

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM02447
2. Name of Operator BOPCO, L.P.		6. If Indian, Allottee or Tribe Name
3a. Address P.O. BOX 2760 MIDLAND, TX 79702		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 432-683-2277		8. Well Name and No. BIG EDDY UNIT 257H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 33 T19S R31E 1630FSL 2630FEL 32.611369 N Lat, 103.852708 W Lon		9. API Well No.
		10. Field and Pool, or Exploratory HACKBERRY; BS, EAST
		11. County or Parish, and State EDDY COUNTY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original A PD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

BOPCO, L.P. respectfully requests to change the 8 pt drilling program as attached.

LRDcd 6/26/13
Accepted for record
NMOC

RECEIVED
JUN 25 2013
NMOC ARTESIA

Accepted for record
NMOC

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

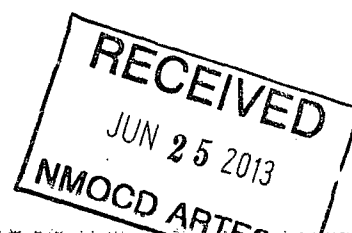
14. I hereby certify that the foregoing is true and correct. Electronic Submission #210717 verified by the BLM Well Information System For BOPCO, L.P., sent to the Carlsbad	
Name (Printed/Typed) CHRISTOPHER W GIESE	Title DRILLING ENGINEER
Signature (Electronic Submission)	Date 06/14/2013
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By _____	Title _____
Conditions of approval, if any, are attached. Approval of this notice 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.	
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.	

APPROVED
JUN 27 2013
/s/ Chris Walls
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

**EIGHT POINT DRILLING PROGRAM
BOPCO, L.P.**

Anticipated Formation Tops: KB 3,483' (estimated)
GL 3,454'



FORMATION	TOPEST FROM KB (TVD)	MD	SUB-SEA TOP	BEARING
T/Fresh Water	125'	125'	+ 3,360'	Fresh Water
Rustler Anhydrite	883'	883'	+ 2,600'	Barren
T/Salt	1,023'	1,023'	+ 2,460'	Barren
B/Salt	2,308'	2,308'	+ 1,175'	Barren
T/Yates	2,433'	2,433'	+ 1,050'	Oil/Gas
T/Reef	2,683'	2,683'	+ 800'	Water
T/Delaware Mnt. Group	4,133'	4,133'	= 650'	Oil/Gas
Bone Spring	6,928'	6,928'	- 3,445'	Oil/Gas
1 st Bone Spring Sand	8,243'	8,243'	- 4,760'	Oil/Gas
KOP	8,320'	8,320'	- 4,837'	Oil/Gas
2 nd Bone Spring A' Sand	8,973'	9,371'	- 5,490'	Oil/Gas
2 nd Bone Spring A Sand	9,003'	9,478'	- 5,520'	Oil/Gas
2 nd Bone Spring B Sand	9,081'	9,844'	- 5,598'	Oil/Gas
EOC	9,112'	10,197'	- 5,622'	Oil/Gas
TD Horizontal Hole	9,225'	15,578'	- 5,735'	Oil/Gas

POINT 3: CASING PROGRAM

TYPE	INTERVALS	HOLE SIZE	PURPOSE	CONDITION
20"	0' - 120'	30"	Conductor	Contractor Design
16", 84 ppf, J-55, BT&C	0' - 1,000'	18-1/8"	Surface	New
13-3/8", 68 ppf, HCL-80 Ultra Flush Joint	0' - 2,635'	14-3/4"	First Intermediate	New
9-5/8", 40 ppf, J-55, LT&C* or 9-5/8", HCP-110, LT&C*	0' - 4,235' 4,300'	12-1/4"	Second Intermediate	New
7", 26 ppf, HCP-110, Buttress or 8rd LTC*	0' - 9,120'	8-3/4"	Third Intermediate	New
4-1/2", 11.6 ppf, HCP-110 8rd, LT&C*	9,070' - 15,578'	6-1/8"	Completion	New

* Depending on availability

CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	COLLAPSE	BURST
16", 84 ppf, J-55, BT&C	18.37	2.89	1.93
13-3/8", 68 ppf, HCL-80 Ultra Flush Joint	4.77	1.67	3.41
9-5/8", 40 ppf, J-55, LT&C	4.31	1.16	1.67
9-5/8", 40 ppf, HCP-110	6.76	2.05	3.34
Production			
7", 26 ppf, HCP-110, Buttress or 8rd LTC*	3.39	1.25	1.96

Completion System			
4-1/2", 11.6 ppf, HCP-110 8rd. LT&C	3.02	1.66	2.08
4-1/2", 11.6 ppf, HCP-110 BTC	3.98	1.77	2.08

* Depending on availability.

INTERVAL	AMT/SXS	FT OF FILL	TYPE	GAL/SX	PPG	FT3/SX
<u>Surface:</u>						
Lead: 0' - 700'	300	700'	Class C + 5% Salt + 0.7% Econolite	9.98	12.9	1.88
Tail: 700' - 1,000'	220	300'	Class C + 2% CACL + 0.25 LB/SK CF	6.35	14.80	1.35
<u>Intermediate 1:</u>						
Lead: 0' - 2,135'	410	2,135'	EconoCem HLC +5% salt	9.32	12.90	1.85
Tail: 2,135' - 2,635'	220	500'	HalCem C	6.34	14.80	1.33
<u>Intermediate 2:</u>						
Stage:1						
Tail: 2,685' - 4,235'	450	1,550'	HalCem C 4% bentonite + 0.6% Halad(R)-9	8.69	13.6	1.71
External Casing Packer and DV Tool @ 2,685'						
Stage 2:						
Lead: 0' - 2,385'	540	2,385'	EconoCem HLC + NaCL	9.83	12.90	1.85
Tail: 2,385' - 2,685'	110	300'	HalCem C	6.34	14.80	1.33

<u>Third Intermediate/Production</u>						
Stage:1						
Lead: 5,000' - 8,320'	285	3,320'	VariCem H + 0.55% Halad(R) -344	14.87	11.0	2.64
Tail: 8,320' - 9,120'	100	800'	Tuned Light + 0.125 pps Poly-E-Flake	11.41	12.0	2.03
DV tool @ 5,000'						
Stage: 2						
Lead: 2,635' - 5,000'	230	2,365'	Tuned Light + 0.125 pps Poly-E-Flake	11.70	11.0	2.35

Cement excesses will be as follows

Surface – 100% excess above gauge hole with cement circulated to surface

1st Intermediate – 100% excess above gauge hole with cement circulated to surface.

2nd Intermediate – 30% excess above fluid caliper for both stages with cement circulated to surface.

3rd Intermediate/Production – 50% excess above gauge hole with cement circulated 50' above the Capitan reef.

