

Results of Directional Survey

API number:	30-005-29081		
OGRID:		Operator:	MACK ENERGY CORP
		Property:	TOM STATE # 1H

surface	ULSTR:	A	21	T 15S	R 31E
				355 FNL	330 FEL

BH Loc	ULSTR:	D	21	T 15S	R 31E
13193	MD	8754.5	TVD	375 FNL	4955 FEL

Top Perf/OH	ULSTR:	A	21	T 15S	R 31E
8946	MD	8777.5	TVD	363 FNL	714 FEL

Bot Perf/OH	ULSTR:	D	21	T 15S	R 31E
13023	MD	8757.3	TVD	376 FNL	4020 FEL

	MD	N/S	E/W	VD
	8921	-8.01	-360.10	8769.98
TOP PERFS/OH	8946	-7.72	-383.94	8777.47
	8952	-7.65	-389.66	8779.27
	13015	-21.16	-4447.36	8757.39
BOT PERFS/OH	13023	-21.12	-3690.33	8757.26
	13110	-20.73	4542.35	8755.87

NEXT TO LAST	13015	-21.16	-4447.36	8757.39
LAST READING	13110	-20.73	-4542.35	8755.87
TD	13193	-20.35	-4625.34	8754.54

Surface Location	355	FN	330	FE
Projected BHL	375	FN	4955	FE
Location of				
Top Perfs/OH	363	FN	714	FE
Bottom Perfs/OH	376	FN	4020	FE

SUMMARY of Subsurface Locations

Surface Location	A-21-15S-31E	355	FN	330	FE	Vert. Depth
Top Perfs/OH	A-21-15S-31E	363	FN	714	FE	8777.47
Bottom Perfs/OH	D-21-15S-31E	376	FN	4020	FE	8757.26
Projected TD	D-21-15S-31E	375	FN	4955	FE	8754.54



An Operating Unit of Smith International, Inc.

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HOBBSOCD

DIRECTIONAL SURVEY REPORT

MACK ENERGY

TOM STATE # 1

CHAVES COUNTY, NEW MEXICO

SUR @ A-21-15s-31e, 355/N & 330/E
BHL @ D-21-15s-31e, 375/N & 4955/E
API # 30-005-39081

2

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) RAFEAL DONARUMMA
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 05-29-10 TO 07-01-10
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: CHAVES COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MACK ENERGY
TOM STATE #1
CHAVES COUNTY, NM
RIG: SILVER OAK #7

9. SURVEY CERTIFIED FROM: 6740 TO 13110 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 4625.39 FEET ON A BEARING OF 269.74 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 13193.00
FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

SN

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 05/28/2010
Date Completed: 07/01/2010

MACK ENERGY CORPORATION

TOM STATE #1

CHAVES COUNTY, NM

Rig:SILVER OAK #7

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers:RAFAEL DONARUMMA

DAVID BAKER

NICHOLAS TVRDY

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:33.0.27.0821 N LON:103.49.7.4955 W

GRID Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 657750.5000 Y: 730635.6000

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.61 ° EAST TO GRID

Vertical Section Plane: 269.74

Survey Vert. Reference: 18.00' Kelly Bushing To Ground

Altitude:4410.00' Ground To MSL

Measured Depth	13193.00	(feet)
Inclination	90.48	(deg)
Azimuth	270.08	(deg)
True Vertical Depth	8755.17	(feet)
Vertical Section	4625.39	(feet)
Survey X cord	653125.13	(feet)
Survey Y cord	730614.96	(feet)
Survey Lat	33.00752736 N	(deg)
Survey Lon	103.83383659 W	(deg)
Rectangular Corr. N/S	20.62 S	(feet)
Rectangular Corr. E/W	4625.34 W	(feet)
Closure Distance	4625.39	(feet)
Direction of Closure	269.74	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION

TOM STATE #1

CHAVES COUNTY, NM

Rig: SILVER OAK #7

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: RAFAEL DONARUMMA SCOTT FINDLEY

DAVID BAKER

ERIC JENSEN

NICHOLAS TVRDY

Survey Calculations by RX5 V6.03 using Minimum Curvature

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 33.0.27.0821 N LON: 103.49.7.4955 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 657750.5000 Y: 730635.6000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.61° EAST TO GRID

