaped the coal matrices, especially in the near-wellbore regions where the pressure was low. ¶¶ 35-36. At this time, the Whiting wells began commercial production. At the same time, however, the desorbed coal gas also may have migrated through the communication channels previously described, ultimately arriving in the Pictured Cliffs formation. *Id.*

f. Depletion of the Pictured Cliffs

Evidence was presented that before the fracture stimulation of the wells in 1995, Pendragon's wells had become essentially nonproductive, production had followed typical decline curves to the point that remaining reserves were minimal, and the

pressures had declined to a level which made production difficult. Evidence was presented that an economic analysis of the wells in 1993 showed the formation to be depleted.

Mr. O'Hare testified that as of 1994 Pendragon's wells "... were essentially non-productive. A good portion of the time there was no production by the Chaco wells because the formation pressure was not high enough to overcome the sales line pressure." RP at 2898, lines 10-12. He concluded that "[t]he Pictured Cliffs formation in the area that is the subject of Pendragon's application was a depleted reservoir prior to 1995 and was not capable of producing Pictured Cliffs gas in paying quantities." RP at 2902, lines 6-8. He further testified that reservoir studies he conducted demonstrated that Pendragon has already recovered "in excess of" the recoverable gas from its wells:

> Based upon reservoir studies and investigations I have performed since 1995, Pendragon has already recovered in excess of all the recoverable original Pictured Cliffs gas in place from the Chaco wells given the high production volumes produced from the Chaco wells from 1995 until July 1998.

R.P. at 2921, ll. 22-25. Mr. O'Hare testified that the reservoir was depleted because initial reported pressures of 230 to 250 psi had declined to 100 to 110 psi, a loss of 55% percent of initial formation pressure. R.P. at 856-57. *See also* RP at 1099-1101.

Mr. Brown testified that Pendragon's Chaco wells "... exhibited a classic initial production level at their completion in 1978-1980 time span, and exhibited a classic depletion drive tight gas production decline profile. ... By 1995, the Pictured Cliffs formation was a depleted reservoir and the Chaco wells were shut-in or at noncommercial levels of production." RP at 3251, lines 17-23. *See also* RP at 1079 (Mr. Brown testifies

that the Pictured Cliffs reservoir is a "depletion-drive reservoir, and it was at or near the end of its economic life in 1994.").

Mr. Robinson testified that his analysis of the production data from Pendragon's wells illustrates that Pendragon's wells had been substantially depleted in 1995, before stimulation. RP at 3402, lines 1-3. He reached this conclusion by determining the original amount of natural gas in place in the formation and determining the amount of recoverable gas left in place in 1995. RP at 3402. These calculations led him to the conclusion that the wells had already recovered 55 to 70% of the gas in place. RP at 3401, lines 21-23. He testified from an exhibit that summarized his conclusions that the wells have now produced an amount of natural gas in excess of what had been in place when the formation was first perforated. RP at 3437. This exhibit illustrated his conclusion: the Chaco No. 1 well was calculated to contain only 186,000 Mcf *in total*, but actually produced (after Pendragon's stimulation) some 378,000 Mcf, over twice what it could have been expected to produce. *Id.* Similar results were seen for the Chaco No. 4 and Chaco No. 5 well. *Id.* Mr. Robinson testified that a "depleted reservoir" is a reservoir where "there are very few economic reserves left to recover." RP at 1103. He testified that it was not economically feasible to produce the remaining reserves in Pendragon's wells:

> ... I believe that ... the Pendragon wells at the time they were fracture-stimulated ... were pressure-depleted for all practical purposes. The pressure wasn't down to zero in the reservoir, it still had maybe 80 to 100 p.s.i., but it was not economically feasible to produce those reserves.

RP at 1272, lines 19-24.

Mr. Brown testified that combined production and wellhead pressures seen when the wells were "shut-in" (or separated from the pipeline) indicated that the wells reached

a "depleted state by 1986 and remained in that state." RP at 3252-3253. *See also* RP at 855-67 and 2902-05 (testimony of Alexis M. O'Hare); RP at 1079-80 and 3252-57 (testimony of Mr. Brown).

Mr. Brown also testified that a depleted reservoir cannot suddenly "recharge" as suggested by Pendragon. He testified that there was "no reasonable scientific explanation" for the sudden production increases seen in Pendragon's wells after the 1995 treatments other than communication with another strata:

> There is absolutely no scientific explanation for the reservoir to some way "recharge" so that in 1995 the rates and pressures of these Chaco wells significantly exceeded initial, virgin gas flow and pressures. The extraordinary increase in gas volume and pressure of the Chaco wells in 1995 corresponding to the Pendragon/Edwards reworks results from communication with Fruitland coal and flow from that source.

R.P. at 3253, lines 5-9.

Finally, Mr. O'Hare testified he had performed an economic analysis of the wells when they were offered to him for sale in 1993 or 1994. RP at 855. He declined to purchase the wells after his analysis showed him the wells were uneconomic. RP at 866-67, 1157-58, 2903-2904, 3076-96.

g. Conclusion: Substantial Evidence Supports the Order

All this evidence portrays a depleted, uneconomic reservoir springing to life and producing unprecedented amounts of natural gas whose production characteristics resembled that of the formation situated immediately above. Given the timing of the increase with Pendragon's hydraulic fracturing, this evidence is more than adequate for a reasonable mind to conclude that Pendragon fractured into high pressure Fruitland coal gas owned by Whiting. *Fugere, supra.*

2. The Commission's Order Was In Accordance With Law.

There can be no legitimate issue concerning the Commission's lawful authority to issue Order No. R-11133-A and therefore no legitimate argument can be made that the Order is arbitrary, capricious or otherwise not in accordance with law.

The Commission is specifically delegated authority by the Oil and Gas Act to " ... prevent ... natural gas ... from escaping the strata in which it is found into other strata .... " NMSA 1978, § 70-2-12(B)(2). The Commission has specific authority to "... require wells to be drilled, operated and produced in such manner as to prevent injury to neighboring leases or properties .... " NMSA 1978, § 70-2-12(B)(7). And, the Commission has authority to insure that "... the owner of each property in a pool [is afforded] the opportunity to produce his just and equitable share of the ... gas ... in the pool ..." NMSA 1978, § 70-2-17(A)). The Commission is also delegated broad authority to prevent waste and to protect correlative rights and "... to make and enforce ... orders, *and to do whatever may be reasonably necessary to carry out the purpose of [the Oil and Gas Act], whether or not indicated or specified in any section hereof."* NMSA 1978, § 70-2-11(A)(emphasis added).

Factual findings of the Commission showed that the Pictured Cliffs and Fruitland coal formations were in communication and that gas was migrating from the latter to the former. Order No. R-11133-A dealt with this problem by ordering Pendragon to cease production. As noted, the Commission is specifically delegated authority to "... prevent ... natural gas ... from escaping the strata in which is found into other strata ...." NMSA 1978, § 70-2-12(B)(2). Therefore, no legitimate argument can be made that making orders preventing or abating such an escape is not authorized or otherwise lawful.

Further findings of the Commission indicated that Pendragon was producing natural gas that was owned by Whiting. Whiting was therefore being damaged by Pendragon's production. This finding showed Pendragon's wells were not being operated and produced "... in such manner as to prevent injury to neighboring leases or properties ...." NMSA 1978, § 70-2-12(B)(7). The Commission's order remedied this situation by ordering Pendragon to cease production. Findings also demonstrated that Pendragon's production of Whiting's gas interfered with Whiting's ability "... to produce [its] just and equitable share of the ... gas ... in the pool ...." NMSA 1978, § 70-2-17(A). Pendragon's improper production thus implicated Whiting's correlative rights, which the Commission was authorized to protect by "orders" and by whatever means were "reasonably necessary to carry out the purpose of [the Oil and Gas Act]." NMSA 1978, § 70-2-11(A). Therefore, no legitimate argument can be made that protecting Whiting's interests is not authorized by the Oil and Gas Act.

So long as the Commission's findings were supported by substantial evidence (discussed previously), no reasonable argument can be made that its order that Pendragon cease production is not authorized by the Oil and Gas Act.

E. Pendragon's Arguments

1. Substantial Evidence

Given the sheer bulk of the evidence which supports the Commission's various findings and its conclusions, only a fraction of which was reviewed in the previous section, it seems disingenuous to suggest that the Commission's Order is not supported by substantial evidence. Yet that is exactly what Pendragon has done. Pendragon complains of the Commission's findings concerning depletion, existence of the "third bench," the

lack of relevant well and reservoir damage, the communication caused by fracture stimulation treatments, the means by which the reservoirs communicate, and the Btu data are unsupported by substantial evidence. Pendragon also claims that the Commission disregarded evidence that Pendragon presented.

The Commission considered each and every one of these contentions and found each unpersuasive. Evidence presented at the hearing was more than adequate for a reasonable mind to accept as supporting the findings and conclusions reached by the Commission. *Fugere, supra.* For example, at the hearing, Pendragon offered evidence that instead of communicating with the Fruitland coal it had tapped into a huge new source of gas in the lower Pictured Cliffs area, which it referred to as the "third bench." The Commission specifically considered the "third bench" claim and rejected it. Exhibit A, page 11, ¶ 39. Substantial evidence exists that such an untapped source of gas does not exist. For example, Mr. Robinson testified that no productive gas could be produced from the so-called "third bench" of the Pictured Cliffs, and it couldn't have been responsible for the production increases noted in the Pendragon wells because that area was known to be saturated with water:

> Analysis of the openholes logs ... shows the lower Pictured Cliffs to be mainly water saturated (approximately 70% water) and of very poor reservoir quality (lower porosity, higher shale content). Thus, the additional gas reserves there would be minimal.

R.A. at 3402, lines 12-15. On cross examination, Mr. Robinson commented that producing gas from water saturated formations is problematic:

> Q. The zone below the Pictured Cliff, you make the statement, you say there's 70-percent water saturation?
>
> A. Yes, sir.

> Q. What is the other 30 percent?
>
> A. What is the other 30%? It's probably gas.
>
> Q. So you're agreeing the gas is down there?
>
> A. The gas is down there. It's probably, you know, irreducible saturation. If any of the gas flows, it will be minute amounts. But, you know, in tighter formations irreducible gas saturations are easily 20- to 30-percent. So the fact that there's 20- to 30-percent gas saturation down there doesn't mean they're going to produce it, as you well know.

RP at 1423-1424. *See also* RP at 2904-05 (no reports of gas production from a "third bench" known to Mr. O'Hare), 3402 (lower Pictured Cliffs "mainly water saturated").

In a contradictory argument, Pendragon presented evidence that the sudden increase in production from its wells was the result of repair of "reservoir and well damage." Pendragon offered testimony of expert witnesses who testified that Pendragon's completion techniques had remedied well and reservoir damage that was preventing production. *See Appellant's Statement of the Issues*, pages 24-27.

The Commission specifically considered this claim, and found it unpersuasive. Exhibit A, ¶ 40. Substantial evidence existed for this conclusion as well. Mr. Robinson testified that reservoir damage of the kind described by Pendragon simply couldn't have affected the entire reservoir; there is no scientifically recognized damage mechanism that can lead to such widespread damage in this type of reservoir:

> Q. Okay, is there any damage mechanism recognized in the industry that you've seen that would cause a reduction in permeability throughout an entire reservoir?
>
> A. The only damage mechanism that I know of that could cause that is formation compaction, and this can occur in softer, compressible rocks like we see along the Gulf Coast. When you have a real soft formation, and as the pressure is depleted in that reservoir, the overburden literally squashes the rock, because it's so soft, and reduces the permeability, is what we call formation compaction. But you've got to have two things.

> Number one, you've got to have pressure depletion, substantial, and number two, you've got to have soft rock. And of course that directly conflicts with what their experts say exists here. Mr. Nicol says it's a hard, brittle rock, and Mr. McCartney says pressure depletion isn't occurring in any substantial amount. So if they had come up with that idea as a means to reduce permeability in the whole reservoir, I'd have bought it. But these other explanations, I can't -- They just don't exist.

RP at 1313-1314. *See also* RP at 903-904 (there may have been a "small component of damage" present but "... it was [not] significant enough to triple the reserve recovery), 942 (removal of damage might improve flows but cannot increase the amount of gas in the reservoir), 1155-56 (no reports of damage in well files), 1273 (type of damage alleged "cannot happen in this reservoir"), 2904 (skin damage cannot "recharge a reservoir").

Pendragon argues that the Commission's findings concerning depletion of the Pictured Cliffs, communication of the Pictured Cliffs and the Fruitland coal, the means by which the reservoirs came into communication and the Btu data were all unsupported by substantial evidence. They are not. *See* pages 18-21 (depletion), 9-14 and 17-18 (communication), 15-17 (Btu), above. Pendragon also urges the Court to consider its witnesses' testimony and exhibits to the exclusion of the evidence that supports the Commission's Order. *See* pages 9-21, above. However, as noted previously, the substantial evidence standard does not envision re-weighing the evidence. *Grace, supra.* Nor do Pendragon's alternative theories for what happened underneath San Juan County have to be simply accepted by the Commission; the law permits the Commission to apply its own special technical expertise to resolve questions of conflicting technical evidence:

> In their argument in this court, each party attempts to explain precisely what is transpiring 5700 feet below the surface of Eddy County. Certainly we do not want for theories. We suffer from a plethora of theories. The theories of each party sounded equally logical and reasonable and each is diametrically opposed to those of the other party. The difficulty with them is that they emanate from the lips and pens of

> counsel and are not bolstered by the expertise of the Commission to which we give special weight and credence ....

Fasken v. Oil Conservation Commission, 87 N.M. 292, 293, 532 P.2d 588 (1975).

The crux of Pendragon's arguments is that the Court should accept its theories over those of the Commission, the very body whose jurisdiction Pendragon invoked in its application. However, as noted previously, the question before the Court is not whether the evidence presented by Pendragon supported a different result, but whether the evidence supports the result the Commission reached. *Huning Castle Neighborhood Association v. City of Albuquerque*, 1998-NMCA-123, ¶ 15, 125 N.M. 631, 964 P.2d 192; *Las Cruces Professional Fire Fighters*, 1997-NMCA-044, ¶ 12, 123 N.M. 329, 940 P.2d 177. Pendragon's various evidentiary recitations amount to an invitation to this Court to substitute its judgment for that of the Commission, to re-weigh the evidence, which is not contemplated by the standard of review. *Grace, supra.*

2. Pendragon's "Legal Arguments"

The remainder of Pendragon's arguments are presented as "legal" arguments, but are actually substantial evidence arguments in disguise. To make matters worse, and as pointed out previously, Pendragon only points out evidence which favors its position, most of which it presented, and completely ignores the evidence discussed previously that does not support its position. This is improper and burdensome to the appeal process. *See Martinez v. Southwest Landfills, Inc.*, 115 N.M. 181, 184-186, 848 P.2d 1108 (Ct.App. 1993) (party challenging the sufficiency of the evidence "must set forth the substance of *all* evidence bearing on the proposition."); *Hartman v. Texaco, Inc.*, 1997-NMCA-032, ¶ 28, 123 N.M. 220, 227, 937 P.2d 979 (" ... [I]t is true that our admonitions against one-sided statements of the facts probably pertain most often to

briefs challenging the sufficiency of the evidence ...."). Such arguments also improperly invite the Court to re-weigh the evidence presented to the Commission. *Grace, supra.*

An example of a sufficiency of the evidence argument masquerading as a legal argument is Appellant's argument that the Commission failed to afford "meaningful regulatory relief." *Appellant's Statement of the Issues,* at 8. The legal basis for this argument is unclear, for no requirement of law seems to require the Commission to provide "meaningful relief," nor does Pendragon cite authority for this proposition. The argument seems to be that the Commission committed error by failing to award Pendragon the relief it desired. For example, Pendragon argues that the Commission "failed to discharge [its] statutory and regulatory duties ..." by failing to "... determine if the subject Pictured Cliffs wells and Basin Fruitland Coal wells are producing from their appropriate common source of supply ...." *Appellant's Statement of the Issues*, page 8. However, as seen on pages 9-22, above, the Commission *did* determine this question, adversely to Pendragon.

A further example is Pendragon's argument that the Commission violated the Oil and Gas Act and its own rules by "permitting" communication between formations to continue. *Appellant's Statement of the Issues*, page 9. Pendragon, citing the Oil and Gas Act and rules and orders of the Commission, suggests that the Commission has an affirmative duty to prevent natural gas from escaping from a stratum. *Appellant's Statement of the Issues,* pages 8-9. As before, the Commission *did* resolve this issue, and found that Fruitland coal gas had escaped into the Pictured Cliffs formation through Pendragon's hydraulic fractures --- it ordered Pendragon's wells shut down to prevent further communication.

A similar substantial evidence argument masquerading as a legal argument is Pendragon's complaint that the Commission had a "mandatory duty" to determine how much "... Pictured Cliffs gas [was] illegally produced ... from Whiting's Pictured Cliffs Coal wells ...." *Appellant's Statement of the Issues,* pages 9-10. There is simply no such requirement, nor has Appellant cited to any authority for this proposition either. And, as noted, the Commission specifically found that Pendragon's formation was economically depleted. *See* pages 19-21, above. Substantial evidence supports this finding. *Id.* Therefore, the Commission *did* determine how much Pictured Cliffs gas was "illegally" produced by Whiting. The production figures and pressure data presented to the Commission show that any of Pendragon's gas that was produced by Whiting in its wells was insignificant compared to the amount of Whiting's gas that Pendragon improperly produced. *See* pages 9-12, above.

Pendragon also complains that the Commission failed to consider its evidence it presented that Whiting was actually producing Pendragon's gas, that the Commission failed to consider its engineering evidence to that effect, that pressure data which was offered for the proposition that Whiting was producing Pictured Cliffs gas was ignored, and that the Commission failed to consider testimony and exhibits Pendragon presented which it claimed established its claim that Whiting was producing Pendragon's gas. *Appellant's Statement of the Issues,* pages 10-11. Pendragon complains that the "record" "irrefutably" established these facts and that a "direct violation" of the Oil and Gas Act and regulation of the Commission exists requiring action. *Appellant's Statement of the Issues,* page 11.

Nothing requires the Commission to accept Pendragon's experts' opinions and conclusions, particularly when Whiting's experts presented conflicting opinions and conclusions. *See New Mexico Industrial Energy Consumers v. New Mexico Public Service Comm'n*, 111 N.M. 622, 636, 808 P.2d 592 (1991)(" When [the Commission] weighs the evidence, accepting certain testimony while rejecting other, [its] decision nevertheless may be supported by substantial evidence. '[E]vidence of two conflicting opinions in the record does not mean that the decision arrived at is unsupported by substantial evidence.'"). The Commission is entitled to rely on its own expertise in these matters. *Fasken, supra.*

Another issue raised by Pendragon under the guise of a legal argument concerns the Commission's finding No. 46, wherein the Commission found that Pendragon's Chaco No. 1, 2-R, 4 and 5 wells had "... already produced their fair share of gas in the Pictured Cliffs Formation." Pendragon claims the Commission exceeded its authority, acted arbitrarily, and "misapplied the law to the facts" in making this finding, because "Appellants own one hundred percent of the Pictured Cliffs formation gas." *Appellant's Statement of Appellate Issues*, page 2. However, the Commission specifically found that the Pictured Cliffs formation was depleted by Pendragon's wells. Exhibit A, page 12, ¶ 45. This finding is supported by substantial evidence. *See* pages 19-21, above. While it seems to be undisputed that Pendragon owns "one hundred percent" of the Pictured Cliffs formation, if Pendragon's interests were depleted, Pendragon was producing Whiting's gas, not its own gas. Exhibit A. Nothing in the Commission's Order affects Pendragon's ownership, but the reality of the situation is "one hundred percent" of a depleted reservoir is still a depleted reservoir. Certainly nothing in the Oil and Gas Act or otherwise

requires the Commission to declare that natural gas owned by someone else now suddenly belongs to Pendragon simply because it made its way to Pendragon's wells.

A companion argument is the argument that the Commission lacks the legal authority to make a finding that Pendragon has produced its "fair share of gas." However, the Oil and Gas Act specifically authorizes the Commission to make "orders" which "... afford to the owner of each property in a pool the opportunity to produce his just and equitable share of the oil or gas, or both, in the pool ...." NMSA 1978, § 70-2-17(A) (Repl. 1995).

> The rules, regulations or orders of the division shall, so far as it is practicable to do so, *afford the owner of each property in a pool the opportunity to produce his just and equitable share of the oil or gas, or both, in the pool*, being an amount, so far as can be practically determined, and so far as such can be practicably obtained without waste, substantially in the proportion that the quantity of the recoverable oil or gas, or both, under such property bears to the total recoverable oil or gas, or both, in the pool, and for this purpose to use his just and equitable share of the reservoir energy.

NMSA 1978, § 70-2-17(A)(emphasis added). No reasonable argument can be made that the Commission's finding that Pendragon has produced its "fair share of gas" is not authorized so as to afford Whiting its "opportunity to produce [its] just and equitable share of the gas ...." *Id.*

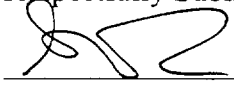
Pendragon argues that this section does not apply because it is "only where the correlative rights of two or more interest owners are involved that the Commission has the statutory authority to determine whether each has had the opportunity to produce his 'just and equitable share' of gas in the pool." *Appellant's Statement of the Issues*, page 13. However, the plain language of the statute quoted above does not admit of any such limitation. Even if it did, "correlative rights" are defined as the opportunity afforded to

the owner of each property in a pool "... to produce without waste *his just and equitable share of the oil or gas or both in the pool ....*" NMSA 1978, § 70-2-33(H). Certainly, the Commission's Order protects Whiting's "correlative rights" by preventing any further production by Pendragon of Whiting's natural gas.

IV. STATEMENT OF RELIEF SOUGHT

For the reasons set forth herein, the Oil Conservation Commission respectfully requests that the Court affirm Order No. R-11133-A of the Commission and dismiss Pendragon's appeal, and for such other and further relief as the Court may deem appropriate.

Respectfully Submitted.



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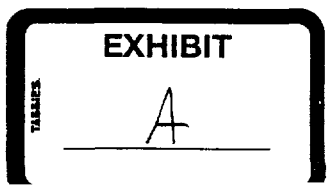


EXHIBIT
A

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:

De Novo
Case No. 11996
Order No. R-11133-A

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. AND J. K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 a.m. on August 12, 1999, at Santa Fe, New Mexico, before the New Mexico Oil Conservation Commission ("Commission") and continued on August 13, 19, 20 and 21, 1999.

NOW, on this 26th day of April, 2000, the Commission, a quorum being present and having considered the record,

FINDS THAT:

(1) Due public notice has been given and the Commission has jurisdiction of this case and its subject matter.

(2) The applicants, Pendragon Energy Partners, Inc. and J. K. Edwards Associates, Inc. (hereinafter referred to as "Pendragon"), pursuant to Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in Oil Conservation Division (hereinafter referred to as "the Division") Order No. R-8768, as amended, seek an order confirming that the following described wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool ("Pendragon Chaco and Chaco Limited Wells") or the Basin-Fruitland Coal Gas Pool ("Whiting Fruitland Coal Wells"), are producing from the appropriate common source of supply and for such further relief as the Commission deems necessary:

Pendragon Chaco and Chaco Limited Wells

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W

Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

Whiting Fruitland Coal Wells

Operator	**Well Name & API Number**	**Well Location**
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Whiting Petroleum Corporation and Maralex Resources, Inc. (hereinafter referred to as "Whiting") appeared at the hearing in opposition to the application. Whiting claimed that the Pendragon Chaco and Chaco Limited Wells are producing:

a) gas from a sandstone interval located within the Fruitland Coal formation; and

b) coal gas from the Basin-Fruitland Coal Gas Pool because of the establishment of communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools.

(4) All eleven wells that are the subject of this application are located within an area (hereinafter referred to as the "Subject Area") that comprises:

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM
Section 6: W/2
Section 7: W/2
Section 18: NW/4

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM,
Section 1: All
Section 12: N/2

(5) The Subject Area is located within the horizontal boundaries of the Basin-Fruitland Coal Gas Pool created by Division Order No. R-8768 dated October 17, 1988. The vertical limits of this pool, as defined by Ordering Paragraph (1) of Order No. R-8768, encompass:

> ... all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2,450 feet to 2,880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(6) The Subject Area is also located within the horizontal boundaries of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The vertical limits of this pool encompass all of the Pictured Cliffs Formation (Order No. R-4260 dated February 22, 1972) and all the sandstone intervals of the Fruitland Coal Formation (Order No. R-8769 dated October 17, 1988).

(7) Pendragon and Whiting received assignments of oil and gas leases in the Subject Area from common grantors, Robert Bayless ("Bayless") and Merrion Oil and Gas Corporation ("Merrion"), during the period from 1992 through 1994.

a) The assignments of rights, in pertinent part, to Whiting are as follows:

Operating rights from the surface of the earth to the base of the Fruitland (Coal Gas) Formation subject to the terms and provisions of that certain Farmout Agreement dated December 7, 1992 by and between Merrion Oil & Gas et al., Robert L. Bayless, Pitco Production Company, and Maralex Resources, Inc.

b) The assignment of rights to Pendragon, in pertinent part, are as follows:

Leases and lands from the base of the Fruitland Coal Formation to the base of the Pictured Cliffs Formation.

(8) A brief history of the Pendragon Chaco and Chaco Limited Wells follows:

a) Merrion and Bayless drilled the Chaco Well No. 1 in February 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,113' to 1,139'. The well initially tested in this interval at a rate of approximately 342 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, J. K. Edwards & Associates, Inc. ("Edwards") became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well.

b) Merrion and Bayless drilled the Chaco Well No. 2R in October 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,132' to 1,142'. The well initially tested in this interval at a rate of approximately 150 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January 1996, Pendragon became operator of the well.

c) Merrion and Bayless drilled the Chaco Well No. 4 in April 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,163' to 1,189'. The well was initially tested in this interval at a rate of approximately 480 MCFGD, 0 BOPD, and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In May 1995, the well was re-perforated in the interval from 1,163' to 1,189' and fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

d) Merrion and Bayless drilled the Chaco Well No. 5 in April 1977, to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,165' to 1,192'. The well initially tested in this interval at a rate of approximately 1029 MCFGD, 0 BOPD and 0 BWPD. In May 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January 1995, the well was re-perforated in the interval from 1,165' to 1,192' and was

fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

e) The Chaco Limited Well No. 1J was drilled by Merrion and Bayless in April 1982 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,200' to 1,209'. The well initially tested in this interval at a rate of approximately 10 MCFGD, 0 BOPD and a trace of water. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

f) The Chaco Limited Well No. 2J was drilled by Merrion and Bayless in September 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,186' to 1,202'. The well initially tested in this interval at a rate of approximately 208 MCFGD, 0 BOPD and 4 BWPD. In October, 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

(9) A brief history of the Whiting Fruitland Coal Wells follows:

a) Maralex drilled the Gallegos Federal 26-12-6 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,138' to 1,157'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

b) Maralex drilled the Gallegos Federal 26-12-7 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,131' to 1,150'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

c) Maralex drilled the Gallegos Federal 26-13-1 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,158' to 1,177'. The well was subsequently fracture

stimulated in this interval. In September 1995, Whiting became operator of the well.

d) Maralex drilled the Gallegos Federal 26-13-1 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,047' to 1,208'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

e) Maralex drilled the Gallegos Federal 26-13-12 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,178' to 1,197'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

Geologic Issues
Fruitland Sand vs. Pictured Cliffs Sand

(10) Related geologic issues are raised by the application: the proper means for determining the limits of the pools and formations at issue, and the effect on this analysis, if any, of integration or interfingering of different rock types.

(11) In its Chaco Wells No. 1, 4 and 5 and its Chaco Limited Well No. 2J, Pendragon is producing from two separate sandstone intervals, hereinafter referred to as the Upper Sandstone and Lower Sandstone intervals. In its Chaco Well No. 2R and Chaco Limited Well No. 1J, Pendragon is producing only from the Lower Sandstone interval. It is the position of Pendragon that the top of the Pictured Cliffs Formation occurs at or above the top of the Upper Sandstone.

(12) The perforated intervals in each of the Pendragon Chaco and Chaco Limited Wells are as follows:

Well Name & Number	"Upper Sandstone" Perforations	"Lower Sandstone" Perforations
Chaco Well No. 1	1,113'-1,119'	1,134'-1,139'
Chaco Well No. 4	1,163-1,166'	1,173'-1,189'
Chaco Well No. 5	1,165'-1,169'	1,174'-1,192'
Chaco Limited Well No. 2J	1,186'-1,188'	1,200'-1,202'
Chaco Well No. 2R	None	1,132'-1,142'
Chaco Limited Well No. 1J	None	1,200'-1,209'

(13) Whiting agrees that the Lower Sandstone interval is within the Pictured Cliffs Formation; however, it contends that the top of the Pictured Cliffs Formation is the top of the Lower Sandstone interval and the Upper Sandstone is within the Fruitland Coal Formation. It is on this basis that Whiting contends that Pendragon is producing from perforations in the Fruitland Coal Formation in its Chaco Wells Nos. 1, 4 and 5 and its Chaco Limited Well No. 2J.

(14) The parties have stipulated that the Pictured Cliffs Formation was deposited in a marine environment and the Fruitland Coal Formation was deposited in a non-marine or terrestrial environment.

(15) In its Order No. R-8768, the Division defined the vertical limits of the Basin Fruitland Coal Gas Pool as all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the well log from the Amoco Schneider Gas Com "B" Well No. 1. The pick for the base of the pool in Order No. R-8768 is the top of the Pictured Cliffs Formation. The pick is also the break between marine and non-marine sediments. It is undisputed that the coal or shale layers occurring below the stratigraphic pick set forth in Order No. R-8768 would not be included in the Basin Fruitland Coal Gas Pool or in the Fruitland Coal Formation.

(16) For the reasons set forth below, we find that the preponderance of the geologic evidence establishes that the Pendragon Chaco and Chaco Limited Wells are completed in the Pictured Cliffs Formation.

(17) The preponderance of the geologic evidence establishes that the Upper Sandstone is marine in origin and thus appropriately considered a part of the Pictured Cliffs Formation. The Upper Sandstone in the Subject Area cannot be differentiated from the main body of the Pictured Cliffs Formation.

(18) In the late Cretaceous period in what was to become the San Juan Basin, sediments were deposited contemporaneously in various environments. The Lewis Shale represents muds and storm-carried sands offshore of the barrier-beach setting. The Pictured Cliffs formation accumulated in primarily a barrier-beach setting. The Fruitland Coal formation accumulated on a coastal plain with swamps and bogs and the Kirtland Formation accumulated in an alluvial plain. As the ancient shoreline moved to the northeast, each of the environments of deposition shifted. At a single location a wellbore presents the familiar vertical sequence of Formations.

(19) Pendragon's isopach map of the Upper Sandstone, Exhibits 50 and 63, show this barrier-bar marine littoral environment with sandstone along the ancient shoreline trending in a northwest to a southeast direction. Pendragon's Exhibits 50 and 63 also show that the Upper Sandstone occurs in a continuous sheet that coalesces into the main body of the Pictured Cliffs Formation as it trends from the shoreline environment on the southwest toward the center of the San Juan basin to the northeast.

(20) In the Subject Area, tongues of Pictured Cliffs sandstone thin in a landward direction and thicken in a seaward direction and ultimately merge with the main body of the Pictured Cliffs Formation. These tongues "interfinger" or integrate with other rock types in the Subject Area.

(21) The interval between the top of the Upper Sandstone and the top of the main body of the Pictured Cliffs (the Lower Sandstone) is composed of a variety of rock types including marine sandstones, silt stones, shales, and thin coals. It has been the long-standing and accepted custom and practice of industry and the various regulatory agencies, including the Division in Order No. R-8768 and R-8769, to place this entire interval within the Pictured Cliffs Formation. This industry and regulatory agency practice conforms to the standards of the North American Stratigraphic Code and the International Stratigraphic Guide.

(22) The evidence presented by Pendragon establishes that over the years approximately 34 wells within approximately 2.5 miles of the Pendragon Chaco and Chaco Limited wells were actually perforated in the Upper Sandstone in conjunction with other Pictured Cliffs intervals and reported by the numerous different operators of those wells as Pictured Cliffs completions, consistent with the picks for the top of the Pictured Cliffs for the Chaco Plant No. 1 and the Pendragon Chaco and Chaco Limited Wells (Exhibit N-61). The evidence also establishes that those reported completions were accepted by the Division and the Bureau of Land Management and that industry and geologists have placed substantial reliance on those reported completions as Pictured Cliffs completions for nearly thirty years.

(23) In a written statement provided to the Commission during the hearing in this case, Merrion, the assignor of the interests in both the Fruitland Coal Formation to Whiting and Pictured Cliffs Formation to Pendragon, indicated it concurred with Pendragon in its identification of the Upper Sandstone interval and the historic recognition of that interval as Pictured Cliffs by Merrion and other operators in the area. (Exhibit N-43.) Merrion further stated that the Pendragon Chaco Wells are appropriately perforated in the Pictured Cliffs Formation and that it had no intention of conveying to Pendragon wells that were perforated in other zones. Merrion also stated that it never intended to farm-out to Whiting the rights to zones where the Pendragon Chaco Wells were perforated.

(24) Thus, identification and utilization of the Upper Sandstone tongues to establish the vertical boundaries of the Pictured Cliffs Formation by industry, governmental regulatory agencies and the parties or their predecessor-in-interest is a long-established custom and practice. Such custom and practice is to be accorded significant weight.

(25) Whiting asserted during the hearing of this matter that the Upper Sandstone interval was deposited in a non-marine, crevasse-splay deposit, resulting from a large, sediment-laden river breaking through its natural boundaries during a flood stage and spreading clean, well-sorted sand over an area more than sixteen-miles long and up to three-miles wide parallel to the shoreline. However, Whiting failed to establish by a preponderance of the evidence the existence of any crevasse splay or any depositional materials indicative of a sand-laden flood. Moreover, there is no evidence of the transporting river or river channel, the thinning of sand deposits in both directions at right angles to the river, adjacent deltaic deposits or any other non-marine mechanism with the capability of forming the thin, but areally extensive, sand of the dimensions seen in the Upper Sandstone.

(26) Whiting also asserted it was possible that the disputed interval was deposited as a washover fan. However, the washover fan depositional mechanism involves wave-dominated action, consistent with the accepted geologic definitions of a marine depositional mechanism. Such a theory also supports a conclusion that the Upper Sandstone was deposited in a marine environment.

(27) Pendragon presented aerial photographs of modern deposits of sands comparable in mode of deposition and areal extent to the Upper Sandstone located in the marine lagoonal areas behind barrier islands, thus demonstrating the validity of the depositional model. Pendragon demonstrated using these exhibits that these sands are wave and tidal-current dominated deposits, and further showed that the seaward beach of a barrier island is not to be confused with the true marine shoreline, which lies behind the island.

(28) The core analysis for the Lansdale Federal No. 1 located in the SE/4 of Sec. 7, T-26-N, R-12-W establishes that grain size and sorting throughout the Upper Sandstone is uniform, consistent with a marine depositional environment. The physical descriptions of the sand appearing in the Upper Sandstone and the Lower Sandstone are grey, fine-grained with little variation in clay content, consistent with a marine sand that has been laterally transported by currents and waves to the point where the energy available sorts the sand into uniform size. Sand-sorting characteristics of this sort are not consistent with a fluvial deposit with graded bedding coarsening downward.

(29) Pendragon presented evidence that the Spontaneous Potential ("SP") readings on electrical logs are much greater in the Pictured Cliffs Formation, which was deposited in a marine setting, than in the Fruitland sands, which were deposited in a fluvial, fresh water environment. Pendragon demonstrated that the SP readings for the Upper Sandstone were comparable or identical to those of the Lower Sandstone and were much greater than those of the Fruitland sands.

(30) The SP map of the Pictured Cliffs Formation introduced by Whiting, Exhibit WA-9, showed 40 to 80 millivolt SP development in the Chaco area. The cross-section exhibit demonstrated that the disputed interval also showed 40 to 80 millivolts SP, even though it was interpreted by Whiting to be Fruitland sandstone, and all other Fruitland sands on his cross-section showed only zero to less than 10 millivolts. Additional testimony established that 40 to 80 millivolts is a significantly higher range than is typically associated with SP development in a fresh-water depositional environment and is more characteristic of the SP development in the Pictured Cliffs intervals observed on the well logs and cross-sections for the Pendragon Chaco Wells.

(31) Whiting contends that the top of the first "massive" sandstone below the lowermost coal of the Fruitland Coal Formation should be the basis for picking the top of the Pictured Cliffs formation. Whiting contends that the operators of approximately one hundred additional wells outside the Subject Area identified the top of the massive Pictured Cliffs Sandstone as the vertical boundary between the Pictured Cliffs and Fruitland Coal Formations. However, Whiting failed to present evidence establishing that the Upper Sandstone interval was present in any of the wells identified. Similarly, Whiting failed to show that any operator identified the top of the Pictured Cliffs sandstone as the massive sand in those areas where tongues of the Pictured Cliffs are known to exist. The geologic testimony and evidence shows that such a definition has little support in the geologic literature and that the arbitrary and undefined term "massive" makes its application impractical.

Engineering Issue

(32) Whiting, the owners and operators of the Whiting Fruitland Coal Wells, and Pendragon, the owner and operator of the Pendragon Chaco and Chaco Limited Wells, each contend that the other's well stimulation treatments established communication between their separately owned formations. Both parties contend that, as a result, their wells are experiencing interference and that gas is being produced out of zone.

(33) The preponderance of the engineering evidence established that the fracture stimulation treatments performed on both the Pendragon Chaco Wells by Pendragon and the Whiting Fruitland Coal Wells by Whiting established communication between the Fruitland Coal Formation and the Pictured Cliffs Formation.

(34) The treatment performed on the Whiting Fruitland Coal Wells after they were drilled created near-wellbore communication channels between the Fruitland Coal and Pictured Cliffs Formations. At the time, the gas in the Pictured Cliffs Formation was nearly depleted and very little gas could escape to the Fruitland Coal Formation, unless the Whiting Fruitland Coal Wells were operated under extremely low pressures. On the other hand, the adsorbed gas in the Fruitland Coal Formation stayed within the coal matrices until the pressure was lowered enough through the dewatering process for the gas to desorb.

(35) After the dewatering process, substantial amounts of adsorbed gas escaped from the coal matrices, especially in the near-wellbore region where pressure was lowest. As a result, the Whiting Fruitland Coal Wells began their commercial gas production. The desorbed gas moving toward the Whiting Fruitland Coal Wells may have migrated to the Pictured Cliffs Formation through the communication channels near the Whiting Fruitland Coal Wells if the local pressure in the Pictured Cliffs Formation was lower than that in the Fruitland Coal Formation. Gas in the Pictured Cliffs Formation may have migrated to the Fruitland Coal Formation through the communication channels if the production pressures at the Whiting Fruitland Coal Wells were low. However, these possible gas migrations were not significant, as evidenced by steady gas production from the Pendragon Chaco Wells.

(36) In 1995, after three years of the dewatering process, the region in which decreased pressures allowed gas to desorb from the coal matrices had grown toward the Pendragon Chaco Wells. At the edge of the resulting gas bubble, the gas pressure in the Fruitland Coal Formation was probably higher than the adjacent pressure in the Pictured Cliffs Formation. In the area of this relatively high-pressure contrast, the thin capillary barrier may have been broken, allowing gas migration between the two zones.

(37) Pendragon performed fracture stimulation treatments on the Pendragon Chaco Wells in 1995. The post-treatment gas production from the Pendragon Chaco Wells indicates that the stimulation work performed by Pendragon successfully broke into some high-pressure gas compartments.

(38) The production history of the Pendragon Chaco and Chaco Limited Wells is summarized as follows:

Well No.	Initial Production (Original Completion)	Pre-Acidization or Fracture Stimulation Production	Post-Acidization or Fracture Stimulation Production	Last Production
Chaco No. 1	80 MCF/D	0 MCF/D	250 MCF/D	165 MCF/D
Chaco No. 2R	70 MCF/D	0-15 MCF/D	90 MCF/D	120 MCF/D
Chaco No. 4	200 MCF/D	0 MCF/D	425 MCF/D	200 MCF/D
Chaco No. 5	190 MCF/D	0 MCF/D	370 MCF/D	210 MCF/D
Chaco Ltd. 1J	11 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D
Chaco Ltd. 2J	30 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D

(39) One possibility is that the hydraulic fractures were extended upward to the Fruitland Coal Formation and generated a gas highway to the gas bubble. Pendragon's experts vigorously denied this possibility. Instead, they asserted that an additional gas compartment, the so-called "third bench," exists below the perforations in the Pendragon Chaco Wells. The evidence does not support this assertion. No "third bench" has been reported previously throughout the San Juan region, and there is no geological evidence of this kind of formation. Furthermore, there is no scientific basis for believing that fractures moved downward into the "third bench" but not upward into the Fruitland Coal

Formation. Therefore, the most reasonable explanation of the sudden significant increases in production following the fracture stimulation treatments on the Pendragon Chaco Wells was that the hydraulic fractures penetrated into the gas bubble established in the Fruitland Coal Formation.

(40) Pendragon also asserted that the fracture stimulation treatments increased production in the Pendragon Chaco Wells by counteracting the effects of reservoir damage caused by (a) scale precipitation, (b) water blockage, and (c) migration of clay fines. As the original Pictured Cliffs gas was relatively dry, however, it is unlikely that the Pendragon Chaco Wells suffered from significant reservoir damage of this type.

(41) The BTU analysis of the gas from the Pendragon Chaco Wells supports the conclusion that the fracture stimulation treatments of these wells in 1995 established communication with the Fruitland Coal Formation. Whiting showed that the hydrocarbon liquids content of the gas from the Pendragon Chaco Wells was slightly reduced from 1988 to 1995 and significantly reduced from 1995 to 1997.

(42) Expert witnesses for both Pendragon and Whiting presented their opinions on the effects of the fracture stimulation treatments in the Whiting Fruitland Coal Wells and the Pendragon Chaco Wells based on their own theories and models. Many input values for key parameters were questionable. Both simulators used in their testimony have a good reputation for assisting in the design of fracturing jobs, but it is easy to manipulate them incorrectly. In a case like this, their results are too exaggerated to be reliable.

(43) The acid stimulation treatments performed by Pendragon on the Chaco Limited Wells No. 1J and 2J in 1995 did not alter these wells' rates of production. These treatments did not establish communication between the Pictured Cliffs Formation and the Fruitland Coal Formation.

(44) The gas now capable of production from the Pendragon Chaco Wells No. 1, 2R, 4, and 5 is: (1) gas originally in place in the Pictured Cliffs Formation; (2) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the
Pendragon Chaco Wells; and (3) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the Whiting Fruitland Coal Wells.

(45) The Pendragon Chaco Wells depleted the Pictured Cliffs Formation prior to the fracture stimulation treatments performed on the wells in 1995.

(46) Pendragon Chaco Wells No. 1, 2R, 4, and 5 have already produced their fair share of the gas in the Pictured Cliffs Formation.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., it is determined that the following described wells are perforated within the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool. It is further determined that the following described wells are producing from both the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool, San Juan County, New Mexico:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W

(2) It is further determined that the following described wells are perforated within and producing solely from the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

(3) It is further determined that the following described wells are producing from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W

Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(4) Pendragon is hereby ordered to shut-in its Chaco Wells No. 1, 2R, 4 and 5 until such time as the Division approves a method for either putting them back into production or plugging them.

(5) Inasmuch as Whiting's wells may produce only minor amounts of gas from the already depleted WAW Fruitland Sand-Pictured Cliffs Pool, Whiting's wells are not to be shut-in.

(6) Jurisdiction is hereby retained for the entry of such further orders 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

JAMI BAILEY, Member

ROBERT L. LEE, Member

LORI WROTENBERY, Chairman

S E A L

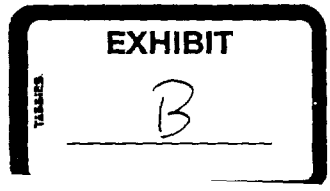
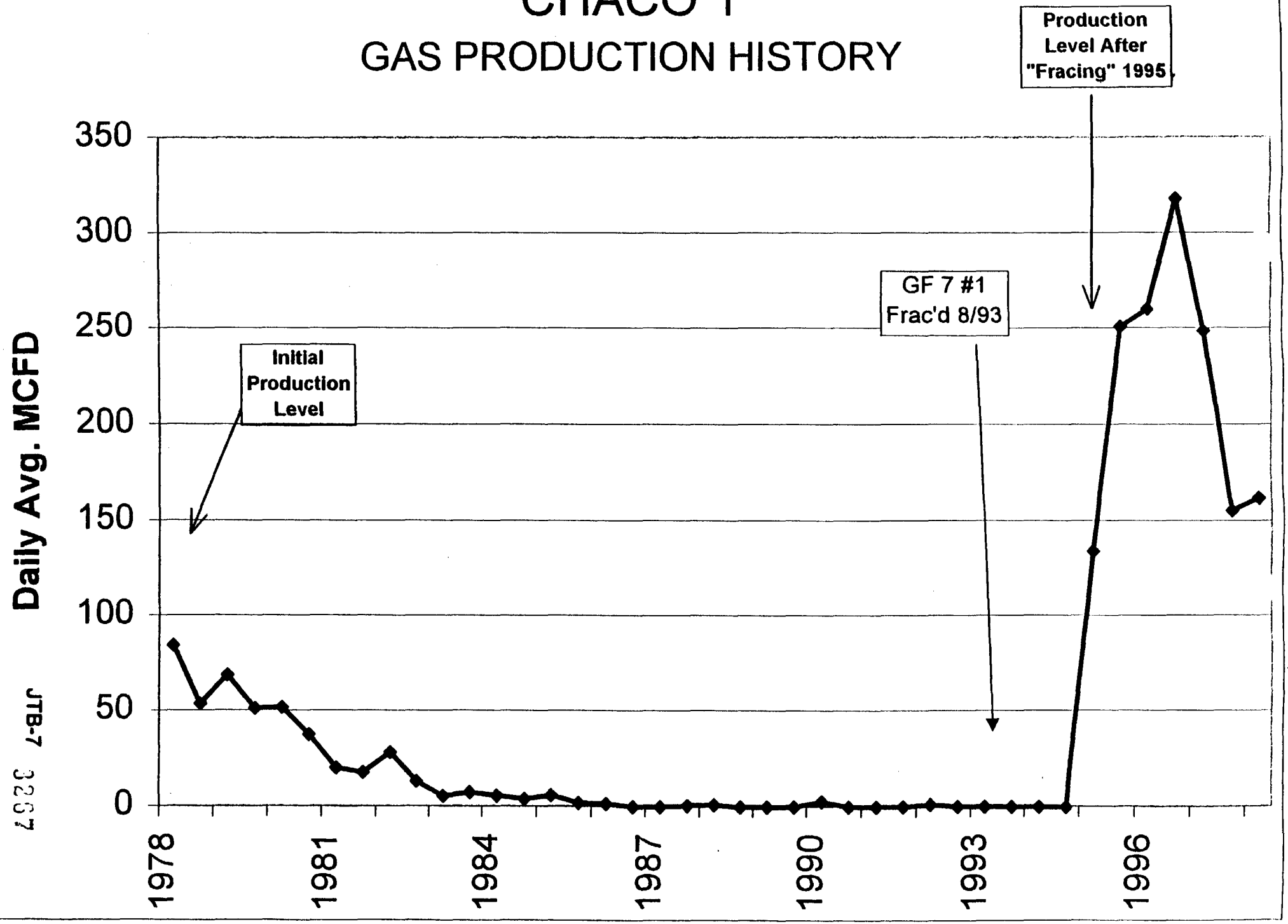


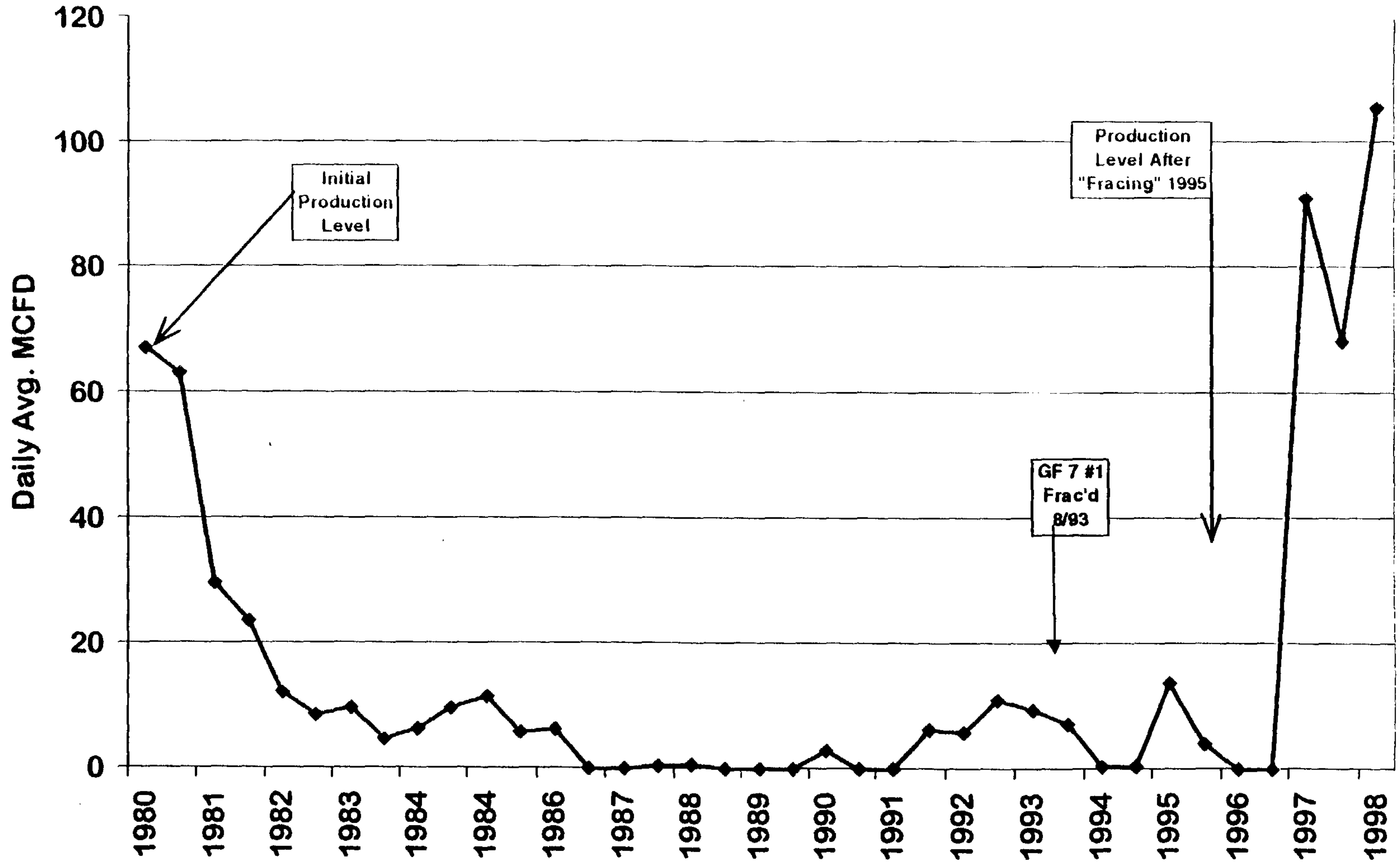
EXHIBIT
B

CHACO 1
GAS PRODUCTION HISTORY



JTB-7 3257

CHACO 2R
GAS PRODUCTION HISTORY



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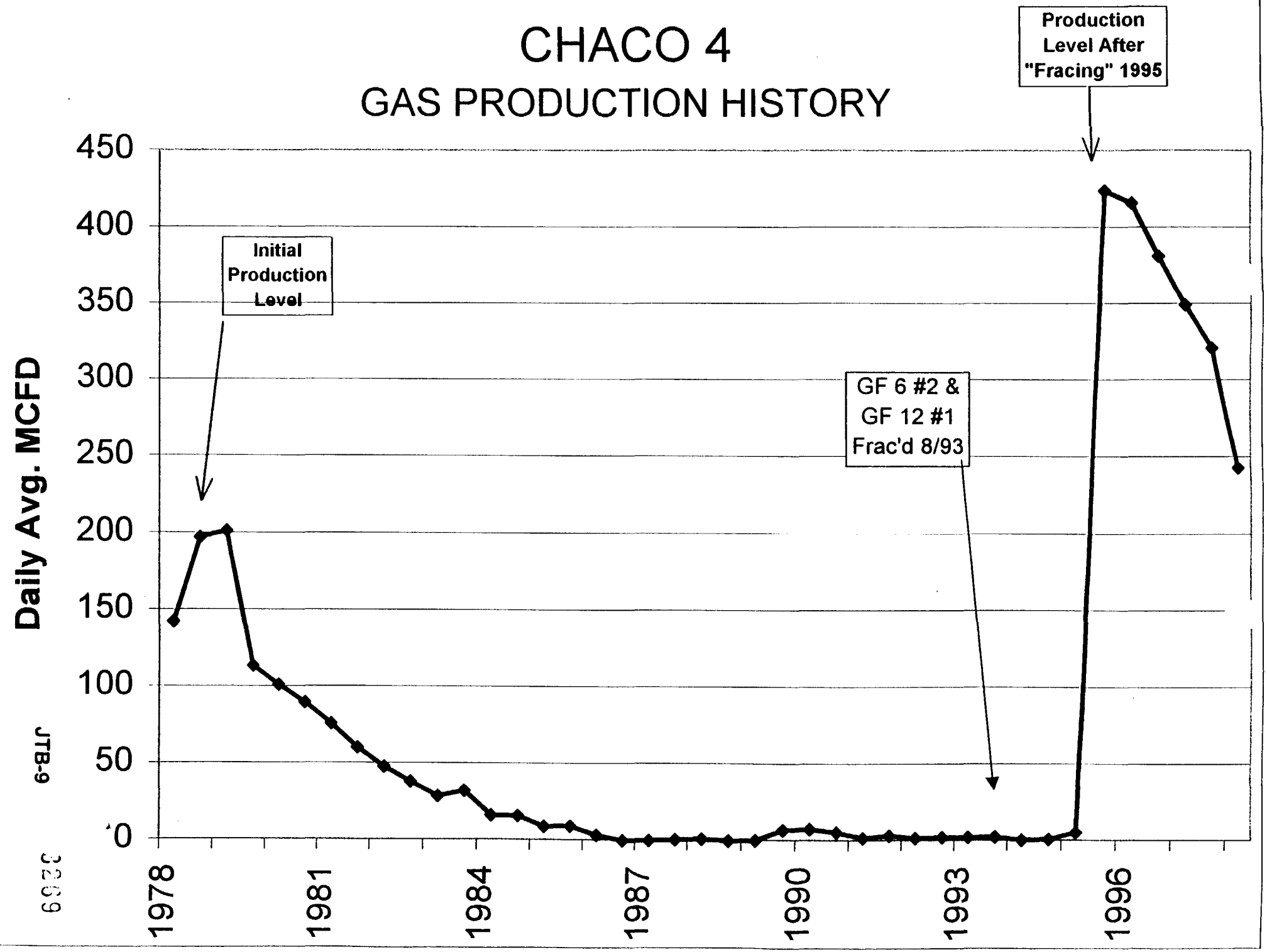
CHACO 4

GAS PRODUCTION HISTORY



CHACO 5

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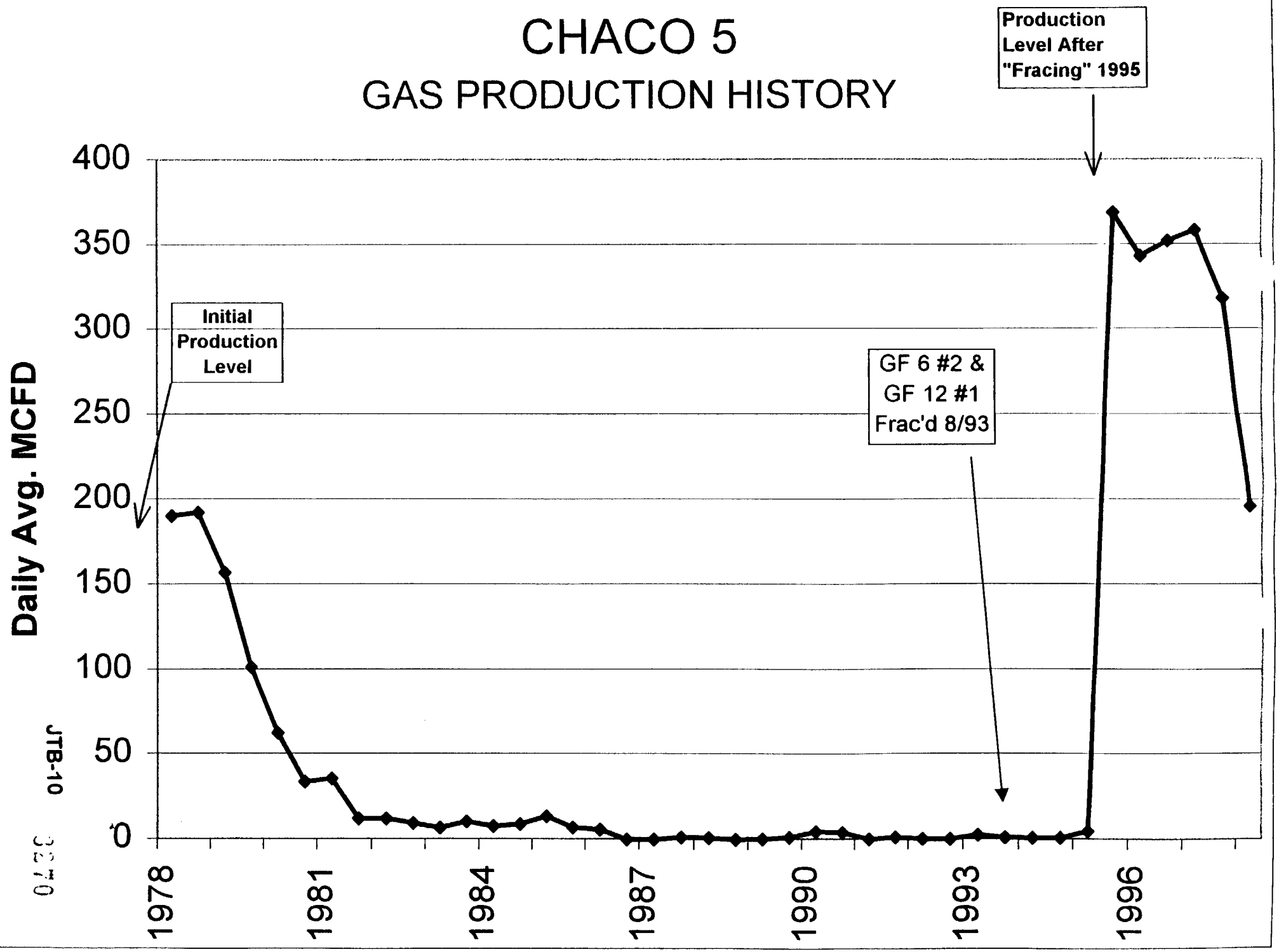
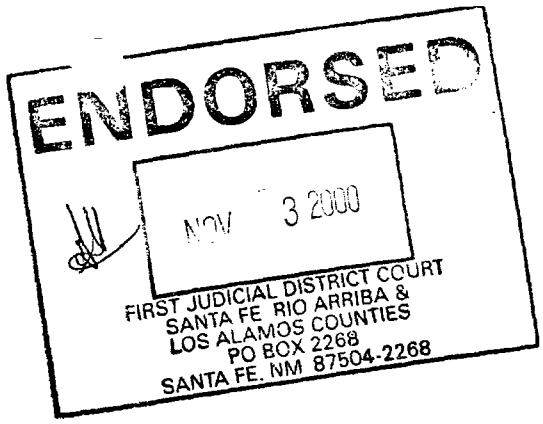


JTB-10



FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellant,

vs.

No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION COMMISSION, WHITING PETROLEUM CORP. and MARALEX RESOURCES, INC.,

Appellees.

WHITING'S RESPONSE TO APPELLANTS' STATEMENT OF APPELLATE ISSUES

Subject to their pending Motion to Intervene,[1] Intervenors/Appellees Whiting Petroleum Corporation and Maralex Resources, Inc. (collectively "Whiting"), file this Response to the Statement of Appellate Issues filed by Appellants ("Pendragon") pursuant to Rule 1-074(L), NMRA 2000.

I.

RESPONSE TO STATEMENT OF THE ISSUES

Pendragon appeals from New Mexico Oil Conservation Commission ("Commission") Order R-11133-A, entered on April 26, 2000. Pendragon attacks several Commission findings, and the dispositive order by the Commission which held that Pendragon's Chaco wells 1, 2R, 4 and 5 must be shut-in. The Commission found, based upon substantial evidence presented by Whiting in the proceedings below, that the Pendragon Chaco wells, which are authorized to produce only from the Pictured

[1] The Whiting motion to intervene and to consolidate is set for hearing before the Court on November 22, 2000.

Cliffs formation in the San Juan Basin, were improperly producing gas from the Fruitland formation. The Fruitland is an overlying coal seam methane gas formation in which Whiting owns a 100% interest. The Chaco wells illegally produced coal seam gas from 1995 until they were ordered shut-in by a Preliminary Injunction issued by the Honorable Art Encinias in July, 1998, after an evidentiary hearing.

This dispute between Whiting and Pendragon (not Pendragon and the Commission) originated in Whiting Petroleum Corporation and Maralex Resources Inc. v. Pendragon Energy Partners, Inc., Pendragon Resources, L.P. and J.K. Edwards Associates, Inc., SF-CV-90-01295 which is pending before Honorable Art Encinias and set for trial on March 19, 2001 ("Whiting Lawsuit"). After Whiting sued, Pendragon insisted before Judge Encinias that factual issues be referred to the Commission so the Commission could apply its expertise. But the Oil Conservation Division and then the Commission held for Whiting. Pendragon appeals and raises three issues. In fact, all of Pendragon's issues, however characterized, are nothing more than complaints that after weighing all the evidence the Commission found against Pendragon.

Three fact finders to whom the case has been presented, Judge Encinias, Examiner David Catanach of the New Mexico Oil Conservation Division, and the Commission, have all reached the same conclusion on the following saliant facts: The Pictured Cliffs formation is a sandstone formation directly under the Fruitland formation; the Pictured Cliffs formation, which Pendragon owns, was developed in the late 1960s and early 1970s and depleted prior to 1995; when Pendragon acidized[2] and fracture

[2] Acidizing of a well is a procedure for increasing flow of oil or gas from a well. Hydrochloric acid is pored into the well under pressure to force the acid into the rock channels which causes the rock to soften and open. 8 Williams & Meyers, Oil and Gas Law, Manual of Terms, p. 13 (1999).

stimulated[3] its Chaco Pictured Cliffs wells in 1995, it created channels in the rock opening communication with the Fruitland Coal formation; and Pendragon then produced coal gas through its Chaco wells beginning in 1995 until those wells were shut-in by court injunction in July 1998.

