

RECEIVED

AUG 10 2009

Form 3160-3
(February 2005)Bureau of Land Management
Farmington Field OfficeUNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTERFORM APPROVED
OMB No 1004-0137
Expires March 31, 20075 Lease Serial No.
NM/NM 113426

6 If Indian, Allottee or Tribe Name

7 If Unit or CA Agreement, Name and No

8 Lease Name and Well No
Ojo Encino 21 Federal #1H9 API Well No.
30-031-2110710 Field and Pool, or Exploratory
Ojo Encino Entrada (48030)11 Sec, T R M or Blk and Survey or Area
Section 21-T20N-R5W12 County or Parish
McKinley13 State
NM1a Type of work: ☒ DRILL ☐ REENTER1b Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone2 Name of Operator
High Plains Operating Company, LLC3a Address 32700 Aspen Drive
Buena Vista, CO 812113b Phone No. (include area code)
719-395-80594 Location of Well (Report location clearly and in accordance with any State requirements *)
At surface 2,537' FSL & 2,523' FWL (UNIT K)
At proposed prod zone BHL IS 332' FSL & 2,331' FEL (UNIT O)14 Distance in miles and direction from nearest town or post office*
Approximately 23 miles west-southwest of Cuba, New Mexico15 Distance from proposed*
location to nearest
property or lease line, ft
(Also to nearest drig unit line, if any) 103'

1,437'

16 No. of acres in lease
48017 Spacing Unit dedicated to this well
120 acres being the NE/SW & W/2 SE18 Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft 315' from Filon Fed 119 Proposed Depth
7,803' MD & 5,898' TVD20 BLM/BIA Bond No on file
NMB 00045721 Elevations (Show whether DF, KDB, RT, GL, etc.)
6,792' GL22 Approximate date work will start*
09/15/200923 Estimated duration
Two months

24. Attachments

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

- Well plat certified by a registered surveyor
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office)
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above)
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25 Signature

Arthur W. Butler III

Name (Printed/Typed)

Arthur W. Butler III

Date

08/03/2009

Title

Manager, High Plains Operating Company, LLC

Approved by (Signature)

[Signature]

Name (Printed/Typed)

Office

Date

8/24/09

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 page 2)

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

Hold C104

for Directional Survey
and "As Drilled" platHOLD C104 FOR Signed statement by
operator that all individual spec
owners agree on allocation per
R-11848-C #5, and for NSL

AUG 31 2009

NMOCD

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENTDRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS".This action is subject to technical and
procedural review pursuant to 43 CFR 3165.3
and appeal pursuant to 43 CFR 3165.4RVD AUG 24 09
OL CWS. DIV.

DIST. 3

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised October 12, 2005

DISTRICT II
1301 W. Grand Avenue, Artesia, N.M. 88210

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

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

OIL CONSERVATION DIVISION

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

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30031-21107	*Pool Code 48030	*Pool Name OJO ENCINO ENTRADA
*Property Code 37743	*Property Name OJO ENCINO 21 FEDERAL	*Well Number 1 H
*OGHD No. 246238	*Operator Name HIGH PLAINS OPERATING COMPANY, LLC	*Elevation 6792'

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
K	21	20N	5W		2537'	SOUTH	2523'	WEST	McKINLEY

