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HOBBSOCD

DIRECTIONAL SURVEY REPORT

SUR: D-31-18S-32E, 990/n & 330/W
BHL: B-31-18s-32e, 380/N & 3592/W
API #30-025-39537

MARBOB ENERGY CORPORATION

SDL FEDERAL COM #1H

LEA COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

Pathfinder Energy Services, Inc.
6213 W. Interstate 20 • Midland, TX • 79706
(432) 681-6000

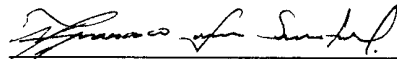
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) NICHOLAS TVRDY
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 11/11/09 TO 11/18/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MARBOB ENERGY CORPORATION
SDL FEDERAL COM #1H
LEA COUNTY, NM
RIG: PATRIOT 6

9. SURVEY CERTIFIED FROM: 7718 TO 11355 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 3318.37 FEET ON A BEARING OF 79.4 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11436 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "Francisco Sinisterra".

FRANCISCO SINISTERRA
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 11/04/2009
Date Completed: 11/18/2009

MARBOB ENERGY CORP.

SDL FEDERAL COM #1H

LEA COUNTY, NM

Rig: PATRIOT 6

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: N. TVRDY

D. ASHER

T. STACKHOUSE

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.42.30.5523 N LON: 103.48.46.0348 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 660114.3000 Y: 621851.5000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.63° EAST TO GRID

Vertical Section Plane: 79.48

Survey Vert. Reference: 18.50' Rotary Table To Ground

Altitude: 3673.00' Ground To MSL

Measured Depth	11436.00	(feet)
Inclination	88.11	(deg)
Azimuth	77.07	(deg)
True Vertical Depth	8315.18	(feet)
Vertical Section	3318.37	(feet)
Survey X cord	663376.05	(feet)
Survey Y cord	622461.79	(feet)
Survey Lat	32.71011977 N	(deg)
Survey Lon	103.80217367 W	(deg)
Rectangular Corr. N/S	610.31 N	(feet)
Rectangular Corr. E/W	3261.77 E	(feet)
Closure Distance	3318.37	(feet)
Direction of Closure	79.40	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORP.
 SDL FEDERAL COM #1H
 LEA COUNTY, NM
 Rig: PATRIOT 6
 PathFinder Office Supervisor: FRANCISCO SINISTERRA
 PathFinder Field Engineers: N. TVRDY
 D. ASHER
 T. STACKHOUSE

Survey Calculations by RX4 using Minimum Curvature

Survey Horiz. Reference: WELLHEAD
 Ref Coordinates: LAT: 32.42.30.5523 N LON: 103.48.46.0348 W
 Reference: NAD27 new mexico east Transverse Mercator
 Ref GRID Coord: X: 660114.3000 Y: 621851.5000
 North Aligned To: GRID NORTH
 Total Magnetic Correction: 7.63° EAST TO GRID
 Vertical Section Plane: 79.48
 Survey Vert. Reference: 18.50' Rotary Table To Ground
 Altitude: 3673.00' 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 INTO SCIENTIFIC GYRO SURVEY @ 7588'MD.										
7588.00	0.49	115.57	7586.72	0.00	-24.83	0.62 N	25.37 W	25.38@	271.40	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
7718.00	0.26	235.31	7716.72	130.00	-24.65	0.21 N	25.11 W	25.11@	270.48	0.51
7782.00	0.44	69.60	7780.72	64.00	-24.54	0.22 N	25.00 W	25.00@	270.49	1.09
7814.00	2.64	56.53	7812.71	32.00	-23.74	0.66 N	24.27 W	24.28@	271.57	6.92
7846.00	6.42	67.37	7844.60	32.00	-21.31	1.76 N	22.00 W	22.07@	274.57	12.06
7877.00	9.85	72.95	7875.28	31.00	-16.98	3.20 N	17.87 W	18.15@	280.17	11.34
7909.00	13.19	74.88	7906.63	32.00	-10.62	4.96 N	11.72 W	12.73@	292.93	10.51
7941.00	16.44	74.56	7937.57	32.00	-2.47	7.12 N	3.83 W	8.08@	331.70	10.16
7973.00	19.61	74.78	7967.99	32.00	7.40	9.73 N	5.72 E	11.29@	30.42	9.91
8005.00	22.86	73.50	7997.82	32.00	18.93	12.91 N	16.86 E	21.24@	52.56	10.26
8036.00	25.76	72.95	8026.06	31.00	31.62	16.60 N	29.08 E	33.48@	60.28	9.38
8068.00	28.84	73.69	8054.50	32.00	46.21	20.80 N	43.14 E	47.89@	64.25	9.68
8100.00	32.45	74.31	8082.02	32.00	62.44	25.29 N	58.81 E	64.02@	66.73	11.33
8132.00	35.79	74.45	8108.51	32.00	80.32	30.13 N	76.10 E	81.84@	68.40	10.44
8163.00	39.75	74.60	8133.01	31.00	99.23	35.19 N	94.39 E	100.74@	69.55	12.78
8195.00	43.18	72.89	8156.99	32.00	120.31	41.13 N	114.73 E	121.88@	70.28	11.29
8226.00	46.96	72.40	8178.88	31.00	142.10	47.68 N	135.67 E	143.80@	70.64	12.25
8258.00	50.83	72.37	8199.91	32.00	166.02	54.97 N	158.65 E	167.90@	70.89	12.09
8292.00	54.26	72.79	8220.58	34.00	192.81	63.05 N	184.40 E	194.88@	71.12	10.14
8322.00	57.68	72.54	8237.37	30.00	217.49	70.46 N	208.13 E	219.73@	71.30	11.42
8354.00	62.52	73.79	8253.32	32.00	245.06	78.48 N	234.67 E	247.45@	71.51	15.50
8386.00	68.06	77.91	8266.70	32.00	274.05	85.56 N	262.85 E	276.42@	71.97	20.89

