

RECEIVED

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FEB 28 2012

APPLICATION FOR PERMIT TO DRILL OR REENTER

Farmington Field Office

Bureau of Land Management

1a. Type of Work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator

WPX Energy Production, LLC (aka) Williams Production Company, LLC

3a. Address

P.O. Box 640 Aztec, NM 87410

3b. Phone No. (include area code)

(505) 333-1808

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At surface 272' FSL & 1493' FWL, sec 4, T31N, R6W

At proposed prod. zone 1484' FSL & 1767' FWL, sec 3, T31N, R6W

14. Distance in miles and direction from nearest town or post office*

approximately 30 miles northeast of Blanco, New Mexico

15. Distance from proposed*

location to nearest

property or lease line, ft.

(Also to nearest drig. unit line, if any) 272'

16. No. of Acres in lease

2561.86

17. Spacing Unit dedicated to this well

54.209.49 (R-13068)

18. Distance from proposed location*

to nearest well, drilling, completed,

applied for, on this lease, ft.

10'

19. Proposed Depth

7192' TVD / 13047' MD

20. BLM/BIA Bond No. on file

UTB000178

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

6421' GR

22. Approximate date work will start*

April 1, 2012

23. Estimated duration

1 month

OIL CONS. DIV.

24. Attachments

DIST. 3

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.

2. A Drilling Plan.

3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).

5. Operator certification.

6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature

Larry Higgins

Name (Printed/Typed)

Larry Higgins

Date

2/27/12

Title

Permit Supervisor

Approved by (Signature)

[Signature]
AFM

Name (Printed/Typed)

Office

FFO

Date

2/26/13

Title

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on reverse)

WPX Energy Production, LLC, proposes to develop the Basin Mancos formation at the above described location in accordance with the attached drilling and surface use plans.

The well pad surface is under jurisdiction of the BLM.

This location has been archaeologically surveyed by La Plata Archaeological Consultants. Copies of their report have been submitted directly to the BLM.

No new access road is needed. A pipeline tie of 98.0 feet would be required for this well. The proposed pipeline would also be located on Public lands.

Hold C104

for Directional Survey
and "As Drilled" plat

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

NMOCD
FY

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

MAY 08 2013 ca

APD Certification:

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 27th day of February, 2012.

Name Larry Higgins

Position Title Permit Supervisor

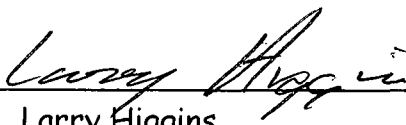
Address P.O. Box 640, Aztec, NM 87410

Telephone (505) 333-1808

Field representative (if not above signatory) _____

E-mail larry.higgins@wpxenergy.com

Date: 2/27/12



Larry Higgins
Permit Suprv.
WPX Energy Production, LLC

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30.045.35355	*Pool Code 97232	*Pool Name BASIN MANCOS
*Property Code 39671	*Property Name ROSA UNIT 04	*Well Number 002H
*OGRID No. 120782	*Operator Name WPX ENERGY PRODUCTION, LLC	*Elevation 6421'

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
N	4	31N	6W		272	SOUTH	1493	WEST	SAN JUAN

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
K	3	31N	6W		1484	SOUTH	1767	WEST	SAN JUAN

¹² Dedicated Acres 54,209.49 Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13068
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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

SURFACE LOCATION
272' FSL 1493' FWL
SECTION 4, T31N, R6W
LAT: 36.92206°N
LONG: 107.47148°W
DATUM: NAD1927

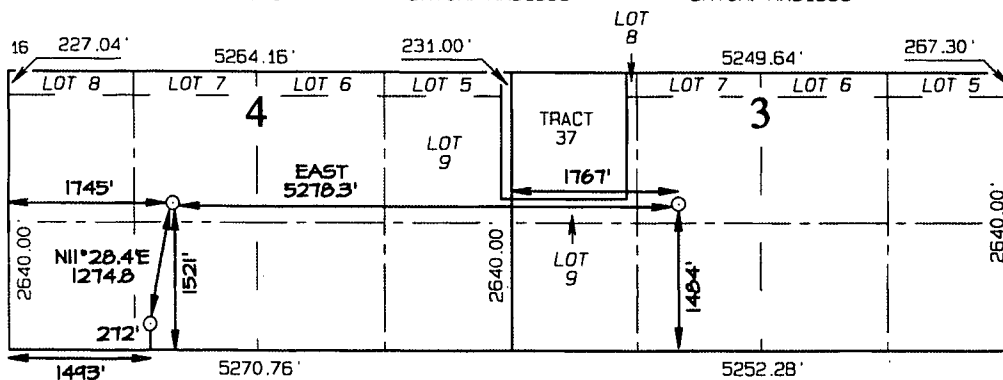
LAT: 36.92206°N
LONG: 107.47208°W
DATUM: NAD1983

POINT-OF-ENTRY
1521' FSL 1745' FWL
SECTION 4, T31N, R6W
LAT: 36.92549°N
LONG: 107.47059°W
DATUM: NAD1927

LAT: 36.92549°N
LONG: 107.47120°W
DATUM: NAD1983

END-OF-LATERAL
1484' FSL 1767' FWL
SECTION 3, T31N, R6W
LAT: 36.92543°N
LONG: 107.45254°W
DATUM: NAD1927

LAT: 36.92543°N
LONG: 107.45314°W
DATUM: NAD1983



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature *Larry Higgins* Date **2/27/12**

Printed Name **LARRY HIGGINS**

E-mail Address **LARRY.HIGGINS@WPXENERGY.COM**

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.

