

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.*5. Lease Serial No.
NMLC064827A

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side.7. If Unit or CA/Agreement, Name and/or No.
891000558X1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
JAMES RANCH UNIT DI 1 164H2. Name of Operator
BOPCO LP
Contact: LESLIE BARNES
E-Mail: lbarnes@basspet.com9. API Well No.
30-015-42627-00-X13a. Address
P O BOX 2760
MIDLAND, TX 797023b. Phone No. (include area code)
Ph: 432-221-734110. Field and Pool, or Exploratory
UNDESIGNATED

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 21 T22S R30E SWNE 1434FNL 1495FEL
32.225116 N Lat, 103.525501 W Lon11. County or Parish, and State
EDDY 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 Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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 alter the casing design from the currently approved APD. After setting the 9-5/8", 40#, J-55, LTC casing we will drill an 8-1/2" hole to TD at 19,382? MD (9,461? TVD). A full, tapered string of 7", 26#, HCP-110, BTC by 5-1/2", 20#, HCP-110, BTC casing will be ran to total depth and cemented to surface in two stages with a DV tool at ~5,000?. The 7" casing will be on top of the 5-1/2" casing and will be crossed over at the end of the 70 deg tangent section at 9,363? MD (8,877? TVD). Cement will be adjusted proportionately for any depth change of the DV tool. The most up to date directional plan is attached for reference. Please see below for updated cement volumes.

Please see attached table.

**NM OIL CONSERVATION SEE ATTACHED FOR
ARTESIA DISTRICT CONDITIONS OF APPROVAL**

DEC 30 2014

Accepted for record

BUD NMLC064827A 1/5/2015

RECEIVED

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #286225 verified by the BLM Well Information System

For BOPCO LP, sent to the Carlsbad

Committed to AFMSS for processing by JENNIFER MASON on 12/23/2014 (15JAM0140SE)

Name (Printed/Typed) CHRIS GIESE

Title DRILLING ENGINEER

Signature (Electronic Submission)

Date 12/23/2014

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.

Office

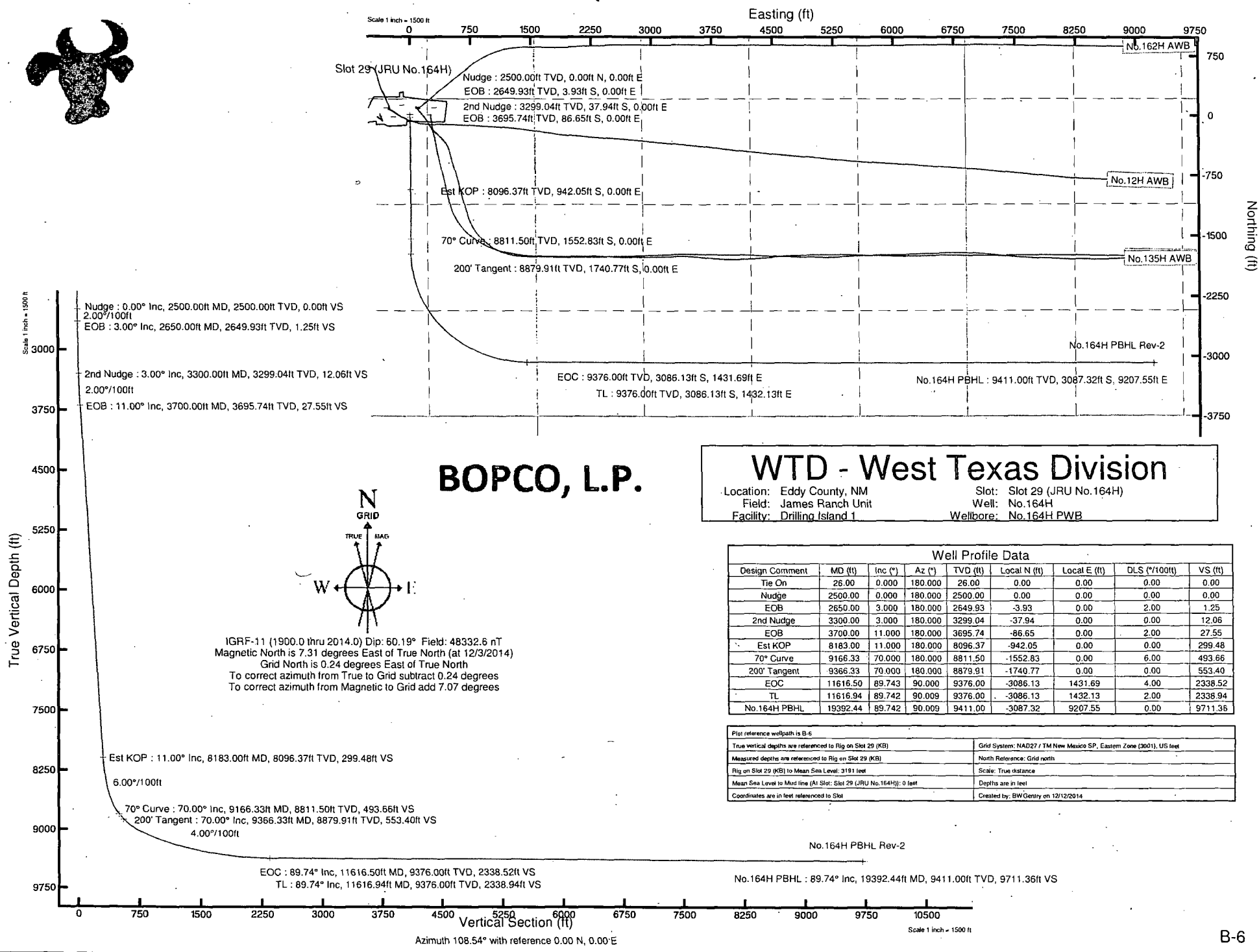
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

