



Lease/Well: Big Eddy Unit D12/No 001H
Location: 26 miles NE dir from Carlsbad
Rig Name: Latshaw 18
State/County: New Mexico/Eddy
Latitude: 32.62, Longitude: -103.85
GRID North is 0.26 Degrees East of True North
VS-Azi: 0.00 Degrees

15-41820



Depth Reference : RKB = 29.5 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...dy unit d12 1h_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 2/18/2014 / 14:25

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Gene Heiss

Big Eddy Unit D12 1H / API 30-015-41820

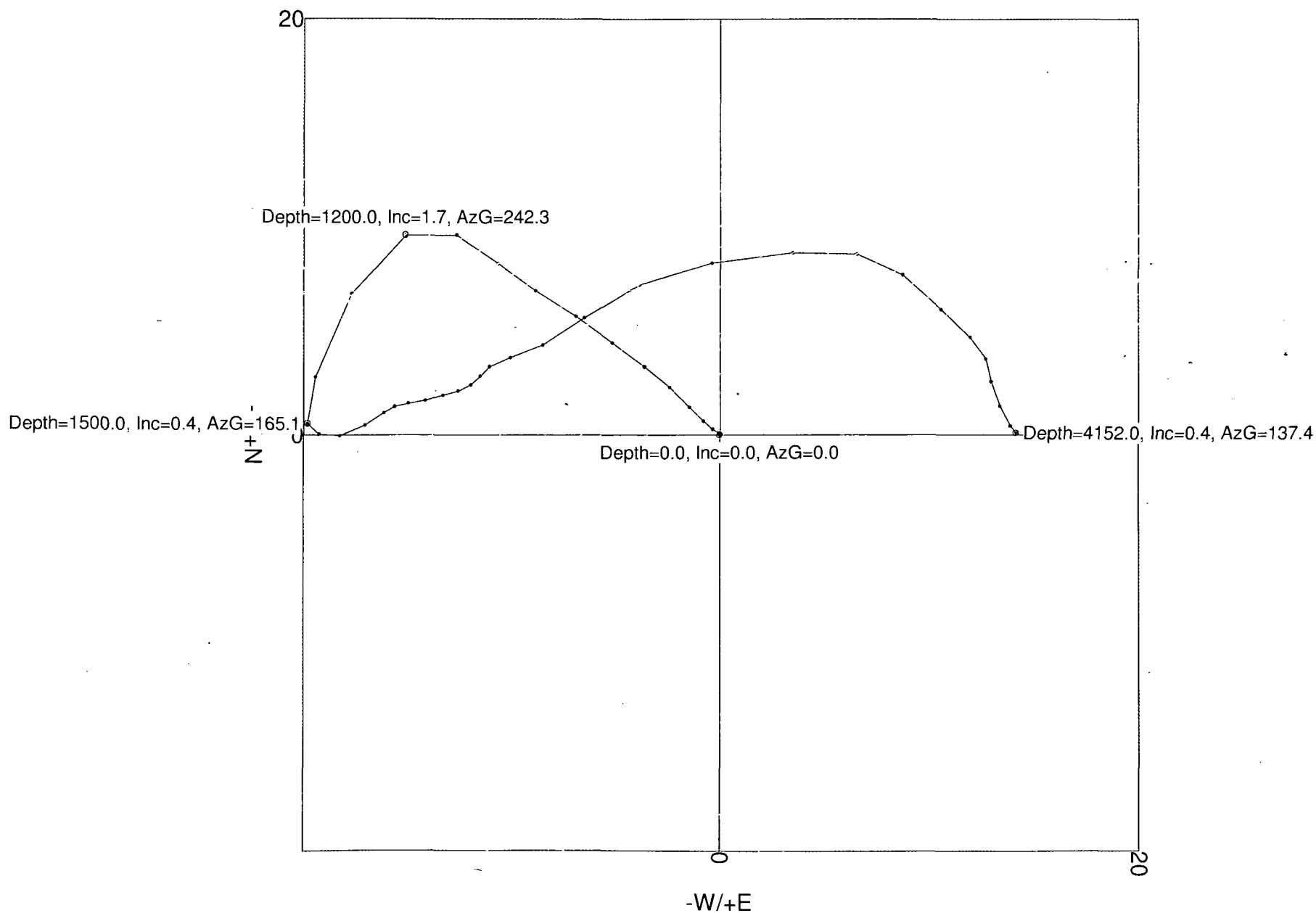
OIL CONSERVATION
ARTESIA DISTRICT
JUN 09 2014
RECEIVED

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***
100.00	0.13	314.41	100.00	0.08	-0.08	0.08	0.11	314.41	0.13
200.00	0.27	301.50	200.00	0.28	-0.37	0.28	0.46	307.82	0.13
300.00	0.42	317.33	300.00	0.67	-0.81	0.67	1.06	309.65	0.13
400.00	0.67	313.57	399.99	1.35	-1.49	1.35	2.00	312.19	0.26
500.00	0.87	317.04	499.98	2.31	-2.43	2.31	3.35	313.53	0.26
600.00	0.93	302.75	599.97	3.30	-3.62	3.30	4.90	312.30	0.26
700.00	1.26	309.98	699.95	4.44	-5.15	4.44	6.80	310.80	0.36
800.00	1.22	303.59	799.93	5.74	-6.87	5.74	8.95	309.84	0.13
900.00	1.37	301.21	899.90	6.94	-8.78	6.94	11.20	308.33	0.13
1000.00	1.24	310.52	999.88	8.27	-10.63	8.27	13.47	307.88	0.26
1100.00	1.55	300.48	1099.85	9.66	-12.62	9.66	15.89	307.43	0.36
1200.00	1.71	242.27	1199.81	9.65	-15.11	9.65	17.93	302.58	1.56
1300.00	2.86	210.82	1299.74	6.82	-17.70	6.82	18.97	291.05	1.66
1400.00	2.22	194.07	1399.64	2.79	-19.45	2.79	19.65	278.17	0.96
1500.00	0.45	165.13	1499.61	0.54	-19.82	0.54	19.83	271.56	1.86
1600.00	0.55	105.94	1599.61	0.03	-19.26	0.03	19.26	270.09	0.56
1700.00	0.61	83.16	1699.60	-0.04	-18.27	-0.04	18.27	269.88	0.26
1800.00	0.93	55.80	1799.59	0.48	-17.07	0.48	17.08	271.61	0.46

