ENGINEER

LOGGED IN 1215

PME50-APPNO 6143297//

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

Sicarilla A *8M

1220 South St. Francis Drive, Santa Fe, NM 87505



Rich.Corcoran@cdxgas.com

Email Address

Jicarilla A #8N

		ADMINISTRATIVE APPLICATION CHECKLIST	
TH	IS CHECKLIST I	S MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES A WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE	ND REGULATIONS
Applica	DHC-De		ningling] ent]
[1]	TYPE OF [A]	APPLICATION - Check Those Which Apply for [A] Location - Spacing Unit - Simultaneous Dedication X NSL	
	Che [B]	cck One Only for [B] or [C] Commingling - Storage - Measurement DHC CTB PLC PC OLS OLM	
	[C]	Injection - Disposal - Pressure Increase - Enhanced Oil Recovery WFX PMX SWD IPI EOR PPR	2000
	[D]	Other: Specify	2006 MAY
[2]	NOTIFICA [A]	TION REQUIRED TO: - Check Those Which Apply, or □ Does Not Apply □ Working, Royalty or Overriding Royalty Interest Owners	Y 19
	[B]	X Offset Operators, Leaseholders or Surface Owner	PM
	[C]	Application is One Which Requires Published Legal Notice	1 52
	[D]	Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office	.0
	[E]	For all of the above, Proof of Notification or Publication is Attached, ar	nd/or,
	[F]	Waivers are Attached	
[3]		CCURATE AND COMPLETE INFORMATION REQUIRED TO PROCE CATION INDICATED ABOVE.	SS THE TYPE
	al is accurat	EATION: I hereby certify that the information submitted with this application for and complete to the best of my knowledge. I also understand that no action wi required information and notifications are submitted to the Division.	r administrative ll be taken on this
		ote: Statement must be completed by an individual with managerial and/or supervisory capacit	ty.
Richar	d Corcoran	Land Manager	5-18-0
Print or	Type Name	Signature Title	Date

CDX RIO, LLC

2010 Afton Place Farmington, New Mexico 87401 (505) 326-3003 - Fax (505) 325-4007 2006 MRY 19 PM 1 52

May 17, 2006

New Mexico Oil Conservation Division Attn: Michael E. Stogner 1220 South St. Francis Drive Santa Fe, New Mexico 87505

RE: ADMINISTRATIVE APPROVAL OF UNORTHODOX LOCATIONS

JICARILLA A #2M, Section 18, T26N-R5W JICARILLA A #8M, Section 17, T26N-R5W JICARILLA A #8N, Section 17, T26N-R5W JICARILLA C #5N, Section 24, T26N-R5W JICARILLA 102 #9M, Section 4, T26N-R4W JICARILLA 102 #11M, Section 10, T26N-R4W RIO ARRIBA COUNTY, NEW MEXICO

Dear Mr. Stogner:

CDX Rio, LLC hereby requests Administrative Approval for the following Unorthodox Locations all proposed as Blanco Mesaverde/Basin Dakota commingled wells under the provisions of New Mexico Oil Conservation Division (NMOCD) Order R-10987-A, Basin Dakota pool and Order R-10987-B, Blanco Mesaverde pool.

Well Name & Number	Bottom Hole / (Surface) Location	Sec-Twn-Rng	Formations / Spacing
1) Jicarilla A #2M	2,245' FSL, 305' FEL	18-T26N-R5W	MVRD - E/2 DKOT - E/2
2) Jicarilla A #8M	750' FNL, 2,240' FEL	17-T26N-R5W	MVRD- E/2 DKOT- E/2
3) Jicarilla A #8N	1,420' FSL, 2,475' FEL	17-T26N-R5W	MVRD- E/2 DKOT- E/2
4) Jicarilla C #5N	700' FSL, 2,350' FEL	24-T26N-R5W	MVRD- E/2 DKOT- E/2
5) Jicarilla 102 #9M	935' FSL, 2,225' FEL	4-T26N-R4W	MVRD- E/2 DKOT - E/2
6) Jicarilla 102 #11M	1,668' FSL, 468' FWL	10-T26N-R4W	MVRD- S/2 DKOT - W/2

