

Scientific Drilling

RECEIVED

JUN 04 2009

HOBBSOCD

MARBOB ENERGY

Field: Lusk Bone Springs
Site: Lea County, NM
Well: Lear State #1
Wellpath: VH - Job #32K0409123
Survey: 04/04/09

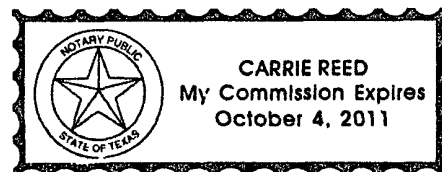
SUR: I-32-18s-32e, 2308/S & 330/E
BHL: P-32-18s-32e, 330/S & 380/E
API # 30-025-38865

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

.....Robert.....Company Representative

Notorized this date 16th of April, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: MARBOB ENERGY
Field: Lusk Bone Springs
Site: Lea County, NM
Well: Lear State #1
Wellpath: VH - Job #32K0409113

Date: 04/13/2009 Time: 12:04:29 Page: 1
Co-ordinate(N/E) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,181.45Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 04/04/09
KSRG 0'-9400'
Company: Scientific Drilling Internatio
Tool: Keeper; Keeper Gyro

Start Date: 04/04/2009
Engineer: Garza/Madrid/Paredes
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	359.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.41	129.26	100.00	0.22	-0.23	0.28	0.41	0.36	129.26
200.00	0.26	151.80	200.00	0.64	-0.65	0.66	0.20	0.93	134.63
300.00	0.34	79.13	300.00	0.77	-0.80	1.06	0.36	1.33	126.94
400.00	0.17	152.73	400.00	0.84	-0.87	1.42	0.33	1.67	121.59
500.00	0.18	75.39	500.00	0.92	-0.96	1.64	0.22	1.90	120.48
600.00	0.09	180.70	600.00	0.96	-1.00	1.79	0.22	2.05	119.28
700.00	0.18	33.39	699.99	0.90	-0.95	1.88	0.26	2.10	116.89
800.00	0.31	302.95	799.99	0.63	-0.67	1.74	0.36	1.86	111.20
900.00	0.73	324.50	899.99	-0.02	-0.01	1.14	0.46	1.14	90.36
1000.00	0.51	319.19	999.98	-0.86	0.85	0.48	0.23	0.97	29.37
1100.00	0.57	330.37	1099.98	-1.62	1.62	-0.06	0.12	1.62	357.90
1200.00	0.45	305.93	1199.98	-2.26	2.28	-0.62	0.25	2.36	344.71
1300.00	0.51	4.70	1299.97	-2.93	2.95	-0.90	0.47	3.09	342.97
1400.00	0.35	10.89	1399.97	-3.68	3.70	-0.81	0.17	3.79	347.64
1500.00	0.58	12.05	1499.97	-4.47	4.49	-0.65	0.23	4.54	351.80
1600.00	0.37	30.23	1599.96	-5.26	5.27	-0.38	0.26	5.28	355.88
1700.00	0.50	357.30	1699.96	-5.97	5.98	-0.24	0.28	5.99	357.73
1800.00	0.51	28.48	1799.96	-6.81	6.81	-0.05	0.27	6.81	359.62
1900.00	0.25	13.91	1899.95	-7.41	7.41	0.22	0.28	7.41	1.70
2000.00	0.46	15.78	1999.95	-8.02	8.01	0.38	0.21	8.02	2.72
2100.00	0.38	24.32	2099.95	-8.71	8.70	0.63	0.10	8.72	4.12
2200.00	0.71	16.05	2199.95	-9.62	9.60	0.93	0.34	9.64	5.56
2300.00	0.74	17.81	2299.94	-10.84	10.81	1.30	0.04	10.88	6.88
2400.00	1.12	11.40	2399.92	-12.42	12.38	1.69	0.39	12.49	7.79
2500.00	1.14	31.72	2499.90	-14.24	14.18	2.41	0.40	14.39	9.64
2600.00	1.49	22.38	2599.88	-16.31	16.23	3.43	0.41	16.59	11.93
2700.00	1.08	25.53	2699.85	-18.39	18.28	4.33	0.42	18.79	13.32
2800.00	1.09	13.45	2799.84	-20.18	20.06	4.96	0.23	20.66	13.88
2900.00	1.00	32.96	2899.82	-21.85	21.72	5.65	0.37	22.44	14.59
3000.00	0.82	17.84	2999.81	-23.28	23.13	6.35	0.30	23.98	15.34
3100.00	1.07	8.50	3099.79	-24.90	24.73	6.70	0.29	25.63	15.17
3200.00	0.95	13.23	3199.78	-26.63	26.46	7.03	0.15	27.38	14.88
3300.00	0.79	11.94	3299.77	-28.12	27.95	7.36	0.16	28.90	14.76
3400.00	0.80	13.88	3399.76	-29.48	29.30	7.67	0.03	30.29	14.68
3500.00	0.91	6.27	3499.74	-30.96	30.77	7.93	0.16	31.77	14.45
3600.00	0.83	20.20	3599.73	-32.43	32.23	8.27	0.23	33.28	14.38
3700.00	0.71	42.66	3699.72	-33.59	33.37	8.94	0.32	34.55	14.99
3800.00	0.49	18.60	3799.72	-34.46	34.23	9.49	0.33	35.52	15.50
3900.00	0.66	6.48	3899.71	-35.44	35.21	9.69	0.21	36.52	15.39
4000.00	0.67	20.29	3999.71	-36.57	36.33	9.96	0.16	37.67	15.33
4100.00	0.52	21.33	4099.70	-37.55	37.30	10.33	0.15	38.70	15.48
4200.00	0.35	356.14	4199.70	-38.28	38.03	10.47	0.25	39.44	15.40
4300.00	0.47	334.78	4299.70	-38.95	38.70	10.28	0.19	40.04	14.87
4400.00	0.54	335.81	4399.69	-39.74	39.50	9.91	0.07	40.73	14.08
4500.00	0.56	345.41	4499.69	-40.64	40.41	9.59	0.09	41.53	13.36
4600.00	0.57	341.05	4599.68	-41.57	41.35	9.31	0.04	42.39	12.69
4700.00	0.57	339.29	4699.68	-42.50	42.29	8.97	0.02	43.23	11.98
4800.00	0.66	323.02	4799.67	-43.41	43.21	8.45	0.20	44.03	11.06



