

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

BOPCO LP

Lease: PLU PIERCE CANYON 3 FEDERAL SWD1 Well: , 5" DRILLPIPE

Location: AQUILA #8, EDDY COUNTY, NEW MEXICO

Job Number: MD0213GDM202

Run Date: 27 Feb 2013

Report Generated: 04 Mar 2013-10:53

Azimuth Correction:

Gyro: -0.25000 deg to Grid North

Depth Reference: Rotary Table

Surveyor: Michael Hattar, Michael Robles

Rotary Table Elevation: 25.00

Calculation Method: MINIMUM CURVATURE

Vertical Section Calculated from Well Head Location

Survey surface coordinates obtained from: Well Plan/Plot

Closure Calculated from Well Head Location

Survey Latitude: 32.154556 deg. N Longitude: 103.865008 deg. W

Horizontal Coordinates Calculated from Well Head Location

15-38669

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MEASURED DEPTH feet	INCL 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 - 8554 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 5" DRILLPIPE							
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO AQUILA DRILLING RIG # 8 R.K.B. HEIGHT OF 25 FT.							
78.50	0.44	27.43	N 27 26 E	0.56	78.50	0.3 27.4	0.27 N 0.14 E
172.90	0.42	58.91	N 58 55 E	0.25	172.90	1.0 38.1	0.77 N 0.60 E
267.20	0.61	110.00	S 70 0 E	0.50	267.19	1.6 60.5	0.77 N 1.37 E
361.60	0.75	116.70	S 63 18 E	0.17	361.59	2.4 82.3	0.33 N 2.39 E
456.00	0.86	114.40	S 65 36 E	0.12	455.98	3.6 93.9	0.25 S 3.59 E
550.30	0.73	90.49	S 89 31 E	0.37	550.27	4.9 96.4	0.54 S 4.84 E
644.70	0.77	81.22	N 81 13 E	0.14	644.66	6.1 94.3	0.45 S 6.06 E
739.00	0.78	83.52	N 83 31 E	0.03	738.95	7.3 92.2	0.28 S 7.33 E
833.40	0.74	85.92	N 85 55 E	0.05	833.34	8.6 91.1	0.17 S 8.57 E
927.80	0.91	89.69	N 89 41 E	0.19	927.73	9.9 90.7	0.12 S 9.93 E
1022.10	1.00	89.12	N 89 7 E	0.10	1022.02	11.5 90.5	0.10 S 11.50 E
1116.50	1.48	87.31	N 87 19 E	0.51	1116.40	13.5 90.1	0.03 S 13.55 E
1210.80	2.19	86.39	N 86 23 E	0.75	1210.65	16.6 89.5	0.14 N 16.56 E
1305.20	2.31	89.31	N 89 19 E	0.18	1304.98	20.3 89.2	0.28 N 20.26 E
1399.60	1.88	107.23	S 72 46 E	0.82	1399.31	23.6 90.4	0.16 S 23.64 E
1493.90	1.95	111.53	S 68 28 E	0.17	1493.56	26.6 92.6	1.21 S 26.61 E
1588.30	2.30	117.34	S 62 40 E	0.43	1587.90	29.9 95.1	2.67 S 29.79 E
1682.60	1.71	128.16	S 51 50 E	0.74	1682.14	32.9 97.7	4.41 S 32.58 E
1777.00	1.33	139.99	S 40 1 E	0.52	1776.51	34.9 100.1	6.11 S 34.39 E

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1871.40	1.12	141.56	S 38 26 E	0.23	1870.88	36.5 102.1	7.68 S 35.67 E
1965.70	0.78	141.05	S 38 57 E	0.36	1965.17	37.7 103.6	8.90 S 36.64 E
2060.10	0.50	142.64	S 37 22 E	0.30	2059.56	38.5 104.6	9.72 S 37.30 E
2154.40	0.30	139.35	S 40 39 E	0.21	2153.86	39.1 105.2	10.24 S 37.71 E
2248.80	0.01	339.36	N 20 38 W	0.33	2248.26	39.3 105.4	10.42 S 37.87 E
2343.20	0.29	308.73	N 51 16 W	0.30	2342.66	39.0 105.2	10.26 S 37.68 E
2437.50	0.33	308.34	N 51 40 W	0.04	2436.96	38.6 104.9	9.94 S 37.28 E
2531.90	0.38	308.05	N 51 57 W	0.05	2531.36	38.0 104.6	9.58 S 36.82 E
2626.20	0.57	304.34	N 55 40 W	0.20	2625.66	37.3 104.2	9.12 S 36.18 E
2720.60	0.65	299.60	N 60 24 W	0.10	2720.05	36.4 103.7	8.60 S 35.33 E
2815.00	0.68	306.73	N 53 16 W	0.09	2814.44	35.3 103.1	8.00 S 34.42 E
2909.30	0.50	309.90	N 50 6 W	0.19	2908.74	34.5 102.4	7.40 S 33.65 E
3003.70	0.80	278.09	N 81 55 W	0.49	3003.13	33.4 102.2	7.04 S 32.68 E
3098.00	0.99	285.61	N 74 23 W	0.24	3097.42	32.0 102.2	6.73 S 31.25 E
3192.40	0.44	95.07	S 84 56 E	1.51	3191.82	31.5 102.0	6.54 S 30.82 E
3286.80	2.79	107.04	S 72 58 E	2.50	3286.17	34.2 102.2	7.25 S 33.38 E
3381.10	3.40	109.56	S 70 26 E	0.66	3380.34	39.2 103.0	8.86 S 38.21 E
3475.50	4.37	115.58	S 64 25 E	1.11	3474.52	45.5 104.4	11.35 S 44.09 E
3569.80	4.88	118.60	S 61 24 E	0.60	3568.51	53.0 106.2	14.82 S 50.85 E
3664.20	5.03	125.14	S 54 52 E	0.62	3662.56	60.8 108.3	19.12 S 57.76 E
3758.60	4.84	127.39	S 52 37 E	0.29	3756.61	68.6 110.4	23.92 S 64.31 E

