

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

BOPCO LP

Lease: James Ranch Unit Well: 139 H, 5" Drillpipe

Location: Latshaw 18, Eddy County, New Mexico

gyrodata

Job Number: MD0913GDM578

Run Date: 28 Sep 2013

Report Generated: 30 Sep 2013 11:19

Surveyor: Jeremy Hurley

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Hand Held GPS

Survey Latitude: 32.362250 deg. N Longitude: 103.835889 deg. W

Azimuth Correction:

Gyro: -0.27000 deg to Grid North

Depth Reference: Rotary Table

Air Gap (RKB to Ground / RKB to MSL): 26.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Local Horizontal Reference

15-39793



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Lease: James Ranch Unit Well: 139 H, 5" Drillpipe

Location: Latshaw 18, Eddy County, New Mexico

Job Number: MD0913GDM578

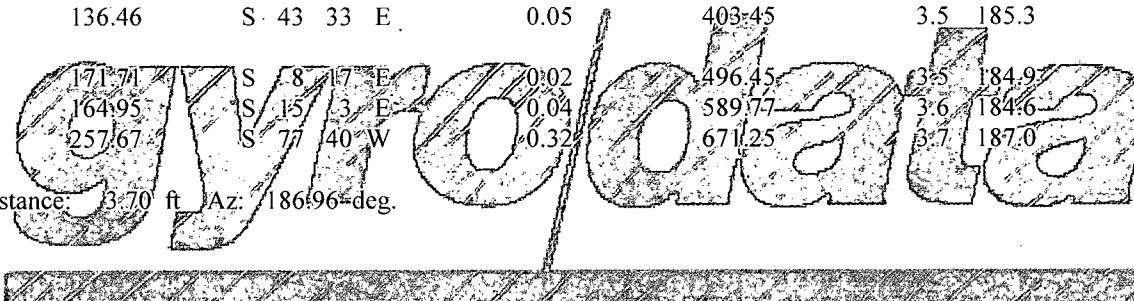
MEASURED DEPTH feet	I N C L deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	N 0 0 E	0.00	0.00	0.0 0.0	0.00 N 0.00 E

0 - 671.27 FT. RATE-GYROSCOPIC MULTISHOT RUN INSIDE 5' DRILLPIPE

ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO LATSHAW 18 RKB HEIGHT OF 26 FT.

121.88	0.84	186.22	S 6 13 W	0.69	121.88	0.9 186.2	0.89 S 0.10 W
215.10	1.09	185.54	S 5 32 W	0.27	215.08	2.5 186.0	2.45 S 0.26 W
310.14	0.07	178.96	S 1 3 E	1.08	310.12	3.4 185.7	3.40 S 0.34 W
403.47	0.03	136.46	S 43 33 E	0.05	403.45	3.5 185.3	3.47 S 0.32 W
496.47	0.03	171.71	S 8 17 E	0.02	496.45	3.5 184.9	3.52 S 0.30 W
589.79	0.07	164.95	S 15 13 E	0.04	589.77	3.6 184.6	3.59 S 0.29 W
671.27	0.25	257.67	S 77 40 W	0.32	671.25	3.7 187.0	3.68 S 0.45 W

Final Station Closure: Distance: 3.70 ft Az: 186.96-deg.

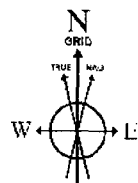
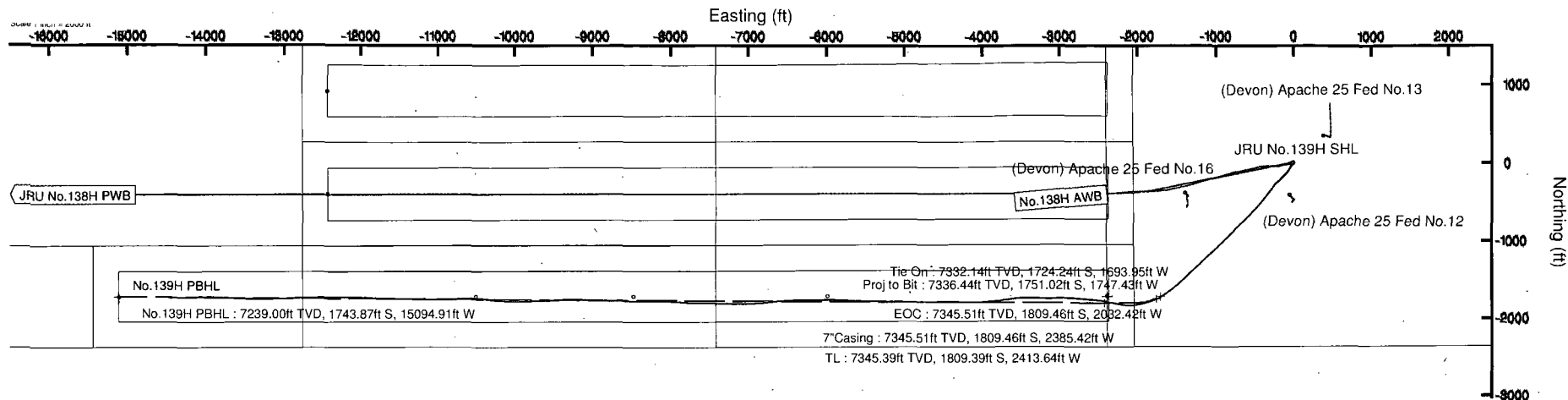




BOPCO, L.P.

