

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFEB 21 2008
OCD-ARTESIAFORM APPROVED
OMBNO 1004-0137
Expires: March 31, 2007

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other						5. Lease Serial No NMLC028784A			
b. Type of Completion: ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr. . Other _____						6. If Indian, Allottee or Tribe Name			
2. Name of Operator Marbob Energy Corporation						7. Unit or CA Agreement Name and No NMNM88525X			
3. Address PO Box 227 Artesia, NM 88211-0227				3a. Phone No. (include area code) 575-748-3303		8. Lease Name and Well No. Burch Keely Unit #406H			
4. Location of Well (Report location clearly and in accordance with Federal requirements)* At surface 2130 FSL 1345 FWL, Unit K At top prod. interval reported below At total depth 1053 FNL 1369 FWL, Unit C						9. AFI Well No. 30-015-35564			
						10. Field and Pool, or Exploratory Grbg Jackson SR Q Grbg SA			
						11. Sec., T., R., M., on Block and Survey or Area Sec. 24-T17S-R29E			
14. Date Spudded 12/16/2007		15. Date T.D. Reached 12/29/2007		16. Date Completed 02/04/2008 ☐ D & A ☒ Ready to Prod.		17. Elevations (DF, RKB, RT, GL)* 3593' GL			
18. Total Depth: MD 6230' TVD 4278'			19. Plug Back T.D.: MD 6195' TVD 4280'			20. Depth Bridge Plug Set: MD TVD			
21. Type Electric & Other Mechanical Logs Run (Submit copy of each) None						22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☒ No ☐ Yes (Submit report) Directional Survey? ☐ No ☒ Yes (Submit copy)			
23. Casing and Liner Record (Report all strings set in well)									
Hole Size	Size/Grade	Wt. (#/ft)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
12 1/4"	8 5/8"	24#	0	357'		400 sx		0	None
7 7/8"	5 1/2"	17#	0	6227'		1700 sx		0	None
24. Tubing Record									
Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	
2 7/8"	3799'								
25. Producing Intervals					26. Perforation Record				
Formation		Top	Bottom	Perforated Interval		Size	No. Holes	Perf. Status	
A) Yeso		4406'	6190'	4406' - 6190'			35	Open	
B)									
C)									
D)									
27. Acid, Fracture, Treatment, Cement Squeeze, etc.									
Depth Interval			Amount and Type of Material						
4406' - 6190'			Acidz w/ 4000 gal NE Fe 15% HCl						
28. Production - Interval A									
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
02/07/2008	02/11/2008	24	→	24	668	562			Pumping
Choke Size	Tbg. Press. Flwg SI	Csg Press	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→					Producing	
28a. Production - Interval B									
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg SI	Csg Press	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

*(See instructions and spaces for additional data on page 2)

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg Press Flwg SI	Csg Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg Press Flwg SI	Csg Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

Sold

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top
					Meas. Depth
				Yates Queen San Andres Glorieta	997' 1882' 2578' 4028'

32. Additional remarks (include plugging procedure):

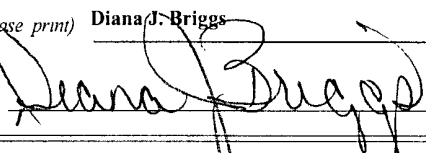
33. Indicate which items have been attached by placing a check in the appropriate boxes:

- ☐ Electrical/Mechanical Logs (1 full set req'd.)
 ☐ Geologic Report
 ☐ DST Report
 ☒ Directional Survey
 ☐ Sundry Notice for plugging and cement verification
 ☐ Core Analysis
 ☒ Other:

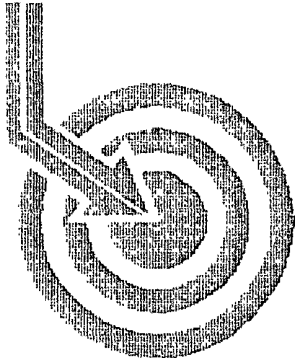
34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)*

Name (Please print) Diana J. BriggsTitle Production Analyst

Signature

Date 02/19/2008

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. 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.