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORP.
 SDL FEDERAL COM #1H
 LEA COUNTY, NM
 RIG:PATRIOT 6

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)
8417.00	74.30	82.38	8276.69	31.00	303.37	90.56 N	291.74 E	305.47@	72.75	24.31
8449.00	80.90	84.73	8283.56	32.00	334.52	94.06 N	322.77 E	336.20@	73.75	21.83
8481.00	85.38	85.13	8287.38	32.00	366.14	96.86 N	354.41 E	367.41@	74.71	14.05
8513.00	88.37	85.26	8289.13	32.00	397.93	99.54 N	386.25 E	398.87@	75.55	9.35
8545.00	88.64	85.20	8289.96	32.00	429.76	102.20 N	418.13 E	430.44@	76.26	0.86
8576.00	88.55	85.27	8290.72	31.00	460.59	104.77 N	449.01 E	461.07@	76.87	0.37
8665.00	89.96	84.25	8291.88	89.00	549.20	112.90 N	537.63 E	549.35@	78.14	1.96
8760.00	91.01	82.79	8291.08	95.00	643.96	123.62 N	632.01 E	643.99@	78.93	1.89
8856.00	91.19	82.24	8289.23	96.00	739.81	136.13 N	727.18 E	739.81@	79.40	0.60
8951.00	91.36	82.15	8287.12	95.00	834.68	149.02 N	821.27 E	834.69@	79.72	0.20
9047.00	90.31	80.37	8285.72	96.00	930.62	163.61 N	916.14 E	930.64@	79.87	2.15
9142.00	90.48	80.14	8285.07	95.00	1025.61	179.69 N	1009.77 E	1025.63@	79.91	0.30
9238.00	88.81	79.03	8285.66	96.00	1121.60	197.04 N	1104.18 E	1121.63@	79.88	2.09
9333.00	89.34	78.69	8287.19	95.00	1216.58	215.39 N	1197.38 E	1216.60@	79.80	0.66
9429.00	87.67	77.41	8289.70	96.00	1312.51	235.26 N	1291.26 E	1312.52@	79.67	2.19
9524.00	87.67	76.43	8293.56	95.00	1407.34	256.74 N	1383.72 E	1407.34@	79.49	1.03
9618.00	88.11	77.42	8297.02	94.00	1501.18	277.99 N	1475.22 E	1501.18@	79.33	1.15
9714.00	89.78	78.02	8298.79	96.00	1597.11	298.41 N	1569.00 E	1597.13@	79.23	1.85
9809.00	90.57	77.53	8298.50	95.00	1692.07	318.52 N	1661.85 E	1692.10@	79.15	0.98
9904.00	90.57	78.49	8297.55	95.00	1787.03	338.26 N	1754.77 E	1787.07@	79.09	1.01
10000.00	89.34	78.57	8297.63	96.00	1883.02	357.35 N	1848.85 E	1883.07@	79.06	1.28
10097.00	88.20	79.43	8299.71	97.00	1979.99	375.85 N	1944.04 E	1980.04@	79.06	1.47
10192.00	89.60	79.89	8301.54	95.00	2074.97	392.90 N	2037.48 E	2075.02@	79.09	1.55
10287.00	88.64	79.79	8303.00	95.00	2169.95	409.66 N	2130.98 E	2170.00@	79.12	1.02
10383.00	87.93	81.06	8305.87	96.00	2265.90	425.62 N	2225.60 E	2265.93@	79.17	1.52
10477.00	89.69	81.24	8307.82	94.00	2359.83	440.07 N	2318.45 E	2359.85@	79.25	1.88
10574.00	90.48	82.33	8307.68	97.00	2456.75	453.93 N	2414.46 E	2456.76@	79.35	1.39