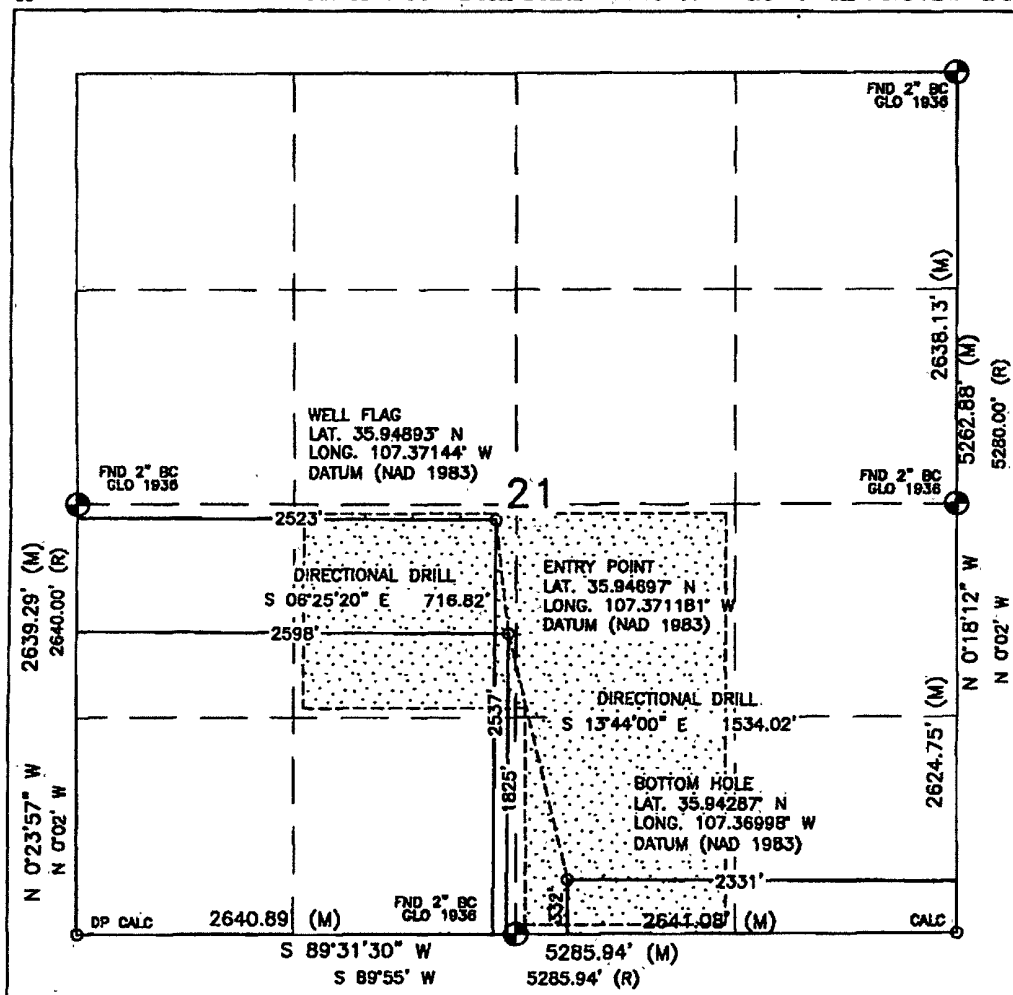
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	21	20N	5W		332'	SOUTH	2331'	EAST	McKINLEY

¹² Dedicated Acres 120.00 ACRES	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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

16



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 or a compulsory pooling order heretofore entered by the division.

Arthur W. Butler III 8/3/09
Signature Date

Arthur W. Butler III - Manager

Printed Name

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.

JUNE 26, 2009

Date of Survey

Signature and Seal of Professional Surveyor:

David R. Russell
DAVID R. RUSSELL
NEW MEXICO
REGISTERED PROFESSIONAL LAND SURVEYOR
10201

DAVID RUSSELL
Certificate Number 10201

High Plains Operating Company, LLC Ojo Encino 21 Federal #1H—Drilling program

API #: 30-031-
Well location: Horizontal project area in the South half of section 21—Township 20 North—Range 5 West, McKinley County, New Mexico
Surface location: Unit K—2,537' FSL and 2,523' FWL
Bottomhole location: Unit O—332' FSL and 2,331' FEL
Federal Lease #: NM|NM 113426

DRILLING PROGRAM

Synopsis: High Plains Operating Company, LLC (HPOC) plans to drill its proposed Ojo Encino 21 Federal #1H directionally drilled well in the currently abandoned Ojo Encino Entrada pool. HPOC plans a surface location 2,537' FSL & 2,523' FWL (Unit K) of section 21-T20N-R5W, McKinley County, New Mexico. We propose to drill to a kick-off point at approximately 5,315' measured depth (MD). From that point, the well will be directionally drilled at a planned azimuth of 167 degrees, targeting casing point at an inclination of 85 degrees and a MD of approximately 6,165' and TVD of 5,886' just above the Entrada reservoir. Casing (7") will be run and the drilling fluid will be changed from a water-based mud to an oil-based mud (OBM). A closed-loop circulation system will be used for OBM drilling the remainder of the hole. HPOC plans to penetrate the Entrada reservoir at a point 1,825' FSL and 2,598' FWL of section 21 at a MD of 6,413' and TVD of 5,897'. From this point, we plan to construct a lateral near the top of the Entrada reservoir to a BHL in Unit O, 332' FSL and 2,331' FEL of section 21—a total planned lateral in the Entrada of 1,534'—at a MD of 7,803' and TVD of 5,898'. See the accompanying C-102 and predrill directional drilling plan by PathFinder Energy.

