HOLLAND & HART LLP
ATTORNEYS AT LAW

DENVER · ASPEN
BOULDER · COLORADO SPRINGS
DENVER TECH CENTER
BILLINGS · BOISE
CHEYENNE · JACKSON HOLE
SALT LAKE CITY · SANTA FE
WASHINGTON, D.C.

P.O. BOX 2208
SANTA FE, NEW MEXICO 87504-2208
110 NORTH GUADALUPE, SUITE 1
SANTA FE, NEW MEXICO 87501-6525

TELEPHONE (505) 988-4421
FACSIMILE (505) 983-6043

William F. Carr

wcarr@hollandhart.com

November 12, 2002

**HAND DELIVERY**

Ms Lori Wrotenbery, Chairman
Oil Conservation Commission
New Mexico Energy, Minerals and
Natural Resources Department
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: **Case 12622 (De Novo):** Application of Nearburg Exploration Company, L.L.C. for two non-standard gas spacing and proration units, Lea County, New Mexico.

**Case 12908-A (Severed and Reopened):** In the Matter of the hearing called by the Oil Conservation Division for an order creating, re-designating and extending the vertical and horizontal limits of certain pools in Lea County, New Mexico.

Dear Ms. Wrotenbery:

In its Closing Statement, Redrock quotes a portion of my closing statement in the recent Sapient Energy Corporation case. While I am pleased that Mr. Kellahin has found reliable authority to cite to the Commission, Redrock's use of my statement **out of context** is misleading. As you are aware, this case must be decided based on the engineering and geological evidence presented by the parties. When the evidence is reviewed, the difference between this dispute and the Sapient case is clear. Here Nearburg is attempting to dedicate to its well the acreage that is drained by its well. In the Sapient case, Sapient wanted to exclude from the spacing unit acreage being drained by their well.

Very truly yours,

William F. Carr

cc: BY FACSIMILE
Commissioner Jami Bailey
Commissioner Robert Lee
[redacted]
W. Thomas Kellahin, Esq.
J. Scott Hall, Esq.
Bryan Birkeland, Esq.
Robert G. Shelton
Mike Heathington

3010493_1.DOC

HOLLAND & HART LLP
ATTORNEYS AT LAW

DENVER • ASPEN
BOULDER • COLORADO SPRINGS
DENVER TECH CENTER
BILLINGS • BOISE
CHEYENNE • JACKSON HOLE
SALT LAKE CITY • SANTA FE
WASHINGTON, D.C.

P.O. BOX 2208
SANTA FE, NEW MEXICO 87504-2208
110 NORTH GUADALUPE, SUITE 1
SANTA FE, NEW MEXICO 87501-6525

TELEPHONE (505) 988-4421
FACSIMILE (505) 983-6043

William F. Carr

wcarr@hollandhart.com

November 8, 2002

**VIA HAND DELIVERY**

Lori Wrotenbery, Chairman
Oil Conservation Commission
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 78505

Re: **Case 12622 (De Novo):** Application of Nearburg Exploration Company, L.L.C. for two non-standard gas spacing and proration units, Lea County, New Mexico.

**Case 12908-A (Severed and Reopened):** In the Matter of the hearing called by the Oil Conservation Division for an order creating, re-designating and extending the vertical and horizontal limits of certain pools in Lea County, New Mexico.

Dear Ms. Wrotenbery:

Enclosed is the Closing Statement and Post Hearing Memorandum of Nearburg Exploration Company, L.L.C., CL&F Resources, L.P. and Great Western Drilling Company in the above-referenced cases.

I have provided copies of Closing Statement and Post Hearing Memorandum to Commissioners Jami Bailey and Robert Lee and to Stephen C. Ross Esq., J. Scott Hall, Esq. and W. Thomas Kellahin, Esq.

Very truly yours,

William F. Carr

Enclosures:
Commissioner Lori Wrotenbery
Commissioner Jami Bailey
Commissioner Robert Lee
Stephen C. Ross, Esq.
J. Scott Hall, Esq.
W. Thomas Kellahin, Esq.
Robert G. Shelton
Mike Heathington

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:

APPLICATION OF NEARBURG EXPLORATION COMPANY, L.L.C. FOR TWO NON-STANDARD GAS SPACING AND PRORATION UNITS, LEA COUNTY, NEW MEXICO.