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
3852.90	2.58	130.50	S 49 30 E	2.41	3850.71	74.4 111.9	27.72 S 69.09 E
3947.30	2.14	127.05	S 52 57 E	0.49	3945.02	78.2 112.7	30.16 S 72.11 E
4041.60	2.03	122.09	S 57 55 E	0.22	4039.26	81.5 113.2	32.11 S 74.93 E
4136.00	2.22	120.81	S 59 11 E	0.21	4133.60	85.0 113.5	33.93 S 77.92 E
4230.40	1.47	124.06	S 55 56 E	0.80	4227.95	88.0 113.8	35.54 S 80.49 E
4324.70	1.21	119.09	S 60 55 E	0.30	4322.22	90.2 114.0	36.71 S 82.36 E
4419.10	1.28	117.39	S 62 37 E	0.08	4416.60	92.2 114.1	37.68 S 84.17 E
4513.40	1.47	120.61	S 59 23 E	0.22	4510.87	94.5 114.2	38.78 S 86.15 E
4607.80	1.54	129.33	S 50 40 E	0.25	4605.24	96.9 114.5	40.20 S 88.17 E
4702.20	1.29	127.06	S 52 56 E	0.27	4699.61	99.2 114.8	41.64 S 90.00 E
4796.50	1.41	121.80	S 58 12 E	0.18	4793.89	101.4 115.0	42.89 S 91.83 E
4890.90	1.57	124.58	S 55 25 E	0.19	4888.25	103.8 115.2	44.24 S 93.88 E
4985.20	1.48	132.30	S 47 42 E	0.24	4982.52	106.2 115.5	45.79 S 95.85 E
5079.60	1.36	130.22	S 49 47 E	0.14	5076.89	108.5 115.9	47.33 S 97.61 E
5174.00	1.35	127.47	S 52 32 E	0.07	5171.26	110.7 116.1	48.73 S 99.34 E
5268.30	1.44	125.31	S 54 41 E	0.11	5265.54	112.9 116.3	50.10 S 101.19 E
5362.70	1.59	130.41	S 49 35 E	0.21	5359.90	115.4 116.6	51.63 S 103.16 E
5457.00	1.54	136.04	S 43 58 E	0.17	5454.17	117.8 116.9	53.39 S 105.03 E
5551.40	1.36	137.09	S 42 55 E	0.19	5548.54	120.1 117.3	55.12 S 106.68 E
5645.80	1.33	133.82	S 46 11 E	0.09	5642.91	122.2 117.7	56.70 S 108.23 E
5740.10	1.51	131.55	S 48 27 E	0.20	5737.18	124.4 117.9	58.28 S 109.95 E
5834.50	1.69	136.04	S 43 58 E	0.23	5831.55	127.0 118.3	60.11 S 111.85 E

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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
5928.80	1.70	142.48	S 37 31 E	0.20	5925.81	129.6 118.7	62.22 S 113.66 E
6023.20	1.58	147.23	S 32 46 E	0.19	6020.17	132.0 119.2	64.43 S 115.22 E
6117.60	1.58	147.32	S 32 41 E	0.00	6114.53	134.3 119.7	66.62 S 116.63 E
6211.90	1.64	145.62	S 34 23 E	0.08	6208.79	136.7 120.2	68.82 S 118.09 E
6306.30	1.61	146.13	S 33 52 E	0.04	6303.16	139.1 120.7	71.04 S 119.59 E
6400.60	1.48	143.42	S 36 35 E	0.16	6397.42	141.4 121.1	73.12 S 121.06 E
6495.00	1.36	146.05	S 33 57 E	0.14	6491.79	143.6 121.5	75.03 S 122.41 E
6589.40	1.25	152.20	S 27 48 E	0.19	6586.17	145.5 121.9	76.87 S 123.51 E
6683.70	1.15	155.31	S 24 41 E	0.13	6680.45	147.2 122.3	78.64 S 124.39 E
6778.10	1.07	158.45	S 21 33 E	0.11	6774.83	148.7 122.7	80.32 S 125.11 E
6872.40	1.04	161.24	S 18 46 E	0.06	6869.11	150.1 123.1	81.95 S 125.71 E
6966.80	1.10	169.31	S 10 41 E	0.17	6963.50	151.4 123.5	83.65 S 126.15 E
7061.20	1.09	164.35	S 15 39 E	0.10	7057.88	152.7 124.0	85.40 S 126.56 E
7155.50	1.21	163.11	S 16 53 E	0.13	7152.16	154.1 124.5	87.22 S 127.09 E
7249.90	1.43	166.56	S 13 26 E	0.25	7246.54	155.8 125.0	89.32 S 127.66 E
7344.20	1.39	175.23	S 4 46 E	0.23	7340.81	157.4 125.6	91.60 S 128.02 E
7438.60	1.52	177.55	S 2 27 E	0.15	7435.18	158.9 126.3	93.99 S 128.17 E
7533.00	1.50	182.52	S 2 31 W	0.14	7529.54	160.4 127.0	96.48 S 128.17 E
7627.30	1.54	189.47	S 9 28 W	0.20	7623.81	161.7 127.7	98.96 S 127.91 E
7721.70	1.39	197.95	S 17 57 W	0.28	7718.18	162.7 128.5	101.30 S 127.35 E
7816.00	1.46	237.04	S 57 2 W	1.01	7812.45	162.8 129.3	103.04 S 125.99 E
7910.40	1.33	255.67	S 75 40 W	0.50	7906.83	161.8 130.0	103.97 S 123.92 E

