

Scientific Drilling

NOV 16 2009

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MARBOB ENERGY

Field: Wildcat
Site: Eddy County, NM
Well: Cali Roll Federal #1
Wellpath: VH - Job #32K1009448
Survey: 10/26/09

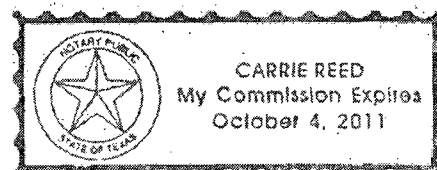
30 015 37267

This survey is correct to the best of my knowledge
and is supported by actual field data.

K. Hartman.....Company Representative

Notorized this date 11th of November, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: MARBOB ENERGY	Date: 10/27/2009	Time: 15:42:19	Page: 1
Field: Wildcat	Co-ordinate(NE) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Cali Roll Federal #1	Section (VS) Reference:	Well (0.00N,0.00E,142.06Azi)	
Wellpath: VH - Job #32K1009448	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: 10/26/09	Start Date: 10/26/2009
Company: Scientific Drilling Internatio	Engineer: Madrid/Rowe/Williams
Tool: Keeper, Keeper Gyro	Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.43	72.36	100.00	0.13	0.11	0.36	0.43	0.38	72.36
200.00	0.63	83.35	199.99	0.55	0.29	1.26	0.22	1.29	77.00
300.00	0.85	107.77	299.99	1.44	0.13	2.51	0.38	2.52	87.08
400.00	0.78	135.61	399.98	2.73	-0.58	3.70	0.40	3.74	98.98
500.00	0.50	121.71	499.97	3.82	-1.30	4.54	0.32	4.73	105.97
600.00	0.44	108.75	599.97	4.55	-1.65	5.28	0.12	5.53	107.39
700.00	0.54	97.00	699.96	5.20	-1.83	6.11	0.14	6.38	106.71
800.00	0.51	70.31	799.96	5.68	-1.74	7.00	0.24	7.21	103.98
900.00	0.56	60.71	899.96	5.89	-1.35	7.84	0.10	7.96	99.78
1000.00	0.66	67.60	999.95	6.12	-0.89	8.80	0.12	8.85	95.80
1100.00	0.97	74.53	1099.94	6.59	-0.45	10.15	0.32	10.16	92.53
1200.00	1.03	76.47	1199.92	7.29	-0.01	11.84	0.07	11.84	90.06
1300.00	1.01	79.24	1299.91	8.06	0.36	13.58	0.05	13.58	88.47
1400.00	0.84	74.02	1399.90	8.74	0.73	15.15	0.19	15.17	87.25
1500.00	0.52	77.61	1499.89	9.21	1.03	16.30	0.32	16.33	86.39
1600.00	0.37	79.46	1599.88	9.55	1.18	17.06	0.15	17.10	86.03
1700.00	0.33	71.41	1699.88	9.80	1.34	17.65	0.06	17.70	85.67