Cement volumes will be adjusted proportionately for depth changes of the multi stage tool.

F) DIRECTIONAL DRILLING

BOPCO, L.P. plans to drill out the 9-5/8" intermediate casing with a 8-3/4" bit to a TVD of approximately 8,320' at which point a directional hole will be kicked off and drilled at an azimuth of 153.5 degrees, building angle at 10.00 deg/100' to 70.0 degrees at a TVD of 8,858' (9,020' MD). This angle and azimuth will be maintained for 100' to a measured depth of approximately 9,120' (8,893' TVD). At this depth 7", 26#, HCP-110, LTC casing will be installed and cemented in two stages (DV Tool @ approximately 5000') with cement circulated 50' above the Capitan reef. A 6-1/8" open hole lateral will then be drilled out from 7" casing at an azimuth of 90.00 degrees, inclination of 88.80 degrees to a measured depth of approximately 15,578' MD (9,225' TVD). At this depth a 4-1/2" Completion System with packers installed for zone isolation will be run into the producing lateral.

G) COMPLETION SYSTEM

A 4-1/2" completion system with open hole packers will be run in the producing lateral to a depth of 15,578'. The top of the Completion System will be set at approximately 9,070' MD. The first take point will be no less than 330' from the unit line as well as inside of the 2nd Bone Spring. Two back to back packers will be used at this point for isolation of uphole formations. Cement will not be required for this system.

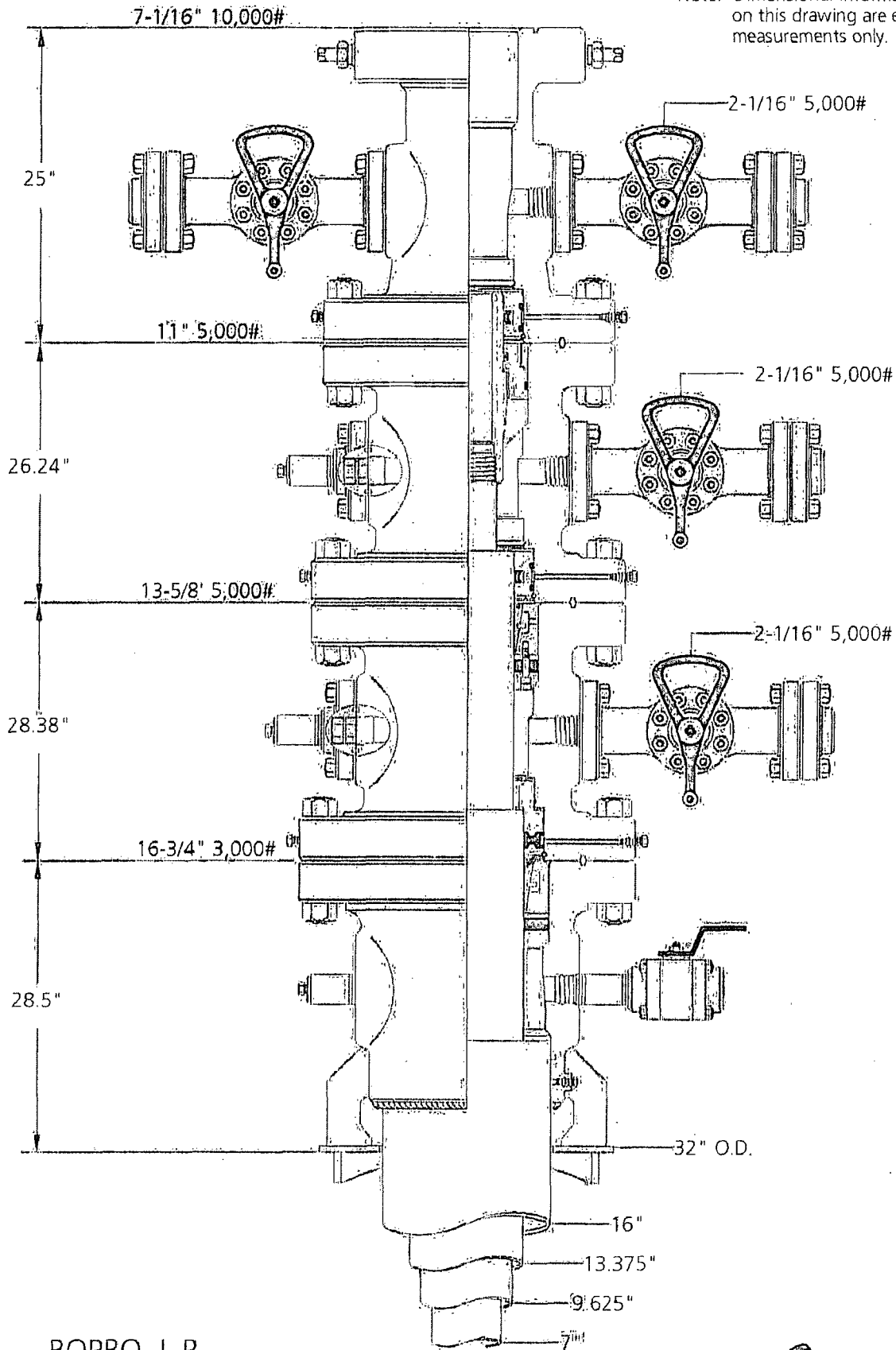
See APD for Previous Pressure control requirements

4

For the 7" intermediate casing, a Cameron MBS style multibowl wellhead system will be used. After running and cementing the 7", third intermediate casing string, the BOP stack will not need to be removed in order to install the casing mandrel packoff. The mandrel packoff, lockdown screws, and wellhead to BOP flange will be tested to the full working pressure of the system at 3,000 psi. The 7" casing string will also be tested as per Onshore Order #2 prior to drilling out the shoe. The Cameron wellhead diagram is attached for reference.

BOPCO, L.P. would like to request a variance to use an armored, 3", 5000 psi WP flex hose for the choke line in the drilling of the well if the rig is equip with hose. (See specification for hose that might be used, attached with APD exhibits). This is rig equipment and will help quicken nipple up time thus saving money without a safety problem. The hose itself is rated to 5000 psi, and has 5000 psi flanges on each end. This well is to be drilled to approximately 15,578' MD (9,225' TVD) and max surface pressure should be +/- 2,288 psi as prescribed in Onshore Order #2 shown as max BHP minus 0.22 psi/ft. Thus, 3000 psi BOPE is all that is needed for this well. **Please refer to diagrams A, B, or C for choke manifold and closed loop system layout. If an armored flex hose is utilized, the company man will have all of the proper certified paper work for that hose available on location.**

Note: Dimensional information reflected on this drawing are estimated measurements only.