BOPCO, L.P. respectfully requests to alter the casing design from the currently approved APD. After setting the 9-5/8", 40#, J-55, LTC casing we will drill an 8-1/2" hole to TD at 19,382' MD (9,461' TVD). A full, tapered string of 7", 26#, HCP-110, BTC by 5-1/2", 20#, HCP-110, BTC casing will be ran to total depth and cemented to surface in two stages with a DV tool at ~5,000'. The 7" casing will be on top of the 5-1/2" casing and will be crossed over at the end of the 70 deg tangent section at 9,363' MD (8,877' TVD). Cement will be adjusted proportionately for any depth change of the DV tool. The most up to date directional plan is attached for reference. Please see below for updated cement volumes.

INTERVAL	AMOUNT SXS	FT of FILL	TYPE	GAL/SX	PPG	FT3/SX
PRODUCTION						
Stage 1						
Lead: 5,000'-8,180'	395	3,180	VersaCem + 10% Bentonite + 0.125 pps Poly-E-Flake + 0.5 pps D-Air + 0.1% HR-601	13.18	11.9	2.28
Tail: 8,180'-19,382'	3,040	11,202	VersaCem + 0.5% LAP-1 + 0.3% CFR-3 + 0.1% FWCA + 0.125 pps Poly-E-Flake + 0.5 pps D-Air + 0.2% HR- 601	5.59	14.5	1.23
DV TOOL AT 5,000'						
Stage 2						
Lead: 0'-4,500'	385	4,500	VersaCem + 10% Bentonite + 0.125 pps Poly-E-Flake + 0.5 pps D-Air	13.05	11.9	2.27
Tail: 4,500'-5,000'	100	500	Halcm "C" Neat	6.34	14.8	1.33





Planned Wellpath Report

B-6

Page 1 of 7

BOPCO, L.P.

REFERENCE WELLPATH IDENTIFICATION			
Operator	WTD - West Texas Division	Slot	Slot 29 (JRU No.164H)
Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island 1		

REPORT SETUP INFORMATION			
Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	BWGentry
Scale	0.999931	Report Generated	12/12/2014 at 10:50:41 AM
Convergence at slot	0.24° East	Database/Source file	WellArchitectDB/No.164H_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-62.30	276.94	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W
Facility Reference Pt			639020.08	502555.10	32°22'51.004"N	103°52'58.816"W
Field Reference Pt			639020.08	502555.11	32°22'51.004"N	103°52'58.816"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on Slot 29 (KB) to Facility Vertical Datum	3191.00ft
Horizontal Reference Pt	Slot	Rig on Slot 29 (KB) to Mean Sea Level	3191.00ft
Vertical Reference Pt	Rig on Slot 29 (KB)	Rig on Slot 29 (KB) to Mud Line at Slot (Slot 29 (JRU No.164H))	3191.00ft
MD Reference Pt	Rig on Slot 29 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	108.54°



Planned Wellpath Report

B-6

Page 2 of 7

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REFERENCE WELLPATH IDENTIFICATION			
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Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island I		

WELLPATH DATA (214 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	180.000	0.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
26.00	0.000	180.000	26.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	Tie On
126.00	0.000	180.000	126.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
191.00	0.000	180.000	191.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	Rustler
226.00	0.000	180.000	226.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
326.00	0.000	180.000	326.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
426.00	0.000	180.000	426.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
526.00	0.000	180.000	526.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
556.00	0.000	180.000	556.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	Salado
626.00	0.000	180.000	626.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
726.00	0.000	180.000	726.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
826.00	0.000	180.000	826.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
926.00	0.000	180.000	926.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1026.00	0.000	180.000	1026.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1126.00	0.000	180.000	1126.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1226.00	0.000	180.000	1226.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1326.00	0.000	180.000	1326.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1426.00	0.000	180.000	1426.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1526.00	0.000	180.000	1526.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1626.00	0.000	180.000	1626.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1726.00	0.000	180.000	1726.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1826.00	0.000	180.000	1826.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
1926.00	0.000	180.000	1926.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
2026.00	0.000	180.000	2026.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
2126.00	0.000	180.000	2126.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
2226.00	0.000	180.000	2226.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
2326.00	0.000	180.000	2326.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
2426.00	0.000	180.000	2426.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	
2500.00	0.000	180.000	2500.00	0.00	0.00	0.00	639297.00	502492.80	32°22'50.376"N	103°52'55.590"W	0.00	Nudge
2526.00	0.520	180.000	2526.00	0.04	-0.12	0.00	639297.00	502492.68	32°22'50.375"N	103°52'55.590"W	2.00	
2626.00	2.520	180.000	2625.96	0.88	-2.77	0.00	639297.00	502490.03	32°22'50.349"N	103°52'55.590"W	2.00	
2650.00	3.000	180.000	2649.93	1.25	-3.93	0.00	639297.00	502488.87	32°22'50.337"N	103°52'55.590"W	2.00	EOB
2726.00	3.000	180.000	2725.83	2.51	-7.90	0.00	639297.00	502484.90	32°22'50.298"N	103°52'55.591"W	0.00	
2826.00	3.000	180.000	2825.69	4.18	-13.14	0.00	639297.00	502479.66	32°22'50.246"N	103°52'55.591"W	0.00	
2926.00	3.000	180.000	2925.55	5.84	-18.37	0.00	639297.00	502474.43	32°22'50.194"N	103°52'55.591"W	0.00	
3026.00	3.000	180.000	3025.42	7.50	-23.60	0.00	639297.00	502469.20	32°22'50.143"N	103°52'55.591"W	0.00	
3126.00	3.000	180.000	3125.28	9.17	-28.84	0.00	639297.00	502463.96	32°22'50.091"N	103°52'55.592"W	0.00	
3226.00	3.000	180.000	3225.14	10.83	-34.07	0.00	639297.00	502458.73	32°22'50.039"N	103°52'55.592"W	0.00	
3300.00	3.000	180.000	3299.04	12.06	-37.94	0.00	639297.00	502454.86	32°22'50.001"N	103°52'55.592"W	0.00	2nd Nudge
3326.00	3.520	180.000	3325.00	12.53	-39.42	0.00	639297.00	502453.38	32°22'49.986"N	103°52'55.592"W	2.00	
3426.00	5.520	180.000	3424.68	15.04	-47.30	0.00	639297.00	502445.50	32°22'49.908"N	103°52'55.593"W	2.00	
3526.00	7.520	180.000	3524.03	18.65	-58.66	0.00	639297.00	502434.15	32°22'49.796"N	103°52'55.593"W	2.00	
3538.08	7.762	180.000	3536.00	19.16	-60.26	0.00	639297.00	502432.54	32°22'49.780"N	103°52'55.593"W	2.00	Lamar
3583.54	8.671	180.000	3581.00	21.22	-66.76	0.00	639297.00	502426.04	32°22'49.716"N	103°52'55.593"W	2.00	Delaware
3626.00	9.520	180.000	3622.92	23.36	-73.47	0.00	639297.00	502419.33	32°22'49.649"N	103°52'55.594"W	2.00	