FT	Deg	Deg	FT	FT	FT	FT	FT	Deg	Deg/100
1900.00	0.34	61.80	1899.59	1.08	-16.14	1.08	16.18	273.81	0.56
2000.00	0.33	57.96	1999.58	1.37	-15.64	1.37	15.70	275.00	0.06
2100.00	0.50	87.46	2099.58	1.54	-14.96	1.54	15.04	275.88	0.26
2200.00	0.44	71.92	2199.58	1.68	-14.16	1.68	14.26	276.77	0.14
2300.00	0.58	76.56	2299.57	1.92	-13.30	1.92	13.43	278.21	0.15
2400.00	0.33	72.53	2399.57	2.12	-12.53	2.12	12.70	279.62	0.26
2500.00	0.44	57.02	2499.57	2.42	-11.93	2.42	12.18	281.45	0.15
2600.00	0.29	31.58	2599.57	2.84	-11.48	2.84	11.83	283.91	0.21
2700.00	0.44	53.31	2699.56	3.29	-11.04	3.29	11.52	286.61	0.20
2800.00	0.84	71.98	2799.56	3.75	-10.03	3.75	10.71	290.49	0.44
2900.00	1.08	67.78	2899.54	4.33	-8.46	4.33	9.50	297.11	0.25
3000.00	1.71	48.85	2999.51	5.67	-6.46	5.67	8.60	311.26	0.71
3100.00	1.83	68.09	3099.47	7.25	-3.86	7.25	8.21	331.98	0.60
3200.00	2.30	77.17	3199.40	8.29	-0.42	8.29	8.30	357.13	0.57
3300.00	2.23	88.32	3299.33	8.79	3.48	8.79	9.46	21.60	0.45
3400.00	1.29	97.23	3399.28	8.71	6.54	8.71	10.89	36.89	0.96
3500.00	1.57	127.49	3499.25	7.73	8.74	7.73	11.67	48.50	0.80
3600.00	1.25	138.98	3599.22	6.07	10.55	6.07	12.17	60.06	0.43
3700.00	0.99	128.00	3699.20	4.72	11.94	4.72	12.84	68.44	0.33
3800.00	0.60	173.20	3799.19	3.66	12.69	3.66	13.20	73.90	0.71
3900.00	0.69	162.08	3899.18	2.57	12.93	2.57	13.19	78.76	0.15
4000.00	0.74	159.15	3999.17	1.40	13.35	1.40	13.42	84.02	0.06
4100.00	0.54	143.10	4099.17	0.42	13.86	0.42	13.86	88.26	0.27
4152.00	0.40	137.37	4151.17	0.09	14.13	0.09	14.13	89.62	0.26



Midland, Texas
432-563-5444
Surveyor: Gene Heiss
Big Eddy Unit DI2 1H / API 30-015-41820

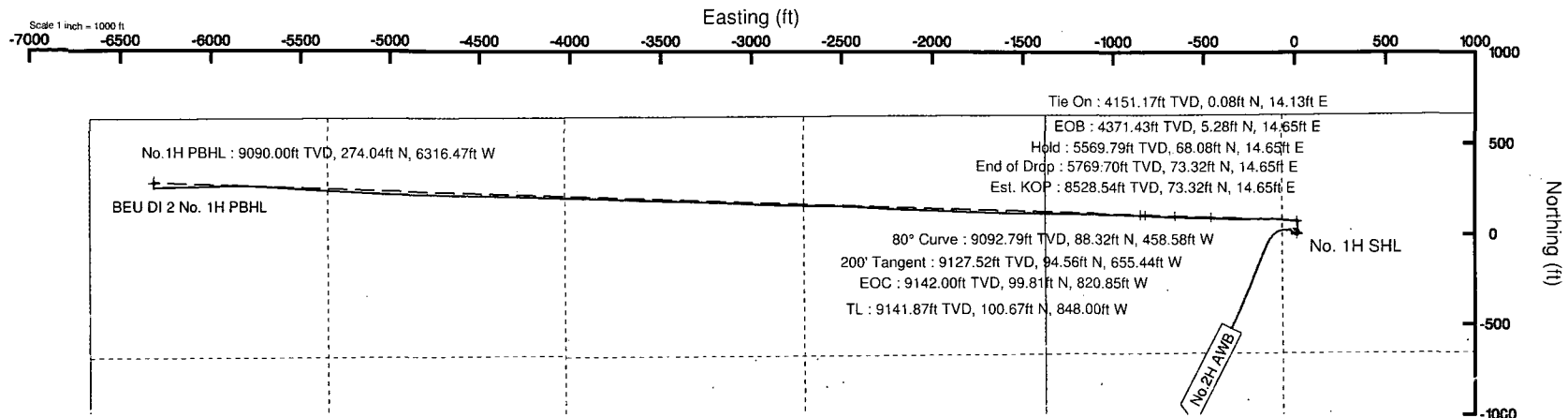




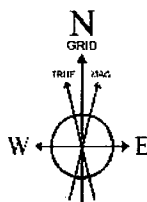
BOPCO, L.P.

