



An Operating Unit of Smith International, Inc.

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JAN 21 2010

HOBBSOCD

DIRECTIONAL SURVEY REPORT

MARBOB ENERGY CORPORATION

KING AIR FEDERAL #1

LEA COUNTY, NEW MEXICO

SUR: B-8-19s-32e, 330/N & 2310/E
BHL: G-8-19s-32e, 2288.N & 2029/E
API # 30-025-38897

PREPARED BY: FRANCISCO SINISTERRA

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

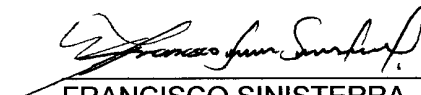
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) DAVID ASHER
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 10/11/09 TO 10/19/09
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
KING AIR FEDERAL #1
LEA COUNTY, NM
RIG: PATRIOT 1

9. SURVEY CERTIFIED FROM: 8828 TO 11118 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 1978.26 FEET ON A BEARING OF 171.82 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11180 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: 10/10/2009
Date Completed: 10/19/2009

MARBOB ENERGY
KING AIR FEDERAL #1
LEA COUNTY, NM
Rig: PATRIOT 2
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: DAVID ASHER
HAFA DONARUMMA

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.40.52.3294 N LON: 103.47.12.8194 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 668130.0000 Y: 611965.5000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.61° EAST TO GRID
Vertical Section Plane: 172.11
Survey Vert. Reference: 16.00' Rotary Table To Ground
Altitude: 3641.00' Ground To MSL

Measured Depth	11180.00	(feet)
Inclination	90.04	(deg)
Azimuth	178.29	(deg)
True Vertical Depth	9348.66	(feet)
Vertical Section	1978.24	(feet)
Survey X cord	668411.29	(feet)
Survey Y cord	610007.32	(feet)
Survey Lat	32.67581623 N	(deg)
Survey Lon	103.78601290 W	(deg)
Rectangular Corr. N/S	1958.16 S	(feet)
Rectangular Corr. E/W	281.31 E	(feet)
Closure Distance	1978.26	(feet)
Direction of Closure	171.82	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
KING AIR FEDERAL #1
LEA COUNTY, NM
Rig: PATRIOT 2

PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: DAVID ASHER
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Vertical Section Plane: 172.11
Survey Vert. Reference: 16.00' Rotary Table To Ground
Altitude: 3641.00' Ground To MSL

Survey Calculations by RX4 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 GYRO SURVEY AT 8800'MD.										
8800.00	1.87	259.33	8797.66	0.00	-42.10	25.08 N	125.69 W	128.17@ 281.28	0.00	
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
8828.00	1.67	254.74	8825.65	28.00	-42.02	24.89 N	126.53 W	128.96@ 281.13	0.87	
8860.00	1.41	216.74	8857.64	32.00	-41.68	24.45 N	127.22 W	129.55@ 280.88	3.23	
8891.00	5.10	163.40	8888.59	31.00	-40.05	22.82 N	127.05 W	129.09@ 280.18	14.21	
8923.00	10.55	158.08	8920.28	32.00	-35.80	18.74 N	125.55 W	126.94@ 278.49	17.16	
8954.00	15.56	155.10	8950.47	31.00	-29.06	12.33 N	122.74 W	123.36@ 275.74	16.30	
8985.00	18.99	152.96	8980.06	31.00	-20.32	4.06 N	118.69 W	118.76@ 271.96	11.25	
9017.00	22.25	152.01	9010.01	32.00	-9.71	5.93 S	113.48 W	113.64@ 267.01	10.24	
9049.00	25.15	151.44	9039.31	32.00	2.35	17.25 S	107.39 W	108.76@ 260.87	9.09	
9080.00	28.40	153.40	9066.98	31.00	15.49	29.63 S	100.94 W	105.19@ 253.64	10.86	
9112.00	31.74	153.82	9094.67	32.00	30.70	43.99 S	93.81 W	103.62@ 244.88	10.46	
9143.00	34.56	154.78	9120.62	31.00	46.84	59.27 S	86.47 W	104.83@ 235.57	9.25	
9174.00	37.81	156.35	9145.64	31.00	64.38	75.93 S	78.91 W	109.51@ 226.10	10.90	
9206.00	41.24	157.49	9170.32	32.00	84.03	94.67 S	70.93 W	118.29@ 216.84	10.96	
9237.00	44.93	157.40	9192.96	31.00	104.52	114.22 S	62.81 W	130.35@ 208.81	11.91	
9268.00	48.72	156.83	9214.16	31.00	126.35	135.04 S	54.02 W	145.44@ 201.80	12.30	
9300.00	51.88	155.99	9234.60	32.00	150.05	157.60 S	44.16 W	163.67@ 195.65	10.08	
9331.00	54.61	156.53	9253.15	31.00	173.94	180.33 S	34.16 W	183.54@ 190.73	8.92	
9362.00	58.04	157.39	9270.34	31.00	198.84	204.07 S	24.07 W	205.49@ 186.73	11.30	
9394.00	62.70	157.03	9286.15	32.00	225.71	229.71 S	13.30 W	230.09@ 183.31	14.58	
9425.00	67.18	156.20	9299.28	31.00	252.76	255.47 S	2.15 W	255.48@ 180.48	14.66	
9456.00	70.70	156.17	9310.42	31.00	280.57	281.94 S	9.53 E	282.10@ 178.06	11.35	
9488.00	73.51	156.48	9320.25	32.00	309.87	309.82 S	21.75 E	310.58@ 175.98	8.83	
9519.00	76.94	157.04	9328.16	31.00	338.78	337.36 S	33.58 E	339.03@ 174.32	11.20	

