



API # 30-015-36662

DIRECTIONAL SURVEY REPORT

MARBOB ENERGY

EL FEDERAL #13

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

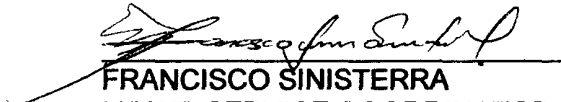
Pathfinder Energy Services, Inc.
6213 W. County Road 112 • Midland, TX • 79706
(432)681-6000

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) PRITHWISH DAS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 11/21/08 TO 11/28/08
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MARBOB ENERGY
EL FEDERAL #13
EDDY COUNTY, NM
RIG: TEACO 1
9. SURVEY CERTIFIED FROM: 3,326 TO 5,633 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 211.27 FEET ON A BEARING OF 97.17 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 5,722 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 11/22/2008
Date Completed: 11/28/2008

MARBOB ENERGY
E L FEDERAL #13
EDDY COUNTY COUNTY, NM
Rig:TEACO 1
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:P.DAS

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.49.20.9418 N LON:103.58.16.5768 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 611224.2000 Y: 663121.2000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.92° EAST TO GRID
Vertical Section Plane: 105.00
Survey Vert. Reference: 12.00' Rotary Table To Ground
Altitude:3658.00' Ground To MSL

Measured Depth	5722.00	(feet)
Inclination	0.97	(deg)
Azimuth	64.96	(deg)
True Vertical Depth	5704.48	(feet)
Vertical Section	209.30	(feet)
Survey X cord	611433.81	(feet)
Survey Y cord	663094.82	(feet)
Survey Lat	32.82240935 N	(deg)
Survey Lon	103.97058929 W	(deg)
Rectangular Corr. N/S	26.38 S	(feet)
Rectangular Corr. E/W	209.61 E	(feet)
Closure Distance	211.27	(feet)
Direction of Closure	97.17	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY

E L FEDERAL #13

EDDY COUNTY COUNTY, NM

Rig:TEACO 1

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: P.DAS

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.49.20.9418 N LON:103.58.16.5768 W

Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 611224.2000 Y: 663121.2000

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.92° EAST TO GRID

Vertical Section Plane: 105.00

Survey Vert. Reference: 12.00' Rotary Table To Ground

Altitude:3658.00' Ground To MSL

Survey Calculations by PathCalc v1.99 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
THE FOLLOWING ARE SCIENTIFIC GYRO SURVEYS										
100.00	0.89	214.34	100.00	0.00	-0.26	0.64 S	0.44 W	0.77@	214.46	0.00
200.00	0.55	275.62	199.99	100.00	-0.99	1.23 S	1.35 W	1.83@	227.68	0.79
300.00	0.60	328.14	299.99	100.00	-1.84	0.74 S	2.11 W	2.23@	250.63	0.51
400.00	1.58	274.62	399.97	100.00	-3.58	0.19 S	3.76 W	3.76@	267.18	1.31
500.00	1.54	286.09	499.93	100.00	-6.28	0.30 N	6.42 W	6.43@	272.66	0.31
600.00	1.62	286.15	599.90	100.00	-9.04	1.06 N	9.07 W	9.13@	276.69	0.08
700.00	1.62	288.18	699.86	100.00	-11.86	1.90 N	11.77 W	11.93@	279.16	0.06
800.00	1.50	282.69	799.82	100.00	-14.58	2.63 N	14.39 W	14.63@	280.34	0.19
900.00	1.35	296.13	899.79	100.00	-17.05	3.43 N	16.73 W	17.08@	281.60	0.37
1000.00	1.21	307.53	999.76	100.00	-19.18	4.59 N	18.62 W	19.18@	283.86	0.29
1100.00	1.26	314.89	1099.74	100.00	-21.11	6.01 N	20.24 W	21.11@	286.55	0.17
1200.00	1.22	311.21	1199.72	100.00	-23.01	7.49 N	21.82 W	23.07@	288.95	0.09
1300.00	1.29	312.94	1299.69	100.00	-24.96	8.96 N	23.44 W	25.10@	290.92	0.08
1400.00	1.16	315.37	1399.67	100.00	-26.83	10.45 N	24.98 W	27.08@	292.70	0.14
1500.00	1.13	318.23	1499.65	100.00	-28.53	11.90 N	26.35 W	28.91@	294.31	0.06
1600.00	1.08	323.00	1599.63	100.00	-30.10	13.39 N	27.57 W	30.65@	295.90	0.10
1700.00	1.02	332.79	1699.61	100.00	-31.44	14.93 N	28.55 W	32.22@	297.62	0.19
1800.00	1.18	334.09	1799.60	100.00	-32.71	16.65 N	29.40 W	33.79@	299.53	0.16
1900.00	1.25	333.29	1899.57	100.00	-34.11	18.55 N	30.34 W	35.56@	301.44	0.07
2000.00	1.28	332.88	1999.55	100.00	-35.58	20.52 N	31.34 W	37.46@	303.22	0.03
2100.00	1.29	327.69	2099.52	100.00	-37.16	22.47 N	32.45 W	39.47@	304.70	0.12
2200.00	1.09	332.95	2199.50	100.00	-38.63	24.27 N	33.49 W	41.35@	305.93	0.23
2300.00	1.30	335.72	2299.48	100.00	-39.98	26.15 N	34.39 W	43.20@	307.25	0.22