Planned Wellpath Report

B-6

Page 3 of 7

BOPCO, L.P.

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Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island 1		

WELLPATH DATA (214 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
3700.00	11.000	180.000	3695.74	27.55	-86.65	0.00	639297.00	502406.15	32°22'49.519"N	103°52'55.594"W	2.00	EOB
3726.00†	11.000	180.000	3721.26	29.12	-91.61	0.00	639297.00	502401.19	32°22'49.470"N	103°52'55.595"W	0.00	
3826.00†	11.000	180.000	3819.42	35.19	-110.69	0.00	639297.00	502382.11	32°22'49.281"N	103°52'55.596"W	0.00	
3926.00†	11.000	180.000	3917.58	41.26	-129.78	0.00	639297.00	502363.03	32°22'49.092"N	103°52'55.597"W	0.00	
4026.00†	11.000	180.000	4015.75	47.32	-148.86	0.00	639297.00	502343.95	32°22'48.903"N	103°52'55.597"W	0.00	
4126.00†	11.000	180.000	4113.91	53.39	-167.94	0.00	639297.00	502324.87	32°22'48.714"N	103°52'55.598"W	0.00	
4226.00†	11.000	180.000	4212.07	59.45	-187.02	0.00	639297.00	502305.80	32°22'48.526"N	103°52'55.599"W	0.00	
4326.00†	11.000	180.000	4310.24	65.52	-206.10	0.00	639297.00	502286.72	32°22'48.337"N	103°52'55.600"W	0.00	
4426.00†	11.000	180.000	4408.40	71.59	-225.18	0.00	639297.00	502267.64	32°22'48.148"N	103°52'55.601"W	0.00	
4526.00†	11.000	180.000	4506.56	77.65	-244.26	0.00	639297.00	502248.56	32°22'47.959"N	103°52'55.602"W	0.00	
4626.00†	11.000	180.000	4604.72	83.72	-263.34	0.00	639297.00	502229.48	32°22'47.770"N	103°52'55.603"W	0.00	
4726.00†	11.000	180.000	4702.89	89.78	-282.42	0.00	639297.00	502210.40	32°22'47.582"N	103°52'55.604"W	0.00	
4826.00†	11.000	180.000	4801.05	95.85	-301.50	0.00	639297.00	502191.32	32°22'47.393"N	103°52'55.605"W	0.00	
4926.00†	11.000	180.000	4899.21	101.92	-320.58	0.00	639297.00	502172.24	32°22'47.204"N	103°52'55.606"W	0.00	
5026.00†	11.000	180.000	4997.37	107.98	-339.67	0.00	639297.00	502153.16	32°22'47.015"N	103°52'55.607"W	0.00	
5126.00†	11.000	180.000	5095.54	114.05	-358.75	0.00	639297.00	502134.08	32°22'46.826"N	103°52'55.608"W	0.00	
5226.00†	11.000	180.000	5193.70	120.11	-377.83	0.00	639297.00	502115.00	32°22'46.637"N	103°52'55.609"W	0.00	
5326.00†	11.000	180.000	5291.86	126.18	-396.91	0.00	639297.00	502095.92	32°22'46.449"N	103°52'55.610"W	0.00	
5426.00†	11.000	180.000	5390.03	132.25	-415.99	0.00	639297.00	502076.84	32°22'46.260"N	103°52'55.611"W	0.00	
5526.00†	11.000	180.000	5488.19	138.31	-435.07	0.00	639297.00	502057.76	32°22'46.071"N	103°52'55.612"W	0.00	
5626.00†	11.000	180.000	5586.35	144.38	-454.15	0.00	639297.00	502038.68	32°22'45.882"N	103°52'55.613"W	0.00	
5726.00†	11.000	180.000	5684.51	150.44	-473.23	0.00	639297.00	502019.60	32°22'45.693"N	103°52'55.613"W	0.00	
5826.00†	11.000	180.000	5782.68	156.51	-492.31	0.00	639297.00	502000.52	32°22'45.505"N	103°52'55.614"W	0.00	
5926.00†	11.000	180.000	5880.84	162.58	-511.39	0.00	639297.00	501981.44	32°22'45.316"N	103°52'55.615"W	0.00	
6026.00†	11.000	180.000	5979.00	168.64	-530.47	0.00	639297.00	501962.36	32°22'45.127"N	103°52'55.616"W	0.00	
6126.00†	11.000	180.000	6077.16	174.71	-549.56	0.00	639297.00	501943.28	32°22'44.938"N	103°52'55.617"W	0.00	
6226.00†	11.000	180.000	6175.33	180.77	-568.64	0.00	639297.00	501924.20	32°22'44.749"N	103°52'55.618"W	0.00	
6326.00†	11.000	180.000	6273.49	186.84	-587.72	0.00	639297.00	501905.12	32°22'44.561"N	103°52'55.619"W	0.00	
6426.00†	11.000	180.000	6371.65	192.91	-606.80	0.00	639297.00	501886.04	32°22'44.372"N	103°52'55.620"W	0.00	
6526.00†	11.000	180.000	6469.82	198.97	-625.88	0.00	639297.00	501866.97	32°22'44.183"N	103°52'55.621"W	0.00	
6626.00†	11.000	180.000	6567.98	205.04	-644.96	0.00	639297.00	501847.89	32°22'43.994"N	103°52'55.622"W	0.00	
6726.00†	11.000	180.000	6666.14	211.10	-664.04	0.00	639297.00	501828.81	32°22'43.805"N	103°52'55.623"W	0.00	
6826.00†	11.000	180.000	6764.30	217.17	-683.12	0.00	639297.00	501809.73	32°22'43.617"N	103°52'55.624"W	0.00	
6926.00†	11.000	180.000	6862.47	223.24	-702.20	0.00	639297.00	501790.65	32°22'43.428"N	103°52'55.625"W	0.00	
7026.00†	11.000	180.000	6960.63	229.30	-721.28	0.00	639297.00	501771.57	32°22'43.239"N	103°52'55.626"W	0.00	
7126.00†	11.000	180.000	7058.79	235.37	-740.36	0.00	639297.00	501752.49	32°22'43.050"N	103°52'55.627"W	0.00	
7172.05†	11.000	180.000	7104.00	238.16	-749.15	0.00	639297.00	501743.70	32°22'42.963"N	103°52'55.627"W	0.00	Lower Brushy Canyon
7226.00†	11.000	180.000	7156.95	241.43	-759.45	0.00	639297.00	501733.41	32°22'42.861"N	103°52'55.628"W	0.00	
7326.00†	11.000	180.000	7255.12	247.50	-778.53	0.00	639297.00	501714.33	32°22'42.673"N	103°52'55.628"W	0.00	
7426.00†	11.000	180.000	7353.28	253.57	-797.61	0.00	639297.00	501695.25	32°22'42.484"N	103°52'55.629"W	0.00	
7457.30†	11.000	180.000	7384.00	255.46	-803.58	0.00	639297.00	501689.28	32°22'42.425"N	103°52'55.630"W	0.00	Bone Spring Lime Sand
7526.00†	11.000	180.000	7451.44	259.63	-816.69	0.00	639297.00	501676.17	32°22'42.295"N	103°52'55.630"W	0.00	
7626.00†	11.000	180.000	7549.61	265.70	-835.77	0.00	639297.00	501657.09	32°22'42.106"N	103°52'55.631"W	0.00	
7726.00†	11.000	180.000	7647.77	271.76	-854.85	0.00	639297.00	501638.01	32°22'41.917"N	103°52'55.632"W	0.00	
7826.00†	11.000	180.000	7745.93	277.83	-873.93	0.00	639297.00	501618.93	32°22'41.728"N	103°52'55.633"W	0.00	



