

HOBBS OCD

SEP 06 2011

OCD Hobbs

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007RECEIVED
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM 065441	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name N/A	
2. Name of Operator Cabal Energy Corporation		7. If Unit or CA Agreement, Name and No. <38790>	
3a. Address 415 W. Wall Street, Suite 1700 Midland, TX 79701		8. Lease Name and Well No. Madera 24 Federal 2H	
3b. Phone No. (include area code) <194930> (432) 682-0440		9. API Well No. 30-025-40277	
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface Section 24, T26S, R34E 10 FSL and 500 FEL Unit P At proposed prod. zone Section 24, T26S, R34E 330 FNL and 500 FEL Unit A		10. Field and Pool, or Exploratory Undesignated Del Rio SW	
11. Sec., T. R. M. or Blk. and Survey or Area Sec 24, T26S, R34E		12. County or Parish Lea County	
13. State NM		14. Distance in miles and direction from nearest town or post office* 18 miles southwest of Jal, NM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) Surface 10' Bottom Hole 330'		16. No. of acres in lease 1280 acres +/-	
17. Spacing Unit dedicated to this well E2E2		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Suf 1610' Bottom 5000'	
19. Proposed Depth Pilot Hole 9250' 9010' TVD 13,747.26 MD		20. BLM/BIA Bond No. on file NM2860	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3190' GL		22. Approximate date work will start* 08/01/2011	
23. Estimated duration 35 days		24. Attachments	

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall 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 shall 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 authorized officer.

25. Signature <i>Donna Stratton</i>	Name (Printed/Typed) Donna Stratton	Date 06/10/2011
Title Regulatory Clerk		

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) Don Peterson	Date AUG 30 2011
Title FIELD MANAGER		
Office CARLSBAD FIELD OFFICE		

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.

APPROVAL FOR TWO YEARS

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)

Carlsbad Controlled Water Basin

KZ 09/06/11

Approval Subject to General Requirements
& Special Stipulations Attached

SEP 08 2011

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Drilling Program
Cabal Energy Corporation
Madera 24 Fed # 2H

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Surface Hole Location: 10' FSL & 500' FEL, Unit P, Sec. 24, T26S, R34E, Lea Co., NM
Bottom Hole Location: 330' FNL & 500' FEL, Unit A, Sec. 24 T26S, R34E, Lea Co., NM

1. Geological Name of Surface Formation

- a) Permian

2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil & Gas

a) Quaternary	20'	Water
b) Surface Fresh Water	160'	Water
c) Surface Fresh Water	230'	Water
d) Rustler	1040'	Water
e) Salado Salt	1250'	Water
f) Base Salt	5025'	N/A
g) Delaware	5340'	Oil
h) Bell Canyon	5380'	Oil
i) Cherry Canyon	6595'	Oil
j) Brushy Canyon	7820'	Oil
k) Brushy Canyon Lower "A"	8340'	Oil
l) Brushy Canyon "B"	8770'	Oil
m) Brushy Canyon "D"	8985'	Oil
n) Approximate Landing Depth "D"	9010' TVD	
o) Pilot Hole TD	9250'	
p) Total measured Depth in Lateral	13,747.26' MD	Oil

Pool Name: Salado draw NE

Proposed Penetration Point: 9250'

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8" casing at 1110' and circulate cement back to surface. The fresh water sands will be protected by setting 9-5/8" casing at 5340' and circulate cement back to surface. The Avalon Shale/Bone Springs will be isolated by setting 5-1/2" casing to total depth and circulating cement above base of 9-5/8" casing. All casing is new and API approved

3. Casing Program

<u>Hole Size</u>	<u>Hole Interval</u>	<u>Casing OD</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Connection</u>	<u>Grade</u>
17-1/2"	0' – 1110' ✓	13-3/8"	0' – 1110'	48#	STC	H-40
12-1/4"	1110' – 5340' ✓	9-5/8"	0' – 5340'	40#	LTC	HCK-55
8-3/4"	5340' – 9250'	Pilot Hole Cement Kickoff Plug from 9250' – 8500'				
8-3/4"	8500' – 13747.26'	5-1/2"	0' – 13747.26 MD	17#	BTC	HCP-110

Design Parameter Factors

<u>Casing Size</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
13-3/8"	1.6	3.6	6.7
9-5/8"	1.5	1.4	4.4
5-1/2"	1.3	1.7	2.3

4. Cement Program

All cement volumes exceed 25% excess

13-3/8" Surface: **Lead:** 640 sacks ExtendaCem – CZ, mixed at 13.50 Weight, 1.75 Yield, 9.20 gps mixing water

Tail: 340 sacks HalCem - C + 2% CaCl, mixed at 14.80 Weight, 1.35 Yield, 6.39 gps mixing water

9-5/8" Intermediate: **Lead:** 1520 sacks EconCem – HLC + 5% salt + 5 pps Gilsonite, mixed at 12.90 Weight, 1.85 Yield, 9.32 gps mixing water

Tail: 250 sacks HalCem – C, mixed at 14.80 weight, 1.33 Yield, 6.34 gps mixing water

Pilot Hole Plug

Plug Back Volume: Cement plug from 9250' – 8500' 415 sacks Class H, 17.2# weight, 0.99 Yield

5-1/2" Production: **First Stage**

Cement Slurry: 505 sacks SoluCem – H + 0.25 pps Defoamer +0.6% Retarder, Mixed at 15.0 weight, 2.61 Yield, 11.20 gps mixing water.