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
E L FEDERAL #13
EDDY COUNTY COUNTY, NM
RIG:TEACO 1

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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)
2400.00	1.34	332.25	2399.45	100.00	-41.49	28.22 N	35.40 W	45.27@	308.56	0.09
2500.00	1.21	330.02	2499.43	100.00	-43.03	30.16 N	36.47 W	47.33@	309.60	0.14
2600.00	1.13	332.84	2599.41	100.00	-44.44	31.96 N	37.45 W	49.23@	310.48	0.10
2700.00	1.10	330.47	2699.39	100.00	-45.78	33.67 N	38.37 W	51.05@	311.27	0.06
2800.00	0.94	332.08	2799.37	100.00	-47.01	35.23 N	39.23 W	52.72@	311.93	0.16
2900.00	0.92	329.17	2899.36	100.00	-48.14	36.64 N	40.02 W	54.26@	312.48	0.05
3000.00	0.80	330.44	2999.35	100.00	-49.21	37.94 N	40.78 W	55.70@	312.94	0.12
3100.00	0.82	339.24	3099.34	100.00	-50.12	39.22 N	41.38 W	57.01@	313.46	0.13
3200.00	0.79	334.62	3199.33	100.00	-50.98	40.51 N	41.93 W	58.30@	314.02	0.07
** TIED INTO SCIENTIFIC GYRO SURVEY @ 3300'MD										
3300.00	0.73	327.80	3299.32	100.00	-51.89	41.67 N	42.56 W	59.56@	314.39	0.11
THE FOLLOWING ARE PATHFINDER MWD SURVEYS										
3326.00	0.79	347.86	3325.32	26.00	-52.10	41.99 N	42.69 W	59.87@	314.53	1.04
3358.00	0.62	13.37	3357.32	32.00	-52.20	42.37 N	42.69 W	60.15@	314.78	1.10
3390.00	1.58	90.23	3389.31	32.00	-51.78	42.54 N	42.21 W	59.93@	315.22	4.88
3421.00	4.84	104.03	3420.26	31.00	-50.06	42.22 N	40.51 W	58.51@	316.18	10.73
3453.00	8.62	105.69	3452.03	32.00	-46.31	41.24 N	36.89 W	55.34@	318.18	11.83
3484.00	9.76	105.45	3482.63	31.00	-41.36	39.91 N	32.13 W	51.24@	321.17	3.68
3516.00	9.67	106.13	3514.17	32.00	-35.96	38.44 N	26.93 W	46.94@	324.99	0.46
3548.00	9.15	106.61	3545.74	32.00	-30.73	36.97 N	21.91 W	42.97@	329.35	1.64
3580.00	8.27	103.91	3577.37	32.00	-25.89	35.69 N	17.24 W	39.63@	334.22	3.03
3611.00	7.83	100.82	3608.07	31.00	-21.55	34.76 N	13.00 W	37.11@	339.49	1.99
3643.00	7.74	100.73	3639.77	32.00	-17.23	33.95 N	8.74 W	35.05@	345.56	0.28
3675.00	7.74	101.24	3671.48	32.00	-12.93	33.13 N	4.51 W	33.43@	352.25	0.21
3706.00	7.47	101.64	3702.21	31.00	-8.84	32.31 N	0.49 W	32.32@	359.13	0.89
3738.00	7.56	100.93	3733.94	32.00	-4.66	31.49 N	3.62 E	31.70@	6.55	0.40
3770.00	7.39	99.67	3765.66	32.00	-0.51	30.75 N	7.71 E	31.70@	14.08	0.74
3802.00	7.30	97.44	3797.40	32.00	3.55	30.14 N	11.76 E	32.35@	21.31	0.93

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
E L FEDERAL #13
EDDY COUNTY COUNTY, NM
RIG:TEACO 1