Scientific Drilling International Survey Report

Company: MARBOB ENERGY
Field: Lusk Bone Springs
Site: Lea County, NM
Well: Lear State #1
Wellpath: VH - Job #32K0409113

Date: 04/13/2009 Time: 12:04:29 Page: 2
Co-ordinate(NE) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,181.45Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

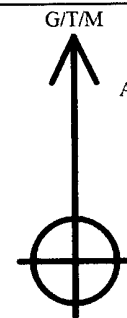
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.00	0.62	313.13	4899.67	-44.22	44.04	7.71	0.12	44.71	9.93
5000.00	0.66	316.07	4999.66	-44.99	44.83	6.91	0.05	45.36	8.77
5100.00	0.89	314.22	5099.65	-45.92	45.78	5.96	0.23	46.17	7.41
5200.00	0.93	298.59	5199.64	-46.82	46.71	4.69	0.25	46.95	5.73
5300.00	1.44	295.97	5299.62	-47.71	47.65	2.85	0.51	47.74	3.42
5400.00	1.70	296.15	5399.58	-48.85	48.86	0.38	0.26	48.86	0.45
5500.00	1.48	302.51	5499.54	-50.14	50.20	-2.04	0.28	50.24	357.68
5600.00	1.33	301.86	5599.51	-51.39	51.51	-4.11	0.15	51.67	355.44
5700.00	1.21	305.93	5699.49	-52.57	52.74	-5.95	0.15	53.08	353.56
5800.00	1.20	307.84	5799.46	-53.79	54.00	-7.63	0.04	54.54	351.95
5900.00	1.37	308.78	5899.44	-55.14	55.39	-9.39	0.17	56.19	350.38
6000.00	1.34	309.91	5999.41	-56.59	56.89	-11.22	0.04	57.99	348.84
6100.00	1.28	311.95	6099.38	-58.04	58.39	-12.95	0.08	59.81	347.50
6200.00	1.13	303.89	6199.36	-59.30	59.69	-14.60	0.23	61.45	346.26
6300.00	0.98	303.23	6299.35	-60.28	60.71	-16.13	0.15	62.81	345.12
6400.00	1.15	310.70	6399.33	-61.36	61.83	-17.61	0.22	64.29	344.10
6500.00	1.03	301.51	6499.31	-62.45	62.95	-19.13	0.21	65.80	343.09
6600.00	1.02	311.52	6599.29	-63.47	64.01	-20.57	0.18	67.24	342.19
6700.00	1.07	311.58	6699.28	-64.65	65.22	-21.93	0.05	68.81	341.41
6800.00	0.99	304.04	6799.26	-65.71	66.33	-23.35	0.16	70.31	340.61
6900.00	0.98	311.03	6899.25	-66.72	67.37	-24.71	0.12	71.76	339.86
7000.00	1.25	300.52	6999.23	-67.80	68.49	-26.29	0.34	73.36	339.00
7100.00	1.34	307.00	7099.20	-69.01	69.74	-28.17	0.17	75.22	338.01
7200.00	1.36	303.47	7199.17	-70.32	71.10	-30.09	0.09	77.21	337.06
7300.00	1.46	301.92	7299.14	-71.59	72.43	-32.16	0.11	79.25	336.06
7400.00	1.56	293.70	7399.11	-72.75	73.65	-34.49	0.24	81.33	334.91
7500.00	1.48	289.11	7499.07	-73.66	74.62	-36.95	0.15	83.27	333.65
7600.00	1.33	291.24	7599.04	-74.45	75.46	-39.26	0.16	85.06	332.52
7700.00	1.31	282.33	7699.02	-75.05	76.13	-41.46	0.21	86.68	331.43
7800.00	1.28	285.73	7798.99	-75.55	76.67	-43.65	0.08	88.23	330.35
7900.00	1.14	282.25	7898.97	-76.01	77.19	-45.69	0.16	89.70	329.38
8000.00	1.05	278.68	7998.95	-76.31	77.54	-47.57	0.11	90.97	328.47
8100.00	0.80	259.28	8098.94	-76.28	77.55	-49.16	0.40	91.82	327.63
8200.00	0.72	250.09	8198.93	-75.90	77.20	-50.44	0.15	92.22	326.84
8300.00	0.91	267.30	8298.92	-75.62	76.95	-51.82	0.31	92.78	326.04
8400.00	0.87	292.22	8398.91	-75.83	77.20	-53.32	0.39	93.82	325.37
8500.00	0.88	293.17	8498.90	-76.38	77.79	-54.73	0.02	95.11	324.87
8600.00	0.92	294.90	8598.88	-76.98	78.43	-56.16	0.05	96.47	324.39
8700.00	0.86	304.00	8698.87	-77.71	79.19	-57.51	0.15	97.87	324.01
8800.00	0.89	321.29	8798.86	-78.70	80.21	-58.62	0.26	99.35	323.84
8900.00	0.81	318.77	8898.85	-79.82	81.35	-59.57	0.09	100.83	323.78
9000.00	1.38	317.20	8998.83	-81.20	82.77	-60.86	0.57	102.73	323.67
9100.00	1.18	303.19	9098.81	-82.60	84.21	-62.54	0.37	104.89	323.40
9200.00	1.19	295.85	9198.79	-83.57	85.23	-64.33	0.15	106.78	322.95
9300.00	1.41	260.92	9298.76	-83.78	85.49	-66.48	0.81	108.30	322.13
9400.00	1.03	274.19	9398.74	-83.60	85.36	-68.59	0.47	109.51	321.22