Pendragon's appeal is a blatant attempt to argue only its evidence in order that this Court might substitute its judgment for that of the Commission. This is particularly egregious since it was Pendragon that insisted in the district court lawsuit brought by Whiting that it wanted the Commission to utilize its expertise to resolve the technical, factual issues.[4] Pendragon's gamesmanship and circumvention of proper procedure is evidenced by its failure to name Whiting, the real parties in interest here, as defendants and then to oppose Whiting's motion to intervene. Pendragon wants to go into the ring against only the referee and exclude its opponent.

As to appeal Issue 1, Whiting will demonstrate, infra, that the Commission acted properly in compliance with its statutory mandate in adopting findings and issuing its dispositive order in this case. Pendragon tries to disguise its real argument, which is insufficient to warrant any modification of the Commission Order, which is that the Commission rejected Pendragon's flawed theory of the case.

Pendragon's Issue 2 is unclear, but seems to challenge the Commission determination that the Chaco wells had produced the recoverable gas from their formation source. The Commission found that (a) the Pictured Cliffs formation from which the Chaco wells are authorized to produce was depleted in the disputed area

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[3] To "frac" a well refers to a procedure used to increase the deliverability of gas or oil well by pumping a liquid into a well under pressure to induce cracks or fractures and prop open the hydrocarbon bearing formation. 8 Williams & Meyers, Oil and Gas Law, Manual of Terms, p. 418 (1999).

[4] At the urging of Pendragon, Judge Encinias allowed Pendragon to seek "consideration by the New Mexico Oil Conservation Division or New Mexico Oil Conservation Commission on certain issues within their administrative jurisdiction." Preliminary Injunction, July 7, 1998.

before 1995, (b) Pendragon caused communication from its Pictured Cliffs formation to the Fruitland formation in 1995 when it fracture stimulated its Chaco wells, and (c) Pendragon had improperly produced a significant volume of Whiting's coal seam gas through its Chaco wells from 1995 until June, 1998. Whiting will demonstrate, infra, that the Commission's findings and disposition as to the depletion of the Pictured Cliffs formation are in accord with the Commission's statutory authority, and supported by substantial evidence.

In Issue 3, Pendragon finally correctly labels its claim as an attack that various Commission findings are not supported by substantial evidence. This portion of Pendragon's Statement of Appellate Issues is the subject of a separately filed Motion to Dismiss or, Alternatively, Motion to Strike which Whiting is submitting simultaneously herewith.

Pendragon has violated Rule 1-074(K)(2), which requires that a party's summary of proceedings "shall include a short recitation of all facts relevant to the issues presented for review . . . ". (Emphasis added). In a substantial evidence challenge, a party is obligated to provide the reviewing court with a complete statement of facts relevant to the issue. This means the appellant must include the facts in the record which support the decision below. Martinez v. Southwestern Landfills, Inc., 115 N.M. 181, 184, 848 P.2d 1108 (Ct. App. 1993) (party challenging administrative decision must set forth all evidence bearing on proposition, including evidence and reasonable inferences supporting administrative decision, and failure to comply constitutes waiver of right of review). On an appeal from an administrative decision the question is not whether Pendragon can point to evidence which supports a different result than that reached by the Commission, the issue is whether substantial evidence supports the

result reached. Huning Castle Neighborhood Ass'n. v. City of Albuquerque, 1998-NMCA-123, 125 N.M. 631, 636, 964 P.2d 192. As the Supreme Court has instructed in an appeal of a Commission order:

> Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Rinker v. State Corporation Commission*, 84 N.M. 626, 506 P.2d 783 (1973). We must view the evidence and all reasonable inferences in the light most favorable to support the findings, and any evidence unfavorable will not be considered. *Martinez v. Sears Roebuck and Co.*, 81 N.M. 371, 467 P.2d 37 (Ct. App.), *cert. denied*, 81 N.M. 425, 467 P.2d 997 (1970). Special weight will be given to the experience, technical competence and specialized knowledge of the Commission. *Rutter & Wilbanks Corporation v. Oil Conservation Commission*, 87 N.M. 286, 532 P.2d 582 (1975); *Grace v. Oil Conservation Commission*, 87 N.M. 205, 531 P.2d 939 (1975) (Emphasis added).

Viking Petroleum v. Oil Conservation Commission of New Mexico, et al., 100 N.M. 451, 453, 672 P.2d 280 (1983).[5]

In each instance where Pendragon challenges the sufficiency of evidence supporting a Commission finding, Pendragon cites only to the evidence it presented below. Pendragon has uniformly failed to reveal to this Court a mountain of evidence introduced below by Whiting, and evidence elicited from Pendragon's own witnesses on cross-examination, which supports each and every finding of fact which Pendragon challenges in this administrative appeal.

Based upon Pendragon's failure to comply with Rule 1-074(K)(2), and upon application of the controlling standard of review, Viking, supra, the Court should dismiss Pendragon's appeal, out of hand. In any event, as Whiting will demonstrate,

[5] In all reported appeals from Commission decisions the adverse administrative litigant is joined as a party aligned with the Commission, since it or they are the real parties in interest.

substantial evidence supports each and every Commission finding regarding which Pendragon complains.

II.

SUMMARY OF PROCEEDINGS

A. History of the Dispute

The area in question is in Township 26 North, Ranges 12 and 13 West in San Juan County, New Mexico. Record on Appeal ("R.") 3264, Comm. Exhibit JTB-1, attached at Tab 1. The geologic formations underneath the same surface acreage are owned by different parties. Whiting and Pendragon received assignments of rights in oil and gas leases from common grantors. R. 2894. The assignment to Whiting reads:

> Operating rights from the surface of the earth to the base of the Fruitland (coal gas) formation.

R. 2894; The assignment of rights to Pendragon reads:

> Leases and lands from the base of the Fruitland Coal formation to the base of the Pictured Cliffs formation.

Id.

Whiting has been producing coal seam gas from the Fruitland formation since it completed its coal gas wells ("Gallegos Federal wells") in 1992. R. 2893-98. Wells in the San Juan Basin are routinely hydraulically fractured to stimulate production. Following the fraccing of the Gallegos Federal wells there was no effect on the pressure or gas production from Pendragon's Chaco wells, which are located near the Whiting wells. The Chaco wells simply continued producing meager quantities of gas under low pressures from the Pictured Cliffs formation. R. 861-64; 1079-81; 2906-10; 3255-57.

The Chaco wells were originally drilled in the 1970s and 1980s, produced conventional gas for some years, and had reached a state of advanced depletion by

1995. R. 855-67; 1079-80; 2902-05; 3252-57. Three years later, in 1995, Pendragon administered substantial fracture stimulations on its Chaco wells. Id. Immediately after these fracture procedures were performed, Pendragon's wells began to show production and pressure increases which even exceeded the original pressures and production capacity of these wells when first drilled under virgin reservoir conditions. R. 2911; 3253. The Gallegos Federal Wells flow levels were adversely affected by the Chaco wells' new found gas production. R. 2908-18; 3252-55. Those observations, along with gas analyses from the Pendragon Chaco wells, suggested to Whiting personnel that the Pendragon wells were producing coal seam gas from the Fruitland formation, not Pictured Cliffs gas. R. 2898-2901. Whiting believed that the Pendragon fracture stimulations had extended up into the Fruitland formation, and requested that Pendragon cease production from its Chaco wells. Id.

When Pendragon showed no inclination to limit or cease production from the Chaco wells, Whiting filed suit. Also on May 26, 1998, Pendragon filed an Application with the New Mexico Oil Conservation Division ("Division") in which it asked the Division to determine that both the Pendragon Chaco wells and the Whiting Gallegos Federal wells were each producing from their respective proper formations.[6] R. 5207-18.

On July 7, 1998, following an evidentiary hearing in the Whiting Lawsuit on Whiting's Application for Preliminary Injunction, the district court entered its Order enjoining Pendragon from producing Chaco wells 1, 2R, 4 and 5. That injunction

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[6] One of the more curious aspects of this proceeding is Pendragon's impeachment of its own administrative Application by a most extraordinary reversal of position. Pendragon's Application to the New Mexico Oil Conservation Division ("Division") sought an order that both the Pendragon Chaco wells and the Whiting Gallegos Federal wells are producing from their respective appropriate common source of supply i.e., the Pictured Cliffs formation and Fruitland formation respectively. At the Division hearing in July, 1998, Pendragon's evidence denied any communication between the Pictured Cliffs formation and the Fruitland formation, or between the Chaco wells and the Gallegos Federal wells in the area in question. R. 2900. The Division did not buy that story. Having lost before the Division on the communication issue, Pendragon completely changed its evidentiary story in the de novo hearing at the Commission. Pendragon conceded communication between the two formations, but contended that

remains in effect currently. The Court found in that order that "plaintiffs have established a substantial likelihood that they would prevail on the merits of their claim that defendants have trespassed into plaintiffs' Fruitland formation and that defendants are converting the plaintiffs' gas." A copy of that Order is attached as Exhibit A at Tab 2.

The Preliminary Injunction authorized consideration by the Commission or the New Mexico Oil Conservation Division ("Division") "on certain issues within their administrative jurisdiction." The Court referred issues to the Division which relate to the parties' relative rights in the formations and are subject to meaningful relief through the Division. A copy of the Order entered July 6, 1998 is attached as Exhibit B at Tab 3. Two years of extensive and expensive administrative adjudicatory proceedings followed.

On July 28, 29, and 30, 1998, Division Examiner David Catanach heard evidence from both sides on Pendragon's application that it was producing gas through its Chaco wells from its appropriate source of supply. The Division entered its Order R-11133 on February 5, 1999, holding that Pendragon had fracture stimulated the Chaco wells so as to invade Whiting's Fruitland coal formation, and that Pendragon was producing coal seam gas belonging to Whiting. The Division ordered that the Chaco wells be shut-in. A copy of that Order is attached hereto as Exhibit C at Tab 4.

On February 18, 1999, Pendragon requested a de novo hearing before the Commission. The Commission called for Pre-filed Expert testimony from the parties, which was filed on July 26, 1999. Much of the evidence which supports the Commission's Order is contained in Whiting's reports. R. 2890-2957; 3247-76; 3393-

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the Gallegos Federal wells caused the communication, and that the Gallegos Federal wells are producing Pictured Cliffs gas.

3454. The Commission held its evidentiary hearing on August 13, 19, 20 and 21, 1999. Whiting's affirmative case on these issues involved testimony from three experts and one fact witness, R. 831-936; 1033-42; 1047; 1051-63; 1075-1103; 1152-58; 1255-99; 1309-30; 1427-33; 1433, as well as extensive cross-examination of Pendragon's witnesses.

The Commission rendered its decision on the de novo appeal on April 26, 2000, as Order R-11133-A. The Commission ordered that Chaco wells 1, 2R, 4 and 5 be shut-in based on findings, inter alia, which are the subject of this appeal, viz:

(33) The preponderance of the engineering evidence established that the fracture stimulation treatments performed on both the Pendragon Chaco Wells by Pendragon and the Whiting Fruitland Coal Wells by Whiting established communication between the Fruitland Coal Formation and the Pictured Cliffs Formation.

(34) The treatment performed on the Whiting Fruitland Coal Wells after they were drilled created near-wellbore communication channels between the Fruitland Coal and Pictured Cliffs Formations. At the time, the gas in the Pictured Cliffs Formation was nearly depleted and very little gas could escape to the Fruitland Coal Formation, unless the Whiting Fruitland Coal Wells were operated under extremely low pressures. On the other hand, the adsorbed gas in the Fruitland Coal Formation stayed within the coal matrices until the pressure was lowered enough through the dewatering process for the gas to desorb.

(35) After the dewatering process, substantial amounts of adsorbed gas escaped from the coal matrices, especially in the near-wellbore region where pressure was lowest. As a result, the Whiting Fruitland Coal Wells began their commercial gas production. The desorbed gas moving toward the Whiting Fruitland Coal Wells may have migrated to the Pictured cliffs Formation through the communication channels near the Whiting Fruitland Coal Wells if the local pressure in the Pictured Cliffs Formation was lower than that in the Fruitland Coal Formation. Gas in the Pictured cliffs Formation may have migrated to the Fruitland Coal Formation through the communication channels if the production pressures at the Whiting Fruitland Coal Wells were low. However, these possible gas migrations were not significant, as evidenced by steady gas production from the Pendragon Chaco wells.

(39) One possibility is that the hydraulic fractures were extended upward to the Fruitland Coal formation and generated a gas highway to the gas bubble.

Pendragon's experts vigorously denied this possibility. Instead, they asserted that an additional gas compartment, the so-called "third bench," exists below the perforations in the Pendragon Chaco wells. The evidence does not support this assertion. No "third bench" has been reported previously throughout the San Juan region, and there is no geological evidence of this kind of formation. Furthermore, there is no scientific basis for believing that fractures moved downward into the "third bench" but not upward into the Fruitland Coal Formation. Therefore, the most reasonable explanation of the sudden significant increases in production following the fracture stimulation treatments on the Pendragon Chaco Wells was that the hydraulic fractures penetrated into the gas bubble established in the Fruitland Coal Formation.

(40) Pendragon also asserted that the fracture stimulation treatments increased production in the Pendragon Chaco Wells by counteracting the effects of reservoir damage caused by (a) scale precipitation, (b) water blockage, and (c) migration of clay fines. As the original Pictured Cliffs gas was relatively dry, however, it is unlikely that the Pendragon Chaco Wells suffered from significant reservoir damage of this type.

(41) The BTU analysis of the gas from the Pendragon Chaco Wells supports the conclusion that the fracture stimulation treatments of these wells in 1995 established communication with the Fruitland Coal Formation. Whiting showed that the hydrocarbon liquids content of the gas from the Pendragon Chaco Wells was slightly reduced from 1988 to 1995 and significantly reduced from 1995 to 1997.

(44) The gas now capable of production from the Pendragon Chaco Wells No. 1, 2R, 4 and 5 is (1) gas originally in place in the Pictured Cliffs Formation; (2) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the Pendragon Chaco Wells; and (3) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the Whiting Fruitland Coal Wells.

(45) The Pendragon Chaco Wells depleted the Pictured Cliffs Formation prior to the fracture stimulation treatments performed on the wells in 1995.

(46) Pendragon Chaco Wells No. 1, 2R, 4, and 5 have already produced their fair share of the gas in the Pictured Cliffs Formation.

B. Facts Relevant to this Administrative Appeal

Because Pendragon has failed to provide the Court with the substantial evidence which supports significant Commission findings and the Commission's disposition of the case below, Whiting submits this statement pursuant to Rule 1-074(J), NMRA 2000.

The Court should note that Whiting put on affirmative evidence disputing every point raised by Pendragon on appeal and supportive of the Commission decision. The Whiting expert testimony in its Prefiled Reports and at the hearing totaled over 400 pages of detailed, technical testimony and one hundred and twenty two exhibits.

1. Division History and Regulatory Standards

The issues here do not come before the Court in a vacuum. There is a very significant regulatory history addressing the nature of the Fruitland coal formation and its relationship to the underlying Pictured Cliffs formation. The Division entered Order R-8768 in 1988, in Case No. 9420, establishing the Basin-Fruitland Coal Gas Pool in the Fruitland formation. In 1988, testimony was presented by several witnesses on the likelihood of Fruitland Sand or Pictured Cliffs fracture stimulations growing into and communicating with coal seams in the Basin, a matter of general industry knowledge in 1988. R. 832-33; 835; 2892-93. The formations occur in the earth within a few feet of each other, the coal being the shallower formation. Id.

In order to address this situation, the Division adopted Special Rules in Order No. R-8768.[7] Rule 3 authorizes the Director to require an operator of a proposed or existing Pictured Cliffs well, here Pendragon, to submit certain data in order to demonstrate to the satisfaction of the Division that the well will be or is currently producing from the appropriate common source of supply. Rule 2 specifies the data to be used in the analysis, including:

a. Electric Log Data
b. Drilling Time
c. Drill Cuttings or Log Cores
d. Mud Logs
e. Completion Data

[7] Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool, Case No. 9420, Order No. 9420, October 17, 1988. Case No. 9420 and 9421 were heard by Examiner David Catanach.

f. Gas Analysis
g. Water Analysis
h. Reservoir Performance
i. Other evidence which may be utilized in making such determination

R. 2893.

2. The Evidence Presented Below Supports the Commission Findings and Order

a. Whiting's Wells Produce Only Coal Seam Gas.

The Gallegos Federal well project began in 1991. Maralex Resources, Inc. ("Maralex") drilled a total of seventeen coal wells in that project, including the five Gallegos Federal wells at issue in this proceeding. R. 2893. After purchasing the overlying Fruitland coal rights, Mr. O'Hare, the president of Maralex, was solicited by Merrion and Bayless to buy a group of Pictured Cliffs wells in the area, including the Pendragon Chaco wells. Merrion and Bayless wanted to be rid of the old, unprofitable wells. Mr. O'Hare turned down the offer concluding that the Chaco wells were economically unviable. R. 2894.

Maralex carefully designed the fracture stimulations for the Gallegos Federal wells so that they would not extend out of the coal formation and communicate with the Pictured Cliffs formation and lose valuable gas. R. 2906-08. As Mr. O'Hare stated, "It was in our self-interest not to lose coal gas to a depleted, lower pressure zone." R. 2896. Communication with the Pictured Cliffs was avoided by the inclusion of additives to the fracturing fluids for the coal wells and the elimination of gel fluids in the base fluid, thus greatly reducing viscosity, and by avoiding perforating the Basil coal, the lower one to five foot thick coal seam that is at the top of the sandstone that constitutes the Pictured Cliffs formation. R. 859-61; 2890-96; 2906-08. The evidence was undisputed that following the fracture stimulations of the Gallegos Federal wells, and through 1992,

1993 and 1994, there was no pressure or production response in the offsetting Chaco wells. R. 861; 1080; 2909; 3267-88. Substantial testimony was presented to the Commission that the Whiting fracture stimulations did not cause communication with the Pictured Cliffs formation, and that Whiting has not produced Pictured Cliffs gas. R. 859-61; 1147; 1270-81; 2895-98; 2902; 2906-10; 3251-58.

Whiting's Gallegos Federal wells are coal seam gas wells that have exhibited a classic dewatering and gas incline pattern. R. 431-32; 2896-97. The gas from coal is almost entirely methane. Because coal gas contains little or no ethane, butane and other liquid hydrocarbons present in conventional sandstone gas, such as the Pictured Cliffs formation, it has a low Btu content. R. 1086-87; 3270. The coal wells initially produced prolific water, referred to as the "dewatering" process. R. 2896-97. Over time, as the dewatering ran its course, the wells began to produce large quantities of coal seam methane.

b. Pre-1995 History of the Chaco Wells

Where the Fruitland formation produces coal seam methane, the Pictured Cliffs formation is a conventional gas reservoir. R. 857; 1082-84. The gas from conventional wells has a markedly different chemical content and the wells a contrasting production profile from a coal well. A coal well initially goes through a considerable dewatering process producing significant volumes of water before commercial gas production is possible. In contrast, a conventional gas well in the Pictured Cliffs formation will initially have flush production with the largest volume of gas and its highest shut-in pressures in the days the well is first produced given virgin reservoir conditions. R. 2911; 3253. Pictured Cliff wells go through no dewatering process, and there is usually little or no water production associated with Pictured Cliffs gas wells. R. 895; 910; 1057. A

Pictured Cliffs gas well will experience a traditional decline in production after the first few months as the reservoir in the area of the well empties and moves toward a state of depletion. R. 1099-1101.

The Chaco wells are shallow, cheap "slim hole" completions.[8] R. 857; 1094. They were completed in the 1978-80 era to take advantage of NGPA "new well" gas prices which exceeded $3.00 per Mcf. R. 857; 2904. Original flush production volumes for Chaco wells 1, 2R 4 and 5 ranged from 80 to 200 thousand cubic feet per day (Mcf/d). R. 3251; 3267-69; 3276-3302. The wells performed as expected and suffered a typical decline in production over five to ten years as they drained the Pictured Cliffs formation. Id. By the mid-1980s, all of the Chaco wells, like virtually all the wells in that sandstone pool, were completely non-productive or making only 5 to 15 Mcf of gas per day. R. 856-57; 2898; 3252-54; 3267-76. Pressures in the wells, which were originally in the range of 200 to 250 psi, had declined by the mid-1980s to around 100 psi.[9] R. 3268-74. By 1992 the Chaco wells flowed at abandonment levels of 0-15 Mcf/d and were no longer economical to own and operate. They were due to be plugged and abandoned, a procedure required by regulation and constituting a financial liability. R. 1157-58; 2894; 2904.

Merrion Oil and Gas and Bob Bayless, who owned the Pictured Cliffs rights in the Chaco wells in 1992, are two of the more expert and experienced operators in the San Juan Basin. R. 1146. They saw plugging liabilities and no rework potential in the Chaco wells. R. 1157-58. They offered Maralex the Pictured Cliffs rights in the Chaco

[8] A regularly completed well, such as the Whiting wells, will have a 5" or 7" casing in which is inserted a production pipe ("tubing") typically 2 7/8" or 2 ½" in diameter. A slim hole is one in which the operator drills a narrow hole and uses the tubing as the casing and there is no production tubing.

[9] Deliverability tests, previously required by the Oil Conservation Division, were discontinued in 1984. Thus, there is a hiatus in pressure readings information on the Chaco wells of about ten years.

wells and other Pictured Cliffs wells in 1992. R. 855; 2893-94. Mr. O'Hare evaluated the properties and determined that the Pictured Cliffs formation had no remaining economic reserves. R. 866-67; 2903-04; 3076-96. No evidence was presented to the Commission that any other operators in the area are reworking WAW Fruitland Sand - Pictured Cliffs wells to recover PC reserves. There is no literature supporting the existence of untapped reserves in the PC formation in this area. Neither J.K. Edwards nor Pendragon produced any studies or investigations made before the 1995 reworks that justified the development of supposed untapped Pictured Cliffs reserves.

Merrion and Bayless had put the Chaco wells up for auction, to be rid of the liability, when Pendragon/Edwards purchased them in December, 1994. R. 2894. Under the direction of engineer Paul Thompson, Pendragon began aggressive rework on the Chaco wells. R. 2899; 2916-22. Incredible and uncommon pressure and production increases were observed in the Chaco wells immediately after Pendragon performed fracture stimulations on Chaco wells 1, 4 and 5. R. 862-63; 1079-80. The Chaco wells which Pendragon did not fracture stimulate, the 1J and 2J, had no significant production increase even though closely offset by Gallegos Federal wells 26-13-1 #1 and 26-13-1 #2 which were fracced in 1993. R. 861; 2918-21. The GF 13-#1 is on the same pad only 180 feet distant from the Chaco 2J. R. 2909.

The correlation and cause-effect relationship is indisputable and demonstrates that Pendragon's actions caused communication with the Fruitland formation. R. 862-63; 1079-84; 1266; 1414; 2910-11. Pendragon's approach before the Commission was

to either ignore the facts, try to avoid them as "inconclusive," or argue that damaging evidence was unreliable.[10]

Pendragon pointed to another Pictured Cliff well in the general area, named the Chaco Plant No. 5, as the "poster well" that provided inspiration for the Chaco well project. Interestingly, the Commission hearing marked the first time Pendragon ever mentioned the Chaco Plant No. 5 as having been involved in any way in its decision to implement the Chaco well restimulation program.[11] R. 867. The evidence, however, suggested that the Chaco Plant No. 5, like the subject Chaco wells, is economical because it is actually producing coal seam gas as a result of communication with the Fruitland formation during the restimulation process. R. 867-72.

c. Production Volumes and Pressure Readings Since Restimulation Confirmed the Production of Coal Seam Gas from the Chaco Wells

With one notable exception, production and pressures rose in the Chaco wells following either acidization or fracture stimulation to levels resembling pressures in Fruitland coal formation, while Chaco wells Pendragon did not fracture stimul showed no significant pressure or production response. R. 3276-3302. The Chaco well reflected a 97 pounds per square inch (psi) Wellhead Shut-in Pressure (WHSIP) o a C-122A in July 1983; the rig report when acidization was about to be done in Januar 1995 read 119 psi. R. 2915. In twelve years the well had been shut-in the reservoir on

[10] Pendragon witnesses continually denigrated the value of gas analysis. They implied that every unfavorable shut-in surface pressure reading that did not fit their theory must have been distorted by water in the wellbore, an assumption Pendragon never proved or substantiated. R. 138-39; 154; 522.

[11] The most reasonable inference is that the Lansdale Federal No. 1 was the true Pendragon guinea pig. Pendragon justified investment in the Chaco well restimulations on the work that it had performed in December, 1994 when it intentionally completed the Fruitland coal formation in its "Pictured Cliffs" Lansdale Federal No. 1 well. Pendragon failed to report the well as a coal well in notices filed with the Division, failed to document water production from the well, but began producing coal seam gas from what it falsely reported as a "Pictured Cliffs well" occupying a 160 spacing unit, rather than the 320 acres required by the Oil Conservation Commission for a coal well. R. 2915; 2917-18.

its own had only "repressured" 22 psi, reflective of the true formation pressure. Id; 902. Two weeks following Pendragon's acidization of the Chaco 4 the rig reported shut-in pressure of 170 psi – a 51 psi increase in two weeks! R. 2909; 2915. There is no way the Pictured Cliffs could be "repressurized" unless contact was opened with the higher pressured Fruitland formation. R. 2916-17. The only scientific conclusion to be drawn from the data is that the acidization caused communication between the Pictured Cliffs formation and the higher pressured and relatively untapped Fruitland coal formation. Id.; 3250-56. The Chaco 5 well, relied upon by Pendragon as having pressure increases prior to stimulation, in fact had a casing leak that was discovered in February, 1995, prior to the stimulation. That meant communication with the coal was already established. R. 2916.

The Chaco 2R well is interesting because it did not respond immediately to the Pendragon fracture stimulation in 1995. This well produced considerable water and required the installation of a compressor for continuous production. R. 2910-13. Unlike the other three fracture treated wells, the 2R is not perforated in the sandstone formation which lies between coal seam layers, but is only opened in the Pictured Cliffs formation below the lowest coal. R. 331; 3369.

The pressure and production response observed in the Chaco wells after acidization and fracture stimulation was inconsistent with gas sources from the Pictured Cliffs formation. R. 904; 2916-17; 3252-54. The production levels and pressure observed after the Pendragon rework exceeded production and pressures observed when the wells were first drilled under virgin reservoir conditions. R. 2911; 3254. This could not occur in a conventional gas reservoir like the Pictured Cliffs if the wells were solely flowing from the Pictured Cliffs formation. Id. This type of production and

pressure response simply does not occur in a conventional gas reservoir, particularly after the reservoir has been drained by fifteen years of production. Id. The only logical and scientific explanation for the pressure and production response in the Chaco wells is that the acidizations and fracture stimulations opened communication with the Fruitland formation in 1995, at which time the high pressured coal seams had gone through the dewatering process and were on a production incline. R. 2890-98; 3247-3258.

d. The Commission Ruled On Substantial Evidence Against Pendragon On Its Reservoir "Damage" Theory

Pendragon obviously faced a dilemma about how to explain the extraordinary production and pressure increases observed in its old Chaco wells after it acidizations and restimulations.

One story offered by Pendragon, and which is argued on appeal, was that the phenomenal pressure and production increases observed in the Chaco wells were the result of restimulation in 1995 overcoming reservoir "damage" which impeded the gas flow. Whiting completely refuted that notion by evidence which demonstrated that the production and pressure increases after the stimulation work could not be explained by the damage theory, that there was no evidence of reservoir or well damage in the Chaco well files or in their production history prior to 1995, and by demonstrating that the "overcoming damage" theory did not explain the pressure increases observed in the Chaco wells after 1995. R. 902-04; 942; 1155-56; 1273; 1313-22; 2904; 3401-05.

So-called reservoir "damage" can impede gas volume levels but it will not prevent a well from exhibiting true shut-in reservoir pressure. R. 942. The tip-off to the presence of damage is that shut-in pressures are relatively good, while gas production is poor. This phenomena was grudgingly conceded by Pendragon. But when both

pressures and production increased with the 1995 stimulations, Pendragon was quick to speculate the pre-1995 pressures readings must have been distorted by liquid in the wellbore. R. 138-39; 154; 522.

There are recognized diagnostic well test methods to actually determine whether there is reservoir damage. R. 1318-19. Pressure-production differentials that would raise suspicions of damage are routinely noted in the well files by operators. There was no evidence of either testing or operator observations supporting the damage idea. R. 1155-56; 1313-20. Indeed, given the normal decline curve of the total wells in the WAW Fruitland-Pictured Cliffs pool, illustrated on Whiting Ex. W-30, Pendragon would have to argue that all wells in the entire pool had damage. R. 3281-87.

The "damage" theory was totally theoretical. Pendragon witnesses Nicol, McCartney and Cox each postulated the existence of damage in the Chaco wells, but each speculated a different type of damage or damage mechanism. Each offered mere speculation, with neither testing nor documentation for substantiation. R. 794-95; 1319-20 ("there may be" water damage, "possibly scale precipitation or fines migration"). Faced with such flimsy evidence, the Commission rejected Pendragon's damage theory.

e. Pendragon's Attempts to Account for the Gas Produced by the Chaco Wells by the "Third Bench" Theory was Property Rejected by the Commission

Pendragon offered another creative theory in case the "damage" theories did not explain the Chaco wells' miraculous transformation after 1995. Given the thickness and characteristics of the productive zone in the Pictured Cliffs formation, there physically was not enough remaining recoverable gas in place in the Pictured Cliffs formation to account for the nearly billion cubic feet of gas produced from the Chaco wells from 1995

until they were ordered shut-in in 1998. R. 892-93; 3401-09. Pendragon came up with the "third bench" theory. Pendragon postulated below, and argues on appeal, that below the productive Pictured Cliffs formation lies an additional sandstone source of the gas that flowed after the 1995 reworks by Pendragon.

The Commission rejected the "third bench" theory based upon substantial evidence. That lower sandstone is highly water saturated as clearly reflected on all logs presented. R. 2905-06; 3402. What gas exists in the deeper sandstone is unrecoverable. Id. There has never been any significant commercial gas production from the "third bench," by any San Juan Basin operators. Id. It is not referenced in the literature. All knowledgeable operators do not perforate that zone. Pendragon itself has not perforated the "third bench" and thus has not attempted to stimulate that zone in the very Chaco wells in question. Id.

Whiting's evidence demonstrated that there is enough recoverable gas in the coal to account for all past and projected coal well production from the Gallegos Federal wells as well as the 1995 to July 1998 production of coal gas from the communicated Chaco wells. R. 905-09; 990-91; 1007-08; 3401-09. True gas-in-place calculations for the Pictured Cliffs formation do not explain the post-1995 production from the Chaco wells. Id.

f. Evidence on Fracture Stimulations Supports the Commission's Findings

Both sides presented computer generated fracture simulations or models to the Commission. R. 305-402; 1255-1416; 3393-3409. The Commission voiced appropriate skepticism about the efficacy of such studies. Computer programs are commonly used in the industry today for "modeling" the geometry of the fractures resulting from hydraulic stimulations. The outcomes are highly dependent upon the program operator's

selection of accurate and representative variables for use in the models. R. 352; 359-60; 545-46; 1292.

The Commission found that the Pendragon fracture stimulations extended into the Fruitland formation and the Whiting stimulations into the Pictured Cliffs formation.[12] The Commission concluded, however, based upon substantial evidence, that Whiting's fractures may have communicated into the Pictured Cliffs, but if so, they grew into an empty tank. Whiting could not have produced Pictured Cliffs' gas. R. 919-22; 1278; 2903-05; 3402-09; 3252. Pendragon's fractures grew into a full tank resulting in gas being taken from Whiting. See quoted Commission findings above.

The Commission could have concluded, as did the Division, that the Pendragon fractures alone caused the communication resulting in coal gas being produced by the Chaco wells while wholly disregarding the computer modeling evidence. As previously discussed, there is substantial evidence which conclusively demonstrates that the Whiting fracture stimulations did not communicate with the Pictured Cliffs formation. R. 859-62; 2906-08.

Expert opinion testimony was offered that the Whiting fracs did not cause communication with the Pictured Cliffs which resulted in any production by Whiting of Pictured Cliffs gas. R. 2906-08; 3252-57; 3405. The computer simulations by Whiting's expert indicated that all Chaco well fractures and one Whiting well fracture probably grew out of zone near the wellbores. R. 3396-3401. Whiting's expert, in making his simulations as fair as possible, modeled the Whiting 26-12-6 #2 which was the coal well offsetting the Chaco 4 and 5 wells. While opining that the fracture treatment of that one

[12] Whiting does not agree with the finding that its fracs invaded the Pictured Cliffs formation, but that is not material to the outcome of the Commission decision that Pendragon's wells were taking gas from Whiting's coal formation and must be shut-in.

well grew into the Pictured Cliffs formation, Mr. Robinson cautioned that "because of the complex geometry in coalbeds, we have less confidence in the final estimated fracture dimensions." R. 3400. Computer runs using the verifiable data and rock properties supported by the literature were made by Mr. Robinson for each Chaco well case with no "tweaking" of the variables to get a desired result. This evidence showed that the fracture treatments of the Pictured Cliffs sandstone definitely created a conductive, proppant-filled channel in communication with the coal cleat system. R. 1266-67; 3396-3401.

Whiting went on to demonstrate how the data of observed pressures, flow rates and variations in the type of gas being produced from a well are consistent with communication between the zones occurring at the Chaco wellbores. R. 1081-1084; 1311; 1328; 1414; 3401-07. The same data are not consistent with communication at the Gallegos Federal wellbores. Id. Downhole cross-flow occurs from higher to lower pressures at the Chaco wellbores. Id. The Chaco wells will steal gas from the coal seams when the Chaco wells are producing. Conversely, the Whiting wells are not producing Pictured Cliffs gas. R. 892-94; 1278; 1281; 3405.

Pendragon's expert fracture simulation testimony on the issue was extremely unreliable. In contrast to Mr. Robinson, Dr. Conway selected for his analysis the Chaco 2R, the single Pendragon well not perforated and not fracture stimulated in the sandstone stringer within the Fruitland formation and directly below the main coal, as were the Chaco. 1, 4 and 5. R. 331. Yet, his simulation showed that the Chaco fracture grew up to the base of the coal and then ran along it for some distance. R. 376. The coal is known to contain a natural, well developed system of cleats or natural cracks, so at a minimum Pendragon's own evidence showed the Chaco well fractures opened a

propped channel to the existing natural pathways in the coal. R. 1266; 1289-92. The Conway simulation did not predict a fracture that would penetrate the coal, nor establish a propped fracture into the coal. But he was able to obtain that result only because he assumed (a) the maximum theoretical stress value (>1.0 psi/ft) for the coal and (b) that the coal was impermeable, thus disregarding existence of the natural cleat system. R. 1284-89. Had he used proper values, the model would have shown the Pendragon fractures extending into the coal. R. 1289.

When Dr. Conway did a simulation of the Gallegos Federal 26-12-6 # 2 (the same well Mr. Robinson modeled) he could not show that the Whiting fracture stimulation broke into the Pictured Cliffs sandstone at the wellbore, which is where the greatest pressure occurs. His analysis showed that the fracture stayed in the coal. R. 392-3. He had to force his computer to assume a dramatic change in lithology, an ash "pod" in the coal for which he had no geologic evidence, about 750 feet away the wellbore in order to predict that the Whiting fracture escaped from the coal.[13] R. 396-98.

g. Pressure Interference Studies

Pressure interference studies were offered by both parties to support their case. As in the case of modeling fracture geometry, the pressure interference calculations are entirely dependent upon rock properties, permeabilities and many other variables assumed by the expert for his estimates. The time within which a pressure wave will travel through test formations depends on the value used for the permeability of the

[13] The "pod" theory has no scientific support whatsoever. In fact, both Pendragon's witness Dr. Whitehead and Whiting's geologist Dr. Ayers confirmed that tonstein (ash) occurs in the coal as very thin sheets over large areas, not in concentrated pods. R. 1204-07.

relative formations in question. R. 705; 1309-11. The Commission resolved the dispute between expert testimony offered by the parties in favor of Whiting.

Whiting's expert, Brad Robinson, established that if the true permeabilities of the coal and the PC are applied, the results show that communication exists at, and was caused by, the Chaco wells. R. 1309-28. Whiting also demonstrated that the data showed that during each shut-in the Chaco 4 and 5 are virtually pressure monitor wells for the coal, their pressure rising and falling with the Gallegos Federal wells' pressures. R. 3253-54. Pendragon's own Exhibits C-10 and C-11 showed this obvious pressure tracking during the August 1998 week-long shut-in of the coal wells.

Pendragon's expert Dave Cox assumed pressure interference observed at the Chaco 4 and 5 was caused by communication at the Whiting wells. In order to support this theory, Mr. Cox grossly over estimated permeability in the Pictured Cliffs and used a drastically lower permeability for the coal than actually measured in Whiting's injection test. R. 1310-11.

h. Water Analysis from the Chaco Wells Since Stimulation Confirms the Production of Coal Seam Gas

Water production from Pictured Cliffs wells would be evidence that they really were producing from the Fruitland formation. Ironically, Pendragon relied below on its own malfeasance in water reporting as evidence in its favor. One of the spins Pendragon put on the evidence in this case has been to cite the supposed lack of water production from its Chaco wells as evidence that the wells were not in communication with the coal formation. When Pendragon recorded water production it was significant. Indeed, for a period in March, 1998, records demonstrated that Pendragon was hauling 80 barrels of water away from its Chaco 1 well site every two or three days. R. 894-97; 2911-14. Given that the water was being dumped by Pendragon into unlined pits in

porous soil, substantially larger volumes of water must have been produced by the Chaco wells during that period. Id; 1454-77.

More importantly, the evidence demonstrates that the Pendragon Chaco wells produced significant volumes of water since the restimulations in 1995. R. 894-97; 1056-62. Mickey O'Hare and Dennis Reimers testified that they observed substantial water production from the Chaco wells into the unlined earthen pits as early as 1995. R. 863-65; 1057-62. Pictures submitted by Whiting at the hearing, Exhibits AMO-8, demonstrate that the unlined pits have, at various times in their existence, been completely full. R. 2935-42. Pendragon offered no explanation, because there is no valid scientific or engineering explanation, to account for the Chaco wells' water production.

The most damning evidence presented at the hearing on this issue came from Pendragon's agent, Paul Thompson. R. 1450-1477. Mr. Thompson admitted during his rebuttal testimony that Pendragon utilized a daily progress report for the Chaco wells which did not include a column for reporting water production. R. 1450. Mr. Thompson conceded that the Chaco wells produced substantially larger volumes of water than was reported on the daily progress reports. R. 1454-77. For periods when the wells were recorded as having sporadically produced water, given that they were operating and producing gas on a daily basis, Mr. Thompson admitted that the wells would have produced equal volumes of water on all days during the period. Id. For the month of March, 1995 for the Chaco 1, Mr. Thompson estimated that the actual water production for that well was some 10 to 20 times greater than the reported water production. Id. Even when Mr. Thompson or his pumpers noted water production on their daily reports, Pendragon still failed to report even those sporadic observations to the Division as

required on the C-115 forms. R. 1460, 1464; 1466; 1474. Pendragon did not even report water production on coal seam gas wells it operated in the area, notwithstanding that those wells produced substantial volumes of water. Id.

The fact of the matter is Pendragon destroyed evidence, both by depositing produced water into unlined pits, where much of that water percolated into the loamy soil or evaporated, and by failing to report water production from the Chaco wells until it realized that the Aztec office staff had visual confirmation of water production.

III.

ARGUMENT AND AUTHORITIES

1. STANDARD OF REVIEW

An administrative agency determination will be upheld when it is supported by substantial evidence. Gonzales v. New Mexico Board of Chiropractic Examiners, 125 N.M. 418, 962 P.2d 1253 (1998). Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. Id. An administrative agency may consider evidence that would not be admissible under the Rules of Evidence, though the legal residuum rule requires that the agency's decision be supported by some evidence that would be admissible under the rules. Chavez v. City of Albuquerque, 124 N.M. 239, 947 P.2d 1059 (Ct. App. 1997). The Court must consider the evidence in light most favorable to the administrative decision. Santa Fe Exploration Company v. Oil Conservation Commission, 114 N.M. 103, 835 P.2d 819 (1992). The Court cannot substitute its judgment for that of the agency, and even where evidence may support inconsistent findings, the Court will not disturb the agency's findings if supported by substantial evidence in the record as a whole. Herman v. Miners' Hospital, 111 N.M. 550, 807 P.2d 734 (1991); Snyder Ranches, Inc.

v. Oil Conservation Commission, 110 N.M. 637, 798 P.2d 587 (1990). Moreover, special weight is to be given to the experience, technical competence and specialized knowledge of the Commission, a rule which is especially salutary given the extremely technical nature of this case. Viking Petroleum v. Oil Conservation Commission, supra; Grace v. Oil Conservation Commission, supra.

2. THE COMMISSION'S STATUTORY AUTHORITY

The Commission has broad jurisdiction and authority under the New Mexico Oil and Gas Act, NMSA 1978 § 70-2-1 et seq. (1995 Repl.). Under Section 70-2-6A, the Division and Commission have jurisdiction, authority and control over all matters necessary to effectively enforce the provisions of the Act. That Act entrusts the Commission with the primary duties of preventing waste and protecting correlative rights. Continental Oil Company v. Oil Conservation Commission, 70 N.M. 310, 323, 373 P.2d 809, 817 (1962). This power broadly encompasses the prevention of underground waste, and the protection of correlative rights of owners without waste. Id. Section 70-2-12(B) expressly authorizes the Division and the Commission to make rules and orders for the following purposes:

> (2) To prevent crude petroleum oil, natural gas or water from escaping the strata in which it is found into other strata;
>
> * * *
>
> (7) to require wells to be drilled, operated and produced in such manner as to prevent injury to neighboring leases or properties.

POINT ONE

THE COMMISSION ACTED CONSISTENT WITH ITS FINDINGS AND STATUTORY AUTHORITY IN ORDERING THE CHACO WELLS SHUT-IN

The complaints Pendragon raises under Issue 1 in its Statement are that the Commission did not sanction Whiting for what Pendragon belatedly contended at the

Commission proceeding was Whiting's improper production of Pictured Cliffs gas. Ignoring for a moment that the contention contradicts Pendragon's Application, i.e. for an order that both Whiting and Pendragon were producing from their appropriate formation, the entire complaint in Issue 1 proceeds with a blind eye to Commission Findings 34, 35, 45, and 46. The Commission held, based on substantial evidence, that the Pictured Cliffs formation was depleted prior to 1995, and that any production of Pictured Cliffs gas, whether by Pendragon or by Whiting, would consequently be de minimis after that point in time. R. 919-22; 1278; 2903-05; 3402-09; 3252. The real question imbedded in Issue 1 is whether substantial evidence in the record supports these Commission findings. As Whiting has demonstrated, pp. 8-26, supra, there is substantial evidence in the record to support Commission.

Pendragon first contends that the Commission should have afforded Pendragon some relief because the Commission has made an affirmative determination that Whiting is not producing from its appropriate common source of supply. Pendragon also complains that the Commission failed to deal with "the ongoing production of Pictured Cliffs reserves by Whiting's Fruitland Coal wells." Statement, p. 10. These contentions rest on a mischaracterization of the Commission's findings, and ignore Decretal ¶ 5 of the Commission's Order.

Contrary to Pendragon's assertions, the Commission did not definitively determine that Whiting is producing Pictured Cliffs gas from its wells. Finding 35 by the Commission finds that "[G]as in the Pictured Cliffs formation **may** have migrated to the Fruitland Coal formation through the communication channels **if** the production pressure at the Whiting Fruitland coal wells were low." Finding 34 held that "the gas in the Pictured Cliffs Formation was nearly depleted and very little gas could escape to the

Fruitland Formation." Decretal ¶ 5 similarly provides that "[I]nasmuch as Whiting's wells **may** produce only minor amounts of gas from the already depleted WAW Fruitland Sand-Pictured Cliffs Pool, Whiting's wells are not to be shut-in." Not only did the Commission not enter a definitive finding that Whiting was producing gas from the Pictured Cliffs formation, it expressly found any gas flow from that formation would be "not significant." Finding 35. The Commission based its decision on the compelling evidence of the lack of recoverable reserves in the Pictured Cliffs formation. The Commission appropriately and within its authority did not order relief against Whiting.

Pendragon also complains that the Order omits any provision requiring Whiting to demonstrate how its five Fruitland coal wells may be produced without interfering with the Chaco wells or without producing Pictured Cliffs gas. Again, Pendragon's argument ignores findings 35, 44, 45 and 46 in the Commission's Order, and the evidence supporting them. Those findings, all of which are supported by substantial evidence, establish that the Pendragon Chaco wells have already produced their recoverable gas in the Pictured Cliffs formation, that the Pictured Cliffs formation was depleted in the area of these wells prior to 1995, and that the gas now capable of production from the Pendragon Chaco wells is, to all significant degrees, gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation. There is no similar finding in the Commission's Order that Whiting is producing gas from the Pictured Cliffs formation. In fact, substantial evidence below refuted the proposition submitted by Pendragon during the Commission proceeding. All of Pendragon's arguments are based upon an attempt to turn the evidence on its head, and have the Court substitute its judgment for that of the Commission. The Court is not authorized to take such action. Snyder Ranches, supra.

In some instances, Pendragon misrepresents positions taken by Whiting before the Commission.[14] The Commission was not required to do anything about what Pendragon continues to claim is "an ongoing escape of gas from the Pictured Cliffs formations into the Fruitland Coal formation" because substantial evidence refuted that theory below. The Commission determined that "if" there is any such migration, it is de minimis.

Pendragon complains about the decretal provision of Order R-11133, which Pendragon mischaracterizes as an authorization that the Division approve restoring the Chaco wells to producing status. Statement, p. 12. Again, Pendragon ignores the provisions of the Order itself. That Order provides as follows:

> (4) Pendragon is hereby ordered to shut-in its Chaco wells No. 1, 2R, 4 and 5 until such time as the Division approves a method for either putting them back into production or plugging them.

The Order contemplates that the wells be plugged "or" the Division might approve a method for putting the Chaco wells back into production if, for example, Pendragon reimburses Whiting for past coal seam gas production, and if Pendragon can establish a method of production where those wells would produce only Pictured Cliffs gas. Pendragon offered no such solution.

[14] For instance, on page 10 of its Statement, Pendragon contends that Whiting does not dispute that the Whiting Gallegos Federal wells are draining Pictured Cliffs gas reserves. This is ludicrous. Whiting has contended from the inception of this proceeding that the Pictured Cliffs formation in the area in dispute was depleted prior to 1995. In addition, a simple appreciation of relative pressures answers this absurd argument. Gas will not flow from the lower pressured Pictured Cliffs formation to the higher pressured coal; the reverse is what the laws of nature compel. R. 1280.

POINT TWO

THE COMMISSION'S FINDING THAT PENDRAGON HAS PRODUCED ITS PICTURED CLIFFS GAS IS SUPPORTED BY SUBSTANTIAL EVIDENCE, AND WITHIN THE COMMISSION'S AUTHORITY

Pendragon complains that the Commission had no basis for determining that Pendragon has produced its fair share of gas from the Pictured Cliffs formation. Statement, p. 13. Pendragon contends that, since Whiting and Pendragon own interests in different formations, the Commission is not entitled to make a correlative rights determination as it did in Order R-11133-A, where it concluded that there was communication between the Fruitland formation in the Pictured Cliffs formation, and that Pendragon had improperly produced coal seam gas through its Chaco wells. Pendragon claims summarily and without any citation to authority that the Commission cannot make a determination that Pendragon has produced its fair share from the Pictured Cliffs, and that having done so, the Commission acted arbitrarily and capriciously, outside the scope of its authority, and not in accordance with law. This argument ignores the Commission's statutory authority under § 70-2-12(B)(2) and (7).

The "fair share" finding is eminently supported by the Commission finding that the Pictured Cliffs formation in the area was depleted prior to 1995. Once that formation reached a stage of depletion, Pendragon has produced its fair share of gas from that formation. It should be clear to the Court by this time that Pendragon just does not like the undisputed and overwhelming scientific evidence in this case which was persuasive to the Commission. The Commission's action based on these findings, shutting in the Pendragon Chaco wells, is entirely within the Commission's authority under Section 70-2-12(B)(2) and (7). No contrary argument or substantive analysis is offered by Pendragon to support its conclusory attack on the Commission's order.

POINT THREE

SUBSTANTIAL EVIDENCE SUPPORTS THE CONTESTED COMMISSION FINDINGS

In challenging the various Commission findings under Issue 3, Pendragon only cites the Court to parts of the record which support its theory of the case, evidence which the Division and the Commission have already rejected. Having failed to comply with its obligation to set forth the substance of all evidence bearing upon its substantial evidence challenges, Pendragon should be held to have waived its right of review.

More importantly, as Whiting has previously demonstrated, several independent sources of data support the Commission's Findings and Order: reservoir analysis, production and pressure data, fracture simulation studies, interference studies, and gas analysis. Cumulatively, the evidence overwhelmingly supports the Commission. Substantial evidence supports every finding challenged by Pendragon.

A. The Commission's Determination that the Pictured Cliffs Formation was Depleted is Supported by Substantial Evidence

Pendragon's first attack on findings 34, 45 and 46 makes the totally false statement that "the overwhelming proof in the record with respect to reservoir pressures does not support any conclusion that the Pictured Cliffs was depleted." Statement, p. 15. No citation to the record is offered in support of this statement nor could it be. The statement ignores the evidence already referenced, supra, pp. 13-20.

Pendragon refers to pressures on the Chaco 1J and 2J with some record references, but fails to specify the pressures from those wells that it contends reflect true Pictured Cliff's reservoir pressures. Pendragon then states that "By 1995, reservoir pressures ranges from between approximately 150 to 170 psi, or higher. In 1999, Pictured Cliff's reservoir pressures ranges from above 150 psi to 73 psi in those areas

characterized by significant offset production." Statement, p. 16. Again, no record reference is provided in violation of Rule 1-074(K)(2), which requires "appropriate references to the record on appeal showing how the issues were preserved in the proceedings before the Agency."

In fact, pressure evidence from the Chaco wells is consistent with a finding that the Pictured Cliffs formation was depleted prior to 1995. Supra, pp. 14-17. References to "reservoir pressure data" are misleading, because reservoir pressure data was generally unavailable. The primary pressure data considered was shut-in pressure at the various Chaco wells, and those readings were consistent with the depletion finding. Id. Indeed, Pendragon continually bemoaned the pressure readings in the Commission proceeding, complaining that they were inadequate because of speculated (but unproved) liquid build up in the wellbores. It was only after Pendragon restimulated its Chaco wells, either through acidization or fracture stimulation, that the wells showed any significant pressure increase. The Commission found the pressure increases were the result of communication with the higher pressured Fruitland formation. Thus, Pendragon's attempt to rely on the post-stimulation pressures (after tapping into the coal) as somehow reflecting the true pressure in the Pictured Cliffs formation is fallacious, and was properly rejected by the Commission. Id.

Pendragon also refers to the year-long shut-in pressure data from the Chaco wells after they were shut-in by Court Order. Pendragon contends that the data support the conclusion that the Pendragon Chaco wells "can produce reserves from a large area." Statement, p. 18. The statement ignores the obvious: if the wells were allowed to produce, they certainly could produce from a large area but it would be Whiting's coal

seam methane from the Fruitland formation. This is the problem the Commission addressed in its Order; it is not evidence that Pendragon was wronged.

Pendragon then complains that the Commission's depletion findings are not supported by the volumetrics and material balance data presented by Pendragon below. Statement, pp. 19-21. Again, Pendragon fails to apprise the Court of the contrary evidence submitted by Whiting which demonstrated that Pendragon's volumetrics and material balance evidence represented bad science, and was unsupported by the data. The evidence submitted by Pendragon relied on fanciful gas in place calculations which included a presumption of gas production from the previously discussed "third bench."

Pendragon's complaint about volumetric analysis of the Fruitland coal formation is similarly misguided, as Whiting submitted substantial evidence to the Commission, which evidence was accepted by the Commission, that the volumetrics for the two formations conclusively demonstrate that the production from the Chaco wells after 1995 can only be explained as production of coal seam gas. R. 3401-09. Valid gas-in-place figures showed the depleted state of the Pictured Cliffs formation in 1995. Id.; 873-74. Moreover, Whiting demonstrated that the gas in place calculations for the Fruitland coal formation are sufficient to explain the production levels from both the Whiting Gallegos Federal wells and the Pendragon Chaco wells from 1995 through the present.

B. Pendragon Offered No Competent Evidence to Support its "Third Bench" Theory

Pendragon next complains that the Commission's finding on Pendragon's "third bench" theory was not supported by the evidence. Whiting has already summarized the evidence presented to the Commission that refuted Pendragon's "third bench" theory, supra at 19-20.

Pendragon's attack here on the Commission finding begins with a mischaracterization of the Commission finding as simply that the Commission found "no geological evidence" of the third bench. Statement, pp. 22-23. This is untrue. If the Court examines Finding 39, the Commission went into a detailed analysis of its rejection of the "third bench" theory. First, the Commission found that there was no evidence to support Pendragon's assertion that the "third bench" contains "an additional gas compartment." The Commission noted the evidence that that the "third bench" has never been reported throughout the San Juan Basin region. The Commission further found that there was no scientific basis for believing that the fractures on the Chaco wells moved downward into the "third bench" but not upward into the Fruitland coal formation, as Pendragon had asserted in its evidence to the Commission. The Commission's finding is a rejection of Pendragon's after-the-fact "third bench" theory to explain away the dramatic production and pressure increases in the Chaco wells after stimulation as something other than the result of communication with the Fruitland formation.

Pendragon writes that certain wells in the area are completed in and producing from the "third bench." No data was ever provided to the Commission that substantiated that assertion. Substantial evidence, including the lack of meaningful "third bench" production, refuted that theory. The Navajo Dome well, cited as supported in Pendragon's statement was characterized in the testimony as "a very poor well." R. 1038. When Pendragon's own expert, Jack McCartney, was cross-examined about the performance of the wells producing from the "third bench," he responded to questions by admitting that the well "doesn't sound very good, no", "But that's not a very good well in the area, no," and "not a good well." R. 541-42.

Finally, the Commission was absolutely justified in rejecting Pendragon's theory that the fractures in the Chaco wells extended downward into the so-called "third bench," but failed to grow upward into the Fruitland formation. Three of the Chaco wells that were fracture stimulated were perforated within layers of the coal and the fourth, the Chaco 2R, just below the Fruitland formation, making extension of the fractures into the Fruitland coal a certainty. Fractures underground will naturally tend to grow to the area of lesser resistance; that is toward the surface where there is less over burden, rather than deeper into the earth, making communication with the Fruitland formation more likely. R. 2910.

C. The Commission Properly Rejected Pendragon's Well and Reservoir Damage Theories

Again, Pendragon presents its substantial evidence challenge to Commission Finding 40 while ignoring evidence introduced below that supports the Commission finding that the Chaco wells had not been non-productive for years due to reservoir "damage." Supra, at 13-19. This, as Whiting has previously documented, was another after-the-fact fabrication offered by Pendragon to explain the tremendous production and pressure response in the Chaco wells after 1995.

Pendragon takes a statement by Mr. O'Hare, the president of Maralex, out of context in order to try to support its flawed substantial evidence claim. See Statement, p. 26. The impression Pendragon tries to pass off on the Court is that Whiting and Maralex agree with Pendragon's reservoir damage theory. Nothing could be further from the truth. Set forth below is the entirety of the relevant testimony from Mr. O'Hare, including his opinion that the damage theory does not explain the Chaco well production figures after 1995:

Q. Now, there's been an explanation offered about the production and pressure history of these Chaco wells that there was damage to the wells or the reservoir that explains the pressures. Would you address that, please?

A. Yes, as far as damage goes, I feel from the volumetric analysis that we performed on both the Chaco Plant Number 5 and on the Chaco Number 4 that there may have been some small component of damage. And the reason I say that is because typically these types of formations will recover somewhere between 60 and 70 percent of the gas in place.

The numbers that we saw, that we calculated from our volumetric and material balance analyses, indicated that those wells had recovered about 55 percent of the gas in place.

So there may have been a small component of damage in the Chaco wells prior to this stimulation, but I don't believe it was significant enough to triple the reserve recovery on these wells after it had been removed.

Q. Okay, why not?

A. Again, the gas in place indicates that there was not enough gas there initially to be able to recover the volumes that the Chaco wells have recovered, and so even if you remove all the damage in the world, it does not add reserves to your well, to your reservoir.

Q. The production histories that we've previously brought out for the Chaco wells, up to 1995 are those graphs indicative of typical Pictured Cliffs wells?

A. Yes, there are.

Q. Okay. What about the graphs after Pendragon fracs those wells?

A. Generally speaking, those are not indicative of Pictured Cliffs well production.

R. 903-04.

Pendragon concludes this challenge with the statement that "the existence of wellbore and reservoir damage is supported by a preponderance of the evidence." Statement, p. 26. Even if this were true, which it is not, that is not the standard this Court must apply on review. The question presented is whether substantial evidence

supports the Commission finding. Since there is substantial evidence supporting that finding, Pendragon's substantial evidence challenge must be rejected.

D. Fracture Stimulation Evidence Supports the Commission's Findings

Pendragon attacks the Commission finding that the fracture stimulations on the Pendragon Chaco wells grew into the Fruitland formation and established communication between the Fruitland coal formation and the Pictured Cliffs formation. Again, Pendragon fails to alert the Court to the abundant evidence in the record which supports this Commission finding. Instead, Pendragon simply regurgitates the evidence it presented to the Commission.

In addition to the objectively observable non-affect of the Whiting fracs on the Chaco wells and the dramatically observable reaction of those wells to the Pendragon fracs, already amply briefed above, Whiting offered expert testimony by two witnesses at the Commission hearing, both of whom concluded that the acidizations and fracture stimulations performed by Pendragon in 1995 on Chaco Wells 1, 2R, 4 and 5 caused communication with the Fruitland coal formation. Mr. O'Hare's conclusion in his Pre-Filed Expert Testimony stated as follows:

> The acid and fracture stimulations performed in 1995 by Pendragon on the Chaco 1, 2R, 4 and 5, and the acidization jobs on the 1J and 2J in 1995 caused communication with the Fruitland coal formation. As a result of that communication, Pendragon produced coal seam gas from its Chaco wells from 1995 until those wells were shut-in by Order of the First Judicial District Court of Santa Fe County in July, 1998.

R. 3252. Mr. Robinson's conclusion in his Pre-Filed Testimony is as follow:

> It is clear that the hydraulic fracture treatments performed on the Chaco #1, Chaco #4 and Chaco #5 wells established direct communication with the Fruitland Coal located directly above the Pictured Cliffs formation. An analysis was not performed on the Chaco 2R because these data were not available at the time of this study. However, after reviewing the openhole log data and fracture treatment that was pumped, it is my opinion that communication was also established with the Fruitland Coal in

> this well. These conclusions were based on an analysis of the actual fracture treatment data from these wells using a 3D fracture model, FRACPRO™. This model is being used extensively by the petroleum industry to design and analyze hydraulic fracture treatments.

R. 3396.

Pendragon goes beyond its typical failure to comply with applicable rules on this point in its Statement, p. 32, where it claims that Whiting's expert engineering witnesses somehow agreed with Pendragon's theory of the case. Nothing could be further from the truth. Mr. Robinson's opinion testimony indicated that the fracture stimulations on the Chaco wells and on one Gallegos Federal well probably caused communication between the Fruitland formation and the Pictured Cliffs formation. This is precisely what the Commission found. Mr. Robinson further concluded that such communication would cause no loss of Pictured Cliffs reserves because that formation was depleted prior to 1995. R. 3405. Mr. Robinson's opinion testimony expressly refuted all of the theories offered by Pendragon to try to explain the phenomenal increase in production and pressure after 1995, and he concluded as follows:

> All these results prove that the Chaco wells have been producing Fruitland Coal gas since their fracture stimulation in 1995. A summary of these results is as follows:
>
> - Analysis of fracture stimulation treatments on the indicated Chaco wells show that the fractures grew vertically up through the Fruitland Coal from the Pictured Cliffs;
>
> - The post-fracture production increased an abnormally large amount;
>
> - The pressure in the Chaco wells increased after fracture stimulation to the same level as the Fruitland Coal; and
>
> - The post-fracture production is almost identical to Fruitland Coal wells in the area including the production of water which was not reported, but has been observed from each of these wells.
>
> Even though we believe that hydraulic fracturing the Whiting Fruitland Coal wells has created a fracture that extended down into the Pictured Cliffs, it is probable

> that the Whiting wells have not produced Pictured Cliffs gas since the formation was essentially depleted at the point when Whiting completed their wells. If anything, there could have been a small amount of water cross-flowing, initially from the Fruitland Coal into the Pictured Cliffs during the early stages of de-watering the coal. This is the point in time when the pressure differential between the Fruitland Coal and the depleted Pictured Cliffs would have been greatest. However, it is doubtful that much water actually cross-flowed into the upper portion of the Pictured Cliffs since this interval was primarily gas saturated and would have relatively low permeability to water.

Id. Mr. Robinson's testimony at the hearing confirmed these opinions. R. 1259-95.

Shockingly misleading is Pendragon's attempt to claim that Mr. Robinson supported Pendragon's theory that the fractures created by the stimulations of the Chaco wells could not have extended into the coal. Pendragon cites to testimony at the Commission proceeding, pp. 1288, 1341 and 1342 for this proposition. Whiting has attached copies of the transcript pages hereto as Exhibit D at Tab 5 for the Court to review. The testimony refutes the implication in Pendragon's Statement.

E. Pendragon's Complaint About the Commission's Reference to Gas Bubbles, Gas Compartments and Gas Highway is Spurious.

Pendragon complains about Commission Findings 36, 37 and 39, with references therein to "gas bubbles," "gas highways" and "gas compartments." This argument is frivolous.

The specific verbiage utilized by the Commission is irrelevant. The use of certain terms in these findings only represent the Commission's attempt to summarize the evidence presented by the parties, and to describe the process which the Commission believes is occurring in the subterranean formations. The reference to high pressure gas compartments is nothing more than a reference to the Fruitland coal formation, which is characterized by pressures higher than those exhibited in the Pictured Cliffs formation. The reference to a gas bubble is simply a description of the process which Whiting established at both the Division and Commission hearings, i.e., that Pendragon

caused communication between the formations, and a description of the leading edge of coal seam gas as it migrates to the Pictured Cliffs formation. The fact that the parties did not utilize these precise words in their presentations does not make the Commission's use of those terms error.

F. Gas Analysis Data Supports the Finding that the Chaco Wells Produced Fruitland Coal Gas

Whiting submitted expert testimony that the analysis of gas produced from the Chaco wells after 1995 confirmed that those wells were producing coal seam methane, not Pictured Cliffs gas. R. 901; 1086-87. The Commission properly determined in challenged Finding 41 that the evidence demonstrated that "the Btu analysis of the gas from the Pendragon Chaco wells supports the conclusion that the fracture stimulation treatments of these wells in 1995 established communication with the Fruitland coal formation." The Court should recognize that gas analysis data is only part of the evidence supporting the Commission Order.

As with every other substantial evidence challenge Pendragon raises, it attempts to support its claim of error by simply citing to the evidence it presented to the Commission. Contrary to the assertion in Pendragon's Statement, p. 34, the fact that there may have been "direct evidence to the contrary" submitted to the Commission does not mean the finding is an error, when in fact substantial evidence supports the Commission finding.