Scientific Drilling

MARBOB ENERGY

Field: BKU
Site: Eddy County, NM
Well: BKU #406
Wellpath: VH - Job #32K12071164
Survey: 12/22/07

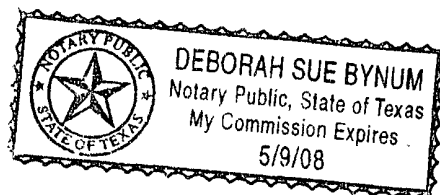
This survey is correct to the best of my knowledge
and is supported by actual field data.

.....*K. Wharton*..... Company Representative

Notorized this date 22nd of January, 2008.

Deborah Sue Bynum

Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: MARBOB ENERGY
Field: BKU
Site: Eddy County, NM
Well: BKU #406
Wellpath: VH - Job #32K12071164

Date: 01/21/2008 Time: 15:51:11 Page: 1
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,321.73Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 12/22/07
KSRG 0'-3820'
Company: Scientific Drilling Internatio
Tool: Keeper, Keeper Gyro

Start Date: 12/22/2007
Engineer: Pena w/GeoGyro
Tied-to: From Surface

Survey

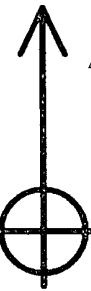
MD ft	Incl deg	Azlm deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.31	140.17	100.00	-0.27	-0.21	0.17	0.31	0.27	140.17
200.00	0.44	166.70	200.00	-0.89	-0.79	0.43	0.21	0.90	151.14
300.00	1.47	175.29	299.98	-2.31	-2.44	0.63	1.04	2.52	165.56
400.00	0.85	186.30	399.96	-3.90	-4.46	0.65	0.66	4.50	171.67
500.00	1.24	170.28	499.94	-5.38	-6.26	0.75	0.48	6.31	173.13
600.00	0.51	129.60	599.93	-6.77	-7.61	1.28	0.92	7.72	170.46
700.00	0.50	111.55	699.93	-7.58	-8.05	2.03	0.16	8.31	165.87
800.00	0.81	95.12	799.92	-8.44	-8.28	3.14	0.36	8.85	159.24
900.00	0.64	106.67	899.91	-9.39	-8.50	4.38	0.22	9.56	152.76
1000.00	0.47	66.53	999.91	-9.95	-8.50	5.29	0.41	10.01	148.11
1100.00	0.43	70.11	1099.91	-10.17	-8.21	6.02	0.05	10.18	143.75
1200.00	0.25	351.66	1199.91	-10.10	-7.86	6.34	0.45	10.10	141.13
1300.00	0.24	329.76	1299.91	-9.70	-7.47	6.20	0.09	9.71	140.29
1400.00	0.23	316.14	1399.90	-9.30	-7.14	5.96	0.06	9.30	140.17
1500.00	0.16	331.72	1499.90	-8.96	-6.87	5.75	0.09	8.96	140.08
1600.00	0.12	308.16	1599.90	-8.72	-6.69	5.60	0.07	8.72	140.04
1700.00	0.24	48.74	1699.90	-8.61	-6.48	5.68	0.29	8.62	138.79
1800.00	0.47	16.77	1799.90	-8.36	-5.95	5.95	0.30	8.42	134.99
1900.00	0.59	336.60	1899.90	-7.63	-5.09	5.87	0.38	7.77	130.92
2000.00	0.55	302.78	1999.89	-6.68	-4.35	5.26	0.33	6.83	129.62
2100.00	0.38	286.80	2099.89	-5.95	-4.00	4.54	0.21	6.05	131.38
2200.00	0.23	269.54	2199.89	-5.56	-3.90	4.02	0.17	5.60	134.16
2300.00	0.24	62.88	2299.89	-5.47	-3.81	4.01	0.46	5.53	133.57
2400.00	0.55	21.95	2399.89	-5.28	-3.27	4.37	0.40	5.46	126.79
2500.00	0.56	315.08	2499.88	-4.55	-2.48	4.21	0.61	4.88	120.51
2600.00	0.41	265.03	2599.88	-3.87	-2.16	3.51	0.43	4.12	121.69
2700.00	0.08	158.34	2699.88	-3.74	-2.26	3.17	0.44	3.90	125.45
2800.00	0.48	5.76	2799.88	-3.51	-1.91	3.24	0.55	3.76	120.48
2900.00	0.53	353.83	2899.87	-2.81	-1.03	3.23	0.12	3.39	107.69
3000.00	0.49	341.68	2999.87	-2.02	-0.17	3.05	0.12	3.05	93.11
3100.00	0.35	343.81	3099.87	-1.33	0.53	2.83	0.14	2.88	79.33
3200.00	0.33	324.51	3199.86	-0.76	1.06	2.58	0.12	2.79	67.63
3300.00	0.43	273.17	3299.86	-0.23	1.32	2.04	0.34	2.43	57.12
3400.00	0.33	301.14	3399.86	0.29	1.49	1.42	0.21	2.05	43.60
3500.00	0.39	293.08	3499.86	0.86	1.77	0.86	0.08	1.96	25.82
3600.00	0.41	274.12	3599.86	1.40	1.93	0.19	0.13	1.94	5.51
3700.00	0.41	271.67	3699.85	1.87	1.96	-0.53	0.02	2.03	344.94
3800.00	0.58	279.20	3799.85	2.47	2.06	-1.39	0.18	2.48	326.01
3820.00	0.89	273.00	3819.85	2.65	2.08	-1.64	1.60	2.65	321.73