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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)
3834.00	7.03	104.81	3829.15	32.00	7.53	29.38 N	15.66 E	33.29@	28.07	2.99
3866.00	6.86	114.11	3860.92	32.00	11.37	28.09 N	19.30 E	34.09@	34.49	3.55
3898.00	6.86	114.79	3892.69	32.00	15.14	26.51 N	22.78 E	34.96@	40.67	0.25
3929.00	6.86	116.21	3923.47	31.00	18.78	24.92 N	26.12 E	36.10@	46.35	0.55
3961.00	6.77	116.00	3955.24	32.00	22.51	23.25 N	29.53 E	37.59@	51.79	0.29
3993.00	6.60	118.35	3987.02	32.00	26.15	21.55 N	32.85 E	39.28@	56.74	1.01
4025.00	6.68	113.57	4018.81	32.00	29.78	19.93 N	36.17 E	41.30@	61.15	1.74
4056.00	6.68	109.96	4049.60	31.00	33.36	18.59 N	39.52 E	43.67@	64.80	1.35
4088.00	6.95	109.84	4081.37	32.00	37.14	17.30 N	43.09 E	46.43@	68.12	0.84
4120.00	7.30	106.02	4113.13	32.00	41.11	16.08 N	46.86 E	49.55@	71.06	1.84
4152.00	7.83	100.27	4144.85	32.00	45.31	15.13 N	50.96 E	53.16@	73.46	2.89
4184.00	8.18	97.29	4176.54	32.00	49.74	14.46 N	55.37 E	57.22@	75.37	1.70
4215.00	8.09	96.72	4207.22	31.00	54.08	13.92 N	59.72 E	61.32@	76.88	0.39
4247.00	8.62	98.27	4238.88	32.00	58.69	13.31 N	64.33 E	65.69@	78.31	1.80
4279.00	8.97	100.79	4270.51	32.00	63.56	12.50 N	69.15 E	70.27@	79.75	1.63
4311.00	8.53	107.46	4302.14	32.00	68.42	11.32 N	73.87 E	74.73@	81.29	3.45
4343.00	8.18	111.07	4333.80	32.00	73.06	9.79 N	78.26 E	78.87@	82.87	1.97
4374.00	8.00	111.04	4364.49	31.00	77.39	8.22 N	82.33 E	82.74@	84.30	0.58
4405.00	8.00	111.41	4395.19	31.00	81.68	6.66 N	86.35 E	86.61@	85.59	0.17
4437.00	7.65	112.77	4426.89	32.00	86.01	5.02 N	90.39 E	90.53@	86.82	1.24
4468.00	7.74	109.40	4457.61	31.00	90.13	3.53 N	94.26 E	94.32@	87.85	1.48
4500.00	7.91	107.00	4489.31	32.00	94.48	2.17 N	98.40 E	98.42@	88.74	1.15
4563.00	7.74	107.59	4551.72	63.00	103.05	0.38 S	106.59 E	106.59@	90.20	0.30
4626.00	7.56	106.39	4614.16	63.00	111.43	2.83 S	114.61 E	114.64@	91.41	0.38
4689.00	7.65	107.28	4676.61	63.00	119.77	5.24 S	122.59 E	122.70@	92.45	0.24
4752.00	8.00	107.55	4739.02	63.00	128.34	7.81 S	130.77 E	131.00@	93.42	0.56
4815.00	7.83	108.05	4801.42	63.00	137.00	10.46 S	139.03 E	139.42@	94.30	0.29

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
E L FEDERAL #13
EDDY COUNTY COUNTY, NM
RIG:TEACO 1

Page 04/04

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)
4878.00	7.83	109.76	4863.84	63.00	145.56	13.24 S	147.15 E	147.74@	95.14	0.37
4941.00	7.83	110.90	4926.25	63.00	154.11	16.23 S	155.20 E	156.04@	95.97	0.25
5005.00	7.56	110.80	4989.67	64.00	162.63	19.28 S	163.20 E	164.34@	96.74	0.42
5069.00	7.39	110.15	5053.13	64.00	170.92	22.19 S	171.00 E	172.44@	97.39	0.30
5131.00	6.68	106.42	5114.66	62.00	178.50	24.58 S	178.21 E	179.89@	97.85	1.36
5195.00	6.07	102.03	5178.27	64.00	185.60	26.34 S	185.09 E	186.95@	98.10	1.22
5257.00	5.01	97.55	5239.98	62.00	191.56	27.38 S	190.98 E	192.93@	98.16	1.85
5320.00	4.22	93.90	5302.77	63.00	196.56	27.90 S	196.02 E	197.99@	98.10	1.34
5384.00	3.08	92.18	5366.64	64.00	200.55	28.12 S	200.08 E	202.05@	98.00	1.79
5448.00	2.29	87.14	5430.57	64.00	203.44	28.12 S	203.08 E	205.02@	97.88	1.29
5509.00	1.85	81.64	5491.53	61.00	205.50	27.92 S	205.27 E	207.16@	97.75	0.79
5570.00	1.49	70.73	5552.50	61.00	207.06	27.52 S	206.99 E	208.81@	97.57	0.78
5633.00	0.97	64.96	5615.49	63.00	208.15	27.02 S	208.25 E	210.00@	97.39	0.85
STRAIGHT LINE PROJECTION TO BIT @ 5722' MD										
5722.00	0.97	64.96	5704.48	89.00	209.30	26.38 S	209.61 E	211.27@	97.17	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.

PATHFINDER

ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY		
LEASE / WELL No.:	EL FEDERAL	#13	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY COUNTY	NM	USA
RIG:	TEACO 1		
API WELL No:	30-015-36662		
JOB No:	101008062-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SVC.		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.92	LWD Calculated:	7.916253
		Agreed Upon:	7.92
X =	611224.200000	Feet	Y = 663121.200000
			Feet
SITE LATITUDE:	32.822484	SITE LONGITUDE:	103.971271
GRID SYSTEM:	TRUE ☒ UTM ☐ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	105		
KELLY BUSHING ELEVATION:	12		
ALTITUDE:	3658	Feet	WATER DEPTH: 0
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	3300		
DRIFT ANGLE:	0.73		
DRIFT DIRECTION:	327.8		
TRUE VERTICAL DEPTH:	3299.32		
VERTICAL SECTION:	51.89		
RECTANGULAR COORDINATE (N / S) :	41.67 E		
RECTANGULAR COORDINATE (E / W) :	42.56 S		
CLOSURE DISTANCE / DIRECTION:	0	0	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):			
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	3367	TOTAL DEPTH:	5722
KICKOFF ANGLE:	28.63	MAX ANGLE:	9.76