Survey Date: **JANUARY 13, 2012**

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

THE HORIZONTAL LATERAL REPRESENTED ON THIS PLAT CORRESPONDS TO THE OLIVE SEGMENT WHICH VARIES IN VERTICAL DEPTH.



WPX Energy Production

Operations Plan

(Note: This procedure will be adjusted on site based upon actual conditions)

DATE: 12/05/2011 **FIELD:** Basin Mancos
WELL NAME: Rosa Unit 04 #002H **SURFACE:** BLM
BH LOCATION: NESW Sec 3-31N-6W **MINERALS:** FED
San Juan, NM
ELEVATION: 6,421' GR **LEASE #** SF-078772
MEASURED DEPTH: 13,047'

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,369	2,445	Point Lookout	5,680	5,874
Kirtland	2,485	2,568	Mancos	6,076	6,270
Fruitland	2,941	3,051	Kickoff Point	6,814	7,007
Pictured Cliffs	3,200	3,325	Target Top	7,141	7,369
Lewis	3,510	3,653	Landing Point	7,292	7,767
Cliff House	5,391	5,585	Target Base	7,305	
Menefee	5,433	5,627			
			TD	7,192	13,047

B. MUD LOGGING PROGRAM: Mudlogger on location from intermediate csg to TD.

C. LOGGING PROGRAM: LWD GR from surface csg to TD, LWD resistivity from intermediate csg to TD.

D. NATURAL GAUGES: Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

A. MUD PROGRAM: LSND to intermediate casing point. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Use synthetic base invert emulsion fluid from intermediate casing point to TD

B. BOP TESTING: While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 5000 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **5000 psi (High) for 10 minutes**. Pressure test surface casing to **1500psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

III. MATERIALS**A. CASING PROGRAM:**

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	12 1/4	320	9 5/8	36	K-55
Intermediate	8 3/4	6,470	7	23	N-80
Longstring	6 1/4	13,047	4 1/2	11.6	P-110

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. INTERMEDIATE CASING: 7" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) Turbulent centralizer at 2,700 ft., 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. (NTL-FRA 90-1). Place 1 Standard Centralizer on the 2 joints above and below the Inflatable external casing packer and stage collar at +/-5,100'.
3. PRODUCTION CASING: 4-1/2" whirler type cement nose guide shoe with a latch collar on top of 20' bottom joint. Place marker joint above 5,500'. Run one spiral type solid body centralizer on every joint in lateral and around curve.

C. CEMENTING:

(Note: Volumes may be adjusted onsite due to actual conditions)

1. SURFACE: 10 bbl F. Water spacer + 190sx (222.3 cu.ft.) of "Premium Cement" + 2% Calcium Chloride Cement + 0.125# pps of Poly-E-Flake (Yield = 1.17 cu-ft./sk. / Weight 15.8 #/gal. / Vol 222.3 cu-ft / 39.58 bbls.). The 100% excess should circulate cement to the surface. (Total Volume 222.3 cu-ft / 39.6 bbls) WOC 12 hours. Test csg to 600psi.
2. INTERMEDIATE: 2 STAGE CEMENT JOB: **STAGE 1**: 20 bbl F. Water spacer + 285 sx 50/50/ Poz Premium + 0.15% CFR-3 + 0.2% Halad R-9 + 5 pps Kol-Seal + 0.125 pps Poly-E-Flake (Yield 1.32 cu-ft/sk / Weight 13.5 ppg / Vol 376 cu-ft / 67.0 bbls). **STAGE 2**: 10 bbl F. Water spacer + 634 sx Halliburton Light Premium + 0.2% HR-5 + 5 pps Kol-Seal + 0.125 pps Poly-E-Flake (Yield 1.94 cu-ft/sk / Weight 12.3 ppg / Vol 1230 cu-ft / 219 bbls). **STAGE 2 TAIL**: 100 sx Premium Cement + 0.1 % Halad (R)-9 (Yield 1.15 cu-ft/sk / Weight 15.8 ppg / Vol 115 cu-ft / 20.49 bbls). (Total Volume 1721 cu-ft / 306.61 bbls). WOC 12 hours. Test csg to 1500psi.
3. PRODUCTION CASING: **STAGE 1**: 20 bbl Oil Base Spacer. **STAGE 2**: 40 bbl Tuned Spacer III + 0.2 gal/bbl Musol + 233.2 ppb Barite + .02 gal/bbl SEM-7. **STAGE 3**: 257 sx 50/50 Poz Standard + 0.2% Versaset + 0.1% HALAD-766 + 1.5% Chem-Foamer 760 / (Yield 1.43 cu-ft/sk / Weight 13.0 ppg / Vol 367.5 cu-ft / 65.5 bbls). **STAGE 4**: 408sx 50/50 Poz Standard Foamed Lead + 0.2% Versaset + 0.1% HALAD-766 + 1.5% Chem-Foamer 760 w / 50,900 scf Nitrogen (Yield 2.06 cu-ft/sk / Weight 10.0 ppg / Vol 840.5 cu-ft / 149.7 bbls). **STAGE 5**: 40 sx 50/50 Poz Standard + 0.2% Versaset + 0.1% HALAD-766 / (Yield 1.43 cu-ft/sk / Weight 13.0 ppg / Vol 57.2 cu-ft / 10.2 bbls). (Total Volume 1265.2 cu-ft / 225.4 bbls).