BOPBO, L.P.

Well: Big Eddy Unit #257H

Conventional Wellhead

Casing Design: 16" x 13.375" x 9.625" x 7"

CAMERON

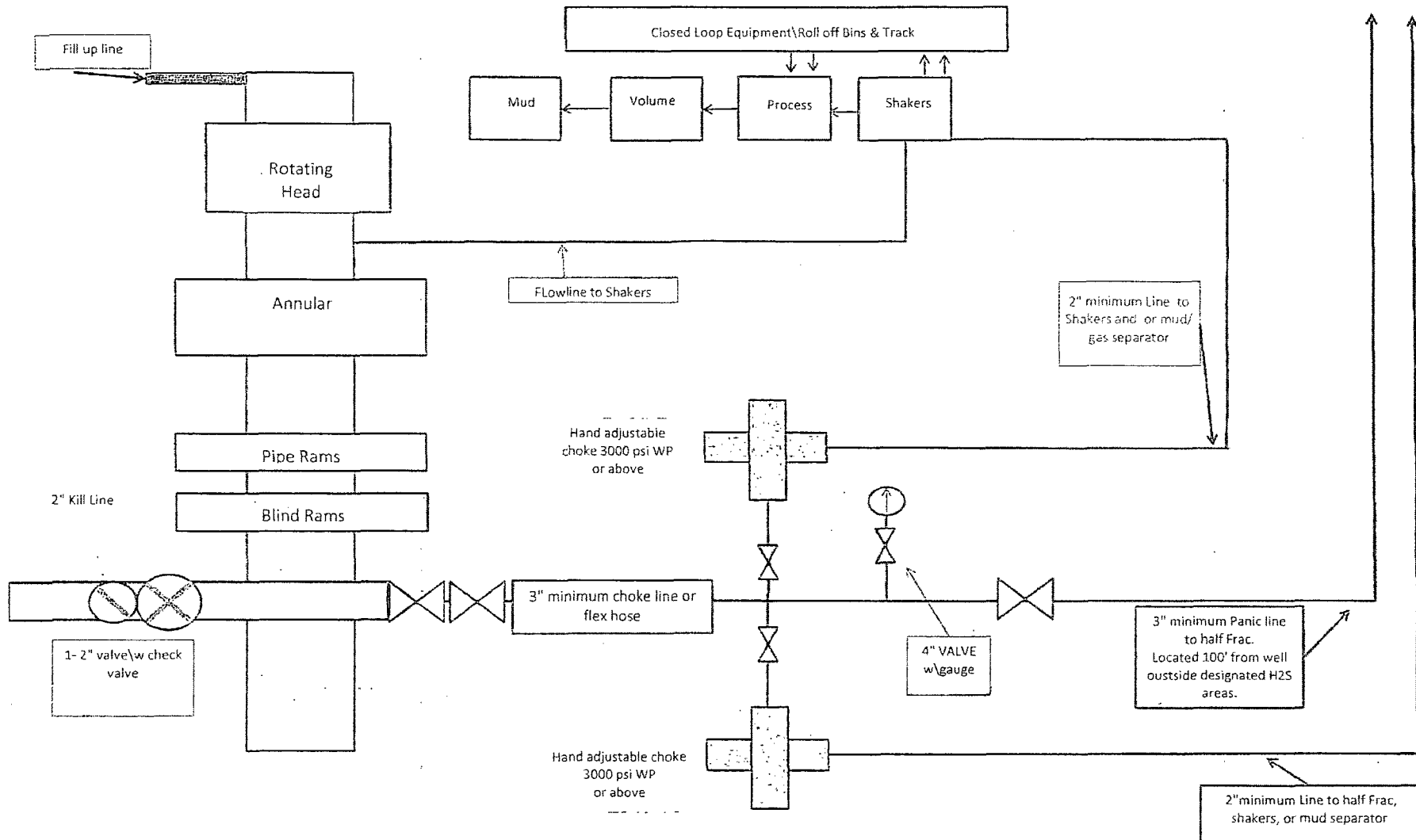
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Working Pressure:

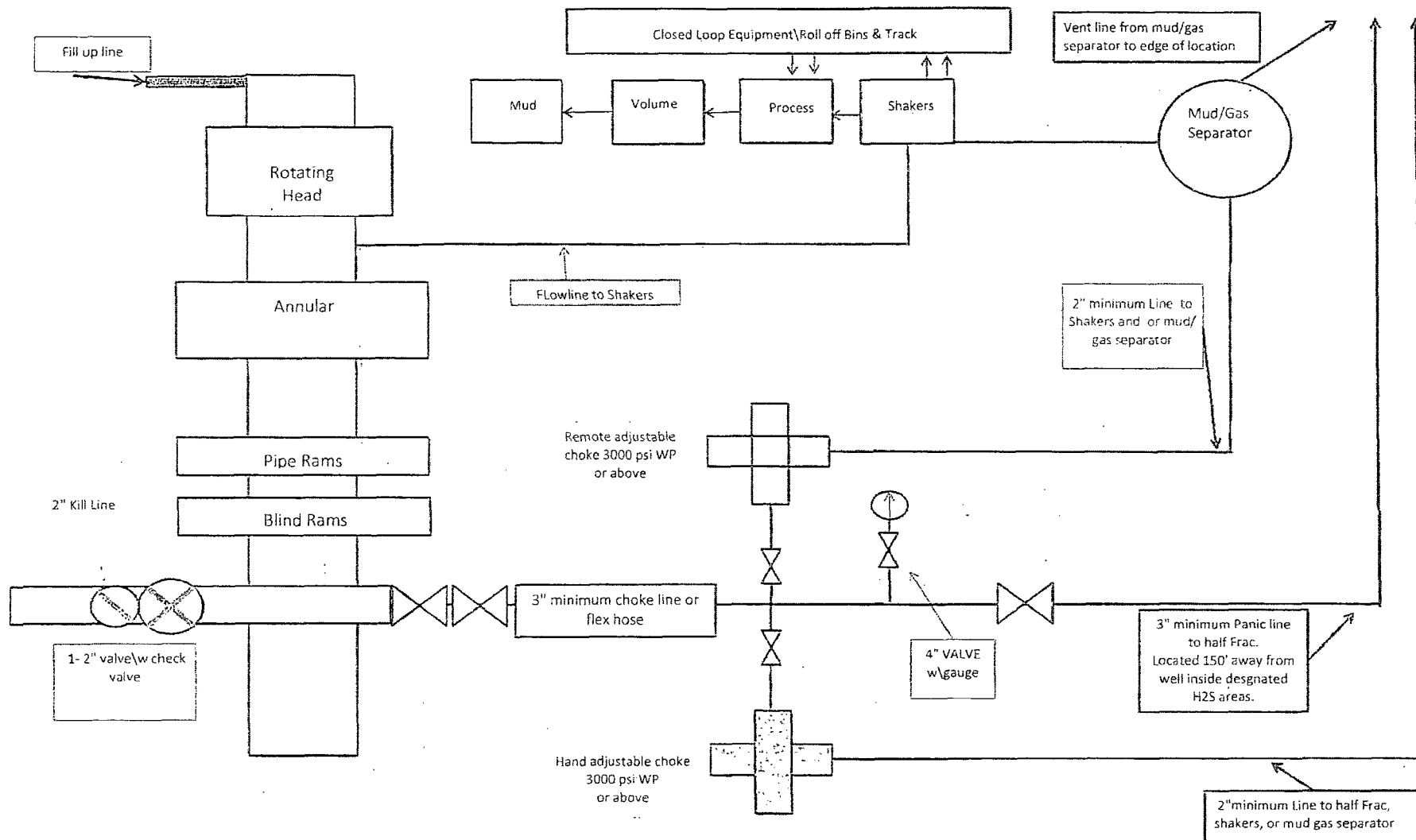
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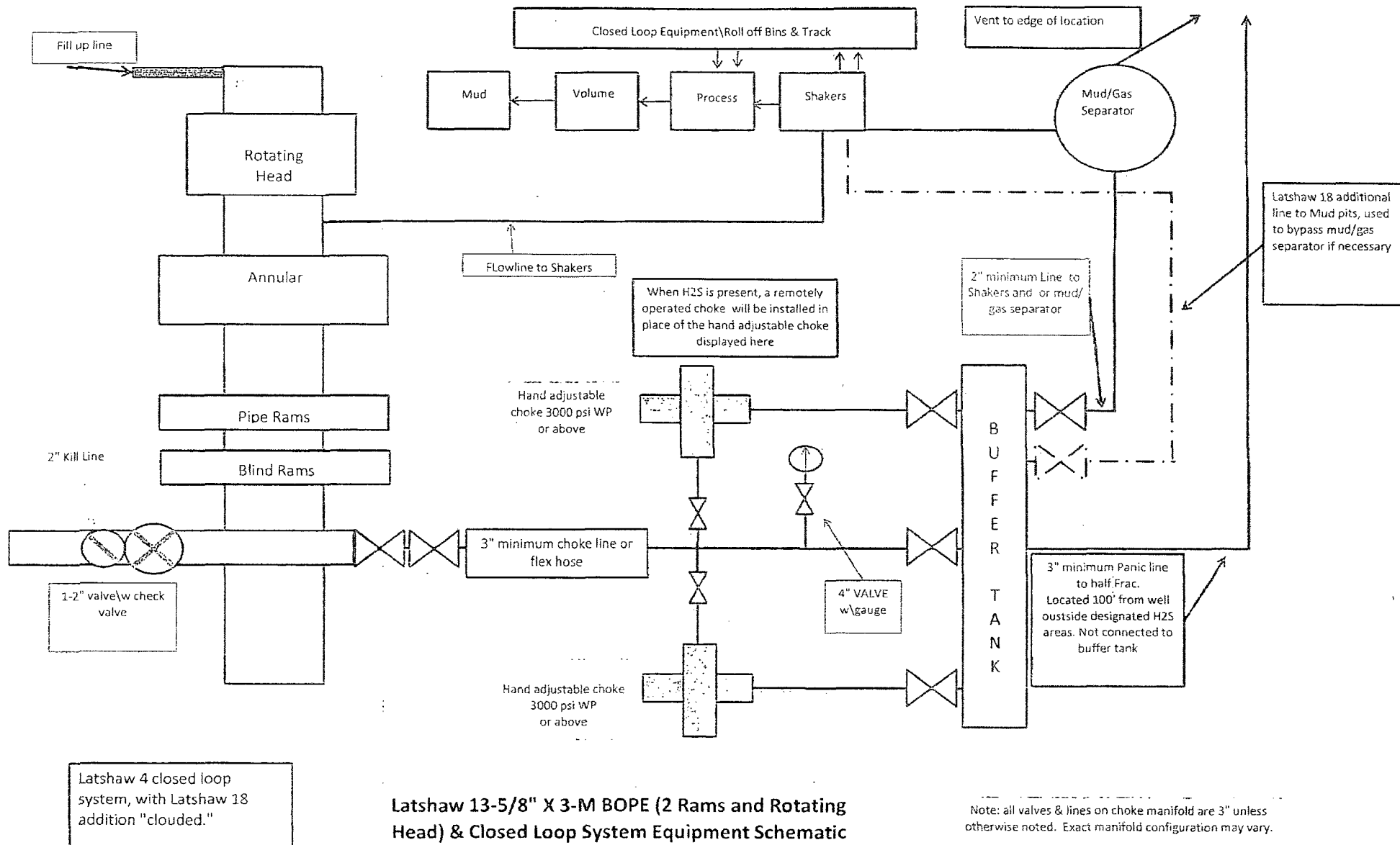
**13-5/8" X 3-M BOPE (2 Rams and Rotating Head) &
Closed Loop System Equipment Schematic
Diagram A**

Note: all valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.



**13-5/8" X 3-M BOPE (2 Rams and Rotating Head) &
Closed Loop System Equipment Schematic
H2S contingency
Diagram B**

Note: all valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.

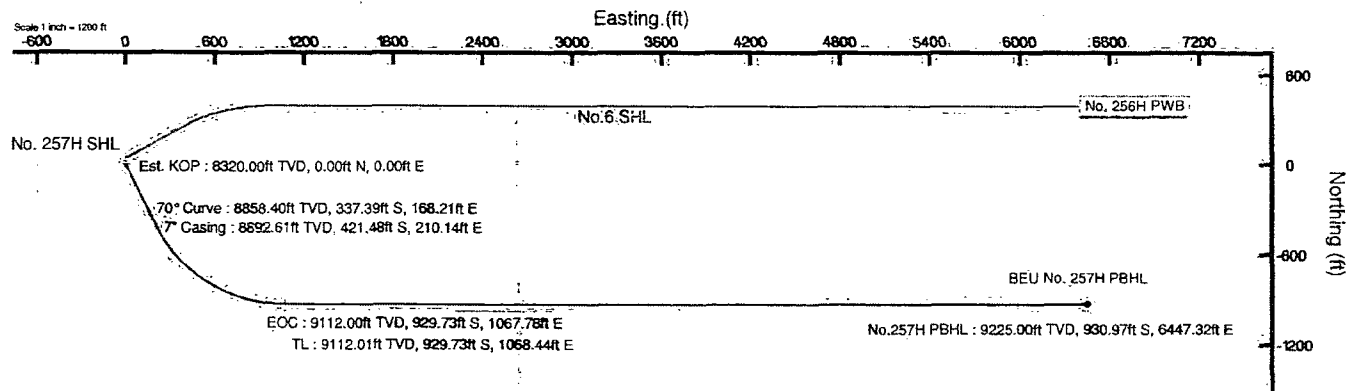




BOPCO, L.P.