See COA

DV Tool at 8300'

Lead: 450 sacks EconoCem-HLC +0.5% Fluid loss + 6 pps salt + 5 pps Gilsonite + 0.25 pps Poly-E-Flake, mixed at 12.60 weight, 2.03 Yield, 10.48 gps mixing water.

Tail: 140 sacks HalCem-H + 0.2% Retarder, 15.60 weight, 1.19 Yield, 5.41 gps mixing water

Top of cement ALL casing strings

Surface 0'

Intermediate 0'

Production 4800'

Actual cement volumes will be adjusted based on fluid caliper and open hole caliper log.

5. Minimum Specifications for Pressure Control Equipment

BLOWOUT PREVENTION DESIGN: The blow out prevention (BOP) system will consist of a bag type annular preventer, a double ram preventer and a rotating head. Both the Annular and Ram stack will be hydraulically operated. Both BOP systems will be rated at 5000 psi. The double ram preventer will be equipped with blind rams on top and pipe rams on bottom. The mentioned 5000 psi BOP systems will be installed on 13-3/8" casing and will be tested with independent testers before drilling out the associated casing shoe. Prior to drilling out the 9-5/8" shoe the BOP's and Annular will be tested as per BLM Drilling Operations Order #2

The rams system will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into a drilling spool below the BOP. In addition to the rams and annular, other BOP accessories include a Kelly cock, floor safety valve, choke lines and choke manifold rated at 5000 psi.

6. Auxiliary Well Control and Monitoring Equipment

- A Kelly cock will be in drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out 13-3/8" casing shoe until the 5-1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13-3/8" shoe until total depth is reached.

7. Proposed Mud Circulation System

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>Fluid Loss</u>	<u>Type System</u>
0' – 1110'	8.4 – 9.0	32-34	N/C	Fresh Water
1110 – 5340'	10	28	N/C	Brine Water
5340' – 8200'	8.9 – 9.3	28	N/C	Cut Brine Water
8200' – 13747.26'	8.9 – 9.3	30-38	12 – 20	CB / XCD Polymer

The necessary mud products for weight addition and fluid loss control will be on location at all times.

8. Logging, Coring and Testing *See CCA*

- The Open hole electrical logging program will be run in the pilot hole: We will run GR-Neutron Density log and DLL-MSFL log from 9250' up to 5350'. We will continue to pull the GR-Neutron log from 5350' to surface.
- 15 – 20 Side wall cores will be cut in the Delaware pay Intervals
- Drill stem test will be based on geological sample shows. If drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice.

9. Potential Hazards

No abnormal pressures or temperatures are expected. A Hydrogen Sulfide contingency plan will be provided. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 5000 psi and Estimated BHT 180°.

10. Anticipated Starting date and Duration of Operations

Road and location construction will begin after BLM has approved the APD. Anticipated spud date will be as soon as BLM approval and as soon as rig will be available. Move in operations and drilling is expected to take 35 days. If production casing is run then an additional 90 days will be needed to complete well and construct surface facilities and/ or lay flow lines in order to place well on production.

Drilling Fluids Program

Madera 24 Fed #2H

**Sec. 24, T-26-S, R-34-E,
Lea County, NM**

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Cabal Energy Corp.

415 West Wall, Suite 1700

Midland, TX 79701

Mr. Ray Jones

Contacts and Sales

"The Nova Difference"



INTERVAL: 0 - 1,111'		17.5" hole	2 days	13.375" csg	1 drill bits	
Product	Function	Treatment		Unit Size	Usage	
Bentonite	Viscosifier	10-12 ppb		50 #	120	
Ground Paper	Seepage and sweeps	1-3 sacks per 100 feet		30 #	15	
Lime	pH additive	.5 ppb		50 #	10	
Maxi-Seal/Fiber Seal/Chem.Seal	LCM, sealant	As needed		40 #	10	
Pallets	Storage aid			1 each	5	
Plastic	Storage aid	1 roll for tarp		1 roll	1	
Shrink Wrap	Storage aid	Cover mud		1 each	25	
Soda Ash	Calcium remover	1 sack per 15 sacks of bentonite		50 #	10	

Projected Mud Properties

Depth	Mud Type	MW - ppg	Vis	Fil	pH	Cl - ppm	Sol %		
0-1,111'	SPUD	8.4-9.6	32-34	N/C	10.0	3-6K	3-8		

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
0' - 1,090'	Surface Conglomerates	Red Bed, Red sandstone, FW sands	Swelling, mud rings, differential sticking
1,090' - 1,111'	Rustler	Anhydrite	Casing seat

Interval Notes for 0 - 1,111

Spud with a conventional Bentonite and Lime slurry circulating the working pits.