1800.00	0.24	76.38	1799.88	9.98	1.48	18.12	0.09	18.18	85.34
1900.00	0.17	56.55	1899.88	10.08	1.61	18.45	0.10	18.52	85.02
2000.00	0.13	264.90	1999.88	10.03	1.68	18.46	0.29	18.54	84.80
2100.00	0.19	229.15	2099.88	9.97	1.56	18.22	0.11	18.29	85.11
2200.00	0.30	223.17	2199.88	10.02	1.26	17.92	0.11	17.96	85.97
2300.00	0.35	209.76	2299.88	10.18	0.81	17.59	0.09	17.61	87.38
2400.00	0.43	203.71	2399.88	10.47	0.20	17.29	0.09	17.29	89.35
2500.00	0.41	191.59	2499.87	10.88	-0.50	17.06	0.09	17.07	91.67
2600.00	0.38	190.11	2599.87	11.34	-1.17	16.93	0.03	16.97	93.97
2700.00	0.37	187.65	2699.87	11.79	-1.82	16.83	0.02	16.93	96.17
2800.00	0.39	184.94	2799.87	12.26	-2.48	16.76	0.03	16.94	98.42
2900.00	0.31	190.73	2899.86	12.69	-3.08	16.68	0.09	16.96	100.48
3000.00	0.39	187.05	2999.86	13.11	-3.69	16.59	0.08	16.99	102.54
3100.00	0.49	184.36	3099.86	13.67	-4.45	16.51	0.10	17.10	105.09
3200.00	0.53	164.52	3199.86	14.41	-5.32	16.60	0.18	17.44	107.78
3300.00	0.54	165.46	3299.85	15.27	-6.23	16.85	0.01	17.96	110.29
3400.00	0.52	162.28	3399.85	16.13	-7.11	17.10	0.04	18.52	112.59
3500.00	0.59	161.94	3499.84	17.04	-8.04	17.40	0.07	19.17	114.79
3600.00	0.58	155.11	3599.84	18.01	-8.99	17.77	0.07	19.92	116.82
3700.00	0.66	172.35	3699.83	19.00	-10.02	18.06	0.20	20.65	119.01
3800.00	0.66	180.34	3799.83	19.95	-11.16	18.14	0.09	21.30	121.61
3900.00	0.80	183.32	3899.82	20.93	-12.43	18.09	0.15	21.95	124.50
4000.00	0.89	181.87	3999.81	22.05	-13.91	18.03	0.09	22.77	127.65
4100.00	0.85	188.32	4099.79	23.16	-15.42	17.89	0.11	23.62	130.75
4200.00	0.75	177.83	4199.78	24.21	-16.81	17.81	0.18	24.49	133.34
4300.00	0.56	183.16	4299.78	25.10	-17.95	17.81	0.20	25.28	135.22
4400.00	0.47	180.46	4399.77	25.79	-18.85	17.78	0.09	25.91	136.67
4500.00	0.45	184.12	4499.77	26.41	-19.65	17.75	0.04	26.48	137.91
4600.00	0.47	175.78	4599.77	27.04	-20.45	17.75	0.07	27.08	139.04
4700.00	0.56	184.53	4699.76	27.74	-21.34	17.74	0.12	27.75	140.27
4800.00	0.62	178.25	4799.76	28.54	-22.37	17.72	0.09	28.54	141.62



