

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

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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. feet	AZIMUTH 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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Location: AQUILA #8, EDDY COUNTY, NEW MEXICO

Job Number: MD0213GDM202

MEASURED INCL	DEPTH	AZIMUTH	BORE HOLE BEARING	DOGLEG SEVERITY	VERTICAL DEPTH	CLOSURE DIST.	AZIMUTH	HORIZONTAL COORDINATES
	feet	deg.	deg. min.	deg./ 100 ft.	feet	feet	deg.	feet
	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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Location: AQUILA #8, EDDY COUNTY, NEW MEXICO

Job Number: MD0213GDM202

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
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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Location: AQUILA #8, EDDY COUNTY, NEW MEXICO

Job Number: MD0213GDM202

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

A Gyrodata Directional Survey

BOPCO LP

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Location: AQUILA #8, EDDY COUNTY, NEW MEXICO

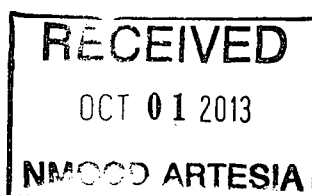
Job Number: MD0213GDM202

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
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.

Pathfinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988



PATHFINDER
A Schlumberger Company

DIRECTIONAL SURVEY REPORT

BOPCO, L.P.

PIERCE CANYON 3 FEDERAL SWD #1

EDDY COUNTY, NM

PREPARED BY: DAVID PARISH

Pathfinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988



July 19, 2013

BOPCO, L.P.
Mr. Stephen Ordoyne
3850 N. Causeway Blvd.
Suite 1900
Metairie, LA 70002-8189

RE: BOPCO, L.P.
PIERCE CANYON 3 FEDERAL SWD #1
EDDY COUNTY, NM
RIG: AQUILA #8
API NO.: 30-015-38669
PES FILE NO.: 13LAF0173

Dear Mr. Ordoyne:

We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

DIRECTIONAL SURVEY DATA

- 1 – Original Directional Survey Report
- 2 – Directional Survey Report Copies

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (337) 233-3982.

Sincerely,

A handwritten signature in black ink, appearing to read "David Parish".

David Parish
M/LWD Service Coordinator
PathFinder, a Schlumberger company

DP:tb

Pathfinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988

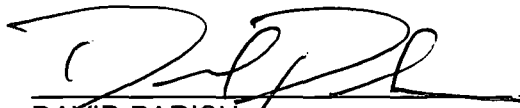


DIRECTIONAL SURVEY COMPANY REPORT:

1. SURVEYING COMPANY: PATHFINDER, A SCHLUMBERGER COMPANY
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) DANIEL HARRISON
B) MARSHAL SUTTON
3. POSITION OF SAID PERSON(S): (A-B) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 07/06/13 TO 07/06/13
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

BOPCO, L.P.
PIERCE CANYON 3 FEDERAL SWD #1
EDDY COUNTY, NM
RIG: AQUILA #8
API NO.: 30-015-38669
9. SURVEY CERTIFIED FROM: 16,385 TO 16,667 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 153.51 FEET ON A BEARING OF 293.34 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT PROJECTED MEASURED DEPTH OF 16,667 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


DAVID PARISH
M/LWD SERVICE COORDINATOR

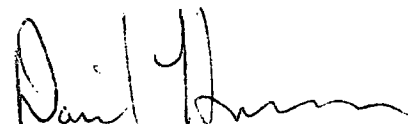
Pathfinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
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STATE OF LOUISIANA
PARISH OF LAFAYETTE

I, **Daniel Harrison**, certify that; I am employed by PathFinder, a Schlumberger company; that I did on the day(s) of **07/06/13** through **07/06/13** conduct or supervise the taking of a **Measurement While Drilling** survey from a depth of **16,385 feet to a depth of 16,667 feet**; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, a Schlumberger company; that I am authorized and qualified to make this report; that this survey was conducted at the request of **BOPCO, LP.** for the **Pierce Canyon 3 Federal SWD #1** Well API No. **30-015-38669** 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 PathFinder, a Schlumberger company.