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
KING AIR FEDERAL #1
LEA COUNTY, NM
RIG:PATRIOT 2

Page 02/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
9550.00	80.37	157.96	9334.25	31.00	368.18	365.44 S	45.20 E	368.22@	172.95	11.44
9582.00	82.83	158.47	9338.93	32.00	398.91	394.83 S	56.95 E	398.92@	171.79	7.85
9613.00	83.89	158.92	9342.51	31.00	428.86	423.52 S	68.14 E	428.97@	170.86	3.71
9645.00	85.82	159.80	9345.38	32.00	459.95	453.34 S	79.37 E	460.24@	170.07	6.62
9676.00	88.02	160.84	9347.05	31.00	490.25	482.49 S	89.80 E	490.77@	169.46	7.85
9708.00	88.64	160.65	9347.98	32.00	521.61	512.68 S	100.34 E	522.41@	168.93	2.03
9739.00	89.08	160.19	9348.60	31.00	551.96	541.89 S	110.73 E	553.08@	168.45	2.05
9771.00	90.57	161.05	9348.69	32.00	583.31	572.07 S	121.35 E	584.80@	168.02	5.38
9803.00	91.28	161.43	9348.18	32.00	614.74	602.37 S	131.64 E	616.58@	167.67	2.52
9834.00	91.19	161.77	9347.51	31.00	645.21	631.78 S	141.42 E	647.41@	167.38	1.14
9865.00	91.28	161.24	9346.84	31.00	675.67	661.17 S	151.25 E	678.25@	167.11	1.73
9896.00	91.01	161.24	9346.22	31.00	706.11	690.51 S	161.22 E	709.09@	166.86	0.87
9928.00	90.48	160.59	9345.81	32.00	737.50	720.75 S	171.68 E	740.92@	166.60	2.62
9959.00	89.78	160.54	9345.74	31.00	767.87	749.99 S	182.00 E	771.75@	166.36	2.26
9990.00	89.08	161.48	9346.04	31.00	798.29	779.30 S	192.08 E	802.62@	166.15	3.78
10022.00	88.64	162.27	9346.68	32.00	829.77	809.70 S	202.04 E	834.53@	165.99	2.83
10085.00	87.85	163.09	9348.61	63.00	891.89	869.82 S	220.78 E	897.40@	165.76	1.81
10149.00	87.76	164.39	9351.06	64.00	955.16	931.21 S	238.69 E	961.32@	165.62	2.03
10211.00	90.31	167.07	9352.11	62.00	1016.76	991.28 S	253.97 E	1023.30@	165.63	5.97
10273.00	90.04	171.29	9351.92	62.00	1078.66	1052.16 S	265.60 E	1085.17@	165.83	6.82
10336.00	89.78	174.36	9352.02	63.00	1141.65	1114.66 S	273.47 E	1147.72@	166.22	4.89
10399.00	90.04	175.27	9352.11	63.00	1204.58	1177.40 S	279.17 E	1210.05@	166.66	1.50
10461.00	90.75	178.37	9351.69	62.00	1266.36	1239.30 S	282.60 E	1271.11@	167.15	5.13
10524.00	90.40	179.73	9351.05	63.00	1328.89	1302.28 S	283.65 E	1332.82@	167.71	2.23
10587.00	90.75	181.71	9350.42	63.00	1391.18	1365.27 S	282.86 E	1394.27@	168.30	3.19
10651.00	90.66	181.13	9349.64	64.00	1454.33	1429.25 S	281.27 E	1456.66@	168.87	0.92