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8004.80	1.34	261.04	S 81 2 W	0.13	8001.20	160.4	130.6	104.41 S 121.77 E
8099.10	1.15	273.60	N 86 24 W	0.35	8095.48	158.9	131.1	104.53 S 119.73 E
8193.50	0.86	282.13	N 77 52 W	0.34	8189.86	157.6	131.5	104.32 S 118.09 E
8287.80	0.78	251.42	S 71 25 W	0.47	8284.15	156.6	131.8	104.37 S 116.79 E
8382.20	0.83	338.68	N 21 19 W	1.18	8378.55	155.7	131.9	103.94 S 115.94 E
8476.60	1.95	343.64	N 16 22 W	1.19	8472.92	153.7	131.4	101.76 S 115.24 E
8570.90	2.48	343.19	N 16 49 W	0.56	8567.15	150.7	130.7	98.27 S 114.19 E
8665.30	2.19	350.96	N 9 2 W	0.45	8661.47	147.6	129.8	94.53 S 113.32 E
8759.60	1.58	347.11	N 12 53 W	0.66	8755.72	145.2	129.1	91.49 S 112.75 E
8854.00	1.22	341.31	N 18 41 W	0.41	8850.09	143.3	128.5	89.27 S 112.13 E

Final Station Closure: Distance: 143.33 ft Az: 128.52 deg.



2105 MARKET STREET
MIDLAND, TX 79703
24 HR (432) 694-9517

STATE OF NEW MEXICO

COUNTY OF Eddy

I, David Davila, Directional Driller certify that I am employed by Baker Hughes INTEQ; did conduct

or supervise on the day(s) of 9/10/2014 through 10/19/2014 the

taking of MWD surveys from a depth of 8,854 to a depth of 20,193 that

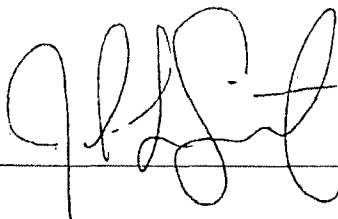
the data is true, correct, complete and within the limitations of the tool as set forth by Baker Hughes INTEQ; that I am

authorized and qualified to make this report; that this survey was conducted at the request of BOPCO, LP

for the Poker Lake Unit No. 348H in Eddy

County, NM; and that I have reviewed this report and find that it conforms to

the principles and procedures as set forth by INTEQ.

 Joshua Gilbert
Well Planner

Field Service Engineer:

David Davila



BOPCO, LP

Location: Eddy County, NM
Field: Eddy County, NM (NAD 27 / Grid)
Facility: Poker Lake Unit #348H Sec. 3-25S-30E

Slot: Poker Lake Unit #348H
Well: SL 814 FSL, 1630 FEL
Wellbore: Poker Lake Unit #348H ST01 AWP



Plot reference wellpath is ST01 AWP

True vertical depths are referenced to Rig on PLU #348H (RKB)	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (9001), US feet
Measured depths are referenced to Rig on PLU #348H (RKB)	North Reference: Grid north
Rig on PLU #348H (RKB) to Mean Sea Level: 3348 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Poker Lake Unit #348H): -3321 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: jensho on 11/10/2014

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Poker Lake Unit #348H Sec. 3-25S-30E	844935.227	420264.309	32°09'16.404"N	103°51'54.026"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Poker Lake Unit #348H	0.00	0.00	844935.227	420264.309
Rig on PLU #348H (RKB) to Mud line (At Slot: Poker Lake Unit #348H)				32°09'16.404"N 103°51'54.026"W
Mean Sea Level to Mud line (At Slot: Poker Lake Unit #348H)				-3321 ft
Rig on PLU #348H (RKB) to Mean Sea Level				3348 ft

