

RECEIVED

AUG 26 2009

HOBBSOCD

PathFinder Energy Services, Inc.

Survey Report

Page 01/02
Tie-in Date: 06/27/2009
Date Completed: 07/06/2009

MARBOB ENERGY
S L DEEP FEDERAL #3
LEA COUNTY, NM
Rig:PATRIOT #2
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: MIKE EVANS
MATT SHIPP

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.38.9.2461 N LON:103.48.29.9859 W
Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 661616.1788 Y: 595451.6809
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.67° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 18.00' Kelly Bushing To Ground
Altitude:3537.00' Ground To MSL

Survey Calculations by RX5 V5.11i using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
ASSUME VERTICAL @ 4732' MD										
4732.00	0.00	0.00	4732.00	0.00	0.00	0.00	0.00	0.00@	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS										
4832.00	2.11	184.73	4831.98	100.00	-1.83	1.83 S	0.15 W	1.84@	184.73	2.11
4886.00	1.41	177.53	4885.95	54.00	-3.49	3.49 S	0.21 W	3.50@	183.36	1.36
4952.00	1.32	173.98	4951.93	66.00	-5.06	5.06 S	0.09 W	5.06@	181.02	0.19
5011.00	1.23	163.01	5010.92	59.00	-6.34	6.34 S	0.17 E	6.34@	178.50	0.44
5105.00	1.14	161.49	5104.90	94.00	-8.19	8.19 S	0.76 E	8.22@	174.72	0.10
5199.00	1.14	157.38	5198.88	94.00	-9.94	9.94 S	1.41 E	10.04@	171.90	0.09
5293.00	0.79	160.56	5292.87	94.00	-11.41	11.41 S	1.99 E	11.59@	170.11	0.38
5388.00	0.79	154.08	5387.86	95.00	-12.62	12.62 S	2.49 E	12.86@	168.82	0.09
5482.00	0.88	144.59	5481.85	94.00	-13.79	13.79 S	3.20 E	14.16@	166.96	0.17
5575.00	0.53	156.40	5574.84	93.00	-14.77	14.77 S	3.78 E	15.24@	165.64	0.41
5731.00	0.44	129.22	5730.83	156.00	-15.81	15.81 S	4.53 E	16.44@	164.00	0.16
5888.00	0.26	135.78	5887.83	157.00	-16.44	16.44 S	5.25 E	17.26@	162.30	0.12
6046.00	0.35	123.99	6045.83	158.00	-16.97	16.97 S	5.90 E	17.97@	160.83	0.07
6202.00	0.35	93.41	6201.83	156.00	-17.27	17.27 S	6.77 E	18.55@	158.59	0.12
6358.00	0.35	84.32	6357.82	156.00	-17.25	17.25 S	7.72 E	18.90@	155.89	0.03
6514.00	0.34	66.93	6513.82	156.00	-17.02	17.02 S	8.62 E	19.08@	153.14	0.07
6671.00	0.51	24.15	6670.82	157.00	-16.20	16.20 S	9.33 E	18.70@	150.05	0.22
6827.00	0.70	29.30	6826.81	156.00	-14.73	14.73 S	10.08 E	17.85@	145.61	0.13
6985.00	0.79	42.13	6984.80	158.00	-13.08	13.08 S	11.29 E	17.28@	139.21	0.12
7142.00	0.88	83.13	7141.78	157.00	-12.14	12.14 S	13.21 E	17.94@	132.57	0.38
7300.00	1.41	299.75	7299.77	158.00	-11.03	11.03 S	12.73 E	16.84@	130.91	1.38

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
 S L DEEP FEDERAL #3
 LEA COUNTY, NM
 RIG:PATRIOT #2

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS (dg/100ft)
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
7458.00	0.26	49.54	7457.75	158.00	-9.83	9.83 S	11.31 E	14.99@	130.99	0.96
7614.00	0.70	82.59	7613.74	156.00	-9.48	9.48 S	12.53 E	15.71@	127.11	0.32
7769.00	0.88	93.03	7768.73	155.00	-9.42	9.42 S	14.65 E	17.42@	122.73	0.15
7926.00	1.23	92.74	7925.70	157.00	-9.56	9.56 S	17.54 E	19.98@	118.60	0.22
8082.00	1.85	84.59	8081.65	156.00	-9.41	9.41 S	21.72 E	23.67@	113.41	0.42
8239.00	2.11	92.84	8238.55	157.00	-9.31	9.31 S	27.13 E	28.68@	108.94	0.24
8396.00	2.02	97.93	8395.45	157.00	-9.83	9.83 S	32.76 E	34.20@	106.71	0.13
8552.00	2.29	98.34	8551.34	156.00	-10.67	10.67 S	38.56 E	40.01@	105.46	0.17
8647.00	2.55	93.80	8646.25	95.00	-11.08	11.08 S	42.55 E	43.97@	104.60	0.34
8740.00	2.99	83.39	8739.15	93.00	-10.94	10.94 S	47.02 E	48.28@	103.10	0.72
8835.00	2.20	72.85	8834.05	95.00	-10.12	10.12 S	51.23 E	52.22@	101.17	0.97
8928.00	1.93	77.01	8926.99	93.00	-9.24	9.24 S	54.46 E	55.24@	99.63	0.33
9022.00	1.85	73.88	9020.94	94.00	-8.46	8.46 S	57.46 E	58.08@	98.38	0.14
9116.00	1.58	78.68	9114.90	94.00	-7.78	7.78 S	60.19 E	60.69@	97.37	0.32
9209.00	1.49	84.69	9207.86	93.00	-7.42	7.42 S	62.65 E	63.09@	96.76	0.20
9304.00	1.93	94.06	9302.82	95.00	-7.42	7.42 S	65.48 E	65.89@	96.47	0.55
9398.00	2.02	102.89	9396.76	94.00	-7.90	7.90 S	68.67 E	69.12@	96.56	0.34
9493.00	2.20	100.90	9491.70	95.00	-8.62	8.62 S	72.09 E	72.61@	96.82	0.20
9531.00	2.46	96.31	9529.67	38.00	-8.85	8.85 S	73.62 E	74.15@	96.85	0.84
STRAIGHT-LINE PROJECTION TO BIT @ 9580'MD.										
9580.00	2.46	96.31	9578.62	49.00	-9.08	9.08 S	75.71 E	76.25@	96.84	0.00

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
S L DEEP FEDERAL #3
LEA COUNTY, NEW MEXICO
Rig: PATRIOT 2

Fri Jun 26 19:12:01 2009

Coordinates

Latitude: 32.635902 N (32 deg. 38 min. 9.2463 sec.)
Longitude: 103.808329 W (-103 deg. 48 min. 29.9857 sec.)
Elevation: 3537.00 feet.
Calculation Date: Jun/26/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.5932 degrees
Total Magnetic Field: 0.49064 gauss
Magnetic Declination: 7.950504 degrees
Horizontal Intensity: 0.240906 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.950504 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 661616.2000 feet
Y: 595451.7000 feet
True to Grid: (convergence) -0.283140 degrees
Magnetic to Grid: 7.667364 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.667364 Degr.