IV. IV COMPLETION**A. CBL**

1. Run Cement Bond Log down lateral and ensure top of cement is above 7" casing shoe.

B. PRESSURE TEST

1. Pressure test 4-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Stimulate Mancos (first stage) with approximately 5000# 100 mesh sand and 300,000# 40/70 Ottawa Sand in slick water.
2. Isolate first stage with flow through frac plug.
3. Repeat process for 12 stages.
4. Drill out frac plugs and flowback lateral

D. RUNNING TUBING

1. Production Tubing: Run 2-3/8", 4.7#, N-80, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing at landing point of curve (~7,767' MD)


Larry Higgins
Permit Supervisor



Rosa Unit 04-2H
Sec04 T31N R06W-2H
San Juan Co., NM

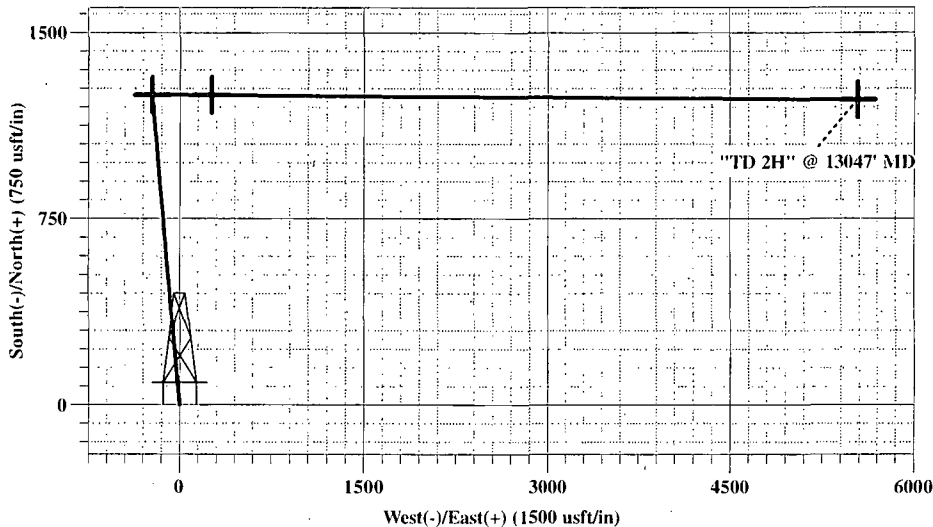
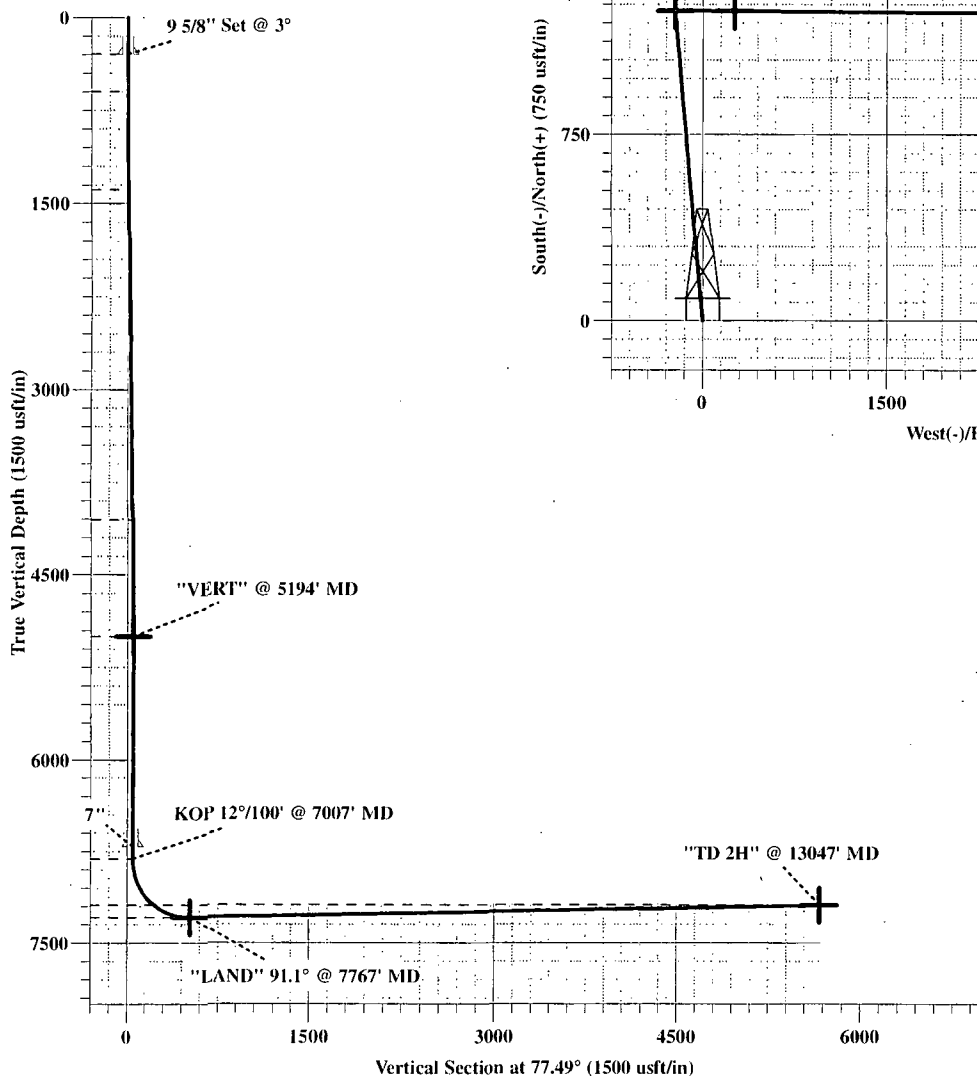