Scientific
Drilling

Field: BKU
Site: Eddy County, NM
Well: BKU #406
Wellpath: VH - Job #32K12071164
Survey: 12/22/07

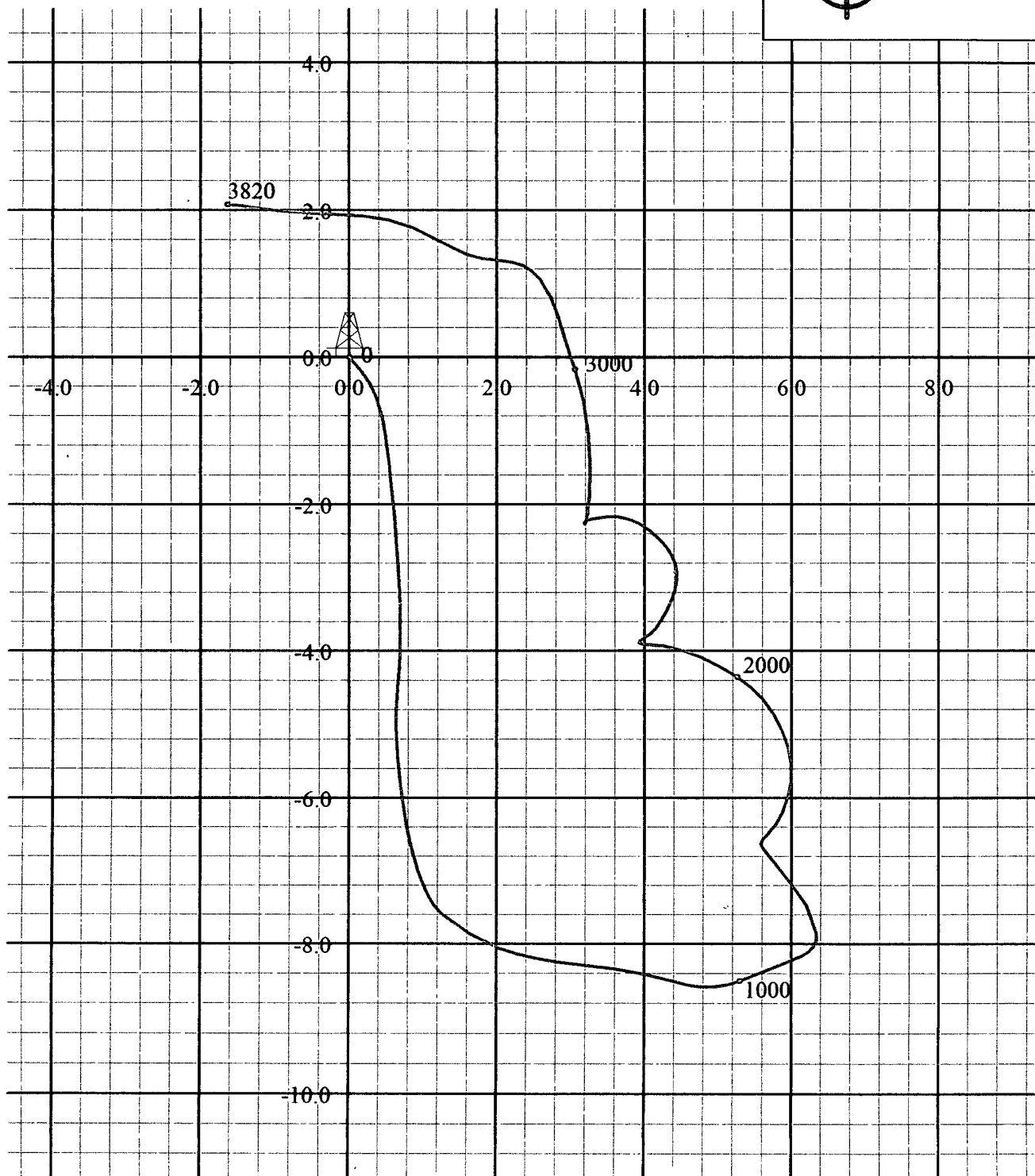
G/T/M



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°

Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 01/21/2008
Model: igrf2000

South(-)/North(+) [2ft/in]



West(-)/East(+) [2ft/in]



DIRECTIONAL SURVEY REPORT

MARBOB ENERGY

BURCH KEELY UNIT #406

EDDY COUNTY, NEW MEXICO

PREPARED BY: CODY MEBANE

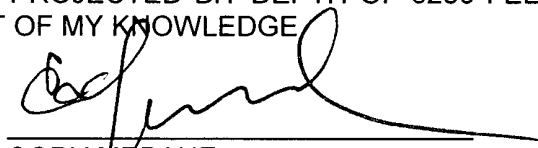
Pathfinder Energy Services, Inc.
6213 W. County Road 112 • Midland, TX • 79706
(432)681-6000

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JOHN PATTERSON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 12/22/07 TO 12/29/08
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 CORPORATION.
BURCH KEELY UNIT #406
EDDY COUNTY, NM
RIG: TEACO RIG #1
9. SURVEY CERTIFIED FROM: 3831 TO 6171 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 2096.70 FEET ON A BEARING OF 0.65 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 6230 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE


CODY MEANE
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 12/22/2007