Location: Eddy County, NM
Field: Big Eddy
Facility: Big Eddy Unit No.256H & No.257H

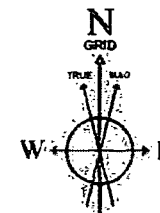
Slot: No. 257H SHL
Well: No. 257H
Wellbore: No. 257H PWB



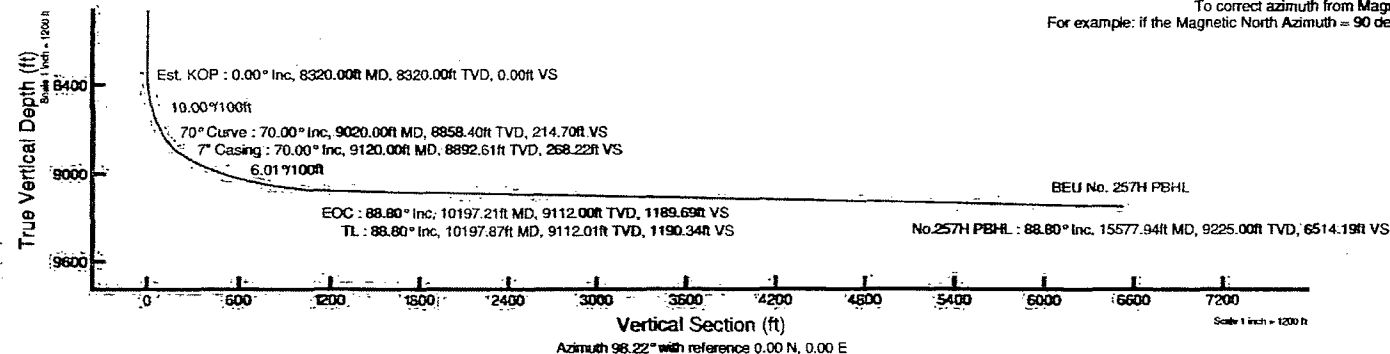
Well Profile Data

Design Comment	MD (ft)	Inc. (°)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%/100ft)	VS (ft)
Tie On	29.00	0.000	153.500	29.00	0.00	0.00	0.00	0.00
Est. KOP	8320.00	0.000	153.500	8320.00	0.00	0.00	0.00	0.00
70° Curve	9020.00	70.000	153.500	8858.40	-337.39	-168.21	-10.00	-214.70
7\" Casing	9120.00	70.000	153.500	8892.61	-421.48	-210.14	0.00	-268.22
EOC	10197.21	88.797	90.000	9112.00	-929.73	-1067.78	6.01	-1189.69
TL	10197.87	88.797	90.013	9112.01	-929.73	-1068.44	2.00	-1190.34
No.257H PBHL	15577.94	88.797	90.013	9225.00	-930.97	-6447.32	0.00	-6514.19

Plot reference wellbath is Rev-C.0	
True vertical depths are referenced to Rig on No. 257H SHL (KB)	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 257H SHL (KB)	North Reference: Grid north
Rig on No. 257H SHL (KB) to Mean Sea Level: 3485 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 257H SHL): -3456 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gentry on 06/13/2013



BGGM (1945.0 to 2015.0) Dip: 60.44° Field: 48508.4 nT
Magnetic North is 7.62 degrees East of True North (at 06/12/2013)
Grid North is 0.25 degrees East of True North
To correct azimuth from True to Grid subtract 0.25 degrees
To correct azimuth from Magnetic to Grid add 7.37 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.37 = 97.37





Planned Wellpath Report

Rev-C.0

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 257H SHL
Area	Eddy County, NM	Well	No. 257H
Field	Big Eddy	Wellbore	No. 257H PWB
Facility	Big Eddy Unit No.256H & No.257H		

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	Gentbry
Scale	0.999932	Report Generated	06/13/2013 at 2:51:08 PM
Convergence at slot	0.25° East	Database/Source file	WA Midland/No. 257H_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-40.04	0.55	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W
Facility Reference Pt			641547.87	587432.84	32°36'50.817"N	103°52'25.073"W
Field Reference Pt			610823.03	524402.80	32°26'28.262"N	103°58'26.774"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 257H SHL (KB) to Facility Vertical Datum	29.00ft
Horizontal Reference Pt	Slot	Rig on No. 257H SHL (KB) to Mean Sea Level	3485.00ft
Vertical Reference Pt	Rig on No. 257H SHL (KB)	Rig on No. 257H SHL (KB) to Mud Line at Slot (No. 257H SHL)	29.00ft
MD Reference Pt	Rig on No. 257H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	98.22°



Planned Wellpath Report

Rev-C.0

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 257H SHL
Area	Eddy County, NM	Well	No. 257H
Field	Big Eddy	Wellbore	No. 257H PWB
Facility	Big Eddy Unit No.256H & No.257H		

WELLPATH DATA (174 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 [1"/100ft]	Comments
0.00†	0.000	153.500	0.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
29.00	0.000	153.500	29.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	Tie On
129.00†	0.000	153.500	129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
229.00†	0.000	153.500	229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
329.00†	0.000	153.500	329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
429.00†	0.000	153.500	429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
529.00†	0.000	153.500	529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
629.00†	0.000	153.500	629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
729.00†	0.000	153.500	729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
829.00†	0.000	153.500	829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
883.00†	0.000	153.500	883.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	Rustler Anhydrite
929.00†	0.000	153.500	929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1023.00†	0.000	153.500	1023.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	1/Salt
1029.00†	0.000	153.500	1029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1129.00†	0.000	153.500	1129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1229.00†	0.000	153.500	1229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1329.00†	0.000	153.500	1329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1429.00†	0.000	153.500	1429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1529.00†	0.000	153.500	1529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1629.00†	0.000	153.500	1629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1729.00†	0.000	153.500	1729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1829.00†	0.000	153.500	1829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
1929.00†	0.000	153.500	1929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2029.00†	0.000	153.500	2029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2129.00†	0.000	153.500	2129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2229.00†	0.000	153.500	2229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2308.00†	0.000	153.500	2308.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	1/Salt
2329.00†	0.000	153.500	2329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2429.00†	0.000	153.500	2429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2438.00†	0.000	153.500	2438.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	1/Mats
2529.00†	0.000	153.500	2529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2629.00†	0.000	153.500	2629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2683.00†	0.000	153.500	2683.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	1/Reef
2729.00†	0.000	153.500	2729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2829.00†	0.000	153.500	2829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
2929.00†	0.000	153.500	2929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3029.00†	0.000	153.500	3029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3129.00†	0.000	153.500	3129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3229.00†	0.000	153.500	3229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3329.00†	0.000	153.500	3329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3429.00†	0.000	153.500	3429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3529.00†	0.000	153.500	3529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3629.00†	0.000	153.500	3629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3729.00†	0.000	153.500	3729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
3829.00†	0.000	153.500	3829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 257H SHL
Area	Eddy County, NM	Well	No. 257H
Field	Big Eddy	Wellbore	No. 257H PWB
Facility	Big Eddy Unit No.256H & No.257H		

