

30-015-37581

DIRECTIONAL SURVEY REPORT

MARBOB ENERGY CORPORATION

WILDCAP STATE #6H

EDDY COUNTY, NEW MEXICO

RECEIVED

MAR 09 2011

NMOCD ARTESIA

PREPARED BY: FRANCISCO SINISTERRA



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) FRED KNAAK
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 10-13-10 TO 10-23-10
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:

MARBOB ENERGY CORPORATION
WILDCAP STATE #6H
EDDY COUNTY, NM
RIG: PATRIOT 6
9. SURVEY CERTIFIED FROM: 8761 TO 13583 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4617.19 FEET ON A BEARING OF 359.40 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 13630 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
MWD COORDINATOR

PATHFINDER

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY CORP		
LEASE / WELL No.:	WILDCAP STATE COM	6H	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	PATRIOT 6		
API WELL No:	30-015-37581		
JOB No:	700000565 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.55	LWD Calculated:	7.55
		Agreed Upon:	7.55
X =	655128.000000	Feet	Y = 586174.800000
			Feet
SITE LATITUDE:	32.610489 N	SITE LONGITUDE:	103.829548 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	
PROPOSED DRIFT DIRECTION:	359.61		
KELLY BUSHING ELEVATION:	19.0 FEET		
ALTITUDE:	3480	Feet	WATER DEPTH: NA
			Feet

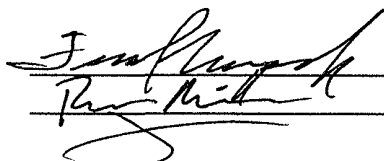
TIE-IN SURVEY

MEASURED DEPTH:	8677		
DRIFT ANGLE:	0.41		
DRIFT DIRECTION:	342.91		
TRUE VERTICAL DEPTH:	8676.2		
VERTICAL SECTION:	15.38		
RECTANGULAR COORDINATE (N / S):	15.5		
RECTANGULAR COORDINATE (E / W):	16.88		
CLOSURE DISTANCE / DIRECTION:	22.92	47.44	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SCIENTIFIC DRILLING		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	8777	TOTAL DEPTH:	13669
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers:




**Signature of both field engineers required if applicable

Directional Driller:

DATE: 6-14-10

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 10/13/2010
Date Completed: 10/23/2010

MARBOB ENERGY CORPORATION
WILDCAP STATE COM #6H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 6
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: FRED KNAAK
RYAN MILLER

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.36.37.7589 N LON: 103.49.46.3734 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 655128.0000 Y: 586174.8000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.55° EAST TO GRID
Vertical Section Plane: 359.61
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude: 3480.00' Ground To MSL

Measured Depth	13630.00	(feet)
Inclination	90.40	(deg)
Azimuth	356.41	(deg)
True Vertical Depth	9241.76	(feet)
Vertical Section	4617.16	(feet)
Survey X cord	655079.71	(feet)
Survey Y cord	590791.74	(feet)
Survey Lat	32.62317985 N	(deg)
Survey Lon	103.82963393 W	(deg)
Rectangular Corr. N/S	4616.94 N	(feet)
Rectangular Corr. E/W	48.29 W	(feet)
Closure Distance	4617.19	(feet)
Direction of Closure	359.40	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
WILDCAP STATE COM #6H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 6
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Altitude: 3480.00' Ground To MSL