Date Completed: 12/29/2007

MARBOB ENERGY
BURCH KEELY UNIT #406
EDDY COUNTY, NM
Rig:TEACO #1
PathFinder Office Supervisor: CODY MEBANE
PathFinder Field Engineers: JOHN PATTERSON

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.49.6.6864 N LON:104.1.55.1136 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 592579.9627 Y: 661622.0663
North Aligned To:GRID NORTH
Total Magnetic Correction: 8.08° EAST TO GRID
Vertical Section Plane: 359.95
Survey Vert. Reference: 12.00' Kelly Bushing To Ground
Altitude:3593.00' Ground To MSL

Measured Depth	6230.00	(feet)
Inclination	94.88	(deg)
Azimuth	1.50	(deg)
True Vertical Depth	4278.39	(feet)
Vertical Section	2096.54	(feet)
Survey X cord	592603.75	(feet)
Survey Y cord	663718.63	(feet)
Survey Lat	32.82428663 N	(deg)
Survey Lon	104.03187910 W	(deg)
Rectangular Corr. N/S	2096.56 N	(feet)
Rectangular Corr. E/W	23.79 E	(feet)
Closure Distance	2096.70	(feet)
Direction of Closure	0.65	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
BURCH KEELY UNIT #406

EDDY COUNTY, NM

Rig:TEACO #1

PathFinder Office Supervisor: CODY MEBANE

PathFinder Field Engineers: JOHN PATTERSON

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.49.6.6864 N LON:104.1.55.1136 W

Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 592579.9627 Y: 661622.0663

North Aligned To:GRID NORTH

Total Magnetic Correction: 8.08° EAST TO GRID

Vertical Section Plane: 359.95

Survey Vert. Reference: 12.00' Kelly Bushing To Ground

Altitude:3593.00' Ground To MSL

Survey Calculations by PathCalc v1.97e 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 DRILLING GYRO SURVEY CORRECTED TO GRID @ 3820' MD.										
3820.00	0.89	272.84	3819.80	0.00	2.10	2.10 N	1.60 W	2.64@	322.70	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
3831.00	0.53	289.68	3830.80	11.00	2.12	2.12 N	1.73 W	2.74@	320.75	3.75
3869.00	2.55	13.27	3868.79	38.00	3.00	3.00 N	1.70 W	3.45@	330.42	6.70
3901.00	6.16	21.70	3900.69	32.00	5.29	5.29 N	0.91 W	5.37@	350.28	11.43
3932.00	9.94	17.13	3931.38	31.00	9.40	9.40 N	0.50 E	9.41@	3.03	12.36
3964.00	14.86	14.85	3962.62	32.00	16.00	16.01 N	2.36 E	16.18@	8.40	15.45
3996.00	19.70	14.76	3993.17	32.00	25.19	25.19 N	4.79 E	25.64@	10.77	15.13
4028.00	23.21	14.32	4022.95	32.00	36.52	36.52 N	7.73 E	37.33@	11.94	10.98
4060.00	25.76	16.52	4052.07	32.00	49.29	49.30 N	11.26 E	50.57@	12.87	8.46
4092.00	27.61	16.87	4080.66	32.00	63.05	63.06 N	15.39 E	64.92@	13.72	5.80
4124.00	30.86	15.46	4108.58	32.00	78.06	78.07 N	19.73 E	80.53@	14.18	10.38
4155.00	34.65	12.74	4134.65	31.00	94.32	94.34 N	23.80 E	97.30@	14.16	13.11
4187.00	39.39	9.84	4160.19	32.00	113.21	113.23 N	27.54 E	116.53@	13.67	15.78
4219.00	43.79	6.06	4184.12	32.00	134.23	134.26 N	30.45 E	137.67@	12.78	15.82
4251.00	48.10	3.25	4206.37	32.00	157.14	157.17 N	32.29 E	160.45@	11.61	14.87
4283.00	51.62	0.61	4227.00	32.00	181.58	181.61 N	33.10 E	184.61@	10.33	12.68
4314.00	54.26	358.32	4245.68	31.00	206.32	206.35 N	32.86 E	208.95@	9.05	10.36
4346.00	56.81	355.77	4263.79	32.00	232.66	232.69 N	31.49 E	234.81@	7.71	10.33
4378.00	59.97	354.02	4280.56	32.00	259.80	259.83 N	29.06 E	261.45@	6.38	10.92
4410.00	62.61	352.79	4295.93	32.00	287.68	287.70 N	25.84 E	288.86@	5.13	8.91
4442.00	66.30	352.08	4309.73	32.00	316.30	316.32 N	22.03 E	317.08@	3.98	11.70
4474.00	70.87	351.73	4321.41	32.00	345.79	345.80 N	17.84 E	346.26@	2.95	14.32

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
BURCH KEELY UNIT #406
EDDY COUNTY, NM
RIG:TEACO #1