Adjust the viscosity as needed to clean the large diameter hole.

Use Ground Paper additions periodically to control seepage and enhance hole cleaning.

Use the jet and dilute method of solids control to keep weight at a minimum.

NOTE: Should severe losses occur we suggest dry drilling to total depth sweeping the hole regularly with viscous (50-60) Bentonite pills containing 10-20 ppb of various LCM's.

INTERVAL: 1,111 - 5,430'		12.25" hole	6 days	9.625" csg	1 drill bits	
Product	Function	Treatment	Unit Size	Usage		
Ground Paper		1-3 sacks per 200 feet	30 #	10		
Lime		.5 ppb	50 #	30		
Maxi-Seal/Fiber Seal/Chem Seal		As needed	40 #	20		
MF-55/Vismaster(non-ionic)		1 gal. slug as needed for sweep	5 gal.	10		
Salt Gel		18-20 ppb in sweeps	50 #	120		

Projected Mud Properties

Depth	Mud Type	M W - ppg	Vis	Fil	pH	Cl - ppm	Sol %		
1,111-5,430'	BR	10.0	28	N/C	10.0	186K	.5-.75		

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
1,111' - 3,060'	Rustler	Anhydrite w/sand stringers, Limestone	
3,060' - 3,520'	Salt	Salt	Hole dissolution, key seats, hole cleaning, deviation
3,520' - 4,870'	Salt, Base	Salt, limestone base	
4,870' - 5,150'	Castile	Limestone	
5,150' - 5,430'	Delaware	Sand, Limestone	Casing seat

Interval Notes for 1,111 - 5,430

Drill out from surface with Brine.

Adjust the pH to 10.0 with Lime.

Use Ground Paper sweeps periodically to control seepage and enhance hole cleaning.

Viscous (50-60) Salt Gel pills may be necessary to clean the hole.

Small amounts of MF-55 should be used as needed to flocculate fine drill solids and to clean the hole.

Add 6-10 ppb of various fibrous LCM's to the viscous pills to control more severe losses.

At total depth sweep and spot viscous (50-60) Salt Gel pills to ensure a clean hole for logging and/or casing operations.

INTERVAL: 5,430 - 8,200'		8.75" hole	5 days	1 drill bits	
Product	Function	Treatment	Unit Size	Usage	
CSF	LCM, sealant	6-15 ppb	25 #	20	
Ground Paper	Seepage and sweeps	1-3 sacks per 200 feet	30 #	20	
Lime	pH additive	5 ppb	50 #	40	
Maxi-Seal/Fiber Seal/Chem Seal	LCM, sealant	6-15 ppb	40 #	20	
MF-55/Vismaster(non-ionic)	Hole sweep, flocculant	1 gal slug as needed for sweep	5 gal.	12	
Salt Gel	Hole sweep	18-20 ppb in sweeps	50 #	180	

Projected Mud Properties

Depth	Mud Type	M W - ppg	Vis	Fil	pH	Cl - ppm	Soi %		
5,430-8,200'	CB	8.6-9.0	28	N/C	10.0	40-90K	.5-.75		

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
5,430' - 6,380'	Delaware	Lime	
6,380' - 8,200'	Cherry Canyon	Sand	KOP

Interval Notes for 5,430 - 8,200

Drill out from intermediate casing with Cut Brine. Circulate the reserve.

Adjust the pH to 10.0 with Lime.

Maintain the weight with additions of Brine and/or Fresh Water.

Continue to use Ground Paper pills to clean the hole and control seepage.

Small amounts of MF-55 may be used for sweeps and to flocculate fine drill solids.

Use viscous (50-60) Salt Gel pills as needed to clean the hole.

Should losses occur add 6-15 ppb of various LCM's to the pills to regain returns.

Sweep and spot viscous (50-60) Salt Gel pills prior to logging and setting kick off plug.

INTERVAL: 8,200 - 11,100'		8.75" hole	14 days	5.5" csg	3 drill bits
Product	Function	Treatment	Unit Size	Usage	
Biocide (STC)	Biocide	As needed	5 gal.	10	
Caustic Soda	pH additive	25 ppb	50 #	30	
Defoamer	Defoamer	As needed	5 gal.	5	
Drispac/Poly Pac/StaFlo/Aquapac	Filtrate control	5 ppb or as needed	50 #	15	
Graphite	Lubricant	1-4 ppb in sweeps	50 #	90	
Greencide/INC	Biocide	As needed	5 gal.	10	
Slider C-555	Lubricant	As needed	55 gal.	10	
Soda Ash	Calcium remover	As needed	50 #	60	
White Starch/Impermex	Filtrate control	3-4 ppb as needed in sweeps	50 #	50	
XCD	Hole sweep, viscosifier	.75 -1.0 ppb in pills	25 #	30	
Polymer/Flozan/Optizan					

Projected Mud Properties

Depth	Mud Type	M W - ppg	Vis	Fil	pH	Cl - ppm	Sol %		
8,200-11,100'	CB/XCD	8.6-9.3	28-36	N/C-20cc	10.0	40-100K	.5-3.0		

General Geological Data

Tops/Bases	Formation	Lithology	Notes/Challenges
8,200' - 8,300'	Cherry Canyon	Sand	
8,300' - 9,050'	Brushy Canyon	Sand	Horizontal Target

Interval Notes for 8,200 - 11,100

Kick off with the existing system.

