

RECEIVED

MAY 29 2012

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Farmington Field Office
Bureau of Land Management

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No. **NMNM-97827**
6 If Indian, Allottee or Tribe Name

1a. Type of work: ☒ DRILL ☐ REENTER		7 If Unit or CA Agreement, Name and No.	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		8. Lease Name and Well No. Elk Com 34 #1 H	
2. Name of Operator Hunt Oil Company		9. API Well No. 30-039-31119	
3a. Address c/o Walsh Engineering 7415 E. Main St, Farmington, NM 87402		3b. Phone No. (include area code) 505-327-4892	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface P 681' fsl & 116' fel Sec 33, T26N, R2W At proposed prod. zone T 1850' fsl & 790' fel Sec 34, T26N, R2W		10. Field and Pool, or Exploratory Gavilan Mancos	
14. Distance in miles and direction from nearest town or post office* ~15 miles North West of Lindrith, NM		12 County or Parish Rio Arriba	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 630'	16. No. of acres in lease 800 acres	17. Spacing Unit dedicated to this well South Half of Section 34 (320.00 acres)	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1750'	19. Proposed Depth 11,714' MD / 7345' MD	20. BLM/BIA Bond No. on file WYB 000609	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7502' GL	22. Approximate date work will start* 07/01/2012	23. Estimated duration 38 days	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must 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 BLM.

25. Signature John Thompson	Name (Printed/Typed) John Thompson	Date 05/25/2012
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Title
Agent/Engineer

Approved by (Signature) [Signature]	Name (Printed/Typed) AFM	Date 7/9/12
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Title AFM	Office FFO
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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.

(Continued on page 2)

*(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

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

Hold C104
for Directional Survey
and "As Drilled" plat

RCVD JUL 9 '12
OIL CONS. DIV.
DIST. 3

NMOCD **A**

JUL 11 2012 **ca**

Certificate Number **PROFESSIONAL** 0201

6/4/2012



OPERATIONS PLAN

WELL NAME.....Elk Com 34-1H
JOB TYPE.....HZ Mancos Shale
PREPARED BY.....Stephen Byers

GENERAL INFORMATION

Surface Location	681' FSL, 116' FEL
S-T-R	(P) Sec. 34-T26N-R02W
Point of Penetration	790' FSL, 790' FWL
S-T-R	(M) Sec. 34 T26N-R02W
Bottom Hole Location	1850' FSL, 790' FEL
S-T-R	(I) Sec. 34 T26N-R02W
County, State	Rio Arriba, New Mexico
Elevations	7502' GL/7516' KB (AMSL)
Total Depth	11,714' +/- (MD); 7,345' (TVD)
Formation Objective	Mancos Shale - Niobrara

FORMATION TOPS

San Jose	Surface
Nacimiento Fm	1716' (TVD)
Ojo Alamo SS	3430' (TVD)
Fruitland Fm	3638' (TVD)
Pictured Cliffs SS	3751' (TVD)
Lewis Sh	3986' (TVD)
Huerfanito Bentonite	4246' (TVD)
Chacra	4757' (TVD)
Cliff House	5534' (TVD)
Menefee	5596' (TVD)
Point Lookout	5908' (TVD)
Mancos Sh	6111' (TVD)
Gallup	6939' (TVD)
Ojito SS	7135' (TVD)
Niobrara Top	7312' (TVD)
<i>Target Landing Point</i>	7345' (TVD)
Niobrara Base	7374' (TVD)
<i>Total Depth</i>	7345' (TVD), 11,714' (MD)
Gallup Base	7439' (TVD)
Juana Lopez	7630' (TVD)
Greenhorn	7936' (TVD)
Graneros	8004' (TVD)
Dakota Fm	8063' (TVD)

6/4/2012



9-5/8" Surface Casing: Run on 9-5/8" casing from bottom, up – LTC Halliburton auto-fill float shoe, thread locked. One joint (45') of 9-5/8" 36#/ft, J-55 LTC R-3 casing, thread locked. LTC float collar for DV tool via Halliburton, thread locked top and bottom. Run to surface w/ 9-5/8" casing doped with lead free dope. Centralize w/ ONE bow spring above shoe, ONE bow spring on shoe joint (use lock ring) & ONE across each collar for total of 10 centralizers on bottom 9 joints. Run ONE bow spring on every 3rd joint to surface. (~38 total centralizers)