CASE NO. 12622 (De Novo)

IN THE MATTER OF THE APPLICATION OF THE OIL CONSERVATION DIVISION FOR AN ORDER CREATING, CONTRACTING, RE-DESIGNATING, AND EXTENDING THE VERTICAL AND HORIZONTAL LIMITS OF CERTAIN POOLS IN LEA COUNTY, NEW MEXICO.

CASE NO. 12908-A (Severed and Reopened)

# CLOSING STATEMENT AND POST-HEARING MEMORANDUM OF NEARBURG EXPLORATION COMPANY, L.L.C., CL&F RESOURCES, LP AND GREAT WESTERN DRILLING COMPANY

## I. INTRODUCTION

Although these cases may seem complex, at the core there are only two issues for the Commission to decide. First, the Commission must determine if the Morrow formation under Section 34, Township 21 South, Range 34 East, NMPM, is one common source of supply or is it divided by a sealing fault into two reservoirs. The second question involves correlative rights. The Commission must determine what acreage should be dedicated to the Nearburg Grama Ridge East "34" State Well No. 1 ("the Nearburg Well") located in the NE/4 of this section. In answering this question the Commission is required by statute to afford the owners of acreage drained by the Nearburg Well the opportunity to produce their just and equitable share of the recoverable oil and gas under their property. The answer to both questions must be based on the geological and engineering data admitted into evidence at the October 21 and 22, 2002 Oil Conservation Commission hearing.

Nearburg Exploration Company, L.L.C., CL&F Resources, Inc. and Great Western Drilling Company (hereinafter collectively referred to as "Nearburg") are the lessees and working interest owners under a State of New Mexico Oil and Gas Lease

covering the N/2 of Section 34. In these cases, Nearburg supports an order extending the boundaries of the Grama Ridge-Morrow Gas Pool to include all of Section 34. This extension of the pool boundaries will enable Nearburg to dedicate the N/2 of Section 34 to the well it drilled and completed in the Morrow formation in the NE/4 of the Section. Alternatively, if a standard N/2 spacing unit cannot be dedicated to the well, Nearburg seeks the creation of a 160-acre non-standard gas spacing unit comprised of the NE/4 of the section. Nearburg presented evidence that shows there are no recoverable reserves under the S/2 of the section in the "GRE" Sand. Redrock Operating Co., LTD ("Redrock") is the owner of an overriding royalty interest in the S/2 of Section 34 and is opposing Nearburg in these cases. Redrock is trying to force the creation of an E/2 spacing unit thereby enabling it to receive a share of the production proceeds from Nearburg's well.[1] Raptor Natural Pipeline, L.L.C. ("Raptor"), operator of the Grama Ridge-Morrow Gas Storage Project, appeared at the hearing through its legal counsel and presented exhibits and a statement. (See, Response to Statement of Raptor Natural Pipeline, L.L.C., of Nearburg Exploration Company, L.L.C., CL&F Resources, LP and Great Western Drilling Company, filed on October 30, 2002).

Nearburg and Redrock presented very different reservoir interpretations. Evaluation of the technical evidence presented by each requires an understanding of geology and petroleum engineering. The Commission has special expertise in geology and engineering and knows the difference between data which has been manipulated for personal gain and data which has been interpreted according to current day understanding of geological and engineering processes and principles. In this case, the Commission must determine which of these interpretations is based on sound geological and engineering data and which is not.

## II.
## BACKGROUND

THE LEASE:

State of New Mexico Oil and Gas Lease No. K-03592 covering the N/2 of Section 34 was cancelled by the State Land Office in January 1999 and a new oil and gas lease covering this acreage was offered at the December 1999 state lease sale. Although Section 34 is located in the Grama Ridge Morrow Gas Storage Unit, the State Land Office's request for bids contained no stipulations concerning the existence of the

[1] This case does not impact only Redrock. If the E/2 of Section 34 is dedicated to the Nearburg Well, the owners of overriding royalty in the N/2 of Section 34 will be harmed and their interest in the well and their share of production proceeds from the well will be cut in half. (See, Statement of James Brown, Tr. 403-410).