Planned Wellpath Report

B-6

Page 4 of 7

BOPCO, L.P.

REFERENCE WELLPATH IDENTIFICATION			
Operator	WTD - West Texas Division	Slot	Slot 29 (JRU No.164H)
Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island 1		

WELLPATH DATA (214 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
7926.00†	11.000	180.000	7844.09	283.90	-893.01	0.00	639297.00	501599.85	32°22'41.540"N	103°52'55.634"W	0.00	
8026.00†	11.000	180.000	7942.26	289.96	-912.09	0.00	639297.00	501580.77	32°22'41.351"N	103°52'55.635"W	0.00	
8126.00†	11.000	180.000	8040.42	296.03	-931.17	0.00	639297.00	501561.69	32°22'41.162"N	103°52'55.636"W	0.00	
8183.00	11.000	180.000	8096.37	299.48	-942.05	0.00	639297.00	501550.82	32°22'41.054"N	103°52'55.637"W	0.00	Est KOP
8226.00†	13.580	180.000	8138.38	302.39	-951.20	0.00	639297.00	501541.67	32°22'40.964"N	103°52'55.637"W	6.00	
8326.00†	19.580	180.000	8234.18	311.46	-979.72	0.00	639297.00	501513.15	32°22'40.682"N	103°52'55.638"W	6.00	
8426.00†	25.580	180.000	8326.47	323.66	-1018.10	0.00	639297.00	501474.77	32°22'40.302"N	103°52'55.640"W	6.00	
8495.48†	29.749	180.000	8388.00	333.92	-1050.36	0.00	639297.00	501442.52	32°22'39.983"N	103°52'55.642"W	6.00	Bone Spring 1 Sand
8526.00†	31.580	180.000	8414.25	338.86	-1065.92	0.00	639297.00	501426.96	32°22'39.829"N	103°52'55.643"W	6.00	
8626.00†	37.580	180.000	8496.54	356.90	-1122.63	0.00	639297.00	501370.23	32°22'39.267"N	103°52'55.645"W	6.00	
8726.00†	43.580	180.000	8572.46	377.57	-1187.67	0.00	639297.00	501305.21	32°22'38.624"N	103°52'55.649"W	6.00	
8826.00†	49.580	180.000	8641.16	400.65	-1260.27	0.00	639297.00	501232.62	32°22'37.906"N	103°52'55.652"W	6.00	
8926.00†	55.580	180.000	8701.90	425.89	-1339.66	0.00	639297.00	501153.24	32°22'37.120"N	103°52'55.656"W	6.00	
9026.00†	61.580	180.000	8754.01	453.00	-1424.95	0.00	639297.00	501067.95	32°22'36.276"N	103°52'55.660"W	6.00	
9126.00†	67.580	180.000	8796.91	481.70	-1515.23	0.00	639297.00	500977.68	32°22'35.383"N	103°52'55.665"W	6.00	
9166.33	70.000	180.000	8811.50	493.66	-1552.83	0.00	639297.00	500940.08	32°22'35.011"N	103°52'55.667"W	6.00	70° Curve
9226.00†	70.000	180.000	8831.91	511.48	-1608.90	0.00	639297.00	500884.02	32°22'34.456"N	103°52'55.669"W	0.00	
9326.00†	70.000	180.000	8866.11	541.35	-1702.87	0.00	639297.00	500790.05	32°22'33.526"N	103°52'55.674"W	0.00	
9366.33	70.000	180.000	8879.91	553.40	-1740.77	0.00	639297.00	500752.16	32°22'33.151"N	103°52'55.676"W	0.00	200' Tangent
9426.00†	70.008	177.463	8900.31	572.40	-1796.82	1.24	639298.24	500696.11	32°22'32.596"N	103°52'55.664"W	4.00	
9526.00†	70.102	173.213	8934.44	609.42	-1890.48	8.88	639305.88	500602.45	32°22'31.669"N	103°52'55.580"W	4.00	
9626.00†	70.297	168.971	8968.33	652.77	-1983.41	23.45	639320.45	500509.53	32°22'30.749"N	103°52'55.414"W	4.00	