7" Intermediate Casing: Run on 7" casing from bottom, up – 7" LTC Halliburton auto-fill float shoe, thread locked. One joint (45') of 7" 23#, J-55 LTC R-3 casing, thread locked. LTC float collar for DV tool via Halliburton, thread locked top and bottom. Run to surface with 7" 23# J-55 LTC casing doped with lead free dope. Centralize w/ ONE bow spring above shoe, ONE bow spring on shoe joint (use lock ring), ONE across every other collar on the first 5 joints, and ONE across every collar from KOP to 4000' TVD for a total of ~20 centralizers.

4-1/2" Production Liner: Run on 4-1/2" casing from bottom, up – 4.5" double valve float shoe, one joint of 4-1/2" casing, landing collar, one joint 4-1/2" casing, RSI sleeve system, thread locked. Run 4-1/2" casing from top of RSI sleeve system to 500' inside 7" casing shoe, doped w/ BOL 2000 thread dope. Thread lock bottom 2 joints & place marker joint 4 joints above RSI system and at halfway point in lateral. Run Baker Hughes liner hanger, seal assembly and packer bore receptacle on top of 4-1/2" casing. Centralize w/ 1 solid body spiral centralizer above float shoe (use stop collar), 1 in middle of the bottom joint (use stop collar). 1 solid body spiral above pin & 1 in middle of 2nd joint (use stop collar). Place on bow spring centralizer at every 6th collar to top of liner.

WELLHEAD

13-5/8" 3000 weld/slip on casing head. 9 5/8" x 7" x 2 3/8" 3000 psi Flanged Wellhead.

CEMENTING

(See Cement Program for complete details)

13-3/8" Conductor Casing: 295 sks of Type V w/ 2% CaCl₂ and ¼ #/sk Flocele at 15.6 ppg, 1.18 ft³/sk yield. Calculated volume 347.3 ft³; 294.32 sacks at 100% excess in open hole. If cement top falls, top out slurry: 100 sx mixed at 15.6 ppg, 1.18 ft³/sk yield. *Proposed Usage: 295 sacks cement.*

9-5/8" Surface Casing: Set DV tool at 3450' TVD. Start first stage from 4200' – 3450'. Second stage to be pumped from 3450' to surface. Circulate hole at least 1-1/2 hole volumes of mud.

First Stage: Pre-flush with 5 bbls H₂O + 20 bbls Mud Flush + 5 bbls H₂O. Cement with 156 sacks 50/50 Poz w/ ¼ #/sk Flocele and 5 #/sk Gilsonite @ 13.5 ppg; 1.81 ft³/sk yield. Calculated volume 281.88 ft³; 155.73 sacks at 20% excess. Displace casing volume to float collar with mud, followed by viscous pill, mechanical barrier and mud. Drop ball to open stage tool. Open stage tool and circulate one annular volume. WOC 4 hours while rolling pumps 10 bbls every hour to ensure circulation. *Proposed Usage: 156 sacks cement.*

6/4/2012



4-1/2" Production Liner: Cement w/ 467 sks of PRB II w/ 1/4 #/sk Flocele and 10 #/sk Gilsonite @ 13.5 ppg and 1.81 ft³/sk yield. Calculated volume 844.7 ft³; 466.69 sacks at 100% excess in open hole. WOC 4 hours prior to setting slips on liner hanger and setting PBR. *Proposed Usage: 467 sacks premium cement.*

Set slips with full string weight on all cement jobs. Try to reciprocate pipe, if possible throughout all cement jobs.

If cement does not circulate to surface, notify BLM and NMOCD immediately and run temperature survey in 8 hrs. to determine TOC.

OTHER INFORMATION

- 1) There will not be Thru Bit logging done on this well.
- 2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The surface string design may need to be altered to accommodate another DV tool depending on formation conditions.
- 3) Will be kicking off of cement plug to drill curve and lateral at ~~6150'~~ TVD.