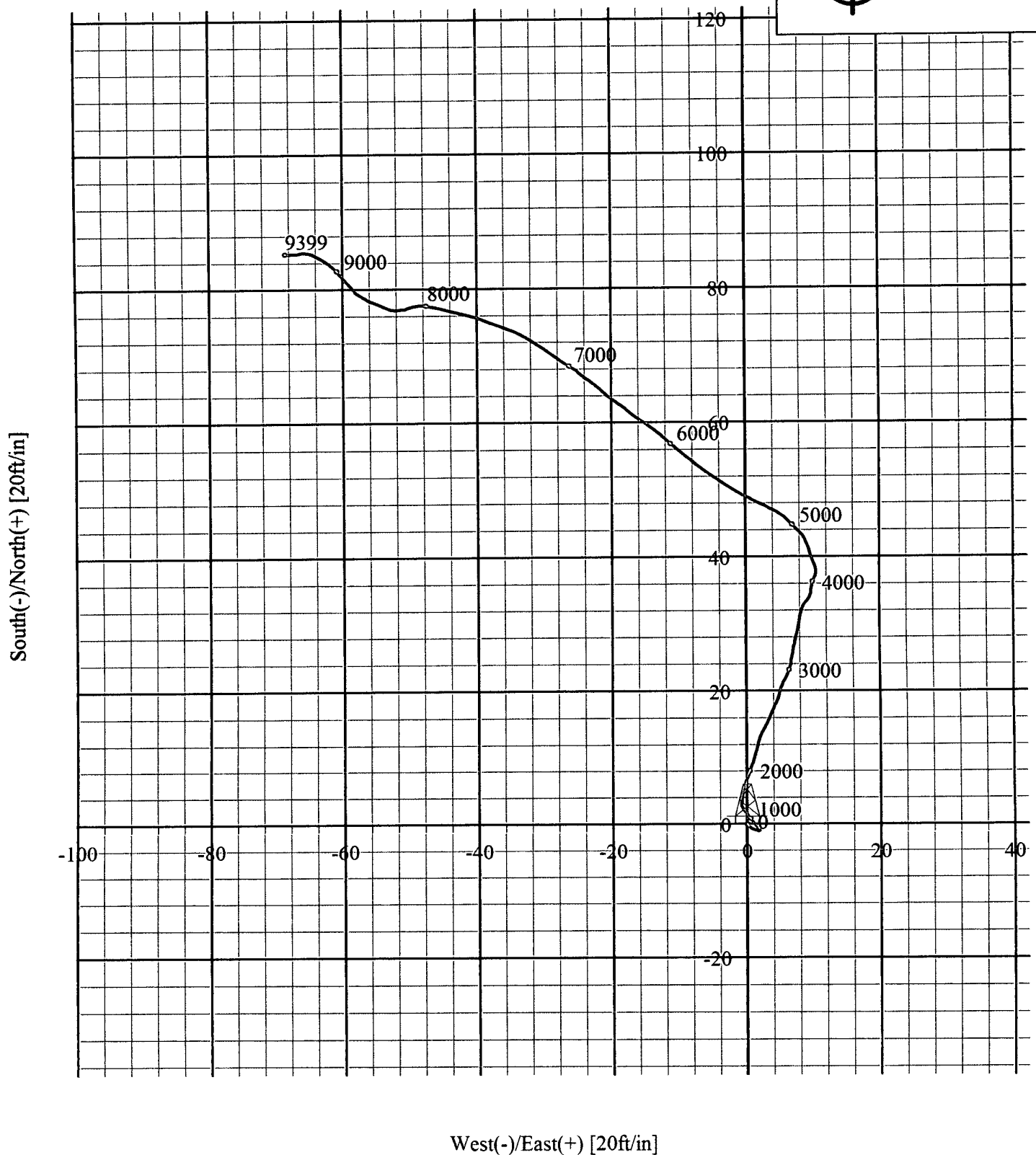
Scientific
Drilling

Field: Lusk Bone Springs
Site: Lea County, NM
Well: Lear State #1
Wellpath: VH - Job #32K0409113
Survey: 04/04/09