WELLPATH DATA (174 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 [1"/100ft]	Comments
3929.00†	0.000	153.500	3929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4029.00†	0.000	153.500	4029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4129.00†	0.000	153.500	4129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4133.00†	0.000	153.500	4133.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	T/Delaware Mt. Group
4229.00†	0.000	153.500	4229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4329.00†	0.000	153.500	4329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4429.00†	0.000	153.500	4429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4529.00†	0.000	153.500	4529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4629.00†	0.000	153.500	4629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4729.00†	0.000	153.500	4729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4829.00†	0.000	153.500	4829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
4929.00†	0.000	153.500	4929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5029.00†	0.000	153.500	5029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5129.00†	0.000	153.500	5129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5229.00†	0.000	153.500	5229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5329.00†	0.000	153.500	5329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5429.00†	0.000	153.500	5429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5529.00†	0.000	153.500	5529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5629.00†	0.000	153.500	5629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5729.00†	0.000	153.500	5729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5829.00†	0.000	153.500	5829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
5929.00†	0.000	153.500	5929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6029.00†	0.000	153.500	6029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6129.00†	0.000	153.500	6129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6229.00†	0.000	153.500	6229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6329.00†	0.000	153.500	6329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6429.00†	0.000	153.500	6429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6529.00†	0.000	153.500	6529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6629.00†	0.000	153.500	6629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6729.00†	0.000	153.500	6729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6829.00†	0.000	153.500	6829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
6928.00†	0.000	153.500	6928.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	Bone Spring
6929.00†	0.000	153.500	6929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7029.00†	0.000	153.500	7029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7129.00†	0.000	153.500	7129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7229.00†	0.000	153.500	7229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7329.00†	0.000	153.500	7329.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7429.00†	0.000	153.500	7429.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7529.00†	0.000	153.500	7529.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7629.00†	0.000	153.500	7629.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7729.00†	0.000	153.500	7729.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7829.00†	0.000	153.500	7829.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
7929.00†	0.000	153.500	7929.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
8029.00†	0.000	153.500	8029.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
8129.00†	0.000	153.500	8129.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 257H SHL
Area	Eddy County, NM	Well	No. 257H
Field	Big Eddy	Wellbore	No. 257H PWB
Facility	Big Eddy Unit No.256H & No.257H		