Location: Eddy County, NM
Field: JRU NAD27
Facility: (JRU) No.138 & No.139

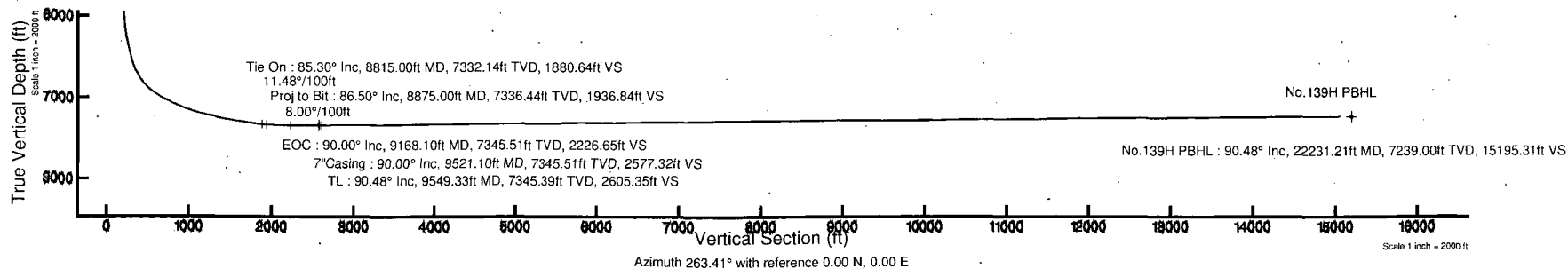
Slot: JRU No.139H SHL
Well: JRU No.139H
Wellbore: JRU No.139H PWB



BGGM (1945.0 to 2014.0) Dip: 60.17° Field: 48406.8 nT
Magnetic North is 7.55 degrees East of True North (at 9/18/2013)
Grid North is 0.27 degrees East of True North
To correct azimuth from True to Grid subtract 0.27 degrees
To correct azimuth from Magnetic to Grid add 7.28 degrees

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8815.00	85.300	240.000	7332.14	-1724.24	-1693.95	0.00	1880.64
Proj to Bit	8875.00	86.500	246.800	7336.44	-1751.02	-1747.43	11.48	1936.84
EOC	9168.10	90.000	270.000	7345.51	-1809.46	-2032.42	8.00	2226.65
7\"Casing	9521.10	90.000	270.000	7345.51	-1809.46	-2385.42	0.00	2577.32
TL	9549.33	90.481	270.296	7345.39	-1809.39	-2413.64	2.00	2605.35
No.139H PBHL	22231.21	90.481	270.296	7239.00	-1743.87	-15094.91	0.00	15195.31

Plot reference wellbore is Rev-F.0	
True vertical depths are referenced to Rig on JRU No.139H (KB)	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on JRU No.139H (KB)	North Reference: Grid north
Rig on JRU No.139H (KB) to Mean Sea Level: 3373 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: JRU No.139H SHL): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gentibry on 10/11/2013



Rev-F.0



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWB
Facility	(JRU) No.138 & No.139		

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	Gentbry
Scale	0.999936	Report Generated	11/11/2013 at 9:49:33 AM
Convergence at slot	0.27° East	Database/Source file	MidlandDB/No.139H_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	953.20	1131.96	653627.32	495858.06	32°21'44.091"N	103°50'08.842"W
Facility Reference Pt			652495.44	494904.92	32°21'34.711"N	103°50'22.090"W
Field Reference Pt			652495.44	494904.92	32°21'34.711"N	103°50'22.090"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on JRU No.139H (KB) to Facility Vertical Datum	3373.00ft
Horizontal Reference Pt	Slot	Rig on JRU No.139H (KB) to Mean Sea Level	3373.00ft
Vertical Reference Pt	Rig on JRU No.139H (KB)	Rig on JRU No.139H (KB) to Mud Line at Slot (JRU No.139H SHL)	3373.00ft
MD Reference Pt	Rig on JRU No.139H (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	263.41°



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWP
Facility	(JRU) No.138 & No.139		

WELLPATH DATA (219 stations)