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY
KING AIR FEDERAL #1
LEA COUNTY, NM
RIG: PATRIOT 2

Page 03/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS
						(ft)	(ft)	(ft)	(deg)	(dg/100ft)
10715.00	90.40	180.60	9349.04	64.00	1517.58	1493.24 S	280.30 E	1519.32@	169.37	0.92
10778.00	90.13	181.58	9348.75	63.00	1579.81	1556.23 S	279.11 E	1581.06@	169.83	1.61
10842.00	90.04	180.67	9348.66	64.00	1643.02	1620.21 S	277.85 E	1643.86@	170.27	1.43
10906.00	90.22	180.50	9348.51	64.00	1706.32	1684.21 S	277.20 E	1706.87@	170.65	0.39
10969.00	89.87	179.62	9348.46	63.00	1768.71	1747.21 S	277.13 E	1769.05@	170.99	1.50
11033.00	89.87	179.24	9348.61	64.00	1832.19	1811.20 S	277.77 E	1832.38@	171.28	0.59
11095.00	89.96	178.73	9348.70	62.00	1893.74	1873.19 S	278.87 E	1893.84@	171.53	0.83
11118.00	90.04	178.29	9348.70	23.00	1916.60	1896.19 S	279.46 E	1916.67@	171.62	1.94
STRAIGHT LINE PROJECTION TO BIT AT 11180'MD.										
11180.00	90.04	178.29	9348.66	62.00	1978.24	1958.16 S	281.31 E	1978.26@	171.82	0.00



TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MARBOB ENERGY		
LEASE / WELL No.:	KING AIR	FEDERAL #1	
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA COUNTY	NM	USA
RIG:	PATRIOT 2		
API WELL No:	30-025-38897		
JOB No:	101009078 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.61	LWD Calculated:	7.61
		Agreed Upon:	7.61
X =	668130.000000	Feet	Y = 611965.500000
			Feet
SITE LATITUDE:	32.681203	SITE LONGITUDE:	103.786894
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐ ZONE:		
PROPOSED DRIFT DIRECTION:	172.11		
KELLY BUSHING ELEVATION:	16		
ALTITUDE:	3641	Feet	WATER DEPTH: N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	8800		
DRIFT ANGLE:	1.87		
DRIFT DIRECTION:	259.33		
TRUE VERTICAL DEPTH:	8797.66		
VERTICAL SECTION:	-42.09		
RECTANGULAR COORDINATE (N / S) :	25.08		
RECTANGULAR COORDINATE (E / W) :	-125.69		
CLOSURE DISTANCE / DIRECTION:	128.17	281.21	
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:	8870	TOTAL DEPTH:	11221.51
KICKOFF ANGLE:	1.95	MAX ANGLE:	90

PES Engineers: DAVID ASHER
HAFA DONARUMMA

**Signature of both field engineers required if applicable

Directional Driller: PATRICK QUAIN

DATE: 10-Oct-2009



Scientific Drilling

Hzspt dpqjd!Tvswf z!Sf qpsu

gps

NBSCPC

X f rrtMpdbypo	FEEZ!DPVOUZ-IOFX !NFYDP
X f rrtObn f	LJOH!BJS!GFEFSBMOP/2I
Sjh!Obn f	QBUSJPUIOP/3
Tvswf z!Ebuf	210 Ø11:
Mbywef	43/79!ef h
Opsu !Sf g sf odf	Hje!Opsu
Hje!Dpssf dypo	.1/41!ef h
Ef qu !Sf g sf odf	FLC
Dbrdvrbypo!Nf ü pe	Njojn vn !Dvswbwsf
Tf dypo!)W!*!Sf g	1/11O!)gt-!1/11F!)gt-!291/11B{jn !)ef h*
Ef gojywf !Tvswf z	GOBMHZSP!TVSWFZ
Pqf sbups	BOHFMHVFCBSB

