

30-015-37426

DIRECTIONAL SURVEY REPORT

MARBOB ENERGY CORPORATION

SRO STATE UNIT COM #14H

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA



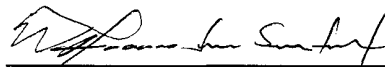
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JAY FULTON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 10-20-10 TO 10-26-10
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
SRO STATE UNIT COM #14H
EDDY COUNTY, NM
RIG: PATRIOT #2

9. SURVEY CERTIFIED FROM: 6214 TO 11069 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4553.39 FEET ON A BEARING OF 89.35 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11146 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



FRANCISCO SINISTERRA
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 10/19/2010
Date Completed: 10/26/2010

MARBOB ENERGY CORPORATION

SRO STATE UNIT COM #14H

EDDY COUNTY, NEW MEXICO

Rig: PATRIOT # 2

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: DAVID PHILIPS

JESUS GARCIA

JAY FULTON

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.3.5.2214 N LON: 104.4.54.6036 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 577919.9000 Y: 382533.6000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.75° EAST TO GRID

Vertical Section Plane: 89.38

Survey Vert. Reference: 15.00' Kelly Bushing To Ground

Altitude: 3025.00' Ground To MSL

Measured Depth	11146.00	(feet)
Inclination	89.52	(deg)
Azimuth	86.62	(deg)
True Vertical Depth	6845.36	(feet)
Vertical Section	4553.39	(feet)
Survey X cord	582472.98	(feet)
Survey Y cord	382585.59	(feet)
Survey Lat	32.05156328 N	(deg)
Survey Lon	104.06713825 W	(deg)
Rectangular Corr. N/S	52.00 N	(feet)
Rectangular Corr. E/W	4553.10 E	(feet)
Closure Distance	4553.39	(feet)
Direction of Closure	89.35	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION

SRO STATE UNIT COM #14H

EDDY COUNTY, NEW MEXICO

Rig: PATRIOT # 2

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: DAVID PHILIPS

JESUS GARCIA

JAY FULTON

Survey Calculations by RX4 using Minimum Curvature

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.3.5.2214 N LON: 104.4.54.6036 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 577919.9000 Y: 382533.6000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.75° EAST TO GRID

Vertical Section Plane: 89.38

Survey Vert. Reference: 15.00' Kelly Bushing To Ground

Altitude: 3025.00' Ground To MSL

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 DRILLING GYRO SURVEY @ 6190' MD.										
6190.00	1.25	236.89	6188.90	0.00	-2.51	58.81 S	1.87 W	58.84@	181.82	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
6214.00	1.23	241.34	6212.89	24.00	-2.95	59.08 S	2.32 W	59.12@	182.24	0.41
6261.00	1.49	256.77	6259.88	47.00	-4.00	59.46 S	3.35 W	59.55@	183.23	0.95
6293.00	0.88	239.89	6291.87	32.00	-4.62	59.68 S	3.97 W	59.81@	183.81	2.18
6324.00	3.78	90.91	6322.85	31.00	-3.80	59.81 S	3.15 W	59.90@	183.02	14.70
6355.00	8.53	86.20	6353.67	31.00	-0.48	59.68 S	0.16 E	59.68@	179.84	15.40
6387.00	13.19	86.26	6385.09	32.00	5.54	59.28 S	6.18 E	59.60@	174.05	14.56
6419.00	17.50	84.82	6415.94	32.00	13.98	58.61 S	14.62 E	60.40@	166.00	13.52
6450.00	21.72	85.34	6445.13	31.00	24.35	57.72 S	24.98 E	62.89@	156.60	13.63
6482.00	25.59	86.77	6474.44	32.00	37.17	56.85 S	37.79 E	68.26@	146.39	12.22
6514.00	27.96	87.22	6503.01	32.00	51.57	56.10 S	52.18 E	76.61@	137.07	7.43
6545.00	30.42	86.72	6530.07	31.00	66.68	55.29 S	67.28 E	87.09@	129.42	7.97
6576.00	33.50	86.35	6556.37	31.00	83.06	54.30 S	83.65 E	99.73@	122.99	9.96
6608.00	37.55	86.93	6582.40	32.00	101.63	53.22 S	102.21 E	115.24@	117.50	12.70
6640.00	39.75	87.92	6607.39	32.00	121.60	52.32 S	122.18 E	132.91@	113.18	7.14
6672.00	41.68	88.84	6631.65	32.00	142.47	51.74 S	143.04 E	152.11@	109.88	6.32
6703.00	44.76	90.33	6654.24	31.00	163.70	51.59 S	164.27 E	172.18@	107.44	10.47
6734.00	48.19	89.77	6675.58	31.00	186.17	51.61 S	186.74 E	193.74@	105.45	11.14
6766.00	50.30	88.97	6696.47	32.00	210.41	51.34 S	210.98 E	217.13@	103.68	6.86
6797.00	52.50	88.05	6715.81	31.00	234.63	50.70 S	235.19 E	240.60@	102.17	7.47
6829.00	56.10	87.05	6734.48	32.00	260.60	49.59 S	261.15 E	265.82@	100.75	11.53
6861.00	58.30	86.16	6751.81	32.00	287.46	47.99 S	288.00 E	291.97@	99.46	7.26
6892.00	60.23	85.69	6767.66	31.00	314.06	46.10 S	314.58 E	317.94@	98.34	6.36
6923.00	64.10	85.73	6782.13	31.00	341.41	44.05 S	341.91 E	344.73@	97.34	12.48