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORP.
 SDL FEDERAL COM #1H
 LEA COUNTY, NM
 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)
10667.00	89.08	81.20	8308.03	93.00	2549.67	467.25 N	2506.49 E	2549.67@	79.44	1.93
10762.00	89.25	80.62	8309.42	95.00	2644.63	482.26 N	2600.29 E	2644.63@	79.49	0.64
10858.00	89.43	80.43	8310.53	96.00	2740.61	498.06 N	2694.97 E	2740.61@	79.53	0.27
10954.00	89.69	80.15	8311.26	96.00	2836.60	514.25 N	2789.59 E	2836.60@	79.55	0.40
11049.00	90.31	79.63	8311.26	95.00	2931.59	530.93 N	2883.12 E	2931.60@	79.57	0.85
11145.00	90.66	79.13	8310.45	96.00	3027.59	548.62 N	2977.47 E	3027.59@	79.56	0.64
11241.00	89.60	77.93	8310.23	96.00	3123.57	567.71 N	3071.55 E	3123.58@	79.53	1.67
11335.00	88.37	77.41	8311.90	94.00	3217.51	587.78 N	3163.37 E	3217.51@	79.47	1.42
11355.00	88.11	77.07	8312.51	20.00	3237.49	592.20 N	3182.86 E	3237.49@	79.46	2.14
STRAIGHT LINE PROJECTION TO BIT DEPTH @ 11436'MD.										
11436.00	88.11	77.07	8315.18	81.00	3318.37	610.31 N	3261.77 E	3318.37@	79.40	0.00



ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY CORP.		
LEASE / WELL No.:	SDL FEDERAL COM	#1H	
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	PATRIOT #6		
API WELL No:	30-025-39597		
JOB No:	101009210 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.68	LWD Calculated:	7.634346
		Agreed Upon:	7.63
X =	660114.300000	Feet	Y = 621851.500000
			Feet
SITE LATITUDE:	32.708487 N	SITE LONGITUDE:	103.812787 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	79.48		
KELLY BUSHING ELEVATION:	18.5		
ALTITUDE:	3673	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	7588		
DRIFT ANGLE:	0.49		
DRIFT DIRECTION:	115.57		
TRUE VERTICAL DEPTH:	7586.72		
VERTICAL SECTION:	-24.89		
RECTANGULAR COORDINATE (N / S) :	0.61		
RECTANGULAR COORDINATE (E / W) :	-25.38		
CLOSURE DISTANCE / DIRECTION:	25.39	271.38	
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:	7814	TOTAL DEPTH:	11497
KICKOFF ANGLE:	0.49	MAX ANGLE:	90

PES Engineers: DAVID ASHER

**Signature of both field engineers required if applicable

Directional Driller: PHILLIP GARRISON

DATE: 4-Nov-2009



Scientific Drilling

Gyroscopic Survey Report for MARBOB

Well Location	LEA COUNTY, NEW MEXICO
Well Name	SDL FED COM NO.1H
Rig Name	PATRIOT 6
Survey Date	11/10/2009
Latitude	32.71 deg
North Reference	Grid North
Grid Correction	-0.28 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 79.48Azim (deg)
Definitive Survey	FINAL GYRO SURVEY
Operator	ANGEL GUEBARA