Scientific
Drilling

Scientific Drilling International Survey Report

Company: MARBOB ENERGY
Field: Wildcat
Site: Eddy County, NM
Well: Cali Roll Federal #1
Wellpath: VH - Job #32K1009448

Date: 10/27/2009 Time: 15:42:19 Page: 2
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,142.06Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

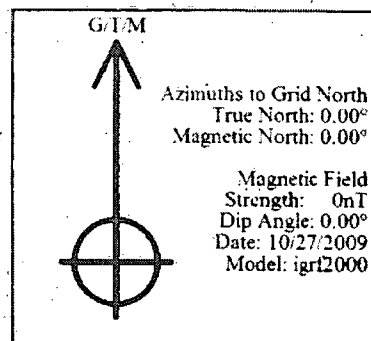
Survey

MD ft	Incl deg	Azlm deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4835.00	0.71	170.93	4834.76	28.88	-22.78	17.78	0.35	28.88	142.06

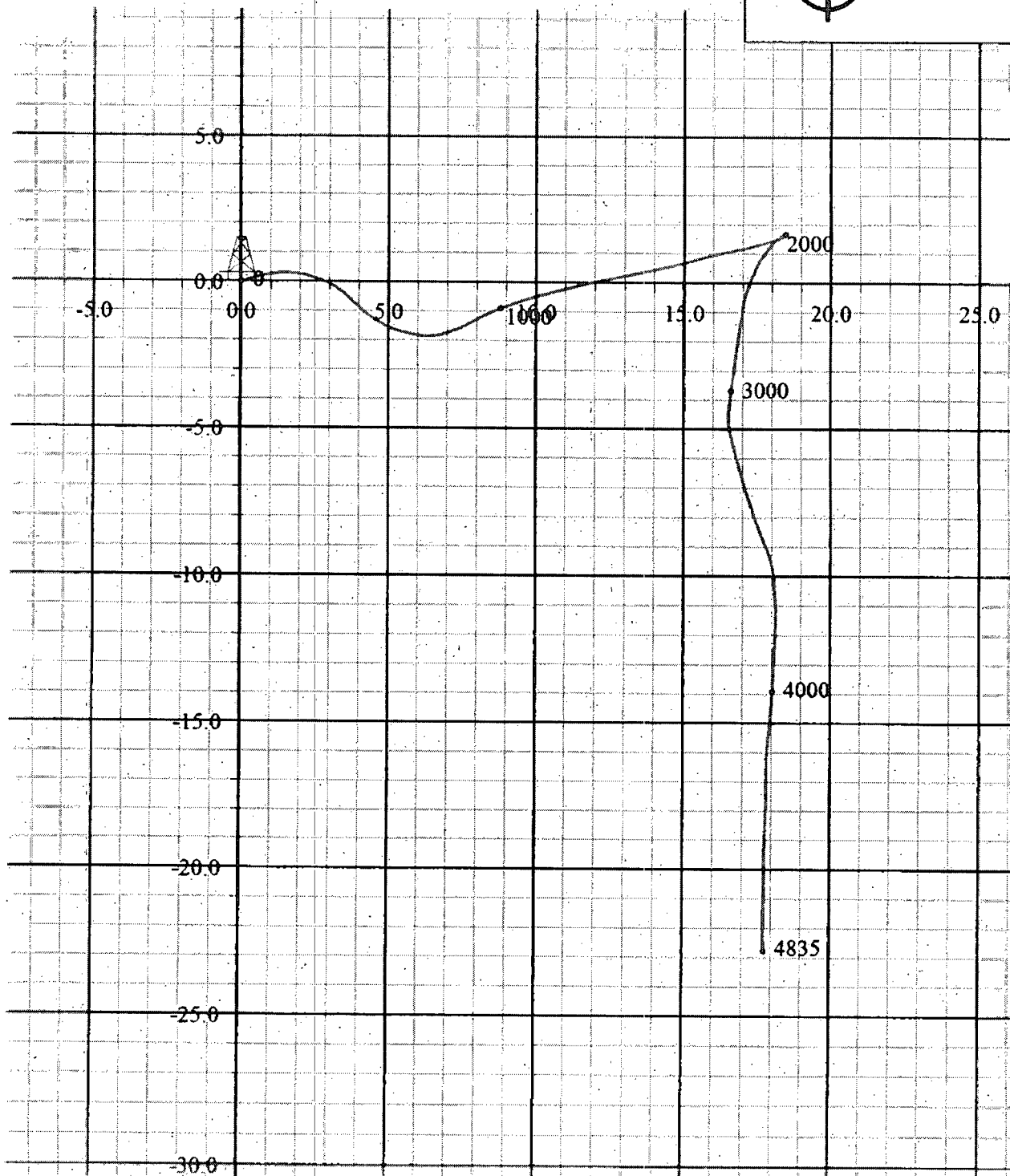


Scientific
Drilling

Field: Wildcat
Site: Eddy County, NM
Well: Cali Roll Federal #1
Wellpath: VH - Job #32K1009448
Survey: 10/26/09



South(-)/North(+) [5ft/in]



West(-)/East(+) [5ft/in]



An Operating Unit of Smith International, Inc.