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)
4503.00	76.94	351.82	4329.44	29.00	373.35	373.37 N	13.85 E	373.62@ 2.12	20.93
4534.00	81.87	353.14	4335.14	31.00	403.56	403.57 N	9.87 E	403.69@ 1.40	16.44
4543.00	83.45	353.75	4336.29	9.00	412.43	412.43 N	8.85 E	412.53@ 1.23	18.80
4568.00	86.97	354.95	4338.38	25.00	437.22	437.22 N	6.40 E	437.27@ 0.84	14.87
4599.00	89.43	356.35	4339.35	31.00	468.11	468.11 N	4.05 E	468.13@ 0.50	9.13
4631.00	89.25	356.71	4339.72	32.00	500.05	500.05 N	2.11 E	500.06@ 0.24	1.26
4663.00	90.22	357.51	4339.87	32.00	532.01	532.01 N	0.50 E	532.01@ 0.05	3.93
4695.00	90.66	358.18	4339.62	32.00	563.99	563.99 N	0.70 W	563.99@ 359.93	2.50
4724.00	90.31	358.73	4339.38	29.00	592.98	592.98 N	1.49 W	592.98@ 359.86	2.25
4756.00	90.13	358.54	4339.26	32.00	624.97	624.97 N	2.25 W	624.97@ 359.79	0.82
4788.00	89.96	359.47	4339.23	32.00	656.96	656.96 N	2.80 W	656.97@ 359.76	2.95
4820.00	91.10	359.40	4338.93	32.00	688.96	688.96 N	3.12 W	688.96@ 359.74	3.57
4852.00	91.45	359.46	4338.22	32.00	720.95	720.95 N	3.44 W	720.96@ 359.73	1.11
4884.00	91.45	359.26	4337.41	32.00	752.94	752.94 N	3.80 W	752.95@ 359.71	0.62
4976.00	90.84	359.84	4335.57	92.00	844.92	844.91 N	4.52 W	844.93@ 359.69	0.91
5072.00	90.48	0.37	4334.47	96.00	940.91	940.91 N	4.34 W	940.92@ 359.74	0.67
5168.00	90.04	0.79	4334.03	96.00	1036.90	1036.90 N	3.37 W	1036.91@ 359.81	0.63
5263.00	89.78	0.93	4334.18	95.00	1131.89	1131.89 N	1.94 W	1131.89@ 359.90	0.31
5326.00	90.40	1.24	4334.08	63.00	1194.88	1194.88 N	0.75 W	1194.88@ 359.96	1.10
5422.00	91.28	1.04	4332.68	96.00	1290.85	1290.85 N	1.16 E	1290.85@ 0.05	0.94
5517.00	92.15	1.64	4329.83	95.00	1385.77	1385.78 N	3.38 E	1385.78@ 0.14	1.11
5612.00	93.12	1.98	4325.47	95.00	1480.62	1480.63 N	6.38 E	1480.64@ 0.25	1.08
5707.00	94.44	2.07	4319.20	95.00	1575.35	1575.36 N	9.73 E	1575.39@ 0.35	1.39
5770.00	94.00	1.99	4314.57	63.00	1638.14	1638.15 N	11.95 E	1638.19@ 0.42	0.71
5866.00	94.18	1.54	4307.72	96.00	1733.85	1733.86 N	14.90 E	1733.92@ 0.49	0.50
5961.00	94.53	1.31	4300.51	95.00	1828.54	1828.56 N	17.26 E	1828.64@ 0.54	0.44
6056.00	94.62	1.32	4292.93	95.00	1923.21	1923.23 N	19.43 E	1923.33@ 0.58	0.10

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
BURCH KEELY UNIT #406
EDDY COUNTY, NM
RIG:TEACO #1

Page 03/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
6171.00	94.88	1.50	4283.41	115.00	2037.78	2037.80 N	22.25 E	2037.92@	0.63	0.27
STRAIGHT LINE PROJECTION TO BIT AT 6230' MD.										
6230.00	94.88	1.50	4278.39	59.00	2096.54	2096.56 N	23.79 E	2096.70@	0.65	0.00

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
BURCH KEELY UNIT # 406
EDDY COUNTY, NEW MEXICO
Rig:TEACO 1

Tue Dec 18 16:44:48 2007

Coordinates

Latitude: 32.818524 N (32 deg. 49 min. 6.6857 sec.)
Longitude: 104.031976 W (-104 deg. 1 min. 55.1120 sec.)
Elevation: 3593.00 feet.
Calculation Date: Dec/18/2007

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.7540 degrees
Total Magnetic Field: 0.49294 gauss
Magnetic Declination: 8.248921 degrees
Horizontal Intensity: 0.240832 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.248921 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 592580.1000 feet
Y: 661622.0000 feet
True to Grid: (convergence) -0.163331 degrees
Magnetic to Grid: 8.085590 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 8.085590 Degs.