6400' TVD per operator



Elk Com 34-1H
Sec 33 T26N R02W
Rio Arriba County, NM NAD83

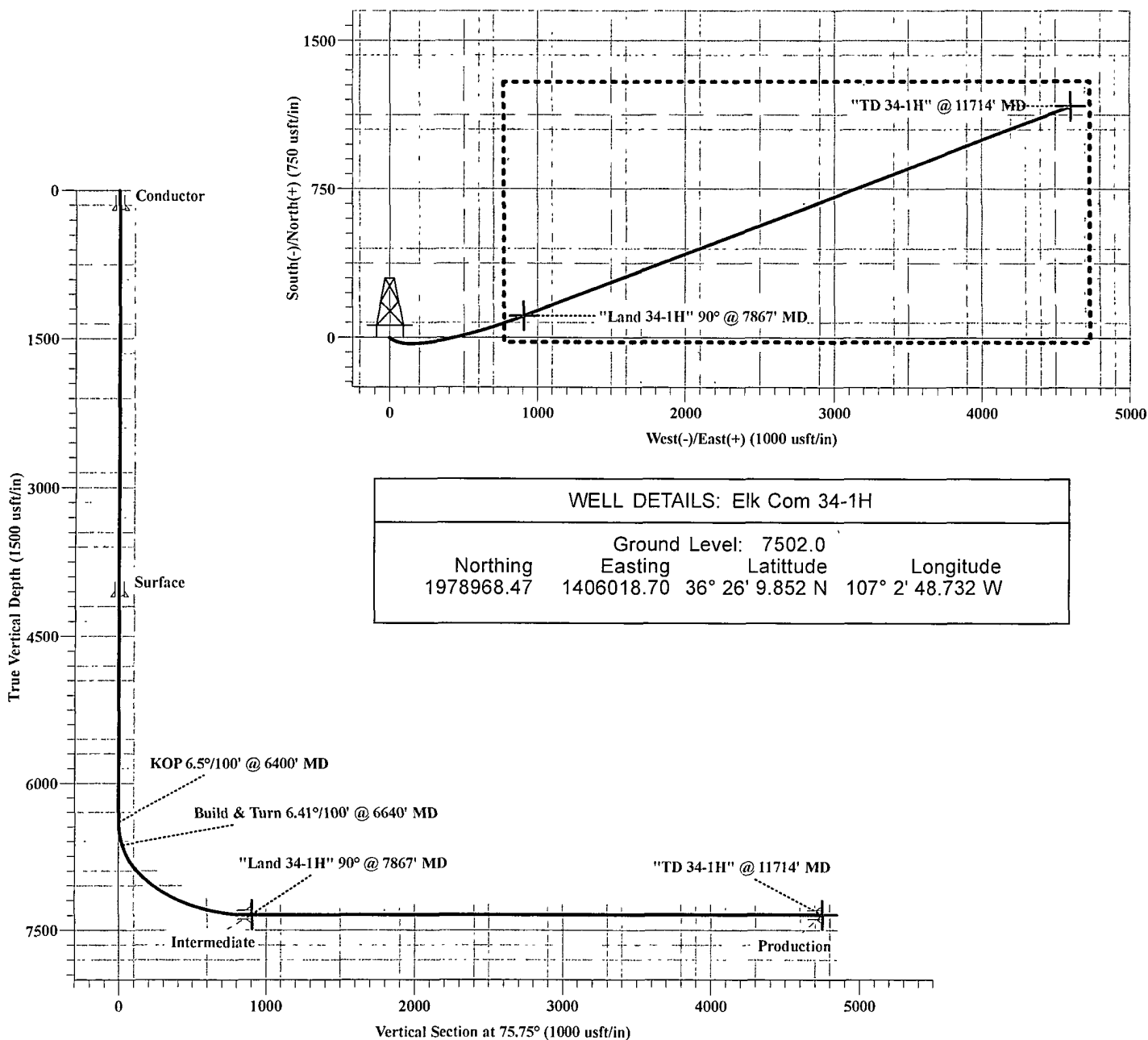
PATHFINDER

A Schlumberger Company

GE: 7502' KB: 14'