Survey Calculations by RX5 V6.03B using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
TIE IN TO SCIENTIFIC GYRO SURVEY @ 8677'MD.								
8677.00	0.41	342.91	8676.20	0.00	15.38	15.50 N 16.88 E	22.92@ 47.44	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
8761.00	1.85	348.88	8760.18	84.00	17.00	17.12 N 16.53 E	23.80@ 44.00	1.72
8793.00	5.63	346.22	8792.11	32.00	19.04	19.15 N 16.06 E	24.99@ 39.98	11.82
8825.00	9.58	347.21	8823.82	32.00	23.17	23.27 N 15.09 E	27.74@ 32.96	12.35
8856.00	13.89	347.01	8854.17	31.00	29.32	29.42 N 13.68 E	32.44@ 24.95	13.90
8888.00	18.20	346.27	8884.91	32.00	37.94	38.02 N 11.63 E	39.76@ 17.01	13.48
8920.00	21.63	347.26	8914.99	32.00	48.56	48.63 N 9.15 E	49.48@ 10.65	10.77
8952.00	25.41	348.34	8944.33	32.00	61.06	61.11 N 6.46 E	61.45@ 6.03	11.89
8983.00	29.81	349.66	8971.79	31.00	75.18	75.21 N 3.73 E	75.30@ 2.84	14.33
9015.00	33.77	352.00	8998.99	32.00	91.84	91.85 N 1.06 E	91.86@ 0.66	12.96
9046.00	36.23	354.80	9024.38	31.00	109.51	109.51 N 0.97 W	109.51@ 359.49	9.48
9078.00	39.31	356.64	9049.67	32.00	129.06	129.05 N 2.42 W	129.07@ 358.93	10.25
9110.00	43.00	358.93	9073.77	32.00	150.11	150.09 N 3.22 W	150.12@ 358.77	12.45
9141.00	45.90	1.10	9095.89	31.00	171.81	171.79 N 3.20 W	171.82@ 358.93	10.56
9173.00	48.36	1.28	9117.66	32.00	195.25	195.24 N 2.71 W	195.26@ 359.20	7.70
9205.00	51.70	359.88	9138.22	32.00	219.77	219.76 N 2.47 W	219.77@ 359.36	10.96
9236.00	55.13	357.96	9156.69	31.00	244.65	244.64 N 2.95 W	244.66@ 359.31	12.13
9268.00	58.48	356.73	9174.21	32.00	271.41	271.38 N 4.20 W	271.42@ 359.11	10.95
9300.00	61.91	356.29	9190.11	32.00	299.13	299.09 N 5.89 W	299.15@ 358.87	10.79
9332.00	65.07	358.30	9204.40	32.00	327.73	327.69 N 7.23 W	327.77@ 358.74	11.36
9364.00	67.44	359.32	9217.28	32.00	357.02	356.97 N 7.84 W	357.06@ 358.74	7.96
9395.00	71.58	359.99	9228.13	31.00	386.05	386.01 N 8.01 W	386.09@ 358.81	13.51
9427.00	76.06	0.03	9237.04	32.00	416.78	416.73 N 8.01 W	416.81@ 358.90	14.00
9459.00	80.28	359.85	9243.60	32.00	448.09	448.04 N 8.04 W	448.12@ 358.97	13.20

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
WILDCAP STATE COM #6H
EDDY COUNTY, NEW MEXICO
RIG:PATRIOT 6

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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)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
9491.00	83.62	359.68	9248.08	32.00	479.77	479.72 N	8.17 W	479.79@	359.02	10.45
9522.00	86.70	0.11	9250.70	31.00	510.65	510.61 N	8.22 W	510.68@	359.08	10.03
9554.00	89.60	359.91	9251.73	32.00	542.63	542.59 N	8.22 W	542.65@	359.13	9.08
9586.00	89.96	359.92	9251.86	32.00	574.63	574.59 N	8.27 W	574.65@	359.18	1.12
9649.00	90.13	359.57	9251.81	63.00	637.63	637.59 N	8.55 W	637.65@	359.23	0.62
9713.00	90.31	359.25	9251.56	64.00	701.63	701.58 N	9.21 W	701.64@	359.25	0.57
9808.00	90.84	358.62	9250.61	95.00	796.62	796.56 N	10.97 W	796.64@	359.21	0.87
9904.00	91.36	358.51	9248.76	96.00	892.58	892.51 N	13.38 W	892.61@	359.14	0.55
9999.00	90.31	358.89	9247.38	95.00	987.56	987.48 N	15.53 W	987.60@	359.10	1.18
10063.00	90.75	358.60	9246.79	64.00	1051.55	1051.46 N	16.93 W	1051.60@	359.08	0.82
10157.00	89.43	359.72	9246.64	94.00	1145.54	1145.45 N	18.31 W	1145.59@	359.08	1.84
10253.00	89.96	359.41	9247.15	96.00	1241.54	1241.44 N	19.04 W	1241.59@	359.12	0.64
10348.00	90.57	358.74	9246.71	95.00	1336.54	1336.43 N	20.57 W	1336.58@	359.12	0.95
10443.00	89.08	359.54	9247.00	95.00	1431.53	1431.41 N	22.00 W	1431.58@	359.12	1.78
10539.00	89.25	359.98	9248.40	96.00	1527.52	1527.40 N	22.40 W	1527.56@	359.16	0.49
10634.00	89.87	359.56	9249.13	95.00	1622.51	1622.40 N	22.78 W	1622.56@	359.20	0.79
10730.00	90.75	358.92	9248.61	96.00	1718.51	1718.39 N	24.06 W	1718.55@	359.20	1.13
10825.00	90.04	359.54	9247.96	95.00	1813.50	1813.37 N	25.33 W	1813.55@	359.20	0.99
10920.00	89.69	0.14	9248.18	95.00	1908.50	1908.37 N	25.60 W	1908.54@	359.23	0.73
11016.00	90.22	359.08	9248.25	96.00	2004.50	2004.37 N	26.25 W	2004.54@	359.25	1.23
11111.00	89.34	0.13	9248.62	95.00	2099.50	2099.36 N	26.91 W	2099.54@	359.27	1.44
11207.00	89.52	0.08	9249.57	96.00	2195.49	2195.36 N	26.73 W	2195.52@	359.30	0.19
11302.00	89.52	0.20	9250.37	95.00	2290.48	2290.35 N	26.50 W	2290.51@	359.34	0.13
11397.00	89.16	359.94	9251.46	95.00	2385.47	2385.35 N	26.38 W	2385.49@	359.37	0.47
11493.00	88.99	0.21	9253.01	96.00	2481.46	2481.34 N	26.26 W	2481.47@	359.39	0.33
11588.00	90.04	1.39	9253.82	95.00	2576.43	2576.32 N	24.93 W	2576.44@	359.45	1.66
11684.00	90.48	1.69	9253.38	96.00	2672.37	2672.28 N	22.35 W	2672.38@	359.52	0.56
11778.00	90.84	2.02	9252.30	94.00	2766.29	2766.23 N	19.31 W	2766.29@	359.60	0.52