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

Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 04/13/2009
Model: igri2000





DIRECTIONAL SURVEY REPORT

MARBOB ENERGY

LEAR STATE # 1

LEA COUNTY, NEW MEXICO

SUR: I-32-18s-32e, 2308/S & 330/E
BHL: P-32-18s-32e, 330/S & 380/E
API # 30-025-38865

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) DAVID BAKER
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 04/05/09 TO 04/15/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MARBOB ENERGY
LEAR STATE # 1
LEA COUNTY, NM
RIG: PATRIOT # 2
9. SURVEY CERTIFIED FROM: 8838 TO 11136 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 1978.63 FEET ON A BEARING OF 181.44 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11208.45 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: 04/05/2009
Date Completed: 04/16/2009

MARBOB ENERGY CORPORATION

LEAR STATE #1

LEA COUNTY, NM

Rig: PATRIOT 2

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: DAVID BAKER

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.42.10.6978 N LON: 103.46.49.6591 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 670068.2000 Y: 619895.4000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.67° EAST TO GRID

Vertical Section Plane: 181.45

Survey Vert. Reference: 17.00' Rotary Table To Ground

Altitude: 3696.00' Ground To MSL

Measured Depth	11208.45	(feet)
Inclination	90.84	(deg)
Azimuth	178.72	(deg)
True Vertical Depth	9368.82	(feet)
Vertical Section	1978.63	(feet)
Survey X cord	670018.43	(feet)
Survey Y cord	617917.40	(feet)
Survey Lat	32.69753547 N	(deg)
Survey Lon	103.78065616 W	(deg)
Rectangular Corr. N/S	1978.00 S	(feet)
Rectangular Corr. E/W	49.77 W	(feet)
Closure Distance	1978.63	(feet)
Direction of Closure	181.44	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION

LEAR STATE #1

LEA COUNTY, NM

Rig: PATRIOT 2

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: DAVID BAKER

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.42.10.6978 N LON: 103.46.49.6591 W

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North Aligned To: GRID NORTH

Total Magnetic Correction: 7.67° EAST TO GRID

Vertical Section Plane: 181.45

Survey Vert. Reference: 17.00' Rotary Table To Ground

Altitude: 3696.00' Ground To MSL

Survey Calculations by RX5 V5.11i 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 INTO SCIENTIFIC DRILLING GYRO SURVEY @8800'MD.										
8800.00	0.89	321.29	8798.85	0.00	-78.70	80.21 N	58.62 W	99.35@	323.84	0.00
THE FOLLOWING ARE PATHINDER MWD SURVEYS.										
8838.00	0.79	313.91	8836.85	38.00	-79.10	80.62 N	58.99 W	99.90@	323.81	0.39
8869.00	1.67	196.15	8867.84	31.00	-78.81	80.34 N	59.27 W	99.84@	323.58	6.95
8901.00	6.60	179.61	8899.75	32.00	-76.52	78.05 N	59.39 W	98.07@	322.73	15.69
8933.00	11.26	174.40	8931.35	32.00	-71.58	73.10 N	59.07 W	93.98@	321.06	14.77
8965.00	14.07	173.86	8962.57	32.00	-64.62	66.12 N	58.35 W	88.19@	318.57	8.79
8996.00	16.62	174.02	8992.46	31.00	-56.49	57.96 N	57.49 W	81.63@	315.24	8.23
9028.00	19.61	176.93	9022.87	32.00	-46.59	48.05 N	56.72 W	74.34@	310.27	9.76
9060.00	22.86	179.85	9052.70	32.00	-35.02	36.46 N	56.42 W	67.18@	302.88	10.68
9091.00	26.03	181.53	9080.92	31.00	-22.20	23.64 N	56.58 W	61.32@	292.67	10.47
9123.00	28.75	180.54	9109.33	32.00	-7.48	8.92 N	56.84 W	57.54@	278.92	8.62
9155.00	31.92	180.59	9136.94	32.00	8.68	7.24 S	57.00 W	57.46@	262.77	9.91
9186.00	35.61	179.95	9162.71	31.00	25.90	24.46 S	57.08 W	62.10@	246.80	11.96
9218.00	39.04	179.29	9188.15	32.00	45.29	43.86 S	56.95 W	71.88@	232.40	10.79
9249.00	42.38	179.63	9211.65	31.00	65.49	64.08 S	56.76 W	85.60@	221.53	10.80
9281.00	46.17	179.46	9234.56	32.00	87.82	86.41 S	56.58 W	103.29@	213.22	11.85
9312.00	49.77	180.30	9255.31	31.00	110.83	109.43 S	56.54 W	123.18@	207.32	11.79
9330.00	52.14	179.76	9266.64	18.00	124.80	123.41 S	56.54 W	135.75@	204.62	13.37
9362.00	55.13	180.29	9285.62	32.00	150.56	149.18 S	56.56 W	159.54@	200.76	9.44
9394.00	58.21	180.17	9303.20	32.00	177.29	175.91 S	56.66 W	184.81@	197.85	9.63
9426.00	61.99	179.52	9319.15	32.00	205.01	203.65 S	56.59 W	211.36@	195.53	11.94
9457.00	66.92	178.38	9332.51	31.00	232.95	231.60 S	56.07 W	238.29@	193.61	16.24