A Schlumberger Company

GE: 6421' / KB: 22'

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
VERT-2H	5000.0	1248.3	-225.0	2156342.00	605545.87	Point
EOL-2H	7192.0	1228.3	5536.5	2156343.87	611307.39	Point
POE-2H	7292.0	1248.3	258.3	2156343.87	606029.14	Point



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
300.0	3.00	349.78	299.9	7.7	-1.4	1.00	349.78	0.3	VERT-2H
600.0	3.00	349.78	599.5	23.2	-4.2	0.00	0.00	0.9	
1411.5	19.23	349.78	1393.1	176.6	-31.8	2.00	0.00	7.2	
4232.3	19.23	349.78	4056.4	1090.9	-196.6	0.00	0.00	44.3	
5193.8	0.00	0.00	5000.0	1248.3	-225.0	2.00	180.00	50.7	VERT-2H
5194.7	0.11	294.75	5000.9	1248.3	-225.0	12.00	294.75	50.7	
7007.5	0.11	294.75	6813.8	1249.7	-228.2	0.00	0.00	47.9	
7767.4	91.09	90.22	7292.0	1248.3	258.3	12.00	155.47	522.5	POE-2H
13047.2	91.09	90.22	7192.0	1228.3	5537.1	0.00	0.00	5671.7	EOL-2H

Plan: Design #2 (Rosa Unit 04-2H/Wellbore #1)

Created By: Breck Enoch Date: 29-Nov-2011

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Sec04 T31N R06W-2H
Company:	Williams Production Co.	TVD Reference:	WELL @ 6443.0usft (Original Well Elev)
Project:	San Juan Co., NM	MD Reference:	WELL @ 6443.0usft (Original Well Elev)
Site:	Sec04 T31N R06W-2H	North Reference:	True
Well:	Rosa Unit 04-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Project	San Juan Co., NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	Sec04 T31N R06W-2H				
Site Position:		Northing:	2,155,094.61 usft	Latitude:	36° 55' 19.406 N
From:	Lat/Long	Easting:	605,775.58 usft	Longitude:	107° 28' 17.316 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.22 °

Well	Rosa Unit 04-2H					
Well Position	+N/-S	0.0 usft	Northing:	2,155,094.61 usft	Latitude:	36° 55' 19.406 N
	+E/-W	0.0 usft	Easting:	605,775.58 usft	Longitude:	107° 28' 17.316 W
Position Uncertainty	0.0 usft		Wellhead Elevation:		Ground Level:	6,421.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/17/2011	9.74	63.66	50,835

Design	Design #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	77.49

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
300.0	3.00	349.78	299.9	7.7	-1.4	1.00	1.00	0.00	349.78	VERT-2H
600.0	3.00	349.78	599.5	23.2	-4.2	0.00	0.00	0.00	0.00	
1,411.5	19.23	349.78	1,393.1	176.6	-31.8	2.00	2.00	0.00	0.00	
4,232.3	19.23	349.78	4,056.4	1,090.9	-196.6	0.00	0.00	0.00	0.00	
5,193.8	0.00	0.00	5,000.0	1,248.3	-225.0	2.00	-2.00	0.00	180.00	VERT-2H
5,194.7	0.11	294.75	5,000.9	1,248.3	-225.0	12.00	12.00	0.00	294.75	
7,007.5	0.11	294.75	6,813.8	1,249.7	-228.2	0.00	0.00	0.00	0.00	
7,767.4	91.09	90.22	7,292.0	1,248.3	258.3	12.00	11.97	20.46	155.47	POE-2H
13,047.2	91.09	90.22	7,192.0	1,228.3	5,537.1	0.00	0.00	0.00	0.00	EOL-2H

Planning Report

Database: EDM 5000.1 Single User Db
 Company: Williams Production Co.
 Project: San Juan Co., NM
 Site: Sec04 T31N R06W-2H
 Well: Rosa Unit 04-2H
 Wellbore: Wellbore #1
 Design: Design #2