Each of the proposed locations is a standard 320 acre gas spacing unit except for the Jicarilla 102 #9M which contains 322.24 acres, and each well is to be located at the spot set out above. The location of each proposed test was selected to optimize recovery from the Dakota formation. Drainage areas are elliptical in shape and have been determined from a study done on Township 26 North Ranges 4 and 5 West and are more specifically set out in the attached

Geological/Engineering report. In every case the proposed locations encroach upon CDX Rio, LLC operated wells with exactly the same ownership as the offending well.

Jicarilla A #2M

The proposed well would be the fourth Basin Dakota and the third Blanco Mesaverde well in the E/2 of Section 18-T26N-R5W. The Jicarilla A #2 (API # 30-039-08136) located 790' FNL and 1,850' FEL of Section 18-T26N-R5W, was drilled to a total depth of 7,750', completed in the Tapicito Gallup, Basin Dakota, and Blanco Mesaverde formations on December 23, 1964, and has cumulatively produced 2,712,700 MCFG through February of 2006. The Jicarilla A #2E (API # 30-039-22581) located 1,120' FSL and 1,520' FEL of Section 18-T26N-R5W, was drilled to a total depth of 7,567', completed in the Tapicito Gallup and Basin Dakota on September 1, 1993, and has cumulatively produced 1,228,781 MCFG through February of 2006. The Jicarilla A #2F (API # 30-039-29690) proposed new drill well is to be located at 540 FNL and 665 FEL of Section 18-T26N-R5W with an expected total depth of 7,963', and completions in the Blanco Meservede and Basin Dakota formations. CDX Rio, LLC is the operator of the wells located in the W/2 of Section 17-T26N-R5W being the direction of encroachment.

Jicarilla A #8M Jicarilla A #8N

The proposed well(s) would be the third/fourth Basin Dakota and second/third Blanco Mesaverde well(s) in the E/2 of Section 17-T26N-R5W. The Jicarilla A# 8 (API #30-039-08163) located 2,365' FNL and 790' FEL of Section 17-T26N-R5W, was drilled to a total depth of 7,658', completed in the Basin Dakota formation on September 29, 1966, and recompleted in the Tapicito Gallup formation on August 1, 1977, and has cumulatively produced 3,405,222 MCFG through February of 2006. The Jicarilla A #8E (API #30-039-22897) located 1,120' FSL and 1,065' FEL of Section 17-T26N-R5W, was drilled to a total depth of 7,560', completed in the Basin Dakota formation on August 24, 1982, recompleted in the Blanco Mesaverde and Otero Chacra formations on October 15, 2002, and has produced 339,162 MCFG through February of 2006. CDX Rio, LLC is the operator of the wells located in the W/2 of Section 17-T26N-R5W, being the direction of encroachment.

Jicarilla C #5N

The proposed well would be the fourth Basin Dakota and fourth Blanco Mesaverde well in the E/2 of Section 24-T26N-R5W. The Jicarilla C #5(API # 30-039-08160) located at 1,850' FSL and 790' FEL of Section 24-T26N-R5W, was drilled to a total depth of 7,572', completed in the Basin Dakota and Blanco Meservede formations on October 18, 1966, and has cumulatively produced 2,772,771 MCFG through February of 2006. The Jicarilla C #5M (API # 30-039-22315) located at 960' FNL and 960' FEL of Section 24-T26N-R5W, was drilled to a total depth of 7,705', completed in the Basin Dakota and Blanco Meservede formations on September 4, 1980, and has cumulatively produced 1,084,166 MCFG through February of 2006. The Jicarilla C #5F (API # 30-039-29591) located at 1,400' FNL and 1,980' FEL of Section 24-T26N-R5W, was drilled to a total depth of 7,617', and is currently awaiting completion in the Basin Dakota and Blanco Meservede formations. CDX Rio, LLC is the operator of the wells located in the W/2 of Section 24-T26N-R5W being the directions of encroachment.