Unit.[2] Great Western Drilling Company was the successful bidder and received a new oil and gas lease covering the N/2 of Section 34. Nearburg and others acquired working interest in this lease. (Testimony of Shelton, Tr. at 53-54, Nearburg Exhibit No. 2).

THE WELL:

On February 28, 2000 the Division approved Nearburg's Application for Permit to Drill the Nearburg Well on a standard 320-acre lay down gas spacing unit comprising the N/2 of Section 34. The well was drilled in March 2000 and completed as a Morrow gas well on June 9, 2000. On June 19, 2000, the Division approved Nearburg's "Request for Allowable and Authorization to Transport" (Division Form C-104), and on June 22, 2000 approved a testing allowable for the well. (Testimony of Shelton, Tr. at 54-55, Nearburg Exhibit No. 2).

THE SPACING UNIT:

In June 2000, the Division's Hobbs office notified Nearburg that the previously authorized lay-down N/2 spacing unit included acreage from two separate Morrow Gas Pools. On January 8, 2001, Nearburg filed an administrative application pursuant to Division Rule 104.D, as revised, seeking approval of two 160-acre non-standard gas spacing units within the E/2 of Section 34. (Testimony of Shelton, Tr. at 55-58, Nearburg Exhibit No. 2).

THE HEARING:

Redrock filed objections to the Nearburg application and it was set for hearing. Pending a hearing, the Nearburg Well was allowed to continue producing from the East Grama Ridge-Morrow Gas Pool. An examiner hearing was held on June 28, 2001 and then continued for four weeks to give the parties the opportunity to reach a mutually acceptable agreement. No agreement was reached and the Nearburg Well was ordered

[2] The issue of whether Nearburg is prevented from dedicating the N/2 of Section 34 to the Nearburg Well located in the NE/4 of the section because in 1979 the NW/4 of the section committed to the Storage Unit by the Grama Ridge-Morrow Unit Agreement has been addressed in Nearburg's October 30, 2002 Response to the Statement of Raptor. The position of the State Land Office on this issue is contained in its letter to Nearburg's attorney dated May 4, 2000 as follows: "The position of the State Land Office in this matter is that when the prior lease expired, the unit agreement was terminated as to it. The subsequent and current lease is independent of the Unit." (Nearburg Exhibit No. 2, Tab 4). The Oil Conservation Division also stated its position on the existence of a spacing issue in the E/2 of this section in Finding 6 of Order No. R-11768. The Division concluded that the prior E/2 spacing unit terminated when the well in the SE/4 of the Section ceased producing and the applicable communitization agreement terminated. If the Commission grants this application to move the boundary of the Grama Ridge-Morrow Gas Pool to include all of Section 34, its order should provide that the N/2 of Section 34 can be dedicated to the Nearburg well in the NE/4 of Section 34.

shut in by a Division Examiner.[3] (Testimony of Shelton, Tr. at 58-59, Nearburg Exhibit No. 2)

THE DIVISION ORDER:

By Order No. R-11768 dated May 22, 2002, the Division denied the application of Nearburg for the creation of two non-standard 160-acre gas spacing units. The Division also entered finding (13) which provided:

> "All past and any future Morrow gas production from the Nearburg Grama Ridge East "34" State Well No. 1, as described above, should be allocated to either **(i)** the N/2 of Section 34, being a standard 320-acre lay-down gas spacing unit, in either the East Grama Ridge-Morrow Gas Pool or the Grama Ridge-Morrow Gas Pool, depending on the necessary adjustment to the pool boundaries to be sought through the Division's nomenclature process; or **(ii)** the E/2 of Section 34, being a standard 320-acre stand-up gas spacing unit in the East Grama Ridge-Morrow Gas Pool."[4]

With this finding, the Division pointed the way out of the current dilemma. It said a N/2 unit could be dedicated to the well if the pool boundaries were adjusted to place the section in one pool. The Division then included paragraphs in its August 2002 nomenclature case that, if approved, will move the boundary of the Grama Ridge-Morrow Pool to the east line of Section 34 thereby allowing the dedication of the N/2 of the section to the Nearburg Well. Approval of this application would also place the Grama Ridge–Morrow Gas Storage Project in one pool.