PES Engineers:

Richard Ray La

**Signature of both field engineers required if applicable

Directional Driller:

James H. Hines

DATE: 28-Nov-2008

E L Federal 13 Gyro (2).txt

0.00	0.0000	0.0000	0.00	0.00	0.00
00.00	0.8900	214.3400		100.00	-0.64
00.00	0.5500	275.6200		199.99	-1.24
00.00	0.6000	328.1400		299.98	-0.74
00.00	1.5800	274.6200		399.97	-0.19
00.00	1.5400	286.0900		499.93	0.30
00.00	1.6200	286.1500		599.89	1.06
00.00	1.6200	288.1800		699.85	1.90
00.00	1.5000	282.6900		799.82	2.62
00.00	1.3500	296.1300		899.78	3.43
000.00	1.2100	307.5300		999.76	4.59
100.00	1.2600	314.8900		1099.74	6.01
200.00	1.2200	311.2100		1199.71	7.49
300.00	1.2900	312.9400		1299.69	8.96
400.00	1.1600	315.3700		1399.67	10.44
500.00	1.1300	318.2300		1499.65	11.90
600.00	1.0800	323.0000		1599.63	13.39
700.00	1.0200	332.7900		1699.61	14.93
800.00	1.1800	334.0900		1799.59	16.65
900.00	1.2500	333.2900		1899.57	18.55
000.00	1.2800	332.8800		1999.55	20.52
100.00	1.2900	327.6900		2099.52	22.46
200.00	1.0900	332.9500		2199.50	24.26
300.00	1.3000	335.7200		2299.48	26.14
400.00	1.3400	332.2500		2399.45	28.21
500.00	1.2100	330.0200		2499.43	30.16
600.00	1.1300	332.8400		2599.41	31.95
700.00	1.1000	330.4700		2699.39	33.67
800.00	0.9400	332.0800		2799.37	35.23
900.00	0.9200	329.1700		2899.36	36.64
000.00	0.8000	330.4400		2999.35	37.94
100.00	0.8200	339.2400		3099.34	39.21
200.00	0.7900	334.6200		3199.33	40.51
300.00	0.7300	327.8000		3299.32	41.67
400.00	0.9300	328.3800		3399.31	42.90
500.00	0.9000	335.2000		3499.29	44.30
600.00	0.9100	332.3600		3599.28	45.72
700.00	0.8400	324.9600		3699.27	47.02
800.00	0.6800	322.3200		3799.26	48.09
870.00	0.9100	333.9900		3869.25	48.92

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
EL FEDERAL #13
EDDY COUNTY, NEW MEXICO
Rig:TEACO 1

Thu Nov 20 16:51:11 2008

Coordinates

Latitude: 32.822484 N (32 deg. 49 min. 20.9418 sec.)
Longitude: 103.971271 W (-103 deg. 58 min. 16.5768 sec.)
Elevation: 3658.00 feet.
Calculation Date: Nov/20/2008

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.7492 degrees
Total Magnetic Field: 0.49214 gauss
Magnetic Declination: 8.111481 degrees
Horizontal Intensity: 0.240477 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.111481 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 611224.2000 feet
Y: 663121.2000 feet
True to Grid: (convergence) -0.196253 degrees
Magnetic to Grid: 7.915228 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.915228 Degr.

Form 3160-3
(February 2005)

OCD-ARTESIA

OCD-ARTESIA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work ☒ DRILL ☐ REENTER		7 If Unit or CA Agreement, Name and No
1b. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		8 Lease Name and Well No. E L Federal #13
2 Name of Operator Marbob Energy Corporation		9 API Well No. 30-015-36662
3a Address P.O. Box 227, Artesia, NM 88211-0228	3b Phone No. (include area code) 505-748-3303	10 Field and Pool, or Exploratory Loco Hills; Glorieta-Yeso
4 Location of Well (Report location clearly and in accordance with any State requirements*) At surface 1700' FNL & 1050' FEL At proposed prod zone UNORTHODOX LOCATION		11 Sec, T R M or Bk and Survey or Area Section 21, T17S - R30E
14 Distance in miles and direction from nearest town or post office* About 1/2 a mile from Loco Hills, NM		12 County or Parish Eddy County
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 940'		13 State NM
16 No of acres in lease 280.04	17 Spacing Unit dedicated to this well 40	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth 6,030'	20 BLM/BIA Bond No. on file NMB000412
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3658' GL	22 Approximate date work will start* 08/17/2008	23 Estimated duration 15 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, must be attached to this form

- | | |
|--|---|
| 1 Well plat certified by a registered surveyor | 4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2 A Drilling Plan | 5 Operator certification |
| 3 A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office) | 6 Such other site specific information and/or plans as may be required by the BLM. |