Comments



Well Name: SDL FED COM NO.1H
 Survey: FINAL GYRO SURVEY
 Survey Date: 11/10/2009

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.19	351.92	100.00	0.01	0.16	-0.02	0.19	0.16	351.92
200.00	0.26	337.46	200.00	-0.03	0.53	-0.13	0.09	0.55	346.03
300.00	0.10	308.52	300.00	-0.14	0.79	-0.29	0.17	0.84	340.05
400.00	0.08	294.30	400.00	-0.26	0.88	-0.42	0.03	0.97	334.24
500.00	0.26	306.01	500.00	-0.47	1.04	-0.67	0.18	1.24	327.14
600.00	0.42	272.80	600.00	-0.98	1.19	-1.22	0.25	1.70	314.35
700.00	0.36	275.82	699.99	-1.64	1.24	-1.89	0.06	2.26	303.19
800.00	1.03	262.67	799.99	-2.83	1.16	-3.10	0.68	3.30	290.48
900.00	1.21	263.41	899.97	-4.78	0.92	-5.03	0.19	5.12	280.37
1000.00	1.37	252.99	999.94	-7.02	0.45	-7.22	0.28	7.24	273.57
1100.00	0.76	248.45	1099.92	-8.85	-0.14	-8.98	0.62	8.98	269.11
1200.00	0.56	231.08	1199.92	-9.93	-0.69	-9.97	0.28	9.99	266.05
1300.00	0.56	237.81	1299.91	-10.81	-1.25	-10.76	0.07	10.83	263.36
1400.00	0.45	224.20	1399.91	-11.58	-1.79	-11.44	0.16	11.58	261.10
1500.00	0.33	244.57	1499.91	-12.17	-2.19	-11.97	0.18	12.17	259.62
1600.00	0.02	278.56	1599.91	-12.46	-2.31	-12.25	0.31	12.46	259.30
1700.00	0.23	250.63	1699.91	-12.68	-2.38	-12.46	0.22	12.68	259.19
1800.00	0.26	17.77	1799.91	-12.78	-2.23	-12.58	0.44	12.78	259.95
1900.00	0.39	30.44	1899.90	-12.45	-1.72	-12.34	0.15	12.46	262.06
2000.00	0.54	66.54	1999.90	-11.76	-1.24	-11.73	0.32	11.80	263.98
2100.00	1.04	49.77	2099.89	-10.52	-0.46	-10.61	0.55	10.62	267.49
2200.00	1.30	70.36	2199.87	-8.61	0.50	-8.85	0.49	8.86	273.25
2300.00	1.13	69.25	2299.85	-6.52	1.23	-6.86	0.17	6.97	280.21
2400.00	1.14	63.51	2399.83	-4.59	2.03	-5.04	0.11	5.44	291.89
2500.00	0.89	18.54	2499.81	-3.26	3.20	-3.91	0.81	5.06	309.31
2600.00	0.94	11.05	2599.80	-2.58	4.74	-3.51	0.13	5.90	323.52
2700.00	1.07	331.93	2699.79	-2.56	6.38	-3.79	0.68	7.42	329.27
2800.00	1.75	311.83	2799.76	-3.78	8.22	-5.37	0.83	9.81	326.85
2900.00	2.05	308.71	2899.70	-5.88	10.36	-7.90	0.32	13.03	322.65
3000.00	2.81	297.01	2999.61	-8.99	12.59	-11.48	0.90	17.04	317.63
3100.00	3.20	294.02	3099.47	-13.22	14.83	-16.21	0.42	21.97	312.47
3200.00	3.30	293.15	3199.31	-17.91	17.10	-21.40	0.11	27.39	308.63
3300.00	3.33	288.77	3299.15	-22.84	19.16	-26.79	0.26	32.94	305.58
3400.00	1.93	258.71	3399.04	-27.05	19.77	-31.19	1.92	36.92	302.37
3500.00	0.80	211.70	3499.02	-29.21	18.84	-33.21	1.50	38.18	299.57
3600.00	0.78	213.83	3599.01	-30.16	17.68	-33.96	0.04	38.28	297.50
3700.00	0.97	204.53	3699.00	-31.12	16.34	-34.69	0.24	38.34	295.23
3800.00	0.80	212.48	3798.98	-32.08	14.99	-35.41	0.21	38.45	292.94