## III.
## IS THE MORROW FORMATION UNDER SECTION 34 ONE COMMON SOURCE OF SUPPLY?

NEARBURG'S INTERPRETATION OF THE "GRE" SAND-ONE COMMON SOURCE OF SUPPLY:

For the Morrow "GRE" Sand to be capable of production under Section 34, net sand is required (sand with porosity in excess of 8%). (Testimony of Horning, Tr. at 118; Testimony of Brezina, Tr. at 306-307). There are four wells with net sand in the "GRE" interval in the area surrounding Section 34 and they set up the basic orientation

---

[3] Findings 1 through 9 in Division Order No. R-11768 provide a complete and accurate summary of the facts and should be incorporated into the order of the Commission entered in this case.

[4] Once the application of the Division in Case 12908-A is granted and the boundary of the Grama Ridge Pool is adjusted, The Division should enter a finding which also provides that "All past and future Morrow gas production from the Nearburg Grama Ridge East "34" State Well No. 1, as described above, shall be allocated to the N/2 of Section 34, being a standard 320-acre lay-down gas spacing unit in the Grama Ridge Morrow Gas Pool."

of the "GRE" Sand across the north half of the section. (Testimony of Horning, Tr. at 117, Nearburg Exhibit 9). By honoring the net sand data from these wells, Nearburg mapped the "GRE" Sand as a small marine sand bar extending northwest-southeast across the N/2 of Section 34. (Testimony of Horning, Tr. at 117; Nearburg Exhibit No. 9, Testimony of Cox, Tr. at 244) The Nearburg interpretation of this depositional environment is confirmed by pressure data and by volumetric calculations of the gas in place. (Testimony of Friesen, Tr. at 198-199, Nearburg Exhibit Nos. 21and 22).

REDROCK'S INTERPRETATION OF THE "GRE" SAND-THREE SEPARATE SOURCES OF SUPPLY :

Redrock's interpretation ignores the net sand porosity data from wells in the area and a reasonable "depositional environment" interpretation by mapping the "GRE" Sand as a north-south trending channel deposit. Redrock manipulates its interpretation to extend the "GRE" Sand into the SE/4 of Section 34. Having done this, to get their interpretation to fit the gas in place data from its own engineering witness, they have to break the "GRE" Sand into three separate reservoirs: one in the E/2 of Section 34, another separate pod in Section 35 and an "odd lobe" across a "postulated fault" in the NW/4 of Section 34. (Testimony of Brezina, Tr. at 336; Redrock Exhibit No. B-5 "ISOPACH MAP-MIDDLE MORROW "GRE" SAND-POROSITY $\geq$ 8%")

DIFFERENCES IN INTERPRETATIONS:

Nearburg interprets the "GRE" reservoir to be a NW-SE trending marine bar deposit. However, Redrock's interpretation not only ignores the "net sand" distribution being NW-SE but also makes no attempt to honor any depositional environment interpretation from the E-logs which clearly indicate a "strike" oriented system or that of a marine bar. Redrock instead chooses to manipulate the data into a dip oriented channel sand, their interpretation driven by the well in the SE/4 of Section 34 which clearly has no net reservoir in the "GRE" Sand. Redrock's interpretation rests on three things: (1) its interpretation of a mud log on the Llano "34" Well in the SE/4 of Section 34, (2) a sealing fault in the center of Section 34, and (3) a break in deposition which separates the "GRE" Sand in Section 35 from the rest of the reservoir.

MUD LOG:

Redrock interprets data from a mud log from the Llano "34" Well located in the SE/4 of Section 34 to show the presence of productive Morrow "GRE" sands under this acreage.

(Redrock Exhibit B-9, Tr. 294-300)[5] Because the log indicates that gas was flared while the well was drilled through the Morrow formation, Redrock concludes that productive "GRE" sands are present at or near this location. While Redrock allocates reserves to the Llano "34" Well, log data shows no net sand is present at this location. (Testimony of Brezina, Tr. at 318, Redrock Exhibit No. B-5) Furthermore, this sand has never been production tested.

Dean Horning, Nearburg's geological expert, has worked with mud logs on numerous wells. He testified that when, as here, sands have "intergranular gummy shales in them, that pretty much precludes that its a productive sand." He concluded from his review of this log that the well in the SE/4 of Section 34 was carrying a background gas of 1500 to 2000 units on average, which was accumulating in the system while drilling to the subject zone. He observed that carrying gas in the mud system, and drilling with flares in the Morrow formation is very common. Mr. Horning concluded that from the mud log you could not tell anything as to whether or not the well would be productive in the "GRE" sand. (Testimony of Horning, Tr. at 121-122, 137-138).