Bottom Hole Location

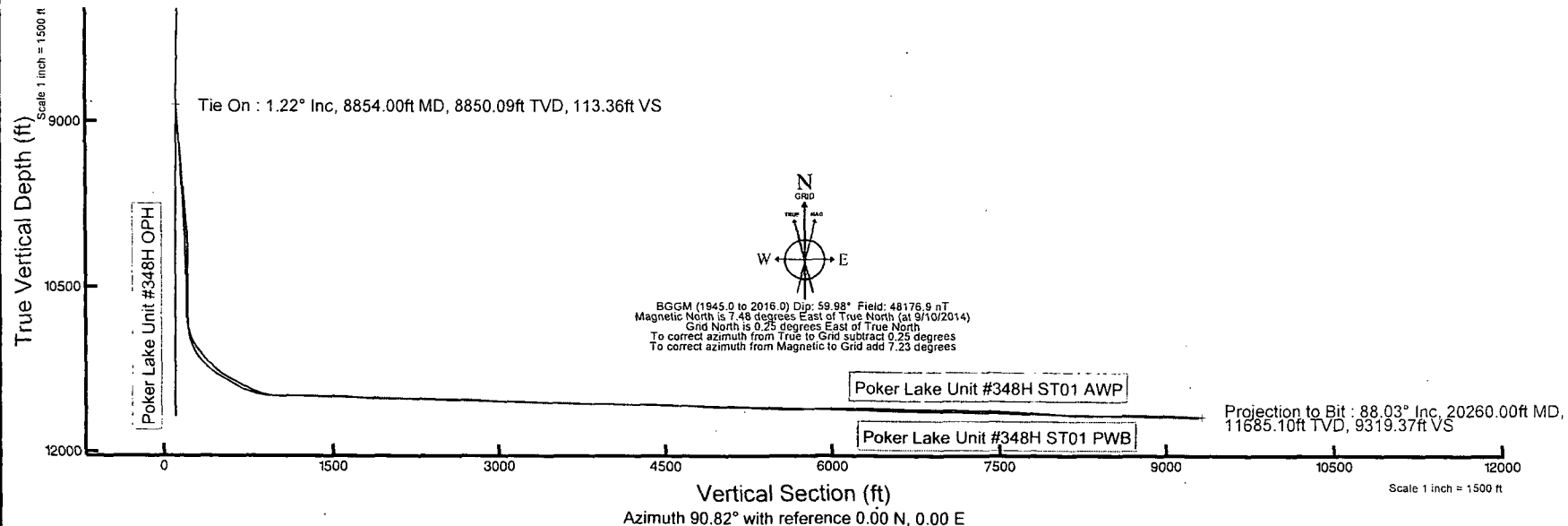
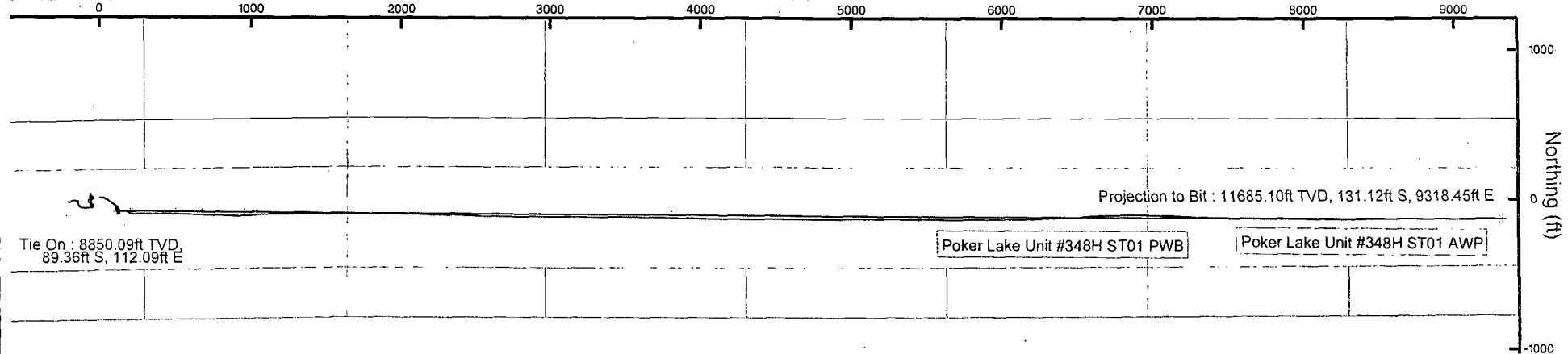
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
20260.00	88.030	91.800	11685.10	-131.12	9318.45	854253.04	420133.20	32°09'14.603"N	103°50'05.648"W

Wellpath Composition

Start MD (ft)	End MD (ft)	Tool	Mode	Log Name/Comments	Wellbore
27.00	8854.00	General gyro - north-south	General gyro - north-south (Standard)	Customer Provided Data Survey	Poker Lake Unit #348H ST01 AWP
8854.00	20193.00	NorthTran	NorthTran (Standard)	BNA NorthTran v.0803-03-00	Poker Lake Unit #348H ST01 AWP
20193.00	20260.00	Blind Drilling	Blind Drilling (LSD)	Projection to Bit	Poker Lake Unit #348H ST01 AWP

Scale 1 inch = 1000 ft

Easting (ft)





Actual Wellpath Report

ST01 AWP

Page 1 of 4



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, LP	Slot	Poker Lake Unit #348H
Area	Eddy County, NM	Well	SL 814 FSL, 1630 FEL
Field	Eddy County, NM (NAD 27 / Grid)	Wellbore	Poker Lake Unit #348H ST01 AWP
Facility	Poker Lake Unit #348H Sec. 3-25S-30E	Sidetrack from	Poker Lake Unit #348H OPH at 8854.00 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 4.0.0
North Reference	Grid	User	Janotho
Scale	0.999933	Report Generated	11/10/2014 at 3:30:30 PM
Convergence at slot	0.25° East	Database/Source file	WA_Midland/Poker_Lake_Unit_#348H_ST01_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	644935.23	420264.31	32°09'16.404"N	103°51'54.026"W
Facility Reference Pt			644935.23	420264.31	32°09'16.404"N	103°51'54.026"W
Field Reference Pt			510280.10	534700.83	32°28'12.000"N	104°18'00.000"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on PLU #348H (RKB) to Facility Vertical Datum	27.00ft
Horizontal Reference Pt	Slot	Rig on PLU #348H (RKB) to Mean Sea Level	3348.00ft
Vertical Reference Pt	Rig on PLU #348H (RKB)	Rig on PLU #348H (RKB) to Mud Line at Slot (Poker Lake Unit #348H)	27.00ft
MD Reference Pt	Rig on PLU #348H (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	90.82°