WELLPATH DATA (174 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
8229.00†	0.000	153.500	8229.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	
8243.00†	0.000	153.500	8243.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	1st Bone Spring
8320.00	0.000	153.500	8320.00	0.00	0.00	0.00	641548.42	587392.80	32°36'50.420"N	103°52'25.068"W	0.00	Est. KOP
8329.00†	0.900	153.500	8329.00	0.04	-0.06	0.03	641548.45	587392.74	32°36'50.420"N	103°52'25.068"W	10.00	
8429.00†	10.900	153.500	8428.34	5.89	-20.25	-4.61	641553.03	587383.55	32°36'50.329"N	103°52'25.015"W	10.00	
8529.00†	20.900	153.500	8524.40	21.47	-33.74	16.82	641565.24	587359.07	32°36'50.086"N	103°52'24.873"W	10.00	
8629.00†	30.900	153.500	8614.24	46.31	-72.78	36.29	641584.70	587320.03	32°36'49.699"N	103°52'24.648"W	10.00	
8729.00†	40.900	153.500	8695.14	79.67	-125.19	62.42	641610.83	587267.62	32°36'49.179"N	103°52'24.345"W	10.00	
8829.00†	50.900	153.500	8764.64	120.51	-189.37	94.42	641642.83	587203.44	32°36'48.543"N	103°52'23.974"W	10.00	
8929.00†	60.900	153.500	8820.63	167.61	-263.39	131.32	641679.73	587129.43	32°36'47.809"N	103°52'23.546"W	10.00	
9020.00	70.000	153.500	8858.40	214.70	-337.39	168.21	641716.62	587055.44	32°36'47.075"N	103°52'23.119"W	10.00	70° Curve
9029.00†	70.000	153.500	8861.48	219.52	-344.95	171.99	641720.40	587047.87	32°36'47.000"N	103°52'23.075"W	0.00	
9120.00	70.000	153.500	8892.61	268.22	-421.48	210.14	641758.55	586971.35	32°36'46.241"N	103°52'22.633"W	0.00	7" Casing
9129.00†	70.080	152.931	8895.68	273.07	-429.03	213.96	641762.36	586963.80	32°36'46.166"N	103°52'22.589"W	6.01	
9229.00†	71.609	146.647	8928.95	331.67	-510.48	261.40	641809.80	586882.36	32°36'45.358"N	103°52'22.038"W	6.01	
9329.00†	72.314	140.446	8960.37	398.39	-586.79	317.79	641866.19	586806.05	32°36'44.601"N	103°52'21.383"W	6.01	
9371.24†	72.888	137.854	8973.00	428.84	-617.28	344.15	641892.55	586775.57	32°36'44.298"N	103°52'21.076"W	6.01	2nd Bone Spring A' Sand
9429.00†	73.726	134.336	8989.60	472.50	-657.13	382.52	641930.91	586735.72	32°36'43.902"N	103°52'20.630"W	6.01	
9477.93†	74.481	131.379	9003.00	511.21	-689.13	417.01	641965.40	586703.72	32°36'43.584"N	103°52'20.228"W	6.01	2nd Bone Spring A Sand
9529.00†	75.311	128.317	9016.31	553.19	-720.72	454.86	642003.25	586672.14	32°36'43.270"N	103°52'19.787"W	6.01	
9629.00†	77.048	122.390	9040.22	639.57	-776.86	534.03	642082.41	586616.00	32°36'42.711"N	103°52'18.865"W	6.01	
9729.00†	78.917	116.548	9061.06	730.68	-824.93	619.14	642167.52	586567.92	32°36'42.231"N	103°52'17.872"W	6.01	
9829.00†	80.898	110.781	9078.59	825.54	-864.42	709.28	642257.65	586528.44	32°36'41.837"N	103°52'16.820"W	6.01	
9844.48†	81.213	109.895	9081.00	840.49	-869.73	723.62	642271.99	586523.13	32°36'41.784"N	103°52'16.653"W	6.01	2nd Bone Spring B Sand
9929.00†	82.967	105.080	9092.64	923.08	-894.87	803.42	642351.80	586497.99	32°36'41.581"N	103°52'15.721"W	6.01	
10029.00†	85.105	99.430	9103.03	1022.25	-915.96	900.59	642438.95	586476.90	32°36'41.319"N	103°52'14.587"W	6.01	
10129.00†	87.290	93.817	9109.67	1121.94	-927.46	999.66	642548.01	586465.40	32°36'41.200"N	103°52'13.429"W	6.01	
10197.21	88.797	90.000	9112.00	1189.69	-929.73	1067.78	642616.12	586463.13	32°36'41.175"N	103°52'12.633"W	6.01	EOC
10197.87	88.797	90.013	9112.01	1190.34	-929.73	1068.44	642616.78	586463.13	32°36'41.175"N	103°52'12.625"W	2.00	TL
10229.00†	88.797	90.013	9112.67	1221.14	-929.74	1099.56	642647.90	586463.14	32°36'41.174"N	103°52'12.261"W	0.00	
10329.00†	88.797	90.013	9114.77	1320.10	-929.76	1199.54	642747.87	586463.10	32°36'41.169"N	103°52'11.093"W	0.00	
10429.00†	88.797	90.013	9116.87	1419.05	-929.78	1299.51	642847.84	586463.08	32°36'41.165"N	103°52'09.924"W	0.00	
10529.00†	88.797	90.013	9118.97	1518.01	-929.81	1399.49	642947.81	586463.06	32°36'41.160"N	103°52'08.755"W	0.00	
10629.00†	88.797	90.013	9121.07	1616.96	-929.83	1499.47	643047.78	586463.03	32°36'41.155"N	103°52'07.586"W	0.00	
10729.00†	88.797	90.013	9123.17	1715.92	-929.85	1599.45	643147.76	586463.01	32°36'41.151"N	103°52'06.417"W	0.00	
10829.00†	88.797	90.013	9125.27	1814.87	-929.88	1699.43	643247.73	586462.99	32°36'41.146"N	103°52'05.249"W	0.00	
10929.00†	88.797	90.013	9127.37	1913.83	-929.90	1799.40	643347.70	586462.97	32°36'41.142"N	103°52'04.080"W	0.00	
11029.00†	88.797	90.013	9129.47	2012.78	-929.92	1899.38	643447.67	586462.94	32°36'41.137"N	103°52'02.911"W	0.00	
11129.00†	88.797	90.013	9131.57	2111.74	-929.94	1999.36	643547.64	586462.92	32°36'41.133"N	103°52'01.742"W	0.00	
11229.00†	88.797	90.013	9133.67	2210.69	-929.97	2099.34	643647.61	586462.90	32°36'41.128"N	103°52'00.574"W	0.00	
11329.00†	88.797	90.013	9135.77	2309.65	-929.99	2199.31	643747.58	586462.87	32°36'41.124"N	103°51'59.405"W	0.00	
11429.00†	88.797	90.013	9137.87	2408.60	-930.01	2299.29	643847.55	586462.85	32°36'41.119"N	103°51'58.236"W	0.00	
11529.00†	88.797	90.013	9139.97	2507.56	-930.04	2399.27	643947.52	586462.83	32°36'41.114"N	103°51'57.067"W	0.00	
11629.00†	88.797	90.013	9142.07	2606.51	-930.06	2499.25	644047.49	586462.81	32°36'41.110"N	103°51'55.899"W	0.00	
11729.00†	88.797	90.013	9144.17	2705.47	-930.08	2599.23	644147.46	586462.78	32°36'41.105"N	103°51'54.730"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 257H SHL
Area	Eddy County, NM	Well	No. 257H
Field	Big Eddy	Wellbore	No. 257H PWB
Facility	Big Eddy Unit No.256H & No.257H		