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
SRO STATE UNIT COM #14H
EDDY COUNTY, NEW MEXICO
RIG:PATRIOT # 2

Page 02/03

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)
6955.00	68.15	87.17	6795.08	32.00	370.63	42.24 S	371.11 E	373.50@	96.49	13.31
6987.00	70.79	88.22	6806.30	32.00	400.58	41.04 S	401.05 E	403.14@	95.84	8.80
7019.00	73.07	89.47	6816.23	32.00	431.00	40.43 S	431.46 E	433.35@	95.35	8.04
7050.00	75.62	90.43	6824.59	31.00	460.84	40.40 S	461.31 E	463.07@	95.01	8.75
7081.00	78.88	91.18	6831.43	31.00	491.06	40.83 S	491.54 E	493.23@	94.75	10.78
7113.00	81.87	92.02	6836.78	32.00	522.59	41.71 S	523.07 E	524.73@	94.56	9.70
7148.00	85.21	92.36	6840.72	35.00	557.32	43.04 S	557.82 E	559.47@	94.41	9.59
7180.00	87.14	91.74	6842.85	32.00	589.21	44.18 S	589.72 E	591.38@	94.28	6.33
7212.00	88.46	91.63	6844.08	32.00	621.16	45.12 S	621.68 E	623.32@	94.15	4.14
7244.00	89.78	91.39	6844.57	32.00	653.13	45.97 S	653.67 E	655.28@	94.02	4.19
7275.00	89.60	90.86	6844.74	31.00	684.12	46.58 S	684.66 E	686.24@	93.89	1.81
7369.00	88.55	90.26	6846.26	94.00	778.08	47.49 S	778.64 E	780.09@	93.49	1.29
7464.00	88.72	89.87	6848.52	95.00	873.05	47.60 S	873.62 E	874.91@	93.12	0.45
7558.00	88.99	88.86	6850.40	94.00	967.03	46.56 S	967.59 E	968.71@	92.75	1.11
7652.00	89.78	89.74	6851.41	94.00	1061.02	45.41 S	1061.58 E	1062.55@	92.45	1.26
7747.00	89.60	90.15	6851.92	95.00	1156.02	45.32 S	1156.58 E	1157.46@	92.24	0.47
7841.00	90.04	90.56	6852.22	94.00	1250.00	45.90 S	1250.57 E	1251.41@	92.10	0.64
7936.00	89.25	90.25	6852.81	95.00	1344.98	46.57 S	1345.57 E	1346.37@	91.98	0.89
8031.00	88.20	89.55	6854.92	95.00	1439.96	46.41 S	1440.54 E	1441.29@	91.85	1.33
8126.00	89.43	88.93	6856.88	95.00	1534.93	45.15 S	1535.51 E	1536.17@	91.68	1.45
8220.00	90.66	88.93	6856.81	94.00	1628.93	43.39 S	1629.49 E	1630.07@	91.53	1.31
8314.00	90.31	88.70	6856.02	94.00	1722.92	41.45 S	1723.47 E	1723.97@	91.38	0.45
8408.00	90.22	88.51	6855.58	94.00	1816.91	39.16 S	1817.44 E	1817.86@	91.23	0.22
8503.00	89.69	88.77	6855.66	95.00	1911.90	36.91 S	1912.41 E	1912.77@	91.11	0.62
8597.00	90.48	88.03	6855.52	94.00	2005.89	34.28 S	2006.37 E	2006.67@	90.98	1.15
8692.00	90.75	87.84	6854.50	95.00	2100.85	30.86 S	2101.31 E	2101.53@	90.84	0.35
8786.00	91.10	87.85	6852.98	94.00	2194.80	27.32 S	2195.23 E	2195.40@	90.71	0.37
8880.00	90.31	87.43	6851.82	94.00	2288.75	23.45 S	2289.14 E	2289.26@	90.59	0.95