Jicarilla 102 #9M

The proposed well would be the third Basin Dakota and Blanco Mesaverde well in the E/2 of Section 4-T26N-R4W. The Jicarilla 102 #9 (API #30-039-06715) located 1,600' FNL and 1,800' FEL of Section 4-T26N-R4W, was drilled to a total depth of 8,416', completed in the Basin Dakota and BS Mesa Gallup formations on June 16, 1963, and has cumulatively produced

2,242,339 MCFG through February of 2006. The Jicarilla 102 #9E (API #30-039-22456) located 970' FSL and 920' FEL of Section 4 -T26N-R4W, was drilled to a total depth of 8,150', completed in the Basin Dakota formation on October 17, 1980, and has cumulatively produced 1,853,432 MCFG through February of 2006. The Jicarilla 102 #5 (API #30-039-06718) located 1,450' FNL and 1,450' FEL of Section 4 -T26N-R4W, was drilled to a total depth of 6,448', completed in the Blanco Mesaverde formation on September 19, 1957, and has cumulatively produced 753,841 MCFG through February of 2006. The Jicarilla 102 #5A (API #30-039-23197) located 1,120' FSL and 790' FEL of Section 4 -T26N-R4W, was drilled to a total depth of 6,088', completed in the Mesaverde formation on October 5, 1983, and has cumulatively produced 453,749 MCFG through February of 2006. CDX Rio, LLC is the operator of the wells located in the W/2 of Section 4-T26N-R4W, being the direction of encroachment.

Jicarilla 102 #11M

The proposed well would be the third Basin Dakota in the W/2 and the fourth Blanco Mesaverde well in the S/2 of Section 10-T26N-R4W. The Jicarilla 102 #11 (API #30-039-06610) located 1,190' FNL and 1,850' FWL of Section 10-T26N-R4W, was drilled to a total depth of 8,037', completed in the Basin Dakota, Blanco Mesaverde, and BS Mesa Gallup formations on March 18, 1970, and has cumulatively produced 2,233,852 MCFG through February of 2006. The Jicarilla 102 #16 (API #30-039- 20190) located 1,070' FSL and 1,450' FEL of Section 10-T26N-R4W, was drilled to a total depth of 7,340', completed in the Basin Dakota formation on February 6, 1970, and has cumulatively produced 630,774 MCFG through February of 2006. The Jicarilla 102 #16A (API #30-039- 21852) located 1,070' FSL and 1,150' FWL of Section 10-T26N-R4W, was drilled to a total depth of 7,397', completed in the Blanco Mesaverde formation on March 2, 1979 and has cumulatively produced 732,875 MCFG through February of 2006. The Jicarilla 102 #11E (API #30-039- 22459) located 1,110' FSL and 1,065' FWL of Section 10-T26N-R4W, was drilled to a total depth of 7,982', completed in the Basin Dakota formation on November 5, 1980, and has cumulatively produced 1,303,624 MCFG through February of 2006. CDX Rio, LLC is the operator of the wells located in the S/2 and E/2 of Section 9-T26N-R4W, being the direction of encroachment.

Attached are well location plats showing dedicated acreage (C-102), topographic plats of the area, a map showing all offsetting owners, and our Geologic/Engineering explanation of the reservoir considerations establishing the increased recovery that we expect to gain by moving the proposed wells to non-standard locations.

A copy of this application is being submitted to all offset operator/owner by certified mail with a request that they furnish your office in Santa Fe a Waiver of Objection.

Your favorable consideration of this request would be appreciated.