Pendragon had its opportunity to present its theories on Btu gas analysis to both the Division and the Commission. Both fact finders properly rejected Pendragon's theory. It is noteworthy that much of Pendragon's theory was that gas analysis data was unreliable in determining whether a well was producing from the Fruitland formation or the Pictured Cliffs formation. R. 170. This position is also inconsistent with the

evidence presented by Whiting, which confirms that Btu analysis can be useful in distinguishing the source of gas production, that the Btu content of gas produced from the Chaco wells changed dramatically over time after 1995, that the Btu gas analysis from the Chaco wells after 1995 began to approach the Btu content of Fruitland formation coal seam gas, and that the only logical explanation for these demonstrated facts is that the Chaco wells were producing coal seam gas after 1995.

Pendragon ends its discussion on this issue with the unsupported contention that Whiting's engineering witness "incorrectly concluded that any well producing gas with Btu values less than 1,000 to 1,050 could be presumed to be producing coal gas." The Commission made no such finding, and in fact Pendragon's contention is unsupported by the record citation contained in the Statement, p. 36. A copy of the portions of the testimony offered by Pendragon (R. 1158-1160) are attached hereto as Exhibit E at Tab 6 so that the Court can review the testimony for itself, and determine the lack of record support for Pendragon's contention.

IV.

CONCLUSION

Based upon the foregoing points and authorities, this Court should dismiss Pendragon's appeal on the grounds that Pendragon has waived its right of review by failing to comply with the legal standard of review and the requirements of Rule 1-074(K)(2).

Even if the Court reviews the claims of error raised by Pendragon, there is substantial evidence in the record to support each and every Commission finding complained of by Pendragon. The Commission's Order is clearly within the Commission's statutory authority. For those reasons, if the Court addresses the merits

of the issues raised by Pendragon, the Commission Order R-11133-A should be affirmed.

Respectfully submitted,

GALLEGOS LAW FIRM, P.C.

By _____
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(505) 983-6686

Attorneys for Whiting

CERTIFICATE OF SERVICE

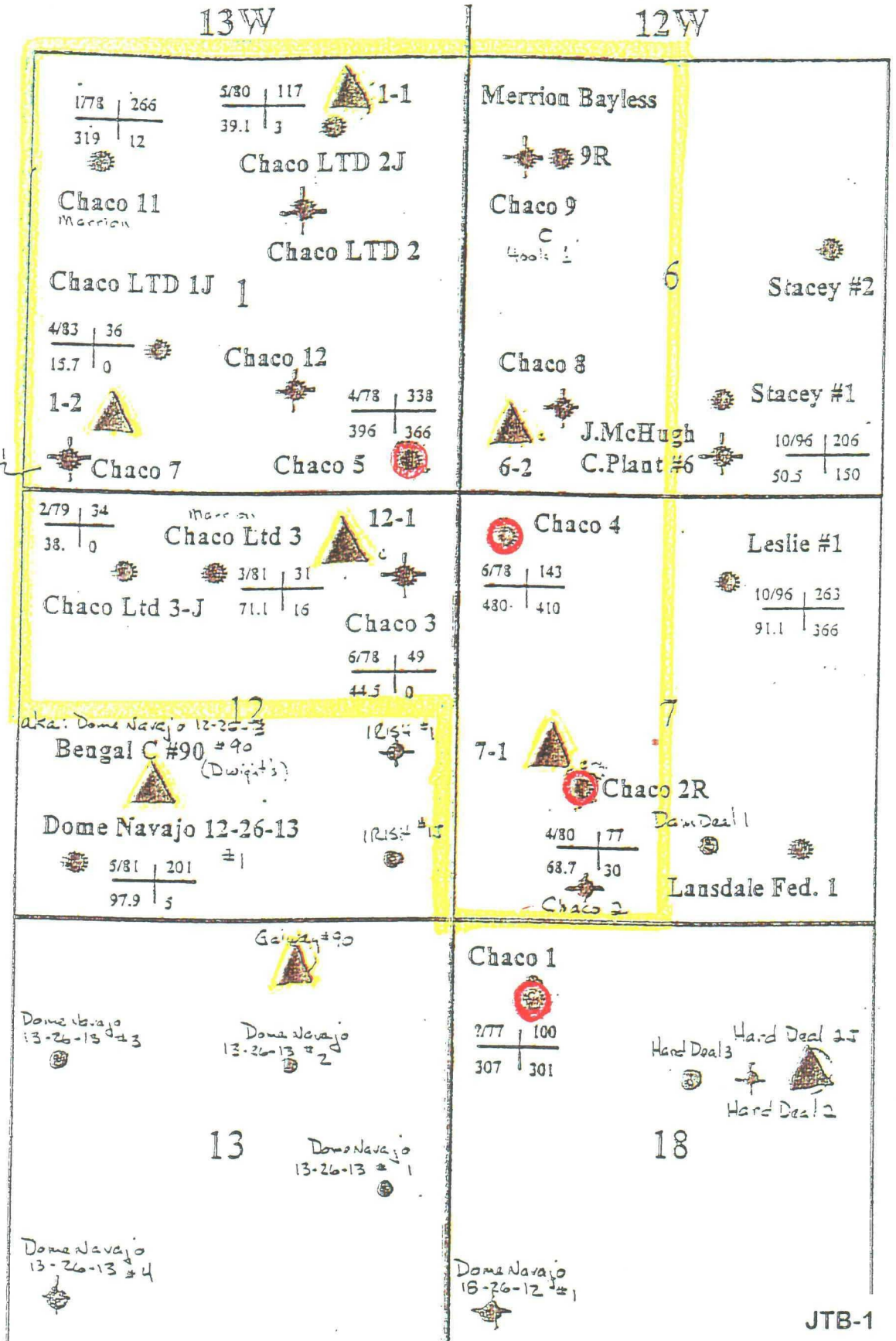
I hereby certify that I have caused a true and correct copy of the foregoing Whiting's Response to Appellant's Statement of Appellate Issues to be mailed on this 2nd day of November, 2000 to the following counsel of record:

J. Scott Hall
Miller, Stratvert, Torgerson & Schlenker, P.A.
150 Washington Avenue
Santa Fe, New Mexico 87501

Stephen C. Ross, Esq.
New Mexico Oil Conservation Commission
2040 S. Pacheco
Santa Fe, NM 87505

_____
J.E. GALLEGOS

FRUITLAND COAL / PICTURED CLIFFS SUBJECT AREA



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ENDORSED

JUL 0 7 1998

FIRST JUDICIAL DISTRICT COURT
SANTA FE, RIO ARRIBA & LOS ALAMOS COUNTIES
P. O. Box 2268
Santa Fe, New Mexico 87504-2268
JoAnn Vigil Quintana
Court Administrator/District Court Clerk

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

WHITING PETROLEUM CORPORATION, a corporation, and MARALEX RESOURCES, INC., a corporation,

Plaintiffs,

vs.

No. SF-CV-98-01295

PENDRAGON ENERGY PARTNERS, INC., a corporation, and J.K. EDWARDS ASSOCIATES, INC., a corporation

Defendants.

PRELIMINARY INJUNCTION

THIS MATTER came before the Court on June 29, 1998 on Plaintiffs' Verified Application for Preliminary Injunction with the parties appearing by their corporate representatives and counsel. The Court having received evidence and arguments of counsel for all parties, FINDS that good grounds have been established in behalf of the plaintiffs' Application and it should be granted.

Upon the evidence presented and application of the law concerning issuance of preliminary injunctions the Court CONCLUDES AS FOLLOWS:

1. The Court has jurisdiction of the parties and of the subject matter.

2. Plaintiffs have established a substantial likelihood that they will prevail on the merits of their claim that defendants have trespassed into plaintiffs' Fruitland formation and that defendants are converting the plaintiffs' gas.

3. Issuance of an injunction may cause harm to defendants but the continuing harm to plaintiffs should the injunction not issue greatly outweighs the harm

to the defendants.

4. Issuance of an injunction against defendants' continued taking of plaintiffs' gas will not be adverse to the public interest.

5. The Court has weighed the factors to be considered under New Mexico law in determining whether to issue a preliminary injunction and having done so concludes that the Application for Preliminary Injunction in behalf of plaintiffs is well taken and should be granted.

IT IS THEREFORE ORDERED AS FOLLOWS:

1. The defendants upon entry of this Preliminary Injunction shall immediately shut-in Chaco wells 1, 2R, 4 and 5 and cease and desist all gas production therefrom.

2. This Preliminary Injunction is to remain in force for a period of ninety (90) days from entry, or until further order of the Court, to permit review by the Court and consideration by the New Mexico Oil Conservation Division or New Mexico Oil Conservation Commission on certain issues within their administrative jurisdiction.

3. The Court will review this matter prior to the expiration of ninety (90) days from entry to consider the disposition of an administrative proceeding, if any, and to make any further orders as may be deemed appropriate or necessary.

4. No bond shall be required of plaintiffs, however, defendants are encouraged to track production loss in the event they become entitled to claim they have been wronged by the issuance of this Preliminary Injunction.

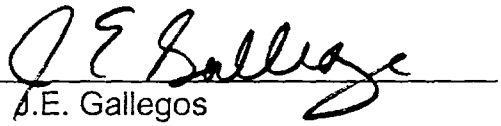
ORIGINAL SIGNED BY
ART ENCINIAS

The Honorable Art Encinias
District Judge

ORIGINAL SIGNED BY
ART ENCINIAS

Submitted on Notice of Presentment:

GALLEGOS LAW FIRM, P.C.

By 

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ENDORSED

JUL 0 6 1998

FIRST JUDICIAL DISTRICT COURT
SANTA FE, RIO ARRIBA & LOS ALAMOS COUNTIES
P. O. Box 2268
Santa Fe, New Mexico 87504-2268
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FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

WHITING PETROLEUM CORPORTION, a corporation, and MARALEX RESOURCES, INC., a corporation,

Plaintiffs,

vs.

No. D-0101-CV-98-01295

PENDRAGON ENERGY PARTNERS, INC., a corporation, and J.K. EDWARDS ASSOCIATES, INC., a corporation,

Defendants.

ORDER REGARDING MOTION TO DISMISS FOR LACK OF JURISDICTION

THIS MATTER having come before the court on June 29, 1998 on Defendants' Motion to Dismiss For Lack of Subject Matter Jurisdiction Or, In the Alternative, For Failure to State A Claim Upon Which Relief Can Be Granted, the parties having appeared by counsel and the Court having reviewed the pleadings and having heard argument of counsel for the parties, concludes as follows:

1. This Court has jurisdiction over the subject matter of this case and the claims alleged by Plaintiffs, and the Defendants' motion to dismiss for lack of subject matter jurisdiction is denied in part and granted in part.

2. Defendants have requested that the Court refer this matter to the New Mexico Oil Conservation Division under the doctrine of primary jurisdiction. This Court has determined to defer to the jurisdiction of the New Mexico oil Conservation Division in view of the greater expertise of the New Mexico Oil Conservation Division in this particular field and to promote more uniform decision making.

Served: 7-6-98
Docketed: _____ By: _____
CC: _____
Vol: 5 Tab: 11

EXHIBIT "B"

3. Those issues raised by the lawsuit which relate to the parties' relative rights in the land and are subject to meaningful relief through the New Mexico Oil Conservation Division should be recognized as within the jurisdiction of the New Mexico Oil Conservation Division. What the Court retains are those claims, regardless of how they are denominated that are not susceptible of relief through the New Mexico Conservation Division.

IT IS THEREFORE ORDERED that Defendants' Motion to Dismiss For Lack Of Subject Matter Jurisdiction Or, In The Alternative, For Failure To State A Claim Upon Which Relief Can Be Granted be and hereby is denied in part and granted in part and as a matter of comity, the Court defers to the New Mexico Oil Conservation Division as above stated.

The Honorable Art Encinias
District Judge 7/6/98

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

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

CASE NO. 11996
Order No. R-11133

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. AND J. K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 28-30, 1998, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 5th day of February, 1999, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) The applicants, Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., (collectively "Pendragon"), pursuant to Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in Division Order No. R-8768, as amended, seek an order confirming that the following described wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool or the Basin-Fruitland Coal Gas Pool, are producing from the appropriate common source of supply and providing further relief as the Division deems necessary:

EXHIBIT "C"

WAW Fruitland Sand-Pictured Cliffs Gas Pool Producing Wells

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

Basin-Fruitland Coal Gas Pool Producing Wells

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Whiting Petroleum Corporation and Maralex Resources, Inc., (collectively "Whiting"), interest owners within the Gallegos Federal 26-12-6 No. 2, 26-12-7 No. 1, 26-13-1 No. 1, 26-13-1 No. 2 and 26-13-12 No. 1, appeared at the hearing in opposition to the application and to present evidence and testimony to support their position that the Pendragon Chaco wells, described in Finding No. (2) above, are producing:

a) from a sandstone interval located within the Fruitland formation; and

b) coal gas from the Basin-Fruitland Coal Gas Pool due to the establishment of communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools within the Pendragon Chaco wellbores.

(4) Merrion Oil & Gas Corporation, an interested party, appeared and presented a statement at the conclusion of proceedings.

(5) All eleven wells that are the subject of this application are located within an area (hereinafter referred to as the "subject area") that comprises:

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM
Section 6: W/2
Section 7: W/2
Section 18: NW/4

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM,
Section 1: All
Section 12: N/2

(6) The "subject area" is located within the horizontal boundaries of the Basin-Fruitland Coal Gas Pool created by Division Order No. R-8768 dated October 17, 1988. The vertical limits of this pool, as defined by Ordering Paragraph (1) of Order No. R-8768, are as follows:

> "all **coal seams** within the equivalent of the stratigraphic interval from a depth of approximately 2,450 feet to 2,880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico".

(7) Order No. R-8768 further established Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool including provisions for standard 320-acre gas spacing and proration units with wells to be located no closer than 790 feet from the outer boundary of the proration unit nor closer than 130 feet from any quarter section line nor closer than 10 feet from any quarter-quarter section line or subdivision inner boundary. In addition, wells are to be located in the NE/4 or SW/4 of a single governmental section.

(8) The "subject area" is also located within the horizontal boundaries of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The vertical limits of this pool comprise all of the Pictured Cliffs formation (Order No. R-4260 dated February 22, 1972) and all the **sandstone** intervals of the Fruitland formation (Order No. R-8769 dated October 17, 1988). The WAW Fruitland Sand-Pictured Cliffs Gas Pool is currently governed by Division Rule 104.C., which requires standard 160-acre gas spacing and proration units with wells to be located no closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any quarter-quarter section line or subdivision inner boundary.

(9) The evidence and testimony presented by both parties in this case is generally in agreement that Pendragon and Whiting received assignments of oil and gas leases in all or portions of the "subject area" from common grantors, Robert Bayless (Bayless) and Merrion Oil and Gas Corporation (Merrion), during the period from 1992-94. The assignments of rights to Whiting are as follows:

> "Operating rights from the surface of the earth to the base of the Fruitland (Coal gas) Formation subject to the terms and provisions of that certain Farmout Agreement, dated December 7, 1992 by and between Merrion Oil & Gas et al., Robert L. Bayless, Pitco Production Company, and Maralex Resources, Inc."

(10) The assignment of rights to Pendragon are as follows:

> "Leases and lands from the base of the Fruitland Coal formation to the base of the Pictured Cliffs formation."

(11) A brief history of the Pendragon wells, obtained from Division records, is described as follows:

a) the Chaco Well No. 1 was drilled by Merrion and Bayless in February, 1977 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,113' to 1,139'. The well initially tested in this interval at a rate of approximately 342 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, J. K. Edwards & Associates, Inc. (Edwards) became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well;

b) the Chaco Well No. 2R was drilled by Merrion and Bayless in October, 1979 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,132' to 1,142'. The well initially tested in this interval at a rate of approximately 150 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well;

c) the Chaco Well No. 4 was drilled by Merrion and Bayless in April, 1977 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,163' to 1,189'. The well was initially tested in this interval at a rate of approximately 480 MCFGD, 0 BOPD, and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In May, 1995, the well was re-perforated in the interval from 1,163' to 1,189' and fracture stimulated in this interval. In January, 1996, Pendragon became operator of the well;

d) the Chaco Well No. 5 was drilled by Merrion and Bayless in April, 1977 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,165' to 1,192'. The well initially tested in this interval at a rate of approximately 1029 MCFGD, 0 BOPD and 0 BWPD. In May, 1979 the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was re-perforated in the interval from 1,165' to 1,192 feet and was fracture stimulated in this interval. In January, 1996, Pendragon became operator of the well;

e) the Chaco Limited Well No. 1J was drilled by Merrion and Bayless in April, 1982 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,200' to 1,209'. The well initially tested in this interval at a rate of approximately 10 MCFGD, 0 BOPD and a trace of water. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January, 1996, Pendragon became operator of the well; and

f) the Chaco Limited Well No. 2J was drilled by Merrion and Bayless in September, 1979 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,186' to 1,202'. The well initially tested in this interval at a rate of approximately 208 MCFGD, 0 BOPD and 4 BWPD. In October, 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January, 1996, Pendragon became operator of the well.

(12) A brief history of the Whiting wells, obtained from Division records, is described as follows:

a) the Gallegos Federal 26-12-6 No. 2 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,138' to 1,157'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well;

b) the Gallegos Federal 26-12-7 No. 1 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,131' to 1,150'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well;

c) the Gallegos Federal 26-13-1 No. 1 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,158' to 1,177'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well;

d) the Gallegos Federal 26-13-1 No. 2 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,047' to 1,208'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well; and

e) the Gallegos Federal 26-13-12 No. 1 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,178' to 1,197'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well.

Fruitland Sand vs. Pictured Cliffs Sand Geologic Issue

(13) In its Chaco Wells No. 1, 4, 5 and its Chaco Limited Well No. 2J, Pendragon is producing from two separate sandstone intervals, hereinafter referred to as the "Upper Sandstone" and "Lower Sandstone" intervals and in its Chaco Well No. 2R and Chaco Limited Well No. 1J, Pendragon is producing only from the "Lower Sandstone" interval, all described as follows. It is the position of Pendragon that the top of the Pictured Cliffs formation occurs in this area at or above the top of the "Upper Sandstone" interval.

Well Name & Number	"Upper Sandstone" Perforations	"Lower Sandstone" Perforations
Chaco Well No. 1	1,113'-1,119'	1,134'-1,139'
Chaco Well No. 4	1,163-1,166'	1,173'-1,189'
Chaco Well No. 5	1,165'-1,169'	1,174'-1,192'
Chaco Limited Well No. 2J	1,186'-1,188'	1,200'-1,202'
Chaco Well No. 2R	None	1,132'-1,142'
Chaco Limited Well No. 1J	None	1,200'-1,209'

(14) Whiting agrees that the "Lower Sandstone" interval is within the Pictured Cliffs formation; however, it contends that the top of the Pictured Cliffs formation occurs in this area at the top of the "Lower Sandstone" interval.

(15) Pendragon presented the following geologic evidence and testimony to support its pick for the top of the Pictured Cliffs formation:

a) the perforations in its Chaco wells were made by Pendragon's predecessors in interest, Merrion and Bayless, and were reported to the Division and to the Bureau of Land Management (BLM) on the appropriate well completion forms. All forms filed by Merrion and Bayless indicate that all perforations in the Chaco wells are within the Pictured Cliffs formation. Casing collar survey logs performed in May and June, 1998 establish that none of the Chaco wells were perforated in or re-perforated in the Fruitland Coal formation;

b) the discovery well for the WAW Fruitland Sand-Pictured Cliffs Gas Pool was the WAW Well No. 1, located in Unit L of Section 32, Township 27 North, Range 13 West, NMPM, which was completed on June 20, 1970 by Dugan Production Corporation (Dugan). Dugan picked the top of the Pictured Cliffs formation at a depth of 1,317 feet, which is above the "Upper Sandstone" interval;

c) the discovery well for the Nipp-Pictured Cliffs Gas Pool, located directly southeast of the WAW Fruitland Sand-Pictured Cliffs Gas Pool, was the Chaco Plant Well No. 1, located in Unit O of Section 17, Township 26 North, Range 12 West, NMPM, which was completed in April, 1975 by Dugan. Dugan picked the top of the Pictured Cliffs formation at a depth of 1,132 feet, which is above the "Upper Sandstone" interval;

d) the term "stratigraphic equivalent" as used to define the vertical limits of the Basin-Fruitland Coal Gas Pool essentially means "the same kind of rock material." The primary distinguishing characteristic of the Pictured Cliffs sandstone is its creation in a marine depositional environment. Conversely, the Fruitland Coal and the Fruitland Sandstone were deposited in a non-marine depositional environment;

e) Pendragon's isopach map of the "Upper Sandstone" interval shows the occurrence of that sandstone along the shoreline trending from a northwest to southeast direction in a barrier bar marine littoral environment. The "Upper Sandstone" interval appears as a classic shoreline or chenier-type sand grading from 0 to approximately 13 feet thick toward the northeast where it coalesces into the "Lower Sandstone" or main body of the Pictured Cliffs formation as the sand trends from the shoreline environment on the southwest toward the center of the San Juan Basin to the northeast. The "Upper Sandstone" interval is also continuous in character and correlates over a large area covering portions of four townships;

f) the core analysis for the Lansdale Federal Well No. 1, located in Unit P of Section 7, Township 26 North, Range 12 West, NMPM, establishes that the grain size and sorting throughout the "Upper Sandstone" interval are uniform, which is consistent with a marine depositional environment. The core analysis further indicates that the sand appearing in the "Upper Sandstone" and "Lower Sandstone" intervals is grey, fine-grained, with little variation in clay content, consistent with a marine sand that has been laterally transported to the point where the energy available sorts the sand into uniform size. Sand sorting characteristics of this sort are not consistent with a fluvial deposit with graded bedding and coarsening downward;

g) the Fruitland sands are deposited along a trend from the southwest to the northeast on a channelized basis and those sands thin towards the northeast to the edge of the Pictured Cliffs sandstone body. The Fruitland sands are consistently recognized as non-marine (continental) deposits such as fluvial channels, deltaic-distributary channels and other landward deposits. The Fruitland formation is the non-marine facies consisting of inter-bedded sandstone, mudstone and coal beds deposited landward of the marine facies of the Pictured Cliffs sandstone; and

h) approximately thirty-four (34) wells in this area have been perforated in the "Upper Sandstone" interval in conjunction with other perforated sandstone intervals within the Pictured Cliffs formation. These perforations, which were reported to the Division and to the BLM as being Pictured Cliffs completions, are consistent with the picks for the top of the Pictured Cliffs formation from the WAW Well No. 1 and the Chaco Plant Well No. 1, the discovery wells for the WAW Fruitland Sand-Pictured Cliffs and Nipp-Pictured Cliffs Gas Pools, respectively. This evidence establishes that Pendragon's picks for the top of the Pictured Cliffs formation in its Chaco wells are consistent with those of other operators in this area.

(16) Whiting presented the following geologic evidence and testimony to support its pick for the top of the Pictured Cliffs formation:

a) there are two continuous coal seams within the lower portion of the Fruitland formation in this area. The upper coal seam, characterized by Whiting as the "B" Coal, is approximately 20 feet thick throughout the subject area. The lower coal seam, characterized by Whiting as the "Basal" Coal, varies from 2 to 4 feet thick and overlies the more massive Pictured Cliffs marine sandstone ("Lower Sandstone" interval);

b) the "Upper Sandstone" interval, which is between 2 to 7 feet thick in this area and is located between the "B" Coal and the "Basal" Coal, is a Fruitland sand within the lower portion of the Fruitland formation;

c) Whiting's depositional model, as determined from mapping the various sands in the Fruitland and Pictured Cliffs formations, suggests that the "Upper Sandstone" interval was formed by inland river deposits which filled the area in-between abandoned beach ridges. This type of depositional model suggests that the "Upper Sandstone" interval was deposited in a non-marine environment;

d) a marine environment does not provide the conditions necessary for the development of coal. Coal formation and deposition is representative of an inland environment;

e) due to bioturbation in a lagoonal (marine) depositional environment, the "Upper Sandstone" interval should not exhibit high permeability reservoir type sand; and

f) geologic literature suggests that the top of the Pictured Cliffs formation is usually placed at the top of the massive sandstone below the lower-most coal of the Fruitland formation. Whiting's interpretation of the top of the Pictured Cliffs formation is consistent with such geologic literature.

(17) Upon consideration of the geologic evidence and testimony presented by both parties in this case the ***Division finds that***:

a) the Pictured Cliffs formation was deposited in a marine environment. The Fruitland formation was deposited in a non-marine or inland terrestrial environment (i.e. fluvial channels, deltaic distributary channels, etc.). Both parties are generally in agreement that these criteria should be used in differentiating between the two formations in this area;

b) mapping of the "Upper Sandstone" interval shows a fairly uniform, fairly continuous "sheet" type sand body that appears to trend along a shoreline in a northwest to southeast direction. In contrast, the Fruitland formation is characterized by northeast to southwest trending fluvial and lower coastal-plain deposits;

c) the only available core analysis data (obtained from the Lansdale Federal Well No. 1) shows a similarity in physical description between the sands within the "Upper Sandstone" and "Lower Sandstone" intervals, and shows uniform grain size and sorting within the "Upper Sandstone" interval, which is indicative of a marine depositional environment;

d) the "Upper Sandstone" interval coalesces into the "Lower Sandstone" or main body of the Pictured Cliffs formation as the sand trends from the shoreline environment on the southwest toward the center of the San Juan Basin to the northeast which may be indicative of the same depositional environment;

e) the "Upper Sandstone" interval has been consistently picked by various other operators throughout the developmental history of this area to be contained within the Pictured Cliffs formation. Various regulatory agencies including the Division's Aztec District Office and the BLM have recognized and concurred with these operator's picks;

f) there is sufficient geologic evidence and testimony to adequately explain the development of the small coal seam below the "Upper Sandstone" interval as occurring in a marine depositional environment; and

g) there is insufficient geologic evidence to support Whiting's depositional model which indicates the "Upper Sandstone" interval to be part of the Fruitland formation.

(18) There is sufficient geologic evidence to establish that the "Upper Sandstone" interval is located within the Pictured Cliffs formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool.

(19) Pendragon's Chaco Wells No. 1, 2R, 4, 5 and Chaco Limited Wells No. 1J and 2J are perforated within the appropriate common source of supply, being the WAW Fruitland Sand-Pictured Cliffs Gas Pool.

Issues Concerning Possible Communication Between the Fruitland Coal and Pictured Cliffs Formations within the Chaco Wells

(20) Whiting contends that through the process of acidizing and/or fracture stimulation, Pendragon has established communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools within the Chaco Wells No. 1, 2R, 4, 5 and the Chaco Limited Wells No. 1J and 2J. Whiting further contends that as a result of this communication, Pendragon is producing significant amounts of coal gas reserves through its Chaco wells. In support of its position, Whiting presented extensive geologic and engineering data.

(21) Pendragon contends that the acidizing and/or fracture stimulation conducted on its Chaco wells did not establish communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools, and that the gas reserves currently being produced from its Chaco wells originate from the Pictured Cliffs formation.

Pressure and Production Data

(22) The pressure history of the Pendragon Chaco wells is summarized as follows:

Well No.	Pre-Treatment Wellhead Shut-in Pressure/Date	Treatment Date and Type	Post-Treatment Wellhead Shut-in Pressure/Date
Chaco No. 1	137 psi (7/83)	1/95 Frac'd	170 psi (2/95)
Chaco No. 2R	110 psi (7/83)	1/95 Frac'd	104 psi (3/95)
Chaco No. 4	97 psi (7/83)	5/95 Frac'd	153 psi (5/95)
Chaco No. 5	121 psi (6/80)	4/95 Frac'd	151 psi (5/95)
Chaco Ltd. 1J	87 psi (6/84)	1/95 Acidized	158 psi (1/95)
Chaco Ltd. 2J	157 psi (8/80)	1/95 Acidized	188 psi (3/95)

(23) The production history of the Pendragon Chaco wells is summarized as follows:

Well No.	Initial Production (Original Completion)	Pre-Acidization or Fracture Stimulation Production	Post-Acidization or Fracture Stimulation Production	Current Production
Chaco No. 1	80 MCF/D	0 MCF/D	250 MCF/D	165 MCF/D
Chaco No. 2R	70 MCF/D	0-15 MCF/D	90 MCF/D	120 MCF/D
Chaco No. 4	200 MCF/D	0 MCF/D	425 MCF/D	200 MCF/D
Chaco No. 5	190 MCF/D	0 MCF/D	370 MCF/D	210 MCF/D
Chaco Ltd. 1J	11 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D
Chaco Ltd. 2J	30 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D

(24) Cumulative gas production from the Pendragon Chaco wells is summarized as follows:

Well No.	Cumulative Production Drill Date-Pre-Acidization or Fracture Stimulation	Cumulative Production Drill Date-May 31, 1998	Difference (Post-Acidization or Fracture Stim.)
Chaco No. 1	102.8 MMCFG	377.8 MMCFG	275.0 MMCFG
Chaco No. 2R	49.3 MMCFG	99.2-MMCFG	50.0 MMCFG
Chaco No. 4	201.8 MMCFG	591.0 MMCFG	389.2 MMCFG
Chaco No. 5	144.8 MMCFG	507.8 MMCFG	363.0 MMCFG
Chaco Ltd. 1J	13.9 MMCFG	N/A	N/A
Chaco Ltd. 2J	37.8 MMCFG	N/A	N/A

(25) The production history of the Gallegos Federal wells is summarized as follows:

Well No.	Date of Initial Production	Initial Production Rate	Current Production Rate
26-12-6 No. 2	12/93	85 MCF/D	733 MCF/D
26-12-7 No. 1	12/93	124 MCF/D	700 MCF/D
26-13-1 No. 1	12/93	26 MCF/D	383 MCF/D
26-13-1 No. 2	7/93	51 MCF/D	150 MCF/D
26-13-12 No. 1	1/94	195 MCF/D	350 MCF/D

(26) With regards to pressure, production and gas reserve data, Pendragon presented the following engineering and geologic data:

a) in 1977, initial reservoir pressure in the Pictured Cliffs formation ranged between 230-250 psi in the subject area. As production continued into the 1980's, the rate of pressure decline in the Chaco wells, regardless of the volumes of gas produced, was generally the same indicating pressure communication over a large area. As the Chaco wells reached low rates of production during the early to mid 1980's the reservoir pressure was in the range of 90-130 psi. There is very little pressure data available from these wells during the period from 1983 to 1995;

b) in 1995, pressure readings taken from the Chaco Limited Wells No. 1J and 2J (which were not fracture stimulated) and from the Chaco Well No. 4 prior to fracture stimulation indicate that pressures had substantially increased since 1983-84 and ranged from 140 psi to 190 psi. This pressure data indicates that the reservoir pressure in the Pictured Cliffs formation was increasing in its Chaco wells prior to the conductance of fracture stimulations;

c) pressure data for the Chaco Wells No. 4 and 5 reflects that in 1995, these wells were producing at less than 1 percent of their producing rates in 1979 and pressures were equivalent to reservoir pressures in 1979. Such evidence indicates the existence of reservoir or skin damage;

d) there is a lower Pictured Cliffs sandstone interval (identified by the applicant as the "third bench") which is located approximately 14 feet below where the Chaco wells are currently perforated. Although the water saturation in this lower zone is relatively high (67%-78%), this lower zone may be in pressure and production communication and may be acting as a gas recharge source for the main body of the Pictured Cliffs sandstone interval. There is also evidence indicating that a well located in the SW/4 SW/4 of Section 11, Township 26 North, Range 13 West, produced exclusively from the "third bench" of the Pictured Cliffs with cumulative production of approximately 93 MMCF of gas;

e) volumetric reserve estimates of original gas-in-place (OGIP) for the main body and "third bench" of the Pictured Cliffs sandstone interval in the Chaco Wells No. 1, 4, and 5 (based on 160-acre drainage) are summarized as follows:

Well No.	OGIP (MMCF) Perforated Interval	OGIP (MMCF) "Third Bench"	Total (MMCF)
Chaco No. 1	442	236	678
Chaco No. 4	410	380	790
Chaco No. 5	395	228	623

f) remaining gas reserve calculations, based upon decline curve analysis of production subsequent to acizidation and/or fracture stimulation are summarized as follows:

Well No.	Remaining Reserves MMCF) (As of July 1, 1998)	Drainage Area (Perforated Interval)
Chaco No. 1	178.0	236-acres
Chaco No. 2R	94.0	N/A
Chaco No. 4	219.0	384-acres
Chaco No. 5	219.0	351-acres
Chaco Ltd. 1J	0.0	N/A
Chaco Ltd. 2J	0.0	N/A

g) both volumetric and decline curve analysis indicate that sufficient gas reserves exist in the Pictured Cliffs formation to account for the production from the Chaco wells;

h) the production history of the Chaco wells compared to the pressure data accumulated prior to the acidization and/or fracture stimulations on those wells indicate the reservoir in the immediate vicinity of the wellbores had experienced skin damage or other forms of reservoir damage. As a result, production from the Pictured Cliffs had significantly declined prior to the acidization and/or fracture stimulations;

i) a drop in production for the Pendragon and Whiting wells that occurred in August, 1995 corresponds to and was a result of frequent shut-ins of the El Paso Chaco Plant. This month was also preceded and followed by long periods of unusually high line pressure which may have also contributed to a drop in production in Whiting's wells; and

j) production plots for the Whiting wells shows gas and water production typical for a Fruitland Coal well. The gas and water decline curves for the Whiting wells show no inflections indicating any interference from the Pendragon Chaco wells.

(27) With regards to pressure, production and gas reserve data, Whiting presented the following geologic and engineering evidence and testimony:

a) The acidization and/or fracture stimulations performed by Pendragon on the Chaco wells resulted in significant pressure increases in these wells. The significant pressure increases achieved in these wells was markedly higher than the natural pressure increases experienced in the wells prior to the acidization and/or fracture treatments, and demonstrate that communication between the Pictured Cliffs and Fruitland Coal was established as a result of the treatments;

b) Pendragon introduced evidence at the hearing that pressures in the Chaco Well No. 5 had risen prior to any acidization or fracture stimulation on that well. Well file data indicates, however, that a casing leak occurred in that well prior to May, 1995. In February, 1995, black water was discovered flowing from the bradenhead. Given the evidence of the casing leak, and water behind the column, it is clear that communication in the Chaco Well No. 5 had already been established between the Pictured Cliffs sandstone and the Fruitland Coal prior to January, 1995;

c) by the mid 1980's the Chaco wells exhibited signs consistent with production from a depleting Pictured Cliffs sandstone reservoir. Pressures were steadily declining and production had dropped to low levels (0-15 MCFGD/Well). The decline in both volume of gas and pressure is consistent with a depleted sandstone reservoir;

d) after completion, the Gallegos Federal wells exhibited performance typical of coal seam wells. They produced high volumes of water and virtually no (or little) gas in the initial months of production. Gas production inclined as the wells de-watered and by 1995, gas production was at economic levels except for the Gallegos Federal 26-13-1 Wells No. 1 & 2;

e) following acidization and/or fracture stimulation, the Chaco wells experienced large increases in gas production which is not characteristic of Pictured Cliffs re-stimulations. In each case, production levels exceeded production levels experienced when the wells were originally drilled under virgin reservoir conditions. The increases in production obtained are far greater than results that could be expected had Pendragon simply been overcoming skin damage in the wells;

f) Whiting has calculated original gas-in-place reserves for the Chaco wells utilizing a simulation program, "PROMAT." The results of the "PROMAT" Simulator analysis of the Chaco wells are summarized as follows:

Well No.	OGIP (MMCF) (Perforated Interval)	Drainage Area
Chaco No. 1	186.0	107-acres
Chaco No. 2R	84.0	130-acres
Chaco No. 4	268.0	147-acres
Chaco No. 5	199.0	109-acres
Chaco Ltd. 1J	N/A	N/A
Chaco Ltd. 2J	N/A	N/A

g) by the end of June, 1997, Pendragon had already produced, with the exception of the Chaco Well No. 2R, gas volumes far in excess of the calculated original gas-in-place for these wells. The Chaco wells have produced significantly more gas from 1995 to the present than they produced in the entire first 15-17 years of production;

h) the evidence of production volumes and pressure data on the Chaco wells since the acidization and/or fracture stimulation in 1995 is consistent with the conclusion that these wells have been producing significant volumes of coal seam gas;

i) typically, Pictured Cliffs producing wells do not exhibit significant water producing rates. The Chaco wells have produced significant volumes of water since the acidizations and/or fracture stimulations were conducted. Such high water producing rates are consistent with production originating from the Fruitland Coal;

j) Pendragon failed to report water production from the Chaco wells prior to February, 1998. Prior to that time, water production data from the Chaco wells is sparse. Pendragon disposed of produced water from its Chaco wells in unlined earthen pits in an area of sandy soils. The result of such disposal is that significant amounts of produced water were disposed of through evaporation and absorption into the soil, thus making it impossible to precisely quantify the volumes of water produced from the Chaco wells since the water production was not recorded by the pumpers or contract operator;

k) water/gas producing ratios for the Chaco wells are generally higher than those for the Whiting wells during the same periods; and

l) since the Chaco wells were shut-in by Order of the Santa Fe County District Court on June 30, 1998, pressure readings on the Chaco wells have confirmed communication with the Fruitland Coal. The shut-in pressure readings on the Chaco wells have fluctuated, such fluctuations coinciding with periods when the Whiting wells were shut-in due to pipeline and plant restrictions and when the Whiting wells went back on production. If there were no communication between the Pictured Cliffs and Fruitland Coal, the Chaco wells should exhibit a stable pressure once static pressure has been achieved.

(28) Upon consideration of the pressure data presented by both parties in this case the ***Division finds that***:

a) there is no pressure data available for the Chaco Well No. 4 and the Chaco Limited Wells No. 1J and 2J during the period from 1983-84 to January, 1995; consequently, it cannot be demonstrated that the pressure increases experienced in these wells occurred **prior** to their acid stimulations which were performed in January, 1995;

b) subsequent to acidization and/or fracture stimulation, the Chaco Wells No. 1, 4, 5, and the Chaco Limited Well No. 2J experienced increases in shut-in wellhead pressure. These pressure increases appear to have occurred as a **result** of the stimulation;

c) there is no pressure data available for any of the Chaco wells during the period from 1983-84 to 1995. The reservoir pressure in the Pictured Cliffs formation during the early to mid 1980's, at which time the Chaco wells were producing at low marginal rates, was approximately 90-130 psi;

d) there is not sufficient evidence to establish that the Chaco wells experienced "skin damage" resulting in premature production decline in the Pictured Cliffs formation;

e) given the state of depletion within the Pictured Cliffs producing interval (perforated interval), any pressure recharge that occurred within the Chaco wells during or subsequent to acidization and/or fracture stimulation originated from a source outside this interval;

f) during late 1994, the Fruitland Coal pressure within the Gallegos Federal wells ranged from approximately 175 to 225 psi. This data indicates that at the time the Chaco wells were acidized and/or fracture stimulated, there existed sufficient pressure within the Fruitland Coal formation to act as a recharge source for the Chaco wells;

g) Pendragon presented no data with regards to the pressure within the "third bench" of the Pictured Cliffs formation; and

h) on June 30, 1998, the Chaco wells were ordered shut-in by the Santa Fe District Court. Recorded wellhead pressures taken on the Chaco wells during the period from June 30-July 13, 1998 (13-day shut-in) showed the pressures to be stable within these wells. On July 14 for a 2-day period, and again on July 23 for a 2 1/2-day period, the Chaco Gas Plant was shut-in and, as a result, production from the Gallegos Federal wells was severely curtailed during these shut-in periods. The data indicates that each of the Chaco wells generally exhibited an increase in shut-in pressure at the times the Gallegos Federal wells' production was curtailed, and generally exhibited a decrease in shut-in pressure at the times normal production from the Gallegos Federal wells resumed.

(29) The pressure data generally indicate pressure communication between the Pictured Cliffs and Fruitland Coal formations within the Pendragon Chaco wells.

(30) Upon consideration of the production and gas reserve data presented by both parties in this case the ***Division finds that***:

a) Prior to the acidizations and/or fracture stimulations, the Chaco wells produced at rates ranging from 0-15 MCF gas per day. Post stimulation production from the Chaco Wells No. 1, 2R, 4 and 5 ranged from 90-425 MCF gas per day. Post stimulation production from the Chaco Wells No. 1, 4, and 5 significantly exceeded initial production from these wells at virgin reservoir conditions;

b) the Pictured Cliffs reservoir within the Chaco wells, which exhibited pressure and production decline typical of a sandstone reservoir, appears to have been depleted prior to the acidization and/or fracture stimulations which occurred in 1995;

c) stimulation efforts (acidization) performed on the Chaco Limited Wells No. 1J and 2J did not alter these wells' rates of production. These wells continue to produce at low marginal rates;

d) the significant post stimulation increases in producing rates obtained in the Chaco Wells No. 1, 2R, 4 and 5 cannot solely be attributable to overcoming "skin damage" in the wells. In addition, given the state of depletion within the Pictured Cliffs producing interval, the significant gas reserves being produced from the Chaco Wells No. 1, 2R, 4 and 5 do not likely originate from this interval;

e) Pendragon presented no evidence to demonstrate that there is pressure and/or production communication between the Pictured Cliffs producing interval and the "third bench" of the Pictured Cliffs formation;

f) typically, Pictured Cliffs completions produce very small amounts of water. Fruitland Coal completions are characterized by substantial water production until such time as the reservoir is de-watered;

g) although there is very limited water production data for the Chaco wells prior to February, 1998, testimony by Maralex indicates that as early as August, 1996, it witnessed substantial amounts of water contained within earthen pits at the Chaco well locations. There is further evidence indicating that the Chaco Well No. 1 continues to produce significant amounts of water (640 barrels in March, 1998, 640 barrels in April, 1998);

h) during 1998, water/gas ratios in the Chaco Wells No. 1, 2R and 4 were at least as high, and in some cases substantially higher, than those in the closest offsetting Gallegos Federal wells;

i) combined production data for the five Gallegos Federal wells shows that during 1994 the wells exhibited a fairly constant rate of production incline, which is characteristic of Fruitland Coal gas production. An effect on the Gallegos Federal well's production is evident commencing during the 2nd quarter of 1995, at which time the rate of production incline for the wells decreased;

j) cumulative gas production from the Chaco Wells No. 4 and 5 (591 MMCFG and 508 MMCFG, respectively) has exceeded Pendragon's original gas-in-place volumetric reserve estimates (based upon 160-acre drainage) for the Pictured Cliffs producing interval (410 MMCFG and 395 MMCFG, respectively);

k) there is no evidence to demonstrate pressure and production communication between the Pictured Cliffs producing interval and the "third bench" of the Pictured Cliffs formation within the Chaco wells; consequently, gas reserves contained within the "third bench" of the Pictured Cliffs formation should not be included in any production/gas reserve analysis;

l) Pendragon's decline curve and material balance gas reserve calculations are based upon post-stimulation production data from the Chaco wells. This data may not accurately reflect gas reserves in the Pictured Cliffs formation due to the possible establishment of communication with the Fruitland Coal formation during stimulation; and

m) Whiting's original gas-in-place reserve calculations for the Chaco wells were made utilizing "PROMAT," a reservoir simulation program which utilized historic production data from the Chaco wells prior to acidization and/or fracture stimulation.

(31) The producing characteristics of the Chaco wells (i.e. high initial producing rates subsequent to stimulation, water production, water/gas ratios, etc.) are indicative of gas production originating from the Fruitland Coal formation rather than the Pictured Cliffs formation.

(32) The Pictured Cliffs formation was depleted by the Chaco wells prior to the stimulations performed on these wells in 1995.

(33) There is no evidence to support Pendragon's contention that the "third bench" of the Pictured Cliffs formation is the source of production recharge within the Chaco wells.

(34) There is some evidence indicating that production from the Gallegos Federal wells has been affected by production from the Chaco wells.

(35) Whiting's method and resulting gas reserve calculations for the Chaco wells appears to more accurately depict the original gas-in-place reserves within the Pictured Cliffs formation than those presented by Pendragon.

BTU/Gas Analysis Data

(36) It is Pendragon's position that even though there is a difference in BTU content between Pictured Cliffs and Fruitland Coal gas, BTU content cannot be used as an indicator of communication between the zones for the following reasons:

a) variations in BTU content could be attributable to a number of factors, including variations in reservoir pressure draw-down rates and production over time affecting the production of various gas liquids; and

b) phase change graphs demonstrate that phased transition from gas to liquids in a low permeability reservoir shows significant variations for methane, ethane, propane, butane and pentane. The production of these liquids and the resultant effect on gas BTU content was shown to be affected by a number of factors, including reservoir pressure and rates of production. As a result of these variable, dynamic forces, the various components move through the reservoir at different velocities, affecting the BTU content of the produced gas. As reservoir conditions are historically variable rather than static, the BTU content of the gas is continually affected.

(37) It is the position of Whiting that BTU content of gas can be utilized to demonstrate communication between the Pictured Cliffs and Fruitland Coal. Whiting presented the following engineering evidence and testimony:

a) a sample of 40 wells located within Township 26 North, Ranges 12 and 13 West indicates that the BTU content of Pictured Cliffs gas is generally in the range of 1,050 to 1,150, while the BTU content of Fruitland Coal gas is generally around 1,000;

b) historical data indicates that the BTU content of the Chaco wells prior to acidization and/or fracture stimulation was consistent with Pictured Cliffs produced gas in this area;

c) the gas analysis of the Gallegos Federal wells generally indicates a gas composed of 97-99% methane. The gas analysis of the Chaco wells prior to acidization and/or fracture stimulation generally indicates a gas composed of 90-93% methane; and

d) following the acidization and/or fracture stimulations, the Chaco wells began producing gas with a BTU content and gas analysis consistent with Fruitland Coal seam gas. The evidence presented to the Division demonstrates that the BTU readings on the gas produced in the Gallegos Federal wells and the BTU readings on the gas produced from the Chaco wells has become increasingly similar and consistent overtime, thus indicating that the Chaco wells are producing significant volumes of coal seam gas.

(38) Upon consideration of the BTU content and gas analysis (% methane) data presented by both parties in this case the ***Division finds that***:

a) there is no evidence to support Pendragon's contention that variations in BTU content in its Chaco wells are attributable to factors such as variations in reservoir pressure draw-down rates and production over time affecting the production of various gas liquids;

b) BTU content and gas analysis trends for the Chaco wells prior to acidization and/or fracture stimulation appear to be fairly consistent. In addition, BTU content and gas analysis trends for the Gallegos Federal wells prior to the acidization and/or fracture stimulation of the Chaco wells appears to be fairly consistent;

c) the BTU content decreased and the percentage of methane increased in the Chaco Wells No. 1, 4 and 5 subsequent to acidization and/or fracture stimulation; and

d) the current BTU content and gas analysis of the Chaco wells appears to be more characteristic of Fruitland Coal gas than Pictured Cliffs gas.

(39) BTU content and gas analysis trends can be utilized as an indicator of communication between the Fruitland Coal and Pictured Cliffs formations.

(40) The BTU content and gas analysis data presented generally indicates communication between the Pictured Cliffs and Fruitland Coal formations within the Chaco wells.

Fracture Stimulation Data

(41) The evidence presented by the parties indicates that the foam fracture stimulations performed on the Chaco wells consisted of fluid volumes averaging 31,248 gallons at proppant weights averaging 38,421 pounds injected at treating rates ranging from between 22 to 34 barrels per minute. The evidence further indicates that the foam fracture stimulations performed on the Gallegos Federal wells consisted of fluid volumes averaging 41,030 gallons at proppant weights averaging 72,656 pounds injected at treating rates between 45 to 60 barrels per minute.

(42) Pendragon presented the following engineering evidence and testimony in the area of fracture technology:

a) pressure and injection rate data derived from formation fracture treatments can be used to determine the vertical height growth and horizontal extension of fractures within the formation;

b) lithologic analysis from well logs may be used to design fracture stimulation treatments that remain contained within the target zone or formation. Moreover, changes in lithology and facies will predictably act as a barrier to fracture growth out of zone. Specifically, there is a distinct lithology change at the top of the Pictured Cliffs formation within the Chaco wells;

c) the fracture stimulations performed by Whiting were accomplished at significantly higher rates and higher volumes with fracture fluids of greater viscosity. By comparison, the fracture stimulations performed by Pendragon on its Chaco wells were accomplished at relatively low rates and low volumes;

d) Nolte Plots are an effective and reliable means of determining vertical height growth and extension of formation fractures;

e) the Nolte Plots for the Chaco wells show a slight incline in pressure over the time of the treatment, indicating restricted height growth and lateral extension of the fractures. In contrast, the Nolte Plots for the Gallegos Federal wells show negative slopes, indicating unrestricted, vertical growth and in one case, "run away" vertical fractures;

f) coal is an effective barrier to fracture growth because it is more elastic than the surrounding sandstones. The cleat systems within the coal body also allow for the pressure at the fracture tip to become diffuse, negating the ability of the tip and fluids to fracture into the coal itself;

g) the fracture treatments for the Chaco wells were designed specifically to utilize the thin coal and shale stringers as effective barriers to maintain containment of the fracture. Several examples of this type of fracture design and its effect were demonstrated for wells in the Raton Basin;

h) fracture simulators such as "FRACPRO," which was utilized by Whiting in this case, are generally recognized to exaggerate the height of actual fracture growth, thus making them a less reliable means for determining whether fractures remained confined within zone; and

i) the evidence and data presented are sufficient to support the conclusion that the fracture treatments on the Chaco wells did not escape out of zone and remained contained within the Pictured Cliffs formation. The evidence available is also insufficient to demonstrate that the fracture stimulations performed on the Whiting Gallegos Federal wells resulted in communication between the Pictured Cliffs and the Fruitland Coal.

(43) Whiting presented the following engineering evidence and testimony in the area of fracture technology:

a) the net pressures depicted on the Nolte Plots presented by the applicant in this case were incorrectly calculated and, as a result, applicant's conclusions as to the extent of fracture height growth within the Chaco and Whiting wells cannot be relied upon as accurate;

b) utilizing "FRACPRO," a fracture simulation program, Whiting has determined that the fracture stimulations performed on the Chaco Wells No. 1, 4 and 5 extended upward into the Fruitland Coal interval of the Basin-Fruitland Coal Gas Pool; and

c) as a result of Pendragon's fracture stimulations extending into the Fruitland Coal interval of the Basin-Fruitland Coal Gas Pool, coal gas is being produced from the Chaco wells in substantial quantities.

(44) Upon consideration of the fracture data presented by both parties in this case the ***Division finds that***:

a) the Nolte Plots presented by Pendragon do not appear to accurately reflect the net treating pressure and consequently these plots cannot be relied upon to ascertain whether the fracture stimulations performed on the Gallegos Federal wells resulted in fracturing of the Pictured Cliffs formation and whether the fracture stimulations performed on the Chaco wells resulted in fracturing of the Fruitland Coal formation;

b) the "FRACPRO" simulation data presented by Whiting indicates that the fracture stimulations performed on the Chaco Wells No. 1, 4, and 5 resulted in the fracturing of the Fruitland Coal formation;

c) no fracture simulation data was presented for the Chaco Well No. 2R;

d) no fracture simulation data was presented for the Gallegos Federal wells; and

e) neither Whiting nor Pendragon acted prudently to verify by means of additional testing whether its fracture stimulations extended out of their respective producing horizons;

(45) There is sufficient evidence to establish that the fracture stimulations performed on the Chaco Wells No. 1, 4 and 5 resulted in the fracturing of the Fruitland Coal formation within the Basin-Fruitland Coal Gas Pool.

(46) There is not sufficient evidence to establish that the fracture stimulation performed on the Chaco Well No. 2R resulted in the fracturing of the Fruitland Coal formation within the Basin-Fruitland Coal Gas Pool.

(47) There is not sufficient evidence to establish that the fracture stimulations performed on the Gallegos Federal wells resulted in the fracturing of the Pictured Cliffs formation within the WAW-Fruitland Sand Pictured Cliffs Gas Pool, although, given the close proximity of the Pictured Cliffs formation to the Fruitland Coal formation, and given the parameters utilized by Whiting in the fracture treatment of its wells, it is possible that the fracture stimulations performed on the Gallegos Federal wells did result in the fracturing of the Pictured Cliffs formation.

(48) The preponderance of evidence and testimony presented in this case demonstrates that the Pendragon Chaco Wells No. 1, 2R, 4 and 5 and the Chaco Limited Wells No. 1J and 2J have established communication with the Basin-Fruitland Coal Gas Pool by virtue of acidization and/or fracture stimulation performed on these wells.

(49) The communication established between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools has resulted in significant volumes of coal gas being produced from Pendragon's Chaco Wells No. 1, 2R, 4 and 5. This communication appears not to have affected production from the Chaco Limited Wells No. 1J and 2J.

(50) The evidence and testimony presented in this case is not sufficient to demonstrate that the Whiting Gallegos Federal 26-12-6 No. 2, 26-12-7 No. 1, 26-13-1 No. 1, 26-13-1 No. 2 and 26-13-12 No. 17 have established communication with the WAW Fruitland Sand-Pictured Cliffs Gas Pool by virtue of fracture stimulations performed on these wells.

(51) The communication established between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools within the Chaco wells has resulted in the violation of Whiting's correlative rights.

(52) As a solution to the pool communication within the Chaco wells, Whiting has proposed that the Division order Pendragon to plug and abandon the Chaco Wells No. 1, 2R, 4 and 5 and the Chaco Limited Wells No. 1J and 2J.

(53) Pendragon presented no proposed resolution in the event the Division determines that communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools has been established within its Chaco wells.

(54) Pendragon should be given the opportunity to propose a method by which its Chaco wells may be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Gas Pool, or a method for producing its Chaco wells in their current state which is acceptable to the Division and to Whiting. These proposals should be evaluated at a forum which allows discussion and/or input from Whiting.

(55) Pending Division approval of a method by which Pendragon's Chaco wells may be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Gas Pool, or a method by which the wells may be produced in their current state which is acceptable to the Division and to Whiting, Pendragon should shut-in its Chaco Wells No. 1, 2R, 4 and 5 and Chaco Limited Wells No. 1J and 2J.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., it is determined that the following described wells are perforated within the Pictured Cliffs formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool. It is further determined that the following described wells are producing from the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool, San Juan County, New Mexico:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

(2) It is further determined that the following described wells are producing singly from the Basin-Fruitland Coal Gas Pool:

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W

Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Pendragon is hereby ordered to shut-in its Chaco Wells No. 1, 2R, 4 and 5 and its Chaco Limited Wells No. 1J and 2J until such time as the Division approves a method by which its Chaco wells may be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Gas Pool, or a method for producing its Chaco wells in their current state that is acceptable to Whiting.

(4) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrotenbery

LORI WROTENBERY
Director

S E A L

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 11,996
APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., AND J.K. EDWARDS ASSOCIATES, INC., TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS, Volume IV

COMMISSION HEARING

BEFORE: LORI WROTENBERY, CHAIRMAN
JAMI BAILEY, COMMISSIONER
ROBERT LEE, COMMISSIONER

August 20th, 1999

Santa Fe, New Mexico

This matter came on for continued hearing before the Oil Conservation Commission, LORI WROTENBERY, Chairman, on Friday, August 20th, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

factor of 5. Doesn't really matter.

What really matters is what's the real stress in the coal, and can that fluid, when it gets there, open up those cleats and inject fluid and proppant? And all it has to do to inject that fluid is overcome a stress of .9 p.s.i. per foot.

You've already seen Dr. Conway's numbers. My numbers are in my report, I think, on page -- Let's see. I don't have my report with me, unfortunately. I think it might be page 6, there's a table of the fracture gradients, and they're all, with the exception of the Chaco 1, in excess of .9. And the Chaco 1 is .85, so it's pretty close, and I'll arm-wrestle over whether or not that's enough to get some fluid.

Again, Mr. Cox said the fractures are already open, and they are. They're already open. So you don't have to really overcome the stress to even inject the fluid and proppant. But you get more in there, of course, when you do.

Q. Even if Dr. Conway wanted to use the 2-R as his experiment, even though that has the perforations only down in the Pictured Cliffs, if he had honored the rock properties set forth in the Palmer papers, what would have happened to his fracture on the Chaco -- on that Chaco well?

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 11,996
APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., AND J.K. EDWARDS ASSOCIATES, INC., TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS, Volume V

COMMISSION HEARING

BEFORE: LORI WROTENBERY, CHAIRMAN
JAMI BAILEY, COMMISSIONER
ROBERT LEE, COMMISSIONER

August 20th, 1999

Santa Fe, New Mexico

This matter came on for continued hearing before the Oil Conservation Commission, LORI WROTENBERY, Chairman, on Saturday, August 21st, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

Q. What do you do with that number? Don't you have to take that number and add it to the closure stress gradient at that point?

A. I don't have to, no.

Q. Well, for -- If you want to see the result where a proppant would be injected up into the coal from a fracture initiated in the sandstone, wouldn't you have to add that 400 p.s.i. number to your closure stress gradient number?

A. No, I wouldn't add that one, because this is a fracture treatment on the coal, not in the Pictured Cliffs.

Q. Well, presume for me that there was a fracture initiated in the Pictured Cliffs.

A. Okay.

Q. And you have that pressure observed just before the end of the job.

A. The net pressure is 400 p.s.i.

Q. Right.

A. All right?

Q. Presuming we're seeing a fracture penetrate up into the coal.

A. Okay.

Q. So for you to show the injection of proppant up into the coal, wouldn't you have to take the observed net pressure number and add that to the closure stress gradient

for that to result?

A. It's not quite that simple, and -- For a conventional two-dimensional linear elastic model that would be true. It's not quite that simple, though.

But to get to your point, people take -- yeah, you definitely -- you add the net pressure to the closure pressure, and that gives you an approximate value for the fracture pressure, if that's your question.

Q. Okay. The treatments here on the Pictured Cliffs wells, generally you have a fracture that goes, as you say, from the bottom of the Pictured Cliffs formation, potentially, up into the coal. I mean, you have a relatively thin fluid that's used, and you have a fairly low density foam component to the fluid; is that fair to say. That's a general description of the treatments used on the PC here?

A. I wouldn't characterize the foam as a thin fluid, no.

Q. But generally, the treatments relative to the treatments used on the coal wells, you have -- a low-density foam was used, correct?

A. Define low-density foam, I'm sorry.

Q. I can't, I'm a non-engineer.

A. Okay, well I'm sorry, I can't answer that question. I don't understand it.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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REPORTER'S TRANSCRIPT OF PROCEEDINGS, Volume IV

COMMISSION HEARING

BEFORE: LORI WROTENBERY, CHAIRMAN
JAMI BAILEY, COMMISSIONER
ROBERT LEE, COMMISSIONER

August 20th, 1999

Santa Fe, New Mexico

This matter came on for continued hearing before the Oil Conservation Commission, LORI WROTENBERY, Chairman, on Friday, August 20th, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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up for auction?

A. That's correct.

Q. And what does that refer to? Is there some sort of system available for unwanted properties to test to see if somebody will --

A. Yes, there -- As I'm aware of, there are two companies that run oil-and-gas property auctions, and you contact these firms, give them the details on your wells and put them up for sale. I don't remember the number. The fact that they sold for $7800 gives me some hint of their economic worth.

MR. GALLEGOS: Okay, that's all I have for redirect. Thank you.

MR. HALL: Some additional questions in view of Dr. Lee's questions to the witness.

RECROSS-EXAMINATION

BY MR. HALL:

Q. Earlier, Mr. Brown, I understood you to say that a cutoff for determining whether gas was Fruitland Coal gas is a range of about 1000 to 1050 BTU. Do you recall saying that?

A. Yes, am I going to regret it?

Q. I don't know.

A. I'm just checking to see what I wrote and what I said, so --

Q. Okay.

A. Okay, what did I say?

Q. Your testimony was, you thought that you could use BTU values of around 1000 to 1050. Anything below that should be considered Fruitland Coal gas production?

A. Yes.

Q. And is it safe to say anything above that should be considered Pictured Cliffs production?

A. I think I had a gap in there of some distance. They didn't exactly butt up to each other, I put a little gap in there.

Q. What's the low-end range for a Pictured Cliffs gas?

A. I said 1075 to 1150.

Q. All right, so if a well is producing in the range of 1146, that would be Pictured Cliffs gas; is that right --

A. Like I said --

Q. -- according to your definition?

A. Well, like I said, I also testified to using one single BTU measurement can possibly lead you to the wrong conclusion.

Q. I see. Let's look at Exhibit Brown-15 quickly here. Can you identify that, please, sir?

A. This looks like a gas chromatograph analysis for

the Gallegos Federal 26-12-7 Number 1.

Q. And what's the heating value shown for that well?

A. 1146.

Q. So is that Pictured Cliff gas?

A. I don't know.

Q. According to your definition it would be, right?

A. According to the ranges I stated, it would be. According to the additional testimony I made, where basing something on one BTU analysis, can lead to the wrong conclusion. So I'm not ready to conclude what this is.

Q. Is this or is this not a Pictured Cliffs well?

A. This is a coal well.

Q. I see. Referring to your Exhibit N-37-E-1 -- Can you pull that out? It looks like this.

A. Like that?

Q. Yes.

A. Okay.

Q. This well, this sample for the 7-1, should have been included on this exhibit, should it not?

A. That's correct.

Q. Any reason why you deleted that, neglected to put that one on?

A. We used the data straight from what Mr. Nicol and Mr. Cox had testified to.

Q. I'm sorry, I didn't hear you.


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FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellant,

vs. **No. D-0117-CV-2000-1449**

NEW MEXICO OIL CONSERVATION COMMISSION, WHITING PETROLEUM CORP. and MARALEX RESOURCES, INC.,

Appellees.

MOTION TO DISMISS PENDRAGON'S APPEAL, INCLUDING SUPPORTING AUTHORITY

Appellees/Intervenors Whiting Petroleum Corp. and Maralex Resources, Inc. (collectively "Whiting"), by and through their counsel, hereby move this Court for its Order dismissing the administrative appeal filed by appellants (collectively "Pendragon") in this action. Pendragon's administrative appeal recites three issues, all of which involve attacks on findings of fact entered by the New Mexico Oil Conservation Commission in Order R-11133-A. Pendragon has uniformly failed to inform the Court in its Statement of the Issues about the extensive evidence introduced before the Commission in proceedings below which overwhelmingly supports the Commission findings against Pendragon. This Court should rule that Pendragon has waived its right of review on the issues raised.

As grounds for this Motion, Whiting states as follows:

1. Pendragon appeals from Commission Order R-11133-A issued by the New Mexico Oil Conservation Commission ("Commission") on April 26, 2000. Pendragon's administrative appeal is taken pursuant to NMSA 1978 §§ 39-3-1.1 and 70-2-25 (2000 Cum. Supp.), and Rule 1-074, NMRA 2000. Pendragon filed its Statement of the Issues pursuant to Rule 1-074(K) on October 2, 2000.