WHS

Survey Report

Company: Marbob
Project: Eddy County
Site: Burch Keely Unit #406
Well: Burch Keely Unit #406
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Burch Keely Unit #406
TVD Reference: EST RKB @ 0.0ft
MD Reference: EST RKB @ 0.0ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User 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 Burch Keely Unit #406
Site Position:
From: Map
Position Uncertainty: 0.0 ft

Northing: 661,622.00ft
Easting: 592,580.10ft
Slot Radius: "

Latitude: 32° 49' 6.686 N
Longitude: 104° 1' 55.112 W
Grid Convergence: 0 16 °

Well Burch Keely Unit #406
Well Position +N-S 0.0 ft
Well Position +E-W 0.0 ft
Position Uncertainty 0.0 ft

Northing: 661,622.00 ft
Easting: 592,580.10 ft
Wellhead Elevation: ft

Latitude: 32° 49' 6.686 N
Longitude: 104° 1' 55.112 W
Ground Level: 0.0 ft

Wellbore OH
Magnetics

Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
IGRF200510	12/22/2007	8.25	60.75	49,319

Design OH
Audit Notes:
Version: 1.0
Phase: ACTUAL
Tie On Depth: 0.0

Vertical Section:

Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
0.0	0.0	0.0	359.95

Survey Program Date 1/4/2008

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.0	3,820.0	Survey #1 (OH)	CT_GYRO_MS	Continuous Gyro Multishot
3,831.0	5,326.0	Survey #2 (OH)	MWD	MWD - Standard

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.31	140.01	100.0	-0.2	0.2	-0.2	0.31	0.31	0.00
200.0	0.44	166.54	200.0	-0.8	0.4	-0.8	0.21	0.13	26.53
300.0	1.47	175.13	300.0	-2.4	0.6	-2.4	1.04	1.03	8.59
400.0	0.85	186.14	400.0	-4.5	0.7	-4.5	0.66	-0.62	11.01
500.0	1.24	170.12	499.9	-6.3	0.8	-6.3	0.48	0.39	-16.02
600.0	0.51	129.44	599.9	-7.6	1.3	-7.6	0.92	-0.73	-40.68
700.0	0.50	111.39	699.9	-8.0	2.1	-8.1	0.16	-0.01	-18.05
800.0	0.81	94.96	799.9	-8.3	3.2	-8.3	0.36	0.31	-16.43
900.0	0.64	106.51	899.9	-8.5	4.4	-8.5	0.22	-0.17	11.55
1,000.0	0.47	66.37	999.9	-8.5	5.3	-8.5	0.41	-0.17	-40.14
1,100.0	0.43	69.95	1,099.9	-8.2	6.0	-8.2	0.05	-0.04	3.58