9726.00†	70.592	164.742	9001.81	702.25	-2075.15	44.87	639341.87	500417.80	32°22'29.840"N	103°52'55.169"W	4.00	
9826.00†	70.983	160.531	9034.73	757.61	-2165.25	73.05	639370.04	500327.71	32°22'28.948"N	103°52'54.845"W	4.00	
9926.00†	71.470	156.342	9066.93	818.58	-2253.27	107.84	639404.83	500239.68	32°22'28.075"N	103°52'54.444"W	4.00	
10026.00†	72.048	152.179	9098.24	884.87	-2338.80	149.08	639446.07	500154.16	32°22'27.227"N	103°52'53.967"W	4.00	
10107.48†	72.585	148.808	9123.00	942.60	-2406.35	187.31	639484.30	500086.62	32°22'26.557"N	103°52'53.525"W	4.00	Bone Spring 2 A Sand
10126.00†	72.714	148.045	9128.52	956.15	-2421.41	196.57	639493.55	500071.56	32°22'26.408"N	103°52'53.417"W	4.00	
10196.00†	73.231	145.170	9149.02	1008.84	-2477.28	233.40	639530.39	500015.69	32°22'25.853"N	103°52'52.991"W	4.00	FTP
10226.00†	73.465	143.943	9157.62	1032.09	-2500.70	250.07	639547.05	499992.28	32°22'25.621"N	103°52'52.797"W	4.00	
10326.00†	74.294	139.874	9185.40	1112.30	-2576.28	309.33	639606.30	499916.70	32°22'24.871"N	103°52'52.110"W	4.00	
10426.00†	75.199	135.840	9211.72	1196.40	-2647.80	374.05	639671.02	499845.19	32°22'24.160"N	103°52'51.359"W	4.00	
10526.00†	76.173	131.840	9236.45	1283.98	-2714.89	443.93	639740.89	499778.10	32°22'23.493"N	103°52'50.548"W	4.00	
10626.00†	77.211	127.875	9259.48	1374.62	-2777.24	518.62	639815.58	499715.76	32°22'22.873"N	103°52'49.680"W	4.00	
10726.00†	78.308	123.943	9280.69	1467.87	-2834.53	597.76	639894.71	499658.47	32°22'22.303"N	103°52'48.760"W	4.00	
10826.00†	79.458	120.043	9299.98	1563.27	-2886.50	680.96	639977.91	499606.50	32°22'21.785"N	103°52'47.793"W	4.00	
10926.00†	80.655	116.173	9317.25	1660.38	-2932.89	767.82	640064.77	499560.11	32°22'21.323"N	103°52'46.782"W	4.00	
11026.00†	81.894	112.329	9332.43	1758.71	-2973.48	857.93	640154.87	499519.53	32°22'20.917"N	103°52'45.734"W	4.00	
11126.00†	83.168	108.510	9345.43	1857.79	-3008.06	950.83	640247.76	499484.95	32°22'20.571"N	103°52'44.652"W	4.00	
11226.00†	84.473	104.711	9356.20	1957.13	-3036.47	1046.08	640343.01	499456.54	32°22'20.286"N	103°52'43.543"W	4.00	
11326.00†	85.802	100.929	9364.68	2056.25	-3058.57	1143.22	640440.14	499434.45	32°22'20.063"N	103°52'42.411"W	4.00	
11426.00†	87.148	97.159	9370.83	2154.68	-3074.26	1241.77	640538.68	499418.76	32°22'19.904"N	103°52'41.263"W	4.00	
11526.00†	88.507	93.399	9374.62	2251.92	-3083.45	1341.25	640638.16	499409.57	32°22'19.809"N	103°52'40.104"W	4.00	
11616.50	89.743	90.000	9376.00	2338.52	-3086.13	1431.69	640728.59	499406.89	32°22'19.778"N	103°52'39.049"W	4.00	EOC
11616.94	89.742	90.009	9376.00	2338.94	-3086.13	1432.13	640729.03	499406.89	32°22'19.778"N	103°52'39.044"W	2.00	TE



Planned Wellpath Report

B-6

Page 5 of 7

BOPCO, L.P.