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	186.220	0.00	0.00	0.00	0.00	653627.32	495858.06	32°21'44.091"N	103°50'08.842"W	0.00	
121.88	0.840	186.220	121.88	0.20	-0.89	-0.10	653627.22	495857.17	32°21'44.083"N	103°50'08.843"W	0.69	
215.10	1.090	185.540	215.08	0.54	-2.45	-0.26	653627.06	495855.61	32°21'44.067"N	103°50'08.845"W	0.27	
310.14	0.070	178.960	310.12	0.73	-3.41	-0.34	653626.98	495854.65	32°21'44.058"N	103°50'08.846"W	1.07	
403.47	0.030	136.460	403.45	0.72	-3.48	-0.32	653627.00	495854.58	32°21'44.057"N	103°50'08.846"W	0.06	
496.47	0.030	136.460	496.45	0.69	-3.52	-0.29	653627.03	495854.54	32°21'44.057"N	103°50'08.846"W	0.00	
589.79	0.070	164.950	589.77	0.67	-3.59	-0.26	653627.06	495854.47	32°21'44.056"N	103°50'08.845"W	0.05	
671.27	0.250	257.670	671.25	0.84	-3.68	-0.42	653626.90	495854.38	32°21'44.055"N	103°50'08.847"W	0.32	
843.00	0.100	28.200	842.98	1.13	-3.62	-0.72	653626.60	495854.44	32°21'44.056"N	103°50'08.851"W	0.19	
1003.00	0.400	50.400	1002.97	0.58	-3.15	-0.22	653627.10	495854.91	32°21'44.060"N	103°50'08.845"W	0.19	
1193.00	0.300	120.100	1192.97	-0.38	-2.97	0.72	653628.04	495855.09	32°21'44.062"N	103°50'08.834"W	0.21	
1382.00	0.400	81.100	1381.97	-1.43	-3.12	1.80	653629.12	495854.94	32°21'44.060"N	103°50'08.821"W	0.13	
1570.00	0.100	119.500	1569.97	-2.22	-3.10	2.59	653629.91	495854.96	32°21'44.061"N	103°50'08.812"W	0.17	
1761.00	0.200	111.300	1760.96	-2.65	-3.30	3.05	653630.37	495854.76	32°21'44.059"N	103°50'08.807"W	0.05	
1951.00	0.400	138.100	1950.96	-3.33	-3.91	3.80	653631.12	495854.15	32°21'44.052"N	103°50'08.798"W	0.13	
2140.00	0.400	119.700	2139.96	-4.24	-4.73	4.81	653632.13	495853.33	32°21'44.044"N	103°50'08.786"W	0.07	
2329.00	0.300	126.100	2328.95	-5.13	-5.35	5.79	653633.11	495852.71	32°21'44.038"N	103°50'08.775"W	0.06	
2516.00	1.200	217.200	2515.94	-4.14	-7.20	5.00	653632.32	495850.86	32°21'44.020"N	103°50'08.784"W	0.66	
2707.00	4.900	226.600	2706.64	3.78	-14.40	-2.14	653625.18	495843.66	32°21'43.949"N	103°50'08.868"W	1.95	
2896.00	5.000	224.100	2894.93	16.61	-25.86	-13.74	653613.58	495832.20	32°21'43.836"N	103°50'09.004"W	0.13	
3087.00	3.900	215.300	3085.36	27.39	-37.14	-23.28	653604.04	495820.92	32°21'43.725"N	103°50'09.116"W	0.68	
3275.00	6.200	214.600	3272.61	38.35	-50.72	-32.74	653594.58	495807.35	32°21'43.591"N	103°50'09.227"W	1.22	
3464.00	5.700	209.200	3460.60	50.56	-67.31	-43.12	653584.21	495790.75	32°21'43.427"N	103°50'09.349"W	0.40	
3653.00	5.100	205.000	3648.76	60.45	-83.12	-51.25	653576.08	495774.95	32°21'43.271"N	103°50'09.444"W	0.38	
3829.00	4.000	207.000	3824.20	67.94	-95.68	-57.34	653569.98	495762.39	32°21'43.147"N	103°50'09.516"W	0.63	
3953.00	4.700	210.900	3947.84	73.43	-103.89	-61.91	653565.41	495754.18	32°21'43.066"N	103°50'09.570"W	0.61	
4046.00	4.700	222.500	4040.53	78.62	-109.97	-66.44	653560.88	495748.10	32°21'43.006"N	103°50'09.623"W	1.02	
4140.00	5.600	218.700	4134.15	84.79	-116.39	-71.91	653555.41	495741.68	32°21'42.943"N	103°50'09.687"W	1.02	
4235.00	4.800	225.100	4228.76	91.21	-122.81	-77.63	653549.70	495735.26	32°21'42.880"N	103°50'09.754"W	1.04	
4329.00	5.000	223.800	4322.42	97.45	-128.54	-83.25	653544.08	495729.53	32°21'42.823"N	103°50'09.820"W	0.24	
4424.00	5.200	221.300	4417.04	103.83	-134.76	-88.95	653538.37	495723.30	32°21'42.762"N	103°50'09.887"W	0.31	
4519.00	4.900	227.700	4511.67	110.32	-140.73	-94.80	653532.53	495717.34	32°21'42.703"N	103°50'09.955"W	0.67	
4614.00	5.000	222.600	4606.32	116.75	-146.51	-100.60	653526.73	495711.56	32°21'42.646"N	103°50'10.023"W	0.47	
4709.00	5.100	227.100	4700.95	123.28	-152.43	-106.49	653520.83	495705.64	32°21'42.588"N	103°50'10.092"W	0.43	
4805.00	5.200	227.500	4796.56	130.25	-158.27	-112.83	653514.50	495699.80	32°21'42.530"N	103°50'10.166"W	0.11	
4900.00	5.000	226.200	4891.19	137.03	-164.05	-118.99	653508.34	495694.02	32°21'42.474"N	103°50'10.238"W	0.24	
4996.00	5.400	218.700	4986.79	143.57	-170.47	-124.83	653502.49	495687.60	32°21'42.410"N	103°50'10.307"W	0.82	
5091.00	4.900	221.900	5081.41	149.79	-176.98	-130.34	653496.99	495681.10	32°21'42.346"N	103°50'10.371"W	0.61	
5187.00	5.100	219.200	5177.04	155.92	-183.33	-135.77	653491.56	495674.74	32°21'42.284"N	103°50'10.435"W	0.32	
5281.00	4.700	217.900	5270.70	161.61	-189.61	-140.78	653486.55	495668.46	32°21'42.222"N	103°50'10.494"W	0.44	
5376.00	4.700	230.000	5365.38	167.59	-195.18	-146.15	653481.18	495662.89	32°21'42.167"N	103°50'10.557"W	1.04	
5471.00	5.300	227.600	5460.02	174.39	-200.64	-152.37	653474.96	495657.43	32°21'42.113"N	103°50'10.629"W	0.67	
5566.00	5.200	234.300	5554.62	181.71	-206.12	-159.11	653468.22	495651.96	32°21'42.059"N	103°50'10.708"W	0.65	
5756.00	5.200	226.500	5743.84	196.12	-217.07	-172.35	653454.98	495641.01	32°21'41.951"N	103°50'10.863"W	0.37	
5944.00	5.300	220.800	5931.06	209.32	-229.50	-184.20	653443.13	495628.57	32°21'41.829"N	103°50'11.002"W	0.28	



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWB
Facility	(JRU) No.138 & No.139		

WELLPATH DATA (219 stations)