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Landing	7345.0	109.2	906.0	1979070.21	1406925.59	Point
PBHL 1H	7345.0	1169.0	4603.5	1980099.38	1410631.67	Point



WELL DETAILS: Elk Com 34-1H

Ground Level: 7502.0			
Northing	Easting	Latitude	Longitude
1978968.47	1406018.70	36° 26' 9.852 N	107° 2' 48.732 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
6400.0	0.00	0.00	6400.0	0.0	0.0	0.00	0.00	0.0	
6630.8	15.00	114.63	6628.1	-12.5	27.3	6.50	114.63	23.4	
6640.4	15.00	114.63	6637.5	-13.6	29.6	0.00	0.00	25.3	
7867.7	90.00	74.01	7345.0	109.2	906.0	6.41	-41.61	905.0	Landing
11714.0	90.00	74.01	7345.0	1169.0	4603.5	0.00	0.00	4749.6	PBHL 1H

Plan: Design #3 (Elk Com 34-1H/Wellbore #1)

Created By: Breck Enoch

Date: 25-May-2012



Pathfinder
Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000 1 Single User Db
Company: Hunt Oil Company
Project: Rio Arriba County, NM NAD83
Site: Sec 33 T26N R02W
Well: Elk Com 34-1H
Wellbore: Wellbore #1
Design: Design #3

Local Co-ordinate Reference: Well Elk Com 34-1H
TVD Reference: WELL @ 7516.0usft (Original Well Elev)
MD Reference: WELL @ 7516 0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	Rio Arriba County, NM NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site	Sec 33 T26N R02W		
Site Position:		Northing:	1,978,968.48 usft
From:	Lat/Long	Easting:	1,406,018.70 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	36° 26' 9.852 N
		Longitude:	107° 2' 48.732 W
		Grid Convergence:	-0.47°

Well	Elk Com 34-1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			7,502.0 usft

Wellbore:	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	05/25/12	9.44	63.31	50,553

Design	Design #3			
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	75.75

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	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,630.8	15.00	114.63	6,628.1	-12.5	27.3	6.50	6.50	0.00	114.63	
6,640.4	15.00	114.63	6,637.5	-13.6	29.6	0.00	0.00	0.00	0.00	
7,867.7	90.00	74.01	7,345.0	109.2	906.0	6.41	6.11	-3.31	-41.61	Landing
11,714.0	90.00	74.01	7,345.0	1,169.0	4,603.5	0.00	0.00	0.00	0.00	PBHL 1H



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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	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
Conductor									
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
Nacimiento									
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,434.0	0.00	0.00	3,434.0	0.0	0.0	0.0	0.00	0.00	0.00
Ojo Alamo									
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,642.0	0.00	0.00	3,642.0	0.0	0.0	0.0	0.00	0.00	0.00
Fruitland									
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,755.0	0.00	0.00	3,755.0	0.0	0.0	0.0	0.00	0.00	0.00
Pictured Cliffs									
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,990.0	0.00	0.00	3,990.0	0.0	0.0	0.0	0.00	0.00	0.00
Lewis									
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00



Pathfinder
Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000.1 Single User Db
Company: Hunt Oil Company
Project: Rio Arriba County, NM NAD83
Site: Sec 33 T26N R02W
Well: Elk Com 34-1H
Wellbore: Wellbore #1
Design: Design #3