Kick off at 8,200'. Drill the curve at 12 degrees/100' to be lateral by 9,050' TVD.

Adjust the pH to 10.0 with Caustic.

As the curve and lateral progress sweep the hole as needed with XCD Polymer pills containing graphite and lubricants.

Should torque/drag become troublesome it may become necessary to return to the working pits and retain the pills to allow a gradual mud up. We suggest lowering the filtrate with White Starch/Drispac once viscosities rise above 32.

Biocide will be needed to combat bacteria growth.

At total depth of lateral we recommend spotting a lubrication pill across the curve to ease casing placement.

Cabal Energy

Location: Lea County, NM
Field: (Madera) Sec 24, T26S, R34E
Facility: Madera 24 Fed No. 2H

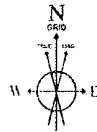
Slot: No. 2H SHL
Well: No. 2H
Wellbore: No. 2H PWB



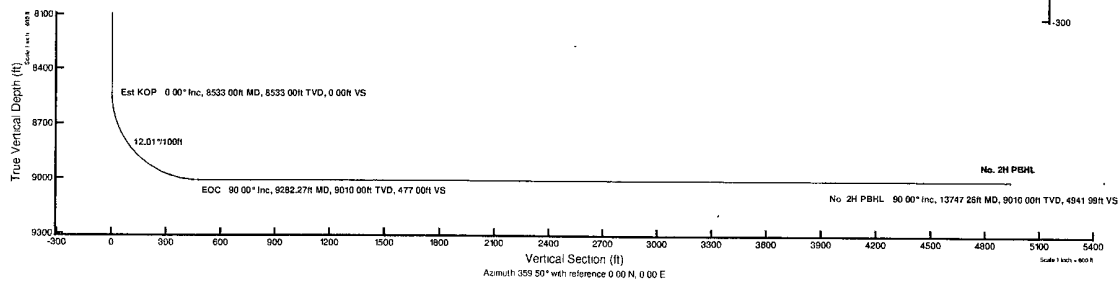
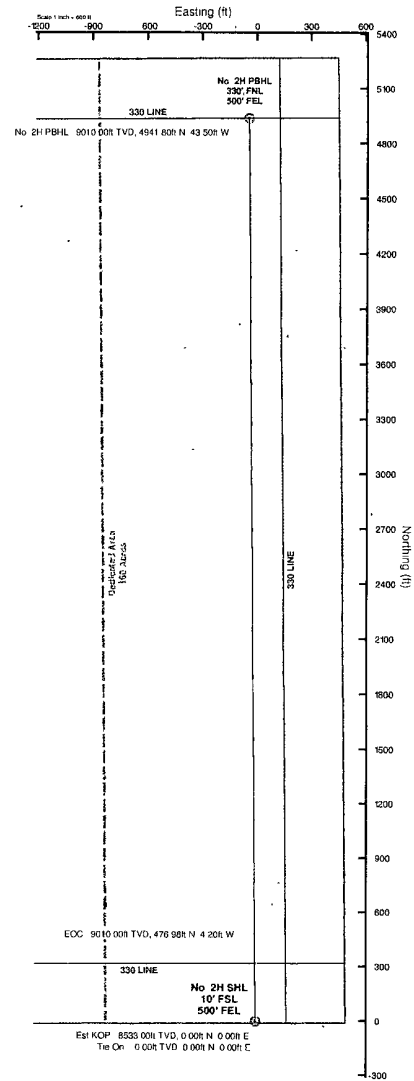
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	359.496	0.00	0.00	0.00	0.00	0.00
Est KOP	8533.00	0.000	359.496	8533.00	0.00	0.00	0.00	0.00
EOC	9282.27	90.000	359.496	9010.00	476.98	-4.20	12.01	477.00
No. 2H PBHL	13747.26	90.000	359.496	9010.00	4941.89	-43.50	0.00	4941.99

Plot reference wellbore is Profile 2	
True vertical depths are referenced to Rig on No. 2H SHL (RT)	Grid System: NAD2011 TM New Mexico SP, Eastern Zone (2001), US feet
Measured depths are referenced to Rig on No. 2H SHL (RT)	North Reference: Grid north
Rig on No. 2H SHL (RT) to Mean Sea Level: 3190 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot No. 2H SHL): 3190 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: cathyh on 9/6/2011