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
6038.00	5.200	231.700	6024.66	216.14	-235.43	-190.38	653436.95	495622.64	32°21'41.771"N	103°50'11.074"W	1.06	
6070.00	5.100	226.300	6056.54	218.51	-237.31	-192.55	653434.79	495620.76	32°21'41.752"N	103°50'11.100"W	1.55	
6102.00	4.500	229.000	6088.42	220.68	-239.12	-194.52	653432.81	495618.96	32°21'41.734"N	103°50'11.123"W	2.00	
6134.00	6.200	230.100	6120.28	223.16	-241.05	-196.80	653430.54	495617.03	32°21'41.715"N	103°50'11.150"W	5.32	
6165.00	7.100	234.500	6151.07	226.24	-243.24	-199.64	653427.69	495614.84	32°21'41.694"N	103°50'11.183"W	3.33	
6196.00	8.800	230.300	6181.78	229.90	-245.86	-203.02	653424.31	495612.21	32°21'41.668"N	103°50'11.222"W	5.79	
6228.00	9.400	230.700	6213.37	234.15	-249.08	-206.93	653420.40	495608.99	32°21'41.636"N	103°50'11.268"W	1.89	
6260.00	11.000	229.700	6244.87	238.89	-252.71	-211.28	653416.05	495605.36	32°21'41.600"N	103°50'11.319"W	5.03	
6291.00	13.100	229.300	6275.18	244.26	-256.92	-216.20	653411.13	495601.16	32°21'41.559"N	103°50'11.377"W	6.78	
6323.00	14.600	227.300	6306.25	250.52	-262.02	-221.91	653405.42	495596.06	32°21'41.509"N	103°50'11.444"W	4.92	
6355.00	15.500	223.000	6337.15	257.03	-267.88	-227.79	653399.54	495590.20	32°21'41.451"N	103°50'11.512"W	4.48	
6387.00	17.100	220.400	6367.87	263.73	-274.59	-233.76	653393.57	495583.49	32°21'41.385"N	103°50'11.582"W	5.49	
6419.00	17.700	218.100	6398.40	270.59	-282.00	-239.81	653387.52	495576.08	32°21'41.312"N	103°50'11.653"W	2.85	
6514.00	20.300	214.500	6488.22	291.58	-306.95	-258.06	653369.28	495551.13	32°21'41.066"N	103°50'11.867"W	3.00	
6608.00	25.700	215.500	6574.72	315.98	-337.01	-279.15	653348.19	495521.08	32°21'40.769"N	103°50'12.115"W	5.76	
6702.00	33.000	217.500	6656.60	347.50	-373.96	-306.60	653320.74	495484.13	32°21'40.405"N	103°50'12.437"W	7.83	
6797.00	39.300	219.000	6733.27	387.03	-417.91	-341.32	653286.02	495440.18	32°21'39.972"N	103°50'12.844"W	6.70	
6891.00	45.200	219.800	6802.82	432.48	-466.71	-381.44	653245.91	495391.38	32°21'39.491"N	103°50'13.314"W	6.30	
6985.00	52.600	221.100	6864.57	484.31	-520.54	-427.40	653199.95	495337.55	32°21'38.960"N	103°50'13.853"W	7.94	
7080.00	58.000	222.600	6918.64	542.75	-578.68	-479.51	653147.84	495279.42	32°21'38.387"N	103°50'14.464"W	5.83	
7175.00	62.800	223.800	6965.55	605.83	-638.86	-536.05	653091.30	495219.24	32°21'37.794"N	103°50'15.126"W	5.17	
7271.00	66.300	224.300	7006.80	672.84	-701.15	-596.32	653031.04	495156.96	32°21'37.181"N	103°50'15.832"W	3.68	
7366.00	69.100	224.500	7042.84	741.13	-763.94	-657.81	652969.56	495094.17	32°21'36.562"N	103°50'16.552"W	2.95	
7460.00	69.200	224.100	7076.30	809.30	-826.81	-719.16	652908.21	495031.31	32°21'35.943"N	103°50'17.271"W	0.41	
7555.00	71.300	224.100	7108.40	878.47	-891.01	-781.38	652845.99	494967.11	32°21'35.311"N	103°50'18.000"W	2.21	
7650.00	73.300	225.400	7137.28	949.14	-955.28	-845.09	652782.28	494902.85	32°21'34.678"N	103°50'18.746"W	2.48	
7745.00	75.000	225.800	7163.23	1021.34	-1019.21	-910.39	652716.99	494838.91	32°21'34.048"N	103°50'19.510"W	1.83	
7838.00	77.000	226.100	7185.72	1092.97	-1081.95	-975.24	652652.14	494776.18	32°21'33.430"N	103°50'20.270"W	2.17	
7933.00	79.500	226.200	7205.07	1166.99	-1146.38	-1042.31	652585.08	494711.76	32°21'32.796"N	103°50'21.055"W	2.63	
8029.00	80.100	225.900	7222.07	1242.08	-1211.95	-1110.33	652517.06	494646.19	32°21'32.150"N	103°50'21.852"W	0.70	
8123.00	80.100	226.100	7238.23	1315.64	-1276.28	-1176.94	652450.45	494581.86	32°21'31.516"N	103°50'22.632"W	0.21	
8218.00	80.600	226.700	7254.15	1390.42	-1340.87	-1244.77	652382.64	494517.28	32°21'30.880"N	103°50'23.426"W	0.82	
8313.00	81.200	226.500	7269.18	1465.53	-1405.32	-1312.92	652314.49	494452.84	32°21'30.246"N	103°50'24.224"W	0.66	
8406.00	81.600	226.000	7283.09	1538.81	-1468.90	-1379.34	652248.07	494389.25	32°21'29.620"N	103°50'25.001"W	0.68	
8501.00	82.700	227.500	7296.06	1614.30	-1533.38	-1447.89	652179.53	494324.78	32°21'28.985"N	103°50'25.804"W	1.95	
8595.00	83.100	229.900	7307.68	1690.97	-1594.94	-1517.96	652109.46	494263.22	32°21'28.379"N	103°50'26.624"W	2.57	
8689.00	83.000	232.800	7319.06	1770.04	-1653.21	-1590.83	652036.60	494204.96	32°21'27.805"N	103°50'27.477"W	3.06	
8783.00	84.500	236.400	7329.30	1851.91	-1707.33	-1666.98	651960.45	494150.84	32°21'27.273"N	103°50'28.367"W	4.13	
8878.00	86.700	245.800	7336.60	1939.43	-1753.04	-1749.81	651877.62	494105.14	32°21'26.825"N	103°50'29.335"W	10.13	
8972.00	88.000	252.400	7340.95	2030.37	-1786.52	-1837.48	651789.96	494071.66	32°21'26.498"N	103°50'30.359"W	7.15	
9068.00	87.900	256.700	7344.39	2125.14	-1812.07	-1929.93	651697.52	494046.11	32°21'26.249"N	103°50'31.438"W	4.48	
9162.00	88.600	261.800	7347.26	2218.82	-1829.59	-2022.21	651605.24	494028.60	32°21'26.080"N	103°50'32.515"W	5.47	
9257.00	89.300	273.000	7349.01	2313.42	-1833.89	-2116.94	651510.52	494024.29	32°21'26.041"N	103°50'33.620"W	11.81	
9352.00	90.300	279.400	7349.34	2406.01	-1823.63	-2211.34	651416.13	494034.55	32°21'26.147"N	103°50'34.719"W	6.82	
9446.00	90.400	281.800	7348.76	2495.81	-1806.34	-2303.72	651323.75	494051.84	32°21'26.323"N	103°50'35.795"W	2.56	