REFERENCE WELLPATH IDENTIFICATION

Operator	WTD - West Texas Division	Slot	Slot 29 (JRU No.164H)
Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island 1		

WELLPATH DATA (214 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
11626.00†	89.742	90.009	9376.04	2347.53	-3086.13	1441.19	640738.09	499406.89	32°22'19.778"N	103°52'38.939"W	0.00	
11726.00†	89.742	90.009	9376.49	2442.34	-3086.15	1541.19	640838.08	499406.87	32°22'19.774"N	103°52'37.773"W	0.00	
11826.00†	89.742	90.009	9376.94	2537.16	-3086.16	1641.19	640938.07	499406.86	32°22'19.769"N	103°52'36.607"W	0.00	
11926.00†	89.742	90.009	9377.39	2631.97	-3086.18	1741.18	641038.06	499406.84	32°22'19.765"N	103°52'35.441"W	0.00	
12026.00†	89.742	90.009	9377.84	2726.79	-3086.19	1841.18	641138.05	499406.83	32°22'19.761"N	103°52'34.275"W	0.00	
12126.00†	89.742	90.009	9378.29	2821.61	-3086.21	1941.18	641238.05	499406.81	32°22'19.756"N	103°52'33.109"W	0.00	
12226.00†	89.742	90.009	9378.74	2916.42	-3086.22	2041.18	641338.04	499406.80	32°22'19.752"N	103°52'31.943"W	0.00	
12326.00†	89.742	90.009	9379.19	3011.24	-3086.24	2141.18	641438.03	499406.78	32°22'19.747"N	103°52'30.777"W	0.00	
12426.00†	89.742	90.009	9379.64	3106.06	-3086.25	2241.18	641538.02	499406.77	32°22'19.743"N	103°52'29.611"W	0.00	
12526.00†	89.742	90.009	9380.09	3200.87	-3086.27	2341.18	641638.01	499406.75	32°22'19.739"N	103°52'28.446"W	0.00	
12626.00†	89.742	90.009	9380.54	3295.69	-3086.28	2441.18	641738.01	499406.73	32°22'19.734"N	103°52'27.280"W	0.00	
12726.00†	89.742	90.009	9380.99	3390.50	-3086.30	2541.18	641838.00	499406.72	32°22'19.730"N	103°52'26.114"W	0.00	
12826.00†	89.742	90.009	9381.44	3485.32	-3086.31	2641.18	641937.99	499406.70	32°22'19.725"N	103°52'24.948"W	0.00	
12926.00†	89.742	90.009	9381.89	3580.14	-3086.33	2741.17	642037.98	499406.69	32°22'19.721"N	103°52'23.782"W	0.00	
13026.00†	89.742	90.009	9382.34	3674.95	-3086.34	2841.17	642137.97	499406.67	32°22'19.717"N	103°52'22.616"W	0.00	
13126.00†	89.742	90.009	9382.79	3769.77	-3086.36	2941.17	642237.96	499406.66	32°22'19.712"N	103°52'21.450"W	0.00	
13226.00†	89.742	90.009	9383.24	3864.58	-3086.38	3041.17	642337.96	499406.64	32°22'19.708"N	103°52'20.284"W	0.00	
13326.00†	89.742	90.009	9383.69	3959.40	-3086.39	3141.17	642437.95	499406.63	32°22'19.703"N	103°52'19.118"W	0.00	
13426.00†	89.742	90.009	9384.14	4054.22	-3086.41	3241.17	642537.94	499406.61	32°22'19.699"N	103°52'17.952"W	0.00	
13526.00†	89.742	90.009	9384.59	4149.03	-3086.42	3341.17	642637.93	499406.60	32°22'19.695"N	103°52'16.786"W	0.00	
13626.00†	89.742	90.009	9385.04	4243.85	-3086.44	3441.17	642737.92	499406.58	32°22'19.690"N	103°52'15.621"W	0.00	
13726.00†	89.742	90.009	9385.49	4338.66	-3086.45	3541.17	642837.92	499406.57	32°22'19.686"N	103°52'14.455"W	0.00	
13826.00†	89.742	90.009	9385.95	4433.48	-3086.47	3641.17	642937.91	499406.55	32°22'19.681"N	103°52'13.289"W	0.00	
13926.00†	89.742	90.009	9386.40	4528.30	-3086.48	3741.16	643037.90	499406.54	32°22'19.677"N	103°52'12.123"W	0.00	
14026.00†	89.742	90.009	9386.85	4623.11	-3086.50	3841.16	643137.89	499406.52	32°22'19.672"N	103°52'10.957"W	0.00	
14126.00†	89.742	90.009	9387.30	4717.93	-3086.51	3941.16	643237.88	499406.51	32°22'19.668"N	103°52'09.791"W	0.00	
14226.00†	89.742	90.009	9387.75	4812.74	-3086.53	4041.16	643337.88	499406.49	32°22'19.663"N	103°52'08.625"W	0.00	
14326.00†	89.742	90.009	9388.20	4907.56	-3086.54	4141.16	643437.87	499406.47	32°22'19.659"N	103°52'07.459"W	0.00	
14426.00†	89.742	90.009	9388.65	5002.38	-3086.56	4241.16	643537.86	499406.46	32°22'19.655"N	103°52'06.293"W	0.00	
14526.00†	89.742	90.009	9389.10	5097.19	-3086.57	4341.16	643637.85	499406.44	32°22'19.650"N	103°52'05.127"W	0.00	
14626.00†	89.742	90.009	9389.55	5192.01	-3086.59	4441.16	643737.84	499406.43	32°22'19.646"N	103°52'03.961"W	0.00	
14726.00†	89.742	90.009	9390.00	5286.82	-3086.60	4541.16	643837.84	499406.41	32°22'19.641"N	103°52'02.795"W	0.00	
14826.00†	89.742	90.009	9390.45	5381.64	-3086.62	4641.16	643937.83	499406.40	32°22'19.637"N	103°52'01.630"W	0.00	
14926.00†	89.742	90.009	9390.90	5476.46	-3086.64	4741.15	644037.82	499406.38	32°22'19.632"N	103°52'00.464"W	0.00	
15026.00†	89.742	90.009	9391.35	5571.27	-3086.65	4841.15	644137.81	499406.37	32°22'19.628"N	103°51'59.298"W	0.00	
15126.00†	89.742	90.009	9391.80	5666.09	-3086.67	4941.15	644237.80	499406.35	32°22'19.623"N	103°51'58.132"W	0.00	
15226.00†	89.742	90.009	9392.25	5760.90	-3086.68	5041.15	644337.80	499406.34	32°22'19.619"N	103°51'56.966"W	0.00	
15326.00†	89.742	90.009	9392.70	5855.72	-3086.70	5141.15	644437.79	499406.32	32°22'19.614"N	103°51'55.800"W	0.00	
15426.00†	89.742	90.009	9393.15	5950.54	-3086.71	5241.15	644537.78	499406.31	32°22'19.610"N	103°51'54.634"W	0.00	
15526.00†	89.742	90.009	9393.60	6045.35	-3086.73	5341.15	644637.77	499406.29	32°22'19.605"N	103°51'53.468"W	0.00	
15626.00†	89.742	90.009	9394.05	6140.17	-3086.74	5441.15	644737.76	499406.28	32°22'19.601"N	103°51'52.302"W	0.00	
15726.00†	89.742	90.009	9394.50	6234.99	-3086.76	5541.15	644837.75	499406.26	32°22'19.596"N	103°51'51.136"W	0.00	
15826.00†	89.742	90.009	9394.95	6329.80	-3086.77	5641.15	644937.75	499406.25	32°22'19.592"N	103°51'49.970"W	0.00	
15926.00†	89.742	90.009	9395.40	6424.62	-3086.79	5741.14	645037.74	499406.23	32°22'19.588"N	103°51'48.805"W	0.00	
16026.00†	89.742	90.009	9395.85	6519.43	-3086.80	5841.14	645137.73	499406.21	32°22'19.583"N	103°51'47.639"W	0.00	