Dpn n f out



X fmfObn f;		LJOH!B.S!GFEFSBMOP/2I								
Tvswf z;		GOBMHZSP!TVSWFZ								
Tvswf z!Ebf;		210 0811:								
NE	bd	B{jn	UME	WT	Opsu joh	Fbt joh	EMr	Drpt vsf !Ejt ubodf	Drpt vsf !Bohrf	
gu	efh	efh	gu	gu	gu	gu	efh011gu	gu	efh	
1/11	1/11	1/11	1/11	1/11	1/11	1/11	.bwbrje	1/11	1/11	
211/11	1/94	27/33	211/11	.1/7:	1/7:	1/31	1/94	1/83	27/33	
311/11	1/29	62/: 5	2: : /: :	.2/59	2/59	1/64	1/7:	2/68	2: /72	
411/11	1/27	: 8/3:	3: : /: :	.2/67	2/67	1/8:	1/24	2/86	37/99	
511/11	1/26	248/74	4: : /: :	.2/56	2/56	2/13	1/22	2/88	46/22	
611/11	1/37	294/9:	5: : /: :	.2/23	2/23	2/1:	1/2:	2/68	55/26	
711/11	1/49	296/57	6: : /: :	.1/68	1/68	2/15	1/22	2/2:	72/57	
811/11	1/55	2: 1/19	7: : /: :	1/24	.1/24	1/: 6	1/18	1/: 7	: 9/22	
911/11	1/5:	326/87	8: : /: 9	1/96	.1/96	1/74	1/32	2/17	254/63	
: 11/11	1/: 8	324/5:	9: : /: 9	2/: 1	.2/: 1	.1/19	1/59	2/: 1	293/58	
2111/11	1/: 5	323/88	: : : /: 7	4/41	.4/41	.1/: :	1/14	4/55	2: 7/86	
2211/11	1/98	324/: 5	21: : /: 6	5/72	.5/72	.2/97	1/18	5/: 8	312/: 5	
2311/11	1/87	318/75	22: : /: 5	6/94	.6/94	.3/6:	1/25	7/49	314/: 6	
2411/11	1/61	325/31	23: : /: 4	7/8:	.7/8:	.4/26	1/38	8/59	315/99	
2511/11	1/51	353/33	24: : /: 4	8/42	.8/42	.4/81	1/35	9/2:	317/95	
2611/11	1/27	3: 8/55	25: : /: 4	8/52	.8/52	.5/24	1/44	9/59	31: /25	
2711/11	1/37	455/92	26: : /: 4	8/23	.8/23	.5/42	1/31	9/43	322/32	
2811/11	1/44	26/: 4	27: : /: 4	7/73	.7/73	.5/3:	1/28	8/9:	323/: :	
2911/11	1/46	44/48	28: : /: 3	7/19	.7/19	.5/15	1/22	8/41	324/75	
2: 11/11	1/57	43/67	29: : /: 3	6/5:	.6/5:	.4/77	1/21	7/71	324/83	
3111/11	1/74	39/11	2: : : /: 3	5/78	.5/78	.4/2:	1/29	6/77	325/46	
3211/11	1/77	39/5:	31: : /: 2	4/79	.4/79	.3/77	1/15	5/65	326/97	
3311/11	1/93	48/71	32: : /: 1	3/71	.3/71	.2/: 6	1/31	4/36	327/88	
3411/11	2/37	53/13	33: : /9:	2/33	.2/33	.1/88	1/55	2/55	323/48	
3511/11	2/47	52/75	34: : /97	.1/5:	1/5:	1/86	1/22	1/: 1	68/27	
3611/11	2/72	53/4:	35: : /94	.3/52	3/52	3/5:	1/35	4/57	56/: 3	
3711/11	2/97	58/83	36: : /89	.5/65	5/65	5/74	1/41	7/5:	56/72	
3811/11	2/63	59/49	37: : /85	.7/62	7/62	7/94	1/45	: /55	57/47	
3911/11	2/1:	43/55	38: : /82	.9/31	9/31	9/44	1/67	22/7:	56/58	
3: 11/11	1/82	: /44	39: : /81	.: /72	: /72	9/: 5	1/63	24/24	53/: 5	
4111/11	1/7:	46: /: 4	3: : : /7:	.21/93	21/93	: /15	1/23	25/21	4: /99	
4211/11	1/71	45: /56	41: : /7:	.22/: 5	22/: 5	9/: 6	1/26	25/: 3	47/95	
4311/11	1/63	445/66	42: : /79	.23/98	23/98	9/76	1/27	26/62	44/: 2	
4411/11	1/74	444/56	43: : /79	.24/89	24/89	9/32	1/22	27/15	41/8:	
4511/11	1/65	43: /18	44: : /78	.25/79	25/79	8/83	1/21	27/69	38/85	
4611/11	1/41	444/52	45: : /78	.26/43	26/43	8/47	1/36	27/: :	36/77	
4711/11	1/28	397/: 6	46: : /78	.26/6:	26/6:	8/21	1/33	28/24	35/5:	
4811/11	1/38	374/27	47: : /78	.26/72	26/72	7/84	1/24	28/11	34/44	
4911/11	1/43	373/31	48: : /77	.26/65	26/65	7/34	1/16	27/85	32/94	