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
SRO STATE UNIT COM #14H
EDDY COUNTY, NEW MEXICO
RIG:PATRIOT # 2

Page 03/03

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)
8975.00	89.52	87.09	6851.96	95.00	2383.69	18.91 S	2384.03 E	2384.11@	90.45	0.90
9069.00	89.43	87.06	6852.82	94.00	2477.61	14.12 S	2477.90 E	2477.95@	90.33	0.10
9164.00	88.64	86.20	6854.42	95.00	2572.48	8.53 S	2572.73 E	2572.74@	90.19	1.23
9258.00	90.31	87.22	6855.29	94.00	2666.37	3.14 S	2666.56 E	2666.56@	90.07	2.08
9353.00	91.10	88.79	6854.12	95.00	2761.33	0.17 N	2761.49 E	2761.49@	90.00	1.85
9448.00	90.92	88.39	6852.44	95.00	2856.31	2.51 N	2856.45 E	2856.45@	89.95	0.46
9542.00	90.31	88.78	6851.43	94.00	2950.29	4.83 N	2950.42 E	2950.42@	89.91	0.77
9637.00	90.13	88.95	6851.07	95.00	3045.29	6.71 N	3045.40 E	3045.40@	89.87	0.26
9731.00	89.69	89.26	6851.22	94.00	3139.29	8.18 N	3139.38 E	3139.39@	89.85	0.57
9825.00	88.37	88.56	6852.81	94.00	3233.27	9.96 N	3233.35 E	3233.37@	89.82	1.59
9919.00	89.69	88.79	6854.40	94.00	3327.25	12.14 N	3327.31 E	3327.33@	89.79	1.43
10014.00	91.01	89.95	6853.82	95.00	3422.24	13.18 N	3422.30 E	3422.32@	89.78	1.85
10108.00	92.68	90.15	6850.79	94.00	3516.18	13.10 N	3516.25 E	3516.27@	89.79	1.79
10202.00	92.42	90.31	6846.61	94.00	3610.08	12.72 N	3610.15 E	3610.18@	89.80	0.32
10296.00	90.75	88.59	6844.01	94.00	3704.04	13.63 N	3704.11 E	3704.13@	89.79	2.55
10391.00	91.19	88.34	6842.40	95.00	3799.01	16.17 N	3799.06 E	3799.09@	89.76	0.53
10486.00	90.22	88.07	6841.23	95.00	3893.98	19.15 N	3894.00 E	3894.05@	89.72	1.06
10580.00	90.57	88.42	6840.58	94.00	3987.96	22.02 N	3987.96 E	3988.02@	89.68	0.53
10675.00	89.60	87.57	6840.44	95.00	4082.93	25.35 N	4082.90 E	4082.97@	89.64	1.36
10769.00	89.25	87.14	6841.39	94.00	4176.87	29.69 N	4176.79 E	4176.90@	89.59	0.59
10863.00	89.43	87.21	6842.47	94.00	4270.79	34.32 N	4270.67 E	4270.81@	89.54	0.21
10958.00	89.25	85.93	6843.56	95.00	4365.67	40.00 N	4365.49 E	4365.67@	89.48	1.36
11052.00	89.52	86.26	6844.57	94.00	4459.51	46.40 N	4459.27 E	4459.51@	89.40	0.45
11069.00	89.52	86.62	6844.72	17.00	4476.48	47.46 N	4476.23 E	4476.49@	89.39	2.12
STRAIGHT LINE PROJECTION TO BIT @ 11146' MD.										
11146.00	89.52	86.62	6845.36	77.00	4553.39	52.00 N	4553.10 E	4553.39@	89.35	0.00