Actual Wellpath Report

ST01 AWP

Page 2 of 4



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, LP	Slot	Poker Lake Unit #348H
Area	Eddy County, NM	Well	SL 814 FSL, 1630 FEL
Field	Eddy County, NM (NAD 27 / Grid)	Wellbore	Poker Lake Unit #348H ST01 AWP
Facility	Poker Lake Unit #348H Sec. 3-25S-30E	Sidetrack from	Poker Lake Unit #348H OPH at 8854.00 MD

WELLPATH DATA (116 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
8854.00	1.220	341.310	8850.09	113.36	-89.36	112.09	645047.31	420174.96	32°09'15.515"N	103°51'52.727"W	0.41	Tie On
8893.00	3.870	72.350	8889.06	114.47	-88.57	113.21	645048.43	420175.75	32°09'15.523"N	103°51'52.714"W	10.46	
8916.00	4.400	74.900	8912.00	116.05	-88.10	114.80	645050.02	420176.21	32°09'15.528"N	103°51'52.696"W	2.44	
8947.00	4.930	79.200	8942.90	118.50	-87.54	117.26	645052.47	420176.77	32°09'15.533"N	103°51'52.667"W	2.05	
8978.00	5.190	85.530	8973.77	121.20	-87.18	119.96	645055.18	420177.13	32°09'15.537"N	103°51'52.635"W	1.99	
9042.00	4.570	86.410	9037.54	126.63	-86.80	125.39	645060.61	420177.52	32°09'15.540"N	103°51'52.572"W	0.98	
9136.00	4.130	88.610	9131.27	133.74	-86.48	132.51	645067.73	420177.83	32°09'15.543"N	103°51'52.489"W	0.50	
9231.00	3.610	87.640	9226.05	140.15	-86.27	138.92	645074.14	420178.04	32°09'15.545"N	103°51'52.415"W	0.55	
9325.00	3.870	85.790	9319.85	146.26	-85.92	145.04	645080.26	420178.40	32°09'15.548"N	103°51'52.344"W	0.30	
9420.00	3.610	91.510	9414.65	152.45	-85.76	151.23	645086.45	420178.55	32°09'15.549"N	103°51'52.272"W	0.48	
9515.00	3.430	99.590	9509.47	158.25	-86.32	157.02	645092.24	420178.00	32°09'15.544"N	103°51'52.204"W	0.55	
9610.00	3.870	102.760	9604.28	164.19	-87.50	162.95	645098.17	420176.82	32°09'15.532"N	103°51'52.135"W	0.51	
9704.00	4.400	103.720	9698.04	170.81	-89.05	169.55	645104.76	420175.26	32°09'15.516"N	103°51'52.059"W	0.57	
9793.00	3.870	100.820	9786.80	177.09	-90.43	175.81	645111.03	420173.89	32°09'15.502"N	103°51'51.986"W	0.64	
9887.00	3.570	111.820	9880.61	182.95	-92.11	181.65	645116.86	420172.21	32°09'15.485"N	103°51'51.918"W	0.82	
9982.00	2.750	122.360	9975.46	187.66	-94.43	186.32	645121.53	420169.89	32°09'15.462"N	103°51'51.864"W	1.05	
10077.00	1.460	114.570	10070.40	190.71	-96.15	189.34	645124.56	420168.16	32°09'15.445"N	103°51'51.829"W	1.39	
10172.00	1.850	115.160	10165.36	193.21	-97.31	191.83	645127.05	420167.01	32°09'15.433"N	103°51'51.800"W	0.41	
10266.00	1.820	112.560	10259.31	195.98	-98.53	194.58	645129.80	420165.79	32°09'15.421"N	103°51'51.768"W	0.09	
10361.00	1.600	106.660	10354.27	198.66	-99.48	197.25	645132.46	420164.83	32°09'15.411"N	103°51'51.737"W	0.30	
10455.00	1.310	111.780	10448.24	200.92	-100.26	199.50	645134.72	420164.06	32°09'15.404"N	103°51'51.711"W	0.34	
10550.00	1.460	117.810	10543.21	203.02	-101.23	201.58	645136.79	420163.09	32°09'15.394"N	103°51'51.687"W	0.22	
10645.00	0.940	113.490	10638.19	204.81	-102.10	203.37	645138.58	420162.21	32°09'15.385"N	103°51'51.666"W	0.56	
10718.00	0.590	120.220	10711.18	205.69	-102.53	204.24	645139.45	420161.79	32°09'15.381"N	103°51'51.656"W	0.49	
10739.00	0.480	114.970	10732.18	205.87	-102.62	204.41	645139.63	420161.69	32°09'15.380"N	103°51'51.654"W	0.57	
10770.00	1.340	98.760	10763.17	206.34	-102.73	204.89	645140.10	420161.58	32°09'15.379"N	103°51'51.648"W	2.87	
10802.00	4.120	96.160	10795.14	207.86	-102.91	206.40	645141.62	420161.40	32°09'15.377"N	103°51'51.631"W	8.69	
10834.00	6.870	95.190	10826.99	210.91	-103.21	209.45	645144.67	420161.11	32°09'15.374"N	103°51'51.595"W	8.60	
10865.00	10.560	95.610	10857.62	215.59	-103.65	214.13	645149.34	420160.66	32°09'15.369"N	103°51'51.541"W	11.90	
10897.00	13.650	94.840	10888.91	222.28	-104.26	220.81	645156.02	420160.06	32°09'15.363"N	103°51'51.463"W	9.67	
10928.00	16.170	94.280	10918.86	230.24	-104.89	228.76	645163.97	420159.43	32°09'15.357"N	103°51'51.371"W	8.14	
10960.00	20.820	91.880	10949.20	240.38	-105.41	238.89	645174.10	420158.91	32°09'15.351"N	103°51'51.253"W	14.72	
10991.00	25.180	91.290	10977.73	252.49	-105.74	251.00	645186.21	420158.58	32°09'15.347"N	103°51'51.112"W	14.08	
11023.00	30.360	90.150	11006.03	267.40	-105.91	265.90	645201.11	420158.40	32°09'15.345"N	103°51'50.939"W	16.27	
11055.00	33.920	89.750	11033.13	284.41	-105.90	282.92	645218.13	420158.42	32°09'15.344"N	103°51'50.741"W	11.14	
11086.00	35.700	89.240	11058.58	302.11	-105.74	300.62	645235.82	420158.58	32°09'15.345"N	103°51'50.535"W	5.82	
11118.00	36.170	88.910	11084.49	320.88	-105.43	319.39	645254.60	420158.88	32°09'15.347"N	103°51'50.317"W	1.59	
11149.00	36.260	89.100	11109.50	339.18	-105.12	337.71	645272.91	420159.20	32°09'15.350"N	103°51'50.104"W	0.46	
11181.00	38.330	88.660	11134.95	358.56	-104.74	357.09	645292.29	420159.58	32°09'15.353"N	103°51'49.878"W	6.52	
11212.00	41.700	88.120	11158.69	378.47	-104.17	377.01	645312.21	420160.14	32°09'15.357"N	103°51'49.646"W	10.93	
11244.00	42.750	87.820	11182.39	399.95	-103.41	398.50	645333.70	420160.91	32°09'15.364"N	103°51'49.396"W	3.34	
11276.00	44.270	88.420	11205.60	421.96	-102.69	420.52	645355.72	420161.63	32°09'15.370"N	103°51'49.140"W	4.92	
11307.00	45.240	89.730	11227.61	443.77	-102.34	442.35	645377.54	420161.98	32°09'15.373"N	103°51'48.886"W	4.32	
11339.00	46.960	91.950	11249.80	466.82	-102.68	465.40	645400.59	420161.63	32°09'15.368"N	103°51'48.618"W	7.34	
11370.00	50.240	93.170	11270.30	490.06	-103.73	488.62	645423.82	420160.59	32°09'15.357"N	103°51'48.348"W	10.98	