FAULT:

In May 1979, the Morrow formation under Section 34 was divided into two pools with the E/2 in the East Grama Ridge-Morrow Gas Pool and the W/2 in the Grama Ridge-Morrow Gas Pool. The decision to divide the section was based on a fault that was thought to run north-south through the center of the section. This fault appears to have been "wished in," for, in the 1979 case where the section was divided into two pools, there was no geological evidence to support a fault and Llano's evidence showed the wells on either side of the postulated fault to be essentially flat to each other. (Testimony of Horning, Tr. at 98-101, Nearburg Exhibit Nos. 3 and 4).[6] Additionally, in 1979 this fault was interpreted to be down to the east which is the opposite of how Redrock interprets the fault today.

To build an argument that it is entitled to share in the production from the Nearburg Well in the NE/4 of Section 34, Redrock needs to show productive "GRE"

---

[5] Mr. Brezina, Redrock's geological expert, is no expert on mud logs or the interpretation of the data contained therein. When asked on cross examination if he worked with mud logs regularly, he testified: "I have in the past, **I'm not an expert**, but its a tool we use." (Testimony of Brezina, Tr. at 318) (emphasis added) He relied on gas shows on the mud log for his conclusion that there was gas in the "GRE" Sand at this location but, when asked about the difference between gas released by the bit while drilling through a formation and formation gas, he testified that this was a subject that he was "not really familiar with." (Testimony of Brezina, Tr. at 319).

[6] Soon after Section 34 was divided into two pools in 1979, Pressure data was obtained which showed no separation in the Morrow formation in the section. (Testimony of Friesen, Tr. at 190-191, Nearburg Exhibits 20 and 21; See also, REPEAT FORMATION TESTER DATA, Infra at pp. 7-8).

sand extending into the SE/4 of the Section. This creates a problem for Redrock, for, if it maps this sand as extending into the SE/4 of the Section, the reservoir is much too large for the gas in place estimates of its engineering expert. To limit the size of the reservoir to be reasonably consistent with its estimates of gas in place, Redrock ignored the net porosity information from wells in the area and broke the "GRE" Sand into three separate reservoirs. One reservoir is found in the E/2 of Section 34. Another reservoir is comprised of a separate pod in Section 35. A third reservoir consists of the "odd lobe" across the "postulated fault" in the NW/4 of Section 34. (Redrock Exhibit No. B-5 "ISOPACH MAP-MIDDLE MORROW "GRE" SAND-POROSITY ≥8%", Testimony of Brezina, Tr. at 336) This fault is essential to the Redrock's geological interpretation for it separates the sand in the NW/4 of the section from the remainder of the pool by preventing reservoir communication from west to east under Section 34.

Redrock's geologic interpretation does not support its "postulated fault" in Section 34. On the Redrock Structure Map (Redrock Exhibit B-2), the rate of regional dip on the west side of the "postulated fault" is approximately 400 feet per mile to the west. If this rate of dip is extended to the fault, the formation depth on the west side of the fault in the SW/4 of Section 34 would be –9050 feet. This corresponds to the point where the –9050 contour line intersects the fault on the east side of the fault in the SW/4 of Section 34. Although Mr. Brezina places a fault in the SW/4 of the section, his mapping shows no fault throw, as it shows that the formation depth on both sides of his "postulated fault" is the same. (Testimony of Brezina, Tr. at 331-332, Redrock Exhibit B-2).

BREAK IN DEPOSITION:

Redrock's interpretation of the "GRE" Sand includes a break in depostion which separates the net pay in Section 35 from the rest of the "GRE" Sand reservoir. (Redrock Exhibits B-4 and B-5) Redrock needs to separate this portion of the reservoir from the remainder of the "GRE" Sand because, if it does not, the reservoir is too large to contain the gas in place estimated by its engineering expert. The problem with Redrock's interpretation is that it ignores net pay data on the "GRE" Sand. Even Redrock's own geological witness admits there is no data to support his interpretation. (Testimony of Brezina, TR. at 308-310).