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
 LEAR STATE #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)
9489.00	71.93	177.15	9343.75	32.00	262.83	261.53 S	54.89 W	267.23@	191.85	16.06
9521.00	76.94	176.28	9352.34	32.00	293.54	292.29 S	53.13 W	297.08@	190.30	15.87
9553.00	80.72	176.05	9358.53	32.00	324.80	323.61 S	51.03 W	327.61@	188.96	11.83
9584.00	83.36	176.67	9362.83	31.00	355.38	354.25 S	49.08 W	357.63@	187.89	8.74
9616.00	86.17	177.97	9365.75	32.00	387.16	386.07 S	47.59 W	389.00@	187.03	9.67
9648.00	88.29	178.75	9367.29	32.00	419.07	418.02 S	46.67 W	420.62@	186.37	7.06
9679.00	89.43	179.09	9367.91	31.00	450.03	449.01 S	46.09 W	451.37@	185.86	3.84
9711.00	90.13	180.23	9368.03	32.00	482.02	481.01 S	45.90 W	483.19@	185.45	4.18
9743.00	90.04	180.33	9367.99	32.00	514.01	513.01 S	46.06 W	515.07@	185.13	0.42
9775.00	90.13	180.48	9367.94	32.00	546.00	545.01 S	46.28 W	546.97@	184.85	0.55
9807.00	89.25	181.06	9368.11	32.00	578.00	577.00 S	46.71 W	578.89@	184.63	3.29
9838.00	88.11	181.31	9368.82	31.00	608.99	607.99 S	47.35 W	609.83@	184.45	3.77
9870.00	87.85	181.02	9369.95	32.00	640.97	639.96 S	48.00 W	641.76@	184.29	1.22
9902.00	87.85	180.77	9371.15	32.00	672.95	671.94 S	48.50 W	673.68@	184.13	0.78
9933.00	87.58	180.56	9372.39	31.00	703.92	702.91 S	48.86 W	704.60@	183.98	1.10
9965.00	87.58	180.21	9373.74	32.00	735.89	734.88 S	49.08 W	736.52@	183.82	1.09
9997.00	87.76	180.24	9375.04	32.00	767.85	766.85 S	49.20 W	768.43@	183.67	0.57
10029.00	88.29	179.97	9376.14	32.00	799.82	798.83 S	49.26 W	800.35@	183.53	1.86
10060.00	88.02	180.14	9377.14	31.00	830.80	829.82 S	49.29 W	831.28@	183.40	1.03
10092.00	88.46	180.28	9378.12	32.00	862.78	861.80 S	49.41 W	863.22@	183.28	1.44
10124.00	89.69	180.64	9378.64	32.00	894.77	893.80 S	49.67 W	895.17@	183.18	4.00
10155.00	90.57	181.13	9378.57	31.00	925.76	924.79 S	50.14 W	926.15@	183.10	3.25
10187.00	90.66	180.56	9378.23	32.00	957.76	956.79 S	50.62 W	958.12@	183.03	1.80
10219.00	90.40	180.74	9377.93	32.00	989.76	988.78 S	50.98 W	990.10@	182.95	0.99
10250.00	90.48	180.67	9377.69	31.00	1020.75	1019.78 S	51.36 W	1021.07@	182.88	0.34
10282.00	90.92	180.70	9377.30	32.00	1052.75	1051.77 S	51.74 W	1053.05@	182.82	1.38
10313.00	90.92	180.51	9376.81	31.00	1083.74	1082.77 S	52.07 W	1084.02@	182.75	0.61

PathFinder Energy Services, Inc.