Sincerely,

Richard Corcoran Land Manager

Enclosures RC/fd



To:

Mike Stogner

From:

Peter Kondrat, Senior Geologist and Rod Seale, Senior Petroleum Engineer

Subject: Approval Request of Dakota Formation Unorthodox Infill Locations due to Reservoir

Considerations

Location: CDX Rio, LLC Leasehold, Jicarilla Apache Nation, San Juan Basin

Date: May 17, 2006

Application:

CDX Rio, LLC respectfully requests the approval of the following listed unorthodox Dakota Formation infill locations due to reservoir considerations.

Well Name & Number	Spot of Bottom Hole Location	Sec-Twn-Rng	Formations
1) Jicarilla A #2M	2,245' FSL, 305' FEL	18-T26N-R5W	MVRD - E/2 DKOT - E/2
2) Jicarilla A #8M	750' FNL, 2,240' FEL	17-T26N-R5W	MVRD- E/2 DKOT- E/2
3) Jicarilla A #8N	1,420' FSL, 2,475' FEL	17-T26N-R5W	MVRD- E/2 DKOT- E/2
4) Jicarilla C #5N	700' FSL, 2,350' FEL	24-T26N-R5W	MVRD- E/2 DKOT- E/2
5) Jicarilla 102 #9M	935' FSL, 2,225' FEL	4-T26N-R4W	MVRD- E/2 DKOT - E/2
6) Jicarilla 102 #11M	1,668' FSL, 468' FWL	10-T26N-R4W	MVRD- S/2 DKOT - W/2

Summary:

CDX Rio, LLC is continuing its Mesaverde-Dakota 80-acre increased density infill development program of its San Juan Basin Tapicito Project located in the Jicarilla Apache Nation, Rio Arribia County, New Mexico. CDX is currently permitting both standard and non-standard locations to fulfill the development program. The proposed unorthodox gas well locations are necessitated by a combination of topographic, engineering and geologic factors. None of the proposed locations infringe on the correlative rights of other operators.

Utilizing geologic and engineering data, CDX has completed a detailed study identifying the most optimal locations for Mesaverde and Dakota Formation infill wells. These locations are defined as optimal because they ensure maximum recovery of reserves and minimize waste.

CDX has constructed various maps for the Mesaverde and Dakota Formations that depict:

- 1) Bulk volume hydrocarbon feet
- 2) Original GIP (OGIP)
- 3) Estimated Ultimate Recovery (EUR)
- 4) Remaining GIP (RGIP)
- 5) EUR Drainage Volume Ellipses that depict Producing Characteristics
- 6) Optimal Infill Development Locations

Exhibits

Attached are two sets of maps for each proposed unorthodox infill location.

- 1) Land plats that show CDX's leasehold and the proposed new drill bottom-hole locations.
- 2) Dakota Formation EUR drainage volume ellipses that depict the producing characteristics of the existing wells and also the proposed unorthodox infill locations. The volume ellipses acreage was computed using bulk volume hydrocarbon feet and EUR.



- a. Both Mesaverde and Dakota Formations have fracture-permeability anisotropy resulting in elliptical drainages. Following the area's best practices the elliptical drainages were drawn at a 3.7:1 aspect ratio and with a maximum horizontal permeability direction of N10°.
- b. The location of the Dakota Formation drainage ellipses is the primary reason for permitting non-standard locations. Dakota Formation infill locations were selected to optimize recovery for the rock unit.

References

NMOCD Case Number 12508; Order Number R-11503

NMOCD Case Number 12745; Order Number R-10987-B; 2002; To Amend the Special Rules and Regulations for the Basin-Dakota Pool to Increase Well Density and Amend the Well Location Requirements; Burlington Resources Oil and Gas Company and Conoco Incorporated; 15 pages

SPE Paper #60288; 2000; Producing Characteristics and Drainage Volume of Dakota Reservoirs, San Juan Basin; Arild Sunde, Her-Yuan Chen, Lawerence W. Teufel; 10 pages

SPE Paper #77742; 2002; An Effective Technique of Estimating Drainage Shape, Magnitude and Orientation in a Low-Permeability Gas Sand; Ryan L. Robinson and Thomas W. Engler; 8 pages