Actual Wellpath Report

ST01 AWP

Page 3 of 4



REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, LP	Slot	Poker Lake Unit #348H
Area	Eddy County, NM	Well	SL 814 FSL, 1630 FEL
Field	Eddy County, NM (NAD 27 / Grid)	Wellbore	Poker Lake Unit #348H ST01 AWP
Facility	Poker Lake Unit #348H Sec. 3-25S-30E	Sidetrack from	Poker Lake Unit #348H OPH at 8854.00 MD

WELLPATH DATA (116 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
11402.00	54.300	92.100	11289.88	515.35	-104.88	513.90	645449.09	420159.43	32°09'15.344"N	103°51'48.054"W	12.96	
11433.00	59.880	92.180	11306.71	541.36	-105.86	539.90	645475.09	420158.46	32°09'15.334"N	103°51'47.752"W	18.00	
11465.00	62.000	91.910	11322.25	569.33	-106.85	567.85	645503.04	420157.46	32°09'15.323"N	103°51'47.427"W	6.67	
11497.00	61.990	91.790	11337.28	597.57	-107.77	596.09	645531.27	420156.55	32°09'15.312"N	103°51'47.098"W	0.33	
11528.00	61.750	91.510	11351.90	624.91	-108.55	623.41	645558.60	420155.76	32°09'15.303"N	103°51'46.781"W	1.11	
11560.00	61.300	91.250	11367.15	653.04	-109.23	651.53	645586.72	420155.09	32°09'15.295"N	103°51'46.454"W	1.58	
11589.00	61.060	90.790	11381.13	678.44	-109.68	676.94	645612.12	420154.63	32°09'15.290"N	103°51'46.158"W	1.62	
11696.00	62.110	92.810	11432.05	772.53	-112.65	770.99	645706.17	420151.67	32°09'15.256"N	103°51'45.064"W	1.93	
11728.00	65.880	92.900	11446.08	801.27	-114.08	799.71	645734.88	420150.24	32°09'15.241"N	103°51'44.730"W	11.78	
11759.00	69.220	92.290	11457.92	829.90	-115.38	828.33	645763.50	420148.94	32°09'15.227"N	103°51'44.398"W	10.93	
11791.00	72.880	91.460	11468.31	860.16	-116.36	858.57	645793.74	420147.95	32°09'15.216"N	103°51'44.046"W	11.70	
11823.00	76.680	90.240	11476.71	891.03	-116.82	889.44	645824.61	420147.50	32°09'15.210"N	103°51'43.687"W	12.43	
11855.00	80.200	88.620	11483.12	922.36	-116.50	920.78	645855.95	420147.81	32°09'15.212"N	103°51'43.322"W	12.07	
11887.00	84.260	87.800	11487.44	954.03	-115.51	952.47	645887.63	420148.81	32°09'15.220"N	103°51'42.954"W	12.94	
11919.00	87.410	86.110	11489.77	985.87	-113.82	984.33	645919.49	420150.50	32°09'15.236"N	103°51'42.583"W	11.16	
11950.00	87.600	86.000	11491.12	1016.73	-111.69	1015.23	645950.39	420152.63	32°09'15.255"N	103°51'42.223"W	0.71	
11982.00	87.350	86.300	11492.53	1048.59	-109.54	1047.13	645982.28	420154.78	32°09'15.275"N	103°51'41.852"W	1.22	
12078.00	89.290	88.330	11495.34	1144.36	-105.04	1142.97	646078.12	420159.27	32°09'15.316"N	103°51'40.737"W	2.92	
12173.00	90.400	89.270	11495.60	1239.30	-103.06	1237.95	646173.09	420161.26	32°09'15.331"N	103°51'39.633"W	1.53	
12269.00	89.690	89.600	11495.52	1335.27	-102.11	1333.94	646269.08	420162.21	32°09'15.336"N	103°51'38.516"W	0.82	
12364.00	90.060	90.000	11495.73	1430.25	-101.78	1428.94	646364.07	420162.54	32°09'15.335"N	103°51'37.411"W	0.57	