Planned Wellpath Report

B-6

Page 6 of 7

BOPCO, L.P.

REFERENCE WELLPATH IDENTIFICATION

Operator	WTD - West Texas Division	Slot	Slot 29 (JRU No.164H)
Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island 1		

WELLPATH DATA (214 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
16126.00†	89.742	90.009	9396.30	6614.25	-3086.82	5941.14	645237.72	499406.20	32°22'19.579"N	103°51'46.473"W	0.00	
16226.00†	89.742	90.009	9396.75	6709.07	-3086.83	6041.14	645337.71	499406.18	32°22'19.574"N	103°51'45.307"W	0.00	
16326.00†	89.742	90.009	9397.20	6803.88	-3086.85	6141.14	645437.71	499406.17	32°22'19.569"N	103°51'44.141"W	0.00	
16426.00†	89.742	90.009	9397.65	6898.70	-3086.86	6241.14	645537.70	499406.15	32°22'19.565"N	103°51'42.975"W	0.00	
16526.00†	89.742	90.009	9398.10	6993.51	-3086.88	6341.14	645637.69	499406.14	32°22'19.560"N	103°51'41.809"W	0.00	
16626.00†	89.742	90.009	9398.55	7088.33	-3086.90	6441.14	645737.68	499406.12	32°22'19.556"N	103°51'40.643"W	0.00	
16726.00†	89.742	90.009	9399.00	7183.15	-3086.91	6541.14	645837.67	499406.11	32°22'19.551"N	103°51'39.477"W	0.00	
16826.00†	89.742	90.009	9399.45	7277.96	-3086.93	6641.14	645937.67	499406.09	32°22'19.547"N	103°51'38.311"W	0.00	
16926.00†	89.742	90.009	9399.90	7372.78	-3086.94	6741.13	646037.66	499406.08	32°22'19.542"N	103°51'37.145"W	0.00	
17026.00†	89.742	90.009	9400.35	7467.59	-3086.96	6841.13	646137.65	499406.06	32°22'19.538"N	103°51'35.980"W	0.00	
17126.00†	89.742	90.009	9400.80	7562.41	-3086.97	6941.13	646237.64	499406.05	32°22'19.533"N	103°51'34.814"W	0.00	
17226.00†	89.742	90.009	9401.25	7657.23	-3086.99	7041.13	646337.63	499406.03	32°22'19.529"N	103°51'33.648"W	0.00	
17326.00†	89.742	90.009	9401.70	7752.04	-3087.00	7141.13	646437.63	499406.02	32°22'19.524"N	103°51'32.482"W	0.00	
17426.00†	89.742	90.009	9402.15	7846.86	-3087.02	7241.13	646537.62	499406.00	32°22'19.520"N	103°51'31.316"W	0.00	
17526.00†	89.742	90.009	9402.60	7941.67	-3087.03	7341.13	646637.61	499405.99	32°22'19.515"N	103°51'30.150"W	0.00	
17626.00†	89.742	90.009	9403.05	8036.49	-3087.05	7441.13	646737.60	499405.97	32°22'19.511"N	103°51'28.984"W	0.00	
17726.00†	89.742	90.009	9403.50	8131.31	-3087.06	7541.13	646837.59	499405.95	32°22'19.506"N	103°51'27.818"W	0.00	
17826.00†	89.742	90.009	9403.95	8226.12	-3087.08	7641.13	646937.58	499405.94	32°22'19.502"N	103°51'26.652"W	0.00	
17926.00†	89.742	90.009	9404.40	8320.94	-3087.09	7741.12	647037.58	499405.92	32°22'19.497"N	103°51'25.486"W	0.00	
18026.00†	89.742	90.009	9404.85	8415.75	-3087.11	7841.12	647137.57	499405.91	32°22'19.492"N	103°51'24.320"W	0.00	
18126.00†	89.742	90.009	9405.30	8510.57	-3087.12	7941.12	647237.56	499405.89	32°22'19.488"N	103°51'23.155"W	0.00	
18226.00†	89.742	90.009	9405.75	8605.39	-3087.14	8041.12	647337.55	499405.88	32°22'19.483"N	103°51'21.989"W	0.00	
18326.00†	89.742	90.009	9406.20	8700.20	-3087.16	8141.12	647437.54	499405.86	32°22'19.479"N	103°51'20.823"W	0.00	
18426.00†	89.742	90.009	9406.65	8795.02	-3087.17	8241.12	647537.54	499405.85	32°22'19.474"N	103°51'19.657"W	0.00	
18526.00†	89.742	90.009	9407.10	8889.83	-3087.19	8341.12	647637.53	499405.83	32°22'19.470"N	103°51'18.491"W	0.00	
18626.00†	89.742	90.009	9407.55	8984.65	-3087.20	8441.12	647737.52	499405.82	32°22'19.465"N	103°51'17.325"W	0.00	
18726.00†	89.742	90.009	9408.00	9079.47	-3087.22	8541.12	647837.51	499405.80	32°22'19.460"N	103°51'16.159"W	0.00	
18826.00†	89.742	90.009	9408.45	9174.28	-3087.23	8641.11	647937.50	499405.79	32°22'19.456"N	103°51'14.993"W	0.00	
18926.00†	89.742	90.009	9408.90	9269.10	-3087.25	8741.11	648037.50	499405.77	32°22'19.451"N	103°51'13.827"W	0.00	