SPE Paper #39974; 1998; Drainage Efficiency in Naturally Fracture Tight Gas Sandstone Reservoirs; H. Harstad, L.W. Teufel and J.C. Lorenz; 11 pages

SPE Paper #39911; 1998; Potential for Infill Drilling in a Naturally Fractured Tights Gas Sandstone Reservoir; H. Harstad, L.W. Teufel and J.C. Lorenz; 11 pages

SPE Paper #38580; 1997; Methodology to Optimize Completions in the Mesaverde Formation, San Juan Basin, New Mexico; Brian P. Ault, Earuch F. Broacha and David L. Holcomb; 20 pages

SPE Paper #60295; 2000; Influence of Permeability Anisotropy and Reservoir Heterogeneity on Optimization of Infill Drilling in Naturally Fractured Tight-Gas Mesaverde Sandstone Reservoirs, San Juan Basin; H.K. Al-Hadrami and L.W. Teufel; 12 pages

SPE Paper #68598; 2001; Practical Methods to High-Grade Infill Opportunities Applied to the Mesaverde, Morrow and Cotton Valley Formations; J.W. Hudson, J.E. Jochen, J.P. Spivey; 11 pages

SPE Paper #21484; 1991; The Impact of Improved Technology on Potential Tight Gas Reserves in the San Juan Basin; M.R. Haas and T.E. Crist; 14 pages

DISTRICT (1625 N. French Dr., Hobbs, N.M. 88240

STRICT B YI W. Grand Ave., Artesia, N.M. 88210

DISTRICT III 1000 Rio Brozos Rd., Aztec, N.M. 87410

> ¹ API Number 30-039-

⁴Property Code

State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 1220 South St. Frencis Dr. Santa Fe, NM 87505 Form C-102 Revised June 10, 2003

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

DISTRICT IV 1220 South St. Francis Dr., Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT *Pool Code 72319/71599 *Property Name *Property Name *Property Name *Property Name *Property Name *SM....

33454 *Operator Name **Elevation** OGRID No. 222374 CDX RIO, LLC 6677 ¹⁰ Surface Location UL or lot no. Lot idn Feet from the North/South line Feet from the East/West line Section Township Ronge County RIO ARRIBA NORTH **EAST** 5-W 750' 2240' В 17 26-N 11 Bottom Hole Location If Different From Surface North/South line East/West line Lot Idn Feet from the Feet from the UL or lot no. Range Section Township County ² Dedicated Acres 14 Consolidation Code 15 Order No. Joint or Infill MY - E/320 DK - E/320 NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION JALC'D COR. BY DBL. PORP. CALC'D COR. BY DBL. PORP. N 89-59-35 W OPERATOR CERTIFICATION 5332' (C) I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief 30 2240' LAT: 36'29'32.5" N. (NAD 83) LONG: 107'22'53.2" W. (NAD 83) Signature Richard Corcoran Printed Name ы rich.corcoran@cdxgas.com Land Manager Title and E-mail Address 50 Date 5310 SURVEYOR CERTIFICATION hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Standard 640-acre Section

CALC'D COR.