DIRECTIONAL SURVEY REPORT

MARBOB ENERGY CORPORATION

CALI ROLL FED COM 1

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

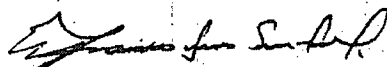
DIRECTIONAL SURVEY COMPANY REPORT:

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: 10/27/09 TO 11/03/09
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
CALI ROLL FED COM 1
EDDY COUNTY, NM
RIG: PATRIOT 3

9. SURVEY CERTIFIED FROM: 4972 TO 8674 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 3480.21 FEET ON A BEARING OF 359.55 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 8721 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: 10/27/2009
Date Completed: 11/03/2009

MARBOB ENERGY CORPORATION
CALI ROLL FED COM #1
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT #3
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: JAY FULTON

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.1.28.0363 N LON: 104.20.45.2962 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 496100.6000 Y: 372623.1000
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.11° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 17.00' Rotary Table To Ground
Altitude: 3525.00' Ground To MSL

Measured Depth	8721.00	(feet)
Inclination	90.04	(deg)
Azimuth	359.31	(deg)
True Vertical Depth	5507.42	(feet)
Vertical Section	3480.10	(feet)
Survey X cord	496073.28	(feet)
Survey Y cord	376103.20	(feet)
Survey Lat	32.03402159 N	(deg)
Survey Lon	104.34600506 W	(deg)
Rectangular Corr. N/S	3480.10 N	(feet)
Rectangular Corr. E/W	27.32 W	(feet)
Closure Distance	3480.21	(feet)
Direction of Closure	359.55	(deg)
Dogleg Severity	0.01	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION

CALI ROLL FED COM #1

EDDY COUNTY, NEW MEXICO

Rig: PATRIOT #3

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: JAY FULTON

Page 01/03

Tie-in Date: 10/27/2009

Date Completed: 11/03/2009

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.128.0363 N LON: 104.20.45.2962 W

Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 496100.6000 Y: 372623.1000

North Aligned To: GRID NORTH

Total Magnetic Correction: 8.11° EAST TO GRID

Vertical Section Plane: 0.00

Survey Vert. Reference: 17.00' Rotary Table To Ground

Altitude: 3525.00' Ground To MSL

Survey Calculations by PathCalc v1.97 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 PROVIDED BY SCIENTIFIC DRILLING @ 4835' MD.										
4835.00	0.71	170.93	4834.76	0.00	-22.78	22.78 S	17.77 E	28.89@	142.04	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
4972.00	3.78	350.24	4971.68	137.00	-19.17	19.17 S	17.14 E	25.71@	138.20	3.28
5003.00	9.94	352.92	5002.44	31.00	-15.50	15.50 S	16.63 E	22.74@	132.98	19.89
5034.00	15.04	356.66	5032.70	31.00	-8.83	8.83 S	16.07 E	18.33@	118.77	16.65
5065.00	19.35	357.89	5062.30	31.00	0.33	0.33 N	15.65 E	15.65@	88.80	13.95
5096.00	22.69	0.13	5091.24	31.00	11.44	11.44 N	15.47 E	19.24@	53.52	11.08
5127.00	25.15	359.95	5119.57	31.00	24.01	24.01 N	15.48 E	28.57@	32.81	7.94
5158.00	27.17	358.28	5147.40	31.00	37.67	37.67 N	15.26 E	40.65@	22.05	6.93
5189.00	30.16	357.05	5174.59	31.00	52.53	52.53 N	14.65 E	54.53@	15.58	9.83
5221.00	33.41	356.31	5201.79	32.00	69.35	69.35 N	13.67 E	70.69@	11.15	10.23
5253.00	36.67	355.21	5227.99	32.00	87.67	87.67 N	12.30 E	88.53@	7.99	10.38
5285.00	40.10	355.30	5253.07	32.00	107.47	107.47 N	10.66 E	108.00@	5.66	10.72
5317.00	43.26	355.90	5276.96	32.00	128.68	128.68 N	9.03 E	129.00@	4.01	9.95
5349.00	46.25	356.27	5299.69	32.00	151.16	151.16 N	7.49 E	151.35@	2.84	9.38
5380.00	49.77	356.84	5320.42	31.00	174.16	174.16 N	6.11 E	174.26@	2.01	11.44
5412.00	52.85	357.69	5340.42	32.00	199.10	199.10 N	4.92 E	199.16@	1.42	9.85
5444.00	56.19	358.66	5358.99	32.00	225.14	225.14 N	4.10 E	225.18@	1.04	10.73
5476.00	59.62	359.38	5375.99	32.00	252.24	252.24 N	3.64 E	252.27@	0.83	10.89
5508.00	62.87	0.12	5391.39	32.00	280.29	280.29 N	3.52 E	280.32@	0.72	10.36
5539.00	66.39	0.95	5404.67	31.00	308.30	308.30 N	3.78 E	308.32@	0.70	11.61
5571.00	69.82	1.63	5416.60	32.00	337.98	337.98 N	4.45 E	338.01@	0.75	10.90
5603.00	72.72	2.18	5426.87	32.00	368.26	368.26 N	5.46 E	368.30@	0.85	9.21