Local Co-ordinate Reference: Site Sec04 T31N R06W-2H
 TVD Reference: WELL @ 6443.0usft (Original Well Elev)
 MD Reference: WELL @ 6443.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	1.00	349.78	100.0	0.9	-0.2	0.0	1.00	1.00	0.00
200.0	2.00	349.78	200.0	3.4	-0.6	0.1	1.00	1.00	0.00
300.0	3.00	349.78	299.9	7.7	-1.4	0.3	1.00	1.00	0.00
400.0	3.00	349.78	399.7	12.9	-2.3	0.5	0.00	0.00	0.00
500.0	3.00	349.78	499.6	18.0	-3.2	0.7	0.00	0.00	0.00
600.0	3.00	349.78	599.5	23.2	-4.2	0.9	0.00	0.00	0.00
700.0	5.00	349.78	699.2	30.0	-5.4	1.2	2.00	2.00	0.00
800.0	7.00	349.78	798.7	40.3	-7.3	1.6	2.00	2.00	0.00
900.0	9.00	349.78	897.7	54.0	-9.7	2.2	2.00	2.00	0.00
1,000.0	11.00	349.78	996.1	71.1	-12.8	2.9	2.00	2.00	0.00
1,100.0	13.00	349.78	1,094.0	91.6	-16.5	3.7	2.00	2.00	0.00
1,200.0	15.00	349.78	1,191.0	115.4	-20.8	4.7	2.00	2.00	0.00
1,300.0	17.00	349.78	1,287.1	142.5	-25.7	5.8	2.00	2.00	0.00
1,400.0	19.00	349.78	1,382.2	172.9	-31.2	7.0	2.00	2.00	0.00
1,411.5	19.23	349.78	1,393.1	176.6	-31.8	7.2	2.00	2.00	0.00
1,500.0	19.23	349.78	1,476.6	205.3	-37.0	8.3	0.00	0.00	0.00
1,600.0	19.23	349.78	1,571.1	237.7	-42.8	9.7	0.00	0.00	0.00
1,700.0	19.23	349.78	1,665.5	270.1	-48.7	11.0	0.00	0.00	0.00
1,800.0	19.23	349.78	1,759.9	302.6	-54.5	12.3	0.00	0.00	0.00
1,900.0	19.23	349.78	1,854.3	335.0	-60.4	13.6	0.00	0.00	0.00
2,000.0	19.23	349.78	1,948.7	367.4	-66.2	14.9	0.00	0.00	0.00
2,100.0	19.23	349.78	2,043.2	399.8	-72.1	16.2	0.00	0.00	0.00
2,200.0	19.23	349.78	2,137.6	432.2	-77.9	17.6	0.00	0.00	0.00
2,300.0	19.23	349.78	2,232.0	464.6	-83.7	18.9	0.00	0.00	0.00
2,400.0	19.23	349.78	2,326.4	497.0	-89.6	20.2	0.00	0.00	0.00
2,500.0	19.23	349.78	2,420.8	529.5	-95.4	21.5	0.00	0.00	0.00
2,600.0	19.23	349.78	2,515.3	561.9	-101.3	22.8	0.00	0.00	0.00
2,700.0	19.23	349.78	2,609.7	594.3	-107.1	24.1	0.00	0.00	0.00
2,800.0	19.23	349.78	2,704.1	626.7	-112.9	25.4	0.00	0.00	0.00
2,900.0	19.23	349.78	2,798.5	659.1	-118.8	26.8	0.00	0.00	0.00
3,000.0	19.23	349.78	2,892.9	691.5	-124.6	28.1	0.00	0.00	0.00
3,100.0	19.23	349.78	2,987.4	723.9	-130.5	29.4	0.00	0.00	0.00
3,200.0	19.23	349.78	3,081.8	756.3	-136.3	30.7	0.00	0.00	0.00
3,300.0	19.23	349.78	3,176.2	788.8	-142.2	32.0	0.00	0.00	0.00
3,400.0	19.23	349.78	3,270.6	821.2	-148.0	33.3	0.00	0.00	0.00
3,500.0	19.23	349.78	3,365.0	853.6	-153.8	34.7	0.00	0.00	0.00
3,600.0	19.23	349.78	3,459.5	886.0	-159.7	36.0	0.00	0.00	0.00
3,700.0	19.23	349.78	3,553.9	918.4	-165.5	37.3	0.00	0.00	0.00
3,800.0	19.23	349.78	3,648.3	950.8	-171.4	38.6	0.00	0.00	0.00
3,900.0	19.23	349.78	3,742.7	983.2	-177.2	39.9	0.00	0.00	0.00
4,000.0	19.23	349.78	3,837.1	1,015.7	-183.1	41.2	0.00	0.00	0.00
4,100.0	19.23	349.78	3,931.6	1,048.1	-188.9	42.6	0.00	0.00	0.00
4,200.0	19.23	349.78	4,026.0	1,080.5	-194.7	43.9	0.00	0.00	0.00
4,232.3	19.23	349.78	4,056.4	1,090.9	-196.6	44.3	0.00	0.00	0.00
4,300.0	17.88	349.78	4,120.7	1,112.2	-200.4	45.2	2.00	-2.00	0.00
4,400.0	15.88	349.78	4,216.4	1,140.7	-205.6	46.3	2.00	-2.00	0.00
4,500.0	13.88	349.78	4,313.0	1,166.0	-210.1	47.3	2.00	-2.00	0.00
4,600.0	11.88	349.78	4,410.5	1,187.9	-214.1	48.2	2.00	-2.00	0.00
4,700.0	9.88	349.78	4,508.7	1,206.5	-217.4	49.0	2.00	-2.00	0.00
4,800.0	7.88	349.78	4,607.5	1,221.7	-220.2	49.6	2.00	-2.00	0.00
4,900.0	5.88	349.78	4,706.7	1,233.4	-222.3	50.1	2.00	-2.00	0.00
5,000.0	3.88	349.78	4,806.4	1,241.8	-223.8	50.4	2.00	-2.00	0.00
5,100.0	1.88	349.78	4,906.2	1,246.7	-224.7	50.6	2.00	-2.00	0.00