REPEAT FORMATION TESTER DATA:

Geological maps and mud logs are just interpretations of well data. However, in this case we do not have to rely on the interpretations by the parties of well data. Here we have actual pressure information that shows pressure communication across the S/2 of Section 34. This pressure information refutes the existence of a fault.

The Llano "34" Well in the SE/4 of Section 34 was drilled in October 1979 after the section was divided into two pools. A Repeat Formation Tester Log ("RFT Log") was run in the well in September of that year. (Testimony of Friesen, Tr. At 179) The pressure measurements from this log establish that when the Llano "34" Well was

drilled in the SE/4 of Section 34 there had been substantial pressure depletion of that acreage. At the time this well was drilled, the only other well producing from this sand was the Gas Storage Well in the SW/4 of the section. (Testimony of Friesen, Tr. at 179).

The Llano "34" Well was perforated in four intervals in 1979. (See perforated intervals on log of Llano "34" Well, third well from left on Cross Section GRE2-GRE2', Nearburg Exhibit No. 6). The RFT Log measured reservoir pressure in each of these zones. (Nearburg Exhibit No. 18) The table and graph that are included with the RFT Log in Nearburg Exhibit No. 18 entitled "RFT Data and Results" show the approximate pressure gradient in the formation by depth in psi/ft. The red bars on the left of the graph show where the well was perforated and where pressure was measured by this RFT Log. The pressure in each interval tested was close to virgin reservoir pressure (6043 psi – 8134 psi) except for the interval that correlates to the sands in the gas storage well in the SW/4 of Section 34 where the reservoir pressure was much lower (3596 psi). When this RFT Log pressure data is compared to the actual pressure measured in the gas storage well in the SW/4 of the Section, pressure communication is obvious. The pressure in the correlative storage interval in the Llano "34" Well in the SE/4 of the section was 3596 psi in the fall of 1979. At that time the pressure in the Grama Ridge Storage Well in the SW/4 of the Section was 3720 psi. This pressure information from the correlative storage interval establishes pressure communication across the S/2 of Section 34 and disproves the existence of a fault. (Testimony of Friesen, Tr. at 182-186, Nearburg Exhibit No. 18).

In an attempt to discredit this pressure information, Redrock first suggested that the SE/4 of Section 34 had been drained by the Gas Storage Well in Section 3. However, a comparison of the log of the Gas Storage well in Section 3 (Nearburg Exhibit 25) and the log on the Llano "34" Well in the SE/4 of Section 34 (Nearburg Exhibit 25) shows that there are no sands in the Gas Storage Well in Section 3 which correlate to the pressure depleted sand in the SE/4 of Section 34. (Testimony of Cox, Tr. at 393) Therefore, it is impossible for the Gas Storage Well in Section 3 to have drained the SE/4 of Section 34. (Testimony of Cox, Tr. at 394).

Unable to show drainage from Section 3, Redrock then reached approximately two miles farther south to the Superior Government "A" Well Section 10 and argued that this well was a possible source of the pressure depletion in the Llano "34" Well. (Testimony of Brezina, Tr. at 288, Redrock Exhibit 8-E). This well is not only almost two miles away and separated by two intervening wells with no gross or net pay, it displays very low porosity below a reasonable porosity cutoff for reservoir mapping purposes in the zone which corresponds to the "GRE" Sand drained in the Llano Well located in the SE/4 of Section 34 (See log of the Superior Oil Company Government "A" Well No. 1, Redrock Exhibit E-8). The well in Section 10, with only one foot of net sand in the interval which correlates to the storage sand in the SE/4 of Section 34, could not have caused the pressure depletion encountered in the Llano "34" Well. (Testimony of Cox, Tr. at 395). The only possible source of pressure depletion in the SE/4 of Section 34 is the Gas Storage Well in the SW/4 of the section.