Location: Eddy County, NM
Field: Big Eddy
Facility: Big Eddy Unit DI-2

Slot: No. 1H SHL
Well: No. 1H
Wellbore: No. 1H PWB



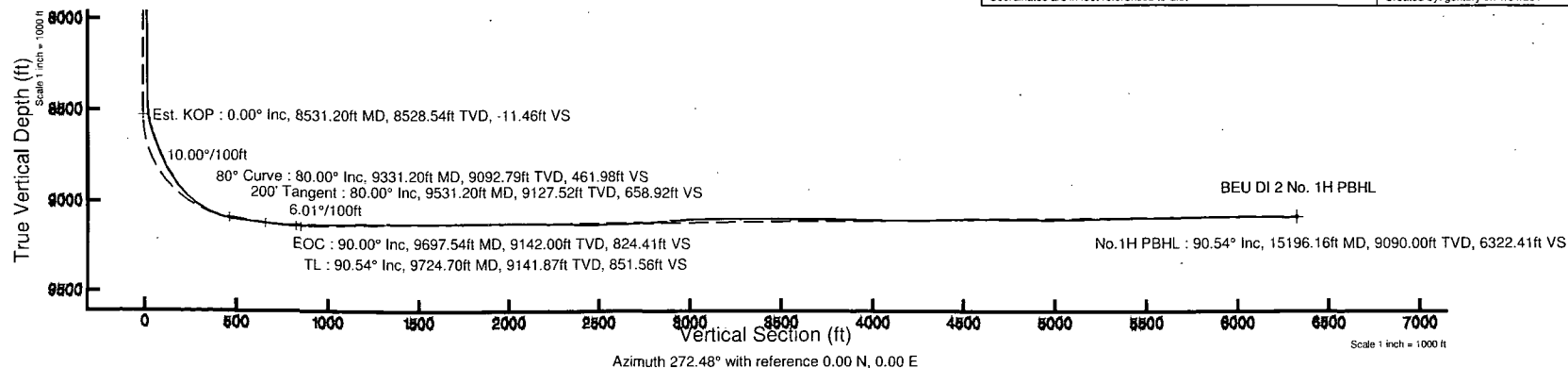
RECEIVED
JUN 09 2014
NM OIL CONSERVATION
ARTESIA DISTRICT



BGGM (1945.0 to 2015.0) Dip: 60.43° Field: 48541.7 nT
Magnetic North is 7.54 degrees East of True North (at 1/31/2014)
Grid North is 0.26 degrees East of True North
To correct azimuth from True to Grid subtract 0.26 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	4152.00	0.400	137.370	4151.17	0.08	14.13	9.00	-14.11
EOB	4372.36	3.000	0.000	4371.43	5.28	14.65	1.50	-14.41
Hold	5572.36	3.000	0.000	5569.79	68.08	14.65	0.00	-11.68
End of Drop	5772.36	0.000	271.816	5769.70	73.32	14.65	1.50	-11.46
Est. KOP	8531.20	0.000	271.816	8528.54	73.32	14.65	0.00	-11.46
80° Curve	9331.20	80.000	271.816	9092.79	88.32	-458.58	10.00	461.98
200' Tangent	9531.20	80.000	271.816	9127.52	94.56	-655.44	0.00	658.92
EOC	9697.54	90.000	271.816	9142.00	99.81	-820.85	6.01	824.41
TL	9724.70	90.543	271.816	9141.87	100.67	-848.00	2.00	851.56
No. 1H PBHL	15196.16	90.543	271.816	9090.00	274.04	-6316.47	0.00	6322.41

Plot reference wellpath is Rev-I.0	
True vertical depths are referenced to Rig on No. 1H SHL (KB)	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 1H SHL (KB)	North Reference: Grid north
Rig on No. 1H SHL (KB) to Mean Sea Level: 3495 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 1H SHL): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gentry on 1/31/2014



Rev-I.0



Actual Wellpath Report

No.1H AWP

Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	Big Eddy	Wellbore	No.1H AWB
Facility	Big Eddy Unit DI-2		

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	0.999934	Report Generated	3/13/2014 at 4:21:18 PM
Convergence at slot	0.26° East	Database/Source file	MidlandDB/No.1H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-2.77	-389.88	648180.90	590421.50	32°37'20.100"N	103°51'07.366"W
Facility Reference Pt			648570.75	590424.27	32°37'20.110"N	103°51'02.807"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. 1H SHL (KB) to Facility Vertical Datum	3495.00ft
Horizontal Reference Pt	Slot	Rig on No. 1H SHL (KB) to Mean Sea Level	3495.00ft
Vertical Reference Pt	Rig on No. 1H SHL (KB)	Rig on No. 1H SHL (KB) to Mud Line at Slot (No. 1H SHL)	3495.00ft
MD Reference Pt	Rig on No. 1H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	272.48°



Actual Wellpath Report

No.1H AWP

Page 2 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	Big Eddy	Wellbore	No.1H AWB
Facility	Big Eddy Unit DI-2		