2. Pendragon contends in its Statement of the Issues that it intends to raise three separate issues on appeal. Each involves an attack on various Commission findings in Order R-11133A. Issue One ostensibly challenges the Commission's refusal to sanction Whiting for what Pendragon contends is the improper production by Whiting of Pendragon's Pictured Cliffs gas. Pendragon's complaint on Issue 1 is dependent on its challenging various Commission findings that the Pictured Cliffs formation was depleted prior to 1995, that Whiting's wells **may** produce only minor amounts of gas from the already depleted WAW Fruitland Sand-Pictured Cliffs Pool, and that any gas flow from the Pictured Cliffs formation would be insignificant. See Findings 34, 35 and 45. In Issue Two, Pendragon complains that the Commission failed to recognize its right to produce gas from the Pictured Cliffs formation, thereby challenging Commission Findings 34, 35, 44 and 45, which found that the Pictured Cliffs formation was depleted prior to 1995, and that Pendragon had already produced its fair share of gas from the Pictured Cliffs formation. Finally, in Issue Three, Pendragon explicitly challenges various Commission findings which it contends are not supported substantial evidence.

3. Rule 1-074(K)(2) provides that a party's summary of proceedings "shall include a short recitation of all facts relevant to the issues presented for review . . . ". (Emphasis added) In a substantial evidence challenge, a party is obligated to present

> SCRA 12-213 demands this winnowing process. Only after a party challenging the sufficiency of the evidence goes through the steps outlined above in a careful and candid manner can that party truly decide whether the issue is worth pursuing. As already noted, this process saves time and money when issues found to be without merit are discarded.

115 N.M. at 186.

5. Pendragon's Statement fails to apprise this Court of all evidence, and reasonable inferences which can be drawn therefrom, introduced below which support the Commission's findings which are the subject of challenge in Pendragon's appeal. Pendragon places before the Court in its Statement assertions for which there is no evidence and evidence which Pendragon plucks from the record selectively unfavorable to the Commission's decision.

6. Whiting has been forced to set forth supporting evidence, and has done so in its Response to Appellant's Statement of Appellate Issues, filed concurrently herewith which Whiting incorporates herein by reference. The Court can instantly determine from a review of Whiting's Response and that being filed by the Commission that there was far greater than substantial evidence introduced before the Commission which supports the various Commission findings.

7. New Mexico Courts have routinely recognized the need to sanction parties raising substantial evidence challenges who fail to comply with the rules for appeals of administrative decisions. In Martinez, the Court held that an appellant waived his right to review certain findings entered by the Workers' Compensation Judge because of a failure to apprise the appellate court of all evidence which related to a substantial evidence challenge:

> We recently had occasion to refuse to consider a challenge to the sufficiency of the evidence where the appellant failed to include the substance of all of the evidence bearing upon a proposition. *See Maloof v. San Juan County Valuation Protests Bd.*, 114 N.M. 755, 845 P.2d 849 (Ct. App. 1992). Although *Maloof* was decided under the traditional standard of review, the same principles enunciated there apply to whole record review. In *Maloof*, we said that an appellant is bound by the findings of fact made below unless the appellant properly attacks the findings, and that the appellant remains bound if he or she fails to properly set forth all the evidence bearing upon the findings.

115 N.M. at 186. See also Hartman v. Texaco, Inc., 1997-NMCA-032, 123 N.M. 220, 937 P.2d 979 (A one-sided statement of facts is no help to the Court).

8. The same result should apply here. Pendragon's failure to apprise this Court of all the facts which relate to the issues it has raised in this administrative appeal was done knowingly and with intent to mislead the Court. In truth, there is more than substantial evidence in the record which supports each and every Commission finding which Pendragon challenges on appeal. Under these circumstances, this Court should hold that Pendragon has waived its right of review on all issues raised by this Administrative appeal.

9. Due to the dispositive nature of this Motion, the consent of Pendragon is presumed to be denied. The Commission concurs in this Motion.

WHEREFORE, on the basis of the foregoing points and authorities, and on the basis of the facts set forth in Whiting's Response to Appellant's Statement of Appellate Issues, supporting the various Commission findings challenged by Pendragon in this administrative appeal, Whiting respectfully requests that the Court enter its Order holding that Pendragon has waived its right of review in this administrative appeal, and dismissing this administrative appeal with prejudice.

Respectfully submitted,

GALLEGOS LAW FIRM, P.C.

By _____
J.E. GALLEGOS
MICHAEL J. CONDON
460 St. Michael's Drive, Bldg. 300
Santa Fe, New Mexico 87505
(505) 983-6686

Attorneys for Whiting

CERTIFICATE OF SERVICE

I hereby certify that I have caused a true and correct copy of the foregoing Motion to Dismiss Pendragon's Appeal to be mailed on this 22nd day of November, 2000 to the following counsel of record:

J. Scott Hall
Miller, Stratvert, Torgerson & Schlenker, P.A.
150 Washington Avenue
Santa Fe, New Mexico 87501

Stephen C. Ross, Esq.
New Mexico Oil Conservation Commission
2040 S. Pacheco
Santa Fe, NM 87505

_____
MICHAEL J. CONDON

COPY

ENDORSED

NOV 1 2000

FIRST JUDICIAL DISTRICT COURT
SANTA FE, RIO ARRIBA &
PO BOX 2268
SANTA FE, NM 87501-2268

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

ORDER EXTENDING TIME TO FILE RESPONSE TO APPELLANTS' STATEMENT OF APPELLATE ISSUES

THIS MATTER having come before the court upon motion of Appellee, the New Mexico Oil Conservation Commission, by and through counsel of record, for an Order extending the time to file its response to *Appellants' Statement of Appellate Issues* in this matter, and the Court having reviewed the pleadings and noted concurrence of counsel of record,

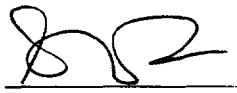
FINDS that the motion is well-taken and should be granted.

IT IS THEREFORE ORDERED, ADJUDGED AND DECREED that Appellee, the New Mexico Oil Conservation Commission, shall have an additional ten (10) days to file its response to *Appellants' Statement of Appellate Issues* in this matter. Appellants' Statement of Appellate Issues shall be filed no later than November 10, 2000.

DANIEL A. SANCHEZ

The Honorable Daniel A. Sanchez

Submitted by:



Stephen C. Ross
Counsel for Appellee
Special Assistant Attorney General
Oil Conservation Commission
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(505) 827-8177 (facsimile)

Telephonically approved, October 26, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614
(505) 989-9857

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

No. D 0117-CV-2000-1449

MOTION TO EXTEND TIME TO FILE RESPONSE TO APPELLANTS' STATEMENT OF APPELLATE ISSUES

COMES NOW Appellee, the New Mexico Oil Conservation Commission, by and through its attorney of record, Stephen C. Ross, Special Assistant Attorney General, and hereby moves the Court for an extension of time to file its response to *Appellants' Statement of Appellate Issues*, on the following grounds:

1. The matter before the Court is an appeal from decision of the New Mexico Oil Conservation Commission pursuant to NMSA 1978, §§ 39-3-1.1 and 70-2-25(B) (Repl. 1999) and Rule 1-074 NMRA.

2. *Appellants' Statement of Appellate Issues* was filed with the Court on or around October 2, 2000. Ordinarily, Appellee's response to that document should be filed with the Court no later than November 1, 2000.

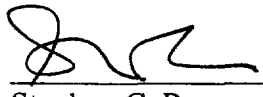
3. The Record on Appeal in this matter is very extensive and contains many thousands of pages and dozens of original exhibits. The transcript of the hearing alone is more than 1,600 pages. Counsel for Appellee did not participate in the hearing and has

had to study the record in order to prepare an intelligible response. This task has been made all the more difficult as the undersigned has been out-of-town on work assignments five days out of the last ten.

4. Counsel for Appellant has been contacted and does not oppose a ten (10) day extension of time to file its response to the *Appellant's Statement of Appellate Issues*.

WHEREFORE, for the foregoing reasons, Appellee New Mexico Oil Conservation Commission moves the Court for an Order extending the time to file its response to *Appellants' Statement of Appellate Issues* an additional ten (10) days to November 10, 2000.

Respectfully Submitted.



Stephen C. Ross
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Certificate of Service

I, Stephen C. Ross, hereby certify that a copy of the foregoing pleading was mailed to counsel listed below, this 26th day of October, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504

Stephen C. Ross

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION,

Appellant,

vs.

No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

NOTICE OF HEARING

A hearing in this case is set before the HONORABLE DANIEL SANCHEZ as follows:

Date of Hearing: November 22, 2000

Time of Hearing: 9:30 a.m.

Length of Hearing: Thirty Minutes

Place of Hearing: JUDGE SANCHEZ' COURTROOM

Matter(s) to be Heard: MOTION TO INTERVENE AND FOR CONSOLIDATION

THE HONORABLE DANIEL SANCHEZ

By Sandy Mora

Notice mailed or delivered on date of filing to parties listed on attached sheet.

ALL PARTIES ENTITLED TO NOTICE

ATTORNEY FOR PLAINTIFFS:

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Michael J. Condon
Gallegos Law Firm, P.C.
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ATTORNEY FOR DEFENDANTS:

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Steve Ross
New Mexico Oil Conservation Commission
2040 S. Pacheco Street
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FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

AGREED ORDER AUTHORIZING
SUPPLEMENTATION OF RECORD ON APPEAL

This matter, having come before the Court pursuant to the Agreed Motion To Supplement the Record On Appeal, and the Court being duly advised, IT IS ORDERED that Appellant may supplement the record with (1) the original administrative application in this case, (2) the subsequent application pursuant to NMOCC Order No. R-11133-A and (3) NMOCD Order No. R-8768.

The Honorable Daniel Sanchez
District Judge

Agreed:

MILLER, STRATVERT & TORGERSON, P.A.

By _____

J. Scott Hall
Post Office Box 1986
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(505) 989-9614
(505) 989-9857 (facsimile)

Attorneys for Appellants

Approved: Telephonically on October 23, 2000

Steve C. Ross
Counsel for Appellee
Special Assistant Attorney General
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FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

AGREED MOTION TO SUPPLEMENT RECORD

Appellants, Pendragon Energy Partners, Inc., et al., move pursuant to NMRA 1-074-I for the entry of an order authorizing the supplementation of the record on appeal. In support, Appellants state:

Appellants' Statement of Appellate Issues makes reference to a small number of pleadings filed with the New Mexico Oil Conservation Division ("NMOCD") and the New Mexico Oil Conservation Commission ("NMOCC") that were not included in the record on appeal when the same was filed with the Court earlier. These pleadings include the original application filed with the NMOCD in this case and a separate application made to the NMOCD pursuant to the provisions of the NMOCC's order (Order No. R-11133-A) that is at issue in this case. (Document Nos. 5207 to 5233, attached hereto as Exhibit A.) These materials, consisting of some 26 additional pages, are relevant to, and provide additional context to the issues on appeal.

Counsel for the NMOCC concurs with this motion.

WHEREFORE, Appellants request the Court enter its order authorizing the supplementation of the record on appeal with the referenced materials.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By J. Scott Hall

J. Scott Hall
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614
Attorneys for Pendragon Energy Partners, Inc., *et al.*

APPROVED:

October 23, 2000

Telephonically Approved
Steve Ross, Esq.
New Mexico Oil Conservation Commission
2040 South Pacheco
Santa Fe, New Mexico 87505

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. and J.K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

CASE NO. 11996

APPLICATION

Pendragon Energy Partners, Inc. ("Pendragon") and J.K. Edwards Associates, Inc. ("J. K. Edwards") through their counsel, hereby make application to the New Mexico Oil Conservation Division pursuant to Rule 3 of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool, Order No. R-8768-A and 19 NMAC 15.N.303.A for an order confirming that certain wells completed within the vertical limits of the WAW Fruitland-Pictured Cliffs Pool and the Basin-Fruitland Coal Gas Pool, respectively, are producing from the appropriate common source of supply. In support of their application, Pendragon and J.K. Edwards state:

1. Pendragon operates the following wells completed in and producing from the WAW Fruitland-Pictured Cliffs Pool in San Juan County, New Mexico:

Well Name	Location
Chaco No. 1	NW 1/4, Section 18, T26N, R12W, N.M.P.M.
Chaco No. 2R	SW 1/4, Section 7, T26N, R12W, N.M.P.M.
Chaco No. 4	NW 1/4, Ssection 7, T26N, R12W, N.M.P.M.
Chaco No. 5	SE 1/4, Section 1, T26N, R13W, N.M.P.M.
Chaco Ltd. No. 1J	SW 1/4 Section 1, T26N, R13W, N.M.P.M.
Chaco Ltd. No. 2J	NE 1/4, Section 1, T26N, R13W, N.M.P.M.

In addition to being the designated Operator of the referenced wells, Pendragon, along

EXHIBIT A

05207

with J.K. Edwards, owns working interests in the acreage dedicated to the subject wells.

2. Whiting Petroleum Corporation ("Whiting") is the Operator of the following wells completed within the Basin-Fruitland Coal Gas Pool:

Well Name	Location
Gallegos Federal 26-12-6 No. 2	W 1/2, Section 6, T12N, R12W, N.M.P.M.
Gallegos Federal 26-12-7 No. 1	W 1/2, Section 7, T26N, R12W, N.M.P.M.
Gallegos Federal 26-13-1 No. 1	E 1/2, Section 1, T26N, R13 W, N.M.P.M.
Gallegos Federal 26-13-1, No. 2	W 1/2, Section 1, T26N, R13W, N.M.P.M.
Gallegos Federal 26-13-12 No. 1	N 1/2 Section 12, T26N, R13W, N.M.P.M.

In addition to being the designated Operator of the referenced coal gas wells, Whiting, along with Maralex Resources, Inc., (Maralex) owns working interests in the acreage dedicated to the coal gas wells.

3. By Order No. R-8768 and R-8768-A, the Division created a new pool in all or parts of San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico classified as a gas pool for production from the Fruitland Coal seams and designated the pool as the Basin-Fruitland Coal Gas Pool. The wells and the lands that are the subject of this application are located within the horizontal limits of the Basin-Fruitland Coal Gas Pool as defined by Order No. R-8768 and R-8768-A. The Order also established the vertical limits of the pool by reference to the stratigraphic depth interval.

4. By Order No. R-8769 entered by the New Mexico Oil Conservation Division on October 17, 1988 in Case No. 9421 and as subsequently amended by Order No. R-8760-A, *nunc pro tunc*, the Division defined the vertical limits of the WAW Fruitland-Pictured Cliffs Pool as

follows:

> The vertical limits of the WAW Fruitland-Pictured Cliffs Pool in San Juan County, New Mexico are hereby contracted to include only the Pictured Cliffs formation and the sandstone interval of the Fruitland formation in said pool is hereby redesignated as the WAW Fruitland Sand-Pictured Cliffs pool.

All of the Pendragon operated wells referenced above are completed in and producing from the WAW Fruitland-Pictured Cliffs Pool.

5. Whiting and Maralex by their application, as amended, in Case No. 11921 have alleged generally, without any basis in fact, that as a result of drilling or the fracture stimulation, the Pendragon wells have become communicated with and are producing from the Basin-Fruitland Coal Gas pool. Whiting and Maralex further contend, also without any basis in fact, that the Pendragon wells "are draining reserves owned by Whiting and the other interest owners in its wells, and are impairing their correlative rights." Pendragon and Edwards deny that the drilling or the fracture stimulation of their Pictured Cliffs wells resulted in the communication of the two pools or that they are producing from the Basin-Fruitland Coal Gas Pool through their Pictured Cliffs completions. Pendragon and Edwards generally deny all other claims and allegations set forth in the Whiting/Maralex application, as amended.

6. Rule 3 of the Special-Rules and Regulations for the Basin-Coal Gas pool provide that the Division Director can require the Operator of a Basin Fruitland Coal Gas well, a Fruitland Sandstone well or a Pictured Cliffs Sandstone well to demonstrate to the satisfaction of the Division that the well is producing from the appropriate common source of supply.

7. Rule 19, NMAC 15.N.203.A of the Division's rules and regulations requires the segregation of production from separate sources of supply. The rule provides:

> Each pool shall be produced as a single common source of supply and wells therein shall be completed, cased, maintained and operated so as to prevent communication, within the well bore, within any other specific pool or horizon and the production therefrom shall at all times be actually segregated, and the commingling or confusion of such production, before marketing, with the production from any other pool or pools is strictly prohibited."

See also, Special Rules 2 and 12, Special Rules and Regulations for the Basin-Fruitland Coal Gas pool.

8. Under Section 70-2-6(A) of the New Mexico Oil and Gas Act (N.M. Stat. Ann. 1978, § 70-2-1, *et seq.*) the Division has primary jurisdiction and authority over all matters relating to the conservation of oil and gas and oil or gas operations in this state. In addition, the Division has specific statutory authority to prevent the escape of natural gas from one strata into other strata. N.M. Stat. Ann. 1978, § 70-2-12(B)(2).

The granting of this application is in the interests of the conservation of oil and gas resources and the prevention of waste.

WHEREFORE, Applicants request that this matter be set for hearing before the next scheduled hearing of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order requiring the respective operators of the Fruitland Coal Gas wells and the Fruitland Pictured Cliffs sandstone wells to demonstrate are producing from the appropriate common sources of supply and providing such other and further relief as the Division deems appropriate. Applicants also request that this matter be made a part of and consolidated with Case No. 11921 presently pending before the Division.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By J. Scott Hall

J. Scott Hall
P.O. Box 1986
Santa Fe, New Mexico 87501-1986
(505) 989-9614
Attorneys for Pendragon Energy Partners, Inc. and
J.K. Edwards Associates, Inc.

05211

~~(CEDAR HILL-FRUITLAND BASAL COAL GAS (VERTICAL~~ LIMITS EXTENSIONS) POOL - Cont'd.)

further defined and described as having vertical limits consistent within the vertical extension of the Cedar Hill-Fruitland Basal Coal Pool.

(3) Rule 1 of said Division Order No. R-7588, as amended is hereby suspended and shall be replaced with the following:

RULE 1. (A) Each well completed or recompleted in the Cedar Hill-Fruitland Basal Coal Pool shall be spaced, drilled, operated and prorated in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 1. (B) A Cedar Hill-Fruitland Basal Coal Pool well will be defined as one which meets a preponderance of the generally characterized coalbed methane criteria as derived from:

(a) Wireline log data;
(b) Drilling time;
(c) Drill cutting;
(d) Mud logs;
(e) Completion data;
(f) Gas analysis;
(g) Water analysis;
(h) Reservoir performance;
(i) Any other evidence that indicates the production is predominantly coal methane.

No one characteristic of lithology, performance or sampling will either qualify or disqualify a well from being classified as a coal gas well. Absent any finding to the contrary, any well completed in accordance with these rules that has met a preponderance of the criteria for determining a coal well is therefrom presumed to be completed in and producing from the Cedar Hill-Fruitland Basal Coal Pool. The District Supervisor may, at his discretion, require that an operator document said determination of the appropriate pool or require an order under the provisions of General Rule 303(c) authorizing the commingling of pools in the event a coal well fails to meet the criteria for a coal well as set forth in this rule.

IT IS FURTHER ORDERED THAT:

(4) Any well drilling to or completed in a coal member of the Fruitland formation within this vertical extension of the Cedar Hill-Fruitland Basal Coal Pool on or before November 1, 1988 that will not comply with the well location requirements of Rule 4 is hereby granted an exception to the requirements of said rule. The operator of any such well shall notify the Aztec District Office of the Division, in writing, of the name and location of any such well on or before January 1, 1989.

(5) Applicant's request to authorize downhole commingling of Fruitland Sandstone Gas and Fruitland Coal Gas at the District Office level of the Division is hereby denied.

(6) This case shall be reopened at an examiner hearing in October, 1990, at which time the operators in the subject pool may appear and show cause why the vertical extension of the Cedar Hill-Fruitland Basal Coal Pool should not be rescinded and Division Order No. R-7588, as amended, should not be reinstituted as they existed prior to the issuance of this order.

(7) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

BASIN-FRUITLAND COAL GAS POOL
San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico

Order No. R-8768, Creating and Adopting Temporary Operating Rules for the Basin-Fruitland Coal Pool, San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico, November 1, 1988, as Amended by Order No. R-8768-A, July 16, 1991, and Order No. R-8768-B, February 10, 2000.

In the Matter of the Hearing called by the Oil Conservation Division (OCD) on its own Motion for Pool Creation and Special Pool Rules, San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico.

CASE NO. 9420
Order No. R-8768

ORDER OF THE DIVISION

BY THE DIVISION: This Cause came on for hearing at 8:30 a.m. on July 6, 1988, at Farmington, New Mexico, before Examiner David R. Catanach.

NOW, on this 17th day of October, 1988, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:
(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) Division Case Nos. 9420 and 9421 were consolidated at the time of the hearing for the purpose of testimony.

(3) The Oil Conservation Division, hereinafter referred to as the "Division", on the recommendations of the Fruitland Coalbed Methane Committee, hereinafter referred to as the "Committee", seeks the creation of a new pool for the production of gas from coal seams within the Fruitland formation underlying the following described area in San Juan, Rio Arriba, McKinley, and Sandoval Counties, New Mexico:

Township 19 North, Ranges 1 West through 6 West;
Township 20 North, Ranges 1 West through 8 West;
Township 21 North, Ranges 1 West through 9 West;
Township 22 North, Ranges 1 West through 11 West;
Township 23 North, Ranges 1 West through 14 West;
Township 24 North, Ranges 1 East through 16 West;
Township 25 North, Ranges 1 East through 16 West;
Township 26 North, Ranges 1 East through 16 West;
Township 27 North, Ranges 1 West through 16 West;
Township 28 North, Ranges 1 West through 16 West;
Township 29 North, Ranges 1 West through 15 West;
Township 30 North, Ranges 1 West through 15 West;
Township 31 North, Ranges 1 West through 15 West;
Township 32 North, Ranges 1 West through 13 West;

(4) The Division further seeks, also upon the recommendations of the Committee, the promulgation of special pool rules, regulations, and operating procedures for said pool including, but not limited to, provisions for 320-acre spacing and proration units, designated well locations, well density, horizontal wellbore and deviated drilling procedures, venting and flaring rules, downhole commingling, and gas well testing requirements.

(BASIN-FRUITLAND COAL GAS POOL - Cont'd.)

(5) In companion Case No. 9421, the Division seeks to contract the vertical limits of twenty-six existing Fruitland and/or Fruitland-Pictured Cliffs Gas Pools to include only the Pictured Cliffs sandstone and/or Fruitland sandstone intervals.

(6) The Committee, which included representatives of the oil and gas industry, New Mexico Oil Conservation Division, Colorado Oil and Gas Conservation Commission, Bureau of Land Management, and Southern Ute Indian Tribe, was originally formed in 1986 for the purpose of studying and making recommendations to the Division as to the most orderly and efficient methods of developing coal seam gas within the Fruitland formation.

(7) Geological evidence presented by the Committee indicates that the Fruitland formation, which is found within the geographic area described above, is composed of alternating layers of shales, sandstones, and coal seams.

(8) The evidence at this time further indicates that the coal seams within the Fruitland formation are potentially productive of natural gas in substantial quantities.

(9) The gas originating from the coal seams within the Fruitland formation is composed predominantly of methane and carbon dioxide and varies significantly from the composition of the gas currently being produced from the sandstone intervals, and as such, represents a separate common source of supply.

(10) A new pool for gas production from coal seams within the Fruitland formation should be created and designated the Basin-Fruitland Coal Gas Pool with vertical limits comprising all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(11) The proposed horizontal pool boundary, which represents the geographic area encompassed by the Fruitland formation, contains within it, an area previously defined as the Cedar Hill-Fruitland Basal Coal Gas Pool (created by Division Order No. R-7588 effective February 1, 1984); said area currently comprises Sections 3 through 6 of Township 31 North, Range 10 West, and Sections 19 through 22 and 27 through 34 of Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(12) The proposed horizontal boundary of the Basin-Fruitland Coal Gas Pool should be amended to exclude that acreage currently defined as the Cedar Hill-Fruitland Coal Gas Pool described in Finding No. (11) above.

(13) The Committee has recommended the promulgation of special rules and regulations for the Basin-Fruitland Coal Gas Pool including a provision for 320-acre spacing and proration units, and in support thereof presented pressure interference data obtained from producing and pressure observation wells located within the Cedar Hill-Fruitland Coal Gas Pool, which indicates definite pressure communication between wells located 2180 feet apart (radius of drainage of a 320-acre proration unit = 2,106 feet).

(14) Further testimony and evidence indicates that due to the unique producing characteristics of coal seams (i.e. initial inclining production rates), engineering methods such as decline curve analysis and volumetric calculations traditionally used to aid in the determination of proper well spacing, cannot be utilized.

(15) The Committee further recommended the adoption of a provision in the proposed pool rules allowing for the drilling of a second well on a standard 320-acre proration unit in order to give an operator flexibility when addressing regional geological trends.

(16) Dugan Production Corporation, Merrion Oil and Gas Corporation, Hixon Development Company, Robert L. Bayless, and Jerome P. McHugh and Associates, hereinafter referred to as the "Dugan Group", appeared at the hearing and presented geologic and engineering evidence and testimony in support of a proposal which includes the following:

1. Establishment of an area within the Southern portion of the Basin-Fruitland Coal Gas Pool to be developed on 160-acre spacing and proration units.

2. Creation of a demarcation line and buffer zone separating the 320-acre spacing portion of the pool and the proposed 160-acre spacing portion of the pool.

(17) The Dugan Group owns oil and gas leasehold operating rights in the Fruitland formation in various areas of the San Juan Basin, and currently operates numerous wells producing from coal seams and sandstone intervals within the Fruitland formation.

(18) The Dugan Group has defined the location of the proposed demarcation line and 160-acre spacing area by utilizing a preponderance of geologic factors such as coal rank, depth of burial, thermal maturation, thickness of coal, and amount of gas in place.

(19) In support of the proposed 160-acre spacing area for the subject pool, the Dugan Group presented production data obtained from four producing wells, the Nassau Well Nos. 5, 6, 7 and 8 located in Section 36, Township 27 North, Range 12 West, NMPM, San Juan County, New Mexico, which indicates that the production rate from said Nassau Well No. 5 was unaffected by initiation of 160-acre offset production in said Nassau Well Nos. 6, 7, and 8.

(20) The evidence presented by the Dugan Group further indicates however, that the Nassau Well Nos. 5, 6, 7, and 8 are producing from commingled coal seam and sandstone intervals within the Fruitland formation, and as such, do not conclusively demonstrate 160-acre non-interference exclusively within the coal seams.

(21) Insufficient evidence exists at the current time to justify the creation of a 160-acre spacing area and demarcation line within the Basin-Fruitland Coal Gas Pool.

(22) The best technical evidence available at this time indicates that 320-acre well spacing is the optimum spacing for the entire Basin-Fruitland Coal Gas Pool.

(23) In order to prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, prevent reduced recovery which might result from the drilling of too few wells, and to otherwise protect correlative rights, special rules and regulations providing for 320-acre spacing units should be promulgated for the Basin-Fruitland Coal Gas Pool.

(24) The special rules and regulations should also provide for restrictive well locations in order to assure orderly development of the subject pool and protect correlative rights.

(25) Due to the relatively large area encompassed by the Basin-Fruitland Coal Gas Pool, and the relatively small amount of reservoir data currently available, the special rules and regulations should be promulgated for a temporary period of two years in order to allow the operators in the subject pool the opportunity to gather additional reservoir data relative to the determination of permanent spacing rules for the subject pool and/or specific areas within the pool.

(26) The evidence and testimony presented at the hearing is insufficient to approve at the present time, the proposed provision allowing for the drilling of a second well on a standard 320-acre proration unit.

(BASIN-FRUITLAND COAL GAS POOL - Cont'd.)

(27) The Committee further recommended the adoption of a provision in the Special Rules and Regulations allowing the venting or flaring of gas from a Basin-Fruitland Coal Gas well during initial testing in an amount not to exceed a cumulative volume of 50 MMCF or a period not to exceed 30 days.

(28) The evidence presented does not justify the establishment of a specific permissible volume of gas to be vented or flared from Basin-Fruitland Coal Gas Wells at this time, however, the supervisor of the Aztec district office of the Division should have the authority to allow such venting or flaring of gas from a well upon a demonstration such flaring or venting is justified and upon written application from the operator.

(29) Evidence and testimony presented at the hearing indicates that the gas well testing requirements as contained in Division Order No. R-333-I may cause damage to a Basin Fruitland Coal Gas Well, and that special testing procedures should be established.

(30) The special rules and regulations promulgated herein should include operating procedures for determination and classification of Basin-Fruitland Coal Gas Wells, horizontal wellbore and deviated drilling procedures, and procedures and guidelines for downhole commingling.

(31) This case should be reopened at an examiner hearing in October, 1990, at which time the operators in the subject pool should be prepared to appear and present evidence and testimony relative to the determination of permanent rules and regulations for the Basin-Fruitland Coal Gas Pool.

IT IS THEREFORE ORDERED THAT:

(1) Effective November 1, 1988, a new pool in all or parts of San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico, classified as a gas pool for production from Fruitland coal seams, is hereby created and designated the Basin-Fruitland Coal Gas Pool, with vertical limits comprising all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(2) The horizontal limits of the Basin-Fruitland Coal Gas Pool shall comprise the following described area in all or portions of San Juan, Rio Arriba, McKinley and Sandoval Counties, New Mexico, with the exception of Section 3 through 6 of Township 31 North, Range 10 West, and Section 19 through 22, and 27 through 34 of Township 32 North, Range 10 West, San Juan County New Mexico, which said acreage currently comprises the Cedar Hill-Fruitland Basal Coal Gas Pool:

Township 19 North, Ranges 1 West through 6 West;
Township 20 North, Ranges 1 West through 8 West;
Township 21 North, Ranges 1 West through 9 West;
Township 22 North, Ranges 1 West through 11 West;
Township 23 North, Ranges 1 West through 14 West;
Township 24 North, Ranges 1 East through 16 West;
Township 25 North, Ranges 1 East through 16 West;
Township 26 North, Ranges 1 East through 16 West;
Township 27 North, Ranges 1 West through 16 West;
Township 28 North, Ranges 1 West through 16 West;
Township 29 North, Ranges 1 West through 15 West;
Township 30 North, Ranges 1 West through 15 West;
Township 31 North, Ranges 1 West through 15 West;
Township 32 North, Ranges 1 West through 13 West;

(3) Temporary Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool are hereby promulgated as follows:

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

RULE 1. Each well completed or recompleted in the Basin-Fruitland Coal Gas Pool shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. A gas well within the Basin-Fruitland Coal Gas Pool shall be defined by the Division Director as a well that is producing from the Fruitland coal seams as demonstrated by a preponderance of data which could include the following:

a. Electric Log Data
b. Drilling Time
c. Drill Cuttings of Log Cores
d. Mud Logs
e. Completion Data
f. Gas Analysis
g. Water Analysis
h. Reservoir Performance
i. Other evidence which may be utilized in making such determination.

RULE 3. (As Amended by Order No. R-8768-A, July 16, 1991) The Division Director may require the operator of a proposed or existing Basin-Fruitland Coal Gas well, Fruitland Sandstone well, or Pictured Cliffs Sandstone well, to submit certain data as described in Rule (2) above, which would not otherwise be required by Division Rules and Regulations, in order to demonstrate to the satisfaction of the Division that said well will be or is currently producing from the appropriate common source of supply. The confirmation that a well is producing exclusively from the Basin-Fruitland Coal Gas Pool shall consist of approval of Division Form C-104, provided however that such approval shall be for Division purposes only, and shall not preclude any other governmental jurisdictional agency from making its own determination of production origination utilizing its own criteria.

RULE 4. (As Amended by Order No. R-8768-A, July 16, 1991) Each well completed or recompleted in the Basin-Fruitland Coal Gas Pool shall be located on a standard unit containing 320 acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the United States Public Lands Survey.

Individual operators may apply to the Division for an exception to the requirements of Rule No. (4) to allow the drilling of a second well on standard 320-acre units or on approved non-standard units in specifically defined areas of the pool provided that:

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

(b) Actual notice of such application shall be given to operators of Basin-Fruitland Coal Gas Pool wells, working interest owners of undrilled leases, and unleased mineral owners within the boundaries of the area for which the infill provision is requested, and to all operators of Basin-Fruitland Coal Gas Pool wells within one mile of such area, provided however any operator in the pool or other interested party may appear and participate in such hearing.

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

RULE 5. (As Amended by Order No. R-8768-A, July 16, 1991) The Supervisor of the Aztec district office of the Division shall have the authority to approve a non-standard gas proration unit within the Basin-Fruitland Coal Gas Pool without notice and hearing when the unorthodox size or shape is necessitated by a variation in the legal subdivision of the United States Public Lands Survey and/or consists of an entire governmental section and the non-standard unit in not less than 70% nor more than 130% of a standard as proration unit. Such approval shall consist of acceptance of Division Form C-102 showing the proposed non-standard unit and the acreage contained therein.

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(BASIN-FRUITLAND COAL GAS POOL - Cont'd.)

RULE 6. (As Amended by Order No. R-8768-A, July 16, 1991) The Division Director may grant an exception to the requirements of Rule (4) when the unorthodox size or shape of the gas proration unit is necessitated by a variation in the legal subdivision of the United States Public Lands Survey and the non-standard gas proration unit is less than 70% or more than 130% of a standard gas proration unit, or where the following facts exist and the following provisions are complied with:

(a) the non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a governmental half section, except as provided in paragraph (c) following.

(c) The non-standard unit conforms to a previously approved Blanco-Mesaverde or Basin-Dakota Gas Pool non-standard unit as evidenced by applicant's reference to the Division's order number creating said unit.

(d) The applicant presents written consent in the form of waivers from all offset operators or owners of undrilled tracts and from all operators owning interests in the half section in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(e) In lieu of paragraph (d) of this rule, the applicant may furnish proof of the fact that all of the aforesaid parties were notified by certified or registered mail or overnight express mail with certificate of delivery of his intent to form such non- standard unit. The Division Director may approve the application if no such party has entered an objection to the formation of such non-standard unit within 30 days after the Division Director has received the application.

(f) The Division Director, at his discretion, may set any application under Rule (6) for public hearing.

RULE 7. (As Amended by Order No. R-8768-B, Effective February 10, 2000.) Wells drilled or recompleted on every standard or non-standard unit in the Basin-Fruitland Coal Gas Pool shall be located in the NE/4 or SW/4 or a single governmental section and shall be located no closer than 660 feet to any outer boundary of the proration unit nor closer than 10 feet to any interior quarter or quarter-quarter section line or subdivision inner boundary.

RULE 8. The Division Director may grant an exception to the requirements of Rule (7) without hearing when an application has been filed for an unorthodox location necessitated by topographical conditions, the recompletion of a well previously drilled to a deeper horizon, provided said well was drilled at an orthodox or approved unorthodox location for such original horizon, or the drilling of an intentionally deviated horizontal wellbore. All operators or owners of undrilled tracts offsetting the proposed location shall be notified of the application by registered or certified mail, and the applicant shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all parties described above or if no objections to the unorthodox location has been entered within 20 days after the Director has received the application.

RULE 9(A). The Division Director shall have the authority to administratively approve an intentionally deviated well in the Basin-Fruitland Coal Gas Pool for the purpose of penetrating the coalbed seams by means of a wellbore drilled horizontally, provided the following conditions are complied with:

(1) the surface location of the proposed well is a standard location or the applicant has obtained approval of an unorthodox surface location as provided for in Rule (8) above.

(2) The bore hole shall not enter or exit the coalbed seams outside of a drilling window which is in accordance with the setback requirements of Rule (7), provided however, that the 10 foot setback distance requirement from the quarter-quarter section line or subdivision inner boundary shall not apply to horizontally drilled wells.

(B) To obtain administrative approval to drill an intentionally deviated horizontal wellbore, the applicant shall file such application with the Santa Fe and Aztec offices of the Division and shall further provide a copy of such application to all operators or owners of undrilled tracts offsetting the proposed gas proration unit for said well by registered or certified mail, and the application shall state that such notice has been furnished. The application shall further include the following information:

(1) A copy of Division Form C-102 identifying the proposed proration unit to be dedicated to the well.

(2) Schematic drawings of the proposed well which fully describe the casing, tubing, perforated or open hole interval, kick-off point, and proposed trajectory of the drainhole section.

The Director may approve the application upon receipt of written waivers from all parties described above or if no objection to the intentionally deviated horizontal wellbore has been entered within 20 days after the Director has received the application. If any objection to the proposed intentionally deviated horizontal well is received within the prescribed time limit as described above, the Director shall, at the applicant's request, set said application for public hearing.

(C) During or upon completion of drilling operations the operator shall further be required to conduct a directional survey on the vertical and lateral portions of the wellbore and shall submit a copy of said survey to the Santa Fe and Aztec Offices of the Division.

(D) The Division Director, at his discretion, may set any application for intentionally deviated horizontal wellbores for public hearing.

RULE 10. Notwithstanding the provisions of Division Rule No. 404, the Supervisor of the Aztec District office of the Division shall have the authority to approve the venting or flaring of gas from a Basin-Fruitland Coal Gas Well upon a determination that said venting or flaring is necessary during completion operations, to obtain necessary well test information, or to maintain the producibility of said well. Application to flare or vent gas shall be made in writing to the Aztec district office of the Division.

RULE 11. Testing requirements for a Basin-Fruitland Coal Gas well hereinafter set forth may be used in lieu of the testing requirements contained in Division Order No. R-333-I. The test shall consist of a minimum twenty- four hour shut-in period, and a three hour production test. The Division Director shall have the authority to modify the testing requirements contained herein upon a showing of need for such modification. The following information from this initial production test must be reported:

1. The surface shut-in tubing and/or casing pressure and date these pressures were recorded.

2. The length of the shut-in period.

3. The final flowing casing and flowing tubing pressures and the duration and date of the flow period.

4. The individual fluid flow rate of gas, water, and oil which must be determined by the use of a separator and measurement facilities approved by the Supervisor of the Aztec district office of the Division; and

(BASIN-FRUITLAND COAL GAS POOL - Cont'd.)

5. The method of production, e.g. flowing, pumping, etc. and disposition of gas.

RULE 12. The Division Director shall have the authority to approve the commingling within the wellbore of gas produced from coal seams and sandstone intervals within the Fruitland and/or Pictured Cliffs formations where a finding has been made that a well is not producing entirely from either coal seams or sandstone intervals as determined by the Division. All such applications shall be submitted to the Santa Fe office of the Division and shall contain all the necessary information as described in General Rule 303 (C) of the Division Rules and Regulations, and shall meet the prerequisites described in 303 (C) (1) (b). In addition, the Division Director may require the submittal of additional well data as may be required to process such application.

RULE 13. The Division Director may approve the commingling within the wellbore of gas produced from coal seams and sandstone intervals within the Fruitland and/or Pictured Cliffs formations where a well does not meet the prerequisites as described in General Rule 303 (C) (1) (b) provided that such commingling had been accomplished prior to July 1, 1988, and provided further that the application is filed as described in Rule (12).

IT IS FURTHER ORDERED THAT:

(4) The locations of all wells presently drilling to, completed in, commingled in, or having an approved APD for the Basin-Fruitland Coal Gas Pool are hereby approved; the operator of any well having an unorthodox location shall notify the Aztec district office of the Division in writing of the name and location of the well within 30 days from the date of this order.

(5) Pursuant to Paragraph A. of Section 70-2-18, N.M.S.A. 1978, Comp., contained in Laws of 1969, Chapter 271, existing gas wells in the Basin-Fruitland Coal Gas Pool shall have dedicated thereto 320 acres in accordance with the foregoing pool rules; or pursuant to Paragraph C. of said Section 70-2-18, existing wells may have non-standard spacing and proration units established by the Division and dedicated thereto.

(6) In accordance with (5) above, the operator shall file a new Form C-102 dedicating 320 acres to the well or shall obtain a non-standard unit approved by the Division. The operator shall also file a new C-104 with the Aztec district office of the Division.

(7) Failure to comply with Paragraphs (5) and (6) above within 60 days of the date of this order shall subject the well to a shut-in order until such requirements have been met.

(8) This case shall be reopened at an examiner hearing in October, 1990 at which time the operators in the subject pool may appear and present evidence and testimony relative to the determination of permanent rules and regulations for the Basin-Fruitland Coal Gas Pool.

(9) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

~~VADA-DEVONIAN POOL~~
Lea County, New Mexico

Order No. R-8770, Adopting Temporary Operating Rules for the Vada-Devonian Pool, Lea County, New Mexico, October 26, 1988.

Order No. R-8770-A, May 30, 1990, rescinds the temporary operating rules adopted in Order No. R-8770, October 26, 1988.

Application of Union Pacific Resources Company for Pool Extension and Special Pool Rules, Lea County, New Mexico.

CASE NO. 9439
Order No. R-8770

ORDER OF THE DIVISION

BY THE DIVISION: This cause came on for hearing at 8:15 a.m. on August 17, 1988, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 26th day of October, 1988, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) Division Case Nos. 9439 and 9440 were consolidated at the time of the hearing for the purpose of testimony.

(3) By Order No. R-8667 dated June 10, 1988, the Division created and defined the Vada-Devonian Pool with horizontal limits consisting of the SW/4 of Section 26, Township 10 South, Range 33 East, NMPM, Lea County, New Mexico.

(4) The applicant, Union Pacific Resources Company, seeks to extend the horizontal limits of the Vada-Devonian Pool to include the NW/4 of Section 35, Township 10 South, Range 33 East, NMPM, Lea County, New Mexico, and further seeks the promulation of temporary special rules and regulations for said pool, including a provision for 80-acre spacing and proration units, designated well locations, and a poolwide exception to Division Rule No. 111 allowing for directional drilling or well deviations of more than five degrees in any 500-foot interval.

(5) The applicant is the owner and operator of the discovery well for said pool, the State "26" Well No. 1 located 330 feet from the South line and 2310 feet from the West line of said Section 26.

(6) The applicant is also the owner and operator of the State "26" Well No. 2 located 1910 feet from the South line and 1980 feet from the East line (Unit J) of said Section 26, which was spudded on April 21, 1988, was drilled to a depth of 12,953 feet and is currently being sidetracked to an unorthodox subsurface location within a 150-foot radius of a point 1910 feet from the South line and 2580 feet from the East line (Unit J) of said ~~Section 26, (being the subject of companion Case No. 9440)~~.

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

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. PURSUANT TO ORDER NO. R-11133-A TO RESTORE THE CHACO 2-R PICTURED CLIFFS WELL TO PRODUCTION, SAN JUAN COUNTY, NEW MEXICO

OCD CASE NO._____

APPLICATION

Pendragon Energy Partners, Inc., ("Pendragon"), through its counsel, Miller, Stratvert & Torgerson, P.A. (J. Scott Hall), hereby applies to the New Mexico Oil Conservation Division pursuant to Order No. R-11133-A for an order authorizing the restoration of the Chaco 2-R well completed in the WAW Fruitland-Pictured Cliffs pool to production. In support of its Application, Pendragon states:

1. Pendragon is the operator of the Chaco 2-R well (API No. 30-045-23691) located 1850 feet from the south and west lines (Unit K) of Section 7, T-26-N, R-12-W, NMPM, San Juan County.
2. The Chaco 2-R was originally drilled in 1979 by Pendragon's predecessor in interest, Merrion and Bayless Oil and Gas Company, and was perforated and completed in the Pictured Cliffs formation, WAW-Fruitland-Pictured Cliffs Gas Pool (Orders R-4260 and R-8796), from a depth of 1,132' to 1,142'.
3. On February 5, 1999, the Division, in Case No. 11196, issued Order No. R-11133 directing that the Chaco 2-R be shut-in along with five (5) other Pictured Cliffs wells, although the Division found there was not sufficient evidence to establish that the fracture stimulation treatment performed on the Chaco 2-R well in 1995 had established communication with the separately owned Basin-Fruitland Coal Gas Pool.

Order R-11133 also authorized Pendragon to propose a method by which the well could be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Pool, or alternatively, a method for producing the well in its assumed state of communication.

4. Order No. R-11133 was subsequently appealed to the New Mexico Oil Conservation Commission and a hearing was held on August 12 – 21, 1999. On April 26, 2000, the Commission issued Order No. R-11133-A, finding, inter alia, that the Chaco 2-R well is producing from both the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool. Under Order No. R-11133-A it was also determined that a number of Fruitland coal gas wells operated by Whiting Petroleum Corporation were also producing from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool, including Whiting's Gallegos Fed. 26-12-7 No. 1 Fruitland coal gas well (API NO. 30-045-28899) offsetting the Chaco 2-R and located 2,482 feet from the south line and 1,413 feet from the west line of said Section 7. The Commission found that fracture stimulation treatments performed on Whiting's Fruitland coal wells in 1992 caused them to come into communication with the Pictured Cliffs formation in the area.
5. Similar to Order R-11133, Order No. R-11133-A further authorized the Division to approve a method for restoring the Chaco wells back to production. Pursuant to those orders, Applicant will present the Division with an appropriate method for the further production of gas from its Chaco 2-R well and for the restoration of the well to producing status. A copy of Order No. R-11133-A is attached.
6. The granting of this Application is in the interests of conservation of oil and gas resources and the prevention of waste.

WHEREFORE, the Applicant requests this matter be set for hearing before one of the Division's Examiners on August 24, 2000, and that after notice and hearing as required by law, the Division enter its order approving an appropriate method of production and further authorizing the Chaco 2-R well to be restored to producing status accordingly.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, PA.

By _____

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Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614

ATTORNEYS FOR PENDRAGON ENERGY PARTNERS, INC.

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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:

De Novo
Case No. 11996
Order No. R-11133-A

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. AND J. K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 a.m. on August 12, 1999, at Santa Fe, New Mexico, before the New Mexico Oil Conservation Commission ("Commission") and continued on August 13, 19, 20 and 21, 1999.

NOW, on this 26th day of April, 2000, the Commission, a quorum being present and having considered the record,

FINDS THAT:

(1) Due public notice has been given and the Commission has jurisdiction of this case and its subject matter.

(2) The applicants, Pendragon Energy Partners, Inc. and J. K. Edwards Associates, Inc. (hereinafter referred to as "Pendragon"), pursuant to Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in Oil Conservation Division (hereinafter referred to as "the Division") Order No. R-8768, as amended, seek an order confirming that the following described wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool ("Pendragon Chaco and Chaco Limited Wells") or the Basin-Fruitland Coal Gas Pool ("Whiting Fruitland Coal Wells"), are producing from the appropriate common source of supply and for such further relief as the Commission deems necessary:

Pendragon Chaco and Chaco Limited Wells

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W

Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

Whiting Fruitland Coal Wells

Operator	**Well Name & API Number**	**Well Location**
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Whiting Petroleum Corporation and Maralex Resources, Inc. (hereinafter referred to as "Whiting") appeared at the hearing in opposition to the application. Whiting claimed that the Pendragon Chaco and Chaco Limited Wells are producing:

a) gas from a sandstone interval located within the Fruitland Coal formation; and

b) coal gas from the Basin-Fruitland Coal Gas Pool because of the establishment of communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools.

(4) All eleven wells that are the subject of this application are located within an area (hereinafter referred to as the "Subject Area") that comprises:

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM
Section 6: W/2
Section 7: W/2
Section 18: NW/4

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM,
Section 1: All
Section 12: N/2

(5) The Subject Area is located within the horizontal boundaries of the Basin-Fruitland Coal Gas Pool created by Division Order No. R-8768 dated October 17, 1988. The vertical limits of this pool, as defined by Ordering Paragraph (1) of Order No. R-8768, encompass:

> ... all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2,450 feet to 2,880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(6) The Subject Area is also located within the horizontal boundaries of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The vertical limits of this pool encompass all of the Pictured Cliffs Formation (Order No. R-4260 dated February 22, 1972) and all the sandstone intervals of the Fruitland Coal Formation (Order No. R-8769 dated October 17, 1988).

(7) Pendragon and Whiting received assignments of oil and gas leases in the Subject Area from common grantors, Robert Bayless ("Bayless") and Merrion Oil and Gas Corporation ("Merrion"), during the period from 1992 through 1994.

a) The assignments of rights, in pertinent part, to Whiting are as follows:

Operating rights from the surface of the earth to the base of the Fruitland (Coal Gas) Formation subject to the terms and provisions of that certain Farmout Agreement dated December 7, 1992 by and between Merrion Oil & Gas et al., Robert L. Bayless, Pitco Production Company, and Maralex Resources, Inc.

b) The assignment of rights to Pendragon, in pertinent part, are as follows:

Leases and lands from the base of the Fruitland Coal Formation to the base of the Pictured Cliffs Formation.

(8) A brief history of the Pendragon Chaco and Chaco Limited Wells follows:

a) Merrion and Bayless drilled the Chaco Well No. 1 in February 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,113' to 1,139'. The well initially tested in this interval at a rate of approximately 342 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, J. K. Edwards & Associates, Inc. ("Edwards") became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well.

b) Merrion and Bayless drilled the Chaco Well No. 2R in October 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,132' to 1,142'. The well initially tested in this interval at a rate of approximately 150 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January 1996, Pendragon became operator of the well.

c) Merrion and Bayless drilled the Chaco Well No. 4 in April 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,163' to 1,189'. The well was initially tested in this interval at a rate of approximately 480 MCFGD, 0 BOPD, and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In May 1995, the well was re-perforated in the interval from 1,163' to 1,189' and fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

d) Merrion and Bayless drilled the Chaco Well No. 5 in April 1977, to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,165' to 1,192'. The well initially tested in this interval at a rate of approximately 1029 MCFGD, 0 BOPD and 0 BWPD. In May 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January 1995, the well was re-perforated in the interval from 1,165' to 1,192' and was

fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

e) The Chaco Limited Well No. 1J was drilled by Merrion and Bayless in April 1982 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,200' to 1,209'. The well initially tested in this interval at a rate of approximately 10 MCFGD, 0 BOPD and a trace of water. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

f) The Chaco Limited Well No. 2J was drilled by Merrion and Bayless in September 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,186' to 1,202'. The well initially tested in this interval at a rate of approximately 208 MCFGD, 0 BOPD and 4 BWPD. In October, 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

(9) A brief history of the Whiting Fruitland Coal Wells follows:

a) Maralex drilled the Gallegos Federal 26-12-6 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,138' to 1,157'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

b) Maralex drilled the Gallegos Federal 26-12-7 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,131' to 1,150'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

c) Maralex drilled the Gallegos Federal 26-13-1 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,158' to 1,177'. The well was subsequently fracture

stimulated in this interval. In September 1995, Whiting became operator of the well.

d) Maralex drilled the Gallegos Federal 26-13-1 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,047' to 1,208'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

e) Maralex drilled the Gallegos Federal 26-13-12 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,178' to 1,197'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

Geologic Issues
Fruitland Sand vs. Pictured Cliffs Sand

(10) Related geologic issues are raised by the application: the proper means for determining the limits of the pools and formations at issue, and the effect on this analysis, if any, of integration or interfingering of different rock types.

(11) In its Chaco Wells No. 1, 4 and 5 and its Chaco Limited Well No. 2J, Pendragon is producing from two separate sandstone intervals, hereinafter referred to as the Upper Sandstone and Lower Sandstone intervals. In its Chaco Well No. 2R and Chaco Limited Well No. 1J, Pendragon is producing only from the Lower Sandstone interval. It is the position of Pendragon that the top of the Pictured Cliffs Formation occurs at or above the top of the Upper Sandstone.

(12) The perforated intervals in each of the Pendragon Chaco and Chaco Limited Wells are as follows:

Well Name & Number	"Upper Sandstone" Perforations	"Lower Sandstone" Perforations
Chaco Well No. 1	1,113'-1,119'	1,134'-1,139'
Chaco Well No. 4	1,163-1,166'	1,173'-1,189'
Chaco Well No. 5	1,165'-1,169'	1,174'-1,192'
Chaco Limited Well No. 2J	1,186'-1,188'	1,200'-1,202'
Chaco Well No. 2R	None	1,132'-1,142
Chaco Limited Well No. 1J	None	1,200'-1,209'

(13) Whiting agrees that the Lower Sandstone interval is within the Pictured Cliffs Formation; however, it contends that the top of the Pictured Cliffs Formation is the top of the Lower Sandstone interval and the Upper Sandstone is within the Fruitland Coal Formation. It is on this basis that Whiting contends that Pendragon is producing from perforations in the Fruitland Coal Formation in its Chaco Wells Nos. 1, 4 and 5 and its Chaco Limited Well No. 2J.

(14) The parties have stipulated that the Pictured Cliffs Formation was deposited in a marine environment and the Fruitland Coal Formation was deposited in a non-marine or terrestrial environment.

(15) In its Order No. R-8768, the Division defined the vertical limits of the Basin Fruitland Coal Gas Pool as all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the well log from the Amoco Schneider Gas Com "B" Well No. 1. The pick for the base of the pool in Order No. R-8768 is the top of the Pictured Cliffs Formation. The pick is also the break between marine and non-marine sediments. It is undisputed that the coal or shale layers occurring below the stratigraphic pick set forth in Order No. R-8768 would not be included in the Basin Fruitland Coal Gas Pool or in the Fruitland Coal Formation.

(16) For the reasons set forth below, we find that the preponderance of the geologic evidence establishes that the Pendragon Chaco and Chaco Limited Wells are completed in the Pictured Cliffs Formation.

(17) The preponderance of the geologic evidence establishes that the Upper Sandstone is marine in origin and thus appropriately considered a part of the Pictured Cliffs Formation. The Upper Sandstone in the Subject Area cannot be differentiated from the main body of the Pictured Cliffs Formation.

(18) In the late Cretaceous period in what was to become the San Juan Basin, sediments were deposited contemporaneously in various environments. The Lewis Shale represents muds and storm-carried sands offshore of the barrier-beach setting. The Pictured Cliffs formation accumulated in primarily a barrier-beach setting. The Fruitland Coal formation accumulated on a coastal plain with swamps and bogs and the Kirtland Formation accumulated in an alluvial plain. As the ancient shoreline moved to the northeast, each of the environments of deposition shifted. At a single location a wellbore presents the familiar vertical sequence of Formations.

(19) Pendragon's isopach map of the Upper Sandstone, Exhibits 50 and 63, show this barrier-bar marine littoral environment with sandstone along the ancient shoreline trending in a northwest to a southeast direction. Pendragon's Exhibits 50 and 63 also show that the Upper Sandstone occurs in a continuous sheet that coalesces into the main body of the Pictured Cliffs Formation as it trends from the shoreline environment on the southwest toward the center of the San Juan basin to the northeast.

(20) In the Subject Area, tongues of Pictured Cliffs sandstone thin in a landward direction and thicken in a seaward direction and ultimately merge with the main body of the Pictured Cliffs Formation. These tongues "interfinger" or integrate with other rock types in the Subject Area.

(21) The interval between the top of the Upper Sandstone and the top of the main body of the Pictured Cliffs (the Lower Sandstone) is composed of a variety of rock types including marine sandstones, silt stones, shales, and thin coals. It has been the long-standing and accepted custom and practice of industry and the various regulatory agencies, including the Division in Order No. R-8768 and R-8769, to place this entire interval within the Pictured Cliffs Formation. This industry and regulatory agency practice conforms to the standards of the North American Stratigraphic Code and the International Stratigraphic Guide.

(22) The evidence presented by Pendragon establishes that over the years approximately 34 wells within approximately 2.5 miles of the Pendragon Chaco and Chaco Limited wells were actually perforated in the Upper Sandstone in conjunction with other Pictured Cliffs intervals and reported by the numerous different operators of those wells as Pictured Cliffs completions, consistent with the picks for the top of the Pictured Cliffs for the Chaco Plant No. 1 and the Pendragon Chaco and Chaco Limited Wells (Exhibit N-61). The evidence also establishes that those reported completions were accepted by the Division and the Bureau of Land Management and that industry and geologists have placed substantial reliance on those reported completions as Pictured Cliffs completions for nearly thirty years.

(23) In a written statement provided to the Commission during the hearing in this case, Merrion, the assignor of the interests in both the Fruitland Coal Formation to Whiting and Pictured Cliffs Formation to Pendragon, indicated it concurred with Pendragon in its identification of the Upper Sandstone interval and the historic recognition of that interval as Pictured Cliffs by Merrion and other operators in the area. (Exhibit N-43.) Merrion further stated that the Pendragon Chaco Wells are appropriately perforated in the Pictured Cliffs Formation and that it had no intention of conveying to Pendragon wells that were perforated in other zones. Merrion also stated that it never intended to farm-out to Whiting the rights to zones where the Pendragon Chaco Wells were perforated.

(24) Thus, identification and utilization of the Upper Sandstone tongues to establish the vertical boundaries of the Pictured Cliffs Formation by industry, governmental regulatory agencies and the parties or their predecessor-in-interest is a long-established custom and practice. Such custom and practice is to be accorded significant weight.

(25) Whiting asserted during the hearing of this matter that the Upper Sandstone interval was deposited in a non-marine, crevasse-splay deposit, resulting from a large, sediment-laden river breaking through its natural boundaries during a flood stage and spreading clean, well-sorted sand over an area more than sixteen-miles long and up to three-miles wide parallel to the shoreline. However, Whiting failed to establish by a preponderance of the evidence the existence of any crevasse splay or any depositional materials indicative of a sand-laden flood. Moreover, there is no evidence of the transporting river or river channel, the thinning of sand deposits in both directions at right angles to the river, adjacent deltaic deposits or any other non-marine mechanism with the capability of forming the thin, but areally extensive, sand of the dimensions seen in the Upper Sandstone.

(26) Whiting also asserted it was possible that the disputed interval was deposited as a washover fan. However, the washover fan depositional mechanism involves wave-dominated action, consistent with the accepted geologic definitions of a marine depositional mechanism. Such a theory also supports a conclusion that the Upper Sandstone was deposited in a marine environment.

(27) Pendragon presented aerial photographs of modern deposits of sands comparable in mode of deposition and areal extent to the Upper Sandstone located in the marine lagoonal areas behind barrier islands, thus demonstrating the validity of the depositional model. Pendragon demonstrated using these exhibits that these sands are wave and tidal-current dominated deposits, and further showed that the seaward beach of a barrier island is not to be confused with the true marine shoreline, which lies behind the island.

(28) The core analysis for the Lansdale Federal No. 1 located in the SE/4 of Sec. 7, T-26-N, R-12-W establishes that grain size and sorting throughout the Upper Sandstone is uniform, consistent with a marine depositional environment. The physical descriptions of the sand appearing in the Upper Sandstone and the Lower Sandstone are grey, fine-grained with little variation in clay content, consistent with a marine sand that has been laterally transported by currents and waves to the point where the energy available sorts the sand into uniform size. Sand-sorting characteristics of this sort are not consistent with a fluvial deposit with graded bedding coarsening downward.

(29) Pendragon presented evidence that the Spontaneous Potential ("SP") readings on electrical logs are much greater in the Pictured Cliffs Formation, which was deposited in a marine setting, than in the Fruitland sands, which were deposited in a fluvial, fresh water environment. Pendragon demonstrated that the SP readings for the Upper Sandstone were comparable or identical to those of the Lower Sandstone and were much greater than those of the Fruitland sands.

(30) The SP map of the Pictured Cliffs Formation introduced by Whiting, Exhibit WA-9, showed 40 to 80 millivolt SP development in the Chaco area. The cross-section exhibit demonstrated that the disputed interval also showed 40 to 80 millivolts SP, even though it was interpreted by Whiting to be Fruitland sandstone, and all other Fruitland sands on his cross-section showed only zero to less than 10 millivolts. Additional testimony established that 40 to 80 millivolts is a significantly higher range than is typically associated with SP development in a fresh-water depositional environment and is more characteristic of the SP development in the Pictured Cliffs intervals observed on the well logs and cross-sections for the Pendragon Chaco Wells.

(31) Whiting contends that the top of the first "massive" sandstone below the lowermost coal of the Fruitland Coal Formation should be the basis for picking the top of the Pictured Cliffs formation. Whiting contends that the operators of approximately one hundred additional wells outside the Subject Area identified the top of the massive Pictured Cliffs Sandstone as the vertical boundary between the Pictured Cliffs and Fruitland Coal Formations. However, Whiting failed to present evidence establishing that the Upper Sandstone interval was present in any of the wells identified. Similarly, Whiting failed to show that any operator identified the top of the Pictured Cliffs sandstone as the massive sand in those areas where tongues of the Pictured Cliffs are known to exist. The geologic testimony and evidence shows that such a definition has little support in the geologic literature and that the arbitrary and undefined term "massive" makes its application impractical.

Engineering Issue

(32) Whiting, the owners and operators of the Whiting Fruitland Coal Wells, and Pendragon, the owner and operator of the Pendragon Chaco and Chaco Limited Wells, each contend that the other's well stimulation treatments established communication between their separately owned formations. Both parties contend that, as a result, their wells are experiencing interference and that gas is being produced out of zone.

(33) The preponderance of the engineering evidence established that the fracture stimulation treatments performed on both the Pendragon Chaco Wells by Pendragon and the Whiting Fruitland Coal Wells by Whiting established communication between the Fruitland Coal Formation and the Pictured Cliffs Formation.

(34) The treatment performed on the Whiting Fruitland Coal Wells after they were drilled created near-wellbore communication channels between the Fruitland Coal and Pictured Cliffs Formations. At the time, the gas in the Pictured Cliffs Formation was nearly depleted and very little gas could escape to the Fruitland Coal Formation, unless the Whiting Fruitland Coal Wells were operated under extremely low pressures. On the other hand, the adsorbed gas in the Fruitland Coal Formation stayed within the coal matrices until the pressure was lowered enough through the dewatering process for the gas to desorb.

(35) After the dewatering process, substantial amounts of adsorbed gas escaped from the coal matrices, especially in the near-wellbore region where pressure was lowest. As a result, the Whiting Fruitland Coal Wells began their commercial gas production. The desorbed gas moving toward the Whiting Fruitland Coal Wells may have migrated to the Pictured Cliffs Formation through the communication channels near the Whiting Fruitland Coal Wells if the local pressure in the Pictured Cliffs Formation was lower than that in the Fruitland Coal Formation. Gas in the Pictured Cliffs Formation may have migrated to the Fruitland Coal Formation through the communication channels if the production pressures at the Whiting Fruitland Coal Wells were low. However, these possible gas migrations were not significant, as evidenced by steady gas production from the Pendragon Chaco Wells.

(36) In 1995, after three years of the dewatering process, the region in which decreased pressures allowed gas to desorb from the coal matrices had grown toward the Pendragon Chaco Wells. At the edge of the resulting gas bubble, the gas pressure in the Fruitland Coal Formation was probably higher than the adjacent pressure in the Pictured Cliffs Formation. In the area of this relatively high-pressure contrast, the thin capillary barrier may have been broken, allowing gas migration between the two zones.

(37) Pendragon performed fracture stimulation treatments on the Pendragon Chaco Wells in 1995. The post-treatment gas production from the Pendragon Chaco Wells indicates that the stimulation work performed by Pendragon successfully broke into some high-pressure gas compartments.