Survey Report

MARBOB ENERGY CORPORATION
LEAR STATE #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 (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
10345.00	90.75	180.68	9376.34	32.00	1115.73	1114.76 S	52.40 W	1115.99@	182.69	0.75
10377.00	90.84	180.14	9375.90	32.00	1147.72	1146.76 S	52.63 W	1147.97@	182.63	1.71
10409.00	90.66	180.17	9375.48	32.00	1179.71	1178.76 S	52.72 W	1179.93@	182.56	0.57
10440.00	90.31	180.54	9375.21	31.00	1210.71	1209.76 S	52.91 W	1210.91@	182.50	1.64
10472.00	90.22	181.03	9375.07	32.00	1242.70	1241.75 S	53.35 W	1242.90@	182.46	1.56
10504.00	90.04	181.08	9374.99	32.00	1274.70	1273.75 S	53.94 W	1274.89@	182.42	0.58
10536.00	90.13	181.14	9374.95	32.00	1306.70	1305.74 S	54.56 W	1306.88@	182.39	0.34
10567.00	90.48	181.36	9374.78	31.00	1337.70	1336.73 S	55.23 W	1337.87@	182.37	1.33
10599.00	90.92	180.82	9374.39	32.00	1369.70	1368.72 S	55.84 W	1369.86@	182.34	2.18
10630.00	90.57	181.13	9373.99	31.00	1400.69	1399.72 S	56.37 W	1400.85@	182.31	1.51
10661.00	90.13	180.55	9373.80	31.00	1431.69	1430.71 S	56.82 W	1431.84@	182.27	2.35
10693.00	89.96	180.14	9373.77	32.00	1463.69	1462.71 S	57.02 W	1463.82@	182.23	1.39
10725.00	89.34	180.24	9373.97	32.00	1495.68	1494.71 S	57.12 W	1495.80@	182.19	1.96
10756.00	89.16	179.68	9374.37	31.00	1526.66	1525.71 S	57.10 W	1526.78@	182.14	1.90
10788.00	89.08	179.98	9374.86	32.00	1558.65	1557.70 S	57.01 W	1558.75@	182.10	0.97
10820.00	89.43	179.83	9375.28	32.00	1590.63	1589.70 S	56.95 W	1590.72@	182.05	1.19
10851.00	90.04	179.50	9375.42	31.00	1621.62	1620.70 S	56.77 W	1621.69@	182.01	2.24
10883.00	90.40	179.57	9375.30	32.00	1653.60	1652.70 S	56.51 W	1653.66@	181.96	1.15
10915.00	90.66	178.94	9375.01	32.00	1685.58	1684.69 S	56.10 W	1685.63@	181.91	2.13
10947.00	90.57	179.11	9374.66	32.00	1717.54	1716.69 S	55.55 W	1717.59@	181.85	0.60
10978.00	91.19	178.79	9374.19	31.00	1748.51	1747.68 S	54.98 W	1748.54@	181.80	2.25
11010.00	91.63	178.80	9373.40	32.00	1780.47	1779.66 S	54.31 W	1780.49@	181.75	1.38
11041.00	91.80	178.71	9372.47	31.00	1811.42	1810.64 S	53.64 W	1811.44@	181.70	0.62
11074.00	92.07	178.57	9371.36	33.00	1844.36	1843.61 S	52.86 W	1844.37@	181.64	0.92
11105.00	91.28	178.65	9370.45	31.00	1875.31	1874.59 S	52.10 W	1875.31@	181.59	2.56
11136.00	90.84	178.72	9369.88	31.00	1906.27	1905.58 S	51.39 W	1906.27@	181.54	1.44
STRAIGHT LINE PROJECTION TO BIT @ 11208.45' MD.										
11208.45	90.84	178.72	9368.82	72.45	1978.63	1978.00 S	49.77 W	1978.63@	181.44	0.00

PATHFINDER ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	Marbob Energy		
LEASE / WELL No.:	Lear State		1
WELL LOCATION:	Lea County		
COUNTY / STATE / COUNTRY:	Lea	NM	USA
RIG:	Patriot #2		
API WELL No:	30-025-38865		
JOB No:	101008335 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	Pathfinder Energy Services		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.69	LWD Calculated:	7.67
		Agreed Upon:	7.67
X =	670068.200000	Feet	Y = 619895.400000
			Feet
SITE LATITUDE:	32.702972 N	SITE LONGITUDE:	103.780461
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	New Mexico East
PROPOSED DRIFT DIRECTION:	181.45		
KELLY BUSHING ELEVATION:	17'		
ALTITUDE:	3696	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	8800		
DRIFT ANGLE:	0.89		
DRIFT DIRECTION:	321.29		
TRUE VERTICAL DEPTH:	8798.85		
VERTICAL SECTION:	-78.7		
RECTANGULAR COORDINATE (N / S) :	80.21		
RECTANGULAR COORDINATE (E / W) :	-58.62		
CLOSURE DISTANCE / DIRECTION:	99.35		323.84
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:	8860	TOTAL DEPTH:	11,123.71
KICKOFF ANGLE:	0	MAX ANGLE:	90

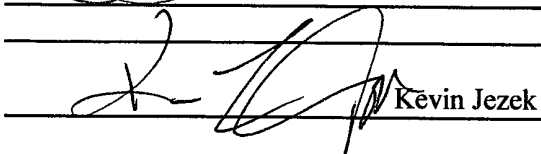
PES Engineers:



David Baker

**Signature of both field engineers required if applicable

Directional Driller:



Kevin Jezek

DATE: 5-Apr-2009

S O U T H E A S T G R I D C O N T R O L S

KEEPER GYRO SURVEY Directional Survey Report for

HARBOR ENERGY

Well Number	:	LEA STATE CGN #1
Well Location	:	LEA COUNTY, NEW MEXICO
Job Number	:	32K0409113
Location Latitude	:	32.703
Survey Date	:	4-APR-2007
S.D.C. Personnel	:	LEO GARCIA
Length Units	:	Feet
North Reference	:	GRID North
Grid Correction	:	-0.30 Degrees
Survey Depth Zero	:	RKB
Proposed Direction	:	181.45
Calculation Method	:	Minimum Curvature

SUR: I-32-18s-32e, 2308/S & 330/E
BHL: P-32-18s-32e, 330/S & 380/E
API # 30-025-38865