PathFinder Field Engineer

PathFinder – a Schlumberger company

BHL Report

Page 01/01

Tie-in Date: 07/06/2013

Date Completed: 07/08/2013

BOPCO, L.P.
PIERCE CANYON 3 FEDERAL SWD 1
EDDY COUNTY, NM
API#: 30-015-38669 Rig: AQUILA #8
PathFinder Office Supervisor: DAVID PARISH
PathFinder Field Engineers: DANIEL HARRISON
MARSHAL SUTTON

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.9.16.4051 N LON: 103.51.54.7712 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 644871.2000 Y: 420264.1000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.21° EAST TO GRID
Vertical Section Plane: 158.05
Survey Vert. Reference: 25.00' Rotary Table To Ground
Altitude: 3322.50' Ground To MSL

Measured Depth	16667.00	(feet)
Inclination	5.10	(deg)
Azimuth	338.05	(deg)
True Vertical Depth	16659.93	(feet)
Vertical Section	-109.10	(feet)
Survey X cord	644730.26	(feet)
Survey Y cord	420324.92	(feet)
Survey Lat	32.15472586 N	(deg)
Survey Lon	103.86566878 W	(deg)
Rectangular Corr. N/S	60.82 N	(feet)
Rectangular Corr. E/W	140.94 W	(feet)
Closure Distance	153.51	(feet)
Direction of Closure	293.34	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder – a Schlumberger company

Survey Report

BOPCO, L.P.

PIERCE CANYON 3 FEDERAL SWD 1

EDDY COUNTY, NM

API#: 30-015-38669 Rig: AQUILA #8

PathFinder Office Supervisor: DAVID PARISH

PathFinder Field Engineers: DANIEL HARRISON
MARSHAL SUTTON

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.9.16.4051 N LON:103.51.54.7712 W

GRID Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 644871.2000 Y: 420264.1000

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.21° EAST TO GRID

Vertical Section Plane: 158.05

Survey Vert. Reference: 25.00' Rotary Table To Ground

Altitude:3322.50' Ground To MSL

Survey Calculations by RX5 V6.04D using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
THE FOLLOWING ARE GYRODATA MULTISHOT SURVEYS.												
10063.30	1.67	135.99	10062.39	0.00	-42.85	49.34 N	7.78 E	32.15469250 N	103.86518839 W	49.95@	8.96	0.00
10157.40	2.43	126.85	10156.43	94.10	-39.88	47.15 N	10.33 E	32.15468647 N	103.86518018 W	48.27@	12.35	0.88
10251.60	2.81	127.58	10250.53	94.20	-36.18	44.55 N	13.76 E	32.15467927 N	103.86516914 W	46.62@	17.16	0.41
10345.70	2.77	129.46	10344.52	94.10	-32.19	41.70 N	17.34 E	32.15467139 N	103.86515760 W	45.16@	22.58	0.11
10439.80	2.33	133.03	10438.52	94.10	-28.46	38.95 N	20.49 E	32.15466379 N	103.86514745 W	44.01@	27.75	0.50
10533.90	2.04	149.53	10532.56	94.10	-25.07	36.20 N	22.74 E	32.15465621 N	103.86514023 W	42.75@	32.14	0.73
10628.10	1.82	162.17	10626.70	94.20	-21.92	33.33 N	24.05 E	32.15464830 N	103.86513604 W	41.10@	35.81	0.51
10722.20	1.70	170.20	10720.76	94.10	-19.07	30.53 N	24.74 E	32.15464060 N	103.86513383 W	39.30@	39.02	0.29
10816.30	1.36	172.49	10814.83	94.10	-16.62	28.05 N	25.13 E	32.15463377 N	103.86513263 W	37.66@	41.86	0.37
10910.50	1.13	180.57	10909.00	94.20	-14.68	26.01 N	25.26 E	32.15462817 N	103.86513222 W	36.26@	44.17	0.31
11004.60	1.08	188.94	11003.09	94.10	-13.06	24.21 N	25.12 E	32.15462322 N	103.86513272 W	34.88@	46.06	0.18
11098.70	0.96	196.73	11097.17	94.10	-11.69	22.58 N	24.75 E	32.15461874 N	103.86513392 W	33.50@	47.63	0.19
11192.90	0.93	214.36	11191.36	94.20	-10.65	21.19 N	24.09 E	32.15461493 N	103.86513607 W	32.08@	48.67	0.31
11287.00	1.09	231.95	11285.44	94.10	-9.97	20.01 N	22.96 E	32.15461170 N	103.86513975 W	30.45@	48.93	0.37
11381.10	1.19	254.79	11379.53	94.10	-9.84	19.20 N	21.31 E	32.15460949 N	103.86514509 W	28.68@	47.98	0.49
11475.20	1.08	270.34	11473.61	94.10	-10.29	18.95 N	19.48 E	32.15460883 N	103.86515100 W	27.17@	45.79	0.35
11569.40	1.01	277.41	11567.79	94.20	-11.04	19.06 N	17.77 E	32.15460916 N	103.86515653 W	26.06@	42.99	0.16
11663.50	0.82	284.51	11661.88	94.10	-11.84	19.34 N	16.29 E	32.15460993 N	103.86516129 W	25.29@	40.12	0.23
11757.60	0.81	278.96	11755.97	94.10	-12.58	19.61 N	14.99 E	32.15461070 N	103.86516552 W	24.68@	37.39	0.08
11851.80	1.22	278.15	11850.16	94.20	-13.43	19.85 N	13.34 E	32.15461139 N	103.86517084 W	23.92@	33.89	0.43
11945.90	1.75	258.87	11944.22	94.10	-14.20	19.72 N	10.93 E	32.15461105 N	103.86517861 W	22.55@	29.01	0.77
12040.00	1.79	253.89	12038.28	94.10	-14.62	19.03 N	8.11 E	32.15460920 N	103.86518773 W	20.69@	23.08	0.17
12134.20	2.22	256.25	12132.42	94.20	-15.03	18.19 N	4.93 E	32.15460692 N	103.86519804 W	18.85@	15.15	0.46