19026.00†	89.742	90.009	9409.35	9363.92	-3087.26	8841.11	648137.49	499405.76	32°22'19.447"N	103°51'12.661"W	0.00	
19126.00†	89.742	90.009	9409.80	9458.73	-3087.28	8941.11	648237.48	499405.74	32°22'19.442"N	103°51'11.496"W	0.00	
19226.00†	89.742	90.009	9410.25	9553.55	-3087.29	9041.11	648337.47	499405.73	32°22'19.438"N	103°51'10.330"W	0.00	
19326.00†	89.742	90.009	9410.70	9648.36	-3087.31	9141.11	648437.46	499405.71	32°22'19.433"N	103°51'09.164"W	0.00	
19392.44	89.742	90.009	9411.00	9711.36	-3087.32	9207.55	648503.90	499405.70	32°22'19.430"N	103°51'08.389"W	0.00	No.164H PBHL



Planned Wellpath Report

B-6

Page 7 of 7

BOPCO, L.P.

REFERENCE WELLPATH IDENTIFICATION

Operator	WTD - West Texas Division	Slot	Slot 29 (JRU No.164H)
Area	Eddy County, NM	Well	No.164H
Field	James Ranch Unit	Wellbore	No.164H PWB
Facility	Drilling Island 1.		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No.164H PBHL Rev-2	19392.44	8941.00	3087.32	9207.55	648503.90	499405.70	32°22'19.43"N	103°51'08.38"W	point

SURVEY PROGRAM

Ref Wellbore: No.164H PWB Ref Wellpath: B-6

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	8100.00	Generic gyro - northseeking (Standard)		No.164H PWB
8100.00	22098.46	NaviTrak (Standard)		No.164H PWB

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	BOPCO, L.P.
LEASE NO.:	NMLC-064827A
WELL NAME & NO.:	James Ranch Unit DI 1 164H
SURFACE HOLE FOOTAGE:	1434' FNL & 1495' FEL
BOTTOM HOLE FOOTAGE	0660' FSL & 0330' FEL Sec. 23, T. 22 S., R 30 E.
LOCATION:	Section 21, T. 22 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico
API:	30-015-42627

The original COAs still stand with the following drilling modifications:

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. Report measured values and formation to the BLM. After detection, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.**
2. **Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**

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 or are Non-API. 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.). The initial wellhead installed on the well will remain on the well with spools used as needed.

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.

R-111-P-Potash

High Cave/Karst

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Rustler and Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **535** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

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 **9-5/8** inch intermediate casing is:

☒ 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 cave/karst and potash.**

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **7 X 5-1/2** inch production casing is:

Operator has proposed DV tool at depth of 5000', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

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. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. 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.
5. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

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. These documents shall be posted in the company man's trailer and on the rig floor.** 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. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface 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. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
 - e. **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.**

4. 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**.
 - 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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two 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.

JAM 122314