Depending on structural position and formation evaluation, the Ojo Encino 21 Federal #1H well will be completed as an Ojo Encino Entrada Pool producing well.

1. FORMATION TOPS

<u>FORMATION NAME</u>	<u>TRUE VERTICAL DEPTH</u>
Kirtland/Fruitland	Surface
Cliff House	874'
Menefee	1,860'
Point Lookout Sandstone	2,764'
Mancos	2,891'
Gallup	3,561'
Greenhorn	4,726'
Graneros	4,827'
Dakota	4,932'
Morrison	5,051'
Summerville Shale	5,858'
Todilto	5,890'
Entrada Sandstone	5,897'
Total Depth	5,898'

2. ZONES OF INTEREST

<u>OIL & GAS ZONES</u>	<u>WATER ZONES</u>	<u>COAL ZONE</u>
Entrada Sandstone (5,897' TVD)	Point Lookout (2,764' TVD)	Fruitland (680' TVD)

All fresh water zones will be protected behind 7" casing run to a measured depth of approximately 6,165'.

3. PRESSURE CONTROL

The drilling contractor has not been selected as of this date, so the exact BOP configuration to be used is not yet known. A typical 2,000 psi BOP stack and choke manifold system is shown on Exhibit A. The well will be drilled under the 2,000# psi specification contained in Onshore Order #2, "Drilling Operations."

This BOP and choke manifold will remain in use throughout the drilling operations. A full opening safety valve shall be on the rig floor at all times in the open position. This valve will have a thread design to be compatible with the drill pipe and drill collars.

All BOP pressure and daily mechanical tests will be recorded in the driller's log. BOP's will be inspected and operated daily to assure good mechanical working order. Inspections will be recorded on the daily drilling report. Pressure tests will be conducted before drilling out from under all casings strings, which are set and cemented in place.

4. CASING AND CEMENT

Hole Size	Csg O.D.	Weight/Ft.	Grade	Thread Type	Condition	Depth
12.25"	9 5/8"	36#	J-55	8rd ST&C	New	400'
8.75"	7"	23#	J-55	8rd LT&C	New	6,165'
6.125"	4.5" pre-perforated liner	11.60#	J-55	8rd LT&C	New	7,803'

The 9 5/8" surface casing will be cemented in one stage with 240 sks circulated to surface with a final volume no less than 100% excess over gauge hole. Type G cement will be used, containing 2% calcium chloride and 1/8th lb/sk poly-E-flake mixed at 15.8 ppg with a 1.15 yield. Centralizers will be placed and the surface casing will be set and cemented following the provisions of Onshore Order #2, "Drilling Operations."

The 7" intermediate casing will be cemented in one stage with returns to surface using foamed lead cement. The 7" casing will be run as follows. First, a 7" guide shoe will be run, then a 7" shoe joint, followed by a float collar and casing back to surface. Centralizers will be placed according to indicated porous zones. The 7" casing is proposed to be cemented as follows: Pump 10 bbls 8.33 lb/gal fresh water, followed by 20 bbls 10.0 lb/gal Super Flush 101, followed by 10 bbls 8.33 lb/gal fresh water, followed by 750 sks foamed lead cement, followed by 120 sks tail cement, followed by 242 bbls 8.33 lb/gal fresh water. The foamed lead cement will be mixed at 13 ppg with a 1.43 yield. The cement will be foamed to a density no less than 9.0 ppg. Cement volumes will be estimated at 35% over gauged hole, as no open hole logs will be run.

The 4.5" pre-perforated liner will be dropped off in the lateral and extend no less than 50' up into the 7" intermediate string of casing.

5. MUD PROGRAM

Depth	Type	Weight/PPG	Viscosity	Fluid Loss	pH
0'–450'	Water based, Gel-Chem	8.6–8.8	50–60	No control	8.0–10
450'–6,165'	Water based, Gel-Chem	8.8–9.2	35–45	10–12 cc	8.0–10
6,165'–7,803'	Oil based	7.8–8.2	Approx 35	No control	N/A

Shale formations to be drilled in the area are water sensitive and should be drilled with a low solids, non-dispersed mud system. Drispac and P.H.P.A. polymer should be added to the mud, and water loss controlled at 10–12 cc. A viscosity of 35–40 Sec/Qt should be sufficient to clean the hole.