WELLPATH DATA (185 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	314.410	0.00	0.00	0.00	0.00	648180.90	590421.50	32°37'20.100"N	103°51'07.366"W	0.00	
100.00	0.130	314.410	100.00	0.08	0.08	-0.08	648180.82	590421.58	32°37'20.101"N	103°51'07.367"W	0.13	
200.00	0.270	301.500	200.00	0.37	0.28	-0.36	648180.54	590421.78	32°37'20.103"N	103°51'07.370"W	0.15	
300.00	0.420	317.330	300.00	0.84	0.67	-0.81	648180.09	590422.17	32°37'20.107"N	103°51'07.375"W	0.18	
400.00	0.670	313.570	399.99	1.54	1.35	-1.48	648179.42	590422.85	32°37'20.114"N	103°51'07.383"W	0.25	
500.00	0.870	317.040	499.98	2.52	2.31	-2.43	648178.47	590423.81	32°37'20.123"N	103°51'07.394"W	0.21	
600.00	0.930	302.750	599.97	3.76	3.30	-3.63	648177.28	590424.80	32°37'20.133"N	103°51'07.408"W	0.23	
700.00	1.260	309.980	699.95	5.34	4.45	-5.15	648175.75	590425.95	32°37'20.144"N	103°51'07.426"W	0.36	
800.00	1.220	303.590	799.93	7.12	5.74	-6.88	648174.02	590427.24	32°37'20.157"N	103°51'07.446"W	0.14	
900.00	1.370	301.210	899.90	9.08	6.95	-8.79	648172.11	590428.45	32°37'20.169"N	103°51'07.468"W	0.16	
1000.00	1.240	310.520	999.88	10.98	8.27	-10.63	648170.27	590429.77	32°37'20.183"N	103°51'07.490"W	0.25	
1100.00	1.550	300.480	1099.85	13.03	9.66	-12.62	648168.28	590431.16	32°37'20.196"N	103°51'07.513"W	0.39	
1200.00	1.710	242.270	1199.81	15.51	9.65	-15.11	648165.79	590431.15	32°37'20.196"N	103°51'07.542"W	1.59	
1300.00	2.860	210.820	1299.74	17.99	6.82	-17.71	648163.19	590428.32	32°37'20.168"N	103°51'07.572"W	1.66	
1400.00	2.220	194.070	1399.64	19.56	2.79	-19.46	648161.44	590424.29	32°37'20.129"N	103°51'07.593"W	0.97	
1500.00	0.450	165.130	1499.61	19.83	0.54	-19.83	648161.07	590422.04	32°37'20.106"N	103°51'07.597"W	1.84	
1600.00	0.550	105.940	1599.61	19.25	0.02	-19.26	648161.64	590421.52	32°37'20.101"N	103°51'07.591"W	0.50	
1700.00	0.610	83.160	1699.60	18.26	-0.04	-18.27	648162.63	590421.46	32°37'20.101"N	103°51'07.579"W	0.24	
1800.00	0.930	55.800	1799.59	17.08	0.48	-17.07	648163.83	590421.98	32°37'20.106"N	103°51'07.565"W	0.48	
1900.00	0.340	61.800	1899.59	16.17	1.07	-16.14	648164.76	590422.57	32°37'20.112"N	103°51'07.554"W	0.59	
2000.00	0.330	57.960	1999.58	15.68	1.37	-15.64	648165.26	590422.87	32°37'20.114"N	103°51'07.548"W	0.02	
2100.00	0.500	87.460	2099.58	15.01	1.54	-14.96	648165.94	590423.04	32°37'20.116"N	103°51'07.541"W	0.27	
2200.00	0.440	71.920	2199.58	14.21	1.68	-14.16	648166.75	590423.18	32°37'20.117"N	103°51'07.531"W	0.14	
2300.00	0.580	76.560	2299.57	13.37	1.91	-13.30	648167.60	590423.41	32°37'20.120"N	103°51'07.521"W	0.15	
2400.00	0.330	72.530	2399.57	12.61	2.12	-12.53	648168.37	590423.62	32°37'20.122"N	103°51'07.512"W	0.25	
2500.00	0.440	57.020	2499.57	12.03	2.41	-11.93	648168.97	590423.91	32°37'20.125"N	103°51'07.505"W	0.15	
2600.00	0.290	31.580	2599.57	11.59	2.84	-11.48	648169.42	590424.34	32°37'20.129"N	103°51'07.500"W	0.22	
2700.00	0.440	53.310	2699.56	11.17	3.28	-11.04	648169.86	590424.78	32°37'20.133"N	103°51'07.495"W	0.20	
2800.00	0.840	71.980	2799.56	10.19	3.74	-10.03	648170.87	590425.24	32°37'20.138"N	103°51'07.483"W	0.45	
2900.00	1.080	67.780	2899.54	8.64	4.32	-8.46	648172.44	590425.82	32°37'20.143"N	103°51'07.464"W	0.25	
3000.00	1.710	48.850	2999.51	6.71	5.66	-6.47	648174.43	590427.16	32°37'20.156"N	103°51'07.441"W	0.77	
3100.00	1.830	68.090	3099.47	4.17	7.24	-3.86	648177.04	590428.74	32°37'20.172"N	103°51'07.411"W	0.60	
3200.00	2.300	77.170	3199.40	0.78	8.28	-0.43	648180.47	590429.78	32°37'20.182"N	103°51'07.370"W	0.57	
3300.00	2.230	88.320	3299.33	-3.09	8.78	3.48	648184.38	590430.28	32°37'20.187"N	103°51'07.325"W	0.45	
3400.00	1.290	97.230	3399.28	-6.15	8.70	6.54	648187.44	590430.20	32°37'20.186"N	103°51'07.289"W	0.98	
3500.00	1.570	127.490	3499.25	-8.40	7.72	8.74	648189.64	590429.22	32°37'20.176"N	103°51'07.263"W	0.79	
3600.00	1.250	138.980	3599.22	-10.27	6.06	10.54	648191.44	590427.56	32°37'20.160"N	103°51'07.242"W	0.43	
3700.00	0.990	128.000	3699.20	-11.72	4.71	11.94	648192.84	590426.21	32°37'20.146"N	103°51'07.226"W	0.34	
3800.00	0.600	173.200	3799.19	-12.51	3.66	12.68	648193.58	590425.16	32°37'20.136"N	103°51'07.217"W	0.71	
3900.00	0.690	162.080	3899.18	-12.81	2.56	12.93	648193.83	590424.06	32°37'20.125"N	103°51'07.214"W	0.15	
4000.00	0.740	159.150	3999.17	-13.27	1.39	13.35	648194.24	590422.89	32°37'20.113"N	103°51'07.210"W	0.06	
4100.00	0.540	143.100	4099.17	-13.83	0.41	13.86	648194.76	590421.91	32°37'20.104"N	103°51'07.204"W	0.27	
4152.00	0.400	137.370	4151.17	-14.11	0.08	14.13	648195.03	590421.58	32°37'20.100"N	103°51'07.201"W	0.28	
4327.00	0.620	152.320	4326.16	-15.02	-1.21	14.98	648195.88	590420.29	32°37'20.088"N	103°51'07.191"W	0.15	
4360.00	0.440	146.250	4359.16	-15.18	-1.47	15.13	648196.03	590420.03	32°37'20.085"N	103°51'07.189"W	0.57	



Actual Wellpath Report

No.1H AWP

Page 3 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	Big Eddy	Wellbore	No.1H AWP
Facility	Big Eddy Unit DI-2		