BGGM (1945.0 to 2012.0) Dip 60.03° Field 48546.8 nT
Magnetic North is 7.54 degrees East of True North (at 6/5/2011)
Grid North is 0.49 degrees East of True North
To correct azimuth from True to Grid subtract 0.49 degrees
To correct azimuth from Magnetic to Grid add 7.05 degrees
For example if the Magnetic North Azimuth = 90 degs then the Grid North Azimuth = 90 + 7.05 = 97.05



Planned Wellpath Report

Prelim_3

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cabal Energy	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Medera) Sec 24, T26S, R34E	Wellbore	No. 2H PWB
Facility	Madera 24 Fed No. 2H		

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Calhphik
Scale	1	Report Generated	6/6/2011 at 3:45:51 PM
Convergence at slot	0.49° East	Database/Source file	WA Midland/No. 2H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W
Facility Reference Pt			784223.30	372745.60	32°01'17.314"N	103°24'58.578"W
Field Reference Pt			784223.30	372745.60	32°01'17.314"N	103°24'58.578"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 2H SHL (RT) to GL	0.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (RT) to Mean Sea Level	3190.00ft
Vertical Reference Pt	Rig on No. 2H SHL (RT)	Rig on No. 2H SHL (RT) to Mud Line at Slot (No. 2H SHL)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.50°

Planned Wellpath Report

Prelim_3

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cabal Energy	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Medera) Sec 24, T26S, R34E	Wellbore	No. 2H PWB
Facility	Madera 24 Fed No. 2H		

WELLPATH DATA (141 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	359.496	0.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	Tie On
100.00†	0.000	359.496	100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
200.00†	0.000	359.496	200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
300.00†	0.000	359.496	300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
400.00†	0.000	359.496	400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
500.00†	0.000	359.496	500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
600.00†	0.000	359.496	600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
700.00†	0.000	359.496	700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
800.00†	0.000	359.496	800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
900.00†	0.000	359.496	900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1000.00†	0.000	359.496	1000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1100.00†	0.000	359.496	1100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1200.00†	0.000	359.496	1200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1300.00†	0.000	359.496	1300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1400.00†	0.000	359.496	1400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1500.00†	0.000	359.496	1500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1600.00†	0.000	359.496	1600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1700.00†	0.000	359.496	1700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1800.00†	0.000	359.496	1800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
1900.00†	0.000	359.496	1900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2000.00†	0.000	359.496	2000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2100.00†	0.000	359.496	2100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2200.00†	0.000	359.496	2200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2300.00†	0.000	359.496	2300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2400.00†	0.000	359.496	2400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2500.00†	0.000	359.496	2500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2600.00†	0.000	359.496	2600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2700.00†	0.000	359.496	2700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2800.00†	0.000	359.496	2800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
2900.00†	0.000	359.496	2900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3000.00†	0.000	359.496	3000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3100.00†	0.000	359.496	3100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3200.00†	0.000	359.496	3200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3300.00†	0.000	359.496	3300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3400.00†	0.000	359.496	3400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3500.00†	0.000	359.496	3500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3600.00†	0.000	359.496	3600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3700.00†	0.000	359.496	3700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3800.00†	0.000	359.496	3800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
3900.00†	0.000	359.496	3900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4000.00†	0.000	359.496	4000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4100.00†	0.000	359.496	4100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4200.00†	0.000	359.496	4200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4300.00†	0.000	359.496	4300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4400.00†	0.000	359.496	4400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cabal Energy	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Medera) Sec 24, T26S, R34E	Wellbore	No. 2H PWB
Facility	Madera 24 Fed No. 2H		

WELLPATH DATA (141 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4500.00†	0.000	359.496	4500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4600.00†	0.000	359.496	4600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4700.00†	0.000	359.496	4700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4800.00†	0.000	359.496	4800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
4900.00†	0.000	359.496	4900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5000.00†	0.000	359.496	5000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5100.00†	0.000	359.496	5100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5200.00†	0.000	359.496	5200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5300.00†	0.000	359.496	5300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5400.00†	0.000	359.496	5400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5500.00†	0.000	359.496	5500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5600.00†	0.000	359.496	5600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5700.00†	0.000	359.496	5700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5800.00†	0.000	359.496	5800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
5900.00†	0.000	359.496	5900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6000.00†	0.000	359.496	6000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6100.00†	0.000	359.496	6100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6200.00†	0.000	359.496	6200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6300.00†	0.000	359.496	6300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6400.00†	0.000	359.496	6400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6500.00†	0.000	359.496	6500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6600.00†	0.000	359.496	6600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6700.00†	0.000	359.496	6700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6800.00†	0.000	359.496	6800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
6900.00†	0.000	359.496	6900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7000.00†	0.000	359.496	7000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7100.00†	0.000	359.496	7100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7200.00†	0.000	359.496	7200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7300.00†	0.000	359.496	7300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7400.00†	0.000	359.496	7400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7500.00†	0.000	359.496	7500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7600.00†	0.000	359.496	7600.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7700.00†	0.000	359.496	7700.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7800.00†	0.000	359.496	7800.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
7900.00†	0.000	359.496	7900.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8000.00†	0.000	359.496	8000.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8100.00†	0.000	359.496	8100.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8200.00†	0.000	359.496	8200.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8300.00†	0.000	359.496	8300.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8400.00†	0.000	359.496	8400.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8500.00†	0.000	359.496	8500.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	
8533.00	0.000	359.496	8533.00	0.00	0.00	0.00	784223.30	372745.60	32°01'17.314"N	103°24'58.578"W	0.00	Est KOP
8600.00†	8.048	359.496	8599.78	4.70	4.70	-0.04	784223.26	372750.30	32°01'17.361"N	103°24'58.578"W	12.01	
8700.00†	20.060	359.496	8696.61	28.94	28.94	-0.25	784223.05	372774.54	32°01'17.600"N	103°24'58.578"W	12.01	
8800.00†	32.071	359.496	8786.27	72.80	72.79	-0.64	784222.66	372818.39	32°01'18.034"N	103°24'58.578"W	12.01	