Significant loss circulation zones have been encountered in the Gallup formation in other wells drilled in the area. The mud will be pre-treated with 5–10% loss materials at 3,400' and possibly maintained until casing point at 6,165'. Fifty feet from casing point, add gel to increase viscosity to 65–70 Sec/Qt to insure casing operations.

Sufficient material needed to maintain mud properties, control loss circulation zones, and contain any unforeseen pressure control situations will be maintained at the well site during all drilling operations.

After setting and cementing the 7" intermediate casing string, the mud program will be changed to an oil based mud system (OBM). Once this change is made, the OBM will be permitted on Form C-144 through NM OCD and contained in a closed loop system.

6. CORING, TESTING & LOGGING PROGRAM

No coring operations or drill stem tests are planned at this time. As the vertical part of the hole is a near offset to the Filon Federal #1 well (315' to the southwest) and sits between this well and the Filon Federal #2 well (479' to the northwest) and both these wells have open hole logs, HPOC does not plan any open-hole logging in this well.

A gamma tool is included in the BHA for the directional tools and will be picked up at the kick-off point of 5,315' and run through the remainder of the drilling operations.

7. DOWNHOLE CONDITIONS

A research of wells drilled in the area shows no abnormally pressured zones or temperatures will be encountered. No hydrogen sulfide is present in any of the formations that will be penetrated. Maximum expected BHP is +/- 2,365 p.s.i. (from the Entrada DST in the Filon Federal #1 at a depth of 5,887'–.402 psi/ft).

8. OTHER PERTINENT INFORMATION

Anticipated spud date will be upon approval of the APD by the BLM and rig availability. Drilling of the well is expected to take +/- 20 days. Completions operations as an Entrada producer will take +/- 5 days, and will commence as soon as possible following release of the drilling rig.

Questions concerning down hole operations should be directed to the Albuquerque, NM BLM office at 505-761-8700.

High Plains Operating Co, LLC

Project: Ojo Encino 21
Site: Federal #1H
Well: OH
Wellbore: OH
Plan: Plan #1 (OH/OH)



WELL DETAILS: OH

Ground Elevation: 6784.00
RKB Elevation: 14' Estimated RKB @ 6798.00ft (Original Well Elev)
Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1802417.00	168177.00	35° 56' 55.06057 N 107° 22' 15.86093 W		

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5315.00	0.00	0.00	5315.00	0.00	0.00	0.00	0.00	0.00	
3	6165.33	85.00	167.22	5886.00	-510.26	115.74	10.00	167.22	523.23	
4	6413.06	89.95	167.22	5896.90	-751.55	170.48	2.00	-0.03	770.64	
5	7802.96	89.95	167.22	5898.00	-2107.00	478.00	0.00	0.00	2160.54	Ojo Encino 21 Federal #1H: Toe