Remarks : The CURRENT Survey will be called definitive

SCIENTIFIC DRILLING CONTROLS

Outcrop Survey
for
HAMBOB ENERGY

Page 1

Well No.: LEAF STATE 001 41

Date: 4-APR-2002

Job No.: 3260408113

Proposal: 101.45

Depth (Feet)	T.V.D. (Feet)	V.S. (Feet)	Inc Dec.	GRPH Azimuth Deg.	Latitude (Feet)	Departure (Feet)	D-Log -100
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0.00	0.00	0.00	0.00	359.70	0.00	0.00	0.00
100.00	100.00	0.22	0.41	129.26	-0.17	0.28	0.41
200.00	200.00	0.64	0.25	151.80	-0.65	0.66	0.20
300.00	300.00	0.77	0.34	72.13	-0.80	1.06	0.36
400.00	399.99	0.54	0.17	152.73	-0.87	1.42	0.33
500.00	499.99	0.92	0.18	75.35	-0.96	1.64	0.22
600.00	599.99	0.96	0.09	180.70	-1.00	1.79	0.22
700.00	699.99	0.90	0.16	33.39	-0.95	1.88	0.26
800.00	799.99	0.63	0.31	302.95	-0.67	1.74	0.36
900.00	899.99	-0.02	0.73	324.50	-0.01	1.14	0.46
1000.00	999.98	-0.66	0.51	319.19	0.85	0.48	0.23
1100.00	1099.98	-1.61	0.57	330.37	1.62	-0.06	0.12
1200.00	1199.97	-2.26	0.45	305.93	2.28	-0.62	0.25
1300.00	1299.97	-2.93	0.51	4.70	2.95	-0.91	0.47
1400.00	1399.97	-3.68	0.35	10.99	3.70	-0.81	0.17
1500.00	1499.96	-4.47	0.53	12.05	4.49	-0.65	0.23
1600.00	1599.96	-5.25	0.37	30.33	5.27	-0.38	0.26
1700.00	1699.96	-5.97	0.50	357.30	5.93	-0.24	0.28
1800.00	1799.95	-6.80	0.51	26.48	6.81	-0.04	0.27
1900.00	1899.95	-7.42	0.25	13.71	7.41	0.22	0.22
2000.00	1999.95	-8.02	0.46	15.78	8.01	0.38	0.21
2100.00	2099.95	-8.71	0.38	24.32	8.70	0.63	0.10
2200.00	2199.94	-9.62	0.71	16.05	9.60	0.94	0.34
2300.00	2299.93	-10.84	0.74	17.81	10.81	1.30	0.04
2400.00	2399.92	-12.42	1.12	11.40	12.38	1.69	0.37
2500.00	2499.90	-14.24	1.14	31.72	14.18	2.41	0.40
2600.00	2599.87	-16.31	1.42	21.38	16.23	3.43	0.41
2700.00	2699.85	-18.09	1.08	25.57	18.28	4.33	0.42
2800.00	2799.83	-20.18	1.05	13.45	20.06	4.96	0.23
2900.00	2899.81	-21.35	1.00	32.96	21.72	5.65	0.56
3000.00	2999.80	-23.28	0.82	17.84	23.13	6.35	0.30
3100.00	3099.79	-24.90	1.07	6.50	24.73	6.70	0.29
3200.00	3199.77	-26.23	0.75	13.25	26.46	7.00	0.15
3300.00	3299.76	-28.12	0.79	11.24	27.95	7.36	0.16
3400.00	3399.75	-29.48	0.80	11.73	28.10	7.67	0.03
3500.00	3499.74	-30.96	0.91	6.21	30.77	7.93	0.14
3600.00	3599.73	-32.43	0.83	30.70	32.23	8.27	0.23
3700.00	3699.72	-33.59	0.71	42.84	33.17	9.94	0.32
3800.00	3799.71	-34.96	0.42	18.60	34.23	9.42	0.33
3900.00	3899.71	-35.64	0.66	6.40	35.21	9.42	0.21

SCIENTIFIC DRILLING CONTROLS

Outcrop Survey
for
MARCO ENERGY

Page 2

Well No.: LEAP STATE COM #1

Date : 3-APR-2009

Job No.: 32K0409115

GRID

Proposal : 131.45

Depth (Feet)	T.V.D. (Feet)	V.S. (Feet)	Inc Dec.	azimuth log.	Latitude (Feet)	Departure (Feet)	0-leg /100
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4000.00	3999.70	-36.57	0.57	20.29	36.37	9.96	0.16
4100.00	4099.59	-37.55	0.52	21.33	37.30	10.23	0.15
4200.00	4199.49	-38.28	0.35	356.14	38.03	10.47	0.25
4300.00	4299.69	-38.95	0.47	334.78	38.76	10.26	0.19
4400.00	4399.68	-39.74	0.54	335.81	39.50	9.91	0.07

4500.00	4499.68	-40.64	0.56	345.41	40.41	9.59	0.09
4600.00	4599.68	-41.57	0.57	341.05	41.35	9.31	0.04
4700.00	4699.67	-42.50	0.57	339.29	42.29	8.97	0.02
4800.00	4799.66	-43.41	0.66	323.02	43.21	8.45	0.20
4900.00	4899.66	-44.22	0.62	313.13	44.04	7.71	0.12

5000.00	4999.65	-44.99	0.66	316.07	44.83	6.91	0.05
5100.00	5099.64	-45.92	0.87	314.22	45.78	5.96	0.23
5200.00	5199.63	-46.82	0.93	298.59	46.71	4.69	0.25
5300.00	5299.61	-47.71	1.44	295.97	47.65	3.65	0.31
5400.00	5399.57	-48.85	1.70	296.15	48.85	0.39	0.26

5500.00	5499.53	-50.13	1.48	302.31	50.30	-2.04	0.28
5600.00	5599.50	-51.39	1.33	301.86	51.51	-4.11	0.15
5700.00	5699.48	-52.57	1.21	305.93	52.74	-5.95	0.13
5800.00	5799.45	-53.79	1.20	307.84	53.00	-7.63	0.04
5900.00	5899.43	-55.14	1.37	308.78	55.40	-9.39	0.17