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cabal Energy	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Medera) Sec 24, T26S, R34E	Wellbore	No. 2H PWB
Facility	Madera 24 Fed No. 2H		

WELLPATH DATA (141 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8900.00†	44.083	359.496	8864.85	134.35	134.35	-1.18	784222.12	372879.95	32°01'18.644"N	103°24'58.579"W	12.01	
9000.00†	56.095	359.496	8928.89	210.92	210.91	-1.86	784221.44	372956.51	32°01'19.401"N	103°24'58.579"W	12.01	
9100.00†	68.106	359.496	8975.60	299.13	299.12	-2.63	784220.67	373044.72	32°01'20.274"N	103°24'58.579"W	12.01	
9200.00†	80.118	359.496	9002.92	395.14	395.12	-3.48	784219.82	373140.72	32°01'21.224"N	103°24'58.580"W	12.01	
9282.27	90.000	359.496	9010.00	477.00	476.98	-4.20	784219.10	373222.58	32°01'22.034"N	103°24'58.580"W	12.01	EOC
9300.00†	90.000	359.496	9010.00	494.73	494.71	-4.35	784218.95	373240.31	32°01'22.210"N	103°24'58.580"W	0.00	
9400.00†	90.000	359.496	9010.00	594.73	594.71	-5.23	784218.07	373340.31	32°01'23.199"N	103°24'58.580"W	0.00	
9500.00†	90.000	359.496	9010.00	694.73	694.70	-6.12	784217.18	373440.30	32°01'24.189"N	103°24'58.581"W	0.00	
9600.00†	90.000	359.496	9010.00	794.73	794.70	-7.00	784216.30	373540.30	32°01'25.178"N	103°24'58.581"W	0.00	
9700.00†	90.000	359.496	9010.00	894.73	894.70	-7.88	784215.42	373640.30	32°01'26.168"N	103°24'58.581"W	0.00	
9800.00†	90.000	359.496	9010.00	994.73	994.69	-8.76	784214.54	373740.29	32°01'27.158"N	103°24'58.582"W	0.00	
9900.00†	90.000	359.496	9010.00	1094.73	1094.69	-9.64	784213.66	373840.29	32°01'28.147"N	103°24'58.582"W	0.00	
10000.00†	90.000	359.496	9010.00	1194.73	1194.68	-10.52	784212.78	373940.28	32°01'29.137"N	103°24'58.582"W	0.00	
10100.00†	90.000	359.496	9010.00	1294.73	1294.68	-11.40	784211.90	374040.28	32°01'30.126"N	103°24'58.583"W	0.00	
10200.00†	90.000	359.496	9010.00	1394.73	1394.68	-12.28	784211.02	374140.28	32°01'31.116"N	103°24'58.583"W	0.00	
10300.00†	90.000	359.496	9010.00	1494.73	1494.67	-13.16	784210.14	374240.27	32°01'32.106"N	103°24'58.584"W	0.00	
10400.00†	90.000	359.496	9010.00	1594.73	1594.67	-14.04	784209.26	374340.27	32°01'33.095"N	103°24'58.584"W	0.00	
10500.00†	90.000	359.496	9010.00	1694.73	1694.66	-14.92	784208.38	374440.26	32°01'34.085"N	103°24'58.584"W	0.00	
10600.00†	90.000	359.496	9010.00	1794.73	1794.66	-15.80	784207.50	374540.26	32°01'35.074"N	103°24'58.585"W	0.00	
10700.00†	90.000	359.496	9010.00	1894.73	1894.66	-16.68	784206.62	374640.26	32°01'36.064"N	103°24'58.585"W	0.00	
10800.00†	90.000	359.496	9010.00	1994.73	1994.65	-17.56	784205.74	374740.25	32°01'37.053"N	103°24'58.585"W	0.00	
10900.00†	90.000	359.496	9010.00	2094.73	2094.65	-18.44	784204.86	374840.25	32°01'38.043"N	103°24'58.586"W	0.00	
11000.00†	90.000	359.496	9010.00	2194.73	2194.65	-19.32	784203.98	374940.24	32°01'39.033"N	103°24'58.586"W	0.00	
11100.00†	90.000	359.496	9010.00	2294.73	2294.64	-20.20	784203.10	375040.24	32°01'40.022"N	103°24'58.586"W	0.00	
11200.00†	90.000	359.496	9010.00	2394.73	2394.64	-21.08	784202.22	375140.24	32°01'41.012"N	103°24'58.587"W	0.00	
11300.00†	90.000	359.496	9010.00	2494.73	2494.63	-21.96	784201.34	375240.23	32°01'42.001"N	103°24'58.587"W	0.00	
11400.00†	90.000	359.496	9010.00	2594.73	2594.63	-22.84	784200.46	375340.23	32°01'42.991"N	103°24'58.588"W	0.00	
11500.00†	90.000	359.496	9010.00	2694.73	2694.63	-23.72	784199.58	375440.22	32°01'43.980"N	103°24'58.588"W	0.00	
11600.00†	90.000	359.496	9010.00	2794.73	2794.62	-24.60	784198.70	375540.22	32°01'44.970"N	103°24'58.588"W	0.00	
11700.00†	90.000	359.496	9010.00	2894.73	2894.62	-25.48	784197.82	375640.22	32°01'45.960"N	103°24'58.589"W	0.00	
11800.00†	90.000	359.496	9010.00	2994.73	2994.61	-26.36	784196.94	375740.21	32°01'46.949"N	103°24'58.589"W	0.00	
11900.00†	90.000	359.496	9010.00	3094.73	3094.61	-27.24	784196.06	375840.21	32°01'47.939"N	103°24'58.589"W	0.00	
12000.00†	90.000	359.496	9010.00	3194.73	3194.61	-28.12	784195.18	375940.21	32°01'48.928"N	103°24'58.590"W	0.00	
12100.00†	90.000	359.496	9010.00	3294.73	3294.60	-29.00	784194.30	376040.20	32°01'49.918"N	103°24'58.590"W	0.00	
12200.00†	90.000	359.496	9010.00	3394.73	3394.60	-29.88	784193.42	376140.20	32°01'50.908"N	103°24'58.590"W	0.00	
12300.00†	90.000	359.496	9010.00	3494.73	3494.59	-30.76	784192.54	376240.19	32°01'51.897"N	103°24'58.591"W	0.00	
12400.00†	90.000	359.496	9010.00	3594.73	3594.59	-31.64	784191.66	376340.19	32°01'52.887"N	103°24'58.591"W	0.00	
12500.00†	90.000	359.496	9010.00	3694.73	3694.59	-32.52	784190.78	376440.19	32°01'53.876"N	103°24'58.592"W	0.00	
12600.00†	90.000	359.496	9010.00	3794.73	3794.58	-33.40	784189.90	376540.18	32°01'54.866"N	103°24'58.592"W	0.00	
12700.00†	90.000	359.496	9010.00	3894.73	3894.58	-34.28	784189.02	376640.18	32°01'55.855"N	103°24'58.592"W	0.00	
12800.00†	90.000	359.496	9010.00	3994.73	3994.58	-35.16	784188.14	376740.17	32°01'56.845"N	103°24'58.593"W	0.00	
12900.00†	90.000	359.496	9010.00	4094.73	4094.57	-36.04	784187.26	376840.17	32°01'57.835"N	103°24'58.593"W	0.00	
13000.00†	90.000	359.496	9010.00	4194.73	4194.57	-36.92	784186.38	376940.17	32°01'58.824"N	103°24'58.593"W	0.00	
13100.00†	90.000	359.496	9010.00	4294.73	4294.56	-37.80	784185.50	377040.16	32°01'59.814"N	103°24'58.594"W	0.00	
13200.00†	90.000	359.496	9010.00	4394.73	4394.56	-38.68	784184.62	377140.16	32°02'00.803"N	103°24'58.594"W	0.00	