12459.00	87.910	89.460	11497.41	1525.22	-101.33	1523.92	646459.04	420162.99	32°09'15.336"N	103°51'36.306"W	2.33	
12555.00	87.510	89.670	11501.25	1621.12	-100.60	1619.84	646554.95	420163.71	32°09'15.339"N	103°51'35.190"W	0.47	
12650.00	86.860	90.110	11505.92	1715.99	-100.42	1714.72	646649.83	420163.90	32°09'15.336"N	103°51'34.087"W	0.83	
12746.00	85.590	89.630	11512.24	1811.76	-100.20	1810.51	646745.61	420164.11	32°09'15.334"N	103°51'32.973"W	1.41	
12841.00	88.860	90.330	11516.83	1906.63	-100.17	1905.39	646840.48	420164.15	32°09'15.331"N	103°51'31.869"W	3.52	
12936.00	90.400	91.390	11517.45	2001.62	-101.60	2000.37	646935.46	420162.72	32°09'15.312"N	103°51'30.764"W	1.97	
13031.00	91.790	91.640	11515.63	2096.60	-104.11	2095.32	647030.40	420160.21	32°09'15.283"N	103°51'29.660"W	1.49	
13127.00	89.230	91.260	11514.78	2192.58	-106.54	2191.27	647126.35	420157.78	32°09'15.255"N	103°51'28.544"W	2.70	
13222.00	88.370	90.680	11516.77	2287.56	-108.14	2286.24	647221.31	420156.17	32°09'15.235"N	103°51'27.440"W	1.09	
13318.00	89.260	90.900	11518.75	2383.54	-109.47	2382.21	647317.27	420154.85	32°09'15.218"N	103°51'26.323"W	0.95	
13413.00	89.450	91.640	11519.82	2478.53	-111.57	2477.18	647412.23	420152.74	32°09'15.193"N	103°51'25.219"W	0.80	
13508.00	89.110	91.550	11521.02	2573.51	-114.22	2572.13	647507.18	420150.10	32°09'15.162"N	103°51'24.115"W	0.37	
13604.00	88.370	90.480	11523.13	2669.48	-115.92	2668.09	647603.14	420148.40	32°09'15.141"N	103°51'22.999"W	1.35	
13699.00	87.720	90.460	11526.37	2764.43	-116.70	2763.03	647698.07	420147.62	32°09'15.130"N	103°51'21.894"W	0.68	
13795.00	87.440	90.050	11530.42	2860.34	-117.12	2858.95	647793.98	420147.19	32°09'15.121"N	103°51'20.779"W	0.52	
13986.00	86.270	90.150	11540.90	3051.03	-117.45	3049.66	647984.67	420146.86	32°09'15.109"N	103°51'18.561"W	0.61	
14176.00	89.910	90.550	11547.23	3240.88	-118.62	3239.51	648174.52	420145.70	32°09'15.090"N	103°51'16.352"W	1.93	
14367.00	87.780	89.940	11551.08	3431.82	-119.43	3430.46	648365.45	420144.88	32°09'15.073"N	103°51'14.131"W	1.16	
14558.00	88.370	90.450	11557.50	3622.70	-120.08	3621.35	648556.33	420144.24	32°09'15.058"N	103°51'11.911"W	0.41	
14749.00	88.650	91.720	11562.46	3813.63	-123.70	3812.25	648747.21	420140.62	32°09'15.014"N	103°51'09.691"W	0.68	
14940.00	89.170	91.370	11566.10	4004.58	-128.85	4003.14	648938.10	420135.47	32°09'14.955"N	103°51'07.471"W	0.33	
15131.00	89.480	90.290	11568.35	4195.57	-131.61	4194.11	649129.05	420132.71	32°09'14.919"N	103°51'05.250"W	0.59	
15322.00	90.030	90.350	11569.16	4386.56	-132.68	4385.10	649320.03	420131.64	32°09'14.900"N	103°51'03.028"W	0.29	
15513.00	86.860	89.690	11574.35	4577.44	-132.75	4576.01	649510.92	420131.57	32°09'14.891"N	103°51'00.808"W	1.70	