The pressure communication established by the RFT Log on the Llano "34" Well shows there is no fault separation between the E/2 and W/2 of Section 34. The pressure data establishes that the Morrow formation under Section 34 is one common source of supply.[7]

Redrock's geological interpretation shows the "GRE" Sand extending into the SE/4 of Section 34. (Redrock Exhibit B-5) The fault was essential to this interpretation for, once it is gone, the "odd lobe" in the NW/4 of the Section is part of this common source of supply and the reservoir is too large for the gas in place calculated by Redrock's engineering expert.[8] (Testimony of Wells, Tr. at 356, Redrock Exhibit No. D-1) Without this fault, Redrock's geological interpretation of the "GRE" sand is too large and it is wrong.[9]

GAS IN PLACE CALCULATIONS:

Nearburg estimated the recoverable reserves in the "GRE" sand with a Cumulative Production v. P/Z plot. By honoring all data points and using a best fit approach, Nearburg calculates recoverable reserves of 1.2 BCF or gas in place of 1.4 BCF. (Testimony of Friesen, Tr. at 195-198, Nearburg Exhibit 12). Nearburg Exhibit 22 is a Net Pay Isopach Map constructed using the estimated recoverable reserves and Nearburg's Net Sand Map (Nearburg Exhibit No. 9). This exhibit shows that by using standard engineering techniques and without manipulating the data or the reservoir interpretation, the reserves calculated by Nearburg's engineering witness fit easily into the reservior as interpreted by Nearburg's geologist. Even Redrock's geological witness admits that if there is no fault separation in Section 34, the reservoir as mapped

---

[7] Redrock interprets the fault that cuts through the center of Section 34 to also fall between the Gas Storage Unit Wells in the SW/4 of Section 34 and the NW/4 of Section 3. Although Redrock's geological expert contends that the fault separates the "GRE" Sand into two separate distinct reservoirs (Testimony of Brezina, Tr. at 331), John Wells, Redrock's engineering expert, disagrees. Mr. Wells is also retained by Raptor to provide engineering services for the storage unit. Mr. Wells testified that the Grama Ridge Storage Unit is not operated by Raptor as two separate units or pools but as one reservoir. (Testimony of Wells, Tr. at 367-368). Mr. Wells also testified that the Morrow formation under Section 34 is one common source of supply. (Testimony of Wells, Tr. at 369-371) Redrock's fault does not divide the Morrow formation in the Storage Unit and it does not divide the Morrow formation into two reservoirs under Section 34.

[8] John Wells, Redrock's engineering expert, calculates from Redrock's geological interpretation that there was almost 2 BCF of gas in the pool. However, Mr. Wells testified that P/Z material balance estimates are more reliable than geological interpretations. Mr. Wells used the P/Z curve and extrapolated 1.6 BCF of gas in place in the reservoir south of the fault. (Testimony of Wells, Tr. at 360).

[9] While Redrock contends that a fault divides Section 34 into two pools, the evidence shows that Redrock knows that this is not true. (See, title opinion and statements of Redrock in related letter, Nearburg Exhibits 12 and 13).

by Nearburg is sufficiently large to contain the reserves estimated by Nearburg. (Testimony of Brezina, Tr. at 278-279, 311).

Redrock uses a different approach to calculate recoverable reserves in the "GRE" Sand. Redrock did not adjust the boundaries of the reservoir as interpreted by its geologist because Redrock needed a geological interpretation that would include the SE/4 of Section 34. Instead, Redrock estimates recoverable reserves with a P/Z Plot but ignores the initial pressure point and plots gas in place honoring only the last pressure points. (Redrock Exhibit No. D-2). It is normal for P/Z curves to flatten out over time and using only the last two pressure points to estimate recoverable reserves will generally intend to inflate the reserve estimate. Redrock manipulated the pressure data on the Nearburg Well to inflate its gas in place estimates so they would approximate the reservoir as mapped by its geologist to extend into the SE/4 of Section 34.

## IV.
## WHAT ACREAGE SHOULD BE DEDICATED TO THE NEARBURG WELL?

The New Mexico Oil and Gas Act defines correlative rights as the opportunity of each owner in a pool to produce its just and equitable share of the recoverable oil and gas under their property.[10] In this case the geological and engineering evidence presented by Nearburg demonstrates the recoverable reserves in the "GRE" Sand are located in the small marine beach deposits that extend across the N/2 of Section 34. No reservoir quality "GRE" Sands are present in the S/2 of the section (Testimony of Cox, Tr. at 244) and the only way that Redrock has been able to show reserves under that tract is to ignore the net porosity information on the reservoir and break the formation into three reservoirs – contrary to relevant well data.[11]