25 Signature <i>Nancy T. Agnew</i>	Name (Printed/Typed) Nancy T. Agnew	Date 07/17/2008
Title Land Department		

Approved by (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) <i>/s/ Don Peterson</i>	Date OCT 03 2008
Title FIELD MANAGER		
Office CARLSBAD FIELD OFFICE		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

360 X 220
Reswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached



DISTRICT I

1625 N FRENCH DR., HOBBS, NM 88240

DISTRICT II

1301 W GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III

1000 RIO BRAZOS RD., AZTEC, NM 87410

DISTRICT IV

1220 S ST FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State EDDYsee - 4 Copies

Fee EDDYsee - 8 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-36662	Pool Code 96718	Pool Name LOCO HILLS; GLORIETA-YESO
Property Code 23371	Property Name E L FEDERAL	Well Number 13
OGRD No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3658'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	21	17-S	30-E		1700	NORTH	1050	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 40	Joint or Infill .	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

GEODETIC COORDINATES NAD 27 NME Y=663121.2 N X=611224.2 E LAT.=32.822484° N LONG.=103.971271° W	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Nancy T. Agnew</i> 7/9/08 Signature Date Nancy T. Agnew Printed Name
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.
	Date Surveyed JUNE 5, 2008 DSS Signature & Seal of Professional Surveyor <i>Ronald J. Edson</i> 3239 08.11.0804
	Certificate No. CARY G. EIDSON 12841 RONALD J. EIDSON 3239



Marbob

Eddy County
EL Federal #13
EL Fed #13
OH

Survey: MWD #1

Pathfinder X & Y Survey Report

08 December, 2008

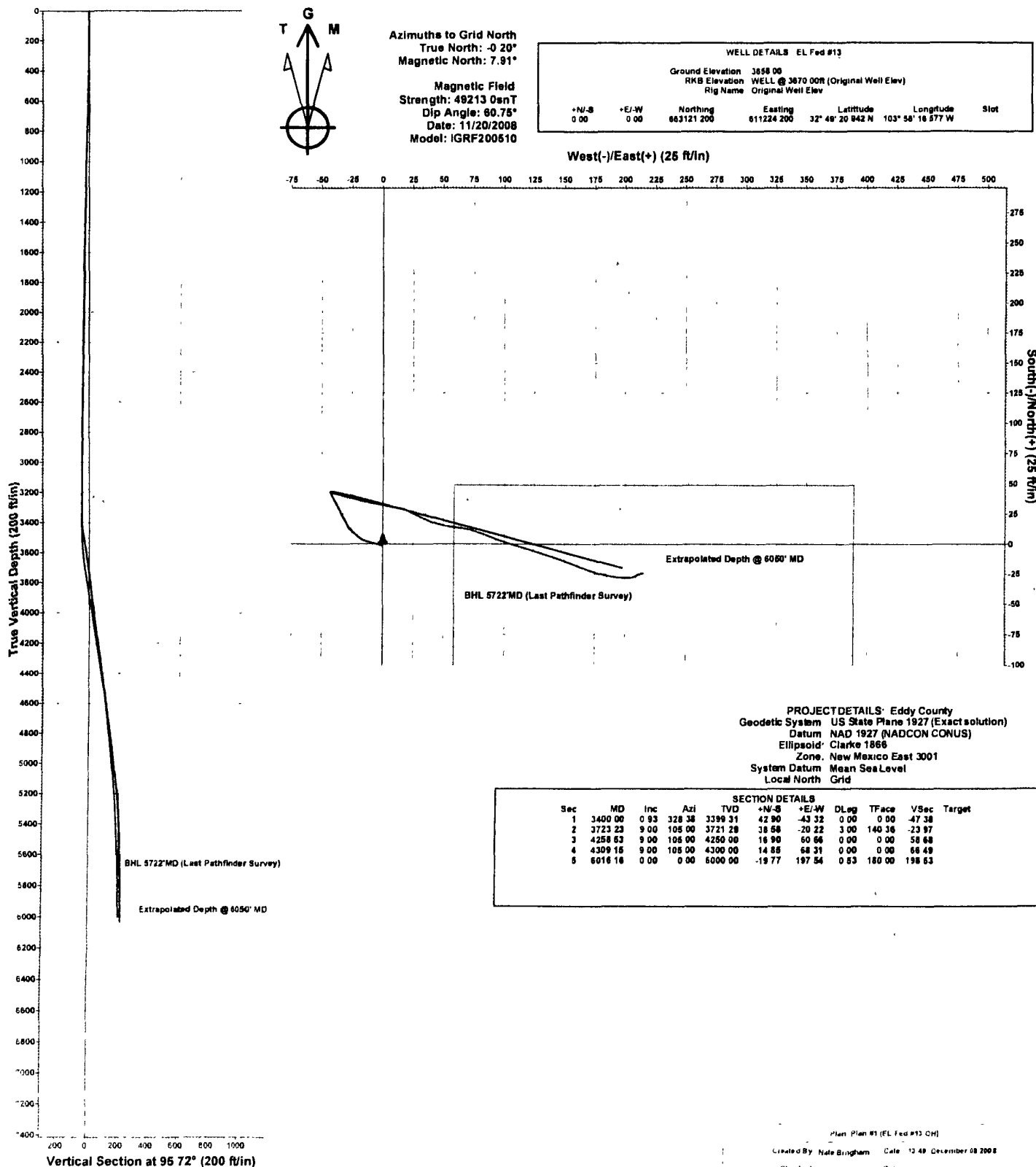
PATHFINDER
ENERGY SERVICES



Project: Eddy County
Site: EL Federal #13
Well: EL Fed #13
Wellbore: OH
Plan: Plan #1 (EL Fed #13/OH)