Local Co-ordinate Reference: Well Elk Com 34-1H
TVD Reference: WELL @ 7516 0usft (Original Well Elev)
MD Reference: WELL @ 7516 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)
Surface									
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,250.0	0.00	0.00	4,250.0	0.0	0.0	0.0	0.00	0.00	0.00
Huerfano Bentonite									
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,761.0	0.00	0.00	4,761.0	0.0	0.0	0.0	0.00	0.00	0.00
Chacra									
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,538.0	0.00	0.00	5,538.0	0.0	0.0	0.0	0.00	0.00	0.00
Cliff House									
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
Menefee									
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,912.0	0.00	0.00	5,912.0	0.0	0.0	0.0	0.00	0.00	0.00
Point Lookout									
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,115.0	0.00	0.00	6,115.0	0.0	0.0	0.0	0.00	0.00	0.00
Mancos									
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP 6.5°/100' @ 6400' MD									
6,450.0	3.25	114.63	6,450.0	-0.6	1.3	1.1	6.50	6.50	0.00
6,500.0	6.50	114.63	6,499.8	-2.4	5.2	4.4	6.50	6.50	0.00
6,550.0	9.75	114.63	6,549.3	-5.3	11.6	9.9	6.50	6.50	0.00
6,600.0	13.00	114.63	6,598.3	-9.4	20.5	17.6	6.50	6.50	0.00
6,630.8	15.00	114.63	6,628.1	-12.5	27.3	23.4	6.50	6.50	0.00
6,640.4	15.00	114.63	6,637.4	-13.6	29.6	25.3	0.00	0.00	0.00
Build & Turn 6.41°/100' @ 6640' MD									
6,650.0	15.46	113.11	6,646.7	-14.6	31.9	27.3	6.39	4.83	-15.91
6,700.0	18.03	106.42	6,694.6	-19.4	45.4	39.3	6.41	5.13	-13.38
6,750.0	20.77	101.40	6,741.7	-23.3	61.5	53.9	6.41	5.48	-10.05
6,800.0	23.62	97.52	6,788.0	-26.4	80.2	71.2	6.41	5.70	-7.76
6,850.0	26.55	94.44	6,833.3	-28.6	101.3	91.1	6.41	5.86	-6.15
6,900.0	29.53	91.94	6,877.4	-29.8	124.7	113.5	6.41	5.97	-5.00
6,950.0	32.55	89.87	6,920.3	-30.2	150.5	138.4	6.41	6.04	-4.15
6,977.2	34.21	88.88	6,943.0	-30.1	165.5	153.0	6.41	6.09	-3.64
Gallup									
7,000.0	35.61	88.11	6,961.7	-29.7	178.5	165.7	6.41	6.11	-3.37



Pathfinder
Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000 1 Single User Db
Company: Hunt Oil Company
Project: Rio Arriba County, NM NAD83
Site: Sec 33 T26N R02W
Well: Elk Com 34-1H
Wellbore: Wellbore #1
Design: Design #3