WELLPATH DATA (185 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
4391.00	0.180	45.440	4390.16	-15.29	-1.54	15.24	648196.13	590419.96	32°37'20.084"N	103°51'07.188"W	1.63	
4423.00	1.230	2.030	4422.16	-15.32	-1.16	15.28	648196.18	590420.34	32°37'20.088"N	103°51'07.187"W	3.46	
4455.00	2.820	4.490	4454.13	-15.34	-0.03	15.36	648196.26	590421.47	32°37'20.099"N	103°51'07.186"W	4.98	
4487.00	3.870	0.620	4486.08	-15.34	-1.83	15.43	648196.33	590423.33	32°37'20.118"N	103°51'07.185"W	3.35	
4518.00	4.310	359.650	4517.00	-15.25	4.04	15.43	648196.33	590425.54	32°37'20.140"N	103°51'07.185"W	1.44	
4549.00	4.040	0.360	4547.92	-15.15	6.30	15.43	648196.33	590427.80	32°37'20.162"N	103°51'07.185"W	0.89	
4581.00	4.490	2.290	4579.83	-15.10	8.68	15.49	648196.39	590430.18	32°37'20.185"N	103°51'07.184"W	1.48	
4612.00	4.490	1.320	4610.73	-15.07	11.11	15.57	648196.47	590432.60	32°37'20.209"N	103°51'07.183"W	0.24	
4706.00	4.310	0.790	4704.46	-14.89	18.32	15.70	648196.60	590439.81	32°37'20.281"N	103°51'07.181"W	0.20	
4801.00	4.130	356.050	4799.20	-14.40	25.30	15.52	648196.41	590446.80	32°37'20.350"N	103°51'07.183"W	0.41	
4896.00	3.960	357.020	4893.96	-13.71	31.99	15.11	648196.01	590453.48	32°37'20.416"N	103°51'07.187"W	0.19	
4990.00	3.780	358.600	4987.75	-13.19	38.33	14.86	648195.76	590459.82	32°37'20.479"N	103°51'07.190"W	0.22	
5085.00	3.780	357.020	5082.54	-12.68	44.58	14.63	648195.52	590466.08	32°37'20.541"N	103°51'07.192"W	0.11	
5179.00	3.340	358.250	5176.36	-12.18	50.42	14.38	648195.28	590471.91	32°37'20.598"N	103°51'07.195"W	0.48	
5274.00	3.340	354.990	5271.20	-11.62	55.94	14.05	648194.95	590477.43	32°37'20.653"N	103°51'07.198"W	0.20	
5370.00	2.640	3.610	5367.07	-11.30	60.93	13.95	648194.85	590482.43	32°37'20.702"N	103°51'07.199"W	0.86	
5465.00	2.460	353.850	5461.97	-11.03	65.14	13.87	648194.77	590486.64	32°37'20.744"N	103°51'07.200"W	0.49	
5560.00	2.460	348.750	5556.89	-10.24	69.17	13.25	648194.15	590490.66	32°37'20.784"N	103°51'07.207"W	0.23	
5640.00	1.820	336.350	5636.83	-9.27	72.02	12.41	648193.31	590493.51	32°37'20.812"N	103°51'07.217"W	0.98	
5735.00	1.120	316.980	5731.80	-7.95	74.08	11.17	648192.07	590495.57	32°37'20.833"N	103°51'07.231"W	0.89	
5830.00	1.020	252.490	5826.79	-6.49	74.50	9.73	648190.63	590496.00	32°37'20.837"N	103°51'07.248"W	1.21	
5924.00	1.980	208.810	5920.76	-4.98	72.83	8.15	648189.05	590494.32	32°37'20.820"N	103°51'07.267"W	1.52	
6018.00	1.210	206.860	6014.72	-3.85	70.52	6.92	648187.82	590492.01	32°37'20.798"N	103°51'07.281"W	0.82	
6114.00	0.270	315.910	6110.71	-3.27	69.78	6.30	648187.20	590491.27	32°37'20.790"N	103°51'07.288"W	1.38	
6210.00	0.650	22.520	6206.71	-3.11	70.48	6.17	648187.07	590491.98	32°37'20.797"N	103°51'07.290"W	0.53	
6306.00	0.650	356.020	6302.70	-3.05	71.57	6.16	648187.05	590493.06	32°37'20.808"N	103°51'07.290"W	0.08	
6402.00	0.650	348.770	6398.70	-2.86	72.65	6.01	648186.91	590494.14	32°37'20.819"N	103°51'07.292"W	0.09	
6497.00	0.080	282.360	6493.69	-2.66	73.19	5.84	648186.74	590494.68	32°37'20.824"N	103°51'07.294"W	0.66	
6593.00	0.260	235.430	6589.69	-2.42	73.08	5.60	648186.50	590494.58	32°37'20.823"N	103°51'07.296"W	0.22	
6688.00	0.350	259.020	6684.69	-1.97	72.90	5.13	648186.03	590494.40	32°37'20.821"N	103°51'07.302"W	0.16	
6783.00	0.380	270.400	6779.69	-1.37	72.85	4.53	648185.43	590494.34	32°37'20.821"N	103°51'07.309"W	0.08	
6972.00	0.380	37.280	6968.69	-1.10	73.35	4.29	648185.19	590494.85	32°37'20.826"N	103°51'07.312"W	0.36	
7161.00	0.950	314.630	7157.68	-0.30	74.95	3.55	648184.45	590496.45	32°37'20.842"N	103°51'07.320"W	0.52	
7350.00	0.780	313.580	7346.66	1.83	76.94	1.51	648182.41	590498.43	32°37'20.861"N	103°51'07.344"W	0.09	
7540.00	0.980	228.580	7536.64	-3.98	76.76	-0.65	648180.25	590498.25	32°37'20.860"N	103°51'07.369"W	0.63	
7728.00	0.440	218.790	7724.63	5.56	75.13	-2.31	648178.59	590496.62	32°37'20.844"N	103°51'07.389"W	0.29	
7917.00	0.590	205.100	7913.62	6.37	73.68	-3.18	648177.72	590495.18	32°37'20.829"N	103°51'07.399"W	0.10	
8108.00	0.110	306.400	8104.62	6.90	72.90	-3.74	648177.16	590494.40	32°37'20.822"N	103°51'07.406"W	0.33	
8300.00	0.560	268.890	8296.61	7.99	72.99	-4.83	648176.07	590494.49	32°37'20.823"N	103°51'07.418"W	0.25	
8421.00	0.770	251.070	8417.60	9.33	72.72	-6.19	648174.71	590494.21	32°37'20.820"N	103°51'07.434"W	0.24	
8457.00	1.400	268.300	8453.60	10.00	72.63	-6.86	648174.05	590494.12	32°37'20.819"N	103°51'07.442"W	1.95	
8488.00	3.700	264.500	8484.56	11.37	72.52	-8.23	648172.67	590494.01	32°37'20.818"N	103°51'07.458"W	7.44	
8520.00	6.300	271.700	8516.44	14.14	72.47	-11.01	648169.89	590493.97	32°37'20.818"N	103°51'07.491"W	8.34	
8552.00	10.400	282.300	8548.10	18.75	73.14	-15.59	648165.31	590494.63	32°37'20.825"N	103°51'07.544"W	13.63	
8583.00	13.400	276.900	8578.43	25.09	74.17	-21.89	648159.01	590495.66	32°37'20.835"N	103°51'07.618"W	10.31	