(38) The production history of the Pendragon Chaco and Chaco Limited Wells is summarized as follows:

Well No.	Initial Production (Original Completion)	Pre-Acidization or Fracture Stimulation Production	Post-Acidization or Fracture Stimulation Production	Last Production
Chaco No. 1	80 MCF/D	0 MCF/D	250 MCF/D	165 MCF/D
Chaco No. 2R	70 MCF/D	0-15 MCF/D	90 MCF/D	120 MCF/D
Chaco No. 4	200 MCF/D	0 MCF/D	425 MCF/D	200 MCF/D
Chaco No. 5	190 MCF/D	0 MCF/D	370 MCF/D	210 MCF/D
Chaco Ltd. 1J	11 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D
Chaco Ltd. 2J	30 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D

(39) One possibility is that the hydraulic fractures were extended upward to the Fruitland Coal Formation and generated a gas highway to the gas bubble. Pendragon's experts vigorously denied this possibility. Instead, they asserted that an additional gas compartment, the so-called "third bench," exists below the perforations in the Pendragon Chaco Wells. The evidence does not support this assertion. No "third bench" has been reported previously throughout the San Juan region, and there is no geological evidence of this kind of formation. Furthermore, there is no scientific basis for believing that fractures moved downward into the "third bench" but not upward into the Fruitland Coal

Formation. Therefore, the most reasonable explanation of the sudden significant increases in production following the fracture stimulation treatments on the Pendragon Chaco Wells was that the hydraulic fractures penetrated into the gas bubble established in the Fruitland Coal Formation.

(40) Pendragon also asserted that the fracture stimulation treatments increased production in the Pendragon Chaco Wells by counteracting the effects of reservoir damage caused by (a) scale precipitation, (b) water blockage, and (c) migration of clay fines. As the original Pictured Cliffs gas was relatively dry, however, it is unlikely that the Pendragon Chaco Wells suffered from significant reservoir damage of this type.

(41) The BTU analysis of the gas from the Pendragon Chaco Wells supports the conclusion that the fracture stimulation treatments of these wells in 1995 established communication with the Fruitland Coal Formation. Whiting showed that the hydrocarbon liquids content of the gas from the Pendragon Chaco Wells was slightly reduced from 1988 to 1995 and significantly reduced from 1995 to 1997.

(42) Expert witnesses for both Pendragon and Whiting presented their opinions on the effects of the fracture stimulation treatments in the Whiting Fruitland Coal Wells and the Pendragon Chaco Wells based on their own theories and models. Many input values for key parameters were questionable. Both simulators used in their testimony have a good reputation for assisting in the design of fracturing jobs, but it is easy to manipulate them incorrectly. In a case like this, their results are too exaggerated to be reliable.

(43) The acid stimulation treatments performed by Pendragon on the Chaco Limited Wells No. 1J and 2J in 1995 did not alter these wells' rates of production. These treatments did not establish communication between the Pictured Cliffs Formation and the Fruitland Coal Formation.

(44) The gas now capable of production from the Pendragon Chaco Wells No. 1, 2R, 4, and 5 is: (1) gas originally in place in the Pictured Cliffs Formation; (2) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the
Pendragon Chaco Wells; and (3) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the Whiting Fruitland Coal Wells.

(45) The Pendragon Chaco Wells depleted the Pictured Cliffs Formation prior to the fracture stimulation treatments performed on the wells in 1995.

(46) Pendragon Chaco Wells No. 1, 2R, 4, and 5 have already produced their fair share of the gas in the Pictured Cliffs Formation.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., it is determined that the following described wells are perforated within the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool. It is further determined that the following described wells are producing from both the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool, San Juan County, New Mexico:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W

(2) It is further determined that the following described wells are perforated within and producing solely from the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

(3) It is further determined that the following described wells are producing from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W

Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(4) Pendragon is hereby ordered to shut-in its Chaco Wells No. 1, 2R, 4 and 5 until such time as the Division approves a method for either putting them back into production or plugging them.

(5) Inasmuch as Whiting's wells may produce only minor amounts of gas from the already depleted WAW Fruitland Sand-Pictured Cliffs Pool, Whiting's wells are not to be shut-in.

(6) Jurisdiction is hereby retained for the entry of such further orders 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

JAMI BAILEY, Member

ROBERT L. LEE, Member

LORI WROTENBERY, Chairman

S E A L

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

APPELLANTS'
STATEMENT OF THE ISSUES

Pendragon Energy Partners, Inc., Pendragon Resources, LP and Edwards Energy Corporation, (variously referred to herein as "Pendragon" or "Appellants"), in accordance with NMRA 1978 1-074 K, submit their statement of appellate issues in this matter.

I. Statement of the Issues

This statutory appeal is before this Court following the New Mexico Oil Conservation Commission's ("NMOCC" or "Commission") consideration of Pendragon's administrative Application in Case No. 11996 in August of 1999 and the issuance of Order No. R-11133-A on April 26, 2000. A more comprehensive description of the dispute, along with a description of the lands and the wells involved, is set forth in the Order [RP page 5174] and in the Summary of Proceedings, below. The Commission's Order purported to resolve a number of matters, including the over-arching issue of whether acidization and hydraulic fracture stimulation treatments

performed by the operators of Pictured Cliffs formation gas wells and nearby Fruitland Coal formation gas wells caused those separately-owned and separately-regulated formations to come into communication with each other.[1] Such hydraulic fracture stimulation treatments are often called "frac jobs". To "frac a well" is a term used to refer to the methods used by the oil and gas industry to increase the production from a well by pumping a liquid or other substance into a well under pressure to crack (or fracture) and prop open the hydrocarbon-bearing formation. Fracture treatments are a commonly used method to stimulate oil and gas production that has been applied to well over half of the wells drilled in the United States.

While the Commission successfully resolved a number of issues, it fell short on several others, with the result that an ambiguous, incomplete and impractical order was issued. Consequently, this Court's review is required in order to resolve the Commission's failure to discharge its statutory and administrative duties and its disregard of the pertinent facts.

Pendragon seeks this Court's review of the following issues:

Issue 1. The failure of the NMOCC to accord meaningful regulatory relief, fully and finally resolving the issues before it, in disregard of the Commission's statutory mandate and in contravention of its statutes, regulations and prior orders.

Issue 2. Whether the NMOCC's exceeded its statutory authority, acted arbitrarily, or misapplied the law to facts when it purported to determine that Pendragon's wells had produced their "fair share" of gas and that further production should be limited, when in fact the Appellants own one hundred percent of the Pictured Cliffs formation gas.

Issue 3. The following findings in the agency's Order are not supported by substantial evidence:

[1] The proximity of the legal and geologic boundaries of those separately-owned formations (or "pools") was also contested in the administrative proceedings. However, the Commission's geological findings are not at issue in this

(a) That Pendragon's wells either "depleted" or "nearly depleted" the Pictured Cliffs formation prior to 1995.

(b) That there is no geologic evidence supporting the existence of the "third bench" interval contributing to Pictured Cliffs formation gas production.

(c) That the Pictured Cliffs formation in the area had not incurred reservoir damage over the years.

(d) That fracture stimulation treatments performed on four of Pendragon's wells escaped from the Pictured Cliffs formation and penetrated to the separately-owned Fruitland Coal formation.

(e) That increases in gas production from Pendragon's Pictured Cliffs wells following the fracture stimulation treatments was attributable to "high-pressure gas compartments" in the area.

(f) That BTU analysis evidence supports the conclusion that the fracture stimulation treatments on the Pictured Cliffs wells came into communication with the Fruitland Coal formation.

II. Summary of the Proceedings and Background

In 1992, Maralex Resources, Inc. acquired the oil and gas leasehold operating rights to the Fruitland Coal Gas formation in the general area of the WAW field in San Juan County. Maralex acquired its Fruitland Coal formation rights from its predecessors in interest, Merrion Oil and Gas Corporation and Bayless Oil and Gas Corporation. Maralex subsequently assigned the majority of its lease interests to its current partner, Whiting Petroleum Corporation [RP page 4895, pg.3, para.6]

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appeal.

Shortly after acquiring its interests, Maralex drilled and completed its "Gallegos Federal" wells in the Fruitland coal formation and performed a series of rather heavy and aggressive fracture stimulation treatments on its wells. The frac jobs performed on the coal seams consisted of fracture fluid volumes on the average of 41,030 gallons at proppant weights averaging 72,656 pounds, injected at treating rates ranging between 45-60 barrels per minute (BPM).[2] [RP page 1753]

In 1994, after Maralex had applied its heavy and aggressive frac jobs on its coal wells, Merrion and Bayless assigned its remaining rights below the base of the Fruitland Coal formation to the base of the Pictured Cliffs formation to J.K. Edwards and Associates, Inc.[3] The assignment of the Pictured Cliffs rights covered the Formation that is in close proximity to, and in most cases is overlain by the Fruitland coal rights owned by Maralex [RP page 4895;Ex.N-4; RP page 2021] Edwards subsequently assigned a majority of its interests to Pendragon, and Pendragon subsequently became operator of these Pictured Cliffs properties.

Years before assigning its Pictured Cliffs rights, Merrion and Bayless had drilled and completed a number of wells (the "Chaco wells") in that formation. In some cases, Merrion had performed acid jobs or fracture stimulation treatments on its Pictured Cliffs wells. When Edwards/Pendragon acquired the six Chaco wells, it performed additional stimulation treatments. Three of the wells received acid treatments and frac jobs were applied to four of the wells. Compared to the heavy and uncontrolled frac jobs Maralex had applied to the coal formation, the Edwards/Pendragon frac jobs were substantially lighter and much more precise.[4] An exhibit demonstrating the proximity of the Chaco Pictured Cliffs wells and the Gallegos Federal Fruitland Coal wells at issue is attached. (Exhibit 1).

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[2] In the case of the Gallegos Federal 26-12-6 No. 2, the Maralex frac job consisted of a fracture fluid volume of 81,025 gallons with a 121,700 pound proppant weight injected at treating rates of between 45-60 BPM. [RP page 1753]

[3] Now known as Edwards Energy Corporation

[4] The foam fracs specifically designed for the Pictured Cliffs wells were applied at fluid volumes averaging 31,248 gallons at proppant weights averaging 38,421 pounds injected at treating rates ranging from between 22 to 34 BPM. [RP page 1753]

In 1998, Whiting and Maralex involved Pendragon in discussions before the New Mexico Oil Conservation Division ("NMOCD" or "Division") to address a perceived problem of communication between the Pictured Cliffs formation in the WAW Fruitland Pictured Cliffs pool and the Basin-Fruitland coal formation. At the same time, Whiting and Maralex filed a formal Application[5] with the NMOCD, alleging, generally that the drilling and fracture stimulation operations in the Pictured Cliffs formation had caused that formation to become communicated with the Basin Fruitland coal formation and that Pendragon's Pictured Cliffs wells were draining reserves owned by Whiting and the other interest owners in its wells. Whiting and Maralex also made the assertion that the producing formation Pendragon's wells had been drilled to was not the Pictured Cliffs formation, but was instead the Fruitland sandstone and Fruitland coal formation where Whiting owned the lease rights.

On May 26, 1998, Whiting and Maralex suddenly dismissed their application before the NMOCD and instead filed suit in District Court making the same basic allegations. Pendragon simultaneously filed its application with the Division in this case. In the meantime, before the Division could convene a hearing in this matter, Whiting and Maralex obtained a preliminary injunction from the District Court, shutting in four of Pendragon's Pictured Cliffs wells. However, pursuant to separate motions, the Court entered a ruling deferring to the Division's jurisdiction over the central issues in dispute and there has been little or no activity in the court proceeding since. On February 5, 1999, following hearings, the NMOCD issued Order No. R-11133 in Case No. 11996. Subsequently, both Pendragon and Whiting each filed applications for hearing de novo before the New Mexico Oil Conservation Commission ("NMOCC").[6] [RP page 4270; RP page 4301]

[5] NMOCD Case No. 11921; Application of Whiting Petroleum Corporation and Maralex Resources, Inc. For An Order Shutting In, Limiting Production From, or Approving Downhole Commingling In Certain Wells, San Juan County, New Mexico.

[6] One of Whiting's partners, T.H. McElvain Oil and Gas LP dropped out of the case.

On August 12 – 21st, 1999, the NMOCC convened a hearing on Pendragon's Application brought pursuant to, inter alia, Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in NMOCD Order No. R-8768, as amended, seeking a determination that its Chaco wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool, and that Whiting Petroleum's Gallegos Federal wells completed within the Basin-Fruitland Coal Gas Pool were producing from the appropriate "common source of supply."

Pendragon also sought further relief, including, specifically, an order bringing Whiting's non-conforming wells back into compliance with the Division's rules, regulations and orders.

At the hearing, both parties contended that the other's well stimulation treatments caused their separately owned formations to come into communication. Both sides also contended that their wells experienced interference and that gas was being produced out of formation as a result. Significantly, at the hearing, Whiting's witnesses admitted that the high volume, high pressure and high injection rate fracture stimulation treatments performed on the Gallegos Federal wells by Maralex Resources likely caused their wells to come into communication with the Pictured Cliffs formation owned by Pendragon. [RP pages 3399 to 3400; page 3405 and page 3252] Conversely, Pendragon asserted and presented substantially more evidence that the acid jobs and relatively mild fracture stimulation treatments performed on its Chaco wells remained contained within the Pictured Cliffs formation and did not communicate with the Fruitland Coal Formation owned by Whiting. [RP pages 1735 to 17155 and the exhibits referenced therein; RP pages 1823 to 1878 and the exhibits referenced therein; RP pages 1901 to 1906 and the exhibits referenced therein; and RP pages1910 to 1936 and the exhibits referenced therein]

On April 26, 2000, after hearing, the Commission issued Order No. R-11133-A [RP page 5174] which found that all of Pendragon's subject Chaco wells were perforated within the Pictured

Cliffs formation of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The Order also effectively rejected the claims of Whiting and Maralex that the upper-set of perforations in Pendragon's wells were situated in, and producing from the Fruitland formation. Order R-11133-A affirmed that the vertical boundaries between the Pictured Cliffs and Fruitland Coal formations conformed to the respective lease ownership of Pendragon and Whiting. These geologic findings are not at issue in this appeal.

In addition, Order R-11133-A found that the Pictured Cliffs and Fruitland Coal formations first came into communication because of the heavy fracture stimulation treatments Maralex performed on five of the Whiting Fruitland Coal wells in 1992. (Finding 32.) The Order also found that the fracture treatments subsequently performed on four of the Chaco wells in 1995 communicated with the Fruitland Coal formation and ordered them shut-in pending further proceedings before the NMOCD.[7] As a result of this communication between the separately owned formations, the Order identified three categories of gas capable of being produced from Pendragon's Chaco 1, 2R, 4 and 5 Pictured Cliffs wells: Category I: Gas originally in-place in the Pictured Cliffs formation[8]; Category II: Gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation through the 1995 fractures around the Pendragon Chaco wells; and Category III: Gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation through the 1992 fractures around the Whiting Fruitland Coal wells. (Finding 44.) The Order then refers to the matter to the NMOCD for further proceedings in order to place these wells back on production. (Decretal Paragraph 4.)

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[7] Pendragon continues to dispute this particular finding.

[8] Whiting conceded that at least ten percent of the gas produced from the Chaco wells is this category of gas. [Rp page 5052; Whiting's proposed order, pg. 24, para.6.; pg. 16, para.69] Pendragon asserts it all of the production is Category I and Category III gas.

III. Points and Authorities

Issue 1. The Commission failed to discharge a number of its statutory and regulatory duties for which its jurisdiction was specifically invoked pursuant to Pendragon's Application. In addition, the Commission failed to fully and finally resolve the issues before it. At the same time, a number of the provisions in the Commission's Order are in direct conflict with one another. As a consequence, the Commission's Order is ambiguous, inconsistent, incomplete and unworkable. Accordingly, the Commission failed to accord meaningful regulatory relief.

Pendragon requested the Commission to exercise its authority under the provisions of Order No. R-8768 [RP Testimony of Al Nicol, Page 110-114; RP pages 1767 to 1771; also RP for NMOCD application pages 5217 to 5233 (supplemental record), Pre-Hearing Statement (RP pages 4844 to 4849) and Stipulation of Facts (RP pages 4895 to 4901] to determine if the subject Pictured Cliffs wells and Basin Fruitland Coal wells are producing from their appropriate common source of supply. The Commission was also requested to fulfill certain duties under the Division's enabling statutes, the New Mexico Oil and Gas Act (NMSA 1978 §§ 70-2-1, *et seq.*), as well as the agency's rules regulations and orders.[9] Among these are:

NMSA 1978 §§70-2-12 B (2) and (7)

> **[T]he Division is authorized to make rules, regulations and orders ...**
> **(2) to prevent crude petroleum oil, natural gas or water from escaping from strata in which it is found into other strata; [and]**
> **(7) to require wells to be drilled operated and produced in such manner as to prevent injury to neighboring leases or properties [.]**

19 NMAC 15.C.106.A

> **During the drilling of any...well,...all oil, gas, and water strata above the producing and/or injection horizon shall be sealed or separated in order to prevent their contents from passing into other strata.**

[9] The jurisdiction and duties of both the Division and the Commission are concurrent in all respects (See NMSA 1978 §§ 70-2-11.B)

19 NMAC 15.N.303.A

> **Each pool shall be produced as a single common source of supply and wells therein shall be completed, cased, maintained and operated so as to prevent communication, within the well bore, with any other separate pool or horizon and the production therefrom shall at all times be actually segregated, and the commingling or confusion of such production, before marketing, with the production from any other pool or pools is strictly prohibited.**

Similar mandates are outlined in Special Rules 2 and 12 of NMOCD Order No. R-8768 setting forth the Special Rules and Regulations for operators producing from the Basin-Fruitland Coal Gas Pool. Those special rules are specifically applicable to the circumstances here and were invoked under Pendragon's original Application.. [See Order No. R-8768; RP pages 5212 to 5216 (supplemental record); Pendragon's Application may be seen at RP pages 5207 to 5211 (supplemental record]

The findings and decretal portions of Order R-11133-A make the affirmative determination that the Whiting Fruitland Coal wells are not producing from their "appropriate common source of supply" as required under *inter alia* Order No. R-8768. Order R-11133-A expressly determined that the Whiting coal wells are producing gas from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool. Production from the Pictured Cliffs formation by the offending coal wells would include Category I, II and III gas identified in the Order. Such production is in ongoing violation of Section 70-2-12 B (2) and (7) of the Oil and Gas Act as well as the regulations, order and rules cited above. Consequently, the Order fails to "afford such relief as necessary to bring the wells into compliance with the Division's rules, regulations and orders."

The Commission further failed to discharge its mandatory duties in two additional respects: (1) It failed to make a determination with respect to the volumes of Pictured Cliffs gas that were illegally produced (and continue to be produced) from Whiting's Fruitland Coal wells; and (2)

failed to take action to prevent the escape of gas from the strata *vis 'a vis* the ongoing production of Pictured Cliffs reserves by Whiting's Fruitland Coal wells.

In this regard, Pendragon established by a preponderance of the evidence that Whiting's coal wells produced 176,900 MCF of Pendragon's Pictured Cliffs gas from the time the Chaco wells were shut in on June 30, 1998 to June 30, 1999. [RP page 1969] The evidence in the record also establishes that the drainage of the Pictured cliffs gas reserves by Whiting's Gallegos Fruitland coal wells is ongoing. Whiting does not dispute this. [RP page 5052; pg. 5, para. 11; pg. 24, para. 5]

The engineering evidence presented by Pendragon establishes that the Pictured Cliffs reserves in the area of the Chaco No. 1, Chaco No. 4 and Chaco No. 5 wells continue to be drained by Whiting's Gallegos Federal Fruitland Coal wells since the June 30, 1999 data was collected. Whiting's witnesses agreed that Pictured Cliffs gas was flowing into the Fruitland Coal formation. [RP pages 1686 to 1734; 1954-1978; 1823 to 1873]

The pressure data showing direct communication between Whiting's Gallegos Federal Fruitland Coal wells and the Chaco No. 4 and 5 wells, and the possible communication with the Chaco No. 1 well, establish that the loss of the reserves is the result of the production of Pictured Cliffs gas by the Gallegos Federal Fruitland Coal wells. [August 1999 hearing; RP page 564; RP pages 1972 to 1978]

Pendragon presented testimony and exhibits with respect to the pressure versus cumulative production ("P/Z data") for the Chaco No. 1, 4 and 5 wells demonstrating the volumes of gas that would need to be produced in order to lower the pressures between 14 and 19 PSIG over the yearlong shut-in period. At a minimum, the Chaco No. 1 well lost 19 psi (pounds per square inch), with a resulting loss of reserves of 60,500 MCF (thousand cubic feet).

The Chaco No. 4 experienced a 15 psi loss in pressure, resulting in a loss of reserves of 63,500 MCF. The Chaco No. 5 experienced a 14 psi pressure loss, resulting in a loss of reserves of 52,900 MCF. The total lost reserves for all three of the wells for the period from June 30, 1998 to June 30, 1999 was approximately 176,900 MCF. [Jack McCartney page 17, line 2; RP pages 1968 to 1975]

Maralex's president testified that he concluded gas from the Pictured Cliffs formation is now moving into the Fruitland Coal formation, thus supporting Pendragon's conclusions. To support his conclusion, Maralex's president pointed to the apparent equilibration in pressures between the Pictured Cliffs and Fruitland Coal formations. [August 1999 hearing; RP pages 918, 922, 973, 978 and 979]

The effect of Whiting's drainage is apparent: the combined production from the Gallegos Federal 26-12-6 No. 2, the 26-12-7 No. 1 and the 26-13-12 No.1 increased by approximately 500 MCFd (thousand cubic feet per day) from late 1997 to April 1998 when compression was installed on the Fruitland Coal wells. During the same period, combined production from the Chaco wells declined by more than 200 MCFd. [August 1999 hearing; RP pages 425 to 429]

As the record irrefutably establishes, and as recognized on the face of Order R-11133-A itself, there is an ongoing escape of gas from the Pictured Cliffs formations into the Fruitland Coal formation in direct violation of NMSA 1978 §§ 70-2-12 and 19 NMAC 15.C.106.A and 303.A. Yet, the Commission does nothing about it.

The Commission was also asked to exercise its authority to afford relief in accordance with its regulatory duties. Specifically, the Commission was asked to restore the Chaco wells to production to determine (1) whether any of the wells have been permanently lost, (2) the quantification of gas produced out of zone, and (3) to re-establish a steady state of Pictured Cliffs

production in order to determine (a) a curtailed rate of production for the offsetting coal wells to eliminate further drainage, (b) to establish how the Pictured Cliffs and Fruitland Coal wells may be simultaneously produced without interference, or, alternatively, if (b) proves impractical, then (c) determining how the coal wells should be re-completed or shut-in to prevent further drainage. In addition, the Commission was also asked to convene further proceedings to determine the volumes of Pictured Cliffs gas produced by Whiting's wells subsequent to the August, 1999 hearing in addition to the 176,900 MCF proved to have been produced prior to the hearing. The Commission failed to address these matters. Without these necessary components, the Order is incomplete and fails to afford meaningful relief.

Additionally, while Order R-11133-A authorizes the NMOCD to approve restoring the four shut-in Chaco wells to producing status, the Order omits any similar provision requiring Whiting to demonstrate how its five Fruitland Coal wells may be produced without interfering with the Chaco wells or otherwise producing gas out of the separately owned Pictured Cliffs formation. The omission is significant and further demonstrates both how the Order is incomplete and how the NMOCC disregarded its statutory duties. Nevertheless, on August 1, 2000, Pendragon initiated such an application before the NMOCD in case No. 12479, proposing to establish a method to restore the Chaco wells to production as specifically provided for by Order R-11133-A. [RP page 5207] (See supplemental record.) On August 22nd, the NMOCD declined to implement this express provision of Order R-11133-A, choosing instead to stay the application in case No. 12479 until this appeal is resolved. (The Division advised of the stay verbally and issued no formal order.) The NMOCD's unwillingness to implement the NMOCC's Order is a compelling demonstration of how the Order is incomplete, unworkable and does not afford meaningful relief.

Issue 2. Pendragon and its partners own one hundred percent of the Pictured Cliffs formation lease rights and are accordingly entitled to produce one hundred percent of the recoverable Pictured Cliffs reserves. While Order R-11133-A says on the one-hand that Pendragon can continue to produce its Chaco 1J and 2J wells and that the Chaco 1, 2R, 4 and 5 wells may be restored to production, the Order later contradicts itself and says these wells have already produced their "fair share" of gas. (Order R-11133-A, Findings 34, 45 and 46.) The basis for this finding is not explained. Neither does the Order define "fair share".

Moreover, under the circumstances here where one hundred percent of the common source of supply is owned by Pendragon, the Commission does not have the authority, either express or implied, to make a determination of what constitutes a "fair share". It is only where the "correlative rights" of two or more interest owners are involved that the Commission has the statutory authority to determine whether each has had the opportunity to produce his "just and equitable share" of gas in the pool. (See, NMSA 1978, 70-2-17 A.) That situation does not exist here. Whiting's wells are located within the horizontal and vertical limits of the Basin-Fruitland Coal Gas Pool as defined by the Division in Order No. R-8768. Pendragon's wells are located within the horizontal and vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas pool as defined by the Division in Orders R-4260 and R-8769. They are separate "common sources of supply" or "pools" within the meaning of Section 70-2-33.B of the Oil and Gas Act. Whiting and Maralex have no interest in Pendragon's Pictured Cliffs production and consequently, they have no "correlative rights"[10] that are affected. Significantly, there is no "correlative rights" finding in Order R-11133-A.

[10] "Correlative rights" are defined in NMSA 1978 70-2-33.B as "...the opportunity afforded...to the owner of each property in a pool to produce without waste his just and equitable share of the oil or gas or both in a pool..."

Absent an administrative proceeding consolidating the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool into a single "common source of supply,"[11] the Commission is unable to make the determination that Pendragon has produced its "fair share" from its separate gas reserves. By purporting to do so, the Commission has clearly exceeded its statutory authority. In one fell-swoop, the Commission has acted (1) arbitrarily and capriciously, (2) outside the scope of its authority, and (3) not in accordance with law.

[11] Such proceedings are frequent and are done via the NMOCD's authority under Section §§ 70-2-12 B(12) of the Oil and Gas Act.

Issue 3. The following findings are not supported by substantial evidence.

(a) Depletion. Findings 34, 45 and 46.

The findings that the Pictured Cliffs formation was "depleted" or "nearly depleted" prior to the time the acid and fracture stimulation treatments were performed on Pendragon's Chaco wells in 1995 are not supported by the evidence. It is apparent that the Commission's findings in this regard rely heavily on the separate finding (finding 40) that the Pictured Cliffs formation had not incurred reservoir damage. As discussed below, this separate finding is not supported by the evidence. To the contrary, the record is replete with uncontroverted, direct evidence establishing the existence of three types of reservoir damage. Acid and frac jobs are specifically designed to reverse the effects of such reservoir damage and restore wells to higher production rates. That is exactly what was established by Pendragon.

The evidence does not support the depletion findings for two additional and equally compelling reasons: (1) Depletion is a function of economics. The Commission's findings pre-suppose the Chaco Pictured Cliffs wells were uneconomic without any substantiating evidence at all. (2) It is inarguable that the most important physical indicator of a reservoir's ability to produce is reservoir pressure. The overwhelming proof in the record with respect to reservoir pressures does not support any conclusion that the Pictured Cliffs was depleted. In this regard, the Commission "ignores pertinent facts". (High Ridge Hinkle v. City of Albuquerque, 119 N.M. 29, 40, 888 P.2d 475, 485 [Ct. App.], *cert. denied,* 199 N.M. 20, 888 P.2d 466 [1994]) The Commission's disregard of the evidence on reservoir pressures and the failure to make any findings in its order are on this material issue arbitrary and capricious and contrary to law. As a result, the Commission's findings are not "sufficiently extensive to show the basis of the order." (Viking Petroleum v. Oil Conservation Com'n, 100 N.M. 451, 453, 672 P.2d 280, 282 [1983]:

"The findings must disclose the reasoning of the Commission in reaching its conclusion.", Id. "The Oil Conservation Commission must make findings of ultimate facts which are material to the issues." Fasken v. Oil Conservation Commission, 87 N.M. 292, 532 P.2d 588 [1975]).

Finding 43 of the Order concludes that the acid treatment jobs on the Chaco 1J and 2J wells did not establish communication with the Fruitland Coal formation and that these treatments "did not alter these wells' rates of production." This finding is not in error, but demonstrates why the Commission's failure to address the well and pressure data is so significant. If these two wells did not connect with the Fruitland Coal formation, then the pressures reported for the wells [RP pages 1689 to 1701; 1720 to 1734] are true Pictured Cliffs reservoir pressures, both before and after the acid stimulation treatments. Consequently, the finding that the Pictured Cliffs reservoir is "depleted" is contra-indicated by Finding 43, as well as by the clearly relevant pressure data. As a further example, the evidence of pressure data for the Chaco No. 4 well should be examined. The high pressures measured immediately after the 1995 acid job on that well and before the subsequent fracture treatment in May of 1995 [RP page 1691; Ex. N-8 RP page 2137] also establish that (1) the Pictured Cliffs was not depleted, and (2) the pressures (and production) in the Pictured Cliffs were not a result of any communication with the Fruitland Coal formation. (Unless, of course, the Whiting Fruitland Coal wells that were heavily fractured in 1992 established the communication.)

The additional evidence in the record on reservoir pressures is substantial:

The original reservoir pressure in the Pictured Cliffs formation in the late 1970's was approximately 230 psi. By 1995, reservoir pressures ranged from between approximately 150 to 170 psi, or higher. In 1999, Pictured Cliffs' reservoir pressures ranged from above 150 psi to 73 psi in those areas characterized by significant offset production. The testimony and evidence establish

that Pictured Cliffs wells may be produced economically today at reservoir pressures falling below 50 psi. (A. Nicol; Pg 57, line 3) [RP page 1713] Hence, this Pictured Cliffs reservoir with pressures of generally 150 psi is not "depleted."

The pressure in the Chaco 1J had a surface shut-in casing pressure of 158 psi before any acidizing or other stimulation was done. (A. Nicol; Pg 31, line 5; Pg 34, line 1; Pg 42, line 11; and Pg 65, line 7) [RP page 1687, page 1690, page 1698; page 1721]

After the acid stimulation treatments in 1995 and following a pressure build-up period, pressure measurements in the Chaco No. 4 well over three months ranged between 140 to 147 lbs., which was approximately 60 percent of the original reservoir pressure of 230 lbs. (A. Nicol; Pg 38, line 6; page 49, line 5) [RP page 1694; page 1705; RP page 71]

In 1995, post-fracture stimulation pressures were 170 lbs. in the Chaco 1, 151 to 153 lbs. in the Chaco 4 and 5 wells, and, in July, 1996, 150 lbs. in the Chaco 2-R well, indicating a relatively uniform pressure throughout the Pictured Cliffs reservoir in the area. During this same period of time, pressures in the Fruitland Coal formation, measured in 1994 in the Gallegos Federal 6-2 well and the Gallegos Federal 7-1 well were approximately 220 lbs. Correspondingly, there is no evidence that the pressures exhibited in the Chaco wells increased to Fruitland Coal formation pressures during this period of time. Moreover, the Pictured Cliffs reservoir pressures are consistent both before and after the stimulation treatments. (A. Nicol; Pg 38, line 6; page 49, line 5) [RP page 1694; page 1705; RP pages 71 to 72]

The surface shut-in pressure of 158 psi measured on the Chaco 1-J well on January 28, 1995 is an accurate reflection of Pictured Cliffs reservoir pressures before any of the restimulation treatments were performed on the Chaco wells. This pre-stimulation pressure is in line with pressures taken subsequent to the acid job on that well (155 psi). Following a five-month shut-in

period, the Chaco 2-J well had a shut-in pressure of 198 psi in June 1995, subsequent to the January 30, 1995 acid job. When the well was opened to the atmosphere, it blew down to zero pressure in four minutes. Such well performance is not indicative of the high-rate, high-volume of the cross flow that could be expected if the well had communicated with the Fruitland Coal formation. (A. Nicol; Pg 31, line 5 and Pg 65, line 7) [RP page 1687; page 1721]

The measured pressures in the Pictured Cliffs wells in 1995 were less than the average reservoir pressure in the Fruitland Coal formation at that time. (D. Cox; Pg 14, line 14)[RP page 1836]

Pictured Cliffs reservoir pressure evidence presented by Pendragon establishes that there is no correlation between pressures in the Pictured Cliffs and distances from coal wells. The relatively constant pressure or, in some instances, the slight pressure increases, is indicative of a stabilized pressure over a large reservoir area. (A. Nicol; Pg 40, line 1) [RP page 1696]

At approximately 150 psi, 1995 Pictured Cliffs reservoir pressures in the subject area, generally, are approximately 62 percent of original pressure, indicating that the reservoir is only partially depleted. Further reservoir analysis evidence that assumed a reservoir thickness of 25 feet with 25 percent porosity, at 65 percent gas saturation and a 75 percent recovery efficiency established that the Pictured Cliffs reservoir has significant additional reserves remaining to be produced. [August 1999 hearing; RP page 1575; Cox, RP pages 1852 to 1853]

Pressure information obtained during the year-long shut-in of the Chaco Pictured Cliffs wells in 1998 confirms reservoir continuity and pressure communication over large areas which is additional evidence supporting the conclusion that each of the wells can produce reserves from a large area. In addition, the shut-in data show that pressure continues to build up in those areas

with little withdrawal, except where the Pictured Cliffs gas is being produced by the coal wells. (J. McCartney; Pgs 19 to 21) [RP pages 1972 to 1974]; (A. Nicol) [RP pages 1702 to 1734]

Neither are the Commission's depletion findings supported by the significant amount of "volumetrics" and "material balance" evidence contained in the record.

Following their original completions, the Pictured Cliffs wells exhibited significantly high "IP's" ("initial production rates"). The Chaco No. 1 well had an IP of 342 MCFd while the Chaco 4 had 480 MCFd. The reported IP of Chaco No. 5 was 1,029 MCFd. However, at no time since their original completions or subsequent to the stimulation treatments did the production levels on any of the Chaco wells exceed the reported IP's. [August 1999 hearing; RP pages 478 and 479]

Pendragon presented volumetric and material balance analysis evidence showing that there are sufficient reserves in the Pictured Cliffs formation to support the historic and projected production from the Chaco wells. (J. McCartney; pg 2, line 17; pg 4, line 4)[RP page 1955; page 1957] (August 1999 hearing; RP pages 475 to 498; 555 to 570]

Generally, the evidence establishes that the Pictured Cliffs wells were producing volumes of gas that were less than their oil and gas in place ("OGIP"), whereas the Fruitland Coal wells have been and will produce more than their indicated OGIP on 320 acres. [August 1999 hearing; RP 677]

Pendragon's material balance and gas-in-place analysis data for the subject Chaco wells showed a material balance OGIP of 3,117,000 MCF for the five Pictured Cliffs wells. When compared with the performance history and estimated reserve analysis data, the subject Pictured Cliffs wells indicate an ultimate recovery of 2,301,525 MCF, or approximately 73.8 percent of the material balance reserves. Both the volumetric analysis and material balance analysis data show sufficient reserves in the Pictured Cliffs formation to support the historic and projected

production from the Chaco wells. (J. McCartney; pg 17, line 14)[RP page 1970] Again, this is not a "depleted" reservoir by any stretch of the imagination.

Volumetric analyses for the Fruitland Coal formation in the area establish that the basal coal contains an average of 1,262,661 MCF per 320-acre spacing unit.[12] Altogether, the five subject Fruitland Coal wells are estimated to have 6,897,801 MCF OGIP per 320 acres. The ultimate recoveries for these Fruitland Coal wells were shown to be significantly high relatively early in their producing lives. For instance, the Gallegos Federal 26-12-6 No. 2 and are the 26-12-7 No. 1 have already produced more than 83 percent of their OGIP, each. Together, all of the subject Gallegos Federal Fruitland Coal wells have produced 54.1 percent of the OGIP. This analysis shows that the subject Fruitland Coal wells are producing much more gas than can be calculated to exist on each of their 320-acre spacing units. In addition, well performance and decline curve analysis demonstrates that each of Whiting's wells are draining 545 acres, on average, presuming they produce only coal gas. (J. McCartney; pg 7, line 8)[RP page 1960]

The gas production history for the subject coal wells shows cumulative production for all five wells at 3,733,295 MCF. Remaining recoverable reserves based on estimates are 4,557,865 MCF. [Ex. M-2; RP 2563] At the 76 percent estimated recovery factor, ultimate recoveries are anticipated to be 8,291,160 MCF. The Whiting Fruitland Coal wells have produced and are expected to produce much more gas than can be accounted for from the Fruitland Coal formation on 320-acre spacing. The performance of the subject coal wells and subsequent gas recoveries establish that the Chaco wells are not producing Fruitland Coal gas reserves and are not interfering with the Gallegos Federal wells. [RP pages 1960 to 1961]

[12] NMOCD rules require that Fruitland coal wells be produced on 320-acre spacing units while Pictured Cliffs wells must have 160-acre units.

The recent drilling and fracture stimulation completion of the Pictured Cliffs formation in the last few years in the nearby State 2-R well located in Section 2, T26N R13W, which produces approximately 400 Mcfd, is additional evidence establishing that the Pictured Cliffs is not depleted. (A. Nicol; pg 54, line 12)[RP page 1710]

Finally, when the Commission's "depletion" findings are placed side-by-side with the provisions and findings of the order that expressly provide for future production from the Chaco Pictured Cliffs wells, and Pictured Cliffs gas that is "now capable of production" (finding 44), the inconsistencies of this unworkable order are all too obvious. In this regard, the finding of "steady gas production" from the Chaco wells (finding 35) is in direct conflict with the depletion findings.

(b) Geologic evidence of the "third bench".

Pendragon presented evidence of the existence of a "third bench" of the Pictured Cliffs formation in the area that contributes gas to Pictured Cliffs wells. Despite this, the Commission, at finding 39, oddly concluded that "The evidence does not support this assertion. No "third bench" has been reported previously throughout the San Juan region, and there is no geological evidence of this kind of formation." Clearly, this finding of the Commission is not supported by the evidence.

Well log information presented by Pendragon establishes the absence of any lithologic barrier to the downward growth of fracture treatments initiated in the main body of the Pictured Cliffs into the lower, third bench of the Pictured Cliff sandstone. Correspondingly, Pendragon established by a preponderance of the evidence that the third bench of the Pictured Cliffs sandstone contributes substantial reserves to the subject Chaco wells. (A. Nicol; pg 159, line 4 to pg 165, line 4)[RP page 1816 to 1822]; [August 1999 hearing; RP page 95]

Pendragon produced evidence that irrefutably established the existence of the "third bench" and/or "lower bench" of the Pictured Cliffs formation, not only in the San Juan Basin generally, but in the immediate vicinity of the subject lands. [RP pages 1672, 1673; RP 1816 to 1822; Exhibit N-68, RP page 2334]

Well log correlations identified the third bench in a number of wells in the area. [Ex. N-68, RP page 2334] The High Roll #4 well located nearby in Section 35, T27N, R13W, was in fact completed in and produces from the third bench. [RP page 1818]

The nearby Dome Navajo 12-26-13 No. 1 well produces exclusively from the third bench. [RP page 1820]

The third bench is also found in the High Roll #4 well, the Chaco 2R well (one of the several subject wells within the third bench), as well as the Lansdale Federal No. 1 well. [RP pages 1820 and 1821]

Pendragon established that the lower bench/third bench of the Pictured Cliffs contributed "substantial" gas reserves to the Chaco wells. [RP pages 1966, 1967; Ex. M-16 to M-18, RP pages 2579 to 2581; RP pages 560 to 562]

The record testimony from the hearing is also replete with evidence on the third bench: [RP pages 95 and 96, 197 to 199, 201 to 203, and 472 to 473].

The finding in Order R-11133-A that there is "no geological evidence" of the third bench of the Pictured Cliffs formation is disturbing. This clearly erroneous conclusion indicates an utter lack of due diligence on the part of the Commission and, again, that it ignored critically material factual evidence in the record.

The disregard of this important geologic evidence undermines the Commission's findings on a number of other central points, including, most notably, the finding that the Pictured Cliffs formation is depleted. The credibility of the entire order is called into question as a result.

The Court should be gravely concerned.

(c) The absence of well and reservoir damage.

The Commission's finding (finding 40) that it is "unlikely" the Chaco wells had suffered from significant reservoir damage is not supported by the evidence.

Pendragon presented extensive evidence on the existence of damage: [RP pages 659 to 662; 1852 to 1856; 1833 to 1834; 1848 and 1971 to 1972].

The rapid production decline experienced by the Chaco wells so soon after their initial completion is not consistent with the well production behavior that could be expected from a large, continuous reservoir with high permeabilities, therefore indicating the possibility of damage in the wellbore and in the reservoir in the immediate vicinity of the well. [August 1999 hearing; RP page 662; RP pages 1971 to 1972; RP pages 659 to 662]

Pressure build-up information derived from measured surface pressures and bottom hole pressures indicated the existence of reservoir damage that is more significant than what is typically attributed to "skin" damage. Pendragon's expert well-testing and reservoir engineer characterized the damage as "extreme, severe, deep, very deep" formation damage, extending to a great distance away from the wellbore. The extent of the damage is also reflected on the production curves for the subject Pictured Cliffs wells. [August 1999 hearing; RP pages 650 to 662]

Pendragon presented evidence establishing that the Chaco wells were damaged by one or more of the following: (1) scale precipitation, (2) water blockage and (3) migration of clay fines. [August 1999 hearing; RP pages 794 and 795]

Of the three types of damage determined to exist in the Chaco wells, the most likely cause of damage is water block that has plugged off the more permeable intervals of the Pictured Cliffs or those intervals with higher gas saturation levels. The testimony further established that even small

volumes of water in a relatively low pressure reservoir such as the Pictured Cliffs formation can cause water block, making it more difficult for Pictured Cliffs wells to recover once water intrudes into the area around the wellbore. (D. Cox; pg 34, line 7)[RP page 1856]

Outside substantiation for the existence of reservoir damage in the Pictured Cliffs is found in the Halliburton core sample analysis for the Lansdale Federal No. 1 well indicating that "the samples are basically fine to very fine grained kaolinite clay cemented sandstone. Permeabilities range from less than one millidarcy to 272 millidarcies. The main water sensitivity is kaolinite clay migration in the pores." [August 1999 hearing; RP page 1527; Ex. N-62 RP page 2326 and RP pages 1529 to 1531]

A reservoir simulation model was used to determine theoretical well performance of a Pictured Cliffs well having a reservoir thickness of twenty-four feet and a permeability of 25 millidarcies. The simulation establishes that such a well has the capability to efficiently drain a 640 acre reservoir. The simulation results are additional evidence supporting the conclusion that the relatively poor performance exhibited by the subject Pictured Cliffs wells is a result of reservoir damage. (J. McCartney; pg 19, line 11)[RP page 1972]

The petroleum engineering expert testimony concluding that Pictured Cliffs well and reservoir damage was caused in part by scale is based on actual observations in the field in the area of the subject lands. [RP pages 235 to 236; 1584 to 1585]

An analysis of the transmissibility in the Pictured Cliffs formation using reported shut-in and well head flowing pressures over time establishes that the transmissibility in the reservoir had decreased. Calculations of flow capacity for the Pictured Cliffs wells show they were capable of flowing at only 9 percent to 36 percent of their fuel capability if their permeability had not changed. This evidence established that significant reservoir damage had occurred by 1986, which was

overcome by the fracture and acid stimulation treatments in 1995. (J. McCartney; pg 18, line 20)[RP page 1971]

Maralex's president also testified that the volumetric and material balance analyses performed on the Chaco Plant 5 and the Chaco No. 4 indicated a component of damage had affected those wells as they had substantially underproduced the recoverable gas in place. This not only substantiates the existence of damage, it directly contradicts the premise that the formation was fully depleted. [August 1999 hearing; RP page 903]

During the January 1995 acid stimulation treatment, the measured surface pressure on the Chaco No. 4 well reached 800 psi before the injection of 500 gallons of acid into the formation could commence, even though this well had the highest original permeability in the Pictured Cliffs. That such pressure was reached during the acid job is direct evidence of the existence of reservoir damage. (M Conway; pg 19, line 15; A. Nicol; pg 34, 14)[RP page 1928; page 1690]

The testimony and evidence established that once the skin damage was overcome by the acid and fracture stimulation treatments, the Chaco wells with their 50 millidarcy average permeabilities and their 150 psi Pictured Cliffs reservoir pressures were able to produce significant volumes of gas into a gathering system with 40 to 50 pound line pressures. [August 1999 hearing; RP pages 1576 and 1580]

Whiting presented no testimony or evidence that refuted the evidence of wellbore and reservoir damage in the Pictured Cliffs formation. Indeed, Whiting's engineering witness testified that he believed the Pictured Cliffs wells were draining only small areas, even though there was good reservoir quality. [RP pages 1367] Consequently, the existence of wellbore and reservoir damage is supported by a preponderance of the evidence.

This evidence substantiates the existence of damage that the well treatments were intended to overcome and further contradicts the conclusion that the formation was depleted.

(d) The Chaco well fracture stimulation treatments.

The findings that the fracture treatments on the Chaco 1, 2R, 4 and 5 wells extended into the Fruitland Coal formation (finding 33) or that such was a "possibility" (finding 39) do not have the support of substantial evidence in the record. To the contrary, the evidence established that the light frac jobs on the Chaco wells were specifically designed to take advantage of underground geologic conditions and inter-formational stress barriers to remain contained within zone. [RP pages 258 to 260, 1669, 1737 to 1753 and 1901 to 1907]

Stimulation treatments can be designed with fracturing fluids and pumping programs to control or prevent breaching into bounding formations. (M Conway; pg 23, line 14)[RP page 1932] Moreover, the finding that there is "no scientific basis" for believing that the fractures from the Chaco well stimulation treatments moved downward into the "third bench" is clear error and disregards actual "tracer" survey data[13] [Ex. N-33; RP page 2230] and the considerable testimony and evidence presented on fracture technology: RP pages 1967, 83 to 84, 197 to 206; 539; 1735 to 1755 and 1910 and 1935]

Well log information presented by Pendragon established the absence of any lithologic barrier to the downward growth of fracture treatments initiated in the main body of the Pictured Cliffs into the lower, third bench of the Pictured Cliff sandstone. (A. Nicol; pg 159, line 4 to pg 165, line 4)[RP page 1816 to 1822]; [August 1999 hearing; RP page 95]

Pendragon presented evidence which established that fractures will be likely to, and frequently do remain confined and not grow across the reservoir top or bottom if the bounding reservoir rock above or below the pay interval is stronger or has high in-situ stresses or if the

[13] Radioactive isotopes are introduced into fracture fluids so that their locations in the fractures can be "traced", establishing the size and locations of the fractures themselves.

interface between the two rocks can slip and absorb the energy of the fracture extension. (R. Blauer; pg 24, line 11)[RP page 1902] [M. Conway RP pages 1913 to 1914 and 1919 to 1921]

Pendragon presented additional evidence, which establishes that the different types of rocks at a reservoir boundary will have different in-situ stresses. The difference in the stresses is known as the stress contrast. The stress contrast between the sandstone and the coal in the Chaco area is approximately 400 psi and is 125 psi between the sandstone and a shale. During a fracture stimulation treatment, assuming there is no slip at the boundary of the different rock types, the fracture fluid must attain sufficient injection pressure to exceed the stress contrast in order to breach the boundary. If slip is present, then yet more pressure is required to exceed both the stress contrast and to displace the rocks sufficiently to create a crack in the breached interval. Consequently, assuming no slip, fracture pressures must exceed the stress contrast of 400 psi in order to breach into the coal. If the coal is not breached, then fracturing pressures will be controlled by the stresses in the sand and shales themselves. Conversely, a fracture initiated in the coal will more easily breach out of formation and into the sandstone, as the sand will have much lower stress than the coal formation. (R. Blauer; pg 24, line 18; M. Conway, pg 11, line 17)[RP page 1902; page 1920]

The evidence presented by Pendragon's petroleum engineers and geological engineers established that artificially induced fractures are influenced and controlled by lithology and bedding planes. Softer, more ductile rocks deform plastically at stresses where more brittle, less compressible rocks like sandstones tend to fracture. Coals and soft shales will tend to deform while hard sandstones will tend to crack. On a microscopic scale, shales and coals will tend to shear and slide, extending and thinning, rather than cracking, until some higher critical stress threshold is reached. Thus, the plastic properties which allow the higher stress to exist control the method of deformation as well. Similarly, the bedding planes, themselves, are capable of absorbing large

amounts of fracture energy effectively acting as a fracture barrier and confining fracture growth to a particular bed. (A. Nicol; pg 79, line 3)[RP page 1735 to 1747]

The testimony and geologic literature establish that fracture stimulations will tend to remain contained within the more brittle rock-like sandstones. Conversely, fracture stimulations are prone to grow out of more compressible rock, such as a shale or a coal, into more brittle rock. Induced fractures also tend to migrate from a higher-pressure zone, such as the Fruitland Coal formation in this case, into a lower pressured zone, such as the Pictured Cliffs sandstone formation. Reservoir pressures directly control fracture geometry. All of these findings are widely accepted and are confirmed by radioactive tracer survey studies. (M. Conway; pg 8, line 4)[RP page 1917]

Pendragon produced evidence of radioactive tracer survey data from the nearby Edwards Bartlesville No. 1 well located in Section 3, T-26-N, R-13-W which in 1998 received a fracture stimulation treatment in the Pictured Cliffs formation similar to that which was applied to the Chaco wells. The radioactive tracer survey information showed conclusively that fractures initiated in the Pictured Cliffs remained contained within the formation and stopped at the bedding plane between a thin coal and the thicker Pictured Cliffs sandstone. The Bartlesville well contained an Upper Pictured Cliffs sandstone interval very much like that encountered in the subject Chaco wells. The tracer survey information was confirmed by Nolte plot data, which showed no detectable vertical growth, indicating the fracture remained within the upper Pictured Cliffs sandstone interval. Similar results were also presented for the Dome Federal 17-27-13 No. 3 Well, also located in the near vicinity. (A. Nicol; pg 95, line 18; pg 97, line 18)[RP pages 1749 to 1751] (Exhibit N-33) [RP page 2230]

The normal in-situ properties of the Pictured Cliffs sandstone and the Fruitland Coal formation establish that it is more probable that a fracture initiated in the Fruitland Coal is more

likely to break out of zone into the Pictured Cliffs sandstone than is a fracture initiated in the Pictured Cliffs likely to break into the coal. [RP pages 1918 to 1921 and 1928] The evidence on these factors does not support any finding in the Commission's order, whether expressed as a "possibility" or not, that the fractures in the Pictured Cliffs broke out into the coal.

In this case, the evidence establishes that the Fruitland Coal was a higher pressured formation with higher *in-situ* stress than the Pictured Cliffs. Additionally, the coal fracture stimulations were of a significantly larger volume, and done at higher injection rates and at significantly higher pressures. These factors support the conclusion that the fractures initiated in the coal broke out into the Pictured Cliffs sandstone. [RP pages 1919 and 1929 to 1934]

The evidence presented establishes that the *in situ* stress in the coal formation is approximately 400 psi higher than in the Pictured Cliffs sandstone. Consequently, a large fracture treatment initiated in the sandstone must be stepped up even further to impart the equivalent of a 400 psi incremental increase in fluid pressure if the fracture is to penetrate into the coal. This would be a substantial and unnecessary increase in treating pressure over that required to extend the fracture within the sandstone. The evidence further establishes that fractures are contained where there is boundary slippage at the interface between the coal and shale or sandstones. Where slippage occurs, the fluid pressure must be increased even higher in order to break down the higher stress layer before the fracture can grow into the coal. Such evidence is further substantiation for a finding that it is not likely that the fractures initiated in the Pictured Cliffs sandstone broke out into the Fruitland Coal formation. (M. Conway; pg 14, line 18)[RP page 1751]

The testimony of Whiting's consulting petroleum engineer at the hearing established that because of the higher stress gradient in the coal, the treatment pressure of any of the fracture

stimulations initiated in the Pictured Cliffs sand would not have been sufficient to overcome both the stress gradient and closure pressure in the coal to allow the placement of any proppant into a fracture into the coal. [August 1999 hearing; RP page 1288; RP pages 1341 to 1342]

The evidence and testimony further established that it is more probable that the proppant circulated in any upward growing fracture in the Pictured Cliffs sandstone would settle downwards to the bottom of the fracture, thus allowing the upper portion of the fracture to close. Such closed, unpropped fractures could not serve as conduits for the production of water or gas out-of-zone. [August 1999 hearing; RP page 314]

Conversely, it is more probable that fractures growing downward from the Fruitland Coal into the Pictured Cliffs formation will remain propped open by the settlement of proppants into the bottom portion of the fracture. Consequently, fractures growing downward from the coal are more likely to serve as conduits for the production of gas from the Pictured Cliffs formation. [RP page 1349]

All of the above evidence is consistent with the admission of Whiting's expert engineering witnesses that the fractures initiated in the Fruitland coal formation grew downward into the Pictured Cliffs. [RP page 3400; RP page 1335]

(e) Gas "bubbles", gas "highways" and gas "compartments".

In discussing the post-stimulation increases in gas production experienced on the Chaco wells, at finding 36, the Commission engages in speculation that a growing "gas bubble" in the Fruitland Coal formation extended toward an area of high-pressure contrast where a "thin capillary barrier may have been broken, allowing gas migration between the two zones." What it was that actually broke the barrier, the Commission does not say in the finding. Then, at finding 39, the Commission makes the rather tentative "finding" that "[o]ne possibility is that the hydraulic fractures were extended upward to the Fruitland Coal formation and generated a gas highway to the gas bubble." The order also indulges in conjecture about "high pressure gas compartments" (finding 37). By these suggestions, the Commission does not preclude another "possibility" e.g., it is possible that these inter-fingered formations came into communication naturally.

This is all rank speculation by the Commission. Neither side presented any evidence of the existence of high-pressure "gas compartments". This finding is wholly unsupported by the evidence. The finding that the fracture stimulation treatments on the Chaco wells broke into such "compartments" is directly at odds with the tracer survey exhibits and testimony on the Bartlesville well and the Dome Federal well establishing that such fracture treatments were successfully contained within the appropriate zone. (Ex. N-33) [RP page 2230; RP pages 1735 to 1755] Moreover, there is no evidence in the record at all of the existence of any "gas bubble".

Findings 36, 37 and 39 are only hypotheses conjured up by the Commission and are not supported by substantial evidence.

(f) The BTU data.

The finding that the BTU heating content data derived from gas samples supports the conclusion that the fracture stimulation treatments on the Chaco wells communicated to the Fruitland Coal formation (finding 41) is not supported by substantial evidence. Direct evidence to the contrary means that the finding is in error.

Early on, both parties considered the possibility that an BTU heating content analyses could help determine the source of gas being produced by a well, the idea being that coal wells produce gas with lower BTU values while Pictured Cliffs gas has higher heating content. The BTU data presented by both Pendragon and Whiting shows post-shut in BTU values for the Chaco wells to be well within the range of values measured for those wells when they were originally completed in the 1970's. [RP 84 to 87]; Ex. N-37 and N-39 [RP pages 2250 to 2258 and page 2265] In addition, the finding ignores the pre- and post shut-in data presented for the Chaco 2R well which showed high BTU values and increasing pressure following shut-in while the coal wells continued to produce. [RP page 1766] Moreover, the Commission's finding is at odds with the BTU data for the Chaco 1J and 2J wells. These wells, which the Commission concluded did not communicate with the Fruitland coal formation showed lower BTU values. However, the data from the Chaco 1J and 2J wells shows that the gas produced from these wells has BTU values similar to the gas produced from those wells the Commission concluded did communicate. [RP page 1765 to 1766] It is another inconsistency in the Order.

The evidence establishes that the BTU contents and the proportions of "higher end" or lighter molecular components in the gas produced from the wells in the area of the subject lands are not only highly variable from well to well, but also vary over time and with the producing conditions of the reservoir. Production from most Pictured Cliffs wells tends to contain heavier

components during the early stages of production, although this characteristic can be affected by a number of factors. Moreover, there is no clear differentiation in chemical content between gas produced from the Fruitland Coal formation and the Pictured Cliffs sandstone. (A. Nicol; pg 103, line 4)[RP page 1760]

The fact that the BTU or methane percentage may have decreased over the producing life of a Pictured Cliffs sandstone well is not evidence that the well is producing gas from another zone. (A. Nicol; pg 104, line 4)[RP page 1761]

Evidence from the geological and engineering literature establishes that Fruitland Coal and Pictured Cliffs formation wells in the area of the subject lands are frequently found to be producing similar gases which may come from source materials in the Lewis shales and/or from coal. The sources cannot be separated as being limited to coal for the coal wells or strictly Lewis shale for the Pictured Cliffs wells. Consequently, the gases cannot be clearly differentiated when they are produced. In addition, under the reduced pressures and at the reservoir temperatures measured in the Chaco area, the heavier components tend to drop out or move through the reservoir rock more slowly than methane, making the produced gas more lean. (A. Nicol; pg 102, line 6)[RP page 1759]

In February 1999, after more than seven months of shut-in, gas samples were taken from the Chaco No. 1, 4 and 5 Wells. The BTU analyses were all above 1,100 and were nearly identical to those at the times of original completion. [RP page 1870]

Pendragon presented evidence utilizing 155 gas analyses of numerous Pictured Cliffs and coal wells to demonstrate that there is no separation or stratification of BTU or other properties in the range between 1,000 BTU and 1,100 BTU which would allow the differentiation of coal gas from Pictured Cliffs gas in this area. [RP page 1756] (Ex. N-37) [RP pages 2250 to 2258]

The impropriety of the Commission's erroneous findings of communication based on the BTU data was demonstrated by Whiting's own engineering witness who also incorrectly concluded that any well producing gas with BTU values less than 1000 to 1050 could be presumed to be producing coal gas [RP 1158 to 1160].

IV. Relief

Based on the foregoing, the Court should **find**:

1. The agency's order is incomplete, ambiguous and impractical. The order fails to make findings of ultimate facts material to the issues.
2. The agency has failed to fulfill its statutory duties and has disregarded its own rules, regulations and prior orders.
3. The agency has failed to accord meaningful regulatory relief.
4. The agency has acted outside the scope of its authority and not in accordance with law.
5. The agency has acted arbitrarily and capriciously. Moreover, the agency's order ignores pertinent facts and fails to provide an adequate explanation of its basis.
6. The following findings in Order R-11133-A are not supported by substantial evidence:

The Court should **reverse** Order R-11133-A with respect to findings 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 45 and 46 and the relevant portions of decretal paragraphs 1, 4 and 5. The matter should then be **remanded** to the Commission and the agency should be directed to take the reservoir pressure data evidence into account and specifically find that the subject Pictured Cliffs reservoir is not depleted. Using such evidence, the Commission should also be directed to explain the reasoning for its findings.

The Commission should also be directed to further fulfill its duty to avoid further waste, dissipation of reservoir energy and loss of gas out of the strata by providing for the immediate restoration of the Chaco Pictured Cliffs wells to production.

The agency should also be directed to bring Whiting's Fruitland Coal formation wells into regulatory compliance by providing for the following:

(a) Ordering the immediate shut-in of the offending coal wells, the Gallegos Federal 26-12-6 No. 2, the 26-13-12 No. 1 and the 26-12-7 No.1.

(b) Restoration of the shut-in Chaco Pictured Cliffs wells to production to determine:

(i) Whether any of the Pictured Cliffs wells have been permanently lost as a result of the shut-in and, if so, the quantification of lost reserves;

(ii) The re-establishment of a steady state of decline in order to:

(iii) Determine the curtailed production rates the Fruitland Coal wells might be restored to so that drainage areas are equalized, in order to minimize or eliminate future damages; and

(iv) Alternatively, allow Whiting to demonstrate to the satisfaction of the Division how both the Pictured Cliffs and Fruitland Coal formation wells can be simultaneously produced without interference, and if they fail to do so, require the Gallegos Federal Fruitland Coal wells to be permanently shut-in or recompleted.

The Commission should be directed to convene a proceeding to determine the volumes of Pictured Cliffs gas reserves that have been produced by Whiting Gallegos Federal coal wells since June 30, 1999, whether any of the Pictured Cliffs wells have been permanently lost, and if so, the quantification of lost reserves as a result of the shut-in, in addition to the 176,900 MCF previously produced. For the Pictured Cliffs wells that Pendragon is able to restore to production, the Commission should receive evidence demonstrating the re-establishment of a steady state of decline for those wells.

Following the accumulation of relevant data, both parties should be afforded the opportunity to present evidence and make recommendations to the Commission to enable it to determine the curtailed production rates the Fruitland Coal wells may be restored to so that drainage areas are equalized and in order to minimize or eliminate future damage or interference. The parties should also be allowed the opportunity to demonstrate to the satisfaction of the Commission how both the Pictured Cliffs and the Fruitland Coal formation wells can be simultaneously produced without interference or drainage. If such evidence shows it is not reasonably possible to operate the Gallegos Federal Fruitland Coal wells without further damage, interference or drainage of the Pictured Cliffs formation, then the Commission should order Whiting to recomplete the Fruitland Coal wells. Alternatively, the Gallegos Federal 26-12-6 No.2, the 26-13-12 No. 1 and the 26-12-7 No. 1 should be ordered permanently shut-in.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By _____

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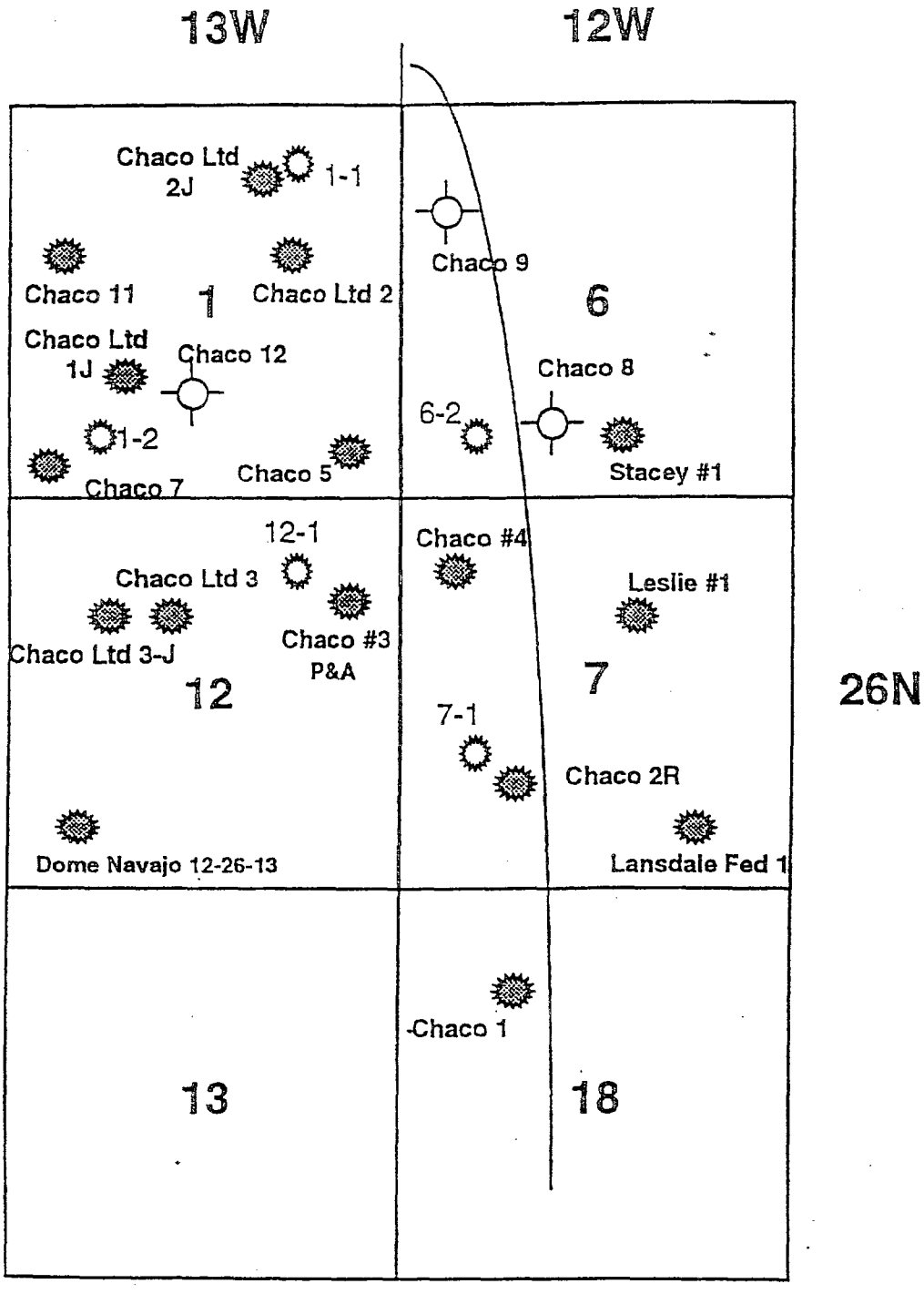
Attorneys for Pendragon Energy Partners, Inc., *et al.*

I HEREBY CERTIFY that a
true and correct copy of the
foregoing Statement of Issues
was mailed to

Steve Ross, Esq.
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

on this 2 day of October, 2000.