Planned Wellpath Report

Prelim_3

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cabal Energy	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Medera) Sec 24, T26S, R34E	Wellbore	No. 2H PWB
Facility	Madera 24 Fed No. 2H		

WELLPATH DATA (141 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13300.00†	90.000	359.496	9010.00	4494.73	4494.56	-39.56	784183.74	377240.15	32°02'01.793"N	103°24'58.594"W	0.00	
13400.00†	90.000	359.496	9010.00	4594.73	4594.55	-40.44	784182.86	377340.15	32°02'02.782"N	103°24'58.595"W	0.00	
13500.00†	90.000	359.496	9010.00	4694.73	4694.55	-41.32	784181.98	377440.15	32°02'03.772"N	103°24'58.595"W	0.00	
13600.00†	90.000	359.496	9010.00	4794.73	4794.54	-42.20	784181.10	377540.14	32°02'04.762"N	103°24'58.596"W	0.00	
13700.00†	90.000	359.496	9010.00	4894.73	4894.54	-43.08	784180.22	377640.14	32°02'05.751"N	103°24'58.596"W	0.00	
13747.26	90.000	359.496	9010.00†	4941.99	4941.80	-43.50	784179.80	377687.40	32°02'06.219"N	103°24'58.596"W	0.00	No 2H PBHL