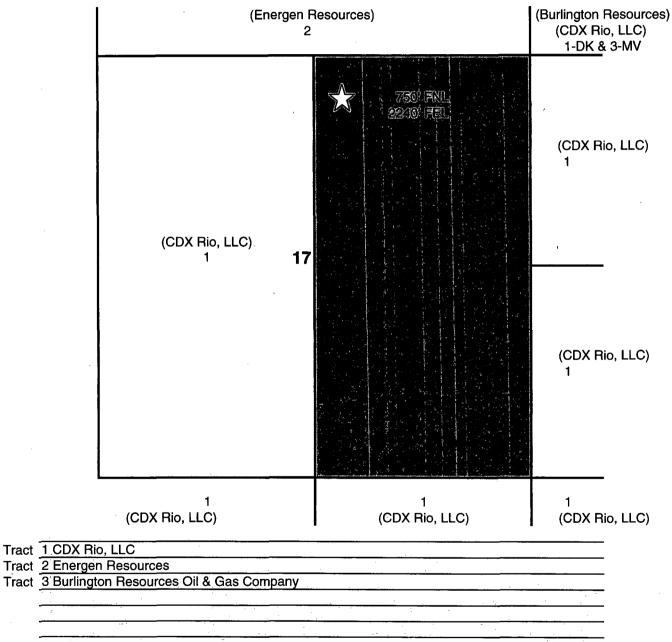
Certificate Nu

CDX Rio, LLC

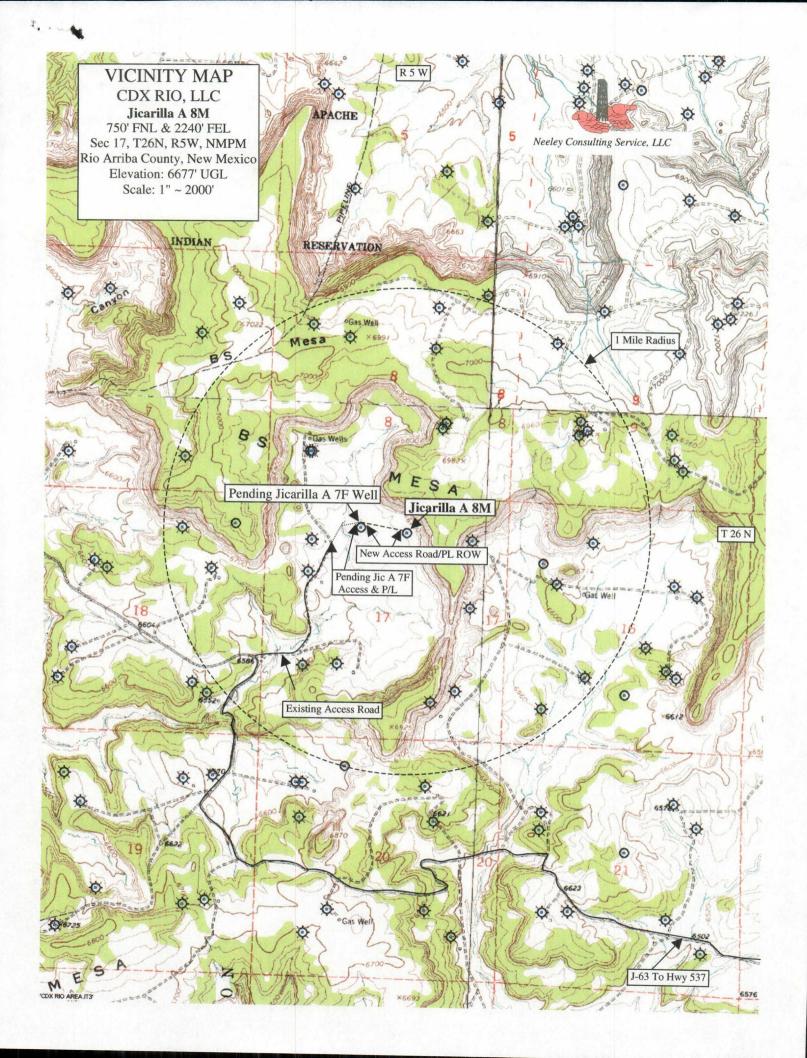
Jicarilla A #8M

OFFSET OPERATOR \ OWNER PLAT

Mesaverde & Dakota Formation E/2 Section 17 Township 26 North - Range 5 West **Rio Arriba County, NM**



Tract 2 Energen Resources Tract 3 Burlington Resources Oil & Gas Company



CDX RIO, LLC

2010 Afton Place Farmington, New Mexico 87401 (505) 326-3003 – Fax (505) 325-4007

May 17, 2006

Certified Mail

Burlington Resources Attn: Ben Malone PO Box 4289 Farmington, NM. 87499

RE:

ADMINISTRATIVE APPROVAL OF UNORTHODOX LOCATION

JICARILLA A #8M-750' FNL & 2,240' FEL JICARILLA A #8N-1,420' FSL & 2,475' FEL

SECTION 17-T26N-R5W

RIO ARRIBA COUNTY, NEW MEXICO

Dear Mr. Malone,

CDX Rio, LLC has filed with the New Mexico Oil Conservation Division (NMOCD), an application for the Administrative Approval of an Unorthodox location of the Jicarilla A #8M and Jicarilla A #8N wells. A copy of the application has been attached for your review.