Well Name: SDL FED COM NO.1H
 Survey: FINAL GYRO SURVEY
 Survey Date: 11/10/2009

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
3900.00	0.66	219.99	3898.98	-33.00	13.96	-36.15	0.17	38.75	291.12
4000.00	0.63	225.07	3998.97	-33.89	13.13	-36.91	0.06	39.18	289.58
4100.00	0.71	214.39	4098.96	-34.79	12.23	-37.65	0.15	39.59	287.99
4200.00	0.54	222.80	4198.96	-35.61	11.37	-38.33	0.19	39.98	286.52
4300.00	0.70	217.42	4298.95	-36.44	10.53	-39.02	0.17	40.42	285.10
4400.00	0.62	228.19	4398.94	-37.36	9.68	-39.80	0.15	40.96	283.67
4500.00	0.61	231.93	4498.94	-38.30	8.99	-40.62	0.04	41.61	282.48
4600.00	0.65	230.26	4598.93	-39.27	8.30	-41.48	0.04	42.30	281.31
4700.00	0.47	243.85	4698.93	-40.16	7.76	-42.29	0.23	42.99	280.39
4800.00	0.35	225.15	4798.92	-40.80	7.36	-42.87	0.18	43.50	279.74
4900.00	0.16	249.21	4898.92	-41.19	7.10	-43.21	0.22	43.79	279.33
5000.00	0.40	185.13	4998.92	-41.42	6.70	-43.37	0.36	43.89	278.78
5100.00	0.12	236.42	5098.92	-41.61	6.30	-43.49	0.33	43.95	278.24
5200.00	0.42	177.04	5198.92	-41.76	5.87	-43.56	0.37	43.96	277.68
5300.00	0.28	150.93	5298.92	-41.73	5.29	-43.43	0.21	43.75	276.95
5400.00	0.63	117.79	5398.92	-41.22	4.82	-42.83	0.42	43.10	276.43
5500.00	0.58	101.08	5498.91	-40.32	4.47	-41.84	0.18	42.08	276.10
5600.00	0.84	114.66	5598.90	-39.25	4.07	-40.68	0.30	40.88	275.71
5700.00	0.88	114.81	5698.89	-38.03	3.44	-39.32	0.05	39.47	275.00
5800.00	1.07	108.95	5798.88	-36.59	2.82	-37.74	0.21	37.85	274.27
5900.00	0.99	115.29	5898.86	-35.08	2.15	-36.08	0.14	36.15	273.41
6000.00	1.18	76.54	5998.84	-33.36	2.02	-34.30	0.74	34.36	273.37
6100.00	1.03	100.10	6098.83	-31.49	2.10	-32.42	0.47	32.49	273.71
6200.00	1.13	101.75	6198.81	-29.74	1.74	-30.57	0.11	30.62	273.26
6300.00	1.13	92.96	6298.79	-27.86	1.49	-28.61	0.17	28.65	272.98
6400.00	1.22	90.73	6398.77	-25.85	1.42	-26.56	0.10	26.60	273.07
6500.00	0.86	114.19	6498.75	-24.19	1.10	-24.81	0.56	24.83	272.55
6600.00	0.64	121.16	6598.74	-23.16	0.51	-23.65	0.24	23.66	271.24
6700.00	0.26	141.49	6698.74	-22.64	0.05	-23.04	0.40	23.04	270.11
6800.00	0.24	189.55	6798.74	-22.61	-0.34	-22.93	0.21	22.93	269.14
6900.00	0.19	221.97	6898.74	-22.81	-0.68	-23.08	0.13	23.09	268.32
7000.00	0.43	220.08	6998.74	-23.24	-1.09	-23.43	0.24	23.46	267.33
7100.00	0.30	244.72	7098.73	-23.78	-1.49	-23.91	0.20	23.96	266.43
7200.00	0.09	306.15	7198.73	-24.09	-1.55	-24.21	0.27	24.26	266.33
7300.00	0.35	314.10	7298.73	-24.33	-1.29	-24.50	0.26	24.54	266.99
7400.00	0.70	327.11	7398.73	-24.74	-0.56	-25.06	0.36	25.06	268.71
7500.00	0.54	338.36	7498.72	-25.06	0.39	-25.56	0.20	25.56	270.86
7588.00	0.49	115.57	7586.72	-24.84	0.61	-25.38	1.08	25.38	271.37

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
SDL FEDERAL COM #1H
LEA COUNTY, NEW MEXICO
Rig:PATRIOT 6

Tue Nov 03 14:07:00 2009

Coordinates

Latitude: 32.708487 N (32 deg. 42 min. 30.5523 sec.)
Longitude: 103.812787 W (-103 deg. 48 min. 46.0348 sec.)
Elevation: 3673.00 feet.
Calculation Date: Nov/03/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.6518 degrees
Total Magnetic Field: 0.49072 gauss
Magnetic Declination: 7.915636 degrees
Horizontal Intensity: 0.240597 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.915636 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 660114.3000 feet
Y: 621851.5000 feet
True to Grid: (convergence) -0.281290 degrees
Magnetic to Grid: 7.634346 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.634346 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Thu Nov 05 06:19:29 2009

Coordinates

Latitude: 32.708487 N (32 deg. 42 min. 30.5523 sec.)
Longitude: 103.812787 W (-103 deg. 48 min. 46.0348 sec.)
Elevation: 3673.00 feet.
Calculation Date: Nov/04/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.6518 degrees
Total Magnetic Field: 0.49071 gauss
Magnetic Declination: 7.915308 degrees
Horizontal Intensity: 0.240506 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.915308 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 660114.3000 feet
Y: 621851.5000 feet
True to Grid: (convergence) -0.281290 degrees
Magnetic to Grid: 7.634018 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.634018 Degr.