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWB
Facility	(JRU) No.138 & No.139		

WELLPATH DATA (219 stations)

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
9499.00	90.200	282.900	7348.49	2545.93	-1795.01	-2355.50	651271.98	494063.17	32°21'26.437"N	103°50'36.398"W	2.11	
9589.00	90.600	278.900	7347.86	2631.75	-1777.99	-2443.85	651183.63	494080.19	32°21'26.609"N	103°50'37.427"W	4.47	
9653.00	90.600	275.300	7347.19	2693.92	-1770.08	-2507.35	651120.14	494088.09	32°21'26.691"N	103°50'38.167"W	5.62	
9748.00	90.600	275.700	7346.19	2786.81	-1760.98	-2601.90	651025.59	494097.20	32°21'26.785"N	103°50'39.269"W	0.42	
9843.00	90.500	275.800	7345.28	2879.61	-1751.46	-2696.42	650931.08	494106.71	32°21'26.883"N	103°50'40.370"W	0.15	
9939.00	90.500	274.500	7344.44	2973.60	-1742.84	-2792.03	650835.48	494115.33	32°21'26.973"N	103°50'41.484"W	1.35	
10034.00	90.400	271.500	7343.70	3067.26	-1737.87	-2886.88	650740.63	494120.30	32°21'27.026"N	103°50'42.590"W	3.16	
10129.00	90.300	267.500	7343.12	3161.70	-1738.70	-2981.86	650645.66	494119.47	32°21'27.022"N	103°50'43.697"W	4.21	
10225.00	90.400	266.000	7342.53	3257.53	-1744.14	-3077.70	650549.82	494114.03	32°21'26.973"N	103°50'44.815"W	1.57	
10320.00	92.500	273.300	7340.12	3351.87	-1744.73	-3172.60	650454.93	494113.45	32°21'26.971"N	103°50'45.921"W	7.99	
10415.00	90.600	271.400	7337.55	3445.67	-1740.83	-3267.48	650360.06	494117.34	32°21'27.014"N	103°50'47.027"W	2.83	
10511.00	90.400	270.800	7336.71	3540.80	-1738.99	-3363.45	650264.09	494119.18	32°21'27.037"N	103°50'48.145"W	0.66	
10606.00	90.400	268.800	7336.05	3635.21	-1739.32	-3458.45	650169.10	494118.85	32°21'27.038"N	103°50'49.253"W	2.11	
10702.00	90.500	263.700	7335.30	3731.05	-1745.60	-3554.21	650073.35	494112.58	32°21'26.980"N	103°50'50.370"W	5.31	
10798.00	90.500	261.900	7334.46	3827.04	-1757.63	-3649.44	649978.12	494100.55	32°21'26.865"N	103°50'51.480"W	1.87	
10893.00	90.600	262.800	7333.55	3922.02	-1770.28	-3743.59	649883.98	494087.90	32°21'26.744"N	103°50'52.579"W	0.95	
10989.00	90.500	265.500	7332.62	4018.00	-1780.06	-3839.08	649788.50	494078.12	32°21'26.652"N	103°50'53.692"W	2.81	
11084.00	90.400	265.400	7331.88	4112.94	-1787.59	-3933.78	649693.80	494070.58	32°21'26.581"N	103°50'54.797"W	0.15	
11180.00	91.000	268.100	7330.71	4208.76	-1793.04	-4029.60	649597.98	494065.14	32°21'26.532"N	103°50'55.914"W	2.88	
11276.00	90.500	270.200	7329.45	4304.26	-1794.46	-4125.58	649502.01	494063.72	32°21'26.522"N	103°50'57.033"W	2.25	
11372.00	90.500	271.400	7328.61	4399.46	-1793.12	-4221.57	649406.03	494065.06	32°21'26.540"N	103°50'58.152"W	1.25	
11467.00	90.500	272.100	7327.78	4493.45	-1790.22	-4316.52	649311.09	494067.96	32°21'26.573"N	103°50'59.258"W	0.74	
11563.00	90.200	271.900	7327.20	4588.37	-1786.87	-4412.46	649215.15	494071.31	32°21'26.610"N	103°51'00.377"W	0.38	
11658.00	90.400	268.400	7326.70	4682.70	-1786.62	-4507.44	649120.18	494071.56	32°21'26.617"N	103°51'01.484"W	3.69	
11754.00	90.600	269.500	7325.86	4778.24	-1788.38	-4603.42	649024.20	494069.80	32°21'26.604"N	103°51'02.603"W	1.16	
11847.00	90.500	270.000	7324.97	4870.67	-1788.78	-4696.41	648931.22	494069.39	32°21'26.604"N	103°51'03.687"W	0.55	
11943.00	90.200	270.400	7324.38	4966.00	-1788.45	-4792.41	648835.23	494069.73	32°21'26.611"N	103°51'04.806"W	0.52	
12039.00	90.600	270.300	7323.71	5061.29	-1787.86	-4888.41	648739.24	494070.31	32°21'26.621"N	103°51'05.925"W	0.43	
12134.00	90.500	269.900	7322.80	5155.64	-1787.70	-4983.40	648644.25	494070.48	32°21'26.627"N	103°51'07.032"W	0.43	
12230.00	90.600	271.000	7321.88	5250.91	-1786.94	-5079.39	648548.26	494071.23	32°21'26.639"N	103°51'08.151"W	1.15	
12326.00	90.700	271.100	7320.79	5346.05	-1785.18	-5175.37	648452.29	494072.99	32°21'26.661"N	103°51'09.270"W	0.15	
12421.00	90.800	270.100	7319.54	5440.29	-1784.19	-5270.36	648357.31	494073.99	32°21'26.675"N	103°51'10.377"W	1.06	
12517.00	91.500	271.100	7317.62	5535.52	-1783.18	-5366.33	648261.34	494074.99	32°21'26.689"N	103°51'11.496"W	1.27	
12613.00	90.600	271.900	7315.86	5630.55	-1780.67	-5462.28	648165.40	494077.51	32°21'26.718"N	103°51'12.614"W	1.25	
12708.00	91.200	271.900	7314.37	5724.49	-1777.52	-5557.21	648070.47	494080.65	32°21'26.753"N	103°51'13.721"W	0.63	
12804.00	90.300	272.700	7313.11	5819.33	-1773.67	-5653.13	647974.57	494084.51	32°21'26.796"N	103°51'14.839"W	1.25	
12900.00	89.500	272.000	7313.28	5914.16	-1769.73	-5749.04	647878.65	494088.44	32°21'26.839"N	103°51'15.957"W	1.11	
12995.00	89.900	272.300	7313.78	6008.06	-1766.17	-5843.98	647783.73	494092.01	32°21'26.879"N	103°51'17.063"W	0.53	
13091.00	90.200	270.600	7313.69	6103.11	-1763.74	-5939.94	647687.77	494094.43	32°21'26.907"N	103°51'18.182"W	1.80	
13187.00	89.600	268.500	7313.86	6198.55	-1764.50	-6035.93	647591.78	494093.68	32°21'26.904"N	103°51'19.301"W	2.28	
13282.00	91.700	269.900	7312.78	6293.05	-1765.82	-6130.91	647496.81	494092.35	32°21'26.895"N	103°51'20.408"W	2.66	
13378.00	89.900	269.400	7311.44	6388.47	-1766.41	-6226.89	647400.84	494091.77	32°21'26.893"N	103°51'21.527"W	1.95	
13474.00	90.600	268.800	7311.02	6484.00	-1767.92	-6322.88	647304.86	494090.26	32°21'26.882"N	103°51'22.646"W	0.96	
13569.00	90.800	267.900	7309.86	6578.64	-1770.65	-6417.83	647209.91	494087.53	32°21'26.860"N	103°51'23.753"W	0.97	
13665.00	89.300	266.200	7309.78	6674.44	-1775.59	-6513.70	647114.05	494082.59	32°21'26.815"N	103°51'24.871"W	2.36	