J. Scott Hall



Fruitland Coals

Pictured Cliffs

EXHIBIT

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

ORDER AUTHORIZING APPELLANT AND APPELLEE TO EXCEED PAGE LIMITATION, GRANTING LEAVE TO FILE BRIEFS, AND EXTENDING TIME

THIS MATTER, coming before the Court pursuant to the Agreed Motion of Appellants, Pendragon Energy Partners, Inc., *et al.*, and Appellee, New Mexico Oil Conservation Commission, for authorization to exceed the page limitation on the statements of appellate issues, for leave to file memorandum briefs and for an extension of time, and the Court being duly advised:

IT IS ORDERED that the Appellants' and Appellee's are authorized: (1) to exceed the page limitation under NMRA 1-074.N; (2) to file memorandum briefs; and (3) file the Appellants' statement of issues by September 29, 2000.

DANIEL A. SANCHEZ

The Honorable Daniel Sanchez
District Judge

Agreed:

MILLER, STRATVERT & TORGERSON, P.A.

By J. Scott Hall

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FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

AGREED MOTION TO EXCEED PAGE LIMITATION,
FOR LEAVE TO FILE BRIEFS, AND FOR EXTENSION OF TIME

Appellants, Pendragon Energy Partners, Inc., et al., ("Pendragon") and Appellee, New Mexico Oil Conservation Commission, ("NMOCC"), move pursuant to NMRA 1-074.N and O for authorization to exceed the page limitation on the statements of appellate issues, for leave to file memorandum briefs and for an extension of time. In support, movants state:

NMRA 1-074 limits the argument portions of the appellants' and appellee's respective statements of appellate issues to eight (8) pages, except by permission of the Court. In this circumstance, the limitation to eight pages will not allow a sufficient discussion of the contentions of the parties and the evidence in the record on the issues before the Court for appellate review. This proceeding involves a wide body of facts going back to 1992 and implicates regulatory matters reaching back to 1988. Extensive hearings involving complex technical evidence resulted in a record of several thousand pages, for which the transcript of hearing alone exceeds 1,600 pages. Condensing all this subject matter to a manageable and

comprehensible set of filings is challenging. However, it is clear that a full and fair discussion of the case can not be presented within the eight-page limit. Subpart N of Rule 1-074 expressly authorizes the Court to permit exceptions to the page limit in circumstances such as are presented here.

Counsel for Appellants and Appellees also agree that the filing of memorandum briefs would assist the Court's consideration of this appeal. Accordingly, both Appellants and Appellees seek leave to do so under Subpart O of Rule 1-074.

Finally, because of the breadth of issues and the volume of materials involved in this appeal, Appellants seek an extension of time to September 29, 2000 to file their statement of appellate issues.

Counsel for Appellants and Appellees agree to all the foregoing matters.

WHEREFORE, movants request the Court enter its Order authorizing the filing of statements of issues exceeding the page limitation under NMRA 1-074.N, authorizing Appellants and Appellees to file memorandum briefs, and extending the time for the filing of the Appellants' statement of issues to September 29, 2000.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By_____

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I HEREBY CERTIFY that a true and correct copy of the foregoing Motion was mailed to all counsel of record on this 18 day of September, 2000.

J. Scott Hall

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

AGREED ORDER EXTENDING TIME TO FILE STATEMENTS OF APPELLATE ISSUES

THIS MATTER having come before the Court upon the agreed motion of Appellants Pendragon Energy Partners, Inc., Pendragon Resources LP, and Edwards Energy Corporation and Appellee, New Mexico Oil Conservation Commission, by counsel, for an Order extending the time to file their Statements of Appellate Issues in this matter, and the Court being duly advised, finds the motion is well-taken and should be granted.

IT IS THEREFORE ORDERED that Appellants and Appellees shall have an additional ten (10) days to file with the clerk of the Court their Statements of Appellate Issues in this matter.

DANIEL A. SANCHEZ

The Honorable Daniel Sanchez
District Judge

Submitted by:

MILLER, STRATVERT & TORGERSON, P.A.

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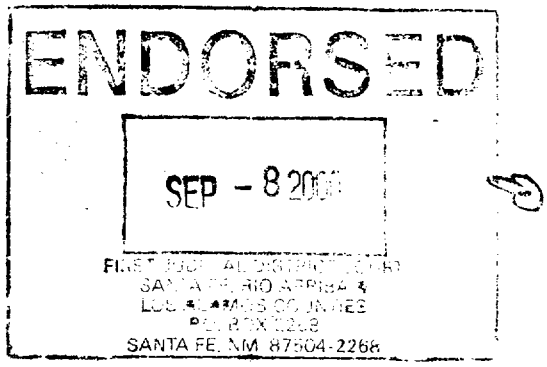
FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO



PENDRAGON ENERGY PARTNERS, INC.,
PENDRAGON RESOURCES, LP, AND
EDWARDS ENERGY CORPORATION

Appellants,

vs.

No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION
COMMISSION,

Appellee.

AGREED MOTION TO EXTEND TIME
TO FILE STATEMENTS OF APPELLATE ISSUES

Appellants, Pendragon Energy Partners, Inc., Pendragon Resources LP, and Edwards Energy Corporation and Appellee, New Mexico Oil Conservation Commission, by counsel, hereby move the Court for an extension of time to file their Statements of Appellate Issues in this matter, on the following grounds:

1. This matter is an appeal from the decision of the New Mexico Oil Conservation Commission pursuant to NMSA 1978, §§ 39-3-1.1 and 70-2-25(B) (Repl. 1999) and Rule 1-074 NMRA.

2. The Record on Appeal Contents and the Title Page were filed by Appellee on August 8, 2000. Ordinarily, Appellants' Statement of Appellate Issues should be filed with the clerk of the court on September 11, 2000.

3. The record and issues on appeal in this matter are extensive and complex and counsel will require additional time to ensure all are fully addressed in the Statements of Appellate Issues.

4. Counsel for both Appellants and Appellee have agreed to entry of an order extending the time for filing the Statements of Appellate Issues by an additional ten (10) days.

WHEREFORE, for the foregoing reasons, Appellants Pendragon Energy Partners, Inc., Pendragon Resources LP, and Edwards Energy Corporation and the Appelle, New Mexico Oil Conservation Commission, move the Court enter its Order extending the time to file their Statements of Appellate Issues in this matter by an additional ten (10) days.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

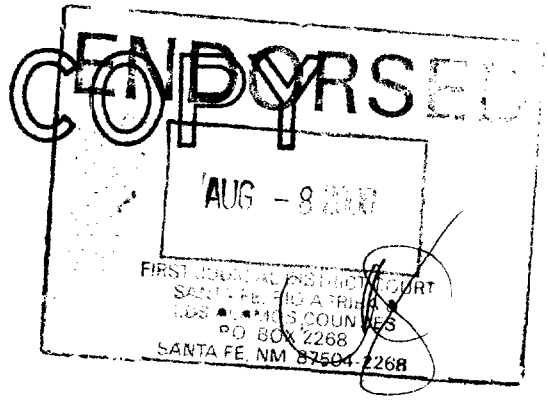
By _____

J. Scott Hall
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614
Attorneys for Pendragon Energy Partners, Inc., *et al.*

Telephonically approved: September 8, 2000
Steve C. Ross
Counsel for Appellee
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156
(505) 827-8177 (facsimile)

I HEREBY CERTIFY that a
true and correct copy of the
foregoing Motion was mailed
to all counsel of record on
this 8 day of September, 2000.

J. Scott Hall



FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

RECORD ON APPEAL CONTENTS

COMES NOW Appellee, the New Mexico Oil Conservation Commission (hereinafter referred to as "the Commission"), by and through its attorney of record Stephen C. Ross, Special Assistant Attorney General, pursuant to Rule 1-074(H) NMRA (2000), and files the following with the Clerk of the Court as the Record on Appeal in the above-captioned matter:

1. Transcript of the hearings conducted in case number 11996 (hearings of August 12, 13 and August 19-20, 1999), stenographically recorded (vols. I-V). Record on Appeal (hereinafter "RA") pages 1-1617.

2. An index of the witness testimony and exhibits introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 1618-1649.

3. Volume 1 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 1650-2008.

4. Volume 2 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 2009-2350.

5. Volume 3 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 2351-2710.

6. Volume 4 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 2711-2889.

7. Volume 5 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 2890-3246.

8. Volume 6 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3247-3302.

9. Volume 7 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3303-3392.

10. Volume 8 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3393-3576.

11. Volume 9 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3577-3646.

12. Volume 10 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3647-3831.

13. Volume 11 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3832-3956.

14. Volume 12 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 3957-4137.

15. Volume 13 of exhibits and prefiled testimony introduced during the hearings of August 12, 13, 19 and 20, 1999. RA pages 4138-4275.

16. Copies of the below-listed papers and pleadings filed in the proceedings of the agency:

a) Letter of J. Scott Hall (Pendragon), February 17, 1999 (RA at 4276);

b) Application for Hearing *de novo* (Pendragon), February 18, 1999 and letter of J. Scott Hall (RA at 4279);

c) Subpoenas of Schlumberger Technology Corporation (2), B.J. Services Company USA (2) and Halliburton Energy Services (the Commission), undated (RA at 4283);

d) Application for Hearing *de novo* as to Limited Issues (Whiting/Maralex), February 23, 1999 (RA at 4301);

e) Letter of Michael J. Condon (Whiting/Maralex), February 23, 1999 (RA at 4303);

f) Letter of J. Scott Hall (Pendragon), February 24, 1999 (RA at 4305);

g) Subpoenas (4) of Maralex Resources (the Commission), February 25, 1999 (RA at 4307);

h) Letter of Marilyn S. Hebert (the Commission), February 26, 1999 (RA at 4319);

i) Motion for Partial Stay of Order No. R-11133 (Pendragon) and letter of transmittal of same, March 1, 1999 (RA at 4320);

j) Motion for Stay of Proceedings and To Quash (Whiting/Maralex), March 3, 1999 (RA at 4378);

k) Response to Motion for Stay of Proceedings etc. (Pendragon) and letter transmitting same, March 11, 1999 (RA at 4406);

l) Response to Motion for Partial Stay of Order No. R-11133 (Whiting/Maralex), March 16, 1999 (RA at 4453);

m) Letter of J. Scott Hall (Pendragon), March 18, 1999 (RA at 4481);

n) Letter of Michael J. Condon (Whiting/Maralex), March 24, 1999 (RA at 4483);

o) Letter of Lori Wrotenbery denying Motion for Partial Stay (the Commission), March 25, 1999 (RA at 4485);

p) Letter of J. Scott Hall (Pendragon), March 26, 1999 (RA at 4486);

q) Proposed Issues for Pre-Hearing Conference (Whiting/Maralex), March 30, 1999 (RA at 4488);

r) Memorandum of Marilyn S. Hebert (the Commission), April 5, 1999 (RA at 4572);

s) Statement in Support of Use of Discovery by Deposition (Whiting/Maralex), April 9, 1999 (RA at 4575);

t) Memorandum Brief on Discovery Issues (Pendragon) and letter transmitting same, April 12, 1999 (RA at 4583);

u) Motion to Conduct Reservoir Tests (Pendragon), proposed order, and letter of J. Scott Hall (Pendragon), April 22, 1999 (RA at 4594);

v) Letter of J.E. Gallegos (Whiting/Maralex), April 26, 1999 (RA at 4625);

w) Letter of J. Scott Hall (Pendragon), May 4, 1999 (RA at 4626);

x) Response to Motion to Conduct Reservoir Tests (Whiting/Maralex), May 6, 1999 (RA at 4627);

y) Affidavit of Bradley M. Robinson (Whiting/Maralex), May 10, 1999 (RA at 4632);

z) Scheduling Order (the Commission), May 11, 1999 (RA at 4643);

aa) Reply to the Motion to Conduct Reservoir Tests (Pendragon) and letter transmitting same, May 18, 1999 (RA at 4645);

bb) Letter of J. Scott Hall (Pendragon), May 18, 1999 (RA at 4673);

cc) Letter of J. Scott Hall (Pendragon), May 18, 1999 (RA at 4674);

dd) Order Allowing Reservoir Pressure Testing (the Commission), May 19, 1999 (RA at 4676);

ee) Letter of J. Scott Hall (Pendragon), May 21, 1999 (RA at 4678);

ff) Letter of J.E. Gallegos (Whiting/Maralex), May 21, 1999 (RA at 4680);

gg) Motion to Require comprehensive and Fairly Designed Testing on Connection With Reservoir Pressure Tests (Whiting/Maralex), June 1, 1999 (RA at 4682);

bbb) Response in Opposition to Motion to Compel Compliance With Subpoena (Whiting/Maralex), June 15, 1999 (RA at 4774);

ccc) Letter of J.E. Gallegos (Whiting/Maralex), June 15, 1999 (RA at 4798);

ddd) Letter of J. Scott Hall (Pendragon), June 15, 1999 (RA at 4800);

eee) Letter of J. Scott Hall (Pendragon), June 16, 1999 (RA at 4806);

fff) Letter of J. Scott Hall (Pendragon), June 16, 1999 (RA at 4808);

ggg) Letter of J.E. Gallegos (Whiting/Maralex), June 16, 1999 (RA at 4810);

hhh) Response to Motion in Limine (Whiting/Maralex), June 17, 1999 (RA at 4811);

iii) Letter of Lori Wrotenbery denying Motion in Limine (the Commission), June 18, 1999 (RA at 4824);

jjj) Letter of J. Scott Hall (Pendragon), June 22, 1999 (RA at 4825);

kkk) Certificate of Service and letter of J. Scott Hall transmitting same (July 28, 1999) (RA at 4828);

lll) Exhibit List (Whiting/Maralex), June 28, 1999 (RA at 4831);

mmm) Letter of Michael J. Condon (Whiting/Maralex), July 16, 1999 (RA at 4837);

nnn) Letter of Michael Condon (Whiting/Maralex), July 28, 1999 (RA at 4838);

ooo) Letter of J. Scott Hall (Pendragon), August 2, 1999 (RA at 4840);

ppp) Letter of J. Scott Hall (Pendragon), August 2, 1999 (RA at 4841);

qqq) Letter of J. Scott Hall (Pendragon), August 6, 1999 (RA at 4842);

rrr) Prehearing Statement (Pendragon), August 6, 1999 (RA at 4844);

sss) Objections and Motion to Strike Testimony (Pendragon) and letter transmitting same, August 12, 1999 (RA at 4849);

ttt) Prehearing Statement (Whiting/Maralex), August 9, 1999 (RA at 4861);

uuu) Stipulation of Facts (the parties), August 10, 1999 (RA at 4895);

vvv) Response to Motion to Pendragon's Objections and Response to Motion to Strike (Whiting/Maralex), August 11, 1999 (RA at 4902);

www) Motion to Strike (Whiting/Maralex), August 11, 1999 (RA at 4921);

xxx) Letter of Michael J. Condon (Whiting/Maralex), August 11, 1999 (RA at 4923);

yyy) Letter of J. Scott Hall (Pendragon), August 11, 1999 (RA at 4924);

zzz) Revised Exhibit List (Whiting/Maralex), August 12, 1999 (RA at 4925);

aaaa) Letter of Amanda Olson (Pendragon), August 24, 1999 (RA at 4933);

bbbb) Letter of Caroline Woods (Whiting/Pendragon), September 8, 1999 (RA at 4934);

cccc) Letter of Michael J. Condon (Whiting/Maralex), September 30, 1999 (RA at 4936);

dddd) Letter of J. Scott Hall (Pendragon), October 26, 1999 (RA at 4937);

eeee) Letter of Michael J. Condon (Whiting/Maralex), October 29, 1999 (RA at 4938);

ffff) Letter of J. Scott Hall (Pendragon), November 16, 1999 (RA at 4952);

gggg) Letter of J. Scott Hall (Pendragon), November 17, 1999 (RA at 4953);

hhhh) Memorandum in lieu of Closing Statement (Whiting/Maralex), November 29, 1999 (RA at 4954);

iiii) Proposed Order of the Commission (Pendragon), and letter transmitting same, November 29, 1999 (RA at 4973);

jjjj) Proposed Orders of the Commission (Whiting/Maralex) and letter transmitting same, November 29, 1999 (RA at 5029);

kkkk) Closing Statement Memorandum (Pendragon) and letter transmitting same, November 30, 1999 (RA at 5105);

llll) Letter of J. Scott Hall (Pendragon), November 30, 1999 (RA at 5128);

mmmm) Letter of J.E. Gallegos (Whiting/Maralex), December 3, 1999 (RA at 5129);

nnnn) Letter of J. Scott Hall (Pendragon), December 6, 1999 (RA at 5144);

oooo) Application for Rehearing, May 16, 2000 (RA at 5148); and

pppp) Response to Application for Rehearing (Whiting/Maralex), May 24, 2000 (RA at 5161).

3. A copy of the Commission's Order No. R-11133-A in case number 11996 (RA at 5174-5187).

4. Transcripts of the hearings of August 26, 1999, March 24, 2000 and April 26, 2000, stenographically recorded (RA pages 5188 through 5206).

Respectfully Submitted:

Stephen C. Ross
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156 (telephone)
(505) 827-8177 (facsimile)

Certificate of Service

I, Stephen C. Ross, hereby certify that a copy of the foregoing pleading was mailed to counsel listed below, this 8th day of August, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504

J.E. Gallegos
Michael J. Condon
Gallegos Law Firm
460 St. Michael's Drive, Building 300
Santa Fe, New Mexico 87505

Stephen C. Ross

ENDORSED

AUG - 8 2000

FIRST JUDICIAL DISTRICT COURT
SANTA FE, RIO ARRIBA & 3
LOS ALAMOS COUNTIES
PO BOX 2268
SANTA FE, NM 87504-2268

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

TITLE PAGE

COMES NOW Appellee, the New Mexico Oil Conservation Commission, by and through its attorney of record Stephen C. Ross, Special Assistant Attorney General, pursuant to Rule 1-074(H) NMRA (2000), and states that the following are the attorneys who represent the parties in this appeal:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614 (telephone)
(505) 989-9857 (facsimile)
On behalf of Appellants Pendragon Energy Partners, Inc., Pendragon Resources, LP and Edwards Energy Corporation

J.E. Gallegos
Michael J. Condon
Gallegos Law Firm
460 St. Michael's Drive, Building 300
Santa Fe, New Mexico 87505
(505) 983-6686 (telephone)
(505) 986-1367 (facsimile)
On behalf of Whiting Petroleum Corp., Maralex Resources Inc. and T.H. McElvain Oil and Gas LP

Respectfully Submitted.

Stephen C. Ross
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156 (telephone)
(505) 827-8177 (facsimile)

Certificate of Service

I, Stephen C. Ross, hereby certify that a copy of the foregoing pleading was mailed to counsel listed below, this 31st day of July, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504

J.E. Gallegos
Michael J. Condon
Gallegos Law Firm
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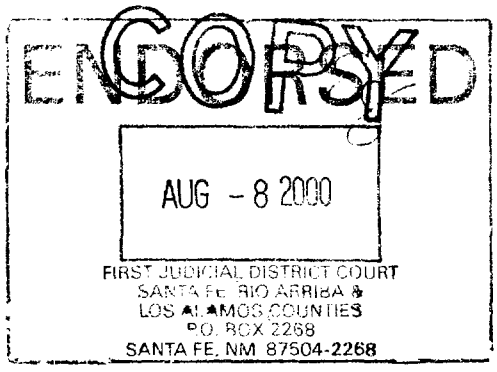
Santa Fe, New Mexico 87505

Stephen C. Ross

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE



PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

ORDER EXTENDING TIME TO FILE RECORD ON APPEAL

THIS MATTER having come before the court upon motion of Appellee, the New Mexico Oil Conservation Commission, by and through counsel of record, for an Order extending the time to file the Record on Appeal in this matter, and the Court having reviewed the pleadings and noted concurrence of counsel of record,

FINDS that the motion is well-taken and should be granted.

IT IS THEREFORE ORDERED, ADJUDGED AND DECREED that Appellee, the New Mexico Oil Conservation Commission, shall have an additional seven (7) days to file with the clerk of the court the Record on Appeal in this matter. The Record on Appeal shall be filed no later than August 10, 2000.

DANIEL A. SANCHEZ

The Honorable Daniel A. Sanchez

Submitted by:

Stephen C. Ross
Counsel for Appellee
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156
(505) 827-8177 (facsimile)

Telephonically approved, August 3, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
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(505) 989-9857

Telephonically approved, August 2, 2000:

J.E. Gallegos
Michael J. Condon
The Gallegos Law Firm
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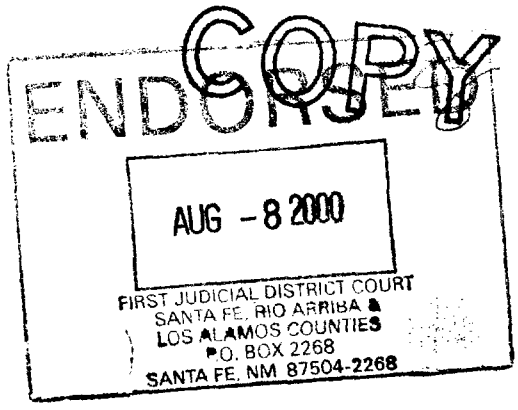


FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

MOTION TO EXTEND TIME TO FILE RECORD ON APPEAL

COMES NOW the Appellee, the New Mexico Oil Conservation Commission (hereinafter referred to as "the Commission"), by and through its attorney of record, Stephen C. Ross, Special Assistant Attorney General, and hereby moves the Court for an extension of time to file the record on appeal in this matter, on the following grounds:

1. This matter is an appeal from decision of the New Mexico Oil Conservation Commission pursuant to NMSA 1978, §§ 39-3-1.1 and 70-2-25(B) (Repl. 1999) and Rule 1-074 NMRA.

2. The Notice of Appeal was filed by Appellants on June 13, 2000. Ordinarily, the Record on Appeal (hereinafter referred to as "the Record") should be filed with the clerk of the court on July 13, 2000.

3. By Order of the Court entered July 17, 2000 the time to file the record was extended to August 3, 2000.

4. The Record on Appeal is very extensive and contains many thousands of pages and dozens of original exhibits. Some of the exhibits used in the hearing are large

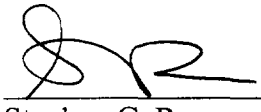
engineering charts that are difficult to duplicate. The transcript of the hearing alone is more than 1,600 pages.

5. Counsel for Appellant, counsel for Appellee and counsel for intervenors have conferred concerning the Record to insure that it is complete and accurate when filed with the Court and to coordinate its duplication. These efforts continue and, because of the size of the Record, cannot be completed by the deadline for filing. However, at this time, the Record is approximately 75% compiled and copied and counsel anticipate being able to file the Record with the Court no later than August 10, 2000.

6. Counsel of record agree to entry of an order extending the time for filing the Record an additional seven (7) days.

WHEREFORE, for the foregoing reasons, Appellee New Mexico Oil Conservation Commission moves the Court for an Order extending the time to file the record on appeal in this matter for an additional seven (7) days to August 10, 2000.

Respectfully Submitted.



Stephen C. Ross
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156 (telephone)
(505) 827-8177 (facsimile)

Certificate of Service

I, Stephen C. Ross, hereby certify that a copy of the foregoing pleading was mailed to counsel listed below, this 3rd day of August, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504

J.E. Gallegos
Michael J. Condon
The Gallegos Law Firm
460 St. Michael's Drive, Building 300
Santa Fe, New Mexico 87505

Stephen C. Ross

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellant,

vs. **No. D-0117-CV-2000-1449**

NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

REQUEST FOR HEARING

1. Assigned Judge: THE HONORABLE DANIEL SANCHEZ

2. Type of Case: ADMINISTRATIVE APPEAL

3. Jury: Non-Jury: X

4. Dates of hearings presently set: NONE.

5. Specific matter(s) to be heard upon this request: MOTION TO INTERVENE AND FOR CONSOLIDATION

6. Estimated total time required: THIRTY MINUTES

7. Attach separate sheet(s) listing name, firm, capacity, address, and telephone number of all parties entitled to notice.

Respectfully submitted,

GALLEGOS LAW FIRM, P.C.

By _____
J.E. GALLEGOS
MICHAEL J. CONDON
460 St. Michael's Drive, Bldg. 300
Santa Fe, New Mexico 87505
(505) 983-6686

Attorneys for Plaintiffs

CERTIFICATE OF SERVICE

I certify that a copy of this Request for Hearing was mailed on this 7th day of August, 2000 to the following counsel of record:

J. Scott Hall
Miller, Stratvert, Torgerson & Schlenker, P.A.
Post Office Box 1986
Santa Fe, New Mexico 87504

Steve Ross
New Mexico Oil Conservation Commission
2040 S. Pacheco Street
Santa Fe, New Mexico 87505

_____
J. E. GALLEGOS

ALL PARTIES ENTITLED TO NOTICE

ATTORNEY FOR PLAINTIFFS:

J.E. Gallegos
Michael J. Condon
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(505) 983-6686

ATTORNEY FOR DEFENDANT:

J. Scott Hall
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Santa Fe, NM 87504-1986
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Steve Ross
New Mexico Oil Conservation Commission
2040 S. Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7137

2-7-2000

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellant,

vs. **No. D-0117-CV-2000-1449**

NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

REPLY MEMORANDUM IN SUPPORT OF MOTION TO INTERVENE AND FOR CONSOLIDATION

Movants Whiting Petroleum Corporation and Maralex Resources, Inc. (collectively "Whiting"), serve their Reply Memorandum in support of their Motion to Intervene and for Consolidation. This pleading will address points raised by appellants (collectively "Pendragon") opposition to Whiting's request to intervene in this Rule 1-074 NMRA 2000 appeal from the decision of the New Mexico Oil Conservation Commission ("Commission") in Commission Case No. 11996.

I.

INTRODUCTION

There is an ongoing dispute between Whiting and Pendragon with respect to Whiting's claims for damages arising from Pendragon's misappropriation of coal seam gas from the Fruitland formation, in which Whiting owns an exclusive interest, in gas producing properties the San Juan Basin, San Juan County, New Mexico. There has been a lawsuit pending in this judicial district for over two years in which Whiting has sought damages from Pendragon under several theories of relief. That proceeding is Whiting Petroleum Corporation, et al. v. Pendragon Energy Partners, Inc., et al., No. D-CV-98-01295 ("Whiting Lawsuit"). The Commission decision from which Pendragon appeals resulted from a referral to the administrative agency by the judge in the Whiting Lawsuit. The decision held, *inter alia*, that Pendragon had caused communication with Whiting's Fruitland Formation and had wrongfully produced coal seam gas for over two years before Pendragon's wells were shut-in by a Preliminary Injunction ordered by Judge Art Encinias in July 1998.

Pendragon has filed an administrative appeal from the Commission decision.[1] If successful, Pendragon fully intends to seek to have any decision by this Court, which may reverse or limit the Commission's Order, applied adversely to Whiting in the Whiting lawsuit. Pendragon concedes that Whiting has an interest in the subject matter of the action, and that the protection of that interest may be impaired by the disposition of this administrative appeal. Rule 1-074F. required that Whiting be served

[1] The first three pages of Pendragon's Response to the Motion to Intervene attempt to put a remarkable spin on the Commission decision which could mislead one into thinking that Pendragon was the prevailing party before the Commission. Having done so, Pendragon never bothers to explain why, if it was so successful before the Commission, it has appealed the Commission's Order.

with a notice of the appeal. Nevertheless, Pendragon contends that Whiting should not be allowed to participate in this administrative appeal, or to have any say in the outcome of the appeal. Pendragon's position is unsupported in law, conflicts with fundamental principles of fairness, and must be rejected.

II.

ARGUMENT AND AUTHORITIES

POINT ONE

WHITING IS ENTITLED TO INTERVENE IN THIS ADMINISTRATIVE APPEAL

A. Whiting Should Have Been Named a party by the Appellant

It is a defect of Pendragon's pleading that Whiting is not already a party to this proceeding. A proper reading of the law and the applicable rule indicates that the adverse parties in the administrative proceeding should have been named parties from the outset. The statute governing appeals to the district court from a Commission order is NMSA 1978 Section 70-2-25B. which reads in pertinent part,

> Notice of such appeal shall be served upon the adverse party or parties and the Commission in the manner provided for the service of summons in civil proceedings.

Then Rule 1-074F. states,

> **F. Service of Notice of Appeal.** At the time the notice of appeal is filed in the district court, the appellant shall:
>
> (1) serve each party or such party's attorney in the administrative proceedings with a copy of the notice of appeal in accordance with Rule 1-005.

Of course, Rule 1-005 specifies the requirements for services of orders and pleadings "upon a party." In short, had Pendragon adhered to proper procedure Whiting would

have been named a party from the outset and would not have been put to the task of moving to intervene.

B. Intervention of Right

The standard for intervention of right under Rule 24(a) requires that an application be timely, that the applicant show an interest in the subject matter of the action, that the applicant show that the protection of the interest may be impaired by the disposition of the action, and that the applicant must show that the interest is not adequately represented by an existing party. In re Marcia L., 109 N.M. 420, 421, 785 P.2d 1039, 1040 (Ct. App. 1989). A party must show that its interest will be jeopardized if intervention is not allowed. Thriftway Marketing Corp. v. State, 111 N.M. 763, 764, 810 P.2d 349, 350 (Ct. App. 1990).

Pendragon concedes that Whiting's application is timely, that Whiting has an interest in the subject matter of this administrative appeal, and that the protection of Whiting's interest may be impaired by the disposition of the action. Whiting has a direct financial interest in the outcome of this appeal, since if the Commission's decision is affirmed, and if the district court in the Whiting lawsuit recognizes the preclusive affect of the Commission's factual determinations, Whiting will have established liability against Pendragon. The only remaining issue would be Whiting's claim for damages.

Pendragon simply does not want its adversary to be heard in an adversary proceeding. Pendragon argues that Whiting's interests will be adequately protected by the Commission. While Whiting assumes that the Commission will attempt to uphold its decision, an administrative agency has different interests to protect than a private party seeking damages for the misappropriation and conversion of its property. The agency

may well modify its position in response to arguments raised by Pendragon, or to avoid difficult or constitutional questions that may be raised by Pendragon's administrative appeal. Whiting has no such compulsion, and will zealously argue for this Court to affirm, as it must, the Commission's decision based upon the substantial evidence in the record which supports that decision.

Pendragon misstates the standard for demonstrating inadequate representation, and overstates the burden Whiting must meet to support intervention. Pendragon's Response, pp. 4-8. The standards were recently articulated by the Honorable Martha Vasquez in the decision styled Forest Guardians v. BLM, 188 F.R.D. 389 (D.N.M. 1999). In that case, the court held as follows:

> While the intervenor carries the burden of showing inadequate representation, that burden is minimal, and "the possibility of diversions of interest need not be great in order to satisfy the burden of the applicants."

188 F.R.D. at 395 citing Coalition of Arizona/New Mexico Counties v. DOI, 100 F.3d 837, 844-45 (10th Cir. 1996).

The implication in Pendragon's Response that it need only show that another party may be aligned with the proposed intervenor to deny intervention is incorrect. Forest Guardians, supra. In Sierra Club v. Robertson, 960 F.2d 83 (8th Cir. 1992), the Eighth Circuit Court of Appeals reversed a district court's denial of a motion by the State of Arkansas to intervene as a plaintiff in an action filed by the Sierra Club against the United States Forest Service. The Forest Service had proposed to implement certain forest management practices in the Ouachita National Forest in Arkansas. The Sierra Club, certain private parties, and another private organization filed suit for declaratory and injunctive relief. The State of Arkansas moved to intervene

as a plaintiff in order to protect distinct state interests. The appellee argued that the plaintiffs in the lawsuit would adequately represent the state's interest as grounds for opposing intervention. The Eighth Circuit rejected the adequate representation argument and reversed, holding as follows:

> The "inadequate representation" condition is satisfied if the proposed intervenor shows that the representation of its interests by the current party or parties to the action "may be" inadequate. The burden for making this showing "should be treated as minimal." Doubts regarding the propriety of permitting intervention should be resolved in favor of allowing it, because this serves the judicial system's interest in resolving all related controversies in a single action. . .
>
> The "tactical similarity" of the "legal contentions" of a current party with that of a proposed intervenor, however, does not assure adequate representation. Rather, we determine the adequacy of representation primarily by comparing the interests of the proposed intervenor with the interest of the current parties to the action. See Planned Parenthood of Minn., 558 F.2d 870 (intervention appropriate were the interests of the proposed intervenor and current party, "while not adverse, are disparate," even though both sought the same legal goal)."

960 F.2d at 85-86 (citations omitted).

Whiting has met its minimal burden to demonstrate that the representation of its interest in this administrative appeal by the Commission may be inadequate. Clearly, if Pendragon is successful in its appeal of the Commission's Order, Whiting's interest, and its ability to establish liability against Pendragon, will be jeopardized. Under these circumstances, the Court should allow intervention by Whiting as a matter of right under Rule 24(a).

Pendragon does not cite any decision which supports its position. Neither of the New Mexico decisions cited by Pendragon, Marcia L., or Thriftway, were decided

on the issue of adequate representation. In City of Stilwell v. Ozark's Swirl Electric Coop Corp., 79 F.3d 1038 (10th Cir. 1996), cited by Pendragon, the Tenth Circuit upheld denial of a motion to intervene by a party on the grounds that the intervenor lacked the requisite interest in the action required by Rule 24(a)(2), and that any interest the intervenor had was adequately represented by a party to the action. In that case, both the intervenor and the defendant had a direct financial interest in the outcome of the litigation, and the intervenor claimed a property interest in the subject of the litigation by virtue of its financial ties to the defendant. Under those circumstances, the court denied intervention. Similarly, in Bottoms v. Dresser Industries, Inc., 797 F.2d 869, 872 (10th Cir. 1986), the intervenor claimed a 50% partnership interest in the patent held by the plaintiff that was the subject matter of the litigation. The Court held that the plaintiff had an "overwhelming interest" in seeking the greatest possible recovery in the action, and that the intervenor and the plaintiff had identical interests and motivation. Again, intervention was denied because existing parties had financial interests in the outcome of the litigation identical to that of the intervenor. The Commission has no financial interest in this matter.

In Coalition of Arizona/New Mexico Counties v. DOI, supra, the Tenth Circuit distinguished the reasoning in Stilwell and Bottoms and reversed a decision by the district court denying a motion to intervene under Rule 24(a). The plaintiff had filed suit against the Department of the Interior and various government officials challenging the United States Fish and Wildlife Service's decision to protect the Mexican Spotted Owl under the Endangered Species Act. The intervenor, Dr. Robin Silver, sought to intervene on grounds that he had photographed and studied the Owl in the wild, and

that he was instrumental in the Services' initial decision to protect the Owl under the Act. In holding that intervention should have been allowed, the Court recognized an inherent diversion of interest between private parties and an administrative or governmental agency, holding that "DOI must represent the public interest, which may differ from Dr. Silver's particular interest in the protection of the Owl and the habitat where he has photographed and studied the Owl." 100 F.3d at 841.

Failure to allow intervention would violate Whiting's due process rights and lead to potentially absurd results. The possibility of a successful appeal, though unlikely, is a potential threat to Whiting. Whiting's ability to support the Commission decision is Pendragon's real motivation in attempting to preclude Whiting's participation. Nevertheless, our jurisprudence recognizes the basic due process principle that, with limited exceptions, one is not bound by a judgment in personam in litigation in which he is not a party. Ortiz v. Fibreboard Corp., 527 U.S. 815 (1999). If Whiting is not allowed to participate in this administrative appeal, the very real possibility exists that Pendragon, even if it were successful in this appeal, would not be allowed to apply any favorable decision in the Whiting lawsuit. Such a result would subvert the need for this administrative appeal, and would only add burden and expense to the judicial process and the parties. On the other hand, if Pendragon does intend to apply any favorable decision in this appeal in the Whiting lawsuit, common sense, fairness, and basic due process principles argue in favor of allowing Whiting to participate in this administrative appeal.

POINT TWO

WHITING IS ENTITLED TO PERMISSIVE INTERVENTION UNDER RULE 24(B)

Even if Pendragon were correct, which Whiting's disputes, in its argument about intervention of right, Whiting should be entitled to permissive intervention under Rule 24(b). The district court may, in its discretion, allow permissive intervention when the applicant's claim or defense and the main action have a question of law or fact in common. Rule 1-024(B), SRCA 2000. The Court, in exercising its discretion, shall consider whether the intervention will unduly delay or prejudice the adjudication of the rights of the original parties. Id. Here, there are obviously questions of law and fact in common in the administrative appeal and the Whiting lawsuit. Intervention by Whiting at this stage of the proceedings in the administrative appeal will not delay or prejudice the adjudication of the rights of Pendragon or the Commission.

POINT THREE

THIS COURT SHOULD CONSOLIDATE THIS ACTION WITH THE WHITING LAWSUIT

Pendragon does not dispute that the issues in this case, and certain questions of law, are identical to those at issue in the Whiting Lawsuit. In fact, as Whiting previously pointed out in its Motion to Intervene and for Consolidation, Pendragon has already conceded that, following appeal, the Commission's findings will have some preclusive effect in the Whiting lawsuit. Nevertheless, Pendragon objects to consolidation on several grounds, none of which withstand logical scrutiny. First, Pendragon contends that consolidation could lead to confusion of the appropriate standard of review to apply. This is nonsense. The standard of review is set forth in

Rule 1-074, SCRA 2000, and will be applied by whichever Judge considers the administrative appeal.

Pendragon also argues that there are different parties in the two cases. This does not auger against consolidation. The Court can consider the administrative appeal in a consolidated action, and need not involve the Commission in any further proceedings following resolution of the administrative appeal.

CONCLUSION

Pendragon hopes to get a reversal of the Commission decision in this action, and then utilize that reversal against Whiting in the Whiting Lawsuit. Yet, Pendragon seeks to preclude Whiting from participating in this proceeding. Such a result, if sanctioned by this Court, would deprive Whiting of its rights to due process, and prolong the ultimate resolution of the dispute between Whiting and Pendragon. On the basis of the foregoing points and authorities, and the points and authorities set forth in Whiting's Motion to Intervene, Whiting respectfully requests that the Court allow Whiting to intervene in this action, consolidate this action with the Whiting Lawsuit, and for such further relief as the Court deems proper.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have caused a true and correct copy of a Reply Memorandum in Support of Motion to Intervene and for Consolidation to be mailed on this 7th day of August, 2000 to the following counsel for defendants:

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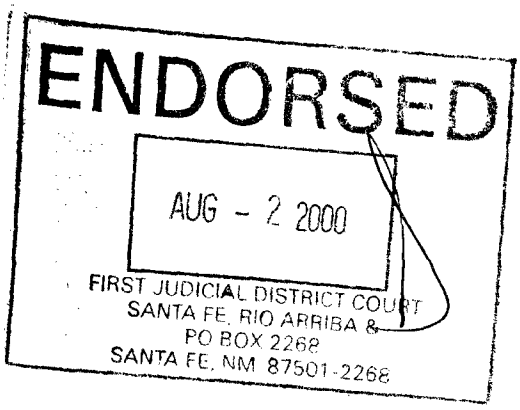

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellants,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

RESPONSE TO WHITING'S MOTION TO INTERVENE

Pursuant to NMRA 1-007.1(D), Appellants Pendragon Energy Partners, Inc., Pendragon Resources LP, and Edwards Energy Corporation, ("Pendragon"), by counsel, submit this Response in Opposition to Whiting Petroleum Corporation and Maralex Resources, Inc.'s ("Whiting") Motion to Intervene and for Consolidation. In opposition to the Motion, Pendragon states as follows:

BACKGROUND FACTS

On August 12 through 21, 1999, the New Mexico Oil Conservation Commission (Commission") convened a hearing on Pendragon's Application brought pursuant to, inter alia, Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in NMOCD Order No. R-8768, as amended, seeking a determination that its Chaco wells completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool, and that Whiting's Gallegos Federal wells completed within the Basin-Fruitland Coal Gas Pool were producing from the appropriate common source of supply. Pendragon also sought further relief, including an order

bringing Whiting's non-conforming wells back into compliance with the Division's rules, regulations, and orders.

In the course of the administrative proceedings, Whiting asserted that Pendragon's Chaco wells were "completed" in and producing gas from a geologic interval that was part of the Fruitland Sandstone formation owned by Whiting. Whiting's geologic interpretation was disputed, and Pendragon contended that the interval in question was part of the Pictured Cliffs formation and that it was entitled to produce the gas from that interval.

At the hearing, both parties contended that the other's hydraulic fracture and acidization well stimulation treatments caused their separately owned formations to come into communication. Both sides also contended that their wells experienced interference and that gas was being produced out of formation as a result. Significantly, at the hearing, Whiting's witnesses admitted that the high volume, high pressure, and high injection rate fracture stimulation treatments performed on the Gallegos Federal wells by Maralex Resources caused their wells to come into communication with the Pictured Cliffs formation owned by Pendragon. Conversely, Pendragon asserted and presented evidence that the acid jobs and relatively mild fracture stimulation treatments performed on its Chaco wells remained contained within the Pictured Cliffs formation and did not communicate with the Fruitland Coal Formation owned by Whiting.

On April 26, 2000, after hearing, the Commission issued Order No. R-11133-A which found that all of Pendragon's subject Chaco wells were perforated within the Pictured Cliffs formation of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. By so finding and concluding, the Commission reaffirmed the long-standing interpretation of industry, regulatory agencies, and the larger geologic community establishing the vertical boundaries of the Pictured Cliffs formation. The Order also effectively rejected Whiting's request to re-define and re-establish those boundaries. Order R-

11133-A affirmed that the vertical boundaries between the Pictured Cliffs and Fruitland Coal formations conformed to the respective lease ownership of Pendragon and Whiting.

In addition, Order R-11133-A found that the Fruitland and the Pictured Cliffs formations first came into communication because of the fracture stimulation treatments Maralex performed on five of the Whiting Fruitland Coal wells in 1992. In 1992 and 1993, Maralex performed similarly aggressive fracture stimulation treatments on a number of other Fruitland Coal wells on lands outside of the acreage that was the subject of the administrative proceeding that are also underlain by separately owned drilled and undrilled Pictured Cliffs reserves. In view of the findings in the Order, it is likely that those other coal wells are in communication with the Pictured Cliffs formation. The Order also found that the fracture treatments performed on four of the Chaco wells in 1995 communicated with the Fruitland Coal formation.

As a result of the communication between the separately owned formations, the Order identified three categories of gas capable of being produced from the Chaco 1, 2R, 4 and 5 wells: Category I: Gas originally in place in the Pictured Cliffs formation; Category II: Gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation through fractures around the Pendragon Chaco wells; and Category III: Gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation through fractures around the Whiting Fruitland Coal wells. The Order then requires further proceedings before the Division to place these wells back on production.

ARGUMENT

The case before this Court is the appeal from the Commission's Order. Whiting claims that it is entitled to intervene as of right in this appeal. Whiting was entitled to appeal as a matter of right, but for whatever reason chose not to do so. Because Whiting has failed to show all of the

elements required for intervention under Rule 24(A)(2), its Motion to Intervene should be denied. In addition, Whiting has failed to support its reasons for consolidation, and so its request to consolidate should be denied as well.

Intervention. Whiting seeks to intervene as a matter of right in this administrative appeal under Rule 24(A)(2). To prevail, Whiting must show: (1) that the disposition of this appeal may impair its ability to protect its interests; and (2) that its interests are not adequately represented by the existing parties. NMRA 1-024(A)(2). Whiting failed to establish either of these requirements.

To support its position, Whiting makes the mere conclusory allegation that the disposition of the appeal may impair its interests because the Commission cannot be expected to adequately represent Whiting's interests. Yet Whiting concedes that the Commission "has a strong interest in upholding its decision." See Whiting's Motion, ¶9. Whiting also characterizes itself as an indispensable party to the appeal because the disposition of the appeal in its absence may impair its ability to protect its interests.

This is a meaningless logical fallacy. It is the same as claiming that a Plaintiff is injured because he has a broken leg, and then arguing that he has a broken leg because he was injured. Whiting has made no showing, nor put forth any evidence, that its interests will be impaired. To the contrary, Whiting has essentially admitted that the Commission can adequately represent its interests by forcefully arguing for the affirmance of its Order. It should go without saying that the Commission does not represent Whiting, but that is a long way from establishing that Whiting's ability to protect its interests will be impaired. Whiting's motion must fail for lack of evidence.

To prevail, Whiting must make also a concrete showing that its interests are inadequately represented. Bottoms v. Dresser Indus., Inc., 797 F.2d 869, 872 (10th Cir. 1986). Circumstances

illustrating inadequate representation are facts tending to show collusion or facts indicating a less than diligent effort to represent the interests. 7C Wright & Miller, Federal Practice & Procedure: Civil 2d §1909, at 340 (1986). Whiting has made no such showing, but rather has admitted that the Commission will essentially represent its interests adequately.

It is only logical that if the Commission is charged with upholding its decision, as Whiting admits, that Whiting's interest will be adequately protected and represented. Whiting did not appeal from the Commission's decision, and is presumably satisfied with the Order and desires its affirmance. Thus, the Commission and Whiting's interests are exactly the same: that is, upholding the Commission's Order. Whiting has admitted that the Commission has a strong interest in upholding the Order, and therefore, Whiting is adequately represented.

Because the interests of Whiting and the Commission are exactly the same (upholding the Commission's decision), Whiting's motion to intervene must be denied. Bottoms v. Dresser Indus., Inc., 797 F.2d 869, 872 (10th Cir. 1986). When the applicant's interest is the same as one of the existing parties, adequate representation is presumed. 6 Moore's Federal Practice §24.03[4][a], at 24-44 (3d ed. 1998). Representation is deemed adequate and intervention not allowed when the objective of the applicant is identical to that of one of the parties. City of Stilwell v. Ozarks Rural Elec. Coop. Corp., 79 F.3d 1038, 1042 (10th Cir. 1996) (Judge Paul Kelly).

Whiting may overcome this presumption by showing that there is some collusion between the Commission and Pendragon, that the Commission has an interest adverse to the applicant, or that Commission has failed to represent Whiting's interests. Bottoms, 797 F.2d at 872-73. However, Whiting has made no showing that the Commission will ignore or refuse to argue any issue important to Whiting. See Kiamichi RR Co., Inc. v. National Mediation Board,

986 F.2d 1341, 1345 (10th Cir. 1993) (denying motion for intervention because applicant for intervention failed to make showing why intervenor's representation would be superior to existing party). Accordingly, Whiting failed to meet two of the required elements for intervention under Rule 24(A)(2), and so its Motion must be denied.

In addition, while Whiting concedes that there is no law specifically on point in New Mexico, Whiting argues that it is the practice in New Mexico to include an adverse party as a party to an administrative appeal. Whiting's argument is inconsistent with the statutes and rule governing this administrative appeal. Moreover, the out-of-state cases that Whiting cites only apply that state's particular statutory scheme for administrative appeals and provide no support for the broad proposition that Whiting argues, which is that failure to join an adverse party may justify dismissal of the administrative appeal.

Contrary to Whiting's unsupported argument, Pendragon meticulously complied with New Mexico law in taking this appeal. The New Mexico Legislature explicitly set forth the procedure that an aggrieved party must follow to appeal a decision issued by the Commission. Within twenty days after the entry of Order No. R-11133-A, Pendragon filed an application for rehearing to the Commission to initiate the appellate process pursuant to NMSA 1978 §70-2-25(A). This section of the Oil and Gas Act states that if the Commission fails to act on an application that inaction is deemed a refusal and final disposition of that application. NMSA 1978 §70-2-25(A). When the Commission did not act on the application, Pendragon again followed statutory procedure and appealed to the District Court pursuant to the provisions of NMSA 1978 §39-3-1.1 as provided in the Oil and Gas Act.

Pendragon was required, pursuant to Rule 74(C), to initiate District Court appellate review of the Commission decision by filing a Notice of Appeal. The Notice of Appeal must

contain and specify: "(1) each party taking the appeal; (2) each party against whom the appeal is taken; (3) the name and address of appellate counsel if different from the person filing the notice of appeal; and (4) any other information required by the law providing for the appeal to the district court." NMRA 1-074 (D). In addition, a copy of the order or decision of the agency appealed from, showing the date of the order or decision, shall be attached to the notice of appeal filed in the District Court. Id. Pendragon followed this procedure and complied in all respects with New Mexico law governing this administrative appeal.

Whiting did not appeal the decision issued by the Commission. Instead, Whiting unsuccessfully attempted to enjoin this Court's review of the decision, and Whiting actually requested another Division of this District Court to uphold the decision of the Commission outside of the appellate process.

Consolidation. The simultaneous consolidation of an appeal with a trial on disputed questions of fact is not contemplated by NMRA 1-042. Although the Rules of Civil Procedure allow for consolidation of cases when a common question of law or fact exists, "the mere fact that a common question is present...does not mean that the trial court judge must order consolidation." 9 Wright & Miller, Federal Practice & Procedure: Civil 2d §2383, at 439-40 (1995). In fact, when separate actions "will be conducive to expedition and economy," the court may order separate trials on any claims or issues. NMRA 1-042(B).

Consolidation in this matter is contrary to judicial economy and could lead to several problems. For example, consolidation would lead to the confusion of what standards of review to apply. This case involves a pure appeal on the record whereas the other case is a trial on questions of fact and involves separate issues of law not present in this administrative appeal.

Section 39-3-1.1(D) provides the standard of review that the District Court may use to set aside, reverse, or remand the final decision, specifically whether:

> (1) the agency acted fraudulently, arbitrarily or capriciously;
> (2) the final decision was not supported by substantial evidence; or
> (3) the agency did not act in accordance with law.

NMSA 1978 §39-3-1.1(D). Pendragon is asking the District Court to use this standard of review to examine the actions of the Commission.

In addition, there are different parties in the two cases. The Commission is not a party to Whiting v. Pendragon case. McElvain was not a party to this appeal, but is a party in Whiting v. Pendragon.

There is also the question of for what purpose and in what capacity would Whiting participate in the appeal. Whiting specifically waived its rights to rehearing and appeal under Section 70-2-25. Whiting cannot now appear in the capacity as appellant on any issue.

CONCLUSION

A motion "for non-statutory intervention as a matter of right under Rule 24(a) must meet the following requirements:

> The application must (1) be timely, (2) show an interest in the subject matter of the action, (3) show that the protection of the interest may be impaired by the disposition of the action, and (4) show that the interest is not adequately represented by an existing party."

In re Marcia L., 109 N.M. 420, 421, 785 P.2d 1039, 1040 (Ct. App. 1989); see also Thriftway Marketing Corp. v. State, 111 N.M. 763, 764, 810 P.2d 349, 350 (Ct. App. 1990) (party "must show its interests will be jeopardized if intervention is not allowed."). Whiting has failed to show that its interests will be jeopardized if intervention is not allowed, and Whiting has failed to show that its interests are not adequately represented by an existing party. Instead, Whiting has admitted that the "Commission has a strong interest in upholding its decision" (Motion, ¶9), but Whiting has failed to

show just how its absence would adversely impact Whiting's interests. Bottoms, supra. Whiting even sought to "enjoin" the very appeal in which they now wish to intervene. Without proof, Whiting's conclusory assertions are insufficient to allow intervention.

Whiting makes the conclusory incantations that consoldiation will promote judicial efficiency and economy, but Whiting fails to state exactly how that will be effected by consolidation. Whiting voluntarily elected not to appeal from the Commission, and actually tried to prevent Pendragon from exercising its automatic right to appeal. In this motion, however, Whiting is trying to join the appeal through the back door and circumvent the appeal process. Consolidation would not only circumvent the administrative appeal process, but would reward Whiting's duplicitous motives

WHEREFORE, because Whiting has failed to make the showing required for relief under Rule 24(A)(2), its application for intervention should be denied. See In re Marcia L., Thriftway Marketing, supra. In addition, Whiting's has failed to make the showing required to support consolidation, and its motion for consolidation should be denied.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By 
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I HEREBY CERTIFY that a true and correct copy of the foregoing Response was mailed to all counsel of record on this 24 day of August 2000.

Jeffrey E. Jones

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellant,

vs. No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

MOTION TO INTERVENE AND FOR CONSOLIDATION WITH SUPPORTING AUTHORITIES

Movants Whiting Petroleum Corporation and Maralex Resources, Inc. (collectively "Whiting"), hereby move the Court pursuant to Rule 1-024 NMRA 2000 for its Order allowing Whiting to intervene in this appeal by appellants (collectively "Pendragon") from the decision by the New Mexico Oil Conservation Commission ("Commission") in Commission Case No. 11996. Whiting also requests that this Court enter its Order pursuant to Rule 1-042 NMRA 2000 consolidating this action with another cause currently pending in the First Judicial District Court, styled Whiting, et al. v. Pendragon, et al., Cause No. D-0101-CV-98-01295. As grounds for this Motion, Whiting states as follows:

BACKGROUND FACTS

1. This action, which is an administrative appeal by Pendragon from an Order of Defendant New Mexico Oil Conservation Commission ("Commission") pursuant to NMSA 1978 Section 70-2-25 and Section 39-3-1.1 (Repl. Pamp. 1995), and Rule 1-074 NMRA 2000, arises out of a dispute between Whiting and Pendragon regarding production from gas wells in the San Juan Basin, New Mexico. Whiting owns interests in the Fruitland Formation, which produces coal seam gas, in the area in question. Pendragon owns interests in the directly underlying Pictured Cliffs Formation, which produces conventional gas, in the area in question.

2. On May 26, 1998, Whiting filed a lawsuit against Pendragon in Cause No. D-0101-CV-98-01295, (the "Whiting lawsuit") contending that Pendragon had fracture stimulated its Pictured Cliffs wells (the "Chaco wells") in such a manner as to cause communication with the Fruitland formation, and that Pendragon was illegally producing coal seam gas to which Whiting was entitled. The Whiting lawsuit is assigned to Judge Art Encinias. On July 7, 1998, after an evidentiary hearing, Judge Encinias enjoined Pendragon from operating several of its Chaco wells, holding that "plaintiffs have established a substantial likelihood that they would prevail on the merits of their claim that defendants have trespassed into plaintiffs' Fruitland formation and that defendants are converting the plaintiffs' gas."

3. The Preliminary Injunction Order, a copy of which is attached hereto as Exhibit A, also authorized consideration by the New Mexico Oil Conservation Division or the Commission "on certain issues within their administrative jurisdiction." Judge Encinias referred certain issues to the Division in an Order dated July 6, 1998, stating:

3. Those issues raised by the lawsuit which relate to the parties' relative rights in the land and are subject to meaningful relief through the New Mexico Oil Conservation Division should be recognized as within the jurisdiction of the New Mexico Oil Conservation Division. But the court retains are those claims, regardless of how they are to denominated that are not susceptible of relief through the New Mexico Oil Conservation Division.

A copy of that Order is attached as Exhibit B.

4. The Whiting lawsuit has been stayed for two years since July, 1998, in order to allow review by the Division and the Commission of Pendragon's application to the Division, which sought an order that Pendragon was producing its Chaco wells from the appropriate geological formation. Extensive and expensive administrative proceedings have occurred since July 1998. On July 28, 29 and 30, 1998, Examiner David Catanach of the Division heard evidence at a Division hearing. The Division entered its Order R-11133 on February 5, 1999, holding that Pendragon had fractured stimulated their Chaco wells so as to invade Whiting's Fruitland coal formation, and was producing coal gas belonging to Whiting. The Division Order required that the Chaco wells be shut-in. A copy of that Order is attached hereto as Exhibit C.

5. Pendragon requested a de novo hearing before the Commission on February 18, 1999. The Commission held an evidentiary hearing on August 18, 19, 20 and 21, 1999. The Commission rendered its decision on the de novo appeal on April 26, 2000, as Order R-11133-A, holding that certain Pendragon wells were in communication with the Whiting coal formation and were producing gas from the Fruitland formation. The Commission also ordered Pendragon Chaco wells 1, 2R, 4 and 5 to be shut-in until such time as the Division either approves a method for putting

them back on production or approves a procedure for plugging those wells. A copy of the Commission Order, from which Pendragon appeals, is attached hereto as Exhibit D.

6. Whiting fully participated as an adverse party to Pendragon in both the Division and the Commission proceedings.

7. Pendragon filed its Notice of Appeal from the Commission decision reflected by Order R-11133-A on June 13, 2000. Pendragon failed to name Whiting as a party to this proceeding, although Whiting's interests will directly be affected by any Order of the Court affirming or reversing the Commission decision from which Pendragon has appealed. Pendragon has conceded in pleadings filed in the Whiting lawsuit that the Commission decision in this matter, pending review by this Court, will have preclusive factual effect on the liability and damage claims in the Whiting lawsuit. In its response to Whiting's Motion to Enjoin, Pendragon stated as follows:

> Pending proper appellate review, the NMOCC's findings will presumably have some preclusive effect in this Court. . . . On the conclusion of the appeal the factual issues will be presented to the Court on the proverbial "silver platter," and it would be a waste of time and duplication of effort to this Court to determine facts that are already under consideration by another Division of this Court.

Pendragon's Response to Motion to Enjoin, pp. 9-10.

ARGUMENT AND AUTHORITIES

8. Rule 1-024 of the New Mexico Rules of Civil Procedure provides for intervention in a pending action. Rule 24(a)(2) authorizes intervention of right upon timely application

> "when the applicant claims an interest relating to the property or transaction which is the subject of the action and the applicant is so situated that the disposition of the action may as a practical matter impair or impede the applicant's

ability to protect that interest, unless the applicant's interest is adequately represented by existing parties."

9. Whiting is entitled to intervention of right in this administrative appeal. Disposition of Pendragon's appeal of the Commission decision will have direct ramifications on Whiting's lawsuit against Pendragon. As a practical matter, the disposition of this administrative appeal may impair or impede Whiting's ability to protect its interests in its lawsuit against Pendragon. While the Commission has a strong interest in upholding its decision, the Commission does not represent Whiting, is not directly aligned with Whiting in this dispute, and cannot be expected to adequately represent Whiting's interests in this administrative appeal.

10. Whiting's interest in this administrative appeal is significant, direct, and is based upon rights belonging to Whiting to seek compensation in damages for coal seam gas Pendragon has illegally converted from Whiting, thus authorizing intervention. Cordova v. State ex rel. Human Resources Department, 109 N.M. 420, 785 P.2d 1039 (Ct. App. 1989).

11. None of the statutory provisions authorizing appeals of an administrative agency decision, nor Rule 1-074, specify who is a necessary party in an administrative appeal. However, common sense and logic compel a determination that Whiting is an indispensable party in this administrative appeal proceeding, because Whiting claims an interest relating to the subject of the action, is so situated that disposition of the action in its absence may as a practical matter impair or impede Whiting's ability to protect that interest, and was the adverse party in the administrative proceedings below. Rule 1-019 NMRA 2000; State Farm Mutual Automobile Insurance Company v. Foundation

Reserve Insurance Co., 78 N.M. 359, 431 P.2d 737 (1967) (if a person's interests are necessarily affected by a judgment, such person is an indispensable party).

12. Although the issue has never been decided in a New Mexico court, courts from other jurisdictions have held that an appellant's failure to join a necessary party on appeal from a decision of an administrative agency can justify dismissal of the appeal. Board of Education of Bethany Community Units School District No. 301 v. Regional Board of School Trustees, 255 Ill. App.3d 763, 627 N.E.2d 1175 (1994); Energy Regulatory Commission ex rel. Stephens v. Kentucky Power Company, 605 S.W.2d 46 (Ky. Ct. App. 1980). Indeed, the practice in New Mexico in appeals to the district court from Commission decisions has always been to include adverse parties in the Commission proceedings, as parties in the administrative appeal. See Johnson et al. v. New Mexico Oil Conservation Commission, et al., 1999-NMSC-21, 127 N.M. 120, 978 P.2d 327 (district court proceedings named Burlington Resources Oil & Gas Company, a party in the Commission proceedings, as a party to the administrative appeal); Uhden v. New Mexico Oil Conservation Commission, 112 N.M. 528, 817 P.2d 721 (1991) (naming Amoco Production Company, which entered an appearance in the Commission proceedings, as an appellee on appeal).

13. Rule 42 of the New Mexico Rules of Civil Procedure authorizes consolidation of cases when actions involve common questions of law and fact. The Decision as to whether to order consolidation is discretionary. Fidelity National Bank v. Tommy L. Goff, Inc., 92 N.M. 106, 583 P.2d 470 (1978); Bloom v. Lewis, 97 N.M. 435, 640 P.2d 935 (Ct. App. 1980).

14. There are clearly common issues of law and fact which predominate between this Pendragon appeal from the Commission's Order and Whiting's lawsuit against Pendragon. Judge Encinias has presided over the Whiting lawsuit for two years and it was his referral under the discretionary doctrine of primary jurisdiction that lead to the administrative proceedings in question. Both actions are pending in this judicial district. Consolidation of the two actions in Whiting's lawsuit, the first-filed action, will promote efficiency, judicial economy, and would be more economic for the parties involved. Judge Encinias has indicated in a recent order that he has no objection to consolidation, stating "Whiting may convey to the Honorable Daniel Sanchez that this court has no objection to consolidation and will honor Judge Sanchez's decision in this regard."

RULE LR 1-306A COMPLIANCE

15. Counsel for Pendragon opposes this Motion. Counsel for the Commission concurs in this Motion.

WHEREFORE, on the basis of the foregoing points and authorities, Whiting respectfully requests that the Court enter its Order allowing Whiting to intervene in this administrative appeal as a party and an appellee. Whiting further requests that the Court enter its Order consolidating this action in the previously filed Whiting lawsuit, Cause No. D-0101--CV-98-01295, and for such further relief as the Court deems proper.

Respectfully submitted,

GALLEGOS LAW FIRM, P.C.