Actual Wellpath Report

ST01 AWP

Page 4 of 4



REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, LP	Slot	Poker Lake Unit #348H
Area	Eddy County, NM	Well	SL 814 FSL, 1630 FEL
Field	Eddy County, NM (NAD 27 / Grid)	Wellbore	Poker Lake Unit #348H ST01 AWP
Facility	Poker Lake Unit #348H Sec. 3-25S-30E	Sidetrack from	Poker Lake Unit #348H OPH at 8854.00 MD

WELLPATH DATA (116 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
15704.00	86.090	90.920	11586.09	4768.07	-133.76	4766.64	649701.54	420130.56	32°09'14.872"N	103°50'58.590"W	0.76	
15895.00	88.280	88.400	11595.47	4958.77	-132.63	4957.38	649892.26	420131.69	32°09'14.875"N	103°50'56.372"W	1.75	
16086.00	89.940	90.080	11598.44	5149.66	-130.09	5148.32	650083.20	420134.23	32°09'14.892"N	103°50'54.151"W	1.24	
16276.00	87.010	91.080	11603.49	5339.57	-132.01	5338.22	650273.08	420132.30	32°09'14.864"N	103°50'51.942"W	1.63	
16379.00	86.920	90.810	11608.95	5442.42	-133.71	5441.06	650375.92	420130.61	32°09'14.843"N	103°50'50.746"W	0.28	
16570.00	90.430	90.080	11613.36	5633.34	-135.19	5631.98	650566.82	420129.13	32°09'14.819"N	103°50'48.525"W	1.88	
16760.00	91.510	89.840	11610.15	5823.29	-135.06	5821.95	650756.77	420129.26	32°09'14.812"N	103°50'46.316"W	0.58	
16951.00	90.710	89.360	11606.45	6014.20	-133.73	6012.90	650947.72	420130.59	32°09'14.817"N	103°50'44.095"W	0.49	
17142.00	88.890	88.640	11607.11	6205.10	-130.39	6203.86	651138.66	420133.92	32°09'14.841"N	103°50'41.873"W	1.02	
17333.00	90.310	87.210	11608.45	6395.84	-123.48	6394.72	651329.51	420140.84	32°09'14.901"N	103°50'39.653"W	1.06	
17524.00	87.690	86.390	11611.78	6586.32	-112.82	6585.38	651520.15	420151.50	32°09'14.998"N	103°50'37.435"W	1.44	
17715.00	89.080	89.070	11617.16	6776.94	-105.26	6776.13	651710.89	420159.06	32°09'15.064"N	103°50'35.216"W	1.58	
17906.00	89.480	91.450	11619.57	6967.91	-106.13	6967.10	651901.85	420158.19	32°09'15.047"N	103°50'32.995"W	1.26	
18096.00	88.240	92.310	11623.35	7157.83	-112.36	7156.96	652091.69	420151.96	32°09'14.977"N	103°50'30.787"W	0.79	
18287.00	88.610	93.090	11628.60	7348.65	-121.35	7347.67	652282.39	420142.97	32°09'14.879"N	103°50'28.569"W	0.45	
18478.00	86.730	90.980	11636.36	7539.43	-128.13	7538.37	652473.08	420136.19	32°09'14.804"N	103°50'26.351"W	1.48	
18669.00	87.470	89.890	11646.02	7730.18	-129.58	7729.12	652663.81	420134.74	32°09'14.781"N	103°50'24.133"W	0.69	
18860.00	87.200	91.200	11654.91	7920.97	-131.39	7919.90	652854.58	420132.93	32°09'14.754"N	103°50'21.914"W	0.70	
19051.00	84.450	91.260	11668.81	8111.44	-135.48	8110.33	653045.00	420128.84	32°09'14.705"N	103°50'19.699"W	1.44	
19242.00	90.490	89.810	11677.24	8302.16	-137.26	8301.04	653235.70	420127.06	32°09'14.679"N	103°50'17.481"W	3.25	
19432.00	92.410	88.420	11672.43	8492.00	-134.32	8490.94	653425.59	420129.99	32°09'14.699"N	103°50'15.272"W	1.25	
19623.00	90.120	89.490	11668.21	8682.83	-130.84	8681.85	653616.48	420133.48	32°09'14.725"N	103°50'13.051"W	1.32	
19814.00	88.370	91.340	11670.73	8873.80	-132.22	8872.81	653807.43	420132.09	32°09'14.702"N	103°50'10.830"W	1.33	
20005.00	88.150	87.460	11676.53	9064.61	-130.23	9063.68	653998.28	420134.09	32°09'14.713"N	103°50'08.610"W	2.03	
20193.00	88.030	91.800	11682.80	9252.42	-129.01	9251.52	654186.11	420135.30	32°09'14.717"N	103°50'06.425"W	2.31	
20260.00	88.030	91.800	11685.10	9319.37	-131.12	9318.45	654253.04	420133.20	32°09'14.693"N	103°50'05.646"W	0.00	Projection to Bit

WELLPATH COMPOSITION - Ref Wellbore: Poker Lake Unit #348H ST01 AWP - Ref Wellpath: ST01 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
27.00	8854.00	Generic gyro - northseeking (Standard)	Customer Provided Gyro Surveys	Poker Lake Unit #348H OPH
8854.00	20193.00	NaviTrak (Standard)	BHA NaviTrak <8893-XXXX>	Poker Lake Unit #348H ST01 AWP
20193.00	20260.00	Blind Drilling (std)	Projection to bit	Poker Lake Unit #348H ST01 AWP