Actual Wellpath Report

No.1H AWP

Page 4 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	Big Eddy	Wellbore	No.1H AWP
Facility	Big Eddy Unit DI-2		

WELLPATH DATA (185 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
8615.00	17.400	279.300	8609.27	33.54	75.39	-30.30	648150.60	590496.88	32°37'20.847"N	103°51'07.716"W	12.66	
8645.00	19.200	276.300	8637.75	42.92	76.65	-39.63	648141.27	590498.15	32°37'20.860"N	103°51'07.825"W	6.77	
8677.00	21.500	276.300	8667.76	54.02	77.87	-50.69	648130.21	590499.37	32°37'20.873"N	103°51'07.954"W	7.19	
8709.00	22.200	275.800	8697.46	65.91	79.13	-62.53	648118.37	590500.62	32°37'20.886"N	103°51'08.093"W	2.26	
8740.00	21.800	275.600	8726.20	77.50	80.28	-74.09	648106.82	590501.78	32°37'20.898"N	103°51'08.228"W	4.31	
8772.00	22.500	273.800	8755.84	89.55	81.27	-86.11	648094.79	590502.76	32°37'20.908"N	103°51'08.368"W	3.05	
8803.00	25.000	272.600	8784.21	102.04	81.96	-98.58	648082.33	590503.45	32°37'20.916"N	103°51'08.514"W	8.21	
8835.00	27.700	271.700	8812.88	116.24	82.49	-112.77	648068.14	590503.98	32°37'20.921"N	103°51'08.680"W	8.53	
8867.00	30.300	271.300	8840.87	131.75	82.89	-128.28	648052.63	590504.38	32°37'20.926"N	103°51'08.861"W	8.15	
8899.00	32.200	271.000	8868.22	148.34	83.22	-144.87	648036.04	590504.72	32°37'20.930"N	103°51'09.055"W	5.96	
8930.00	34.700	270.500	8894.09	165.42	83.44	-161.96	648018.95	590504.94	32°37'20.933"N	103°51'09.255"W	8.11	
8962.00	37.600	268.400	8919.92	184.27	83.25	-180.83	648000.08	590504.74	32°37'20.932"N	103°51'09.475"W	9.85	
8994.00	41.200	267.200	8944.65	204.51	82.46	-201.12	647979.79	590503.96	32°37'20.925"N	103°51'09.713"W	11.50	
9027.00	45.100	267.400	8968.72	226.98	81.40	-223.66	647957.25	590502.89	32°37'20.916"N	103°51'09.976"W	11.83	
9059.00	49.100	267.700	8990.50	250.33	80.40	-247.08	647933.84	590501.89	32°37'20.907"N	103°51'10.250"W	12.52	
9090.00	52.500	268.900	9010.09	274.28	79.69	-271.08	647909.83	590501.19	32°37'20.901"N	103°51'10.531"W	11.37	
9122.00	56.200	270.400	9028.74	300.25	79.54	-297.08	647883.84	590501.04	32°37'20.901"N	103°51'10.835"W	12.17	
9153.00	59.600	270.900	9045.21	326.49	79.84	-323.34	647857.59	590501.34	32°37'20.905"N	103°51'11.142"W	11.05	
9185.00	63.100	271.500	9060.55	354.56	80.43	-351.41	647829.52	590501.93	32°37'20.912"N	103°51'11.470"W	11.06	
9216.00	67.000	272.300	9073.62	382.66	81.37	-379.49	647801.43	590502.86	32°37'20.922"N	103°51'11.798"W	12.80	
9247.00	70.800	271.700	9084.78	411.58	82.38	-408.39	647772.54	590503.87	32°37'20.934"N	103°51'12.136"W	12.39	
9278.00	74.400	272.300	9094.05	441.15	83.41	-437.95	647742.98	590504.90	32°37'20.945"N	103°51'12.482"W	11.76	
9310.00	78.100	271.800	9101.65	472.23	84.52	-469.01	647711.92	590506.01	32°37'20.957"N	103°51'12.845"W	11.66	
9340.00	81.300	271.400	9107.02	501.74	85.34	-498.51	647682.43	590506.84	32°37'20.967"N	103°51'13.190"W	10.75	
9372.00	82.000	271.400	9111.66	533.39	86.12	-530.16	647650.78	590507.61	32°37'20.976"N	103°51'13.560"W	2.19	
9403.00	82.500	270.700	9115.84	564.10	86.68	-560.87	647620.07	590508.17	32°37'20.983"N	103°51'13.919"W	2.76	
9434.00	82.700	270.700	9119.84	594.83	87.06	-591.61	647589.33	590508.55	32°37'20.988"N	103°51'14.278"W	0.65	
9466.00	83.000	272.100	9123.82	626.57	87.83	-623.35	647557.59	590509.32	32°37'20.997"N	103°51'14.649"W	4.44	
9509.00	83.000	271.900	9129.06	669.25	89.32	-666.01	647514.94	590510.81	32°37'21.014"N	103°51'15.148"W	0.46	
9565.00	85.600	271.600	9134.62	724.96	91.02	-721.70	647459.25	590512.52	32°37'21.033"N	103°51'15.799"W	4.67	
9595.00	88.100	272.500	9136.27	754.92	92.09	-751.63	647429.32	590513.59	32°37'21.045"N	103°51'16.149"W	8.86	
9626.00	90.000	273.100	9136.78	785.91	93.61	-782.59	647398.37	590515.10	32°37'21.061"N	103°51'16.510"W	6.43	
9719.00	90.600	272.500	9136.30	878.91	98.15	-875.47	647305.49	590519.64	32°37'21.110"N	103°51'17.596"W	0.91	
9813.00	89.900	271.300	9135.89	972.90	101.27	-969.42	647211.55	590522.76	32°37'21.145"N	103°51'18.694"W	1.48	
9908.00	90.600	271.200	9135.47	1067.87	103.34	-1064.40	647116.58	590524.83	32°37'21.170"N	103°51'19.805"W	0.74	
10003.00	90.900	271.200	9134.23	1162.84	105.33	-1159.37	647021.61	590526.82	32°37'21.194"N	103°51'20.915"W	0.32	
10098.00	90.100	270.800	9133.40	1257.81	106.99	-1254.35	646926.64	590528.48	32°37'21.215"N	103°51'22.025"W	0.94	
10194.00	89.600	270.500	9133.65	1353.76	108.08	-1350.34	646830.65	590529.57	32°37'21.230"N	103°51'23.148"W	0.61	
10289.00	90.000	271.000	9133.98	1448.71	109.32	-1445.33	646735.67	590530.81	32°37'21.246"N	103°51'24.258"W	0.67	
10385.00	90.000	270.500	9133.98	1544.67	110.58	-1541.32	646639.68	590532.07	32°37'21.263"N	103°51'25.380"W	0.52	
10477.00	90.100	271.900	9133.90	1636.64	112.50	-1633.30	646547.71	590533.99	32°37'21.286"N	103°51'26.456"W	1.53	
10572.00	90.900	272.300	9133.07	1731.63	115.98	-1728.23	646452.79	590537.48	32°37'21.325"N	103°51'27.565"W	0.94	
10667.00	91.100	271.700	9131.42	1826.62	119.30	-1823.16	646357.86	590540.79	32°37'21.362"N	103°51'28.675"W	0.67	
10762.00	90.400	272.400	9130.17	1921.60	122.70	-1918.09	646262.94	590544.19	32°37'21.400"N	103°51'29.785"W	1.04	
10858.00	89.900	272.300	9129.92	2017.60	126.63	-2014.01	646167.03	590548.12	32°37'21.443"N	103°51'30.906"W	0.53	