PATHFINDER

ENERGY SERVICES





Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
 Project: Eddy County
 Site: EL Federal #13
 Well: EL Fed #13
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well EL Fed #13
 TVD Reference: WELL @ 3670 00ft (Original Well Elev)
 MD Reference: WELL @ 3670 00ft (Original Well Elev)
 North Reference: Gnd
 Survey Calculation Method: Minimum Curvature
 Database: Midland DB

Project	Eddy County		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site EL Federal #13

Site Position: Northing: 663,121 200 ft Latitude: 32° 49' 20 942 N
 From: Map Easting: 611,224.200 ft Longitude: 103° 58' 16 577 W
 Position Uncertainty: 0 00 ft Slot Radius: " Grid Convergence: 0 20 °

Well EL Fed #13

Well Position +N-S 0 00 ft Northing: 663,121 200 ft Latitude: 32° 49' 20 942 N
 +E-W 0 00 ft Easting: 611,224.200 ft Longitude: 103° 58' 16 577 W
 Position Uncertainty 0 00 ft Wellhead Elevation: ft Ground Level: 3,658 00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/20/2008	8 11	60 75	49,213

Design OH

Audit Notes:

Version: 1 0 Phase: ACTUAL Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
	0 00	0 00	0 00	95.72

Survey Program Date 12/08/2008

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100 00	3,870 00	GYRO (OH)	CT_GYRO_MS	Continuous Gyro Multishot



Pathfinder Energy Services

Pathfinder X & Y Survey Report



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 North Reference: Grd
 Survey Calculation Method: Minimum Curvature
 Database: Midland DB

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0 00	0 00	0.00	0 00	-3,670.00	0 00	0 00	0 00	0 00	663,121 20	611,224 20
100 00	0 89	214 34	100.00	-3,570.00	-0 64	-0 44	-0 37	0 89	663,120 56	611,223 76
200 00	0 55	275 62	199 99	-3,470 01	-1 24	-1 35	-1 22	0 79	663,119 96	611,222 85
300 00	0 60	328 14	299.98	-3,370 02	-0 74	-2 11	-2 02	0 51	663,120 46	611,222 09
400 00	1 58	274 62	399.97	-3,270 03	-0.19	-3.76	-3 72	1 31	663,121 01	611,220 44
500 00	1 54	286 09	499 93	-3,170.07	0 30	-6 42	-6 42	0 31	663,121 50	611,217 78
600 00	1 62	286 15	599 89	-3,070 11	1.06	-9 07	-9.13	0 08	663,122 26	611,215 13
700 00	1 62	288 18	699 85	-2,970 15	1.90	-11.77	-11 90	0 06	663,123 10	611,212 43
800 00	1 50	282 69	799 82	-2,870 18	2 62	-14 39	-14.58	0 19	663,123 82	611,209 81
900 00	1 35	296 13	899.78	-2,770 22	3 43	-16 73	-16 99	0 37	663,124 63	611,207 47
1,000 00	1 21	307 53	999 76	-2,670 24	4 59	-18.62	-18.99	0 29	663,125 79	611,205 58
1,100 00	1 26	314 89	1,099 74	-2,570.26	6 01	-20 24	-20 74	0 17	663,127 21	611,203 96
1,200 00	1 22	311 21	1,199 71	-2,470.29	7 49	-21 82	-22 46	0 09	663,128 69	611,202 38
1,300 00	1 29	312 94	1,299 69	-2,370 31	8 96	-23.44	-24.22	0 08	663,130 16	611,200 76
1,400 00	1 16	315 37	1,399 67	-2,270 33	10.44	-24.98	-25.90	0 14	663,131 64	611,199 22
1 500 00	1 13	318 23	1,499 65	-2,170 35	11 90	-26 35	-27 40	0 06	663,133 10	611,197 85
1 600 00	1 08	323 00	1,599 63	-2,070 37	13 39	-27 57	-28 77	0 10	663,134 59	611,196 63
1,700 00	1 02	332 79	1,699 61	-1,970 39	14 93	-28.54	-29 89	0 19	663,136 13	611,195 66
1,800 00	1 18	334 09	1,799.59	-1,870 41	16 65	-29 40	-30.91	0 16	663,137 85	611 194 80
1,900 00	1 25	333 29	1,899.57	-1,770 43	18 55	-30.34	-32 04	0 07	663,139 75	611.193 86
2,000 00	1 28	332 88	1,999.55	-1,670 45	20.52	-31.34	-33 23	0 03	663,141 72	611,192 86
2,100 00	1 29	327 69	2,099 52	-1,570 48	22 46	-32 45	-34.53	0 12	663,143 66	611,191 75
2,200 00	1 09	332 95	2,199 50	-1,470.50	24 26	-33.49	-35 74	0 23	663,145 46	611,190 71
2,300 00	1 30	335 72	2,299 48	-1,370.52	26 14	-34 39	-36 82	0 22	663,147 34	611,189 81
2,400 00	1 34	332 25	2,399 45	-1,270 55	28 21	-35.40	-38 03	0 09	663,149 41	611,188 80
2,500 00	1 21	330 02	2,499 43	-1,170 57	30 16	-36 47	-39.29	0 14	663,151 36	611.187 73
2 600 00	1 13	332 84	2,599 41	-1,070 59	31 95	-37.45	-40 44	0 10	663,153 15	611 186 75