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWB
Facility	(JRU) No.138 & No.139		

WELLPATH DATA (219 stations)

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
13761.00	90.400	263.700	7310.03	6770.39	-1784.04	-6609.32	647018.44	494074.14	32°21'26.735"N	103°51'25.986"W	2.85	
13856.00	89.300	263.800	7310.28	6865.39	-1794.38	-6703.75	646924.01	494063.80	32°21'26.637"N	103°51'27.087"W	1.16	
13952.00	90.500	264.800	7310.45	6961.37	-1803.92	-6799.27	646828.49	494054.26	32°21'26.547"N	103°51'28.202"W	1.63	
14047.00	91.500	267.000	7308.79	7056.26	-1810.71	-6894.01	646733.77	494047.47	32°21'26.484"N	103°51'29.306"W	2.54	
14143.00	91.500	268.600	7306.27	7151.95	-1814.39	-6989.90	646637.88	494043.79	32°21'26.452"N	103°51'30.424"W	1.67	
14238.00	90.500	269.700	7304.62	7246.45	-1815.80	-7084.87	646542.91	494042.38	32°21'26.442"N	103°51'31.531"W	1.56	
14334.00	91.500	270.900	7302.94	7341.74	-1815.30	-7180.86	646446.94	494042.88	32°21'26.451"N	103°51'32.650"W	1.63	
14430.00	91.800	272.500	7300.18	7436.70	-1812.45	-7276.77	646351.03	494045.73	32°21'26.484"N	103°51'33.768"W	1.70	
14525.00	90.200	271.800	7298.52	7530.57	-1808.89	-7371.69	646256.12	494049.29	32°21'26.523"N	103°51'34.875"W	1.84	
14621.00	90.600	271.600	7297.85	7625.57	-1806.04	-7467.64	646160.17	494052.14	32°21'26.555"N	103°51'35.993"W	0.47	
14716.00	89.700	270.300	7297.60	7719.74	-1804.47	-7562.62	646065.19	494053.71	32°21'26.575"N	103°51'37.100"W	1.66	
14812.00	90.500	269.900	7297.43	7815.09	-1804.30	-7658.62	645969.20	494053.88	32°21'26.581"N	103°51'38.219"W	0.93	
14908.00	90.600	271.900	7296.51	7910.26	-1802.79	-7754.60	645873.23	494055.39	32°21'26.600"N	103°51'39.338"W	2.09	
15003.00	91.700	275.300	7294.60	8003.73	-1796.83	-7849.38	645778.46	494061.35	32°21'26.663"N	103°51'40.443"W	3.76	
15099.00	89.900	273.100	7293.26	8098.01	-1789.80	-7945.10	645682.74	494068.38	32°21'26.737"N	103°51'41.558"W	2.96	
15195.00	90.400	270.600	7293.01	8192.96	-1786.70	-8041.04	645586.81	494071.48	32°21'26.772"N	103°51'42.676"W	2.66	
15290.00	90.600	270.100	7292.18	8287.26	-1786.12	-8136.04	645491.82	494072.06	32°21'26.782"N	103°51'43.784"W	0.57	
15386.00	90.700	270.800	7291.09	8382.53	-1785.37	-8232.03	645395.83	494072.81	32°21'26.793"N	103°51'44.903"W	0.74	
15482.00	90.400	271.100	7290.17	8477.70	-1783.77	-8328.01	645299.86	494074.40	32°21'26.813"N	103°51'46.022"W	0.44	
15578.00	90.700	270.300	7289.25	8572.92	-1782.60	-8424.00	645203.88	494075.58	32°21'26.829"N	103°51'47.140"W	0.89	
15673.00	91.700	271.200	7287.26	8667.12	-1781.36	-8518.97	645108.91	494076.82	32°21'26.845"N	103°51'48.248"W	1.42	
15769.00	89.900	271.200	7285.92	8762.22	-1779.35	-8614.93	645012.95	494078.83	32°21'26.870"N	103°51'49.366"W	1.87	