By _____
J.E. GALLEGOS
MICHAEL J. CONDON
460 St. Michael's Drive, Bldg. 300
Santa Fe, New Mexico 87505
(505) 983-6686

CERTIFICATE OF SERVICE

I hereby certify that I have caused a true and correct copy of a Motion to Intervene and for Consolidation to be hand-delivered on this 18th day of July, 2000 to the following counsel for defendants:

J. Scott Hall
Miller, Stratvert, Torgerson & Schlenker, P.A.
150 Washington Avenue
Santa Fe, New Mexico 87501

Steve Ross
New Mexico Oil Conservation Commission
2040 S. Pacheco Street
Santa Fe, New Mexico 87505

_____
J. E. GALLEGOS

ENDORSED

JUL 0 7 1998

FIRST JUDICIAL DISTRICT COURT
SANTA FE, RIO ARRIBA & LOS ALAMOS COUNTIES
P. O. Box 2268
Santa Fe, New Mexico 87504-2268
JoAnn Vigil Quintana
Court Administrator/District Court Clerk

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

WHITING PETROLEUM CORPORATION, a corporation, and MARALEX RESOURCES, INC., a corporation,

Plaintiffs,

vs.

No. SF-CV-98-01295

PENDRAGON ENERGY PARTNERS, INC., a corporation, and J.K. EDWARDS ASSOCIATES, INC., a corporation

Defendants.

PRELIMINARY INJUNCTION

THIS MATTER came before the Court on June 29, 1998 on Plaintiffs' Verified Application for Preliminary Injunction with the parties appearing by their corporate representatives and counsel. The Court having received evidence and arguments of counsel for all parties, FINDS that good grounds have been established in behalf of the plaintiffs' Application and it should be granted.

Upon the evidence presented and application of the law concerning issuance of preliminary injunctions the Court CONCLUDES AS FOLLOWS:

1. The Court has jurisdiction of the parties and of the subject matter.

2. Plaintiffs have established a substantial likelihood that they will prevail on the merits of their claim that defendants have trespassed into plaintiffs' Fruitland formation and that defendants are converting the plaintiffs' gas.

3. Issuance of an injunction may cause harm to defendants but the continuing harm to plaintiffs should the injunction not issue greatly outweighs the harm

to the defendants.

4. Issuance of an injunction against defendants' continued taking of plaintiffs' gas will not be adverse to the public interest.

5. The Court has weighed the factors to be considered under New Mexico law in determining whether to issue a preliminary injunction and having done so concludes that the Application for Preliminary Injunction in behalf of plaintiffs is well taken and should be granted.

IT IS THEREFORE ORDERED AS FOLLOWS:

1. The defendants upon entry of this Preliminary Injunction shall immediately shut-in Chaco wells 1, 2R, 4 and 5 and cease and desist all gas production therefrom.

2. This Preliminary Injunction is to remain in force for a period of ninety (90) days from entry, or until further order of the Court, to permit review by the Court and consideration by the New Mexico Oil Conservation Division or New Mexico Oil Conservation Commission on certain issues within their administrative jurisdiction.

3. The Court will review this matter prior to the expiration of ninety (90) days from entry to consider the disposition of an administrative proceeding, if any, and to make any further orders as may be deemed appropriate or necessary.

4. No bond shall be required of plaintiffs, however, defendants are encouraged to track production loss in the event they become entitled to claim they have been wronged by the issuance of this Preliminary Injunction.

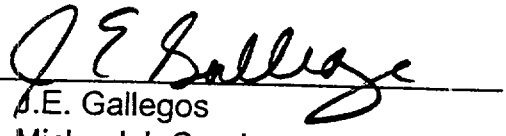
ORIGINAL SIGNED BY
ART ENCINIAS

The Honorable Art Encinias
District Judge

ORIGINAL SIGNED BY
ART ENCINIAS

Submitted on Notice of Presentment:

GALLEGOS LAW FIRM, P.C.

By 

J.E. Gallegos
Michael J. Condon
460 St. Michael's Drive, Bldg. 300
Santa Fe, New Mexico 87505

Attorneys for Plaintiffs

ENDORSED

JUL 06 1998

FIRST JUDICIAL DISTRICT COURT
SANTA FE, RIO ARRIBA & LOS ALAMOS COUNTIES
P. O. Box 2268
Santa Fe, New Mexico 87504-2268
Jo-Ann Vigil Quintana
Court Administrator/District Court Clerk

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

WHITING PETROLEUM CORPORTION, a corporation, and MARALEX RESOURCES, INC., a corporation,

Plaintiffs,

vs.

No. D-0101-CV-98-01295

PENDRAGON ENERGY PARTNERS, INC., a corporation, and J.K. EDWARDS ASSOCIATES, INC., a corporation,

Defendants.

ORDER REGARDING MOTION TO DISMISS FOR LACK OF JURISDICTION

THIS MATTER having come before the court on June 29, 1998 on Defendants' Motion to Dismiss For Lack of Subject Matter Jurisdiction Or, In the Alternative, For Failure to State A Claim Upon Which Relief Can Be Granted, the parties having appeared by counsel and the Court having reviewed the pleadings and having heard argument of counsel for the parties, concludes as follows:

1. This Court has jurisdiction over the subject matter of this case and the claims alleged by Plaintiffs, and the Defendants' motion to dismiss for lack of subject matter jurisdiction is denied in part and granted in part.

2. Defendants have requested that the Court refer this matter to the New Mexico Oil Conservation Division under the doctrine of primary jurisdiction. This Court has determined to defer to the jurisdiction of the New Mexico oil Conservation Division in view of the greater expertise of the New Mexico Oil Conservation Division in this particular field and to promote more uniform decision making.

Served: 7-6-98
Docketed: _____ By: _____
CC: _____
Vol: 5 Tab: 11

EXHIBIT B

3. Those issues raised by the lawsuit which relate to the parties' relative rights in the land and are subject to meaningful relief through the New Mexico Oil Conservation Division should be recognized as within the jurisdiction of the New Mexico Oil Conservation Division. What the Court retains are those claims, regardless of how they are denominated that are not susceptible of relief through the New Mexico Conservation Division.

IT IS THEREFORE ORDERED that Defendants' Motion to Dismiss For Lack Of Subject Matter Jurisdiction Or, In The Alternative, For Failure To State A Claim Upon Which Relief Can Be Granted be and hereby is denied in part and granted in part and as a matter of comity, the Court defers to the New Mexico Oil Conservation Division as above stated.

The Honorable Art Encinias
District Judge 7/6/98

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

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

CASE NO. 11996
Order No. R-11133

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. AND J. K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 28-30, 1998, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 5th day of February, 1999, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) The applicants, Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., (collectively "Pendragon"), pursuant to Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in Division Order No. R-8768, as amended, seek an order confirming that the following described wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool or the Basin-Fruitland Coal Gas Pool, are producing from the appropriate common source of supply and providing further relief as the Division deems necessary:

EXHIBIT C

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WAW Fruitland Sand-Pictured Cliffs Gas Pool Producing Wells

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

Basin-Fruitland Coal Gas Pool Producing Wells

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Whiting Petroleum Corporation and Maralex Resources, Inc., (collectively "Whiting"), interest owners within the Gallegos Federal 26-12-6 No. 2, 26-12-7 No. 1, 26-13-1 No. 1, 26-13-1 No. 2 and 26-13-12 No. 1, appeared at the hearing in opposition to the application and to present evidence and testimony to support their position that the Pendragon Chaco wells, described in Finding No. (2) above, are producing:

a) from a sandstone interval located within the Fruitland formation; and

b) coal gas from the Basin-Fruitland Coal Gas Pool due to the establishment of communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools within the Pendragon Chaco wellbores.

(4) Merrion Oil & Gas Corporation, an interested party, appeared and presented a statement at the conclusion of proceedings.

(5) All eleven wells that are the subject of this application are located within an area (hereinafter referred to as the "subject area") that comprises:

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM
Section 6: W/2
Section 7: W/2
Section 18: NW/4

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM,
Section 1: All
Section 12: N/2

(6) The "subject area" is located within the horizontal boundaries of the Basin-Fruitland Coal Gas Pool created by Division Order No. R-8768 dated October 17, 1988. The vertical limits of this pool, as defined by Ordering Paragraph (1) of Order No. R-8768, are as follows:

> "all **coal seams** within the equivalent of the stratigraphic interval from a depth of approximately 2,450 feet to 2,880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico".

(7) Order No. R-8768 further established Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool including provisions for standard 320-acre gas spacing and proration units with wells to be located no closer than 790 feet from the outer boundary of the proration unit nor closer than 130 feet from any quarter section line nor closer than 10 feet from any quarter-quarter section line or subdivision inner boundary. In addition, wells are to be located in the NE/4 or SW/4 of a single governmental section.

(8) The "subject area" is also located within the horizontal boundaries of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The vertical limits of this pool comprise all of the Pictured Cliffs formation (Order No. R-4260 dated February 22, 1972) and all the **sandstone** intervals of the Fruitland formation (Order No. R-8769 dated October 17, 1988). The WAW Fruitland Sand-Pictured Cliffs Gas Pool is currently governed by Division Rule 104.C., which requires standard 160-acre gas spacing and proration units with wells to be located no closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any quarter-quarter section line or subdivision inner boundary.

(9) The evidence and testimony presented by both parties in this case is generally in agreement that Pendragon and Whiting received assignments of oil and gas leases in all or portions of the "subject area" from common grantors, Robert Bayless (Bayless) and Merrion Oil and Gas Corporation (Merrion), during the period from 1992-94. The assignments of rights to Whiting are as follows:

> "Operating rights from the surface of the earth to the base of the Fruitland (Coal gas) Formation subject to the terms and provisions of that certain Farmout Agreement, dated December 7, 1992 by and between Merrion Oil & Gas et al., Robert L. Bayless, Pitco Production Company, and Maralex Resources, Inc."

(10) The assignment of rights to Pendragon are as follows:

> "Leases and lands from the base of the Fruitland Coal formation to the base of the Pictured Cliffs formation."

(11) A brief history of the Pendragon wells, obtained from Division records, is described as follows:

a) the Chaco Well No. 1 was drilled by Merrion and Bayless in February, 1977 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,113' to 1,139'. The well initially tested in this interval at a rate of approximately 342 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, J. K. Edwards & Associates, Inc. (Edwards) became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well;

b) the Chaco Well No. 2R was drilled by Merrion and Bayless in October, 1979 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,132' to 1,142'. The well initially tested in this interval at a rate of approximately 150 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well;

c) the Chaco Well No. 4 was drilled by Merrion and Bayless in April, 1977 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,163' to 1,189'. The well was initially tested in this interval at a rate of approximately 480 MCFGD, 0 BOPD, and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In May, 1995, the well was re-perforated in the interval from 1,163' to 1,189' and fracture stimulated in this interval. In January, 1996, Pendragon became operator of the well;

d) the Chaco Well No. 5 was drilled by Merrion and Bayless in April, 1977 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,165' to 1,192'. The well initially tested in this interval at a rate of approximately 1029 MCFGD, 0 BOPD and 0 BWPD. In May, 1979 the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was re-perforated in the interval from 1,165' to 1,192 feet and was fracture stimulated in this interval. In January, 1996, Pendragon became operator of the well;

e) the Chaco Limited Well No. 1J was drilled by Merrion and Bayless in April, 1982 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,200' to 1,209'. The well initially tested in this interval at a rate of approximately 10 MCFGD, 0 BOPD and a trace of water. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January, 1996, Pendragon became operator of the well; and

f) the Chaco Limited Well No. 2J was drilled by Merrion and Bayless in September, 1979 to test the Pictured Cliffs formation. The well was perforated and completed in the Pictured Cliffs formation from a depth of 1,186' to 1,202'. The well initially tested in this interval at a rate of approximately 208 MCFGD, 0 BOPD and 4 BWPD. In October, 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January, 1996, Pendragon became operator of the well.

(12) A brief history of the Whiting wells, obtained from Division records, is described as follows:

a) the Gallegos Federal 26-12-6 No. 2 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,138' to 1,157'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well;

b) the Gallegos Federal 26-12-7 No. 1 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,131' to 1,150'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well;

c) the Gallegos Federal 26-13-1 No. 1 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,158' to 1,177'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well;

d) the Gallegos Federal 26-13-1 No. 2 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,047' to 1,208'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well; and

e) the Gallegos Federal 26-13-12 No. 1 was drilled by Maralex in December, 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal from a depth of 1,178' to 1,197'. The well was subsequently fracture stimulated in this interval. In September, 1995, Whiting became operator of the well.

Fruitland Sand vs. Pictured Cliffs Sand Geologic Issue

(13) In its Chaco Wells No. 1, 4, 5 and its Chaco Limited Well No. 2J, Pendragon is producing from two separate sandstone intervals, hereinafter referred to as the "Upper Sandstone" and "Lower Sandstone" intervals and in its Chaco Well No. 2R and Chaco Limited Well No. 1J, Pendragon is producing only from the "Lower Sandstone" interval, all described as follows. It is the position of Pendragon that the top of the Pictured Cliffs formation occurs in this area at or above the top of the "Upper Sandstone" interval.

Well Name & Number	"Upper Sandstone" Perforations	"Lower Sandstone" Perforations
Chaco Well No. 1	1,113'-1,119'	1,134'-1,139'
Chaco Well No. 4	1,163-1,166'	1,173'-1,189'
Chaco Well No. 5	1,165'-1,169'	1,174'-1,192'
Chaco Limited Well No. 2J	1,186'-1,188'	1,200'-1,202'
Chaco Well No. 2R	None	1,132'-1,142'
Chaco Limited Well No. 1J	None	1,200'-1,209'

(14) Whiting agrees that the "Lower Sandstone" interval is within the Pictured Cliffs formation; however, it contends that the top of the Pictured Cliffs formation occurs in this area at the top of the "Lower Sandstone" interval.

(15) Pendragon presented the following geologic evidence and testimony to support its pick for the top of the Pictured Cliffs formation:

a) the perforations in its Chaco wells were made by Pendragon's predecessors in interest, Merrion and Bayless, and were reported to the Division and to the Bureau of Land Management (BLM) on the appropriate well completion forms. All forms filed by Merrion and Bayless indicate that all perforations in the Chaco wells are within the Pictured Cliffs formation. Casing collar survey logs performed in May and June, 1998 establish that none of the Chaco wells were perforated in or re-perforated in the Fruitland Coal formation;

b) the discovery well for the WAW Fruitland Sand-Pictured Cliffs Gas Pool was the WAW Well No. 1, located in Unit L of Section 32, Township 27 North, Range 13 West, NMPM, which was completed on June 20, 1970 by Dugan Production Corporation (Dugan). Dugan picked the top of the Pictured Cliffs formation at a depth of 1,317 feet, which is above the "Upper Sandstone" interval;

c) the discovery well for the Nipp-Pictured Cliffs Gas Pool, located directly southeast of the WAW Fruitland Sand-Pictured Cliffs Gas Pool, was the Chaco Plant Well No. 1, located in Unit O of Section 17, Township 26 North, Range 12 West, NMPM, which was completed in April, 1975 by Dugan. Dugan picked the top of the Pictured Cliffs formation at a depth of 1,132 feet, which is above the "Upper Sandstone" interval;

d) the term "stratigraphic equivalent" as used to define the vertical limits of the Basin-Fruitland Coal Gas Pool essentially means "the same kind of rock material." The primary distinguishing characteristic of the Pictured Cliffs sandstone is its creation in a marine depositional environment. Conversely, the Fruitland Coal and the Fruitland Sandstone were deposited in a non-marine depositional environment;

e) Pendragon's isopach map of the "Upper Sandstone" interval shows the occurrence of that sandstone along the shoreline trending from a northwest to southeast direction in a barrier bar marine littoral environment. The "Upper Sandstone" interval appears as a classic shoreline or chenier-type sand grading from 0 to approximately 13 feet thick toward the northeast where it coalesces into the "Lower Sandstone" or main body of the Pictured Cliffs formation as the sand trends from the shoreline environment on the southwest toward the center of the San Juan Basin to the northeast. The "Upper Sandstone" interval is also continuous in character and correlates over a large area covering portions of four townships;

f) the core analysis for the Lansdale Federal Well No. 1, located in Unit P of Section 7, Township 26 North, Range 12 West, NMPM, establishes that the grain size and sorting throughout the "Upper Sandstone" interval are uniform, which is consistent with a marine depositional environment. The core analysis further indicates that the sand appearing in the "Upper Sandstone" and "Lower Sandstone" intervals is grey, fine-grained, with little variation in clay content, consistent with a marine sand that has been laterally transported to the point where the energy available sorts the sand into uniform size. Sand sorting characteristics of this sort are not consistent with a fluvial deposit with graded bedding and coarsening downward;

g) the Fruitland sands are deposited along a trend from the southwest to the northeast on a channelized basis and those sands thin towards the northeast to the edge of the Pictured Cliffs sandstone body. The Fruitland sands are consistently recognized as non-marine (continental) deposits such as fluvial channels, deltaic-distributary channels and other landward deposits. The Fruitland formation is the non-marine facies consisting of inter-bedded sandstone, mudstone and coal beds deposited landward of the marine facies of the Pictured Cliffs sandstone; and

h) approximately thirty-four (34) wells in this area have been perforated in the "Upper Sandstone" interval in conjunction with other perforated sandstone intervals within the Pictured Cliffs formation. These perforations, which were reported to the Division and to the BLM as being Pictured Cliffs completions, are consistent with the picks for the top of the Pictured Cliffs formation from the WAW Well No. 1 and the Chaco Plant Well No. 1, the discovery wells for the WAW Fruitland Sand-Pictured Cliffs and Nipp-Pictured Cliffs Gas Pools, respectively. This evidence establishes that Pendragon's picks for the top of the Pictured Cliffs formation in its Chaco wells are consistent with those of other operators in this area.

(16) Whiting presented the following geologic evidence and testimony to support its pick for the top of the Pictured Cliffs formation:

a) there are two continuous coal seams within the lower portion of the Fruitland formation in this area. The upper coal seam, characterized by Whiting as the "B" Coal, is approximately 20 feet thick throughout the subject area. The lower coal seam, characterized by Whiting as the "Basal" Coal, varies from 2 to 4 feet thick and overlies the more massive Pictured Cliffs marine sandstone ("Lower Sandstone" interval);

b) the "Upper Sandstone" interval, which is between 2 to 7 feet thick in this area and is located between the "B" Coal and the "Basal" Coal, is a Fruitland sand within the lower portion of the Fruitland formation;

c) Whiting's depositional model, as determined from mapping the various sands in the Fruitland and Pictured Cliffs formations, suggests that the "Upper Sandstone" interval was formed by inland river deposits which filled the area in-between abandoned beach ridges. This type of depositional model suggests that the "Upper Sandstone" interval was deposited in a non-marine environment;

d) a marine environment does not provide the conditions necessary for the development of coal. Coal formation and deposition is representative of an inland environment;

e) due to bioturbation in a lagoonal (marine) depositional environment, the "Upper Sandstone" interval should not exhibit high permeability reservoir type sand; and

f) geologic literature suggests that the top of the Pictured Cliffs formation is usually placed at the top of the massive sandstone below the lower-most coal of the Fruitland formation. Whiting's interpretation of the top of the Pictured Cliffs formation is consistent with such geologic literature.

(17) Upon consideration of the geologic evidence and testimony presented by both parties in this case the ***Division finds that***:

a) the Pictured Cliffs formation was deposited in a marine environment. The Fruitland formation was deposited in a non-marine or inland terrestrial environment (i.e. fluvial channels, deltaic distributary channels, etc.). Both parties are generally in agreement that these criteria should be used in differentiating between the two formations in this area;

b) mapping of the "Upper Sandstone" interval shows a fairly uniform, fairly continuous "sheet" type sand body that appears to trend along a shoreline in a northwest to southeast direction. In contrast, the Fruitland formation is characterized by northeast to southwest trending fluvial and lower coastal-plain deposits;

c) the only available core analysis data (obtained from the Lansdale Federal Well No. 1) shows a similarity in physical description between the sands within the "Upper Sandstone" and "Lower Sandstone" intervals, and shows uniform grain size and sorting within the "Upper Sandstone" interval, which is indicative of a marine depositional environment;

d) the "Upper Sandstone" interval coalesces into the "Lower Sandstone" or main body of the Pictured Cliffs formation as the sand trends from the shoreline environment on the southwest toward the center of the San Juan Basin to the northeast which may be indicative of the same depositional environment;

e) the "Upper Sandstone" interval has been consistently picked by various other operators throughout the developmental history of this area to be contained within the Pictured Cliffs formation. Various regulatory agencies including the Division's Aztec District Office and the BLM have recognized and concurred with these operator's picks;

f) there is sufficient geologic evidence and testimony to adequately explain the development of the small coal seam below the "Upper Sandstone" interval as occurring in a marine depositional environment; and

g) there is insufficient geologic evidence to support Whiting's depositional model which indicates the "Upper Sandstone" interval to be part of the Fruitland formation.

(18) There is sufficient geologic evidence to establish that the "Upper Sandstone" interval is located within the Pictured Cliffs formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool.

(19) Pendragon's Chaco Wells No. 1, 2R, 4, 5 and Chaco Limited Wells No. 1J and 2J are perforated within the appropriate common source of supply, being the WAW Fruitland Sand-Pictured Cliffs Gas Pool.

Issues Concerning Possible Communication Between the Fruitland Coal and Pictured Cliffs Formations within the Chaco Wells

(20) Whiting contends that through the process of acidizing and/or fracture stimulation, Pendragon has established communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools within the Chaco Wells No. 1, 2R, 4, 5 and the Chaco Limited Wells No. 1J and 2J. Whiting further contends that as a result of this communication, Pendragon is producing significant amounts of coal gas reserves through its Chaco wells. In support of its position, Whiting presented extensive geologic and engineering data.

(21) Pendragon contends that the acidizing and/or fracture stimulation conducted on its Chaco wells did not establish communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools, and that the gas reserves currently being produced from its Chaco wells originate from the Pictured Cliffs formation.

Pressure and Production Data

(22) The pressure history of the Pendragon Chaco wells is summarized as follows:

Well No.	Pre-Treatment Wellhead Shut-in Pressure/Date	Treatment Date and Type	Post-Treatment Wellhead Shut-in Pressure/Date
Chaco No. 1	137 psi (7/83)	1/95 Frac'd	170 psi (2/95)
Chaco No. 2R	110 psi (7/83)	1/95 Frac'd	104 psi (3/95)
Chaco No. 4	97 psi (7/83)	5/95 Frac'd	153 psi (5/95)
Chaco No. 5	121 psi (6/80)	4/95 Frac'd	151 psi (5/95)
Chaco Ltd. 1J	87 psi (6/84)	1/95 Acidized	158 psi (1/95)
Chaco Ltd. 2J	157 psi (8/80)	1/95 Acidized	188 psi (3/95)

(23) The production history of the Pendragon Chaco wells is summarized as follows:

Well No.	Initial Production (Original Completion)	Pre-Acidization or Fracture Stimulation Production	Post-Acidization or Fracture Stimulation Production	Current Production
Chaco No. 1	80 MCF/D	0 MCF/D	250 MCF/D	165 MCF/D
Chaco No. 2R	70 MCF/D	0-15 MCF/D	90 MCF/D	120 MCF/D
Chaco No. 4	200 MCF/D	0 MCF/D	425 MCF/D	200 MCF/D
Chaco No. 5	190 MCF/D	0 MCF/D	370 MCF/D	210 MCF/D
Chaco Ltd. 1J	11 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D
Chaco Ltd. 2J	30 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D

(24) Cumulative gas production from the Pendragon Chaco wells is summarized as follows:

Well No.	Cumulative Production Drill Date-Pre-Acidization or Fracture Stimulation	Cumulative Production Drill Date-May 31, 1998	Difference (Post-Acidization or Fracture Stim.)
Chaco No. 1	102.8 MMCFG	377.8 MMCFG	275.0 MMCFG
Chaco No. 2R	49.3 MMCFG	99.2 MMCFG	50.0 MMCFG
Chaco No. 4	201.8 MMCFG	591.0 MMCFG	389.2 MMCFG
Chaco No. 5	144.8 MMCFG	507.8 MMCFG	363.0 MMCFG
Chaco Ltd. 1J	13.9 MMCFG	N/A	N/A
Chaco Ltd. 2J	37.8 MMCFG	N/A	N/A

(25) The production history of the Gallegos Federal wells is summarized as follows:

Well No.	Date of Initial Production	Initial Production Rate	Current Production Rate
26-12-6 No. 2	12/93	85 MCF/D	733 MCF/D
26-12-7 No. 1	12/93	124 MCF/D	700 MCF/D
26-13-1 No. 1	12/93	26 MCF/D	383 MCF/D
26-13-1 No. 2	7/93	51 MCF/D	150 MCF/D
26-13-12 No. 1	1/94	195 MCF/D	350 MCF/D

(26) With regards to pressure, production and gas reserve data, Pendragon presented the following engineering and geologic data:

a) in 1977, initial reservoir pressure in the Pictured Cliffs formation ranged between 230-250 psi in the subject area. As production continued into the 1980's, the rate of pressure decline in the Chaco wells, regardless of the volumes of gas produced, was generally the same indicating pressure communication over a large area. As the Chaco wells reached low rates of production during the early to mid 1980's the reservoir pressure was in the range of 90-130 psi. There is very little pressure data available from these wells during the period from 1983 to 1995;

b) in 1995, pressure readings taken from the Chaco Limited Wells No. 1J and 2J (which were not fracture stimulated) and from the Chaco Well No. 4 prior to fracture stimulation indicate that pressures had substantially increased since 1983-84 and ranged from 140 psi to 190 psi. This pressure data indicates that the reservoir pressure in the Pictured Cliffs formation was increasing in its Chaco wells prior to the conductance of fracture stimulations;

c) pressure data for the Chaco Wells No. 4 and 5 reflects that in 1995, these wells were producing at less than 1 percent of their producing rates in 1979 and pressures were equivalent to reservoir pressures in 1979. Such evidence indicates the existence of reservoir or skin damage;

d) there is a lower Pictured Cliffs sandstone interval (identified by the applicant as the "third bench") which is located approximately 14 feet below where the Chaco wells are currently perforated. Although the water saturation in this lower zone is relatively high (67%-78%), this lower zone may be in pressure and production communication and may be acting as a gas recharge source for the main body of the Pictured Cliffs sandstone interval. There is also evidence indicating that a well located in the SW/4 SW/4 of Section 11, Township 26 North, Range 13 West, produced exclusively from the "third bench" of the Pictured Cliffs with cumulative production of approximately 93 MMCF of gas;

e) volumetric reserve estimates of original gas-in-place (OGIP) for the main body and "third bench" of the Pictured Cliffs sandstone interval in the Chaco Wells No. 1, 4, and 5 (based on 160-acre drainage) are summarized as follows:

Well No.	OGIP (MMCF) Perforated Interval	OGIP (MMCF) "Third Bench"	Total (MMCF)
Chaco No. 1	442	236	678
Chaco No. 4	410	380	790
Chaco No. 5	395	228	623

f) remaining gas reserve calculations, based upon decline curve analysis of production subsequent to acizidation and/or fracture stimulation are summarized as follows:

Well No.	Remaining Reserves MMCF) (As of July 1, 1998)	Drainage Area (Perforated Interval)
Chaco No. 1	178.0	236-acres
Chaco No. 2R	94.0	N/A
Chaco No. 4	219.0	384-acres
Chaco No. 5	219.0	351-acres
Chaco Ltd. 1J	0.0	N/A
Chaco Ltd. 2J	0.0	N/A

g) both volumetric and decline curve analysis indicate that sufficient gas reserves exist in the Pictured Cliffs formation to account for the production from the Chaco wells;

h) the production history of the Chaco wells compared to the pressure data accumulated prior to the acidization and/or fracture stimulations on those wells indicate the reservoir in the immediate vicinity of the wellbores had experienced skin damage or other forms of reservoir damage. As a result, production from the Pictured Cliffs had significantly declined prior to the acidization and/or fracture stimulations;

i) a drop in production for the Pendragon and Whiting wells that occurred in August, 1995 corresponds to and was a result of frequent shut-ins of the El Paso Chaco Plant. This month was also preceded and followed by long periods of unusually high line pressure which may have also contributed to a drop in production in Whiting's wells; and

j) production plots for the Whiting wells shows gas and water production typical for a Fruitland Coal well. The gas and water decline curves for the Whiting wells show no inflections indicating any interference from the Pendragon Chaco wells.

(27) With regards to pressure, production and gas reserve data, Whiting presented the following geologic and engineering evidence and testimony:

a) The acidization and/or fracture stimulations performed by Pendragon on the Chaco wells resulted in significant pressure increases in these wells. The significant pressure increases achieved in these wells was markedly higher than the natural pressure increases experienced in the wells prior to the acidization and/or fracture treatments, and demonstrate that communication between the Pictured Cliffs and Fruitland Coal was established as a result of the treatments;

b) Pendragon introduced evidence at the hearing that pressures in the Chaco Well No. 5 had risen prior to any acidization or fracture stimulation on that well. Well file data indicates, however, that a casing leak occurred in that well prior to May, 1995. In February, 1995, black water was discovered flowing from the bradenhead. Given the evidence of the casing leak, and water behind the column, it is clear that communication in the Chaco Well No. 5 had already been established between the Pictured Cliffs sandstone and the Fruitland Coal prior to January, 1995;

c) by the mid 1980's the Chaco wells exhibited signs consistent with production from a depleting Pictured Cliffs sandstone reservoir. Pressures were steadily declining and production had dropped to low levels (0-15 MCFGD/Well). The decline in both volume of gas and pressure is consistent with a depleted sandstone reservoir;

d) after completion, the Gallegos Federal wells exhibited performance typical of coal seam wells. They produced high volumes of water and virtually no (or little) gas in the initial months of production. Gas production inclined as the wells de-watered and by 1995, gas production was at economic levels except for the Gallegos Federal 26-13-1 Wells No. 1 & 2;

e) following acidization and/or fracture stimulation, the Chaco wells experienced large increases in gas production which is not characteristic of Pictured Cliffs re-stimulations. In each case, production levels exceeded production levels experienced when the wells were originally drilled under virgin reservoir conditions. The increases in production obtained are far greater than results that could be expected had Pendragon simply been overcoming skin damage in the wells;

f) Whiting has calculated original gas-in-place reserves for the Chaco wells utilizing a simulation program, "PROMAT." The results of the "PROMAT" Simulator analysis of the Chaco wells are summarized as follows:

Well No.	OGIP (MMCF) (Perforated Interval)	Drainage Area
Chaco No. 1	186.0	107-acres
Chaco No. 2R	84.0	130-acres
Chaco No. 4	268.0	147-acres
Chaco No. 5	199.0	109-acres
Chaco Ltd. 1J	N/A	N/A
Chaco Ltd. 2J	N/A	N/A

g) by the end of June, 1997, Pendragon had already produced, with the exception of the Chaco Well No. 2R, gas volumes far in excess of the calculated original gas-in-place for these wells. The Chaco wells have produced significantly more gas from 1995 to the present than they produced in the entire first 15-17 years of production;

h) the evidence of production volumes and pressure data on the Chaco wells since the acidization and/or fracture stimulation in 1995 is consistent with the conclusion that these wells have been producing significant volumes of coal seam gas;

i) typically, Pictured Cliffs producing wells do not exhibit significant water producing rates. The Chaco wells have produced significant volumes of water since the acidizations and/or fracture stimulations were conducted. Such high water producing rates are consistent with production originating from the Fruitland Coal;

j) Pendragon failed to report water production from the Chaco wells prior to February, 1998. Prior to that time, water production data from the Chaco wells is sparse. Pendragon disposed of produced water from its Chaco wells in unlined earthen pits in an area of sandy soils. The result of such disposal is that significant amounts of produced water were disposed of through evaporation and absorption into the soil, thus making it impossible to precisely quantify the volumes of water produced from the Chaco wells since the water production was not recorded by the pumpers or contract operator;

k) water/gas producing ratios for the Chaco wells are generally higher than those for the Whiting wells during the same periods; and

l) since the Chaco wells were shut-in by Order of the Santa Fe County District Court on June 30, 1998, pressure readings on the Chaco wells have confirmed communication with the Fruitland Coal. The shut-in pressure readings on the Chaco wells have fluctuated, such fluctuations coinciding with periods when the Whiting wells were shut-in due to pipeline and plant restrictions and when the Whiting wells went back on production. If there were no communication between the Pictured Cliffs and Fruitland Coal, the Chaco wells should exhibit a stable pressure once static pressure has been achieved.

(28) Upon consideration of the pressure data presented by both parties in this case the ***Division finds that***:

a) there is no pressure data available for the Chaco Well No. 4 and the Chaco Limited Wells No. 1J and 2J during the period from 1983-84 to January, 1995; consequently, it cannot be demonstrated that the pressure increases experienced in these wells occurred **prior** to their acid stimulations which were performed in January, 1995;

b) subsequent to acidization and/or fracture stimulation, the Chaco Wells No. 1, 4, 5, and the Chaco Limited Well No. 2J experienced increases in shut-in wellhead pressure. These pressure increases appear to have occurred as a **result** of the stimulation;

c) there is no pressure data available for any of the Chaco wells during the period from 1983-84 to 1995. The reservoir pressure in the Pictured Cliffs formation during the early to mid 1980's, at which time the Chaco wells were producing at low marginal rates, was approximately 90-130 psi;

d) there is not sufficient evidence to establish that the Chaco wells experienced "skin damage" resulting in premature production decline in the Pictured Cliffs formation;

e) given the state of depletion within the Pictured Cliffs producing interval (perforated interval), any pressure recharge that occurred within the Chaco wells during or subsequent to acidization and/or fracture stimulation originated from a source outside this interval;

f) during late 1994, the Fruitland Coal pressure within the Gallegos Federal wells ranged from approximately 175 to 225 psi. This data indicates that at the time the Chaco wells were acidized and/or fracture stimulated, there existed sufficient pressure within the Fruitland Coal formation to act as a recharge source for the Chaco wells;

g) Pendragon presented no data with regards to the pressure within the "third bench" of the Pictured Cliffs formation; and

h) on June 30, 1998, the Chaco wells were ordered shut-in by the Santa Fe District Court. Recorded wellhead pressures taken on the Chaco wells during the period from June 30-July 13, 1998 (13-day shut-in) showed the pressures to be stable within these wells. On July 14 for a 2-day period, and again on July 23 for a 2 1/2-day period, the Chaco Gas Plant was shut-in and, as a result, production from the Gallegos Federal wells was severely curtailed during these shut-in periods. The data indicates that each of the Chaco wells generally exhibited an increase in shut-in pressure at the times the Gallegos Federal wells' production was curtailed, and generally exhibited a decrease in shut-in pressure at the times normal production from the Gallegos Federal wells resumed.

(29) The pressure data generally indicate pressure communication between the Pictured Cliffs and Fruitland Coal formations within the Pendragon Chaco wells.

(30) Upon consideration of the production and gas reserve data presented by both parties in this case the ***Division finds that***:

a) Prior to the acidizations and/or fracture stimulations, the Chaco wells produced at rates ranging from 0-15 MCF gas per day. Post stimulation production from the Chaco Wells No. 1, 2R, 4 and 5 ranged from 90-425 MCF gas per day. Post stimulation production from the Chaco Wells No. 1, 4, and 5 significantly exceeded initial production from these wells at virgin reservoir conditions;

b) the Pictured Cliffs reservoir within the Chaco wells, which exhibited pressure and production decline typical of a sandstone reservoir, appears to have been depleted prior to the acidization and/or fracture stimulations which occurred in 1995;

c) stimulation efforts (acidization) performed on the Chaco Limited Wells No. 1J and 2J did not alter these wells' rates of production. These wells continue to produce at low marginal rates;

d) the significant post stimulation increases in producing rates obtained in the Chaco Wells No. 1, 2R, 4 and 5 cannot solely be attributable to overcoming "skin damage" in the wells. In addition, given the state of depletion within the Pictured Cliffs producing interval, the significant gas reserves being produced from the Chaco Wells No. 1, 2R, 4 and 5 do not likely originate from this interval;

e) Pendragon presented no evidence to demonstrate that there is pressure and/or production communication between the Pictured Cliffs producing interval and the "third bench" of the Pictured Cliffs formation;

f) typically, Pictured Cliffs completions produce very small amounts of water. Fruitland Coal completions are characterized by substantial water production until such time as the reservoir is de-watered;

g) although there is very limited water production data for the Chaco wells prior to February, 1998, testimony by Maralex indicates that as early as August, 1996, it witnessed substantial amounts of water contained within earthen pits at the Chaco well locations. There is further evidence indicating that the Chaco Well No. 1 continues to produce significant amounts of water (640 barrels in March, 1998, 640 barrels in April, 1998);

h) during 1998, water/gas ratios in the Chaco Wells No. 1, 2R and 4 were at least as high, and in some cases substantially higher, than those in the closest offsetting Gallegos Federal wells;

i) combined production data for the five Gallegos Federal wells shows that during 1994 the wells exhibited a fairly constant rate of production incline, which is characteristic of Fruitland Coal gas production. An effect on the Gallegos Federal well's production is evident commencing during the 2nd quarter of 1995, at which time the rate of production incline for the wells decreased;

j) cumulative gas production from the Chaco Wells No. 4 and 5 (591 MMCFG and 508 MMCFG, respectively) has exceeded Pendragon's original gas-in-place volumetric reserve estimates (based upon 160-acre drainage) for the Pictured Cliffs producing interval (410 MMCFG and 395 MMCFG, respectively);

k) there is no evidence to demonstrate pressure and production communication between the Pictured Cliffs producing interval and the "third bench" of the Pictured Cliffs formation within the Chaco wells; consequently, gas reserves contained within the "third bench" of the Pictured Cliffs formation should not be included in any production/gas reserve analysis;

l) Pendragon's decline curve and material balance gas reserve calculations are based upon post-stimulation production data from the Chaco wells. This data may not accurately reflect gas reserves in the Pictured Cliffs formation due to the possible establishment of communication with the Fruitland Coal formation during stimulation; and

m) Whiting's original gas-in-place reserve calculations for the Chaco wells were made utilizing "PROMAT," a reservoir simulation program which utilized historic production data from the Chaco wells prior to acidization and/or fracture stimulation.

(31) The producing characteristics of the Chaco wells (i.e. high initial producing rates subsequent to stimulation, water production, water/gas ratios, etc.) are indicative of gas production originating from the Fruitland Coal formation rather than the Pictured Cliffs formation.

(32) The Pictured Cliffs formation was depleted by the Chaco wells prior to the stimulations performed on these wells in 1995.

(33) There is no evidence to support Pendragon's contention that the "third bench" of the Pictured Cliffs formation is the source of production recharge within the Chaco wells.

(34) There is some evidence indicating that production from the Gallegos Federal wells has been affected by production from the Chaco wells.

(35) Whiting's method and resulting gas reserve calculations for the Chaco wells appears to more accurately depict the original gas-in-place reserves within the Pictured Cliffs formation than those presented by Pendragon.

BTU/Gas Analysis Data

(36) It is Pendragon's position that even though there is a difference in BTU content between Pictured Cliffs and Fruitland Coal gas, BTU content cannot be used as an indicator of communication between the zones for the following reasons:

a) variations in BTU content could be attributable to a number of factors, including variations in reservoir pressure draw-down rates and production over time affecting the production of various gas liquids; and

b) phase change graphs demonstrate that phased transition from gas to liquids in a low permeability reservoir shows significant variations for methane, ethane, propane, butane and pentane. The production of these liquids and the resultant effect on gas BTU content was shown to be affected by a number of factors, including reservoir pressure and rates of production. As a result of these variable, dynamic forces, the various components move through the reservoir at different velocities, affecting the BTU content of the produced gas. As reservoir conditions are historically variable rather than static, the BTU content of the gas is continually affected.

(37) It is the position of Whiting that BTU content of gas can be utilized to demonstrate communication between the Pictured Cliffs and Fruitland Coal. Whiting presented the following engineering evidence and testimony:

a) a sample of 40 wells located within Township 26 North, Ranges 12 and 13 West indicates that the BTU content of Pictured Cliffs gas is generally in the range of 1,050 to 1,150, while the BTU content of Fruitland Coal gas is generally around 1,000;

b) historical data indicates that the BTU content of the Chaco wells prior to acidization and/or fracture stimulation was consistent with Pictured Cliffs produced gas in this area;

c) the gas analysis of the Gallegos Federal wells generally indicates a gas composed of 97-99% methane. The gas analysis of the Chaco wells prior to acidization and/or fracture stimulation generally indicates a gas composed of 90-93% methane; and

d) following the acidization and/or fracture stimulations, the Chaco wells began producing gas with a BTU content and gas analysis consistent with Fruitland Coal seam gas. The evidence presented to the Division demonstrates that the BTU readings on the gas produced in the Gallegos Federal wells and the BTU readings on the gas produced from the Chaco wells has become increasingly similar and consistent overtime, thus indicating that the Chaco wells are producing significant volumes of coal seam gas.

(38) Upon consideration of the BTU content and gas analysis (% methane) data presented by both parties in this case the ***Division finds that***:

a) there is no evidence to support Pendragon's contention that variations in BTU content in its Chaco wells are attributable to factors such as variations in reservoir pressure draw-down rates and production over time affecting the production of various gas liquids;

b) BTU content and gas analysis trends for the Chaco wells prior to acidization and/or fracture stimulation appear to be fairly consistent. In addition, BTU content and gas analysis trends for the Gallegos Federal wells prior to the acidization and/or fracture stimulation of the Chaco wells appears to be fairly consistent;

c) the BTU content decreased and the percentage of methane increased in the Chaco Wells No. 1, 4 and 5 subsequent to acidization and/or fracture stimulation; and

d) the current BTU content and gas analysis of the Chaco wells appears to be more characteristic of Fruitland Coal gas than Pictured Cliffs gas.

(39) BTU content and gas analysis trends can be utilized as an indicator of communication between the Fruitland Coal and Pictured Cliffs formations.

(40) The BTU content and gas analysis data presented generally indicates communication between the Pictured Cliffs and Fruitland Coal formations within the Chaco wells.

Fracture Stimulation Data

(41) The evidence presented by the parties indicates that the foam fracture stimulations performed on the Chaco wells consisted of fluid volumes averaging 31,248 gallons at proppant weights averaging 38,421 pounds injected at treating rates ranging from between 22 to 34 barrels per minute. The evidence further indicates that the foam fracture stimulations performed on the Gallegos Federal wells consisted of fluid volumes averaging 41,030 gallons at proppant weights averaging 72,656 pounds injected at treating rates between 45 to 60 barrels per minute.

(42) Pendragon presented the following engineering evidence and testimony in the area of fracture technology:

a) pressure and injection rate data derived from formation fracture treatments can be used to determine the vertical height growth and horizontal extension of fractures within the formation;

b) lithologic analysis from well logs may be used to design fracture stimulation treatments that remain contained within the target zone or formation. Moreover, changes in lithology and facies will predictably act as a barrier to fracture growth out of zone. Specifically, there is a distinct lithology change at the top of the Pictured Cliffs formation within the Chaco wells;

c) the fracture stimulations performed by Whiting were accomplished at significantly higher rates and higher volumes with fracture fluids of greater viscosity. By comparison, the fracture stimulations performed by Pendragon on its Chaco wells were accomplished at relatively low rates and low volumes;

d) Nolte Plots are an effective and reliable means of determining vertical height growth and extension of formation fractures;

e) the Nolte Plots for the Chaco wells show a slight incline in pressure over the time of the treatment, indicating restricted height growth and lateral extension of the fractures. In contrast, the Nolte Plots for the Gallegos Federal wells show negative slopes, indicating unrestricted, vertical growth and in one case, "run away" vertical fractures;

f) coal is an effective barrier to fracture growth because it is more elastic than the surrounding sandstones. The cleat systems within the coal body also allow for the pressure at the fracture tip to become diffuse, negating the ability of the tip and fluids to fracture into the coal itself;

g) the fracture treatments for the Chaco wells were designed specifically to utilize the thin coal and shale stringers as effective barriers to maintain containment of the fracture. Several examples of this type of fracture design and its effect were demonstrated for wells in the Raton Basin;

h) fracture simulators such as "FRACPRO," which was utilized by Whiting in this case, are generally recognized to exaggerate the height of actual fracture growth, thus making them a less reliable means for determining whether fractures remained confined within zone; and

i) the evidence and data presented are sufficient to support the conclusion that the fracture treatments on the Chaco wells did not escape out of zone and remained contained within the Pictured Cliffs formation. The evidence available is also insufficient to demonstrate that the fracture stimulations performed on the Whiting Gallegos Federal wells resulted in communication between the Pictured Cliffs and the Fruitland Coal.

(43) Whiting presented the following engineering evidence and testimony in the area of fracture technology:

a) the net pressures depicted on the Nolte Plots presented by the applicant in this case were incorrectly calculated and, as a result, applicant's conclusions as to the extent of fracture height growth within the Chaco and Whiting wells cannot be relied upon as accurate;

b) utilizing "FRACPRO," a fracture simulation program, Whiting has determined that the fracture stimulations performed on the Chaco Wells No. 1, 4 and 5 extended upward into the Fruitland Coal interval of the Basin-Fruitland Coal Gas Pool; and

c) as a result of Pendragon's fracture stimulations extending into the Fruitland Coal interval of the Basin-Fruitland Coal Gas Pool, coal gas is being produced from the Chaco wells in substantial quantities.

(44) Upon consideration of the fracture data presented by both parties in this case the ***Division finds that***:

a) the Nolte Plots presented by Pendragon do not appear to accurately reflect the net treating pressure and consequently these plots cannot be relied upon to ascertain whether the fracture stimulations performed on the Gallegos Federal wells resulted in fracturing of the Pictured Cliffs formation and whether the fracture stimulations performed on the Chaco wells resulted in fracturing of the Fruitland Coal formation;

b) the "FRACPRO" simulation data presented by Whiting indicates that the fracture stimulations performed on the Chaco Wells No. 1, 4, and 5 resulted in the fracturing of the Fruitland Coal formation;

c) no fracture simulation data was presented for the Chaco Well No. 2R;

d) no fracture simulation data was presented for the Gallegos Federal wells; and

e) neither Whiting nor Pendragon acted prudently to verify by means of additional testing whether its fracture stimulations extended out of their respective producing horizons;

(45) There is sufficient evidence to establish that the fracture stimulations performed on the Chaco Wells No. 1, 4 and 5 resulted in the fracturing of the Fruitland Coal formation within the Basin-Fruitland Coal Gas Pool.

(46) There is not sufficient evidence to establish that the fracture stimulation performed on the Chaco Well No. 2R resulted in the fracturing of the Fruitland Coal formation within the Basin-Fruitland Coal Gas Pool.

(47) There is not sufficient evidence to establish that the fracture stimulations performed on the Gallegos Federal wells resulted in the fracturing of the Pictured Cliffs formation within the WAW-Fruitland Sand Pictured Cliffs Gas Pool, although, given the close proximity of the Pictured Cliffs formation to the Fruitland Coal formation, and given the parameters utilized by Whiting in the fracture treatment of its wells, it is possible that the fracture stimulations performed on the Gallegos Federal wells did result in the fracturing of the Pictured Cliffs formation.

(48) The preponderance of evidence and testimony presented in this case demonstrates that the Pendragon Chaco Wells No. 1, 2R, 4 and 5 and the Chaco Limited Wells No. 1J and 2J have established communication with the Basin-Fruitland Coal Gas Pool by virtue of acidization and/or fracture stimulation performed on these wells.

(49) The communication established between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools has resulted in significant volumes of coal gas being produced from Pendragon's Chaco Wells No. 1, 2R, 4 and 5. This communication appears not to have affected production from the Chaco Limited Wells No. 1J and 2J.

(50) The evidence and testimony presented in this case is not sufficient to demonstrate that the Whiting Gallegos Federal 26-12-6 No. 2, 26-12-7 No. 1, 26-13-1 No. 1, 26-13-1 No. 2 and 26-13-12 No. 17 have established communication with the WAW Fruitland Sand-Pictured Cliffs Gas Pool by virtue of fracture stimulations performed on these wells.

(51) The communication established between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools within the Chaco wells has resulted in the violation of Whiting's correlative rights.

(52) As a solution to the pool communication within the Chaco wells, Whiting has proposed that the Division order Pendragon to plug and abandon the Chaco Wells No. 1, 2R, 4 and 5 and the Chaco Limited Wells No. 1J and 2J.

(53) Pendragon presented no proposed resolution in the event the Division determines that communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools has been established within its Chaco wells.

(54) Pendragon should be given the opportunity to propose a method by which its Chaco wells may be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Gas Pool, or a method for producing its Chaco wells in their current state which is acceptable to the Division and to Whiting. These proposals should be evaluated at a forum which allows discussion and/or input from Whiting.

(55) Pending Division approval of a method by which Pendragon's Chaco wells may be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Gas Pool, or a method by which the wells may be produced in their current state which is acceptable to the Division and to Whiting, Pendragon should shut-in its Chaco Wells No. 1, 2R, 4 and 5 and Chaco Limited Wells No. 1J and 2J.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., it is determined that the following described wells are perforated within the Pictured Cliffs formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool. It is further determined that the following described wells are producing from the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool, San Juan County, New Mexico:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

(2) It is further determined that the following described wells are producing singly from the Basin-Fruitland Coal Gas Pool:

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W

Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Pendragon is hereby ordered to shut-in its Chaco Wells No. 1, 2R, 4 and 5 and its Chaco Limited Wells No. 1J and 2J until such time as the Division approves a method by which its Chaco wells may be produced exclusively from the WAW Fruitland Sand-Pictured Cliffs Gas Pool, or a method for producing its Chaco wells in their current state that is acceptable to Whiting.

(4) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrotenbery

LORI WROTENBERY
Director

S E A L

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:

De Novo
Case No. 11996
Order No. R-11133-A

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. AND J. K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 a.m. on August 12, 1999, at Santa Fe, New Mexico, before the New Mexico Oil Conservation Commission ("Commission") and continued on August 13, 19, 20 and 21, 1999.

NOW, on this 26th day of April, 2000, the Commission, a quorum being present and having considered the record,

FINDS THAT:

(1) Due public notice has been given and the Commission has jurisdiction of this case and its subject matter.

(2) The applicants, Pendragon Energy Partners, Inc. and J. K. Edwards Associates, Inc. (hereinafter referred to as "Pendragon"), pursuant to Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in Oil Conservation Division (hereinafter referred to as "the Division") Order No. R-8768, as amended, seek an order confirming that the following described wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool ("Pendragon Chaco and Chaco Limited Wells") or the Basin-Fruitland Coal Gas Pool ("Whiting Fruitland Coal Wells"), are producing from the appropriate common source of supply and for such further relief as the Commission deems necessary:

Pendragon Chaco and Chaco Limited Wells

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W

Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

Whiting Fruitland Coal Wells

Operator	**Well Name & API Number**	**Well Location**
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Whiting Petroleum Corporation and Maralex Resources, Inc. (hereinafter referred to as "Whiting") appeared at the hearing in opposition to the application. Whiting claimed that the Pendragon Chaco and Chaco Limited Wells are producing:

a) gas from a sandstone interval located within the Fruitland Coal formation; and

b) coal gas from the Basin-Fruitland Coal Gas Pool because of the establishment of communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools.

(4) All eleven wells that are the subject of this application are located within an area (hereinafter referred to as the "Subject Area") that comprises:

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM
Section 6: W/2
Section 7: W/2
Section 18: NW/4

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM,
Section 1: All
Section 12: N/2

(5) The Subject Area is located within the horizontal boundaries of the Basin-Fruitland Coal Gas Pool created by Division Order No. R-8768 dated October 17, 1988. The vertical limits of this pool, as defined by Ordering Paragraph (1) of Order No. R-8768, encompass:

> ... all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2,450 feet to 2,880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(6) The Subject Area is also located within the horizontal boundaries of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The vertical limits of this pool encompass all of the Pictured Cliffs Formation (Order No. R-4260 dated February 22, 1972) and all the sandstone intervals of the Fruitland Coal Formation (Order No. R-8769 dated October 17, 1988).

(7) Pendragon and Whiting received assignments of oil and gas leases in the Subject Area from common grantors, Robert Bayless ("Bayless") and Merrion Oil and Gas Corporation ("Merrion"), during the period from 1992 through 1994.

a) The assignments of rights, in pertinent part, to Whiting are as follows:

Operating rights from the surface of the earth to the base of the Fruitland (Coal Gas) Formation subject to the terms and provisions of that certain Farmout Agreement dated December 7, 1992 by and between Merrion Oil & Gas et al., Robert L. Bayless, Pitco Production Company, and Maralex Resources, Inc.

b) The assignment of rights to Pendragon, in pertinent part, are as follows:

Leases and lands from the base of the Fruitland Coal Formation to the base of the Pictured Cliffs Formation.

(8) A brief history of the Pendragon Chaco and Chaco Limited Wells follows:

a) Merrion and Bayless drilled the Chaco Well No. 1 in February 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,113' to 1,139'. The well initially tested in this interval at a rate of approximately 342 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, J. K. Edwards & Associates, Inc. ("Edwards") became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well.

b) Merrion and Bayless drilled the Chaco Well No. 2R in October 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,132' to 1,142'. The well initially tested in this interval at a rate of approximately 150 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January 1996, Pendragon became operator of the well.

c) Merrion and Bayless drilled the Chaco Well No. 4 in April 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,163' to 1,189'. The well was initially tested in this interval at a rate of approximately 480 MCFGD, 0 BOPD, and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In May 1995, the well was re-perforated in the interval from 1,163' to 1,189' and fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

d) Merrion and Bayless drilled the Chaco Well No. 5 in April 1977, to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,165' to 1,192'. The well initially tested in this interval at a rate of approximately 1029 MCFGD, 0 BOPD and 0 BWPD. In May 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January 1995, the well was re-perforated in the interval from 1,165' to 1,192' and was

fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

e) The Chaco Limited Well No. 1J was drilled by Merrion and Bayless in April 1982 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,200' to 1,209'. The well initially tested in this interval at a rate of approximately 10 MCFGD, 0 BOPD and a trace of water. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

f) The Chaco Limited Well No. 2J was drilled by Merrion and Bayless in September 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,186' to 1,202'. The well initially tested in this interval at a rate of approximately 208 MCFGD, 0 BOPD and 4 BWPD. In October, 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

(9) A brief history of the Whiting Fruitland Coal Wells follows:

a) Maralex drilled the Gallegos Federal 26-12-6 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,138' to 1,157'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

b) Maralex drilled the Gallegos Federal 26-12-7 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,131' to 1,150'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

c) Maralex drilled the Gallegos Federal 26-13-1 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,158' to 1,177'. The well was subsequently fracture

stimulated in this interval. In September 1995, Whiting became operator of the well.

d) Maralex drilled the Gallegos Federal 26-13-1 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,047' to 1,208'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

e) Maralex drilled the Gallegos Federal 26-13-12 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,178' to 1,197'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

Geologic Issues
Fruitland Sand vs. Pictured Cliffs Sand

(10) Related geologic issues are raised by the application: the proper means for determining the limits of the pools and formations at issue, and the effect on this analy if any, of integration or interfingering of different rock types.

(11) In its Chaco Wells No. 1, 4 and 5 and its Chaco Limited Well No. 2J Pendragon is producing from two separate sandstone intervals, hereinafter referred to as the Upper Sandstone and Lower Sandstone intervals. In its Chaco Well No. 2R and Chaco Limited Well No. 1J, Pendragon is producing only from the Lower Sandstone interval. It is the position of Pendragon that the top of the Pictured Cliffs Formation occurs at or above the top of the Upper Sandstone.

(12) The perforated intervals in each of the Pendragon Chaco and Chaco Limited Wells are as follows:

Well Name & Number	"Upper Sandstone" Perforations	"Lower Sandstone" Perforations
Chaco Well No. 1	1,113'-1,119'	1,134'-1,139'
Chaco Well No. 4	1,163-1,166'	1,173'-1,189'
Chaco Well No. 5	1,165'-1,169'	1,174'-1,192'
Chaco Limited Well No. 2J	1,186'-1,188'	1,200'-1,202'
Chaco Well No. 2R	None	1,132'-1,142'
Chaco Limited Well No. 1J	None	1,200'-1,209'

(13) Whiting agrees that the Lower Sandstone interval is within the Pictured Cliffs Formation; however, it contends that the top of the Pictured Cliffs Formation is the top of the Lower Sandstone interval and the Upper Sandstone is within the Fruitland Coal Formation. It is on this basis that Whiting contends that Pendragon is producing from perforations in the Fruitland Coal Formation in its Chaco Wells Nos. 1, 4 and 5 and its Chaco Limited Well No. 2J.

(14) The parties have stipulated that the Pictured Cliffs Formation was deposited in a marine environment and the Fruitland Coal Formation was deposited in a non-marine or terrestrial environment.

(15) In its Order No. R-8768, the Division defined the vertical limits of the Basin Fruitland Coal Gas Pool as all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the well log from the Amoco Schneider Gas Com "B" Well No. 1. The pick for the base of the pool in Order No. R-8768 is the top of the Pictured Cliffs Formation. The pick is also the break between marine and non-marine sediments. It is undisputed that the coal or shale layers occurring below the stratigraphic pick set forth in Order No. R-8768 would not be included in the Basin Fruitland Coal Gas Pool or in the Fruitland Coal Formation.

(16) For the reasons set forth below, we find that the preponderance of the geologic evidence establishes that the Pendragon Chaco and Chaco Limited Wells are completed in the Pictured Cliffs Formation.

(17) The preponderance of the geologic evidence establishes that the Upper Sandstone is marine in origin and thus appropriately considered a part of the Pictured Cliffs Formation. The Upper Sandstone in the Subject Area cannot be differentiated from the main body of the Pictured Cliffs Formation.

(18) In the late Cretaceous period in what was to become the San Juan Basin, sediments were deposited contemporaneously in various environments. The Lewis Shale represents muds and storm-carried sands offshore of the barrier-beach setting. The Pictured Cliffs formation accumulated in primarily a barrier-beach setting. The Fruitland Coal formation accumulated on a coastal plain with swamps and bogs and the Kirtland Formation accumulated in an alluvial plain. As the ancient shoreline moved to the northeast, each of the environments of deposition shifted. At a single location a wellbore presents the familiar vertical sequence of Formations.

(19) Pendragon's isopach map of the Upper Sandstone, Exhibits 50 and 63, show this barrier-bar marine littoral environment with sandstone along the ancient shoreline trending in a northwest to a southeast direction. Pendragon's Exhibits 50 and 63 also show that the Upper Sandstone occurs in a continuous sheet that coalesces into the main body of the Pictured Cliffs Formation as it trends from the shoreline environment on the southwest toward the center of the San Juan basin to the northeast.

(20) In the Subject Area, tongues of Pictured Cliffs sandstone thin in a landward direction and thicken in a seaward direction and ultimately merge with the main body of the Pictured Cliffs Formation. These tongues "interfinger" or integrate with other rock types in the Subject Area.

(21) The interval between the top of the Upper Sandstone and the top of the main body of the Pictured Cliffs (the Lower Sandstone) is composed of a variety of rock types including marine sandstones, silt stones, shales, and thin coals. It has been the long-standing and accepted custom and practice of industry and the various regulatory agencies, including the Division in Order No. R-8768 and R-8769, to place this entire interval within the Pictured Cliffs Formation. This industry and regulatory agency practice conforms to the standards of the North American Stratigraphic Code and the International Stratigraphic Guide.

(22) The evidence presented by Pendragon establishes that over the years approximately 34 wells within approximately 2.5 miles of the Pendragon Chaco and Chaco Limited wells were actually perforated in the Upper Sandstone in conjunction with other Pictured Cliffs intervals and reported by the numerous different operators of those wells as Pictured Cliffs completions, consistent with the picks for the top of the Pictured Cliffs for the Chaco Plant No. 1 and the Pendragon Chaco and Chaco Limited Wells (Exhibit N-61). The evidence also establishes that those reported completions were accepted by the Division and the Bureau of Land Management and that industry and geologists have placed substantial reliance on those reported completions as Pictured Cliffs completions for nearly thirty years.

(23) In a written statement provided to the Commission during the hearing in this case, Merrion, the assignor of the interests in both the Fruitland Coal Formation to Whiting and Pictured Cliffs Formation to Pendragon, indicated it concurred with Pendragon in its identification of the Upper Sandstone interval and the historic recognition of that interval as Pictured Cliffs by Merrion and other operators in the area. (Exhibit N-43.) Merrion further stated that the Pendragon Chaco Wells are appropriately perforated in the Pictured Cliffs Formation and that it had no intention of conveying to Pendragon wells that were perforated in other zones. Merrion also stated that it never intended to farm-out to Whiting the rights to zones where the Pendragon Chaco Wells were perforated.

(24) Thus, identification and utilization of the Upper Sandstone tongues to establish the vertical boundaries of the Pictured Cliffs Formation by industry, governmental regulatory agencies and the parties or their predecessor-in-interest is a long-established custom and practice. Such custom and practice is to be accorded significant weight.

(25) Whiting asserted during the hearing of this matter that the Upper Sandstone interval was deposited in a non-marine, crevasse-splay deposit, resulting from a large, sediment-laden river breaking through its natural boundaries during a flood stage and spreading clean, well-sorted sand over an area more than sixteen-miles long and up to three-miles wide parallel to the shoreline. However, Whiting failed to establish by a preponderance of the evidence the existence of any crevasse splay or any depositional materials indicative of a sand-laden flood. Moreover, there is no evidence of the transporting river or river channel, the thinning of sand deposits in both directions at right angles to the river, adjacent deltaic deposits or any other non-marine mechanism with the capability of forming the thin, but areally extensive, sand of the dimensions seen in the Upper Sandstone.

(26) Whiting also asserted it was possible that the disputed interval was deposited as a washover fan. However, the washover fan depositional mechanism involves wave-dominated action, consistent with the accepted geologic definitions of a marine depositional mechanism. Such a theory also supports a conclusion that the Upper Sandstone was deposited in a marine environment.

(27) Pendragon presented aerial photographs of modern deposits of sands comparable in mode of deposition and areal extent to the Upper Sandstone located in the marine lagoonal areas behind barrier islands, thus demonstrating the validity of the depositional model. Pendragon demonstrated using these exhibits that these sands are wave and tidal-current dominated deposits, and further showed that the seaward beach of a barrier island is not to be confused with the true marine shoreline, which lies behind the island.

(28) The core analysis for the Lansdale Federal No. 1 located in the SE/4 of Sec. 7, T-26-N, R-12-W establishes that grain size and sorting throughout the Upper Sandstone is uniform, consistent with a marine depositional environment. The physical descriptions of the sand appearing in the Upper Sandstone and the Lower Sandstone are grey, fine-grained with little variation in clay content, consistent with a marine sand that has been laterally transported by currents and waves to the point where the energy available sorts the sand into uniform size. Sand-sorting characteristics of this sort are not consistent with a fluvial deposit with graded bedding coarsening downward.

(29) Pendragon presented evidence that the Spontaneous Potential ("SP") readings on electrical logs are much greater in the Pictured Cliffs Formation, which was deposited in a marine setting, than in the Fruitland sands, which were deposited in a fluvial, fresh water environment. Pendragon demonstrated that the SP readings for the Upper Sandstone were comparable or identical to those of the Lower Sandstone and were much greater than those of the Fruitland sands.