Local Co-ordinate Reference: Well Elk Com 34-1H
TVD Reference: WELL @ 7516.0usft (Original Well Elev)
MD Reference: WELL @ 7516.0usft (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)
7,050.0	38.68	86.60	7,001.5	-28.3	208.6	195.3	6.41	6.14	-3.03
7,100.0	41.77	85.27	7,039.7	-26.0	240.8	227.0	6.41	6.18	-2.65
7,150.0	44.87	84.10	7,076.1	-22.8	275.0	260.9	6.41	6.21	-2.34
7,200.0	47.98	83.05	7,110.6	-18.8	311.0	296.8	6.41	6.23	-2.10
7,243.7	50.71	82.21	7,139.0	-14.5	343.8	329.7	6.41	6.24	-1.92
Ojito Zone									
7,250.0	51.11	82.10	7,143.0	-13.8	348.7	334.6	6.41	6.25	-1.83
7,300.0	54.24	81.23	7,173.3	-8.1	388.0	374.1	6.41	6.26	-1.74
7,350.0	57.37	80.42	7,201.4	-1.5	428.9	415.3	6.41	6.27	-1.61
7,400.0	60.51	79.67	7,227.2	5.9	471.0	458.0	6.41	6.28	-1.50
7,450.0	63.66	78.96	7,250.6	14.1	514.4	502.1	6.41	6.29	-1.41
7,500.0	66.80	78.29	7,271.6	23.1	559.0	547.4	6.41	6.29	-1.34
7,550.0	69.95	77.66	7,290.0	32.8	604.4	593.9	6.41	6.30	-1.28
7,600.0	73.10	77.04	7,305.8	43.2	650.7	641.3	6.41	6.30	-1.23
7,650.0	76.26	76.45	7,319.0	54.2	697.6	689.5	6.41	6.31	-1.18
7,700.0	79.41	75.88	7,329.6	65.9	745.1	738.4	6.41	6.31	-1.15
7,750.0	82.57	75.31	7,337.4	78.2	792.9	787.7	6.41	6.31	-1.13
7,800.0	85.73	74.75	7,342.5	91.0	840.9	837.5	6.41	6.31	-1.11
7,850.0	88.89	74.20	7,344.8	104.4	889.0	887.4	6.41	6.31	-1.10
7,867.7	90.00	74.01	7,345.0	109.2	906.1	905.1	6.39	6.30	-1.10
"Land 34-1H" 90° @ 7867' MD - Target - Intermediate									
7,900.0	90.00	74.01	7,345.0	118.1	937.1	937.4	0.00	0.00	0.00
8,000.0	90.00	74.01	7,345.0	145.7	1,033.2	1,037.3	0.00	0.00	0.00
8,100.0	90.00	74.01	7,345.0	173.2	1,129.4	1,137.3	0.00	0.00	0.00
8,200.0	90.00	74.01	7,345.0	200.8	1,225.5	1,237.2	0.00	0.00	0.00
8,300.0	90.00	74.01	7,345.0	228.4	1,321.6	1,337.2	0.00	0.00	0.00
8,400.0	90.00	74.01	7,345.0	255.9	1,417.8	1,437.1	0.00	0.00	0.00
8,500.0	90.00	74.01	7,345.0	283.5	1,513.9	1,537.1	0.00	0.00	0.00
8,600.0	90.00	74.01	7,345.0	311.0	1,610.0	1,637.0	0.00	0.00	0.00
8,700.0	90.00	74.01	7,345.0	338.6	1,706.2	1,737.0	0.00	0.00	0.00
8,800.0	90.00	74.01	7,345.0	366.1	1,802.3	1,836.9	0.00	0.00	0.00
8,900.0	90.00	74.01	7,345.0	393.7	1,898.4	1,936.9	0.00	0.00	0.00
9,000.0	90.00	74.01	7,345.0	421.2	1,994.5	2,036.9	0.00	0.00	0.00
9,100.0	90.00	74.01	7,345.0	448.8	2,090.7	2,136.8	0.00	0.00	0.00
9,200.0	90.00	74.01	7,345.0	476.3	2,186.8	2,236.8	0.00	0.00	0.00
9,300.0	90.00	74.01	7,345.0	503.9	2,282.9	2,336.7	0.00	0.00	0.00
9,400.0	90.00	74.01	7,345.0	531.4	2,379.1	2,436.7	0.00	0.00	0.00
9,500.0	90.00	74.01	7,345.0	559.0	2,475.2	2,536.6	0.00	0.00	0.00
9,600.0	90.00	74.01	7,345.0	586.5	2,571.3	2,636.6	0.00	0.00	0.00
9,700.0	90.00	74.01	7,345.0	614.1	2,667.4	2,736.5	0.00	0.00	0.00
9,800.0	90.00	74.01	7,345.0	641.6	2,763.6	2,836.5	0.00	0.00	0.00
9,900.0	90.00	74.01	7,345.0	669.2	2,859.7	2,936.4	0.00	0.00	0.00
10,000.0	90.00	74.01	7,345.0	696.7	2,955.8	3,036.4	0.00	0.00	0.00
10,100.0	90.00	74.01	7,345.0	724.3	3,052.0	3,136.3	0.00	0.00	0.00
10,200.0	90.00	74.01	7,345.0	751.8	3,148.1	3,236.3	0.00	0.00	0.00
10,300.0	90.00	74.01	7,345.0	779.4	3,244.2	3,336.3	0.00	0.00	0.00
10,400.0	90.00	74.01	7,345.0	806.9	3,340.4	3,436.2	0.00	0.00	0.00
10,500.0	90.00	74.01	7,345.0	834.5	3,436.5	3,536.2	0.00	0.00	0.00
10,600.0	90.00	74.01	7,345.0	862.1	3,532.6	3,636.1	0.00	0.00	0.00
10,700.0	90.00	74.01	7,345.0	889.6	3,628.7	3,736.1	0.00	0.00	0.00
10,800.0	90.00	74.01	7,345.0	917.2	3,724.9	3,836.0	0.00	0.00	0.00
10,900.0	90.00	74.01	7,345.0	944.7	3,821.0	3,936.0	0.00	0.00	0.00
11,000.0	90.00	74.01	7,345.0	972.3	3,917.1	4,035.9	0.00	0.00	0.00