Survey Report

Well Name:		KING AIR FEDERAL NO.1H							
Survey:		FINAL GYRO SURVEY							
Survey Date:		10/9/2009							
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	0.45	267.46	3899.66	-15.48	15.48	5.55	0.14	16.45	19.73
4000.00	0.60	284.75	3999.66	-15.60	15.60	4.65	0.21	16.28	16.61
4100.00	0.67	291.14	4099.65	-15.94	15.94	3.61	0.10	16.35	12.75
4200.00	0.88	295.27	4199.64	-16.48	16.48	2.37	0.22	16.65	8.20
4300.00	0.86	291.62	4299.63	-17.08	17.08	0.99	0.06	17.11	3.31
4400.00	0.79	297.17	4399.62	-17.67	17.67	-0.32	0.11	17.67	358.96
4500.00	0.80	300.15	4499.61	-18.33	18.33	-1.54	0.04	18.40	355.21
4600.00	0.87	297.81	4599.60	-19.04	19.04	-2.81	0.08	19.25	351.59
4700.00	0.83	300.36	4699.59	-19.76	19.76	-4.11	0.06	20.18	348.25
4800.00	1.25	296.39	4799.57	-20.61	20.61	-5.71	0.43	21.39	344.52
4900.00	1.53	298.36	4899.54	-21.73	21.73	-7.86	0.29	23.11	340.12
5000.00	1.57	301.49	4999.51	-23.08	23.08	-10.20	0.09	25.23	336.16
5100.00	1.63	291.47	5099.47	-24.31	24.31	-12.68	0.29	27.42	332.45
5200.00	1.66	287.65	5199.43	-25.27	25.27	-15.39	0.12	29.59	328.66
5300.00	1.69	284.44	5299.38	-26.08	26.08	-18.20	0.10	31.80	325.09
5400.00	1.79	282.18	5399.34	-26.77	26.77	-21.15	0.12	34.12	321.69
5500.00	1.84	276.93	5499.29	-27.30	27.30	-24.28	0.17	36.53	318.35
5600.00	1.92	275.99	5599.23	-27.67	27.67	-27.54	0.08	39.03	315.13
5700.00	2.09	273.57	5699.17	-27.95	27.95	-31.02	0.19	41.76	312.02
5800.00	2.12	270.81	5799.11	-28.09	28.09	-34.70	0.11	44.65	309.00
5900.00	2.10	271.81	5899.04	-28.18	28.18	-38.38	0.05	47.61	306.29
6000.00	2.14	269.98	5998.97	-28.24	28.24	-42.08	0.08	50.67	303.86
6100.00	2.16	271.07	6098.90	-28.27	28.27	-45.83	0.04	53.85	301.67
6200.00	1.88	270.59	6198.84	-28.32	28.32	-49.35	0.28	56.90	299.85
6300.00	1.87	271.26	6298.78	-28.38	28.38	-52.62	0.02	59.78	298.34
6400.00	1.73	274.69	6398.73	-28.53	28.53	-55.76	0.18	62.63	297.10
6500.00	1.56	262.86	6498.69	-28.49	28.49	-58.60	0.38	65.16	295.93
6600.00	1.69	272.76	6598.65	-28.39	28.39	-61.42	0.31	67.67	294.81
6700.00	1.58	271.16	6698.61	-28.49	28.49	-64.28	0.11	70.31	293.90
6800.00	1.52	275.05	6798.58	-28.63	28.63	-66.98	0.12	72.84	293.15
6900.00	1.51	270.67	6898.54	-28.77	28.77	-69.62	0.12	75.33	292.45
7000.00	1.63	270.40	6998.50	-28.79	28.79	-72.35	0.12	77.87	291.70
7100.00	1.65	278.69	7098.46	-29.02	29.02	-75.19	0.24	80.60	291.10
7200.00	1.64	288.01	7198.42	-29.68	29.68	-77.97	0.27	83.43	290.84
7300.00	1.72	285.61	7298.38	-30.52	30.52	-80.78	0.11	86.35	290.70
7400.00	1.55	285.20	7398.34	-31.28	31.28	-83.53	0.18	89.20	290.53
7500.00	1.46	274.28	7498.30	-31.73	31.73	-86.11	0.30	: 2/88	3: 1/34
8711/11	2/: 8	379/38	86: 9/37	.42/89	42/89	.9: /21	1/65	: 5/71	39: /74