To comply with the statutory definition of correlative rights, and to afford Nearburg the opportunity to produce the recoverable reserves under the N/2 of section 34, the Commission must either (1) determine that the Morrow formation under this section is one common source of supply and hold that a N/2 spacing unit can be dedicated to the well since no acreage in the N/2 has been consolidated for another well, or (2) it must approve a 160-acre non-standard spacing unit for the well. These are the only ways that Nearburg and each of the other owners in the N/2 of this section can be afforded an opportunity to produce their just and equitable share of the reserves in

---

[10] "correlative rights" means the opportunity afforded, so far as it is practical to do so, 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, being an amount, so far as can be practically obtained without waste, substantially in the proportion that the quantity of recoverable oil or gas or both under the property bears to the total recoverable oil and gas or both in the pool and, for such purpose , to use his just and equitable share of the reservoir energy." (emphasis added) NMSA 1978, § 70-2-33.H

[11] The only other potentially productive Morrow sand in the Nearburg well is the Morrow "A" sand. The net distribution of this sand exists only in the N/2 of Section 34 and is not present in the S/2 of the section. (Testimony of Horning, Tr. at 119, Nearburg Exhibit No. 11, Testimony of Cox, Tr. at 243, Nearburg/GWDC Exhibit No. 17).

the Morrow "GRE" Sand. Any other result will require Nearburg, its working interest owners and its overriding royalty owners, to share reserves produced from property it owns with the owners of acreage which will not contribute reserves to the Nearburg Well. This would violate the correlative rights as these rights are defined by the Oil and Gas Act.

## V.
## CONCLUSION

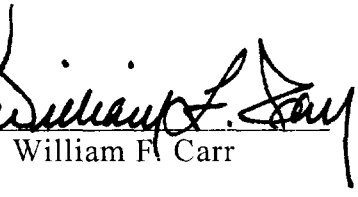
Nearburg drilled the Grama Ridge East "34" State Well No. 1 at a standard gas well location pursuant to an approved Application for Permit to Drill with an attached Acreage Dedication Plat which dedicated to the well a standard spacing unit comprised of the N/2 of Section 34. Nearburg now seeks an order from the Commission that will permit it to produce this well and share the production from the well with the owners of the property that is contributing reserves to the well. To do this Nearburg must be authorized to dedicate to the well either a standard spacing unit comprised of the N/2 of Section 34 or a 160-acre non-standard unit comprised of the NE/4 of the section.

Unlike Redrock, Nearburg has not had to manipulate data or break up the "GRE" Sand into three separate sources of supply with wished-in faults and postulated breaks in the formation. Nearburg simply mapped the net sand in the reservoir and then confirmed its interpretation with standard volumetric work which honored all available data. Furthermore, Nearburg's geological and engineering data is confirmed by actual well presssure test data in the RFT Log taken in the SE/4 of Section 34 only months after the order was entered dividing Section 34 into two pools. If this data had been available in May of 1979, Section 34 would never have been divided into two pools.

If the Commission is to act to protect correlative rights as defined by the Oil and Gas Act it must grant the applications in each of these cases and authorize Nearburg to return its well to production.

Respectfully submitted,

HOLLAND & HART, LLP

By: 
William F. Carr

ATTORNEYS FOR NEARBURG EXPLORATION COMPANY, LLC., GREAT WESTERN DRILLING COMPANY AND CL&F RESOURCES, INC.

## CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing pleading has been transmitted by facsimile or hand delivery this 8th day of October 2002 to the following:

Commissioner Lori Wrotenbery
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Commissioner Jami Bailey
Director
Oil Gas & Minerals Division
310 Old Santa Fe Trail
Post Office Box 1148
Santa Fe, New Mexico 87504-1148

Commissioner Robert Lee
Director
New Mexico Petroleum Recovery
Research Center
801 Leroy Place
Socorro, New Mexico 87801

Stephen C. Ross, Esq.
Assistant General Counsel
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

W. Thomas Kellahin, Esq.
Kellahin & Kellahin
Post Office Box 2265
Santa Fe, New Mexico 87504-2265
FAX NO. (505) 982-2047

J. Scott Hall, Esq.
Miller, Stratvert & Torgerson, P.A.
Post Office Box 1986
Santa Fe, New Mexico 87504-1986
FAX No. (505) 989-9857

William F. Carr