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
CALI ROLL FED COM #1
EDDY COUNTY, NEW MEXICO
RIG: PATRIOT #3

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)
5635.00	74.22	1.82	5435.98	32.00	398.92	398.92 N	6.53 E	398.97@	0.94	4.81
5666.00	76.50	2.11	5443.81	31.00	428.89	428.89 N	7.56 E	428.96@	1.01	7.41
5698.00	79.14	2.53	5450.56	32.00	460.14	460.14 N	8.83 E	460.23@	1.10	8.35
5730.00	81.51	2.61	5455.94	32.00	491.66	491.66 N	10.24 E	491.76@	1.19	7.41
5762.00	83.45	2.58	5460.13	32.00	523.35	523.35 N	11.68 E	523.48@	1.28	6.06
5794.00	85.30	2.30	5463.26	32.00	555.16	555.16 N	13.03 E	555.32@	1.34	5.85
5825.00	86.79	2.00	5465.40	31.00	586.07	586.07 N	14.19 E	586.24@	1.39	4.90
5857.00	87.85	1.48	5466.90	32.00	618.02	618.02 N	15.16 E	618.20@	1.41	3.69
5889.00	89.16	1.65	5467.73	32.00	649.99	649.99 N	16.04 E	650.19@	1.41	4.13
5921.00	89.43	1.51	5468.13	32.00	681.98	681.98 N	16.92 E	682.19@	1.42	0.95
5952.00	89.52	1.38	5468.41	31.00	712.97	712.97 N	17.70 E	713.19@	1.42	0.51
5985.00	89.78	1.02	5468.61	33.00	745.96	745.96 N	18.39 E	746.19@	1.41	1.35
6016.00	89.87	1.03	5468.71	31.00	776.95	776.95 N	18.95 E	777.18@	1.40	0.29
6112.00	89.43	359.91	5469.29	96.00	872.95	872.95 N	19.74 E	873.17@	1.30	1.25
6207.00	89.16	359.90	5470.46	95.00	967.94	967.94 N	19.58 E	968.14@	1.16	0.28
6302.00	90.22	359.34	5470.98	95.00	1062.93	1062.93 N	18.95 E	1063.10@	1.02	1.26
6398.00	89.78	358.86	5470.98	96.00	1158.92	1158.92 N	17.44 E	1159.05@	0.86	0.68
6493.00	89.52	358.19	5471.56	95.00	1253.89	1253.89 N	14.99 E	1253.98@	0.69	0.76
6588.00	89.25	357.63	5472.58	95.00	1348.82	1348.82 N	11.53 E	1348.87@	0.49	0.65
6684.00	89.34	357.43	5473.76	96.00	1444.72	1444.72 N	7.39 E	1444.74@	0.29	0.23
6779.00	89.69	358.17	5474.56	95.00	1539.65	1539.65 N	3.75 E	1539.65@	0.14	0.86
6874.00	88.55	359.54	5476.02	95.00	1634.61	1634.61 N	1.85 E	1634.61@	0.06	1.88
6970.00	89.43	0.66	5477.71	96.00	1730.60	1730.60 N	2.02 E	1730.60@	0.07	1.48
7065.00	89.52	1.38	5478.58	95.00	1825.58	1825.58 N	3.71 E	1825.58@	0.12	0.76
7160.00	89.25	1.15	5479.60	95.00	1920.55	1920.55 N	5.80 E	1920.56@	0.17	0.37
7256.00	89.69	0.95	5480.49	96.00	2016.53	2016.53 N	7.56 E	2016.54@	0.21	0.50
7351.00	88.29	0.79	5482.17	95.00	2111.50	2111.50 N	9.01 E	2111.52@	0.24	1.48