Actual Wellpath Report

No.1H AWP

Page 5. of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	Big Eddy	Wellbore	No.1H AWP
Facility	Big Eddy Unit DI-2		

WELLPATH DATA (185 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
10952.00	89.100	271.600	9130.74	2111.59	129.83	-2107.95	646073.09	590551.32	32°37'21.479"N	103°51'32.004"W	1.13	
11048.00	89.800	272.200	9131.66	2207.58	133.01	-2203.89	645977.16	590554.50	32°37'21.514"N	103°51'33.126"W	0.96	
11142.00	89.300	274.000	9132.40	2301.57	138.10	-2297.75	645883.31	590559.59	32°37'21.569"N	103°51'34.223"W	1.99	
11238.00	89.600	273.400	9133.32	2397.54	144.29	-2393.54	645787.52	590565.78	32°37'21.634"N	103°51'35.342"W	0.70	
11331.00	90.100	272.100	9133.57	2490.54	148.75	-2486.43	645694.64	590570.24	32°37'21.683"N	103°51'36.428"W	1.50	
11427.00	91.500	270.700	9132.23	2586.51	151.10	-2582.39	645598.69	590572.59	32°37'21.710"N	103°51'37.550"W	2.06	
11522.00	92.600	270.500	9128.83	2681.40	152.09	-2677.32	645503.76	590573.58	32°37'21.724"N	103°51'38.660"W	1.18	
11617.00	94.900	271.200	9122.61	2776.15	153.50	-2772.10	645408.99	590574.99	32°37'21.742"N	103°51'39.768"W	2.53	
11713.00	94.400	271.600	9114.83	2871.81	155.84	-2867.75	645313.34	590577.33	32°37'21.769"N	103°51'40.886"W	0.67	
11813.00	94.200	272.700	9107.33	2971.53	159.58	-2967.40	645213.70	590581.07	32°37'21.811"N	103°51'42.051"W	1.41	
11844.00	92.800	272.600	9105.44	3002.47	161.01	-2998.31	645182.79	590582.50	32°37'21.826"N	103°51'42.412"W	4.53	
11874.00	91.900	272.800	9104.21	3032.44	162.42	-3028.25	645152.85	590583.91	32°37'21.842"N	103°51'42.762"W	3.07	
11905.00	91.500	272.600	9103.29	3063.43	163.88	-3059.20	645121.91	590585.37	32°37'21.857"N	103°51'43.124"W	1.44	
11936.00	91.500	272.700	9102.48	3094.42	165.31	-3090.16	645090.95	590586.80	32°37'21.873"N	103°51'43.486"W	0.32	
11967.00	90.300	272.300	9101.99	3125.42	166.66	-3121.12	645059.99	590588.15	32°37'21.888"N	103°51'43.848"W	4.08	
11998.00	90.100	272.000	9101.89	3156.41	167.83	-3152.10	645029.01	590589.32	32°37'21.901"N	103°51'44.210"W	1.16	
12090.00	90.100	271.900	9101.72	3248.41	170.96	-3244.05	644937.07	590592.45	32°37'21.936"N	103°51'45.285"W	0.11	
12182.00	89.800	271.600	9101.81	3340.40	173.77	-3336.01	644845.12	590595.26	32°37'21.967"N	103°51'46.360"W	0.46	
12275.00	89.500	271.300	9102.37	3433.39	176.12	-3428.97	644752.16	590597.61	32°37'21.995"N	103°51'47.447"W	0.46	
12367.00	89.800	271.200	9102.94	3525.36	178.13	-3520.95	644660.19	590599.62	32°37'22.019"N	103°51'48.522"W	0.34	
12459.00	90.200	271.400	9102.94	3617.34	180.21	-3612.93	644568.22	590601.70	32°37'22.043"N	103°51'49.597"W	0.49	
12552.00	89.300	272.100	9103.34	3710.33	183.05	-3705.88	644475.27	590604.54	32°37'22.075"N	103°51'50.684"W	1.23	
12644.00	88.600	271.700	9105.03	3802.31	186.10	-3797.81	644383.34	590607.59	32°37'22.110"N	103°51'51.758"W	0.88	
12736.00	88.500	271.500	9107.35	3894.27	188.67	-3889.75	644291.42	590610.16	32°37'22.139"N	103°51'52.833"W	0.24	
12829.00	89.200	271.300	9109.22	3987.23	190.94	-3982.70	644198.47	590612.43	32°37'22.166"N	103°51'53.920"W	0.78	
12921.00	89.400	271.300	9110.35	4079.21	193.03	-4074.67	644106.51	590614.52	32°37'22.190"N	103°51'54.995"W	0.22	
13013.00	89.600	272.000	9111.15	4171.19	195.68	-4166.63	644014.55	590617.17	32°37'22.220"N	103°51'56.070"W	0.79	
13106.00	90.000	271.600	9111.47	4264.19	198.60	-4259.58	643921.61	590620.09	32°37'22.253"N	103°51'57.157"W	0.61	
13198.00	91.700	271.500	9110.11	4356.16	201.09	-4351.53	643829.66	590622.58	32°37'22.282"N	103°51'58.232"W	1.85	
