

5-19-2006 DATE IN	6-8-2006 SUSPENSE	ENGINEER <i>MS</i>	LOGGED IN <i>MS</i>	TYPE <i>NSL</i>	<i>PMESD</i> APP NO <i>614253808</i>
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

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



Apache
Jicarilla 102 #11M

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] TYPE OF APPLICATION - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
X NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] X Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Richard Corcoran

Richard Corcoran

Land Manager

5-18-06

Print or Type Name

Signature

Title

Date

Rich.Corcoran@cdxgas.com
Email Address

CDX RIO, LLC

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

2006 MAY 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 Meserve 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 Meserve 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 Meserve 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 Meserve 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 Arriba 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, Lawrence 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 Tight 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 I
N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1801 W. Grand Ave., Artesia, N.M. 88210

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

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ APT Number 30-039-	² Pool Code 72319/71599	³ Pool Name Blanco Mesaverde/Basin Dakota
⁴ Property Code 33455	⁵ Property Name JICARILLA 102	⁶ Well Number 11M
⁷ OGRD No. 222374	⁸ Operator Name CDX RIO, LLC	⁹ Elevation 6884

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	10	26-N	4-W		1668	SOUTH	468	WEST	RIO ARRIBA

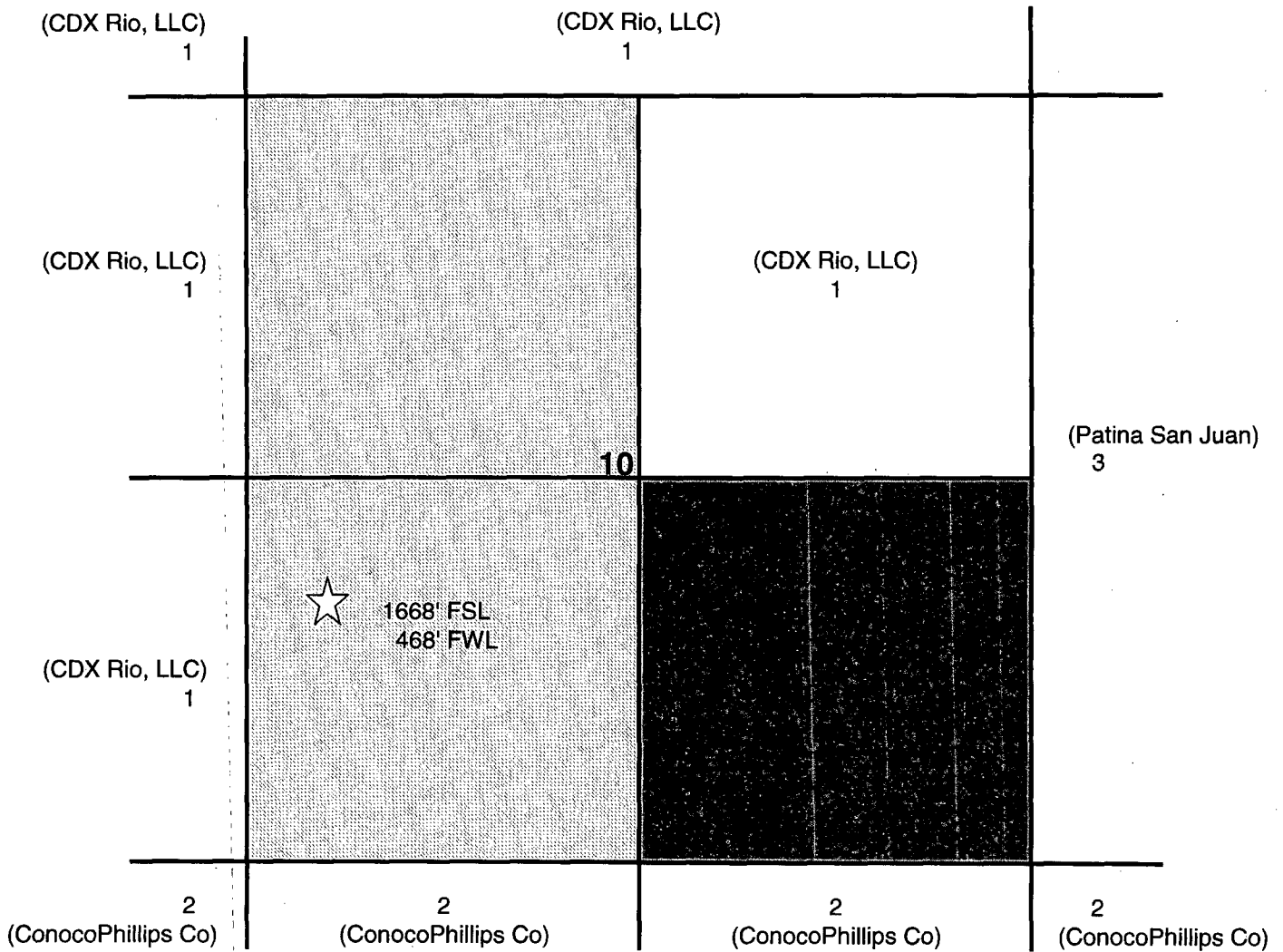
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres MV - S/320 DK - W/320				¹³ Joint or Infill Y		¹⁴ Consolidation Code		¹⁵ Order No.	

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. PROP.	5266.96' (C)	N 01-52-30 E	468'	1668'	LAT. 36°29'53.5" N. (NAD 83) LONG. 107°14'46.3" W. (NAD 83)	10	CALC'D COR. BY DBL. PROP.	N 89-42-59 E	5266.15' (C)	CALC'D COR. BY DBL. PROP.	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature Richard Corcoran Printed Name Land Manager rich.corcoran@cdxgas.com Title Date
											¹⁸ SURVEYOR CERTIFICATION I 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. SEPTEMBER 2005 Date of Survey Signature of Registered Professional Surveyor 14831 Certification No.

CDX Rio, LLC
Jicarilla 102 #11M
OFFSET OPERATOR \ OWNER PLAT
S/2 Mesaverde & W/2 Dakota Formation
Section 10 Township 26 North - Range 4 West
Rio Arriba County, NM



Tract	1 CDX Rio, LLC
Tract	2 ConocoPhillips Co.
Tract	3 Patina San Juan

Scale: 1" ~ 2000'

Neeley Consulting Service, LLC

1 Mile Radius

Jicarilla 102 11M

I-64

T 26 N

New Access Road/PL ROW

Existing Access Road

J-6 To Hwy 537

J-25

J-6

PIPELINE

'CDX RIO, LLC Onsite.IT3'

CDX RIO, LLC

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

May 17, 2006

Certified Mail

Patina Oil and Gas Corporation
Attn: David Siple
1625 Broadway Suite 2000
Denver, CO. 80202

RE: ADMINISTRATIVE APPROVAL OF UNORTHODOX LOCATION
JICARILLA APACHE 102 #11M
1,668' FSL & 468' FWL
SECTION 10-T26N-R4W
RIO ARriba COUNTY, NEW MEXICO

Dear Mr. Siple,

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 Apache 102 #11M well. 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

CDX RIO, LLC

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

May 17, 2006

Certified Mail

Conoco Phillips Company
Attn: Tom Scarborough
PO Box 2197
Houston, TX. 77252-2197

RE: ADMINISTRATIVE APPROVAL OF UNORTHODOX LOCATION
JICARILLA APACHE 102 #11M
1,668' FSL & 468' FWL
SECTION 10-T26N-R4W
RIO ARriba COUNTY, NEW MEXICO

Dear Mr. Scarborough,

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 Apache 102 #11M well. 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