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
CALI ROLL FED COM #1
EDDY COUNTY, NEW MEXICO
RIG: PATRIOT #3

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)
7446.00	88.29	0.67	5485.00	95.00	2206.45	2206.45 N	10.22 E	2206.47@	0.27	0.13
7541.00	89.08	1.16	5487.18	95.00	2301.41	2301.41 N	11.73 E	2301.44@	0.29	0.98
7636.00	89.16	0.99	5488.64	95.00	2396.38	2396.38 N	13.51 E	2396.42@	0.32	0.20
7731.00	85.91	356.01	5492.73	95.00	2491.22	2491.22 N	11.04 E	2491.24@	0.25	6.26
7827.00	88.81	356.15	5497.15	96.00	2586.88	2586.88 N	4.48 E	2586.89@	0.10	3.02
7922.00	89.25	356.66	5498.76	95.00	2681.68	2681.68 N	1.47 W	2681.68@	359.97	0.71
8018.00	89.78	357.19	5499.57	96.00	2777.54	2777.54 N	6.62 W	2777.55@	359.86	0.78
8113.00	89.78	358.13	5499.93	95.00	2872.46	2872.46 N	10.50 W	2872.48@	359.79	0.99
8208.00	89.52	357.65	5500.51	95.00	2967.39	2967.39 N	14.00 W	2967.43@	359.73	0.57
8304.00	88.99	357.78	5501.76	96.00	3063.31	3063.31 N	17.83 W	3063.36@	359.67	0.57
8399.00	88.29	357.92	5504.02	95.00	3158.21	3158.21 N	21.39 W	3158.29@	359.61	0.75
8494.00	88.64	358.57	5506.56	95.00	3253.13	3253.13 N	24.30 W	3253.22@	359.57	0.78
8589.00	90.13	359.52	5507.58	95.00	3348.11	3348.11 N	25.88 W	3348.21@	359.56	1.86
8674.00	90.04	359.31	5507.46	85.00	3433.11	3433.11 N	26.75 W	3433.21@	359.55	0.27
STRAIGHT LINE PROJECTION TO BIT @ 8721' MD.										
8721.00	90.04	359.31	5507.42	47.00	3480.10	3480.10 N	27.32 W	3480.21@	359.55	0.01

PATHFINDER

ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY CORPORATION		
LEASE / WELL No.:	CALI ROLL FED COM	1	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY	NEW MEXICO	USA
RIG:	PATRIOT 3		
API WELL No:	30-015-37267		
JOB No:	101009156 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

MAGNETIC DECLINATION:			
On Wall Plat:	8.11	LWD Calculated:	8.11
		Agreed Upon:	8.11
X =	496100.600000	Feet	Y = 372623.100000
			Feet
SITE LATITUDE:	32.024455 N	SITE LONGITUDE:	104.345916 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	New Mexico East
PROPOSED DRIFT DIRECTION:	0		
KELLY BUSHING ELEVATION:	17 Feet		
ALTITUDE:	3525	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	4835		
DRIFT ANGLE:	0.71		
DRIFT DIRECTION:	170.93		
TRUE VERTICAL DEPTH:	4834.76		
VERTICAL SECTION:	-22.81		
RECTANGULAR COORDINATE (N / S):	-22.81		
RECTANGULAR COORDINATE (E / W):	17.77		
CLOSURE DISTANCE / DIRECTION:	28.92	142.08	
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:	4987.5	TOTAL DEPTH:	8260
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers: JAY FULTON *Jay Fulton*