HOLE & CASING SECTIONS - Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim_3

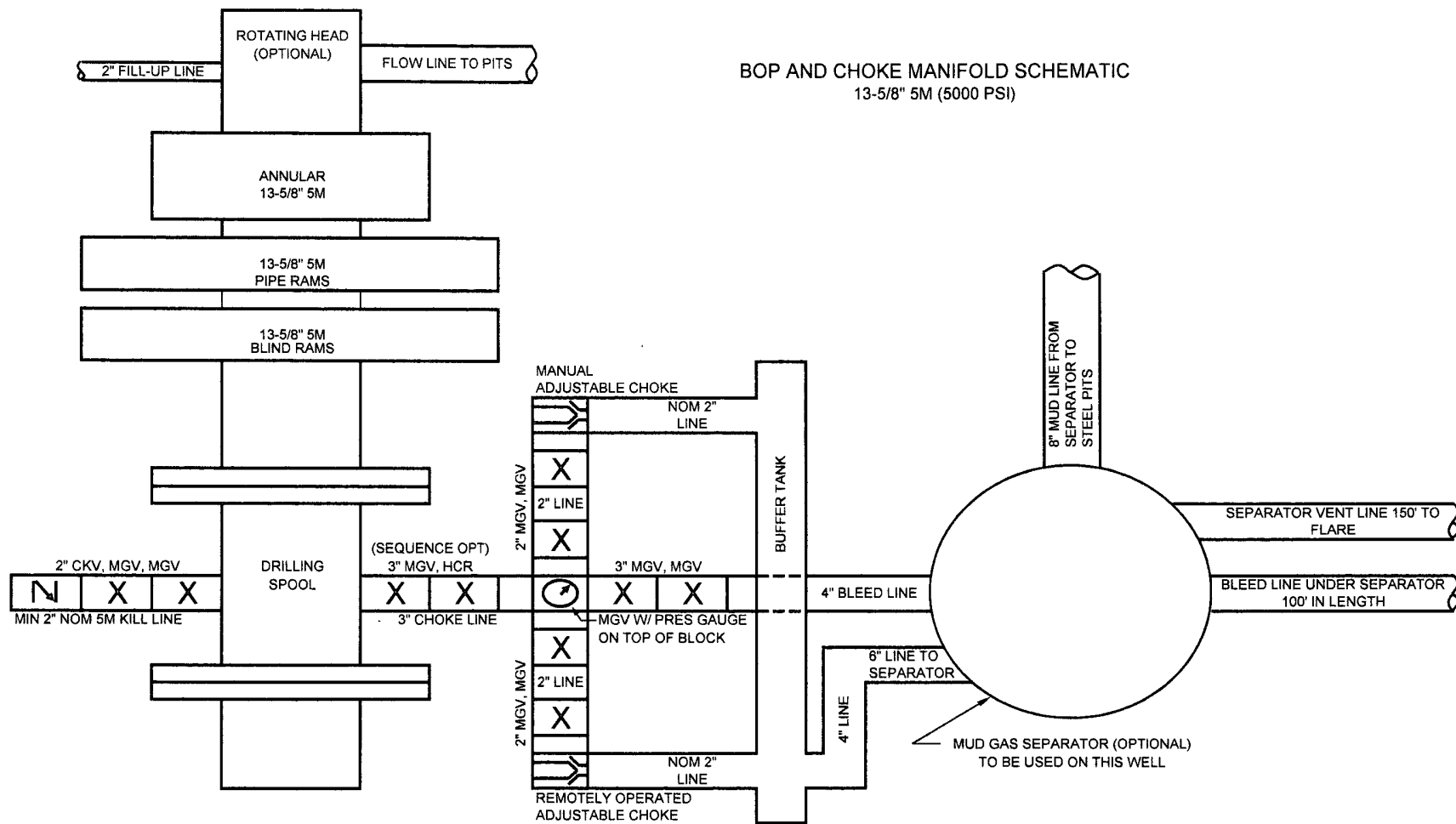
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.375in Casing	0.00	1111.00	1111.00	0.00	1111.00	0.00	0.00	0.00	0.00
9.625in Casing	1111.00	5430.00	4319.00	1111.00	5430.00	0.00	0.00	0.00	0.00
7.625in Casing	5430.00	13747.26	8317.26	5430.00	9010.00	0.00	0.00	4941.80	-43.50
5.5in Liner	0.00	13747.26	13747.26	0.00	9010.00	0.00	0.00	4941.80	-43.50

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No. 2H PBHL	13747.26	9010.00	4941.80	-43.50	784179.80	377687.40	32°02'06.219"N	103°24'58.596"W	point

SURVEY PROGRAM - Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim_3

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	13747.26	NaviTrak (Standard)		No. 2H PWB



NOTES

MGV - MANUAL GATE VALVE
HCR - REMOTELY OPERATED HIGH CLOSING RATIO VALVE
CKV - CHECK VALVE
LINE SIZES GIVEN IN NOMINAL DIMENSIONS