Survey Report

Well Name:		KING AIR FEDERAL NO.1H							
Survey:		FINAL GYRO SURVEY							
Survey Date:		10/9/2009							
MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg
7700.00	1.98	275.29	7698.20	-31.88	31.88	-92.54	0.24	97.88	289.01
7800.00	1.99	269.32	7798.14	-32.02	32.02	-95.99	0.21	101.19	288.45
7900.00	2.01	264.30	7898.08	-31.83	31.83	-99.47	0.18	104.44	287.74
8000.00	2.01	263.96	7998.02	-31.47	31.47	-102.96	0.01	107.67	286.99
8100.00	2.11	263.86	8097.95	-31.09	31.09	-106.54	0.10	110.98	286.27
8200.00	1.53	257.81	8197.90	-30.61	30.61	-109.68	0.61	113.87	285.59
8300.00	1.40	251.88	8297.87	-29.94	29.94	-112.14	0.20	116.07	284.95
8400.00	1.48	247.09	8397.84	-29.06	29.06	-114.50	0.15	118.13	284.24
8500.00	1.52	247.71	8497.80	-28.05	28.05	-116.91	0.03	120.23	283.49
8600.00	1.74	249.43	8597.76	-27.02	27.02	-119.56	0.23	122.58	282.73
8700.00	1.86	250.35	8697.71	-25.94	25.94	-122.52	0.12	125.23	281.95
8800.00	1.87	259.33	8797.66	-25.09	25.09	-125.65	0.29	128.13	281.29
8900.00	1.99	265.03	8897.60	-24.64	24.64	-128.97	0.22	131.31	280.82
9000.00	2.08	261.26	8997.54	-24.21	24.21	-132.49	0.16	134.69	280.36
9100.00	1.95	257.75	9097.48	-23.57	23.57	-135.95	0.18	137.98	279.84
9200.00	1.94	254.09	9197.42	-22.75	22.75	-139.25	0.13	141.09	279.28
9300.00	1.82	249.34	9297.37	-21.72	21.72	-142.36	0.20	144.01	278.68
9400.00	1.81	241.62	9397.32	-20.41	20.41	-145.24	0.24	146.66	278.00
9500.00	1.90	247.73	9497.27	-19.04	19.04	-148.16	0.22	149.38	277.32
9600.00	1.94	241.17	9597.21	-17.59	17.59	-151.17	0.22	152.19	276.64
9700.00	2.09	243.49	9697.15	-15.96	15.96	-154.28	0.18	155.11	275.91
9800.00	2.61	242.97	9797.06	-14.12	14.12	-157.94	0.52	158.57	275.11
9900.00	2.58	250.56	9896.96	-12.33	12.33	-162.09	0.34	162.56	274.35
10000.24	2.29	251.22	9997.11	-10.94	10.94	-166.12	0.30	166.48	273.77

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
KING AIR FEDERAL #1
LEA COUNTY, TEXAS
Rig: PATRIOT 2

Fri Oct 09 16:03:49 2009

Coordinates

Latitude: 32.681203 N (32 deg. 40 min. 52.3294 sec.)
Longitude: 103.786894 W (-103 deg. 47 min. 12.8194 sec.)
Elevation: 3641.00 feet.
Calculation Date: Oct/09/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.6327 degrees
Total Magnetic Field: 0.49065 gauss
Magnetic Declination: 7.909812 degrees
Horizontal Intensity: 0.240617 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.909812 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 668130.0000 feet
Y: 611965.5000 feet
True to Grid: (convergence) -0.295064 degrees
Magnetic to Grid: 7.614748 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.614748 Degr.