PathFinder – a Schlumberger company

Survey Report

BOPCO, L.P.
 PIERCE CANYON 3 FEDERAL SWD 1
 EDDY COUNTY, NM
 API#: 30-015-38669 Rig: AQUILA #8

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
12228.30	2.73	256.36	12226.43	94.10	-15.61	17.23 N	0.98 E	32.15460433 N	103.86521081 W	17.26@	3.25	0.54
12322.40	2.93	256.95	12320.42	94.10	-16.31	16.16 N	3.54 W	32.15460143 N	103.86522543 W	16.54@	347.64	0.21
12416.50	2.43	257.33	12414.42	94.10	-17.00	15.18 N	7.83 W	32.15459879 N	103.86523930 W	17.08@	332.71	0.53
12510.70	2.49	265.47	12508.53	94.20	-17.94	14.58 N	11.82 W	32.15459719 N	103.86525220 W	18.77@	320.96	0.38
12604.80	2.74	268.57	12602.53	94.10	-19.34	14.36 N	16.11 W	32.15459664 N	103.86526605 W	21.58@	311.72	0.31
12698.90	2.96	268.70	12696.51	94.10	-20.98	14.25 N	20.78 W	32.15459639 N	103.86528117 W	25.20@	304.43	0.23
12793.10	2.68	271.01	12790.60	94.20	-22.70	14.23 N	25.42 W	32.15459640 N	103.86529614 W	29.13@	299.25	0.32
12887.20	2.74	273.39	12884.60	94.10	-24.52	14.40 N	29.86 W	32.15459693 N	103.86531050 W	33.15@	295.75	0.14
12981.30	2.76	272.85	12978.59	94.10	-26.44	14.65 N	34.37 W	32.15459766 N	103.86532506 W	37.36@	293.09	0.03
13075.50	2.72	274.74	13072.68	94.20	-28.39	14.95 N	38.86 W	32.15459853 N	103.86533957 W	41.64@	291.04	0.10
13169.60	2.74	278.86	13166.67	94.10	-30.55	15.48 N	43.31 W	32.15460004 N	103.86535394 W	45.99@	289.67	0.21
13263.70	2.73	285.83	13260.67	94.10	-33.07	16.44 N	47.69 W	32.15460273 N	103.86536807 W	50.44@	289.02	0.35
13357.80	2.64	290.84	13354.66	94.10	-35.92	17.82 N	51.87 W	32.15460658 N	103.86538156 W	54.84@	288.96	0.27
13452.00	2.53	298.39	13448.77	94.20	-38.99	19.58 N	55.73 W	32.15461146 N	103.86539400 W	59.07@	289.36	0.38
13546.10	2.48	309.87	13542.78	94.10	-42.38	21.87 N	59.12 W	32.15461780 N	103.86540492 W	63.03@	290.30	0.53
13640.20	2.58	312.38	13636.79	94.10	-46.09	24.60 N	62.24 W	32.15462535 N	103.86541499 W	66.93@	291.57	0.16
13734.40	2.50	318.86	13730.89	94.20	-49.94	27.58 N	65.16 W	32.15463357 N	103.86542437 W	70.76@	292.94	0.32
13828.50	2.65	334.09	13824.90	94.10	-54.05	31.08 N	67.46 W	32.15464322 N	103.86543176 W	74.28@	294.74	0.74
13922.60	2.76	346.33	13918.89	94.10	-58.46	35.24 N	68.95 W	32.15465467 N	103.86543650 W	77.43@	297.07	0.62
14016.80	2.68	0.50	14012.99	94.20	-62.74	39.65 N	69.46 W	32.15466679 N	103.86543811 W	79.98@	299.72	0.72
14110.90	2.66	0.14	14106.99	94.10	-66.79	44.03 N	69.44 W	32.15467884 N	103.86543797 W	82.22@	302.38	0.03
14205.00	2.23	1.68	14201.00	94.10	-70.50	48.04 N	69.38 W	32.15468987 N	103.86543772 W	84.39@	304.70	0.46
14299.10	1.91	351.81	14295.04	94.10	-73.70	51.43 N	69.55 W	32.15469917 N	103.86543822 W	86.50@	306.48	0.51
14393.30	1.51	324.06	14389.20	94.20	-76.42	53.98 N	70.50 W	32.15470622 N	103.86544126 W	88.80@	307.44	0.96
14487.40	1.62	16.06	14483.27	94.10	-78.68	56.27 N	70.86 W	32.15471249 N	103.86544239 W	90.48@	308.45	1.46
14581.50	0.77	3.15	14577.35	94.10	-80.30	58.18 N	70.46 W	32.15471774 N	103.86544106 W	91.37@	309.55	0.94
14675.70	0.49	254.31	14671.54	94.20	-80.91	58.70 N	70.81 W	32.15471918 N	103.86544220 W	91.98@	309.66	1.10