15865.00	89.800	271.700	7286.17	8857.27	-1776.92	-8710.90	644916.99	494081.26	32°21'26.898"N	103°51'50.485"W	0.53	
15960.00	89.500	271.400	7286.75	8951.31	-1774.35	-8805.86	644822.04	494083.83	32°21'26.927"N	103°51'51.592"W	0.45	
16056.00	89.100	272.600	7287.92	9046.23	-1771.00	-8901.80	644726.11	494087.18	32°21'26.965"N	103°51'52.710"W	1.32	
16151.00	87.800	271.200	7290.49	9140.15	-1767.85	-8996.71	644631.21	494090.33	32°21'27.000"N	103°51'53.816"W	2.01	
16247.00	90.500	271.700	7291.92	9235.19	-1765.42	-9092.66	644535.26	494092.75	32°21'27.028"N	103°51'54.934"W	2.86	
16342.00	90.300	271.600	7291.26	9329.20	-1762.69	-9187.61	644440.31	494095.49	32°21'27.059"N	103°51'56.041"W	0.24	
16437.00	90.500	269.600	7290.59	9423.45	-1761.69	-9282.60	644345.33	494096.48	32°21'27.073"N	103°51'57.148"W	2.12	
16533.00	90.500	266.600	7289.75	9519.11	-1764.87	-9378.53	644249.40	494093.30	32°21'27.046"N	103°51'58.267"W	3.12	
16629.00	90.600	266.600	7288.83	9614.96	-1770.57	-9474.36	644153.58	494087.61	32°21'26.994"N	103°51'59.384"W	0.10	
16724.00	89.600	266.300	7288.67	9709.82	-1776.45	-9569.18	644058.77	494081.73	32°21'26.940"N	103°52'00.490"W	1.10	
16820.00	90.100	267.900	7288.92	9805.62	-1781.31	-9665.05	643962.91	494076.87	32°21'26.896"N	103°52'01.608"W	1.75	
16915.00	90.100	268.800	7288.75	9900.27	-1784.04	-9760.01	643867.95	494074.14	32°21'26.873"N	103°52'02.715"W	0.95	
17011.00	90.300	268.200	7288.42	9995.89	-1786.55	-9855.98	643771.99	494071.62	32°21'26.852"N	103°52'03.834"W	0.66	
17106.00	91.500	268.500	7286.92	10090.52	-1789.29	-9950.92	643677.05	494068.89	32°21'26.829"N	103°52'04.941"W	1.30	
17201.00	91.000	271.700	7284.85	10184.84	-1789.12	-10045.89	643582.09	494069.05	32°21'26.835"N	103°52'06.048"W	3.41	
17297.00	91.000	274.300	7283.18	10279.47	-1784.10	-10141.73	643486.26	494074.08	32°21'26.888"N	103°52'07.165"W	2.71	
17392.00	91.300	276.000	7281.27	10372.47	-1775.58	-10236.33	643391.67	494082.60	32°21'26.977"N	103°52'08.267"W	1.82	
17488.00	89.700	276.800	7280.43	10466.00	-1764.88	-10331.72	643296.28	494093.30	32°21'27.087"N	103°52'09.379"W	1.86	
17584.00	90.100	275.900	7280.60	10559.56	-1754.26	-10427.13	643200.88	494103.92	32°21'27.196"N	103°52'10.490"W	1.03	
17679.00	90.500	269.500	7280.10	10653.27	-1749.78	-10521.97	643106.04	494108.39	32°21'27.244"N	103°52'11.596"W	6.75	
17775.00	90.500	267.500	7279.26	10748.88	-1752.30	-10617.93	643010.09	494105.88	32°21'27.224"N	103°52'12.715"W	2.08	
17871.00	90.500	267.400	7278.43	10844.64	-1756.57	-10713.83	642914.19	494101.61	32°21'27.185"N	103°52'13.833"W	0.10	
17966.00	90.600	268.400	7277.51	10939.34	-1760.05	-10808.76	642819.27	494098.13	32°21'27.155"N	103°52'14.940"W	1.06	



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWB
Facility	(JRU) No.138 & No.139		

WELLPATH DATA (219 stations)