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
WILDCAP STATE COM #6H
EDDY COUNTY, NEW MEXICO
RIG:PATRIOT 6

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)	(ft)	(deg)	
11874.00	90.84	1.50	9250.89	96.00	2862.22	2862.17 N	16.36 W	2862.22@	359.67	0.54
11969.00	90.66	1.12	9249.65	95.00	2957.17	2957.14 N	14.19 W	2957.17@	359.73	0.44
12065.00	90.13	1.13	9248.99	96.00	3053.13	3053.12 N	12.30 W	3053.14@	359.77	0.55
12160.00	89.78	1.07	9249.06	95.00	3148.10	3148.10 N	10.48 W	3148.12@	359.81	0.37
12255.00	89.78	0.70	9249.43	95.00	3243.07	3243.09 N	9.01 W	3243.10@	359.84	0.39
12351.00	89.08	0.88	9250.38	96.00	3339.05	3339.07 N	7.69 W	3339.08@	359.87	0.75
12446.00	88.72	0.70	9252.21	95.00	3434.01	3434.05 N	6.38 W	3434.05@	359.89	0.42
12542.00	90.13	359.47	9253.17	96.00	3530.00	3530.04 N	6.24 W	3530.04@	359.90	1.95
12637.00	90.13	359.12	9252.95	95.00	3625.00	3625.03 N	7.40 W	3625.04@	359.88	0.37
12732.00	89.69	358.82	9253.10	95.00	3719.99	3720.01 N	9.11 W	3720.03@	359.86	0.56
12828.00	89.96	358.52	9253.40	96.00	3815.98	3815.99 N	11.34 W	3816.00@	359.83	0.42
12923.00	90.40	358.23	9253.10	95.00	3910.95	3910.95 N	14.03 W	3910.97@	359.79	0.56
13019.00	90.13	358.04	9252.65	96.00	4006.92	4006.90 N	17.16 W	4006.93@	359.75	0.34
13114.00	92.42	357.87	9250.54	95.00	4101.85	4101.81 N	20.55 W	4101.86@	359.71	2.42
13210.00	91.80	357.14	9247.01	96.00	4197.72	4197.65 N	24.72 W	4197.72@	359.66	1.00
13305.00	91.10	356.51	9244.60	95.00	4292.58	4292.47 N	29.98 W	4292.58@	359.60	0.99
13400.00	90.48	357.21	9243.29	95.00	4387.46	4387.32 N	35.19 W	4387.46@	359.54	0.98
13495.00	90.31	356.81	9242.64	95.00	4482.36	4482.19 N	40.14 W	4482.37@	359.49	0.46
13583.00	90.40	356.41	9242.09	88.00	4570.23	4570.03 N	45.35 W	4570.26@	359.43	0.47
STRAIGHT LINE PROJECTION TO BIT DEPTH @ 13630' MD.										
13630.00	90.40	356.41	9241.76	47.00	4617.16	4616.94 N	48.29 W	4617.19@	359.40	0.00



A Schlumberger Company

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

MARBOB ENERGY
WILDCAP STATE COM #6H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 6

Tue Oct 12 16:11:51 2010

Coordinates

Latitude: 32.610489 N (32 deg. 36 min. 37.7589 sec.)
Longitude: 103.829548 W (-103 deg. 49 min. 46.3734 sec.)
Elevation: 3499.00 feet.
Calculation Date: Oct/12/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.5172 degrees
Total Magnetic Field: 0.48888 gauss
Magnetic Declination: 7.816554 degrees
Horizontal Intensity: 0.240608 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.816554 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 655128.0000 feet
Y: 586174.8000 feet
True to Grid: (convergence) -0.271507 degrees
Magnetic to Grid: 7.545046 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.545046 Degs.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY CORP
WILDCAP STATE COM 6H
WC WILLIAMS SINK; BONE SPRING

Wed Oct 13 21:27:11 2010

Coordinates

Latitude: 32.610489 N (32 deg. 36 min. 37.7589 sec.)
Longitude: 103.829548 W (-103 deg. 49 min. 46.3734 sec.)
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