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY CORPORATION		
LEASE / WELL No.:	SRO STATE UNIT COM #14H		
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NEW MEXICO	USA
RIG:	PATRIOT # 2		
API WELL No:	30-015-37426		
JOB No:	700000566 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER DIRECTIONAL		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.84	LWD Calculated:	7.75
		Agreed Upon:	7.75
X =	577919.900000	Feet	Y = 382533.600000
			Feet
SITE LATITUDE:	32.051450 N	SITE LONGITUDE:	104.081834 W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	89.38		
KELLY BUSHING ELEVATION:	15'		
ALTITUDE:	3025'	Feet	WATER DEPTH:
			Feet

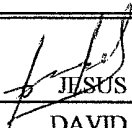
TIE-IN SURVEY

MEASURED DEPTH:	6190		
DRIFT ANGLE:	1.25		
DRIFT DIRECTION:	236.89		
TRUE VERTICAL DEPTH:	6188.9		
VERTICAL SECTION:	-2.51		
RECTANGULAR COORDINATE (N / S) :	58.81 S		
RECTANGULAR COORDINATE (E / W) :	1.87 W		
CLOSURE DISTANCE / DIRECTION:	58.84	181.82	
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:	6222'	TOTAL DEPTH:	11048.92
KICKOFF ANGLE:	0	MAX ANGLE:	90

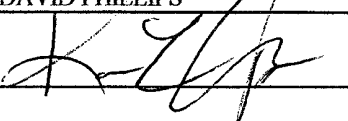
PES Engineers:

 JESUS GARCIA

DAVID PHILLIPS

**Signature of both field engineers required if applicable

Directional Driller: KEVIN JEZIK



DATE: 20-Oct-2010



A Schlumberger Company

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

MARBOB ENERGY CORPORATION
SRO STATE UNIT COM #14H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT #2

Tue Oct 12 11:47:54 2010

Coordinates

Latitude: 32.051450 N (32 deg. 3 min. 5.2214 sec.)
Longitude: 104.081834 W (-104 deg. 4 min. 54.6036 sec.)
Elevation: 3040.00 feet.
Calculation Date: Oct/12/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9524 degrees
Total Magnetic Field: 0.48524 gauss
Magnetic Declination: 7.886512 degrees
Horizontal Intensity: 0.242970 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.886512 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 577919.9000 feet
Y: 382533.6000 feet
True to Grid: (convergence) -0.133466 degrees
Magnetic to Grid: 7.753046 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.753046 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY CORPORATION
SRO STATE UNIT COM #14H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT # 2

Tue Oct 19 22:48:24 2010

Coordinates

Latitude: 32.051450 N (32 deg. 3 min. 5.2214 sec.)
Longitude: 104.081834 W (-104 deg. 4 min. 54.6036 sec.)
Elevation: 3040.00 feet.
Calculation Date: Oct/19/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9520 degrees
Total Magnetic Field: 0.48522 gauss
Magnetic Declination: 7.884193 degrees
Horizontal Intensity: 0.242963 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.884193 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 577919.9000 feet
Y: 382533.6000 feet
True to Grid: (convergence) -0.133466 degrees
Magnetic to Grid: 7.750727 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.750727 Degr.