**Signature of both field engineers required if applicable

Directional Driller: DONALD HOLSENBECK *at*

DATE: 26-Oct-2009

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
CALI ROLL FEDERAL COM #1
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 6

Sun Oct 25 15:18:26 2009

Coordinates

Latitude: 32.024455 N (32 deg. 1 min. 28.0363 sec.)
Longitude: 104.345916 W (-104 deg. 20 min. 45.2962 sec.)
Elevation: 3542.00 feet.
Calculation Date: Oct/25/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 59.9196 degrees
Total Magnetic Field: 0.48600 gauss
Magnetic Declination: 8.102958 degrees
Horizontal Intensity: 0.243592 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.102958 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 496100.6000 feet
Y: 372623.1000 feet
True to Grid: (convergence) 0.006672 degrees
Magnetic to Grid: 8.109631 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 8.109631 Degr.

PathFinder Energy Services, Inc.
Magnetic & Grid Calculations

Field
Copy

MARBOB ENERGY
CALI ROLL FED COM #1
EDDY COUNTY
Rig: PATRIOT #3

Tue Oct 27 03:29:58 2009

Coordinates

Latitude: 32.024455 N (32 deg. 1 min. 28.0363 sec.)
Longitude: 104.345916 W (-104 deg. 20 min. 45.2962 sec.)
Elevation: 3542.00 feet.
Calculation Date: Oct/27/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 59.9195 degrees
Total Magnetic Field: 0.48600 gauss
Magnetic Declination: 8.102316 degrees
Horizontal Intensity: 0.243590 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.102316 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 496100.6000 feet
Y: 372623.1000 feet
True to Grid: (convergence) 0.006672 degrees
Magnetic to Grid: 8.108988 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 8.108988 Degr.



Scientific Drilling

Gyroscopic Survey Report
for
MARBOB

Well Location	EDDY COUNTY, NEW MEXICO
Well Name	CALI ROLL FED COM #1
Rig Name	PATRIOT #3
Survey Date	10/27/2009
Latitude	32.02 deg
North Reference	Grid North
Grid Correction	0.01 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	FINAL SURVEY
Operator	A.MADRID