Planning Report

Database: EDM 5000.1 Single User Db
Company: Williams Production Co.
Project: San Juan Co., NM
Site: Sec04 T31N R06W-2H
Well: Rosa Unit 04-2H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference: Site Sec04 T31N R06W-2H
TVD Reference: WELL @ 6443.0usft (Original Well Elev)
MD Reference: WELL @ 6443.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,193.8	0.00	0.00	5,000.0	1,248.3	-225.0	50.7	2.00	-2.00	0.00
5,194.7	0.11	294.75	5,000.9	1,248.3	-225.0	50.7	12.00	12.00	0.00
5,200.0	0.11	294.75	5,006.2	1,248.3	-225.0	50.7	0.00	0.00	0.00
5,300.0	0.11	294.75	5,106.2	1,248.3	-225.2	50.5	0.00	0.00	0.00
5,400.0	0.11	294.75	5,206.2	1,248.4	-225.3	50.4	0.00	0.00	0.00
5,500.0	0.11	294.75	5,306.2	1,248.5	-225.5	50.2	0.00	0.00	0.00
5,600.0	0.11	294.75	5,406.2	1,248.6	-225.7	50.1	0.00	0.00	0.00
5,700.0	0.11	294.75	5,506.2	1,248.7	-225.9	49.9	0.00	0.00	0.00
5,800.0	0.11	294.75	5,606.2	1,248.8	-226.0	49.7	0.00	0.00	0.00
5,900.0	0.11	294.75	5,706.2	1,248.8	-226.2	49.6	0.00	0.00	0.00
6,000.0	0.11	294.75	5,806.2	1,248.9	-226.4	49.4	0.00	0.00	0.00
6,100.0	0.11	294.75	5,906.2	1,249.0	-226.6	49.3	0.00	0.00	0.00
6,200.0	0.11	294.75	6,006.2	1,249.1	-226.8	49.1	0.00	0.00	0.00
6,300.0	0.11	294.75	6,106.2	1,249.2	-226.9	49.0	0.00	0.00	0.00
6,400.0	0.11	294.75	6,206.2	1,249.2	-227.1	48.8	0.00	0.00	0.00
6,500.0	0.11	294.75	6,306.2	1,249.3	-227.3	48.7	0.00	0.00	0.00
6,600.0	0.11	294.75	6,406.2	1,249.4	-227.5	48.5	0.00	0.00	0.00
6,700.0	0.11	294.75	6,506.2	1,249.5	-227.6	48.3	0.00	0.00	0.00
6,800.0	0.11	294.75	6,606.2	1,249.6	-227.8	48.2	0.00	0.00	0.00
6,900.0	0.11	294.75	6,706.2	1,249.7	-228.0	48.0	0.00	0.00	0.00
7,000.0	0.11	294.75	6,806.2	1,249.7	-228.2	47.9	0.00	0.00	0.00
7,007.5	0.11	294.75	6,813.8	1,249.7	-228.2	47.9	0.00	0.00	0.00
7,100.0	10.99	89.98	6,905.7	1,249.8	-219.4	56.4	12.00	11.77	167.89
7,200.0	22.99	90.11	7,001.1	1,249.7	-190.3	84.9	12.00	12.00	0.13
7,300.0	34.99	90.15	7,088.4	1,249.6	-141.9	132.1	12.00	12.00	0.04
7,400.0	46.99	90.17	7,163.8	1,249.5	-76.4	196.0	12.00	12.00	0.02
7,500.0	58.99	90.19	7,223.9	1,249.2	3.3	273.8	12.00	12.00	0.02
7,600.0	70.99	90.20	7,266.1	1,248.9	93.8	362.0	12.00	12.00	0.01
7,700.0	82.99	90.21	7,288.5	1,248.5	191.0	456.9	12.00	12.00	0.01
7,767.4	91.09	90.22	7,292.0	1,248.3	258.3	522.5	12.00	12.00	0.01
7,800.0	91.09	90.22	7,291.4	1,248.2	290.9	554.3	0.00	0.00	0.00
7,900.0	91.09	90.22	7,289.5	1,247.8	390.8	651.8	0.00	0.00	0.00
8,000.0	91.09	90.22	7,287.6	1,247.4	490.8	749.3	0.00	0.00	0.00
8,100.0	91.09	90.22	7,285.7	1,247.0	590.8	846.8	0.00	0.00	0.00
8,200.0	91.09	90.22	7,283.8	1,246.7	690.8	944.4	0.00	0.00	0.00
8,300.0	91.09	90.22	7,281.9	1,246.3	790.8	1,041.9	0.00	0.00	0.00
8,400.0	91.09	90.22	7,280.0	1,245.9	890.8	1,139.4	0.00	0.00	0.00
8,500.0	91.09	90.22	7,278.1	1,245.5	990.7	1,237.0	0.00	0.00	0.00
8,600.0	91.09	90.22	7,276.2	1,245.1	1,090.7	1,334.5	0.00	0.00	0.00
8,700.0	91.09	90.22	7,274.3	1,244.8	1,190.7	1,432.0	0.00	0.00	0.00
8,800.0	91.09	90.22	7,272.4	1,244.4	1,290.7	1,529.5	0.00	0.00	0.00
8,900.0	91.09	90.22	7,270.5	1,244.0	1,390.7	1,627.1	0.00	0.00	0.00
9,000.0	91.09	90.22	7,268.7	1,243.6	1,490.6	1,724.6	0.00	0.00	0.00
9,100.0	91.09	90.22	7,266.8	1,243.2	1,590.6	1,822.1	0.00	0.00	0.00
9,200.0	91.09	90.22	7,264.9	1,242.9	1,690.6	1,919.6	0.00	0.00	0.00
9,300.0	91.09	90.22	7,263.0	1,242.5	1,790.6	2,017.2	0.00	0.00	0.00
9,400.0	91.09	90.22	7,261.1	1,242.1	1,890.6	2,114.7	0.00	0.00	0.00
9,500.0	91.09	90.22	7,259.2	1,241.7	1,990.5	2,212.2	0.00	0.00	0.00
9,600.0	91.09	90.22	7,257.3	1,241.3	2,090.5	2,309.7	0.00	0.00	0.00
9,700.0	91.09	90.22	7,255.4	1,241.0	2,190.5	2,407.3	0.00	0.00	0.00
9,800.0	91.09	90.22	7,253.5	1,240.6	2,290.5	2,504.8	0.00	0.00	0.00
9,900.0	91.09	90.22	7,251.6	1,240.2	2,390.5	2,602.3	0.00	0.00	0.00
10,000.0	91.09	90.22	7,249.7	1,239.8	2,490.5	2,699.9	0.00	0.00	0.00
10,100.0	91.09	90.22	7,247.8	1,239.4	2,590.4	2,797.4	0.00	0.00	0.00