WELLPATH DATA (174 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
11829.00†	88.797	90.013	9146.27	2804.42	-930.11	2699.20	644247.44	586462.76	32°36'41.101"N	103°51'53.561"W	0.00	
11929.00†	88.797	90.013	9148.37	2903.38	-930.13	2799.18	644347.41	586462.74	32°36'41.096"N	103°51'52.392"W	0.00	
12029.00†	88.797	90.013	9150.47	3002.33	-930.15	2899.16	644447.38	586462.71	32°36'41.092"N	103°51'51.224"W	0.00	
12129.00†	88.797	90.013	9152.57	3101.29	-930.17	2999.14	644547.35	586462.69	32°36'41.087"N	103°51'50.055"W	0.00	
12229.00†	88.797	90.013	9154.67	3200.24	-930.20	3099.12	644647.32	586462.67	32°36'41.082"N	103°51'48.886"W	0.00	
12329.00†	88.797	90.013	9156.77	3299.20	-930.22	3199.09	644747.29	586462.65	32°36'41.078"N	103°51'47.717"W	0.00	
12429.00†	88.797	90.013	9158.87	3398.15	-930.24	3299.07	644847.26	586462.62	32°36'41.073"N	103°51'46.549"W	0.00	
12529.00†	88.797	90.013	9160.97	3497.11	-930.27	3399.05	644947.23	586462.60	32°36'41.069"N	103°51'45.380"W	0.00	
12629.00†	88.797	90.013	9163.07	3596.06	-930.29	3499.03	645047.20	586462.58	32°36'41.064"N	103°51'44.211"W	0.00	
12729.00†	88.797	90.013	9165.17	3695.02	-930.31	3599.01	645147.17	586462.55	32°36'41.059"N	103°51'43.042"W	0.00	
12829.00†	88.797	90.013	9167.27	3793.97	-930.33	3698.98	645247.15	586462.53	32°36'41.055"N	103°51'41.874"W	0.00	
12929.00†	88.797	90.013	9169.37	3892.93	-930.36	3798.96	645347.12	586462.51	32°36'41.050"N	103°51'40.705"W	0.00	
13029.00†	88.797	90.013	9171.47	3991.88	-930.38	3898.94	645447.09	586462.48	32°36'41.045"N	103°51'39.536"W	0.00	
13129.00†	88.797	90.013	9173.57	4090.84	-930.40	3998.92	645547.06	586462.46	32°36'41.041"N	103°51'38.367"W	0.00	
13229.00†	88.797	90.013	9175.67	4189.79	-930.43	4098.90	645647.03	586462.44	32°36'41.036"N	103°51'37.199"W	0.00	
13329.00†	88.797	90.013	9177.77	4288.75	-930.45	4198.87	645747.00	586462.42	32°36'41.032"N	103°51'36.030"W	0.00	
13429.00†	88.797	90.013	9179.87	4387.70	-930.47	4298.85	645846.97	586462.39	32°36'41.027"N	103°51'34.861"W	0.00	
13529.00†	88.797	90.013	9181.97	4486.66	-930.50	4398.83	645946.94	586462.37	32°36'41.022"N	103°51'33.692"W	0.00	
13629.00†	88.797	90.013	9184.07	4585.61	-930.52	4498.81	646046.91	586462.35	32°36'41.018"N	103°51'32.524"W	0.00	
13729.00†	88.797	90.013	9186.17	4684.57	-930.54	4598.79	646146.88	586462.32	32°36'41.013"N	103°51'31.355"W	0.00	
13829.00†	88.797	90.013	9188.27	4783.52	-930.56	4698.76	646246.85	586462.30	32°36'41.008"N	103°51'30.186"W	0.00	
13929.00†	88.797	90.013	9190.37	4882.48	-930.59	4798.74	646346.83	586462.28	32°36'41.004"N	103°51'29.017"W	0.00	
14029.00†	88.797	90.013	9192.47	4981.43	-930.61	4898.72	646446.80	586462.26	32°36'40.999"N	103°51'27.849"W	0.00	
14129.00†	88.797	90.013	9194.57	5080.39	-930.63	4998.70	646546.77	586462.23	32°36'40.994"N	103°51'26.680"W	0.00	
14229.00†	88.797	90.013	9196.67	5179.34	-930.66	5098.68	646646.74	586462.21	32°36'40.990"N	103°51'25.511"W	0.00	
14329.00†	88.797	90.013	9198.77	5278.30	-930.68	5198.65	646746.71	586462.19	32°36'40.985"N	103°51'24.342"W	0.00	
14429.00†	88.797	90.013	9200.87	5377.25	-930.70	5298.63	646846.68	586462.16	32°36'40.980"N	103°51'23.174"W	0.00	
14529.00†	88.797	90.013	9202.97	5476.21	-930.72	5398.61	646946.65	586462.14	32°36'40.976"N	103°51'22.005"W	0.00	
14629.00†	88.797	90.013	9205.07	5575.16	-930.75	5498.59	647046.62	586462.12	32°36'40.971"N	103°51'20.836"W	0.00	
14729.00†	88.797	90.013	9207.17	5674.12	-930.77	5598.57	647146.59	586462.09	32°36'40.966"N	103°51'19.667"W	0.00	
14829.00†	88.797	90.013	9209.27	5773.07	-930.79	5698.54	647246.56	586462.07	32°36'40.962"N	103°51'18.499"W	0.00	
14929.00†	88.797	90.013	9211.37	5872.03	-930.82	5798.52	647346.54	586462.05	32°36'40.957"N	103°51'17.330"W	0.00	
15029.00†	88.797	90.013	9213.47	5970.98	-930.84	5898.50	647446.51	586462.03	32°36'40.952"N	103°51'16.161"W	0.00	
15129.00†	88.797	90.013	9215.57	6069.94	-930.86	5998.48	647546.48	586462.00	32°36'40.948"N	103°51'14.992"W	0.00	
15229.00†	88.797	90.013	9217.67	6168.89	-930.89	6098.45	647646.45	586461.98	32°36'40.943"N	103°51'13.824"W	0.00	
15329.00†	88.797	90.013	9219.77	6267.85	-930.91	6198.43	647746.42	586461.96	32°36'40.938"N	103°51'12.655"W	0.00	
15429.00†	88.797	90.013	9221.87	6366.80	-930.93	6298.41	647846.39	586461.93	32°36'40.934"N	103°51'11.486"W	0.00	
15529.00†	88.797	90.013	9223.97	6465.76	-930.95	6398.39	647946.36	586461.91	32°36'40.929"N	103°51'10.317"W	0.00	
15577.94	88.797	90.013	9225.00	6514.19	-930.97	6447.32	647995.29	586461.90	32°36'40.927"N	103°51'09.745"W	0.00	No.257H PBHL



Planned Wellpath Report

Rev-C.0

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 257H SHL
Area	Eddy County, NM	Well	No. 257H
Field	Big Eddy	Wellbore	No. 257H PWB
Facility	Big Eddy Unit No.256H & No.257H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) BEU No. 257H PBHL	15577.94	9225.00	-930.97	6447.32	647995.29	586461.90	32°36'40.927"N	103°51'09.745"W	point

SURVEY PROGRAM - Ref Wellbore: No. 257H PWB Ref Wellpath: Rev-C.0				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
29.00	15577.94	NaviTrak (Standard)		No. 257H PWB

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO, LP
LEASE NO.:	NM02447
WELL NAME & NO.:	257H-BIG EDDY UNIT
SURFACE HOLE FOOTAGE:	1630' FSL & 2630' FEL
BOTTOM HOLE FOOTAGE	660' FSL & 1470' FEL (Sec. 34)
LOCATION:	Section 33, T. 19 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is encountered in quantities greater than 10 PPM the well shall be shut in and H₂S equipment shall be installed and flare line must be extended pursuant to Onshore Oil and Gas Order #6. After detection, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.**
2. Approved for drilling/skidding operation in conjunction with the Big Eddy Unit 256.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Secretary's Potash

Possible lost circulation in the Artesia Group and the Capitan Reef.

Possible water flows in the Salado and Artesia Groups.

1. The **16** inch surface casing shall be set at approximately **1000** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
Additional cement may be required – excess calculates to 10%.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
- 2. The minimum required fill of cement behind the **13-3/8** inch intermediate casing is:
(Casing is to be set above the Capitan Reef at approximately 2635')
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.
- 3. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
(Casing is to be set in the base of the Capitan Reef at approximately 4300')
 - a. First stage to DV tool:
 - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.
 - b. Second stage above first DV tool, cement shall
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash and Capitan Reef.
- 4. The minimum required fill of cement behind the **7** inch production casing is:
 - a. First stage to DV tool:
 - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.
 - b. Second stage above first DV tool, cement shall:
 - ☒ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 2700'). Operator shall provide method of verification.
- 5. The minimum required fill of cement behind the **4-1/2** inch production Liner is:
 - ☒ Cement not required – Packer/Port system to be used.
- 6. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8** inch 1st intermediate casing shoe shall be **3000 (3M)** psi.
5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** inch 2nd intermediate casing shoe shall be **3000 (3M)** psi.
6. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 7 inch casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 7 inch casing shoe shall be 3000 (3M) psi.**
 - a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
 - b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
 - c. **Manufacturer representative shall install the test plug for the initial BOP test.**

- d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**
7. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 062313