Comments



Scientific Drilling

Survey Report

Well Name:		CALI ROLL FED COM #1							
Survey:		FINAL SURVEY							
Survey Date:		10/27/2009							
MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.43	72.36	100.00	0.11	0.11	0.36	0.43	0.38	72.36
200.00	0.63	83.35	199.99	0.29	0.29	1.27	0.23	1.30	77.01
300.00	0.85	107.77	299.99	0.13	0.13	2.52	0.37	2.53	87.01
400.00	0.78	135.61	399.98	-0.58	-0.58	3.70	0.40	3.75	98.92
500.00	0.50	121.71	499.97	-1.30	-1.30	4.56	0.32	4.74	105.93
600.00	0.44	108.75	599.97	-1.66	-1.66	5.29	0.12	5.55	107.36
700.00	0.54	97.00	699.96	-1.84	-1.84	6.13	0.14	6.39	106.69
800.00	0.51	70.31	799.96	-1.74	-1.74	7.01	0.24	7.22	103.97
900.00	0.56	60.71	899.96	-1.35	-1.35	7.86	0.11	7.97	99.78
1000.00	0.66	67.60	999.95	-0.89	-0.89	8.82	0.13	8.87	95.78
1100.00	0.97	74.53	1099.94	-0.45	-0.45	10.17	0.32	10.18	92.51
1200.00	1.03	76.47	1199.92	-0.01	-0.01	11.86	0.07	11.86	90.06
1300.00	1.01	79.24	1299.91	0.36	0.36	13.59	0.05	13.59	88.48
1400.00	0.84	74.02	1399.90	0.73	0.73	15.15	0.19	15.17	87.26
1500.00	0.52	77.61	1499.89	1.02	1.02	16.30	0.32	16.33	86.40
1600.00	0.37	79.46	1599.89	1.18	1.18	17.06	0.15	17.10	86.04
1700.00	0.33	71.41	1699.88	1.33	1.33	17.66	0.06	17.71	85.68
1800.00	0.24	76.38	1799.88	1.48	1.48	18.13	0.10	18.19	85.35
1900.00	0.17	56.55	1899.88	1.61	1.61	18.46	0.10	18.53	85.03
2000.00	0.13	264.90	1999.88	1.68	1.68	18.47	0.29	18.55	84.81
2100.00	0.19	229.15	2099.88	1.56	1.56	18.23	0.12	18.30	85.12
2200.00	0.30	223.17	2199.88	1.26	1.26	17.92	0.11	17.97	85.99
2300.00	0.35	209.76	2299.88	0.80	0.80	17.59	0.09	17.61	87.40
2400.00	0.43	203.71	2399.88	0.19	0.19	17.29	0.09	17.29	89.36
2500.00	0.41	191.59	2499.87	-0.50	-0.50	17.07	0.09	17.08	91.69
2600.00	0.38	190.11	2599.87	-1.19	-1.19	16.94	0.03	16.98	94.00
2700.00	0.37	187.65	2699.87	-1.83	-1.83	16.84	0.02	16.94	96.21
2800.00	0.39	184.94	2799.87	-2.49	-2.49	16.76	0.03	16.95	98.46
2900.00	0.31	190.73	2899.86	-3.10	-3.10	16.69	0.10	16.97	100.52
3000.00	0.39	187.05	2999.86	-3.70	-3.70	16.59	0.09	17.00	102.58
3100.00	0.49	184.36	3099.86	-4.46	-4.46	16.52	0.10	17.11	105.10
3200.00	0.53	164.52	3199.86	-5.33	-5.33	16.61	0.18	17.45	107.79
3300.00	0.54	165.46	3299.85	-6.24	-6.24	16.85	0.02	17.97	110.31
3400.00	0.52	162.28	3399.85	-7.13	-7.13	17.11	0.04	18.54	112.63
3500.00	0.59	161.94	3499.84	-8.06	-8.06	17.41	0.07	19.19	114.84
3600.00	0.58	155.11	3599.84	-9.01	-9.01	17.79	0.07	19.94	116.87
3700.00	0.66	172.35	3699.83	-10.04	-10.04	18.08	0.20	20.68	119.06
3800.00	0.66	180.34	3799.82	-11.19	-11.19	18.15	0.09	21.32	121.66



Scientific Drilling

Survey Report

Well Name:		CALI ROLL FED COM #1									
Survey:		FINAL SURVEY									
Survey Date:		10/27/2009									
MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle		
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg		
3900.00	0.80	183.32	3899.82	-12.47	-12.47	18.11	0.14	21.98	124.55		
4000.00	0.89	181.87	3999.81	-13.94	-13.94	18.04	0.09	22.80	127.69		
4100.00	0.85	188.32	4099.79	-15.45	-15.45	17.91	0.10	23.65	130.79		
4200.00	0.75	177.83	4199.78	-16.84	-16.84	17.82	0.18	24.52	133.37		
4300.00	0.56	183.16	4299.78	-17.98	-17.98	17.82	0.20	25.32	135.26		
4400.00	0.47	180.46	4399.77	-18.88	-18.88	17.79	0.10	25.94	136.70		
4500.00	0.45	184.12	4499.77	-19.67	-19.67	17.76	0.04	26.50	137.93		
4600.00	0.47	175.78	4599.77	-20.47	-20.47	17.76	0.07	27.11	139.05		
4700.00	0.56	184.53	4699.76	-21.38	-21.38	17.75	0.12	27.79	140.29		
4800.00	0.62	178.25	4799.76	-22.41	-22.41	17.73	0.08	28.57	141.64		
4835.00	0.71	170.93	4834.76	-22.81	-22.81	17.77	0.37	28.92	142.08		