Planning Report

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 Wellbore: Wellbore #1
 Design: Design #2

Local Co-ordinate Reference: Site Sec04 T31N R06W-2H
 TVD Reference: WELL @ 6443.0usft (Original Well Elev)
 MD Reference: WELL @ 6443.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,200.0	91.09	90.22	7,245.9	1,239.1	2,690.4	2,894.9	0.00	0.00	0.00
10,300.0	91.09	90.22	7,244.0	1,238.7	2,790.4	2,992.4	0.00	0.00	0.00
10,400.0	91.09	90.22	7,242.1	1,238.3	2,890.4	3,090.0	0.00	0.00	0.00
10,500.0	91.09	90.22	7,240.2	1,237.9	2,990.4	3,187.5	0.00	0.00	0.00
10,600.0	91.09	90.22	7,238.4	1,237.5	3,090.3	3,285.0	0.00	0.00	0.00
10,700.0	91.09	90.22	7,236.5	1,237.2	3,190.3	3,382.5	0.00	0.00	0.00
10,800.0	91.09	90.22	7,234.6	1,236.8	3,290.3	3,480.1	0.00	0.00	0.00
10,900.0	91.09	90.22	7,232.7	1,236.4	3,390.3	3,577.6	0.00	0.00	0.00
11,000.0	91.09	90.22	7,230.8	1,236.0	3,490.3	3,675.1	0.00	0.00	0.00
11,100.0	91.09	90.22	7,228.9	1,235.7	3,590.3	3,772.6	0.00	0.00	0.00
11,200.0	91.09	90.22	7,227.0	1,235.3	3,690.2	3,870.2	0.00	0.00	0.00
11,300.0	91.09	90.22	7,225.1	1,234.9	3,790.2	3,967.7	0.00	0.00	0.00
11,400.0	91.09	90.22	7,223.2	1,234.5	3,890.2	4,065.2	0.00	0.00	0.00
11,500.0	91.09	90.22	7,221.3	1,234.1	3,990.2	4,162.8	0.00	0.00	0.00
11,600.0	91.09	90.22	7,219.4	1,233.8	4,090.2	4,260.3	0.00	0.00	0.00
11,700.0	91.09	90.22	7,217.5	1,233.4	4,190.1	4,357.8	0.00	0.00	0.00
11,800.0	91.09	90.22	7,215.6	1,233.0	4,290.1	4,455.3	0.00	0.00	0.00
11,900.0	91.09	90.22	7,213.7	1,232.6	4,390.1	4,552.9	0.00	0.00	0.00
12,000.0	91.09	90.22	7,211.8	1,232.2	4,490.1	4,650.4	0.00	0.00	0.00
12,100.0	91.09	90.22	7,209.9	1,231.9	4,590.1	4,747.9	0.00	0.00	0.00
12,200.0	91.09	90.22	7,208.0	1,231.5	4,690.0	4,845.4	0.00	0.00	0.00
12,300.0	91.09	90.22	7,206.2	1,231.1	4,790.0	4,943.0	0.00	0.00	0.00
12,400.0	91.09	90.22	7,204.3	1,230.7	4,890.0	5,040.5	0.00	0.00	0.00
12,500.0	91.09	90.22	7,202.4	1,230.3	4,990.0	5,138.0	0.00	0.00	0.00
12,600.0	91.09	90.22	7,200.5	1,230.0	5,090.0	5,235.5	0.00	0.00	0.00
12,700.0	91.09	90.22	7,198.6	1,229.6	5,190.0	5,333.1	0.00	0.00	0.00
12,800.0	91.09	90.22	7,196.7	1,229.2	5,289.9	5,430.6	0.00	0.00	0.00
12,900.0	91.09	90.22	7,194.8	1,228.8	5,389.9	5,528.1	0.00	0.00	0.00
13,000.0	91.09	90.22	7,192.9	1,228.4	5,489.9	5,625.6	0.00	0.00	0.00
13,047.2	91.09	90.22	7,192.0	1,228.3	5,537.1	5,671.7	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
VERT-2H - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	5,000.0	1,248.3	-225.0	2,156,342.00	605,545.87	36° 55' 31.749 N	107° 28' 20.087 W
EOL-2H - plan hits target center - Point	0.00	0.00	7,192.0	1,228.3	5,536.5	2,156,343.87	611,307.39	36° 55' 31.546 N	107° 27' 9.129 W
POE-2H - plan hits target center - Point	0.00	0.00	7,292.0	1,248.3	258.3	2,156,343.87	606,029.15	36° 55' 31.749 N	107° 28' 14.135 W