13288.00	91.700	271.300	9107.44	4446.11	203.29	-4441.47	643739.73	590624.77	32°37'22.308"N	103°51'59.283"W	0.22	
13377.00	89.900	271.200	9106.20	4535.07	205.23	-4530.43	643650.77	590626.71	32°37'22.331"N	103°52'00.323"W	2.03	
13467.00	89.000	270.500	9107.06	4625.03	206.56	-4620.42	643560.79	590628.05	32°37'22.348"N	103°52'01.375"W	1.27	
13559.00	89.600	272.300	9108.18	4717.00	208.81	-4712.38	643468.84	590630.30	32°37'22.374"N	103°52'02.450"W	2.06	
13651.00	89.600	271.100	9108.83	4808.99	211.54	-4804.34	643376.89	590633.03	32°37'22.405"N	103°52'03.525"W	1.30	
13745.00	89.600	271.100	9109.48	4902.96	213.35	-4898.32	643282.92	590634.83	32°37'22.427"N	103°52'04.624"W	0.00	
13841.00	90.300	271.400	9109.57	4998.94	215.44	-4994.29	643186.95	590636.92	32°37'22.452"N	103°52'05.746"W	0.79	
13935.00	91.600	272.700	9108.01	5092.92	218.80	-5088.22	643093.03	590640.29	32°37'22.489"N	103°52'06.844"W	1.96	
14031.00	91.100	273.200	9105.75	5188.89	223.74	-5184.06	642997.19	590645.23	32°37'22.542"N	103°52'07.964"W	0.74	
14126.00	91.400	272.800	9103.67	5283.86	228.71	-5278.91	642902.35	590650.20	32°37'22.596"N	103°52'09.073"W	0.53	
14222.00	91.000	272.600	9101.66	5379.84	233.23	-5374.78	642806.48	590654.72	32°37'22.644"N	103°52'10.193"W	0.47	
14317.00	90.400	273.600	9100.50	5474.82	238.37	-5469.63	642711.64	590659.85	32°37'22.699"N	103°52'11.302"W	1.23	
14410.00	90.300	273.700	9099.93	5567.80	244.29	-5562.44	642618.83	590665.77	32°37'22.762"N	103°52'12.387"W	0.15	
14505.00	91.200	273.400	9098.69	5662.78	250.17	-5657.25	642524.03	590671.65	32°37'22.824"N	103°52'13.495"W	1.00	
14600.00	92.200	273.100	9095.87	5757.73	255.55	-5752.05	642429.23	590677.04	32°37'22.882"N	103°52'14.603"W	1.10	
14731.00	90.800	268.800	9092.44	5888.60	257.72	-5882.96	642298.34	590679.21	32°37'22.909"N	103°52'16.134"W	3.45	



Actual Wellpath Report

No.1H AWP

Page 6 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	Big Eddy	Wellbore	No.1H AWB
Facility	Big Eddy Unit DI-2		

WELLPATH DATA (185 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
14826.00	90.500	268.000	9091.36	5983.35	255.07	-5977.91	642203.39	590676.55	32°37'22.887"N	103°52'17.244"W	0.90	
14922.00	89.700	268.500	9091.20	6079.09	252.14	-6073.87	642107.44	590673.62	32°37'22.862"N	103°52'18.366"W	0.98	
15017.00	89.200	268.800	9092.11	6173.87	249.90	-6168.84	642012.48	590671.38	32°37'22.844"N	103°52'19.476"W	0.61	
15083.00	88.900	268.300	9093.20	6239.71	248.23	-6234.81	641946.52	590669.72	32°37'22.830"N	103°52'20.248"W	0.88	
15164.00	88.900	268.300	9094.76	6320.48	245.83	-6315.76	641865.57	590667.31	32°37'22.810"N	103°52'21.194"W	0.00	Proj to Bit

HOLE & CASING SECTIONS - Ref Wellbore: No.1H AWB Ref Wellpath: No.1H AWP

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
12.25in Open Hole	29.00	4156.00	4127.00	29.00	4155.17	0.01	-0.01	0.06	14.15

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
BEU DI 2 No. 1H PBHL		9090.00	274.04	-6316.47	641864.86	590695.53	32°37'23.089"N	103°52'21.201"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.1H AWB Ref Wellpath: No.1H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	4152.00	Generic gyro - northseeking (Standard)	VES Gyro <100-4152>	No.1H AWB
4152.00	8421.00	Generic gyro - northseeking (Standard)	Scientific Gyro MWD <4327-XXXX>	No.1H AWB
8421.00	15083.00	NaviTrak (Standard)	BHI MWD NaviTrak <8457-15083>	No.1H AWB
15083.00	15164.00	Blind Drilling (std)	Projection to bit	No.1H AWB