PathFinder – a Schlumberger company

Survey Report

BOPCO, L.P.
 PIERCE CANYON 3 FEDERAL SWD 1
 EDDY COUNTY, NM
 API#: 30-015-38669 Rig: AQUILA #8

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
14769.80	3.28	210.28	14765.59	94.10	-79.31	56.27 N	72.56 W	32.15471251 N	103.86544787 W	91.82@	307.79	3.13
14863.90	2.37	241.02	14859.58	94.10	-77.42	53.00 N	75.62 W	32.15470356 N	103.86545780 W	92.34@	305.03	1.84
14958.10	1.23	274.23	14953.73	94.20	-77.63	52.13 N	78.33 W	32.15470121 N	103.86546658 W	94.09@	303.64	1.59
15052.20	1.17	322.16	15047.81	94.10	-79.00	52.96 N	79.93 W	32.15470352 N	103.86547173 W	95.88@	303.53	1.04
15146.30	1.68	355.87	15141.89	94.10	-81.24	55.10 N	80.61 W	32.15470939 N	103.86547392 W	97.64@	304.35	1.02
15240.40	1.91	11.79	15235.94	94.10	-83.85	58.01 N	80.39 W	32.15471739 N	103.86547317 W	99.14@	305.81	0.58
15334.60	1.08	335.71	15330.11	94.20	-86.05	60.35 N	80.44 W	32.15472384 N	103.86547328 W	100.56@	306.88	1.29
15428.70	1.02	288.06	15424.19	94.10	-87.47	61.42 N	81.60 W	32.15472679 N	103.86547701 W	102.13@	306.97	0.90
15522.80	1.09	260.19	15518.28	94.10	-88.20	61.53 N	83.28 W	32.15472711 N	103.86548243 W	103.54@	306.46	0.54
15617.00	1.68	257.40	15612.45	94.20	-88.61	61.07 N	85.51 W	32.15472589 N	103.86548965 W	105.08@	305.54	0.63
15711.10	2.07	271.94	15706.50	94.10	-89.52	60.83 N	88.55 W	32.15472525 N	103.86549949 W	107.43@	304.49	0.65
15805.20	2.07	292.95	15800.54	94.10	-91.41	61.55 N	91.82 W	32.15472727 N	103.86551002 W	110.54@	303.84	0.80
15899.40	1.49	301.96	15894.70	94.20	-93.60	62.86 N	94.42 W	32.15473091 N	103.86551842 W	113.43@	303.65	0.68
15993.50	1.46	266.02	15988.77	94.10	-94.96	63.43 N	96.66 W	32.15473249 N	103.86552563 W	115.61@	303.27	0.97
16087.60	3.80	254.36	16082.76	94.10	-95.67	62.50 N	100.85 W	32.15473000 N	103.86553922 W	118.65@	301.79	2.54
16181.70	5.39	260.31	16176.56	94.10	-96.95	60.92 N	108.21 W	32.15472573 N	103.86556302 W	124.18@	299.38	1.76
16275.90	6.13	227.14	16270.31	94.20	-96.10	56.75 N	116.27 W	32.15471437 N	103.86558909 W	129.38@	296.02	3.57
16370.00	5.74	241.32	16363.91	94.10	-93.75	51.08 N	124.08 W	32.15469886 N	103.86561441 W	134.18@	292.37	1.61
** TIED INTO GYRODATA MULTISHOT SURVEY AT 16385'MD.												
16385.00	5.71	246.68	16378.83	15.00	-93.65	50.42 N	125.42 W	32.15469707 N	103.86561876 W	135.18@	291.90	3.57
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.												
16596.00	5.10	338.05	16589.21	211.00	-102.79	54.97 N	138.58 W	32.15470974 N	103.86566123 W	149.09@	291.64	3.67
STRAIGHT LINE PROJECTION TO BIT DEPTH AT 16667'MD.												
16667.00	5.10	338.05	16659.93	71.00	-109.10	60.82 N	140.94 W	32.15472586 N	103.86566878 W	153.51@	293.34	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder – a Schlumberger company and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.