6000.00	5999.40	-56.59	1.34	309.91	56.89	-11.22	0.04
6100.00	6099.38	-58.04	1.28	311.95	58.39	-12.95	0.08
6200.00	6199.35	-59.30	1.13	303.89	59.69	-14.60	0.23
6300.00	6299.34	-60.28	0.98	303.23	60.71	-16.13	0.15
6400.00	6399.32	-61.36	1.15	310.70	61.03	-17.61	0.29

6500.00	6499.30	-62.45	1.03	301.51	62.95	-19.14	0.21
6600.00	6599.28	-63.47	1.02	311.52	64.01	-20.57	0.18
6700.00	6699.27	-64.55	1.07	311.58	65.27	-21.93	0.07
6800.00	6799.25	-65.71	0.99	304.64	66.33	-23.35	0.16
6900.00	6899.24	-66.77	0.96	311.03	67.57	-24.71	0.12

7000.00	6999.22	-67.80	1.35	300.52	68.49	-26.29	0.34
7100.00	7099.19	-69.01	1.34	307.60	69.74	-28.17	0.17
7200.00	7199.18	-70.32	1.36	303.47	71.10	-30.09	0.09
7300.00	7299.16	-71.59	1.46	301.92	72.43	-32.16	0.13
7400.00	7399.16	-72.75	1.56	293.70	73.66	-34.49	0.24

7500.00	7499.06	-73.66	1.48	299.11	74.67	-36.25	0.15
7600.00	7599.03	-74.45	1.33	291.34	75.46	-39.26	0.16
7700.00	7699.01	-75.05	1.31	282.33	76.13	-41.45	0.21
7800.00	7799.98	-75.55	1.38	283.73	76.87	-43.65	0.32
7900.00	7899.96	-76.01	1.10	287.25	77.19	-45.67	0.16

SCIENTIFIC DRILLING CONTROL 5

Bottom Survey
for
PHECOB ENERGY

Page 17

Well No.: LEAS STATE CORP 31

Date: 14-APR-2005

Job No.: 32KC-00113

BLD

Proposal: 181.45

Depth	T.W.O.	W.S.	Inc	Arimuth	Latitude	Departure	D Leg
(Feet)	(Feet)	(Feet)	Deg.	deg.	(Feet)	(Feet)	/100

8000.00	7999.94	-75.31	1.05	278.60	77.14	-47.57	0.11
8100.00	8079.95	-76.28	0.80	252.28	77.55	-49.16	0.40
8200.00	8190.92	-75.20	0.72	250.09	77.20	-50.44	0.15
8300.00	8078.91	-75.51	0.91	367.30	76.95	-51.82	0.31
8400.00	8398.95	-75.83	0.67	292.22	77.20	-53.32	0.32

8500.00	8499.88	-74.36	0.88	293.17	77.79	-54.73	0.02
8600.00	8596.87	-76.90	0.72	294.90	76.43	-56.16	0.05
8700.00	8673.86	-77.71	0.36	104.00	72.12	-57.51	0.15
8800.00	8798.85	-78.70	0.89	321.29	80.21	-58.62	0.26
8900.00	8898.84	-79.82	0.81	316.72	81.35	-59.57	0.02

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9000.00	8998.83	-81.20	1.38	317.20	82.77	-60.86	0.52
9100.00	9098.72	-82.60	1.18	303.19	84.21	-62.54	0.32
9200.00	9190.72	-83.58	1.12	295.85	85.23	-64.33	0.15
9300.00	9298.75	-83.75	1.41	350.72	85.42	-66.48	0.31
9400.00	9398.72	-83.60	1.03	274.19	85.56	-68.59	0.47

The Horizontal Displacement (in Feet) at
Measured Depth 9400.00 is 109.51 in a Direction of 321.21 Degrees

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MARBOB ENERGY
LEAR STATE #1
LEA COUNTY, NEW MEXICO
Rig:PATRIOT2

Sat Apr 04 11:44:10 2009

Coordinates

Latitude: 32.702972 N (32 deg. 42 min. 10.6978 sec.)
Longitude: 103.780461 W (-103 deg. 46 min. 49.6591 sec.)
Elevation: 3696.00 feet.
Calculation Date: Apr/04/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.6651 degrees
Total Magnetic Field: 0.49128 gauss
Magnetic Declination: 7.970069 degrees
Horizontal Intensity: 0.240685 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.970069 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 670068.2000 feet
Y: 619895.4000 feet
True to Grid: (convergence) -0.298715 degrees
Magnetic to Grid: 7.671354 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.671354 Degs.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Field

Sun Apr 05 15:54:03 2009

Coordinates

Latitude: 32.702972 N (32 deg. 42 min. 10.6978 sec.)
Longitude: 103.780461 W (-103 deg. 46 min. 49.6591 sec.)
Elevation: 3696.00 feet.
Calculation Date: Apr/05/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.6650 degrees
Total Magnetic Field: 0.49128 gauss
Magnetic Declination: 7.969742 degrees
Horizontal Intensity: 0.240684 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.969742 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 670068.2000 feet
Y: 619895.4000 feet
True to Grid: (convergence) -0.298715 degrees
Magnetic to Grid: 7.671027 degrees
UpDpov:subIN:bnof,yd!Ejs/!up!b!HSJE!ejs/!Beel8/782138!Efh/