(30) The SP map of the Pictured Cliffs Formation introduced by Whiting, Exhibit WA-9, showed 40 to 80 millivolt SP development in the Chaco area. The cross-section exhibit demonstrated that the disputed interval also showed 40 to 80 millivolts SP, even though it was interpreted by Whiting to be Fruitland sandstone, and all other Fruitland sands on his cross-section showed only zero to less than 10 millivolts. Additional testimony established that 40 to 80 millivolts is a significantly higher range than is typically associated with SP development in a fresh-water depositional environment and is more characteristic of the SP development in the Pictured Cliffs intervals observed on the well logs and cross-sections for the Pendragon Chaco Wells.

(31) Whiting contends that the top of the first "massive" sandstone below the lowermost coal of the Fruitland Coal Formation should be the basis for picking the top of the Pictured Cliffs formation. Whiting contends that the operators of approximately one hundred additional wells outside the Subject Area identified the top of the massive Pictured Cliffs Sandstone as the vertical boundary between the Pictured Cliffs and Fruitland Coal Formations. However, Whiting failed to present evidence establishing that the Upper Sandstone interval was present in any of the wells identified. Similarly, Whiting failed to show that any operator identified the top of the Pictured Cliffs sandstone as the massive sand in those areas where tongues of the Pictured Cliffs are known to exist. The geologic testimony and evidence shows that such a definition has little support in the geologic literature and that the arbitrary and undefined term "massive" makes its application impractical.

Engineering Issue

(32) Whiting, the owners and operators of the Whiting Fruitland Coal Wells, and Pendragon, the owner and operator of the Pendragon Chaco and Chaco Limited Wells, each contend that the other's well stimulation treatments established communication between their separately owned formations. Both parties contend that, as a result, their wells are experiencing interference and that gas is being produced out of zone.

(33) The preponderance of the engineering evidence established that the fracture stimulation treatments performed on both the Pendragon Chaco Wells by Pendragon and the Whiting Fruitland Coal Wells by Whiting established communication between the Fruitland Coal Formation and the Pictured Cliffs Formation.

(34) The treatment performed on the Whiting Fruitland Coal Wells after they were drilled created near-wellbore communication channels between the Fruitland Coal and Pictured Cliffs Formations. At the time, the gas in the Pictured Cliffs Formation was nearly depleted and very little gas could escape to the Fruitland Coal Formation, unless the Whiting Fruitland Coal Wells were operated under extremely low pressures. On the other hand, the adsorbed gas in the Fruitland Coal Formation stayed within the coal matrices until the pressure was lowered enough through the dewatering process for the gas to desorb.

(35) After the dewatering process, substantial amounts of adsorbed gas escaped from the coal matrices, especially in the near-wellbore region where pressure was lowest. As a result, the Whiting Fruitland Coal Wells began their commercial gas production. The desorbed gas moving toward the Whiting Fruitland Coal Wells may have migrated to the Pictured Cliffs Formation through the communication channels near the Whiting Fruitland Coal Wells if the local pressure in the Pictured Cliffs Formation was lower than that in the Fruitland Coal Formation. Gas in the Pictured Cliffs Formation may have migrated to the Fruitland Coal Formation through the communication channels if the production pressures at the Whiting Fruitland Coal Wells were low. However, these possible gas migrations were not significant, as evidenced by steady gas production from the Pendragon Chaco Wells.

(36) In 1995, after three years of the dewatering process, the region in which decreased pressures allowed gas to desorb from the coal matrices had grown toward the Pendragon Chaco Wells. At the edge of the resulting gas bubble, the gas pressure in the Fruitland Coal Formation was probably higher than the adjacent pressure in the Pictured Cliffs Formation. In the area of this relatively high-pressure contrast, the thin capillary barrier may have been broken, allowing gas migration between the two zones.

(37) Pendragon performed fracture stimulation treatments on the Pendragon Chaco Wells in 1995. The post-treatment gas production from the Pendragon Chaco Wells indicates that the stimulation work performed by Pendragon successfully broke into some high-pressure gas compartments.

(38) The production history of the Pendragon Chaco and Chaco Limited Wells is summarized as follows:

Well No.	Initial Production (Original Completion)	Pre-Acidization or Fracture Stimulation Production	Post-Acidization or Fracture Stimulation Production	Last Production
Chaco No. 1	80 MCF/D	0 MCF/D	250 MCF/D	165 MCF/D
Chaco No. 2R	70 MCF/D	0-15 MCF/D	90 MCF/D	120 MCF/D
Chaco No. 4	200 MCF/D	0 MCF/D	425 MCF/D	200 MCF/D
Chaco No. 5	190 MCF/D	0 MCF/D	370 MCF/D	210 MCF/D
Chaco Ltd. 1J	11 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D
Chaco Ltd. 2J	30 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D

(39) One possibility is that the hydraulic fractures were extended upward to the Fruitland Coal Formation and generated a gas highway to the gas bubble. Pendragon's experts vigorously denied this possibility. Instead, they asserted that an additional gas compartment, the so-called "third bench," exists below the perforations in the Pendragon Chaco Wells. The evidence does not support this assertion. No "third bench" has been reported previously throughout the San Juan region, and there is no geological evidence of this kind of formation. Furthermore, there is no scientific basis for believing that fractures moved downward into the "third bench" but not upward into the Fruitland Coal

Formation. Therefore, the most reasonable explanation of the sudden significant increases in production following the fracture stimulation treatments on the Pendragon Chaco Wells was that the hydraulic fractures penetrated into the gas bubble established in the Fruitland Coal Formation.

(40) Pendragon also asserted that the fracture stimulation treatments increased production in the Pendragon Chaco Wells by counteracting the effects of reservoir damage caused by (a) scale precipitation, (b) water blockage, and (c) migration of clay fines. As the original Pictured Cliffs gas was relatively dry, however, it is unlikely that the Pendragon Chaco Wells suffered from significant reservoir damage of this type.

(41) The BTU analysis of the gas from the Pendragon Chaco Wells supports the conclusion that the fracture stimulation treatments of these wells in 1995 established communication with the Fruitland Coal Formation. Whiting showed that the hydrocarbon liquids content of the gas from the Pendragon Chaco Wells was slightly reduced from 1988 to 1995 and significantly reduced from 1995 to 1997.

(42) Expert witnesses for both Pendragon and Whiting presented their opinions on the effects of the fracture stimulation treatments in the Whiting Fruitland Coal Wells and the Pendragon Chaco Wells based on their own theories and models. Many input values for key parameters were questionable. Both simulators used in their testimony have a good reputation for assisting in the design of fracturing jobs, but it is easy to manipulate them incorrectly. In a case like this, their results are too exaggerated to be reliable.

(43) The acid stimulation treatments performed by Pendragon on the Chaco Limited Wells No. 1J and 2J in 1995 did not alter these wells' rates of production. These treatments did not establish communication between the Pictured Cliffs Formation and the Fruitland Coal Formation.

(44) The gas now capable of production from the Pendragon Chaco Wells No. 1, 2R, 4, and 5 is: (1) gas originally in place in the Pictured Cliffs Formation; (2) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the
Pendragon Chaco Wells; and (3) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the Whiting Fruitland Coal Wells.

(45) The Pendragon Chaco Wells depleted the Pictured Cliffs Formation prior to the fracture stimulation treatments performed on the wells in 1995.

(46) Pendragon Chaco Wells No. 1, 2R, 4, and 5 have already produced their fair share of the gas in the Pictured Cliffs Formation.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., it is determined that the following described wells are perforated within the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool. It is further determined that the following described wells are producing from both the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool, San Juan County, New Mexico:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W

(2) It is further determined that the following described wells are perforated within and producing solely from the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

(3) It is further determined that the following described wells are producing from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W

Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(4) Pendragon is hereby ordered to shut-in its Chaco Wells No. 1, 2R, 4 and 5 until such time as the Division approves a method for either putting them back into production or plugging them.

(5) Inasmuch as Whiting's wells may produce only minor amounts of gas from the already depleted WAW Fruitland Sand-Pictured Cliffs Pool, Whiting's wells are not to be shut-in.

(6) Jurisdiction is hereby retained for the entry of such further orders 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

JAMI BAILEY, Member

ROBERT L. LEE, Member

LORI WROTENBERY, Chairman

S E A L

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

ORDER EXTENDING TIME TO FILE RECORD ON APPEAL

THIS MATTER having come before the court upon motion of Appellee, the New Mexico Oil Conservation Commission, by and through counsel of record, for an Order extending the time to file the Record on Appeal in this matter, and the Court having reviewed the pleadings and noted concurrence of counsel for Appellants,

FINDS that the motion is well-taken and should be granted.

IT IS THEREFORE ORDERED, ADJUDGED AND DECREED that Appellee, the New Mexico Oil Conservation Commission, shall have an additional twenty-one (21) days to file with the clerk of the court the Record on Appeal in this matter.

DANIEL A. SANCHEZ

The Honorable Daniel A. Sanchez

Submitted by:

Stephen C. Ross
Counsel for Appellee
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156
(505) 827-8177 (facsimile)

Telephonically approved, July 12, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614
(505) 989-9857

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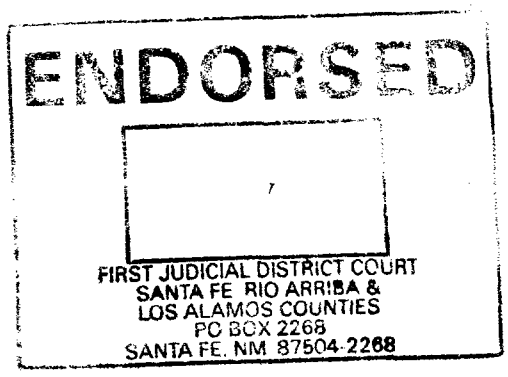
FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE



PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

MOTION TO EXTEND TIME TO FILE RECORD ON APPEAL

COMES NOW the Appellee, the New Mexico Oil Conservation Commission (hereinafter referred to as "the Commission"), by and through its attorney of record, Stephen C. Ross, Special Assistant Attorney General, and hereby moves the Court for an extension of time to file the record on appeal in this matter, on the following grounds:

1. This matter is an appeal from decision of the New Mexico Oil Conservation Commission pursuant to NMSA 1978, §§ 39-3-1.1 and 70-2-25(B) (Repl. 1999) and Rule 1-074 NMRA.

2. The Notice of Appeal was filed by Appellants on June 13, 2000. Ordinarily, the Record on Appeal (hereinafter referred to as "the Record") should be filed with the clerk of the court on July 13, 2000.

3. The Record on Appeal is very extensive and contains many thousands of pages and dozens of original exhibits. Some of the exhibits used in the hearing are large engineering charts that are difficult to duplicate. The transcript of the hearing alone is more than 1,600 pages.

4. Counsel for Appellant and counsel for Appellee have conferred concerning the Record, both to insure that it is complete and accurate when filed with the Court, and to coordinate copying of the Record so that both parties have a copy. These efforts continue and, because of the size of the Record, cannot be completed by the deadline for filing.

5. Counsel for Appellants has agreed to entry of an order extending the time for filing the Record an additional twenty-one (21) days.

WHEREFORE, for the foregoing reasons, Appellee New Mexico Oil Conservation Commission moves the Court for an Order extending the time to file the record on appeal in this matter for an additional twenty-one (21) days

Respectfully Submitted.

Stephen C. Ross
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156 (telephone)
(505) 827-8177 (facsimile)

Certificate of Service

I, Stephen C. Ross, hereby certify that a copy of the foregoing pleading was mailed to counsel listed below, this 12th day of July, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504

Stephen C. Ross

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

OIL CONSERVATION DIV.
00 JUL 13 PM 12:59

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellants,

vs. **No. D-0117-CV-2000-1449**

NEW MEXICO OIL CONSERVATION COMMISSION

Appellee.

REQUEST FOR SETTING

1. Jury: _X_ Non-Jury: ____
2. Judge to whom assigned: Honorable Daniel Sanchez
3. Disqualified Judges: Carol J. Vigil
4. Specific matter(s) to be heard: Status Conference
5. Estimate time for hearing all parties and witnesses: 30 Minutes
6. Date Pre-trial order was filed or date of pre-trial conference: N/A
7. There (are/**are not**) any hearings presently set; and if so when:
8. Names, addresses, and telephone numbers of all counsel or parties *pro se* entitled to notice:

Stephen C. Ross, Esq.
Special Assistant Attorney General
New Mexico Oil Conservation Commission
2040 South Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156

J. Scott Hall, Esq.
Miller, Stratvert & Torgerson, P.A.
Post Office Box 1986
Santa Fe, New Mexico 87504-1986
(505) 989-9614

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By J. Scott Hall

J. Scott Hall, Esq.
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614

ATTORNEYS FOR PENDRAGON ENERGY PARTNERS, INC.

I HEREBY CERTIFY that a true and correct copy of the foregoing pleading has been mailed to opposing counsel of record this 17 day of July, 2000.

J. Scott Hall

J. Scott Hall, Esq.

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

OIL CONSERVATION DIV.
00 JUL 13 PM 12:58

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellants,

vs. **No. D-0117-CV-2000-1449**

NEW MEXICO OIL CONSERVATION COMMISSION

Appellee.

NOTICE OF HEARING

PLEASE TAKE NOTICE that the above-entitled cause of action has been scheduled for hearing before the Honorable Daniel Sanchez, District Judge, Division VII at the date, time, and place set forth below:

Date:

Time:

Place: Santa Fe County Judicial Complex Building

Purpose: Status Conference

Time Allocated: 30 minutes

FIRST JUDICIAL DISTRICT COURT

BY: _____
Calendar Clerk

I hereby certify that I mailed a copy of the foregoing Notice of Hearing on the date of filing to:

J. Scott Hall, Miller Stratvert & Torgerson, P.A. PO Box 1986, Santa Fe, New Mexico 87504
Steve Ross, NMOCC 2040 S. Pacheco Street, Santa Fe, New Mexico 87505

FIRST JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF SANTA FE

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION,

Appellants,

No. D 0117-CV-2000-1449

vs.

THE NEW MEXICO OIL CONSERVATION COMMISSION,

Appellee.

ENTRY OF APPEARANCE

COMES NOW Stephen C. Ross, Special Assistant Attorney General, and hereby enters his appearance in this matter on behalf of the Appellee, the New Mexico Oil Conservation Commission.

Respectfully Submitted.

Stephen C. Ross
Special Assistant Attorney General
Oil Conservation Commission
2040 S. Pacheco
Santa Fe, New Mexico 87505
(505) 827-8156 (telephone)
(505) 827-8177 (facsimile)

Certificate of Service

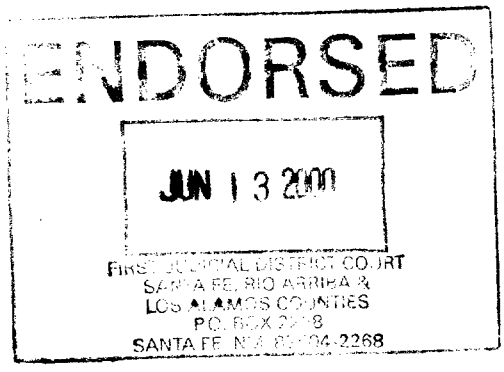
I, Stephen C. Ross, hereby certify that a copy of the foregoing pleading was mailed to counsel listed below, this 28th day of June, 2000:

J. Scott Hall
Miller, Stratvert & Torgerson, P.A.
P.O. Box 1986
Santa Fe, New Mexico 87504

J.E. Gallegos
Michael J. Condon
Gallegos Law Firm
460 St. Michael's Drive, Building 300
Santa Fe, New Mexico 87505

Stephen C. Ross

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO



PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellants,

vs.

No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION COMMISSION

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

NOTICE OF PEREMPTORY EXCUSAL

Pursuant to NMRA 1-088.1(B)(2), one of the Appellants, Pendragon Energy Partners, Inc., by counsel, hereby notifies the Court that it is exercising its right to excuse the Honorable Carol J. Vigil from presiding over the above-captioned cause.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, P.A.

By J. Scott Hall

J. Scott Hall, Esq.
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614

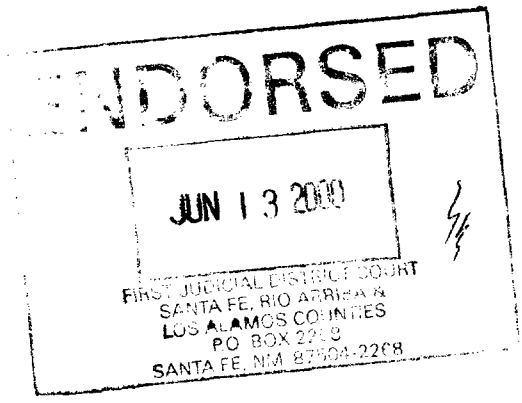
ATTORNEYS FOR PENDRAGON ENERGY PARTNERS, INC.

I HEREBY CERTIFY that a true and correct copy of the foregoing Notice of Peremptory Excusal was mailed to all counsel of record on this 13 day of June 2000.

J. Scott Hall

J. Scott Hall, Esq.

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO



PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellant,

vs.

No. D-0117-CV-2000- 1449

NEW MEXICO OIL CONSERVATION COMMISSION

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the Notice of Appeal was served upon Steve Ross, New Mexico Oil Conservation Commission, 2040 South Pacheco, Santa Fe, New Mexico 87505 and J.E. Gallegos, Esq., 460 St. Michaels Drive, #300, Santa Fe, New Mexico 87505, Attorney for Whiting Petroleum Corporation and Maralex Resources, Inc. by U.S. Mail on this 13 day of June, 2000.

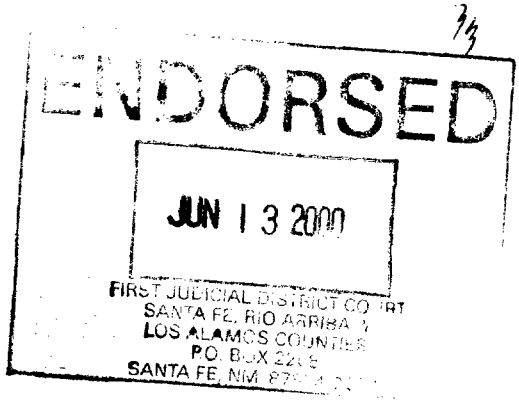
Respectfully submitted,

MILLER, STRATVERT & TORGERSON, PA.

By _____

J. Scott Hall, Esq.
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614

ATTORNEYS FOR PENDRAGON ENERGY PARTNERS, PENDRAGON RESOURCES, L.P. AND EDWARDS ENERGY CORPORATION



FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO

PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellant,

vs. **No. D-0117-CV-2000-** 1449

NEW MEXICO OIL CONSERVATION COMMISSION

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

NMRA 1-072.F(3) CERTIFICATE

Pendragon Energy Partners, Inc., Pendragon Resources, LP and Edwards Energy Corporation, through counsel, hereby certify that satisfactory arrangements have been made with the New Mexico Oil Conservation Commission for the preparation and payment for the transcript of proceedings.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, PA.

By _____

J. Scott Hall, Esq.
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614

ATTORNEYS FOR PENDRAGON ENERGY PARTNERS, PENDRAGON RESOURCES, L.P. AND EDWARDS ENERGY CORPORATION

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing NMRA 1-074.F(3) Certificate was mailed on this 13 day of June, 2000 to the following:

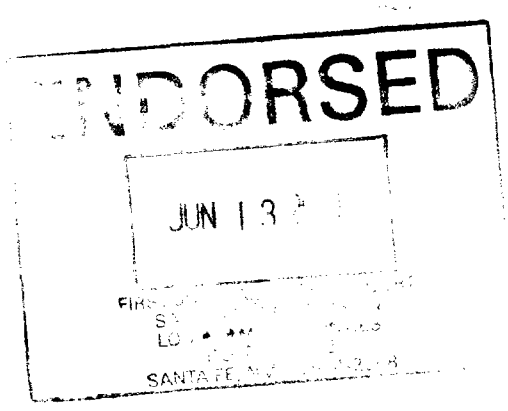
Steve Ross
New Mexico Oil Conservation Commission
2040 South Pacheco
Santa Fe, New Mexico 87505

J.E. Gallegos
460 St. Michaels Drive, #300
Santa Fe, New Mexico 87505
Attorney for Whiting Petroleum Corporation and Maralex Resources, Inc.

_____
J. Scott Hall, Esq.

3/4

FIRST JUDICIAL DISTRICT COURT
COUNTY OF SANTA FE
STATE OF NEW MEXICO



PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, LP, AND EDWARDS ENERGY CORPORATION

Appellant,

vs.

No. D-0117-CV-2000-1449

NEW MEXICO OIL CONSERVATION COMMISSION

Appellee.

IN RE:

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO

NMOCC CASE NO. 11996
Order No. R-11133-A *De Novo*

NOTICE OF APPEAL

Pendragon Energy Partners, Inc., Pendragon Resources, LP, and Edwards Energy Corporation, (f/k/a J.K. Edwards Associates, Inc.), ("Appellants"), through their counsel of record, Miller, Stratvert & Torgerson, P.A. (J. Scott Hall), pursuant to NMSA 1978 Section 70-2-25 of the New Mexico Oil and Gas Act and Section 39-3-1.1 (Repl. Pamp. 1995), hereby files this Notice of Appeal from Order No. R-11133-A issued by the New Mexico Oil Conservation Commission on April 26, 2000 and from the Commission's disposition of Appellants' Application For Rehearing filed on May 16, 2000. Pursuant to Section 70-2-25, the Application for Rehearing is deemed denied by the Commission as of May 26, 2000.

Appeal is made to the District Court for the County of Santa Fe, New Mexico. The Appeal is taken against the Commission and against Whiting Petroleum Corporation and Maralex Resources, Inc. Copies of Order No. R-11133-A and the Application For Rehearing are attached hereto.

Respectfully submitted,

MILLER, STRATVERT & TORGERSON, PA.

By_____

J. Scott Hall, Esq.
Post Office Box 1986
Santa Fe, New Mexico 87504
(505) 989-9614

ATTORNEYS FOR PENDRAGON ENERGY PARTNERS, PENDRAGON RESOURCES, L.P. AND EDWARDS ENERGY CORPORATION

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Notice of Appeal was mailed on this 13 day of June, 2000 to the following:

Steve Ross
New Mexico Oil Conservation Commission
2040 South Pacheco
Santa Fe, New Mexico 87505

J.E. Gallegos
460 St. Michaels Drive, #300
Santa Fe, New Mexico 87505
Attorney for Whiting Petroleum Corporation and Maralex Resources, Inc.

_____
J. Scott Hall, Esq.

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:

De Novo
Case No. 11996
Order No. R-11133-A

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC. AND J. K. EDWARDS ASSOCIATES, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 a.m. on August 12, 1999, at Santa Fe, New Mexico, before the New Mexico Oil Conservation Commission ("Commission") and continued on August 13, 19, 20 and 21, 1999.

NOW, on this 26th day of April, 2000, the Commission, a quorum being present and having considered the record,

FINDS THAT:

(1) Due public notice has been given and the Commission has jurisdiction of this case and its subject matter.

(2) The applicants, Pendragon Energy Partners, Inc. and J. K. Edwards Associates, Inc. (hereinafter referred to as "Pendragon"), pursuant to Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in Oil Conservation Division (hereinafter referred to as "the Division") Order No. R-8768, as amended, seek an order confirming that the following described wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool ("Pendragon Chaco and Chaco Limited Wells") or the Basin-Fruitland Coal Gas Pool ("Whiting Fruitland Coal Wells"), are producing from the appropriate common source of supply and for such further relief as the Commission deems necessary:

Pendragon Chaco and Chaco Limited Wells

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W

Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

Whiting Fruitland Coal Wells

Operator	**Well Name & API Number**	**Well Location**
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(3) Whiting Petroleum Corporation and Maralex Resources, Inc. (hereinafter referred to as "Whiting") appeared at the hearing in opposition to the application. Whiting claimed that the Pendragon Chaco and Chaco Limited Wells are producing:

a) gas from a sandstone interval located within the Fruitland Coal formation; and

b) coal gas from the Basin-Fruitland Coal Gas Pool because of the establishment of communication between the Basin-Fruitland Coal and WAW Fruitland Sand-Pictured Cliffs Gas Pools.

(4) All eleven wells that are the subject of this application are located within an area (hereinafter referred to as the "Subject Area") that comprises:

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM
Section 6: W/2
Section 7: W/2
Section 18: NW/4

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM,
Section 1: All
Section 12: N/2

(5) The Subject Area is located within the horizontal boundaries of the Basin-Fruitland Coal Gas Pool created by Division Order No. R-8768 dated October 17, 1988. The vertical limits of this pool, as defined by Ordering Paragraph (1) of Order No. R-8768, encompass:

> ... all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2,450 feet to 2,880 feet as shown on the Gamma Ray/Bulk Density log from Amoco Production Company's Schneider Gas Com "B" Well No. 1 located 1110 feet from the South line and 1185 feet from the West line of Section 28, Township 32 North, Range 10 West, NMPM, San Juan County, New Mexico.

(6) The Subject Area is also located within the horizontal boundaries of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. The vertical limits of this pool encompass all of the Pictured Cliffs Formation (Order No. R-4260 dated February 22, 1972) and all the sandstone intervals of the Fruitland Coal Formation (Order No. R-8769 dated October 17, 1988).

(7) Pendragon and Whiting received assignments of oil and gas leases in the Subject Area from common grantors, Robert Bayless ("Bayless") and Merrion Oil and Gas Corporation ("Merrion"), during the period from 1992 through 1994.

a) The assignments of rights, in pertinent part, to Whiting are as follows:

Operating rights from the surface of the earth to the base of the Fruitland (Coal Gas) Formation subject to the terms and provisions of that certain Farmout Agreement dated December 7, 1992 by and between Merrion Oil & Gas et al., Robert L. Bayless, Pitco Production Company, and Maralex Resources, Inc.

b) The assignment of rights to Pendragon, in pertinent part, are as follows:

Leases and lands from the base of the Fruitland Coal Formation to the base of the Pictured Cliffs Formation.

(8) A brief history of the Pendragon Chaco and Chaco Limited Wells follows:

a) Merrion and Bayless drilled the Chaco Well No. 1 in February 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,113' to 1,139'. The well initially tested in this interval at a rate of approximately 342 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, J. K. Edwards & Associates, Inc. ("Edwards') became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January, 1996, Pendragon became operator of the well.

b) Merrion and Bayless drilled the Chaco Well No. 2R in October 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,132' to 1,142'. The well initially tested in this interval at a rate of approximately 150 MCFGD, 0 BOPD and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was fracture stimulated in the perforated interval. In January 1996, Pendragon became operator of the well.

c) Merrion and Bayless drilled the Chaco Well No. 4 in April 1977 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,163' to 1,189'. The well was initially tested in this interval at a rate of approximately 480 MCFGD, 0 BOPD, and 0 BWPD. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In May 1995, the well was re-perforated in the interval from 1,163' to 1,189' and fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

d) Merrion and Bayless drilled the Chaco Well No. 5 in April 1977, to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,165' to 1,192'. The well initially tested in this interval at a rate of approximately 1029 MCFGD, 0 BOPD and 0 BWPD. In May 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January 1995, the well was re-perforated in the interval from 1,165' to 1,192' and was

fracture stimulated in this interval. In January 1996, Pendragon became operator of the well.

e) The Chaco Limited Well No. 1J was drilled by Merrion and Bayless in April 1982 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,200' to 1,209'. The well initially tested in this interval at a rate of approximately 10 MCFGD, 0 BOPD and a trace of water. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

f) The Chaco Limited Well No. 2J was drilled by Merrion and Bayless in September 1979 to test the Pictured Cliffs Formation. The well was perforated and completed in the Pictured Cliffs Formation from a depth of 1,186' to 1,202'. The well initially tested in this interval at a rate of approximately 208 MCFGD, 0 BOPD and 4 BWPD. In October, 1979, the well was fracture stimulated in this interval. In January, 1995, Edwards became operator of the well. In January, 1995, the well was acidized with 500 gallons 7 ½ percent HCl. In January 1996, Pendragon became operator of the well.

(9) A brief history of the Whiting Fruitland Coal Wells follows:

a) Maralex drilled the Gallegos Federal 26-12-6 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,138' to 1,157'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

b) Maralex drilled the Gallegos Federal 26-12-7 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,131' to 1,150'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

c) Maralex drilled the Gallegos Federal 26-13-1 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,158' to 1,177'. The well was subsequently fracture

stimulated in this interval. In September 1995, Whiting became operator of the well.

d) Maralex drilled the Gallegos Federal 26-13-1 No. 2 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,047' to 1,208'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

e) Maralex drilled the Gallegos Federal 26-13-12 No. 1 in December 1992 to test the Basin-Fruitland Coal Gas Pool. The well was perforated and completed in the Fruitland Coal Formation from a depth of 1,178' to 1,197'. The well was subsequently fracture stimulated in this interval. In September 1995, Whiting became operator of the well.

Geologic Issues
Fruitland Sand vs. Pictured Cliffs Sand

(10) Related geologic issues are raised by the application: the proper means for determining the limits of the pools and formations at issue, and the effect on this analysis, if any, of integration or interfingering of different rock types.

(11) In its Chaco Wells No. 1, 4 and 5 and its Chaco Limited Well No. 2J, Pendragon is producing from two separate sandstone intervals, hereinafter referred to as the Upper Sandstone and Lower Sandstone intervals. In its Chaco Well No. 2R and Chaco Limited Well No. 1J, Pendragon is producing only from the Lower Sandstone interval. It is the position of Pendragon that the top of the Pictured Cliffs Formation occurs at or above the top of the Upper Sandstone.

(12) The perforated intervals in each of the Pendragon Chaco and Chaco Limited Wells are as follows:

Well Name & Number	"Upper Sandstone" Perforations	"Lower Sandstone" Perforations
Chaco Well No. 1	1,113'-1,119'	1,134'-1,139'
Chaco Well No. 4	1,163-1,166'	1,173'-1,189'
Chaco Well No. 5	1,165'-1,169'	1,174'-1,192'
Chaco Limited Well No. 2J	1,186'-1,188'	1,200'-1,202'
Chaco Well No. 2R	None	1,132'-1,142'
Chaco Limited Well No. 1J	None	1,200'-1,209'

(13) Whiting agrees that the Lower Sandstone interval is within the Pictured Cliffs Formation; however, it contends that the top of the Pictured Cliffs Formation is the top of the Lower Sandstone interval and the Upper Sandstone is within the Fruitland Coal Formation. It is on this basis that Whiting contends that Pendragon is producing from perforations in the Fruitland Coal Formation in its Chaco Wells Nos. 1, 4 and 5 and its Chaco Limited Well No. 2J.

(14) The parties have stipulated that the Pictured Cliffs Formation was deposited in a marine environment and the Fruitland Coal Formation was deposited in a non-marine or terrestrial environment.

(15) In its Order No. R-8768, the Division defined the vertical limits of the Basin Fruitland Coal Gas Pool as all coal seams within the equivalent of the stratigraphic interval from a depth of approximately 2450 feet to 2880 feet as shown on the well log from the Amoco Schneider Gas Com "B" Well No. 1. The pick for the base of the pool in Order No. R-8768 is the top of the Pictured Cliffs Formation. The pick is also the break between marine and non-marine sediments. It is undisputed that the coal or shale layers occurring below the stratigraphic pick set forth in Order No. R-8768 would not be included in the Basin Fruitland Coal Gas Pool or in the Fruitland Coal Formation.

(16) For the reasons set forth below, we find that the preponderance of the geologic evidence establishes that the Pendragon Chaco and Chaco Limited Wells are completed in the Pictured Cliffs Formation.

(17) The preponderance of the geologic evidence establishes that the Upper Sandstone is marine in origin and thus appropriately considered a part of the Pictured Cliffs Formation. The Upper Sandstone in the Subject Area cannot be differentiated from the main body of the Pictured Cliffs Formation.

(18) In the late Cretaceous period in what was to become the San Juan Basin, sediments were deposited contemporaneously in various environments. The Lewis Shale represents muds and storm-carried sands offshore of the barrier-beach setting. The Pictured Cliffs formation accumulated in primarily a barrier-beach setting. The Fruitland Coal formation accumulated on a coastal plain with swamps and bogs and the Kirtland Formation accumulated in an alluvial plain. As the ancient shoreline moved to the northeast, each of the environments of deposition shifted. At a single location a wellbore presents the familiar vertical sequence of Formations.

(19) Pendragon's isopach map of the Upper Sandstone, Exhibits 50 and 63, show this barrier-bar marine littoral environment with sandstone along the ancient shoreline trending in a northwest to a southeast direction. Pendragon's Exhibits 50 and 63 also show that the Upper Sandstone occurs in a continuous sheet that coalesces into the main body of the Pictured Cliffs Formation as it trends from the shoreline environment on the southwest toward the center of the San Juan basin to the northeast.

(20) In the Subject Area, tongues of Pictured Cliffs sandstone thin in a landward direction and thicken in a seaward direction and ultimately merge with the main body of the Pictured Cliffs Formation. These tongues "interfinger" or integrate with other rock types in the Subject Area.

(21) The interval between the top of the Upper Sandstone and the top of the main body of the Pictured Cliffs (the Lower Sandstone) is composed of a variety of rock types including marine sandstones, silt stones, shales, and thin coals. It has been the long-standing and accepted custom and practice of industry and the various regulatory agencies, including the Division in Order No. R-8768 and R-8769, to place this entire interval within the Pictured Cliffs Formation. This industry and regulatory agency practice conforms to the standards of the North American Stratigraphic Code and the International Stratigraphic Guide.

(22) The evidence presented by Pendragon establishes that over the years approximately 34 wells within approximately 2.5 miles of the Pendragon Chaco and Chaco Limited wells were actually perforated in the Upper Sandstone in conjunction with other Pictured Cliffs intervals and reported by the numerous different operators of those wells as Pictured Cliffs completions, consistent with the picks for the top of the Pictured Cliffs for the Chaco Plant No. 1 and the Pendragon Chaco and Chaco Limited Wells (Exhibit N-61). The evidence also establishes that those reported completions were accepted by the Division and the Bureau of Land Management and that industry and geologists have placed substantial reliance on those reported completions as Pictured Cliffs completions for nearly thirty years.

(23) In a written statement provided to the Commission during the hearing in this case, Merrion, the assignor of the interests in both the Fruitland Coal Formation to Whiting and Pictured Cliffs Formation to Pendragon, indicated it concurred with Pendragon in its identification of the Upper Sandstone interval and the historic recognition of that interval as Pictured Cliffs by Merrion and other operators in the area. (Exhibit N-43.) Merrion further stated that the Pendragon Chaco Wells are appropriately perforated in the Pictured Cliffs Formation and that it had no intention of conveying to Pendragon wells that were perforated in other zones. Merrion also stated that it never intended to farm-out to Whiting the rights to zones where the Pendragon Chaco Wells were perforated.

(24) Thus, identification and utilization of the Upper Sandstone tongues to establish the vertical boundaries of the Pictured Cliffs Formation by industry, governmental regulatory agencies and the parties or their predecessor-in-interest is a long-established custom and practice. Such custom and practice is to be accorded significant weight.

(25) Whiting asserted during the hearing of this matter that the Upper Sandstone interval was deposited in a non-marine, crevasse-splay deposit, resulting from a large, sediment-laden river breaking through its natural boundaries during a flood stage and spreading clean, well-sorted sand over an area more than sixteen-miles long and up to three-miles wide parallel to the shoreline. However, Whiting failed to establish by a preponderance of the evidence the existence of any crevasse splay or any depositional materials indicative of a sand-laden flood. Moreover, there is no evidence of the transporting river or river channel, the thinning of sand deposits in both directions at right angles to the river, adjacent deltaic deposits or any other non-marine mechanism with the capability of forming the thin, but areally extensive, sand of the dimensions seen in the Upper Sandstone.

(26) Whiting also asserted it was possible that the disputed interval was deposited as a washover fan. However, the washover fan depositional mechanism involves wave-dominated action, consistent with the accepted geologic definitions of a marine depositional mechanism. Such a theory also supports a conclusion that the Upper Sandstone was deposited in a marine environment.

(27) Pendragon presented aerial photographs of modern deposits of sands comparable in mode of deposition and areal extent to the Upper Sandstone located in the marine lagoonal areas behind barrier islands, thus demonstrating the validity of the depositional model. Pendragon demonstrated using these exhibits that these sands are wave and tidal-current dominated deposits, and further showed that the seaward beach of a barrier island is not to be confused with the true marine shoreline, which lies behind the island.

(28) The core analysis for the Lansdale Federal No. 1 located in the SE/4 of Sec. 7, T-26-N, R-12-W establishes that grain size and sorting throughout the Upper Sandstone is uniform, consistent with a marine depositional environment. The physical descriptions of the sand appearing in the Upper Sandstone and the Lower Sandstone are grey, fine-grained with little variation in clay content, consistent with a marine sand that has been laterally transported by currents and waves to the point where the energy available sorts the sand into uniform size. Sand-sorting characteristics of this sort are not consistent with a fluvial deposit with graded bedding coarsening downward.

(29) Pendragon presented evidence that the Spontaneous Potential ("SP") readings on electrical logs are much greater in the Pictured Cliffs Formation, which was deposited in a marine setting, than in the Fruitland sands, which were deposited in a fluvial, fresh water environment. Pendragon demonstrated that the SP readings for the Upper Sandstone were comparable or identical to those of the Lower Sandstone and were much greater than those of the Fruitland sands.

(30) The SP map of the Pictured Cliffs Formation introduced by Whiting, Exhibit WA-9, showed 40 to 80 millivolt SP development in the Chaco area. The cross-section exhibit demonstrated that the disputed interval also showed 40 to 80 millivolts SP, even though it was interpreted by Whiting to be Fruitland sandstone, and all other Fruitland sands on his cross-section showed only zero to less than 10 millivolts. Additional testimony established that 40 to 80 millivolts is a significantly higher range than is typically associated with SP development in a fresh-water depositional environment and is more characteristic of the SP development in the Pictured Cliffs intervals observed on the well logs and cross-sections for the Pendragon Chaco Wells.

(31) Whiting contends that the top of the first "massive" sandstone below the lowermost coal of the Fruitland Coal Formation should be the basis for picking the top of the Pictured Cliffs formation. Whiting contends that the operators of approximately one hundred additional wells outside the Subject Area identified the top of the massive Pictured Cliffs Sandstone as the vertical boundary between the Pictured Cliffs and Fruitland Coal Formations. However, Whiting failed to present evidence establishing that the Upper Sandstone interval was present in any of the wells identified. Similarly, Whiting failed to show that any operator identified the top of the Pictured Cliffs sandstone as the massive sand in those areas where tongues of the Pictured Cliffs are known to exist. The geologic testimony and evidence shows that such a definition has little support in the geologic literature and that the arbitrary and undefined term "massive" makes its application impractical.

Engineering Issue

(32) Whiting, the owners and operators of the Whiting Fruitland Coal Wells, and Pendragon, the owner and operator of the Pendragon Chaco and Chaco Limited Wells, each contend that the other's well stimulation treatments established communication between their separately owned formations. Both parties contend that, as a result, their wells are experiencing interference and that gas is being produced out of zone.

(33) The preponderance of the engineering evidence established that the fracture stimulation treatments performed on both the Pendragon Chaco Wells by Pendragon and the Whiting Fruitland Coal Wells by Whiting established communication between the Fruitland Coal Formation and the Pictured Cliffs Formation.

(34) The treatment performed on the Whiting Fruitland Coal Wells after they were drilled created near-wellbore communication channels between the Fruitland Coal and Pictured Cliffs Formations. At the time, the gas in the Pictured Cliffs Formation was nearly depleted and very little gas could escape to the Fruitland Coal Formation, unless the Whiting Fruitland Coal Wells were operated under extremely low pressures. On the other hand, the adsorbed gas in the Fruitland Coal Formation stayed within the coal matrices until the pressure was lowered enough through the dewatering process for the gas to desorb.

(35) After the dewatering process, substantial amounts of adsorbed gas escaped from the coal matrices, especially in the near-wellbore region where pressure was lowest. As a result, the Whiting Fruitland Coal Wells began their commercial gas production. The desorbed gas moving toward the Whiting Fruitland Coal Wells may have migrated to the Pictured Cliffs Formation through the communication channels near the Whiting Fruitland Coal Wells if the local pressure in the Pictured Cliffs Formation was lower than that in the Fruitland Coal Formation. Gas in the Pictured Cliffs Formation may have migrated to the Fruitland Coal Formation through the communication channels if the production pressures at the Whiting Fruitland Coal Wells were low. However, these possible gas migrations were not significant, as evidenced by steady gas production from the Pendragon Chaco Wells.

(36) In 1995, after three years of the dewatering process, the region in which decreased pressures allowed gas to desorb from the coal matrices had grown toward the Pendragon Chaco Wells. At the edge of the resulting gas bubble, the gas pressure in the Fruitland Coal Formation was probably higher than the adjacent pressure in the Pictured Cliffs Formation. In the area of this relatively high-pressure contrast, the thin capillary barrier may have been broken, allowing gas migration between the two zones.

(37) Pendragon performed fracture stimulation treatments on the Pendragon Chaco Wells in 1995. The post-treatment gas production from the Pendragon Chaco Wells indicates that the stimulation work performed by Pendragon successfully broke into some high-pressure gas compartments.

(38) The production history of the Pendragon Chaco and Chaco Limited Wells is summarized as follows:

Well No.	Initial Production (Original Completion)	Pre-Acidization or Fracture Stimulation Production	Post-Acidization or Fracture Stimulation Production	Last Production
Chaco No. 1	80 MCF/D	0 MCF/D	250 MCF/D	165 MCF/D
Chaco No. 2R	70 MCF/D	0-15 MCF/D	90 MCF/D	120 MCF/D
Chaco No. 4	200 MCF/D	0 MCF/D	425 MCF/D	200 MCF/D
Chaco No. 5	190 MCF/D	0 MCF/D	370 MCF/D	210 MCF/D
Chaco Ltd. 1J	11 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D
Chaco Ltd. 2J	30 MCF/D	0-10 MCF/D	0-10 MCF/D	0-10 MCF/D

(39) One possibility is that the hydraulic fractures were extended upward to the Fruitland Coal Formation and generated a gas highway to the gas bubble. Pendragon's experts vigorously denied this possibility. Instead, they asserted that an additional gas compartment, the so-called "third bench," exists below the perforations in the Pendragon Chaco Wells. The evidence does not support this assertion. No "third bench" has been reported previously throughout the San Juan region, and there is no geological evidence of this kind of formation. Furthermore, there is no scientific basis for believing that fractures moved downward into the "third bench" but not upward into the Fruitland Coal

Formation. Therefore, the most reasonable explanation of the sudden significant increases in production following the fracture stimulation treatments on the Pendragon Chaco Wells was that the hydraulic fractures penetrated into the gas bubble established in the Fruitland Coal Formation.

(40) Pendragon also asserted that the fracture stimulation treatments increased production in the Pendragon Chaco Wells by counteracting the effects of reservoir damage caused by (a) scale precipitation, (b) water blockage, and (c) migration of clay fines. As the original Pictured Cliffs gas was relatively dry, however, it is unlikely that the Pendragon Chaco Wells suffered from significant reservoir damage of this type.

(41) The BTU analysis of the gas from the Pendragon Chaco Wells supports the conclusion that the fracture stimulation treatments of these wells in 1995 established communication with the Fruitland Coal Formation. Whiting showed that the hydrocarbon liquids content of the gas from the Pendragon Chaco Wells was slightly reduced from 1988 to 1995 and significantly reduced from 1995 to 1997.

(42) Expert witnesses for both Pendragon and Whiting presented their opinions on the effects of the fracture stimulation treatments in the Whiting Fruitland Coal Wells and the Pendragon Chaco Wells based on their own theories and models. Many input values for key parameters were questionable. Both simulators used in their testimony have a good reputation for assisting in the design of fracturing jobs, but it is easy to manipulate them incorrectly. In a case like this, their results are too exaggerated to be reliable.

(43) The acid stimulation treatments performed by Pendragon on the Chaco Limited Wells No. 1J and 2J in 1995 did not alter these wells' rates of production. These treatments did not establish communication between the Pictured Cliffs Formation and the Fruitland Coal Formation.

(44) The gas now capable of production from the Pendragon Chaco Wells No. 1, 2R, 4, and 5 is: (1) gas originally in place in the Pictured Cliffs Formation; (2) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the
Pendragon Chaco Wells; and (3) gas from the Fruitland Coal Formation that has migrated to the Pictured Cliffs Formation through fractures around the Whiting Fruitland Coal Wells.

(45) The Pendragon Chaco Wells depleted the Pictured Cliffs Formation prior to the fracture stimulation treatments performed on the wells in 1995.

(46) Pendragon Chaco Wells No. 1, 2R, 4, and 5 have already produced their fair share of the gas in the Pictured Cliffs Formation.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Pendragon Energy Partners, Inc., and J. K. Edwards Associates, Inc., it is determined that the following described wells are perforated within the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool. It is further determined that the following described wells are producing from both the WAW Fruitland Sand-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool, San Juan County, New Mexico:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco No. 1 (API No. 30-045-22309)	1846' FNL & 1806' FWL, Unit F, Section 18, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 2R (API No. 30-045-23691)	1850' FSL & 1850' FWL, Unit K, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 4 (API No. 30-045-22410)	790' FNL & 790' FWL, Unit D, Section 7, T-26N, R-12W
Pendragon Energy Partners, Inc.	Chaco No. 5 (API No. 30-045-22411)	790' FSL & 790' FEL, Unit P, Section 1, T-26N, R-13W

(2) It is further determined that the following described wells are perforated within and producing solely from the Pictured Cliffs Formation, WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Pendragon Energy Partners, Inc.	Chaco Limited No. 1J (API No. 30-045-25134)	1850' FSL & 1750' FWL, Unit K, Section 1, T-26N, R-13W
Pendragon Energy Partners, Inc.	Chaco Limited No. 2J (API No. 30-045-23593)	790' FNL & 1850' FEL, Unit B, Section 1, T-26N, R-13W

(3) It is further determined that the following described wells are producing from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool:

Operator	Well Name & API Number	Well Location
Whiting Petroleum Corp.	Gallegos Fed 26-12-6 No. 2 (API No. 30-045-28898)	886' FSL & 1457' FWL, Unit N, Section 6, T-26N, R-12W

Whiting Petroleum Corp.	Gallegos Fed. 26-12-7 No. 1 (API No. 30-045-28899)	2482' FSL & 1413' FWL, Unit K, Section 7, T-26N, R-12W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 1 (API No. 30-045-28881)	828' FNL & 1674' FEL, Unit B, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-1 No. 2 (API No. 30-045-28882)	1275' FSL & 1823' FWL, Unit N, Section 1, T-26N, R-13W
Whiting Petroleum Corp.	Gallegos Fed. 26-13-12 No. 1 (API No. 30-045-28903)	1719' FNL & 1021' FEL, Unit H, Section 12, T-26N, R-13W

(4) Pendragon is hereby ordered to shut-in its Chaco Wells No. 1, 2R, 4 and 5 until such time as the Division approves a method for either putting them back into production or plugging them.

(5) Inasmuch as Whiting's wells may produce only minor amounts of gas from the already depleted WAW Fruitland Sand-Pictured Cliffs Pool, Whiting's wells are not to be shut-in.

(6) Jurisdiction is hereby retained for the entry of such further orders 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

JAMI BAILEY, Member

ROBERT L. LEE, Member

LORI WROTENBERY, Chairman

S E A L

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

APPLICATION OF PENDRAGON ENERGY PARTNERS, INC., PENDRAGON RESOURCES, L.P., AND EDWARDS ENERGY CORPORATION, INC. TO CONFIRM PRODUCTION FROM THE APPROPRIATE COMMON SOURCE OF SUPPLY, SAN JUAN COUNTY, NEW MEXICO

OCD CASE NO. 11996

APPLICATION FOR REHEARING

Pendragon Energy Partners, Inc., Pendragon Resources, LP and Edwards Energy Corporation, (collectively referred to as "Pendragon"), move pursuant to NMSA 1978 Section 70-2-25 of the New Mexico Oil & Gas Act and 19 NMAC 15.N.1222 for rehearing on the issuance of Order No. R-11133-A issued by the Commission on April 26, 2000.

BACKGROUND FACTS

On August 12 – 21st, 1999, the New Mexico Oil Conservation Commission convened a hearing on Pendragon's Application brought pursuant to, inter alia, Rule (3) of the Special Rules and Regulations for the Basin-Fruitland Coal Gas Pool set forth in NMOCD Order No. R-8768, as amended, seeking a determination that its Chaco wells, completed within the vertical limits of the WAW Fruitland Sand-Pictured Cliffs Gas Pool, and that Whiting Petroleum's Gallegos Federal wells completed within the Basin-Fruitland Coal Gas Pool were producing from the appropriate common source of supply. Pendragon also sought further relief, including an order bringing Whiting's non-conforming wells back into compliance with the Division's rules, regulations and orders. At the hearing, both parties contended that the other's well stimulation treatments caused their separately owned formations to come into communication. Both sides

also contended that their wells experienced interference and that gas was being produced out of formation as a result. Significantly, at the hearing, Whiting's witnesses admitted that the high volume, high pressure and high injection rate fracture stimulation treatments performed on the Gallegos Federal wells by Maralex Resources likely caused their wells to come into communication with the Pictured Cliffs formation owned by Pendragon. Conversely, Pendragon asserted and presented evidence that the acid jobs and relatively mild fracture stimulation treatments performed on its Chaco wells remained contained within the Pictured Cliffs formation and did not communicate with the Fruitland Coal Formation owned by Whiting.

On April 26, 2000, after hearing, the Commission issued Order No. R-11133-A which found that all of Pendragon's subject Chaco wells were perforated within the Pictured Cliffs formation of the WAW Fruitland Sand-Pictured Cliffs Gas Pool. By so finding and concluding, the Commission reaffirmed the long-standing interpretation of industry, regulatory agencies and the larger geologic community establishing the vertical boundaries of the Pictured Cliffs formation. The Order also effectively rejected the request of Whiting and Maralex to re-define and re-establish those boundaries. Order R-11133-A affirmed that the vertical boundaries between the Pictured Cliffs and Fruitland Coal formations conformed to the respective lease ownership of Pendragon and Whiting.[1]

In addition, Order R-11133-A found that the fracture stimulation treatments Maralex performed on five of the Whiting Fruitland Coal wells in 1992 established communication with the Pictured Cliffs formation. (Finding 32.) The Order also found that the fracture treatments

[1] **Pendragon does not challenge the geologic findings and decretal portions of Order R-11133-A.**

performed on four of the Chaco wells in 1995 communicated with the Fruitland Coal formation.[2] As a result of this communication between the separately owned formations, the Order identified three categories of gas capable of being produced from the Chaco 1, 2R, 4 and 5 wells: Category I: Gas originally in place in the Pictured Cliffs formation; Category II: Gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation through fractures around the Pendragon Chaco wells; and Category III: Gas from the Fruitland Coal formation that has migrated to the Pictured Cliffs formation through fractures around the Whiting Fruitland Coal wells. (Finding 44.) The Order then requires further proceedings before the Division to place these wells back on production. (Decretal Paragraph 4.)

Pendragon respectfully submits that portions of Order No. R-11133-A are erroneous for the following reasons:

In many respects, Order No. R-11133-A is an order that is at war with itself. A number of the Order's findings and conclusions are inconsistent or are in direct conflict. Other findings are contradicted by the evidence or, in some cases, have no evidentiary basis at all. Certain provisions of the Order exceed the agency's authority while others indicate the agency's statutory mandates under the New Mexico Oil and Gas Act have been disregarded. Most importantly, the Order fails to resolve fully a number of the issues that were brought before the Commission for determination. Until these matters are addressed, the future drilling, production and development by these parties and by other operators in the WAW field or in areas of similar geologic composition will be clouded by uncertainty. The Division's ability to meaningfully regulate drilling and development in accordance with its rules, regulations and orders is similarly

[2] Pendragon continues to dispute this particular finding.

impaired. In many cases, the findings contravene the public interest. These particular matters must be resolved by a rehearing before either the parties or the Division is able to move forward. All of these matters are discussed in greater detail as follows:

1. Order R-11133-A fails to afford meaningful regulatory relief in accordance with the applications before the Commission and the Division's statutes, regulations and prior orders. Pendragon specifically sought regulatory relief under the following authority: 19 NMAC 15,C,106,A; 19 NMAC 15,C,113; 19 NMAC 15.E.303A; NMSA 1978 Sections 70-2-2, 70-2-11 and 70-2-12B(2),(4),(7) and (8); and, Order No. R-8768. The findings and decretal portions of Order R-11133-A make the affirmative determination that the Whiting Fruitland Coal wells are not producing from their "appropriate common source of supply" as required under, inter alia, Order No. R-8768. Order R-11133-A expressly determined that the Whiting coal wells are producing gas from both the Basin-Fruitland Coal Gas Pool and the WAW Fruitland Sand-Pictured Cliffs Gas Pool. Production from the Pictured Cliffs formation by the offending coal wells would include Category I, II and III gas identified in the Order. Such production is in ongoing violation of Section 70-2-12(B)(7) of the Oil and Gas Act, as well as the statutes, regulations and order cited above, and consequently, the Order fails to "afford such relief as necessary to bring the wells into compliance with the Division's rules, regulations and orders."
2. Although Order R-11133-A allows the Division to approve restoring the four Chaco wells to producing status, the Order omits any similar provision requiring Whiting to demonstrate how its five Fruitland Coal wells may be produced without interfering with the Chaco wells or otherwise producing gas out of the separately owned Pictured Cliffs formation. The

omission is an inconsistency and further demonstrates how the Order fails to afford meaningful regulatory relief. In this regard, the practical effect of the Order reaches beyond the Subject Area. In 1992 and 1993, Maralex performed similarly aggressive fracture stimulation treatments on a number of other Fruitland Coal wells outside the Subject Area that are also underlain by separately owned drilled and undrilled Pictured Cliffs reserves.[3] In view of the findings in the Order, it is likely that those other coal wells are in communication with the Pictured Cliffs formation.

3. The policy implications of Order R-11133-A are also broad reaching by effectively pre-empting the use of heretofore accepted fracture stimulation completion technology. Pendragon submits that the preponderance of evidence in this case establishes that properly designed and controlled fracture treatments can be successfully contained within a formation. However, because the Order fails to take such evidence into consideration, the use of hydraulic fracture stimulation treatments by operators in either the Fruitland Coal formation or in adjacent sandstone formations is now precluded in the Subject Area and the remainder of the WAW field and most likely anywhere else in the San Juan Basin with similar geologic composition. Although certainly unintended, the chilling effect of the Order on drilling and development in these areas is likely immediate. The public interest is contravened as a consequence. This important issue deserves further consideration.

4. Findings 34, 45 and 46 in Order R-11133-A state that the unspecified Pendragon Chaco wells "nearly depleted" or "depleted" the Pictured Cliffs formation prior to 1995 and that the Chaco Wells No. 1, 2R,4 and 5 have produced their "fair share" of gas. Yet, at the same time, the Order provides that the Chaco 1J and 2J may proceed to produce and that the Chaco 1, 2R, 4 and 5 wells may be restored to production. While the overwhelming preponderance of

[3] Some of these wells were the subject of the Whiting/Maralex Application in NMOCD Case No. 11921.

the pressure and production data evidence establishes that the Pictured Cliffs is not depleted, findings 34, 45 and 46 pre-suppose that all the Chaco wells are uneconomic. Pendragon presented evidence that the wells continue to be economic with production as low as 30 mcfpd, and at pressures falling below 50 psi. Moreover, there is no evidentiary basis supporting these findings that effectively pre-judge future economic conditions. Once again, the Order has a chilling effect on the recovery of additional Pictured Cliffs reserves in the Subject Area and elsewhere. The order has the further unintended effect of condemning the Pictured Cliffs reserves of a number of interest owners in the area.

5. Finding 46 of the Order provides that the Chaco No. 1, 2R, 4 and 5 wells have produced their "fair share" of the gas in the Pictured Cliffs. However, there is neither a definition or quantification of what may constitute the "fair share" of gas. Moreover, the Commission is without the statutory authority, either express or implied, to determine that an owner may recover only a "fair" share of its reserves in circumstances such as these. Here, Pendragon owns one hundred percent of the Pictured Cliffs; it does not "share" ownership with anyone. Consequently, it is entitled to produce one-hundred percent of the gas reserves it owns.[4] The legal basis for the "fair share" finding in this case is not clear. The finding may have analogous support in Sections 70-2-16(C), 70-2-17(A) and 70-2-33(B) and (H) where correlative rights may be at issue, but the parties agree that such is not the case here. This dispute involves wholly separate pools created by the Division in Orders R-8768 and R-8768-A, R-8769 and R-4260. Consequently, finding 46 is either a misapplication of law to the facts, or was made in excess of the agency's authority.

[4] Under the law, Pendragon owns and is entitled to produce all the recoverable Category I and Category III gas in the Pictured Cliffs formation, at the least.

6. Of all the evidence presented, the most meaningful and the most probative of the various engineering issues are the pressure data. These data are directly relevant to the communication and gas migration issues, as well as to the "depletion" and remaining recoverable reserves issues. However, it is apparent the Order gave little or no consideration to the considerable reservoir and well pressure data presented. The pre- and post-fracture treatment pressure data appear to have been wholly disregarded. Until the pressure data are addressed, the remaining findings are not meaningful.
7. Finding 33: The preponderance of evidence does not support the finding that the fracture treatments on the Chaco 1, 2R, 4 and 5 wells extended into the Fruitland Coal formation. The finding is further erroneous as it disregards the evidence presented establishing that fractures extending upwards would not have effectively communicated with the coal formation due to the downward settlement of propants.
8. Finding 35: The finding of "steady gas production" from the Chaco wells is directly inconsistent with the depletion finding (45).
9. Finding 37: Neither side presented any evidence of the existence of any "high-pressure gas compartments." This finding is wholly unsupported by the evidence. Moreover, the finding that the fracture stimulation treatments on the Chaco wells broke into such "compartments" is directly at odds with the tracer survey exhibits and testimony on the Bartlesville well and the Dome Federal well establishing that such fracture treatments were successfully contained within the appropriate zone.
10. Findings 36 and 39: There was no evidence presented establishing the existence of a "gas bubble". Moreover, the finding is inconsistent with the evidence on the Chaco Plant No. 5 well originally completed in the Pictured Cliffs in 1975 and successfully fracture stimulated

in 1993. A number of Fruitland Coal wells were located in the area of the Chaco Plant No. 5. At the time of the fracture treatment of the Chaco Plant No. 5, those coal wells were only in the initial stages of dewatering and were producing minimal amounts of gas. Yet, the pressure and production data from the Chaco Plant No. 5 shows no indication that the fractures from the 1993 stimulation treatment encountered any "gas bubble" or "gas compartment." In fact, no such "gas bubbles" existed anywhere near the Chaco Plant 5 wellbore, if at all.

11. Finding 39: The Order erroneously finds that no "third bench" of the Pictured Cliffs formation has been reported and that there is "no geological basis for this kind of formation."[5] These findings are directly inconsistent with the substantial amount of testimony and exhibits that clearly establish the existence of the third bench and that the zone contributes considerable Pictured Cliffs reserves. Among other things, the evidence included geologic "literature", cross-sections, well completion information, production data and calculations based on actual well logs. These materials conclusively established the existence of the third bench. There is ample evidence that this zone contributed Pictured Cliffs reserves to the Chaco wells.

12. Finding 39: The finding raises "the possibility" that the hydraulic fractures extended upward from the Chaco wells to the Fruitland Coal formation. This "possible" finding disregards the tangible evidence presented identifying the existence of shale and stress barriers between the formations, as well as actual tracer surveys showing fracture treatments remain contained within the Pictured Cliffs formation in such conditions. Moreover, Pendragon presented ample evidence establishing that fractures extend downward. The finding otherwise

[5] Significantly, the Third Bench is a zone of the Pictured Cliffs formation. The bench, itself, may not be properly classified as a "formation".

disregards the actual tracer survey evidence and the considerable testimony and literature evidence presented on fracture technology. The finding that there is "no scientific basis" for believing the fractures moved downwards is clear error.

13. Finding 40: The Order finds it is "unlikely" that the Chaco wells had suffered from significant reservoir damage. Yet, Pendragon presented unrefuted testimony and exhibit evidence establishing scale damage, water blockage and clay migration into rock pores. Indeed, the Maralex witness testified that the volumetric and material balance analyses on the Chaco Plant 5 and the Chaco No. 4 indicated those wells had substantially under-produced the recoverable gas in place. This testimony substantiates the existence of damage and further contradicts the conclusion that the formation was depleted.

14. Finding 41: The finding that the BTU analysis supports the conclusion that these wells communicated with the Fruitland Coal formation is in error. The finding is not supported by the BTU data presented by both parties which shows post-shut in BTU values for the Chaco wells to be well within the range of values measured for those wells when they were originally completed in the 1970's. The finding also ignores the data presented for the Chaco 2R which showed high BTU values and increasing pressure during the period the coal wells were producing. In addition, the erroneous finding is at odds with the BTU data for the Chaco 1J and 2J wells. These wells, which were found not to have communicated with the Fruitland Formation (Finding 44) showed lower BTU values.

15. Finding 43: The Order finds that the acid jobs on the Chaco 1J and 2J wells did not establish communication with the Fruitland Coal formation and that these treatments "did not alter these wells' rates of production." This finding is not in error, but demonstrates why the failure to address the well and reservoir pressure data is so significant. If these two wells did

not connect with the Fruitland Coal formation, then the pressures reported for the wells are true Pictured Cliffs reservoir pressures, both before and after the acid treatments. Consequently, the finding that the Pictured Cliffs is a depleted reservoir is contra-indicated by Finding 43, as well as by the clearly relevant pressure data. In this regard, the pressure data for the Chaco No. 4 well is equally compelling: The high pressures measured immediately after the January, 1995 acid job and before the subsequent fracture treatment in May of 1995 also establish that (1) the Pictured Cliffs was not depleted, and (2) the pressures (and production) in the Pictured Cliffs were not a result of any communication with the Fruitland Coal formation. (Unless, of course, the Gallegos Federal coal wells that were previously fractured in 1992 established the communication.)

16. Finding 44: The finding establishes that three categories of gas exist in the Pictured Cliffs formation that is "now capable of production" from the Chaco Wells No. 1, 2R, 4 and 5.[6] At the same time, the Order provides for ongoing production from the Whiting Gallegos Federal wells that affects production from the Chaco wells, while simultaneously providing for restoring four of the Chaco wells back to production. However, the finding is erroneous and is not meaningful in practical effect without a determination of the volumes of gas that exist in the Pictured Cliffs formation attributable to each of the three categories.

17. Finding 46: As discussed above, the finding that the Chaco wells have produced their "fair share" is an apparent misapplication of the law and is also inconsistent with those findings contemplating further production from the Pictured Cliffs formation. The "fair share" is undetermined. In addition, as the evidence and findings of this Order establish that the Whiting Fruitland Coal wells are producing from the Pictured Cliffs formation, the Order

[6] Again, Pendragon asserts that the finding with respect to Category II gas is in error.

cannot be meaningfully applied unless the "fair share" of production attributable to these wells is also determined.

WHEREFORE, Pendragon Energy Partners, Inc., Pendragon Resources, LP and Edwards Energy Corporation respectfully request the Commission set this matter for rehearing for the purposes of taking additional evidence and argument on the matters set forth above.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Application for Rehearing was mailed on this 16 day of May, 2000 to the following:

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