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
18062.00	89.500	269.100	7277.43	11034.92	-1762.14	-10904.74	642723.30	494096.03	32°21'27.138"N	103°52'16.058"W	1.36	
18157.00	88.600	268.200	7279.01	11129.51	-1764.38	-10999.70	642628.35	494093.79	32°21'27.120"N	103°52'17.166"W	1.34	
18253.00	90.600	269.800	7279.68	11225.04	-1766.06	-11095.67	642532.38	494092.12	32°21'27.108"N	103°52'18.284"W	2.67	
18348.00	91.400	271.900	7278.02	11319.22	-1764.65	-11190.64	642437.41	494093.53	32°21'27.126"N	103°52'19.391"W	2.37	
18444.00	90.500	271.400	7276.43	11414.22	-1761.88	-11286.59	642341.48	494096.29	32°21'27.157"N	103°52'20.510"W	1.07	
18539.00	91.400	271.800	7274.85	11508.23	-1759.23	-11381.54	642246.53	494098.94	32°21'27.188"N	103°52'21.617"W	1.04	
18635.00	90.600	269.900	7273.17	11603.41	-1757.81	-11477.51	642150.57	494100.37	32°21'27.206"N	103°52'22.735"W	2.15	
18731.00	91.500	270.600	7271.42	11698.70	-1757.39	-11573.49	642054.59	494100.79	32°21'27.214"N	103°52'23.854"W	1.19	
18826.00	90.800	271.400	7269.51	11792.85	-1755.73	-11668.45	641959.64	494102.44	32°21'27.234"N	103°52'24.961"W	1.12	
18922.00	91.400	272.600	7267.67	11887.76	-1752.38	-11764.37	641863.72	494105.79	32°21'27.272"N	103°52'26.079"W	1.40	
19018.00	90.700	273.400	7265.91	11982.40	-1747.36	-11860.23	641767.88	494110.82	32°21'27.325"N	103°52'27.196"W	1.11	
19113.00	91.200	272.400	7264.33	12076.08	-1742.55	-11955.09	641673.02	494115.62	32°21'27.377"N	103°52'28.302"W	1.18	
19208.00	91.300	271.300	7262.26	12170.03	-1739.49	-12050.02	641578.10	494118.69	32°21'27.411"N	103°52'29.408"W	1.16	
19303.00	91.100	269.600	7260.27	12264.29	-1738.74	-12144.99	641483.13	494119.43	32°21'27.423"N	103°52'30.515"W	1.80	
19398.00	90.900	270.200	7258.61	12358.67	-1738.91	-12239.97	641388.15	494119.27	32°21'27.425"N	103°52'31.623"W	0.67	
19493.00	89.900	270.500	7257.95	12452.97	-1738.33	-12334.97	641293.16	494119.85	32°21'27.435"N	103°52'32.730"W	1.10	
19588.00	90.700	269.500	7257.45	12547.33	-1738.33	-12429.96	641198.17	494119.85	32°21'27.439"N	103°52'33.837"W	1.35	
19683.00	90.600	268.200	7256.37	12641.90	-1740.23	-12524.94	641103.21	494117.94	32°21'27.424"N	103°52'34.945"W	1.37	
19778.00	90.500	270.400	7255.46	12736.39	-1741.39	-12619.92	641008.23	494116.78	32°21'27.417"N	103°52'36.052"W	2.32	
19874.00	90.100	268.900	7254.96	12831.81	-1741.98	-12715.91	640912.24	494116.19	32°21'27.415"N	103°52'37.171"W	1.62	
19969.00	90.800	266.900	7254.21	12926.51	-1745.46	-12810.84	640817.32	494112.71	32°21'27.384"N	103°52'38.278"W	2.23	
20065.00	91.100	266.100	7252.62	13022.36	-1751.32	-12906.65	640721.52	494106.85	32°21'27.330"N	103°52'39.395"W	0.89	
20160.00	90.500	268.600	7251.29	13117.12	-1755.71	-13001.53	640626.65	494102.46	32°21'27.291"N	103°52'40.501"W	2.71	
20255.00	90.800	269.600	7250.22	13211.64	-1757.20	-13096.51	640531.67	494100.97	32°21'27.280"N	103°52'41.609"W	1.10	
20349.00	90.000	269.000	7249.56	13305.14	-1758.35	-13190.50	640437.69	494099.82	32°21'27.273"N	103°52'42.704"W	1.06	
20444.00	90.100	268.800	7249.48	13399.71	-1760.18	-13285.48	640342.71	494098.00	32°21'27.259"N	103°52'43.812"W	0.24	
20539.00	90.100	270.400	7249.31	13494.15	-1760.84	-13380.48	640247.72	494097.34	32°21'27.256"N	103°52'44.919"W	1.68	
20635.00	90.000	272.600	7249.23	13589.19	-1758.33	-13476.44	640151.77	494099.85	32°21'27.285"N	103°52'46.038"W	2.29	
20730.00	89.900	273.100	7249.31	13682.90	-1753.60	-13571.32	640056.89	494104.57	32°21'27.336"N	103°52'47.144"W	0.54	
20826.00	89.900	272.400	7249.48	13777.63	-1749.00	-13667.21	639961.01	494109.18	32°21'27.385"N	103°52'48.261"W	0.73	
20921.00	90.200	271.900	7249.39	13871.53	-1745.43	-13762.14	639866.08	494112.74	32°21'27.425"N	103°52'49.368"W	0.61	
21016.00	90.500	272.100	7248.81	13965.46	-1742.12	-13857.08	639771.15	494116.06	32°21'27.461"N	103°52'50.474"W	0.38	
21111.00	90.500	270.700	7247.99	14059.53	-1739.80	-13952.05	639676.19	494118.38	32°21'27.488"N	103°52'51.581"W	1.47	
21207.00	90.500	269.000	7247.15	14154.92	-1740.05	-14048.04	639580.21	494118.13	32°21'27.490"N	103°52'52.700"W	1.77	
21302.00	90.600	268.500	7246.24	14249.50	-1742.12	-14143.01	639485.24	494116.05	32°21'27.473"N	103°52'53.807"W	0.54	
21398.00	90.500	268.400	7245.31	14345.12	-1744.72	-14238.97	639389.28	494113.46	32°21'27.452"N	103°52'54.926"W	0.15	
21493.00	90.500	269.200	7244.49	14439.70	-1746.71	-14333.95	639294.32	494111.47	32°21'27.436"N	103°52'56.033"W	0.84	
21552.00	90.500	269.500	7243.97	14498.38	-1747.38	-14392.94	639235.33	494110.80	32°21'27.432"N	103°52'56.721"W	0.51	
21617.00	90.500	269.500	7243.40	14563.01	-1747.94	-14457.94	639170.34	494110.23	32°21'27.429"N	103°52'57.479"W	0.00	Proj to Bit



Actual Wellpath Report

No.139H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU No.139H SHL
Area	Eddy County, NM	Well	JRU No.139H
Field	JRU NAD27	Wellbore	No.139H AWB
Facility	(JRU) No.138 & No.139		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No.139H PBHL		7239.00	-1743.87	-15094.91	638533.40	494114.30	32°21'27.496"N	103°53'04.904"W	point
No.139H Target #1		7343.00	-1711.47	-2385.48	651242.00	494146.70	32°21'27.265"N	103°50'36.743"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.139H AWB - Ref Wellpath: No.139H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	671.27	Generic gyro - northseeking (Standard)	GyroData <121.88-671.27>	No.139H AWB
671.27	21552.00	NaviTrak (Standard)	BHI MWD NaviTrak <843-XXXX>	No.139H AWB
21552.00	21617.00	Blind Drilling (std)	Projection to bit	No.139H AWB