Planning Report

Database: EDM 5000.1 Single User Db
 Company: Williams Production Co.
 Project: San Juan Co., NM
 Site: Sec04 T31N R06W-2H
 Well: Rosa Unit 04-2H
 Wellbore: Wellbore #1
 Design: Design #2

Local Co-ordinate Reference: Site Sec04 T31N R06W-2H
 TVD Reference: WELL @ 6443.0usft (Original Well Elev)
 MD Reference: WELL @ 6443.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
320 6470	300.0 6,907.0	299.9 9 5/8"	9-5/8	12-1/4
	6,713.2	7"	7	8-3/4

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.0	299.9	7.7	-1.4	Hold 3°
600.0	599.5	23.2	-4.2	"Nudge" 2°/100'
1,411.5	1,393.1	176.6	-31.8	Hold 19.23° @ 1412' MD
4,232.3	4,056.4	1,090.9	-196.6	Drop 2°/100'
5,193.8	5,000.0	1,248.3	-225.0	"VERT" @ 5194' MD
5,194.7	5,000.9	1,248.3	-225.0	Hold
7,007.5	6,813.8	1,249.7	-228.2	KOP 12°/100' @ 7007' MD
7,767.4	7,292.0	1,248.3	258.3	"LAND" 91.1° @ 7767' MD
13,047.2	7,192.0	1,228.3	5,537.1	"TD 2H" @ 13047' MD

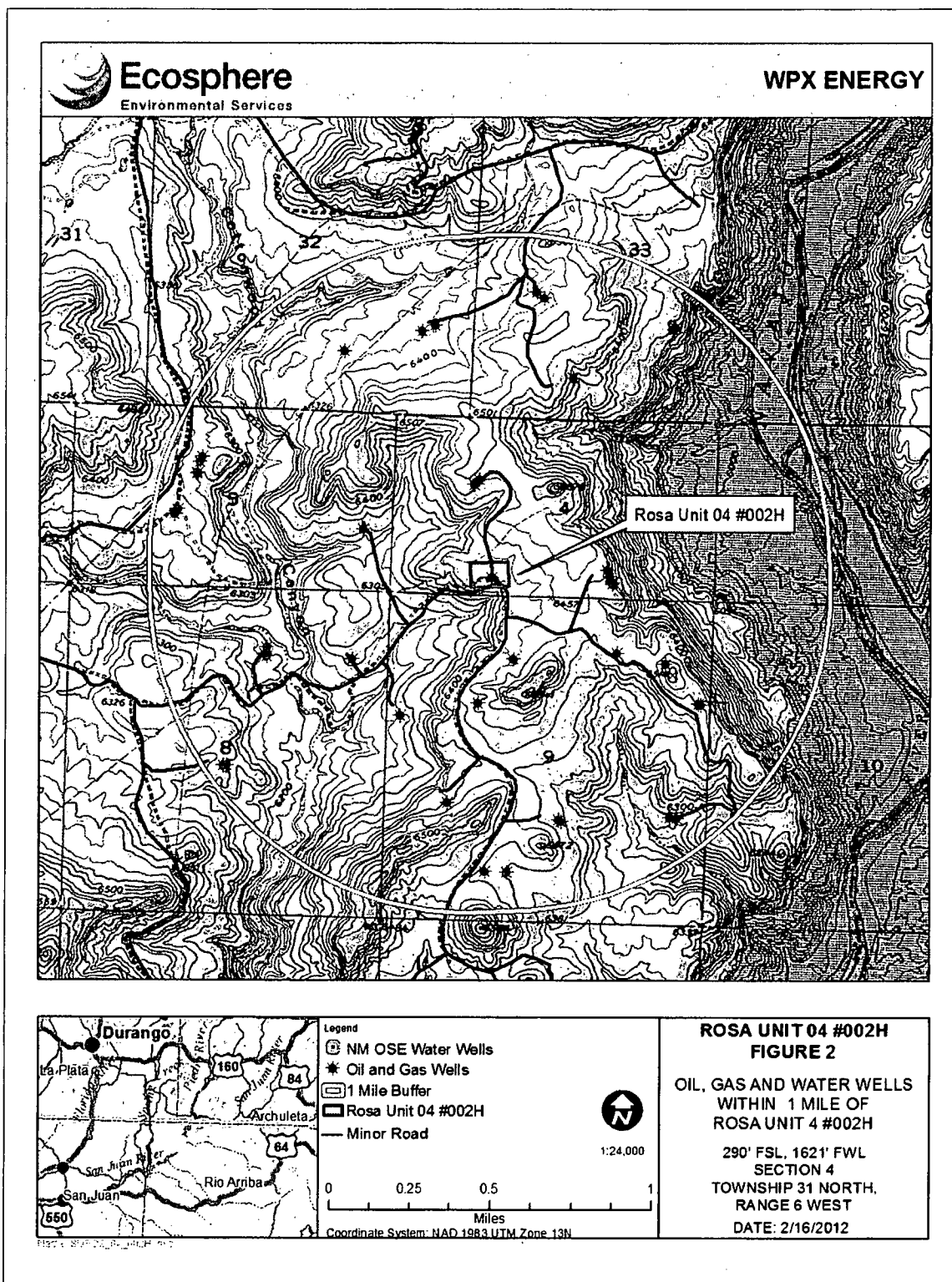


Figure 2: Existing water, gas and oil wells within 1 mile of the Rosa Unit 04 #002H.

[illegible]