WHS

Survey Report

Company: Marbob Project: Eddy County Site: Burch Keely Unit #406 Well: Burch Keely Unit #406 Wellbore: OH Design: OH	Local Co-ordinate Reference: Well Burch Keely Unit #406 TVD Reference: EST RKB @ 0 0ft MD Reference: EST RKB @ 0 0ft North Reference: Grid Survey Calculation Method: Minimum Curvature Database: EDM 2003.16 Single User Db	
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Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,200.0	0.25	351.50	1,199.9	-7.8	6.4	-7.9	0.45	-0.18	-78.45
1,300.0	0.24	329.60	1,299.9	-7.4	6.2	-7.5	0.09	-0.01	-21.90
1,400.0	0.23	315.98	1,399.9	-7.1	6.0	-7.1	0.06	-0.01	-13.62
1,500.0	0.16	331.56	1,499.9	-6.9	5.8	-6.9	0.09	-0.07	15.58
1,600.0	0.12	308.00	1,599.9	-6.7	5.6	-6.7	0.07	-0.04	-23.56
1,700.0	0.24	48.58	1,699.9	-6.5	5.7	-6.5	0.29	0.12	100.58
1,800.0	0.47	16.61	1,799.9	-5.9	6.0	-5.9	0.30	0.23	-31.97
1,900.0	0.59	336.44	1,899.9	-5.1	5.9	-5.1	0.38	0.12	-40.17
2,000.0	0.55	302.62	1,999.9	-4.3	5.3	-4.3	0.33	-0.04	-33.82
2,100.0	0.38	286.64	2,099.9	-4.0	4.6	-4.0	0.21	-0.17	-15.98
2,200.0	0.23	269.38	2,199.9	-3.9	4.0	-3.9	0.17	-0.15	-17.26
2,300.0	0.24	62.72	2,299.9	-3.8	4.0	-3.8	0.46	0.01	153.34
2,400.0	0.55	21.79	2,399.9	-3.3	4.4	-3.3	0.40	0.31	-40.93
2,500.0	0.56	314.92	2,499.9	-2.5	4.2	-2.5	0.61	0.01	-66.87
2,600.0	0.41	264.87	2,599.9	-2.2	3.5	-2.2	0.43	-0.15	-50.05
2,700.0	0.08	158.18	2,699.9	-2.3	3.2	-2.3	0.44	-0.33	-106.69
2,800.0	0.48	5.60	2,799.9	-1.9	3.2	-1.9	0.55	0.40	-152.58
2,900.0	0.53	353.67	2,899.9	-1.0	3.2	-1.0	0.12	0.05	-11.93
3,000.0	0.49	341.52	2,999.9	-0.2	3.1	-0.2	0.12	-0.04	-12.15
3,100.0	0.35	343.65	3,099.9	0.5	2.8	0.5	0.14	-0.14	2.13
3,200.0	0.33	324.35	3,199.9	1.1	2.6	1.1	0.12	-0.02	-19.30
3,300.0	0.43	273.01	3,299.9	1.3	2.0	1.3	0.34	0.10	-51.34
3,400.0	0.33	300.98	3,399.9	1.5	1.4	1.5	0.21	-0.10	27.97
3,500.0	0.39	292.92	3,499.9	1.8	0.9	1.8	0.08	0.06	-8.06
3,600.0	0.41	273.96	3,599.9	1.9	0.2	1.9	0.13	0.02	-18.96
3,700.0	0.41	271.51	3,699.9	2.0	-0.5	2.0	0.02	0.00	-2.45
3,800.0	0.58	279.04	3,799.8	2.1	-1.4	2.1	0.18	0.17	7.53
3,820.0	0.89	272.84	3,819.8	2.1	-1.6	2.1	1.60	1.55	-31.00

Targets

Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL1	-	0.00	0.00	4,325.0	1,850.0	0.0	663,472.00	592,580.10	32° 49' 24.992 N	104° 1' 55.050 W
- survey misses by 1915.7ft at 3820.0ft MD (3819.8 TVD, 2.1 N, -1.6 E)										
- Point										

Checked By: _____	Approved By: _____	Date: _____
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TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY		
LEASE / WELL No.:	BURCH KEELY UNIT #406		
WELL LOCATION:	EDDY CO, NM		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	TEACO Rig #1		
API WELL No:	30-015-35564		
JOB No:	101007030 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

MAGNETIC DECLINATION:			
On Wall Plat:	8.09	LWD Calculated:	8.08559
		Agreed Upon:	8.08
X =	592580.100000	Feet	Y =
			661622.000000
			Feet
SITE LATITUDE:	32.818524 N	SITE LONGITUDE:	104.03196 W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	
PROPOSED DRIFT DIRECTION:	0		
KELLY BUSHING ELEVATION:	12 FEET		
ALTITUDE:	3593	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	3820
DRIFT ANGLE:	0.89
DRIFT DIRECTION:	272.84
TRUE VERTICAL DEPTH:	3819.8
VERTICAL SECTION:	2.1
RECTANGULAR COORDINATE (N / S):	2.1
RECTANGULAR COORDINATE (E / W):	-1.6
CLOSURE DISTANCE / DIRECTION:	2.64' 322.7°
SURVEY CALCULATION METHOD:	AA ☐ MC ☒ RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SCIENTIFIC DRILLING CONTROLS
COPY OF TIE-IN SURVEY REPORT	☐ YES ☒ NO

WELL PLAN

KICKOFF DEPTH:	3847.5	TOTAL DEPTH:	5970
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers: _____

**Signature of both field engineers required if applicable

Directional Driller: _____

DATE: _____