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

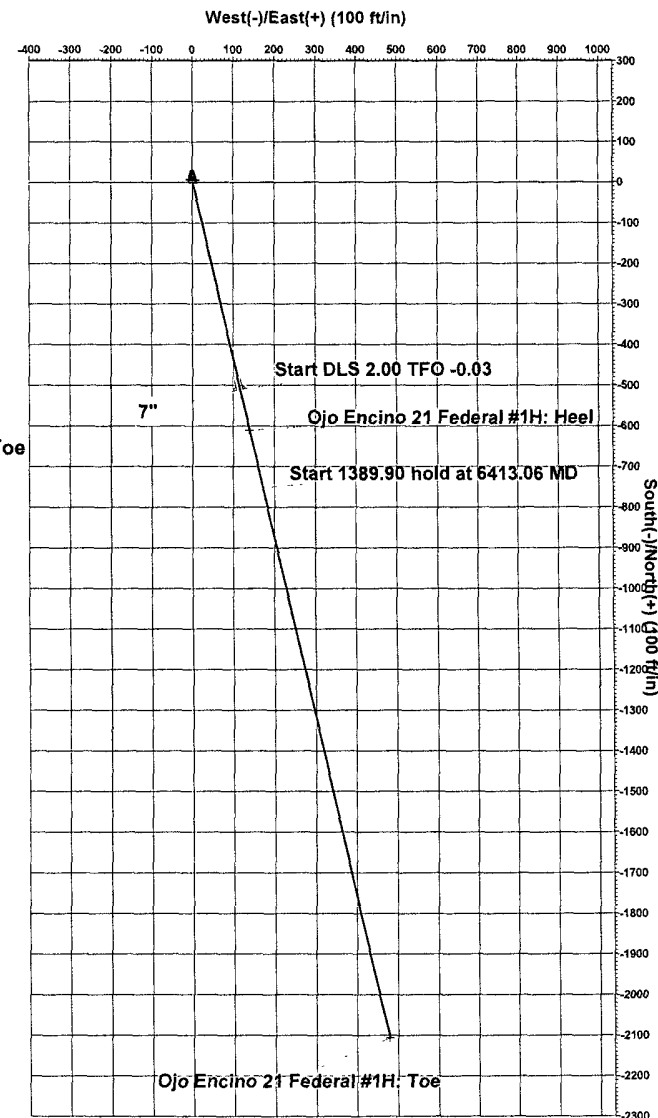
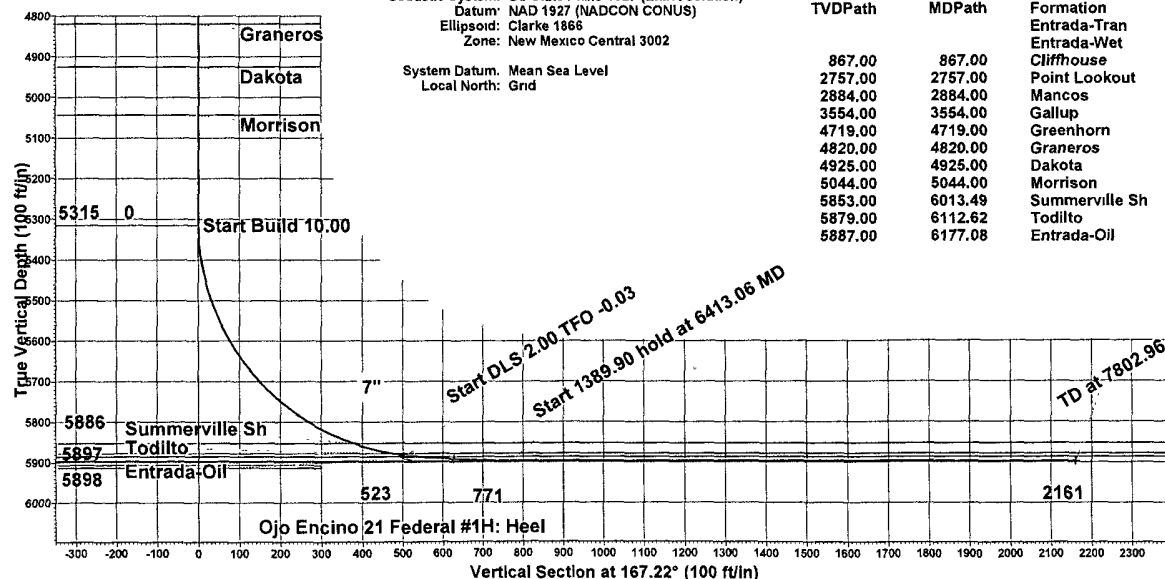
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Ojo Encino 21 Federal #1H: Heel	5893.00	-611.00	138.00	1801806.00	168315.00	Point
Ojo Encino 21 Federal #1H: Toe	5898.00	-2107.00	478.00	1800310.00	168655.00	Point

PROJECT DETAILS: Ojo Encino 21
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico Central 3002

System Datum: Mean Sea Level
Local North: Grid

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
867.00	867.00	Entrada-Tran
2757.00	2757.00	Entrada-Wet
2884.00	2884.00	Cliffhouse
3554.00	3554.00	Point Lookout
4719.00	4719.00	Mancos
4820.00	4820.00	Gallup
4925.00	4925.00	Greenhorn
5044.00	5044.00	Graneros
5853.00	6013.49	Dakota
5879.00	6112.62	Morrison
5887.00	6177.08	Summerville Sh
		Todilto
		Entrada-Oil



Plan Plan #1 (OH/OH)	
Created By: Matthew May	Date: 13-17, June 02 2009
Checked: _____	Date: _____