Objections to this application must be sent to the NMOCD at 1220 South St. Frances Dr. in Santa Fe, New Mexico 87505, within 20 days of receipt of this application. Your cooperation in this matter is appreciated.

Sincerely

Richard Corcoran Land Manager

Enclosures

RC/fd

1625 N. French Dr., Hobbs, N.M. 88240

TRICT || W. Grand Ave., Artesia, N.M. 88210

1000 Rio Brozos Rd., Aztec, N.M. 87410

CALC'D COR.

BY DBL. PORP.

5347' (C)

State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102 Revised June 10, 2003

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

DISTRICT IV 1220 South St. Francis Dr., Santo Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT ⁸Pool Name ²Pool Code ¹ API Number 72319/71599 Bianco Mesaverde/Basin Dakota 30-039-Well Number Property Name ⁴Property Code 33454 8N JICARILLA A ⁵Operator Name 70GRID No. Elevation 222374 CDX RIO, LLC 6665 ¹⁰ Surface Location UL or lot no. Lot Idn Feet from the North/South line Feet from the East/West line County RIO ARRIBA Section Township Range SOUTH **EAST** 26-N 5-W 1420' 2475 17 ¹¹ Bottom Hole Location If Different From Surface UL or lot na Lot Idn Feet from the North/South line Feet from the East/West line Section Township Range County Dedicated Acres ¹⁴ Consolidation Code *Order No. Joint or infill MV - E/320 DK - E/320 NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION CALC'D COR. BY DBL. PORP. OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief Signature Richard Corcoron Printed Name Land Manager rich.corcoran@cdxgas.com \$ 00-10-20 5310' (C) Title and E-mail Address Date SURVEYOR CERTIFICATION hereby certify that the well location shown on this plat ras plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. LAT: 36'29'01.5" N. (NAD 83) LONG: 107'22'56.0" W. (NAD 83) 2475 S 89-57-30 W

CALC'D COR.

BY DBL. PORP.