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
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 Site: EL Federal #13
 Well: EL Fed #13
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well EL Fed #13
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 MD Reference: WELL @ 3670.00ft (Original Well Elev)
 North Reference: Grd
 Survey Calculation Method: Minimum Curvature
 Database: Midland DB

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	1 10	330 47	2,699.39	-970.61	33.67	-38.37	-41.53	0 06	663,154.87	611,185.83
2,800.00	0 94	332 08	2,799.37	-870.63	35.23	-39.23	-42.54	0 16	663,156.43	611,184.97
2,900.00	0 92	329 17	2,899.36	-770.64	36.64	-40.02	-43.47	0 05	663,157.84	611,184.18
3,000.00	0 80	330 44	2,999.35	-670.65	37.94	-40.78	-44.36	0 12	663,159.14	611,183.42
3,100.00	0 82	339 24	3,099.34	-570.66	39.21	-41.38	-45.08	0 13	663,160.41	611,182.82
3,200.00	0 79	334 62	3,199.33	-470.67	40.51	-41.92	-45.75	0 07	663,161.71	611,182.28
3,300.00	0 73	327 80	3,299.32	-370.68	41.67	-42.56	-46.50	0 11	663,162.87	611,181.64
3,326.00	0 79	347 86	3,325.32	-344.68	41.98	-42.69	-46.66	1 04	663,163.18	611,181.51
3,358.00	0 62	13 37	3,357.31	-312.69	42.37	-42.69	-46.70	1 10	663,163.57	611,181.51
3,390.00	1 58	90 23	3,389.31	-280.69	42.53	-42.21	-46.24	4 88	663,163.73	611,181.99
3,421.00	4 84	104 03	3,420.26	-249.74	42.21	-40.51	-44.52	10 73	663,163.41	611,183.69
3,453.00	8 62	105.69	3,452.03	-217.97	41.24	-36.89	-40.82	11 83	663,162.44	611,187.31
3,484.00	9 76	105 45	3,482.63	-187.37	39.91	-32.13	-35.94	3 68	663,161.11	611,192.07
3,516.00	9 67	106 13	3,514.17	-155.83	38.44	-26.93	-30.63	0 46	663,159.64	611,197.27
3,548.00	9 15	106 61	3,545.74	-124.26	36.97	-21.91	-25.48	1 64	663,158.17	611,202.29
3,580.00	8 27	103 91	3,577.37	-92.63	35.69	-17.24	-20.71	3 03	663,156.89	611,206.96
3,611.00	7 83	100 82	3,608.07	-61.93	34.75	-13.00	-16.40	1 99	663,155.95	611,211.20
3,643.00	7 74	100 73	3,639.77	-30.23	33.94	-8.74	-12.08	0 28	663,155.14	611,215.46
3,675.00	7 74	101 24	3,671.48	1 48	33.12	-4.51	-7.79	0 21	663,154.32	611,219.69
3,706.00	7 47	101 64	3,702.21	32 21	32.31	-0.49	-3.71	0 89	663,153.51	611,223.71
3,738.00	7 56	100 93	3,733.93	63 93	31.49	3.62	0.46	0 40	663,152.69	611,227.82
3,770.00	7 39	99.67	3,765.66	95 66	30.75	7.71	4.61	0 74	663,151.95	611,231.91
3,802.00	7 30	97 44	3,797.40	127 40	30.14	11.76	8.69	0 93	663,151.34	611,235.96
3,834.00	7.03	104 81	3,829.15	159 15	29.37	15.66	12.66	2 99	663,150.57	611,239.86
3,866.00	6 86	114 11	3,860.92	190 92	28.09	19.30	16.41	3 55	663,149.29	611,243.50
3,898.00	6.86	114 79	3,892.69	222 69	26.51	22.78	20.03	0 25	663,147.71	611,246.98
3,929.00	6 86	116 21	3,923.46	253 46	24.92	26.12	23.51	0 55	663,146.12	611,250.32



Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: Marbob
 Project: Eddy County
 Site: EL Federal #13
 Well: EL Fed #13
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well EL Fed #13
 TVD Reference: WELL @ 3670.00ft (Original Well Elev)
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Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
3,961.00	6.77	116.00	3,955.24	285.24	23.24	29.53	27.07	0.29	663,144.44	611,253.73
3,993.00	6.60	118.35	3,987.02	317.02	21.54	32.85	30.54	1.01	663,142.74	611,257.05
4,025.00	6.68	113.57	4,018.81	348.81	19.93	36.17	34.01	1.74	663,141.13	611,260.37
4,056.00	6.68	109.96	4,049.60	379.60	18.59	39.52	37.47	1.35	663,139.79	611,263.72
4,088.00	6.95	109.84	4,081.37	411.37	17.30	43.09	41.15	0.84	663,138.50	611,267.29
4,120.00	7.30	106.02	4,113.12	443.12	16.08	46.86	45.03	1.84	663,137.28	611,271.06
4,152.00	7.83	100.27	4,144.84	474.84	15.13	50.96	49.20	2.89	663,136.33	611,275.16
4,184.00	8.18	97.29	4,176.53	506.53	14.45	55.37	53.65	1.70	663,135.65	611,279.57
4,215.00	8.09	96.72	4,207.22	537.22	13.92	59.72	58.04	0.39	663,135.12	611,283.92
4,247.00	8.62	98.27	4,238.88	568.88	13.31	64.33	62.68	1.80	663,134.51	611,288.53
4,279.00	8.97	100.79	4,270.51	600.51	12.50	69.15	67.56	1.63	663,133.70	611,293.35
4,311.00	8.53	107.46	4,302.13	632.13	11.32	73.87	72.37	3.45	663,132.52	611,298.07
4,343.00	8.18	111.07	4,333.79	663.79	9.79	78.26	76.89	1.97	663,130.99	611,302.46
4,374.00	8.00	111.04	4,364.49	694.49	8.22	82.33	81.10	0.58	663,129.42	611,306.53
4,405.00	8.00	111.41	4,395.18	725.18	6.66	86.35	85.26	0.17	663,127.86	611,310.55
4,437.00	7.65	112.77	4,426.89	756.89	5.02	90.39	89.44	1.24	663,126.22	611,314.59
4,468.00	7.74	109.40	4,457.61	787.61	3.53	94.26	93.44	1.48	663,124.73	611,318.46
4,500.00	7.91	107.00	4,489.31	819.31	2.17	98.40	97.69	1.15	663,123.37	611,322.60
4,563.00	7.74	107.59	4,551.72	881.72	-0.38	106.59	106.09	0.30	663,120.82	611,330.79
4,626.00	7.56	106.39	4,614.16	944.16	-2.83	114.61	114.32	0.38	663,118.37	611,338.81
4,689.00	7.65	107.28	4,676.61	1,006.61	-5.25	122.59	122.50	0.24	663,115.95	611,346.79
4,752.00	8.00	107.55	4,739.02	1,069.02	-7.81	130.77	130.90	0.56	663,113.39	611,354.97
4,815.00	7.83	108.05	4,801.42	1,131.42	-10.47	139.03	139.38	0.29	663,110.73	611,363.23
4,878.00	7.83	109.76	4,863.83	1,193.83	-13.25	147.15	147.74	0.37	663,107.95	611,371.35
4,941.00	7.83	110.90	4,926.25	1,256.25	-16.23	155.20	156.04	0.25	663,104.97	611,379.40
5,005.00	7.56	110.80	4,989.67	1,319.67	-19.28	163.20	164.31	0.42	663,101.92	611,387.40
5,069.00	7.39	110.15	5,053.13	1,383.13	-22.19	171.00	172.36	0.30	663,099.01	611,395.20



Pathfinder Energy Services Pathfinder X & Y Survey Report



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Wellbore: OH
Design: OH

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North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: Midland DB

Survey

MD (ft)	Inc (")	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,131.00	6.68	106.42	5,114.66	1,444.66	-24.58	178.21	179.77	1.36	663,096.62	611,402.41
5,195.00	6.07	102.03	5,178.26	1,508.26	-26.34	185.09	186.79	1.22	663,094.86	611,409.29
5,257.00	5.01	97.55	5,239.97	1,569.97	-27.38	190.98	192.76	1.85	663,093.82	611,415.18
5,320.00	4.22	93.90	5,302.77	1,632.77	-27.90	196.02	197.82	1.34	663,093.30	611,420.22
5,384.00	3.08	92.18	5,366.64	1,696.64	-28.13	200.08	201.89	1.79	663,093.07	611,424.28
5,448.00	2.29	87.14	5,430.57	1,760.57	-28.13	203.08	204.87	1.29	663,093.07	611,427.28
5,509.00	1.85	81.64	5,491.53	1,821.53	-27.92	205.27	207.03	0.79	663,093.28	611,429.47
5,570.00	1.49	70.73	5,552.50	1,882.50	-27.52	206.99	208.71	0.78	663,093.68	611,431.19
5,633.00	0.97	64.96	5,615.49	1,945.49	-27.02	208.25	209.91	0.85	663,094.18	611,432.45
5,722.00	0.97	64.96	5,704.47	2,034.47	-26.38	209.62	211.20	0.00	663,094.82	611,433.82
BHL 5722' MD (Last Pathfinder Survey)										
6,050.00	0.97	64.96	6,032.43	2,362.43	-24.03	214.65	215.97	0.00	663,097.17	611,438.85
Extrapolated Depth @ 6050' MD										

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
5,722.00	5,704.47	-26.38	209.62	BHL 5722' MD (Last Pathfinder Survey)
6,050.00	6,032.43	-24.03	214.65	Extrapolated Depth @ 6050' MD

Checked By _____ Approved By _____ Date: _____