PathFinder Energy Services

X and Y report



Company:	High Plains Operating Co, LLC	Local Co-ordinate Reference:	Well OH
Project:	Ojo Encino 21	TVD Reference:	14' Estimated RKB @ 6798.00ft (Original Well Ele
Site:	Federal #1H	MD Reference:	14' Estimated RKB @ 6798.00ft (Original Well Ele
Well:	OH	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	1 Landmark Network DB

Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Ojo Encino 21 Federa	0.00	0.00	5,898.00	-2,107.00	478.00	1,800,310.00	168,655.00	35° 56' 34.27973 N	107° 22' 9.75427 W
- plan hits target									
- Point									
Ojo Encino 21 Federa	0.00	0.00	5,893.00	-611.00	138.00	1,801,806.00	168,315.00	35° 56' 49.03436 N	07° 22' 14.09745 W
- plan hits target									
- Point									

Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(")	(")
6,165.33	5,886.00	7"	7	7-1/2

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
6,013.49	5,853.00	Summerville Sh		0.00	
867.00	867.00	Cliffhouse		0.00	
6,177.08	5,887.00	Entrada-Oil		0.00	
4,719.00	4,719.00	Greenhorn		0.00	
4,820.00	4,820.00	Graneros		0.00	
4,925.00	4,925.00	Dakota		0.00	
2,884.00	2,884.00	Mancos		0.00	
3,554.00	3,554.00	Gallup		0.00	
5,044.00	5,044.00	Morrison		0.00	
	5,907.00	Entrada-Tran		0.00	
6,112.62	5,879.00	Todilto		0.00	
2,757.00	2,757.00	Point Lookout		0.00	
	5,914.00	Entrada-Wet		0.00	

Exhibit B—Directions and Existing Roads

Ojo Encino 21 Federal #1H—Surface use plan

Operator: High Plains Operating Company, LLC

API #: 30-031- (to be determined)

Well total depth: 7,803' measured depth

Federal Lease #: NM|NM 113426

Field contact: Lynn Hatley at 505-321-3785

HPOC's Ojo Encino property is located about 63 miles as the crow flies to the southeast from the intersection of Hwy 64 and Interstate 550 in Bloomfield and 24 miles west-southwest of Cuba. The well location is in the NE/SW of section 21, Township 20 North, Range 5 West, McKinley County, NM. Latitude is 35.948647° North and Longitude is 107.371675° West (NAD-83). We are about 1.4 miles west-southwest of the Navajo Ojo Encino Chapter House.

From Albuquerque or Cuba, follow Route #1. From Farmington, there are two ways to get to location. Read info below.

- **Route 1 from Farmington/Bloomfield through Cuba. This route is longer distance and drive time, but has better roads and is recommended in bad weather conditions.**

From the intersection of NM Highway 550/44 and NM Highway 197 on the south side of Cuba, NM, proceed west and southwest on NM 197 for 15.3 miles. Turn right (due west) on the Ojo Encino School Road (paved road). Proceed west and northwest for about 13 miles. Turn left (south) immediately after the houses at Ojo Encino.

From Bloomfield, this route following Highway 550 into Cuba is about 117 miles to the turnoff from the Ojo Encino paved road.

SEE MAP WITH FINAL INSTRUCTIONS ON NEXT PAGE

- **Route 2 from Farmington/Bloomfield turning off Hwy 550 at Counselor. Less miles, but poor quality road in stretches.**

There is an alternate route to the Ojo Encino property, turning right/south off Hwy 550 at Counselor about 54 miles from Bloomfield. It is about 21 miles to the turnoff from the Ojo Encino paved road. HPOC does not have detailed directions, but we believe the route is marked to Ojo Encino.

From Farmington, this route is about 75 miles, which is 42 miles shorter than going through Cuba. However the first 10 miles off of Hwy 550 is over a poor, washboard dirt road and this route is NOT recommended in wet/muddy conditions. About 30 minutes can be saved, but the poor road can be difficult to navigate in bad weather conditions. It is a typical oil patch road.

SEE MAP WITH FINAL INSTRUCTIONS ON NEXT PAGE

Exhibit A—Proposed 2,000# Pressure Control System

Ojo Encino 21 Federal #1H—Drilling program

Operator: High Plains Operating Company, LLC

API #: 30-031- (to be determined)

Well total depth: 7,803' measured depth

Federal Lease #: NM|NM 113426

Typical 2,000 psi BOP Stack and Choke Manifold System