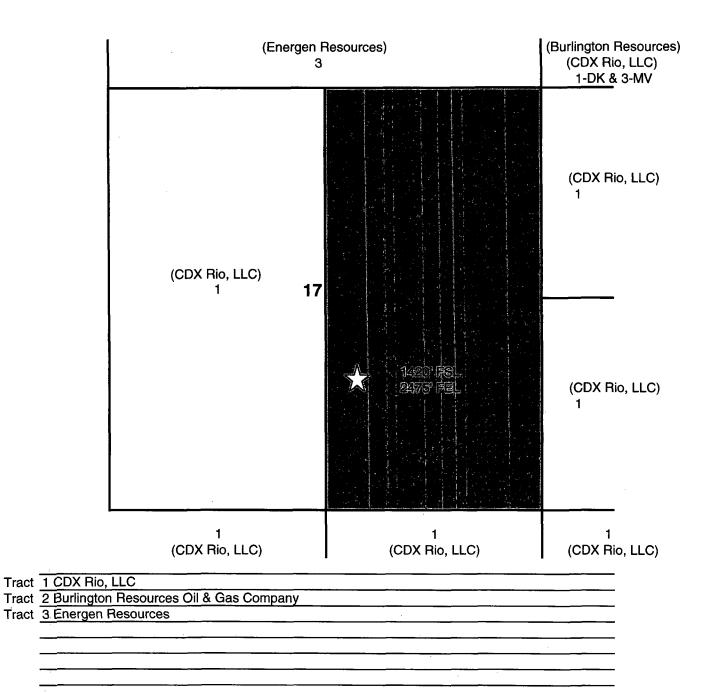
Certificate Numb

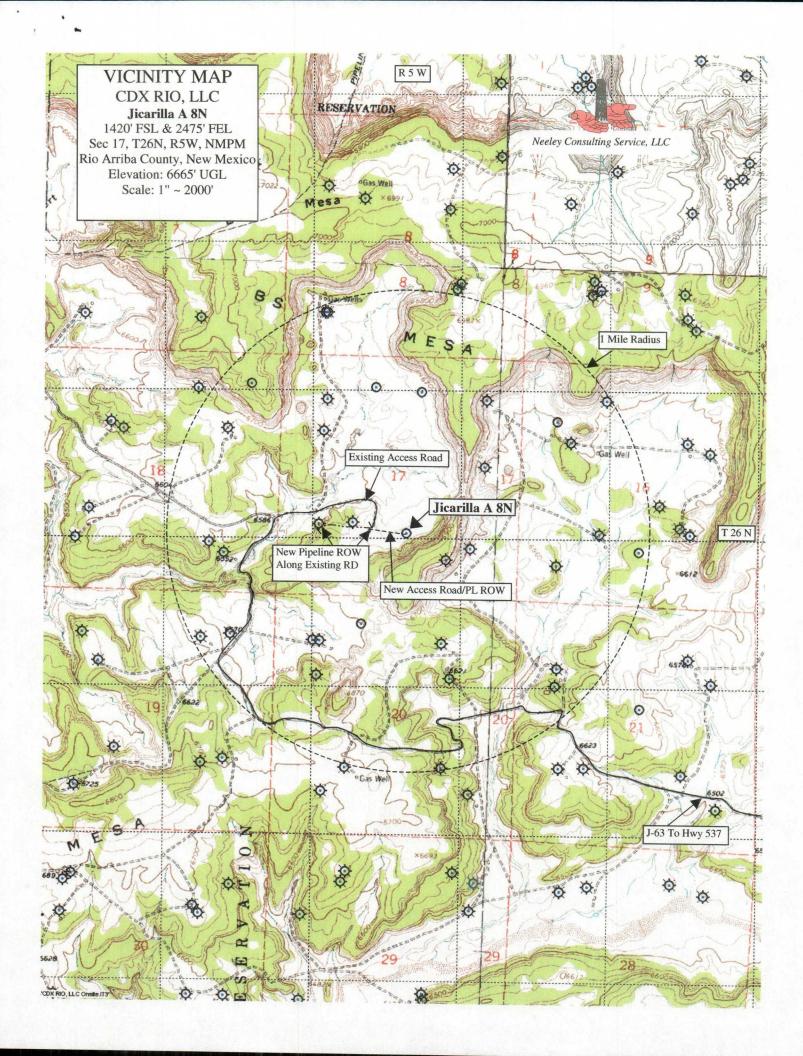
CDX Rio, LLC

Jicarilla A #8N

OFFSET OPERATOR \ OWNER PLAT

Mesaverde & Dakota Formation E/2 Section 17 Township 26 North - Range 5 West Rio Arriba County, NM





CDX RIO, LLC

2010 Afton Place Farmington, New Mexico 87401 (505) 326-3003 – Fax (505) 325-4007

May 17, 2006

Certified Mail

Energen Resources Corporation Attn: Dave Poage 2198 Bloomfield Hwy Farmington, NM. 87401

RE:

ADMINISTRATIVE APPROVAL OF UNORTHODOX LOCATION JICARILLA A #8M-750' FNL & 2,240' FEL JICARILLA A #8N-1,420' FSL & 2,475' FEL SECTION 17-T26N-R5W

RIO ARRIBA COUNTY, NEW MEXICO

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Sincerely,

Richard Corcoran Land Manager

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RC/fd