Pathfinder Planning Report

PATHFINDER
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Database: EDM 5000 1 Single User Db
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Site: Sec 33 T26N R02W
Well: Elk Com 34-1H
Wellbore: Wellbore #1
Design: Design #3

Local Co-ordinate Reference: Well Elk Com 34-1H
TVD Reference: WELL @ 7516.0usft (Original Well Elev)
MD Reference: WELL @ 7516 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)
11,100.0	90.00	74.01	7,345.0	999.8	4,013.3	4,135.9	0.00	0.00	0.00
11,200.0	90.00	74.01	7,345.0	1,027.4	4,109.4	4,235.8	0.00	0.00	0.00
11,300.0	90.00	74.01	7,345.0	1,054.9	4,205.5	4,335.8	0.00	0.00	0.00
11,400.0	90.00	74.01	7,345.0	1,082.5	4,301.6	4,435.7	0.00	0.00	0.00
11,500.0	90.00	74.01	7,345.0	1,110.0	4,397.8	4,535.7	0.00	0.00	0.00
11,600.0	90.00	74.01	7,345.0	1,137.6	4,493.9	4,635.7	0.00	0.00	0.00
11,700.0	90.00	74.01	7,345.0	1,165.1	4,590.0	4,735.6	0.00	0.00	0.00
11,714.0	90.00	74.01	7,345.0	1,169.0	4,603.5	4,749.6	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Landing - plan hits target center - Point	0.00	0.00	7,345.0	109.2	906.0	1,979,070.22	1,406,925.59	36° 26' 10.932 N	107° 2' 37.644 W
PBHL 1H - plan hits target center - Point	0.00	0.00	7,345.0	1,169.0	4,603.5	1,980,099.38	1,410,631.67	36° 26' 21.408 N	107° 1' 52.392 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
200.0	200.0	Conductor	13-3/8	17-1/2
4,100.0	4,100.0	Surface	9-5/8	12-1/4
7,867.7	7,345.0	Intermediate	7	8-3/4
11,714.0	7,345.0	Production	4-1/2	6-1/8



Pathfinder
Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000 1 Single User Db
Company: Hunt Oil Company
Project: Rio Arriba County, NM NAD83
Site: Sec 33 T26N R02W
Well: Elk Com 34-1H
Wellbore: Wellbore #1
Design: Design #3

Local Co-ordinate Reference: Well Elk Com 34-1H
TVD Reference: WELL @ 7516 0usft (Original Well Elev)
MD Reference: WELL @ 7516 0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,720.0	1,720.0	Nacimiento			
3,434.0	3,434.0	Ojo Alamo			
3,642.0	3,642.0	Fruitland			
3,755.0	3,755.0	Pictured Cliffs			
3,990.0	3,990.0	Lewis			
4,250.0	4,250.0	Huerfano Bentonite			
4,761.0	4,761.0	Chacra			
5,538.0	5,538.0	Cliff House			
5,600.0	5,600.0	Menefee			
5,912.0	5,912.0	Point Lookout			
6,115.0	6,115.0	Mancos			
6,977.2	6,943.0	Gallup			
7,243.7	7,139.0	Ojito Zone			
7,867.7	7,345.0	Target			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,400.0	6,400.0	0.0	0.0	KOP 6.5°/100' @ 6400' MD
6,640.4	6,637.4	-13.6	29.6	Build & Turn 6.41°/100' @ 6640' MD
7,867.7	7,345.0	109.2	906.1	"Land 34-1H" 90° @ 7867' MD
11,714.0	7,345.0	1,169.0	4,603.5	"TD 34-1H" @ 11714' MD

Hunt Oil

Well Control Equipment Schematic for 3M Service

Attachment to Drilling Technical Program

Exhibit #1 Typical BOP setup

Location: San Juan Basin, New Mexico

Date: May 25, 2012

By: John Thompson (Walsh E&P)