Vertical Section Plane: 269.74

Survey Vert. Reference: 18.00' Kelly Bushing To Ground

Altitude: 4410.00' Ground To MSL

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
THE FOLLOWING ARE NAVIGATE ENERGY SERVICES SURVEYS.										
189.00	0.50	181.60	189.00	0.00	-0.08	0.45 S	0.09 E	0.45@	169.04	0.00
395.00	0.50	128.20	394.99	206.00	-0.76	1.90 S	0.77 E	2.05@	158.00	0.22
575.00	0.50	41.70	574.98	180.00	-1.90	1.80 S	1.91 E	2.62@	133.34	0.38
754.00	0.40	255.50	753.98	179.00	-1.82	1.37 S	1.82 E	2.28@	127.00	0.48
941.00	0.10	106.10	940.98	187.00	-1.34	1.58 S	1.35 E	2.08@	139.58	0.26
1101.00	0.70	334.60	1100.98	160.00	-1.06	0.74 S	1.06 E	1.29@	124.79	0.48
1300.00	1.60	350.40	1299.94	199.00	-0.09	3.10 N	0.08 E	3.10@	1.43	0.48
1393.00	0.90	349.30	1392.91	93.00	0.25	5.10 N	0.27 W	5.11@	356.91	0.75
1485.00	1.00	359.20	1484.90	92.00	0.39	6.61 N	0.42 W	6.62@	356.36	0.21
1578.00	1.60	44.90	1577.88	93.00	-0.52	8.34 N	0.48 E	8.36@	3.33	1.24
1669.00	0.80	359.50	1668.86	91.00	-1.42	9.88 N	1.38 E	9.97@	7.93	1.30
1764.00	1.40	74.10	1763.85	95.00	-2.54	10.86 N	2.49 E	11.14@	12.90	1.49
1856.00	0.50	131.00	1855.83	92.00	-3.92	10.90 N	3.87 E	11.57@	19.54	1.31
1950.00	1.50	54.00	1949.82	94.00	-5.23	11.36 N	5.18 E	12.48@	24.50	1.56
2040.00	1.80	68.80	2039.78	90.00	-7.50	12.56 N	7.45 E	14.60@	30.66	0.58
2129.00	1.80	109.90	2128.74	89.00	-10.12	12.59 N	10.06 E	16.12@	38.64	1.42
2227.00	1.50	27.30	2226.71	98.00	-12.16	13.21 N	12.10 E	17.91@	42.50	2.23
2317.00	0.80	125.70	2316.70	90.00	-13.21	13.89 N	13.15 E	19.12@	43.44	2.00
2410.00	0.40	140.90	2409.70	93.00	-13.94	13.26 N	13.88 E	19.19@	46.32	0.46
2597.00	0.20	163.40	2596.69	187.00	-14.44	12.44 N	14.39 E	19.02@	49.16	0.12
2691.00	1.00	65.60	2690.69	94.00	-15.24	12.62 N	15.18 E	19.74@	50.27	1.11
2784.00	0.50	109.90	2783.68	93.00	-16.36	12.81 N	16.30 E	20.74@	51.83	0.79
2877.00	0.40	19.60	2876.68	93.00	-16.85	12.98 N	16.79 E	21.23@	52.29	0.69
2972.00	0.40	15.40	2971.68	95.00	-17.05	13.61 N	16.99 E	21.77@	51.30	0.03
3065.00	0.60	58.60	3064.67	93.00	-17.56	14.18 N	17.49 E	22.52@	50.97	0.44

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
3126.00	0.40	353.20	3125.67	61.00	-17.81	14.56 N	17.74 E	22.95@ 50.63	0.93
3251.00	0.60	34.70	3250.67	125.00	-18.13	15.53 N	18.06 E	23.82@ 49.31	0.32
3344.00	0.40	47.40	3343.66	93.00	-18.65	16.15 N	18.58 E	24.62@ 49.00	0.24
3438.00	0.60	37.90	3437.66	94.00	-19.20	16.76 N	19.12 E	25.43@ 48.76	0.23
3531.00	0.50	63.90	3530.66	93.00	-19.86	17.32 N	19.79 E	26.30@ 48.80	0.29
3625.00	0.50	34.70	3624.65	94.00	-20.47	17.84 N	20.39 E	27.09@ 48.81	0.27
3720.00	0.30	91.30	3719.65	95.00	-20.95	18.18 N	20.87 E	27.68@ 48.95	0.44
3811.00	0.10	353.60	3810.65	91.00	-21.18	18.25 N	21.10 E	27.90@ 49.14	0.36
3904.00	0.20	300.50	3903.65	93.00	-21.04	18.41 N	20.95 E	27.89@ 48.69	0.17
3997.00	0.20	65.60	3996.65	93.00	-21.04	18.56 N	20.96 E	28.00@ 48.47	0.38
4092.00	0.40	325.40	4091.65	95.00	-21.01	18.90 N	20.92 E	28.20@ 47.90	0.50
4431.00	0.40	357.10	4430.64	339.00	-20.29	21.06 N	20.19 E	29.17@ 43.79	0.06
4558.00	0.20	38.20	4557.64	127.00	-20.40	21.68 N	20.31 E	29.70@ 43.13	0.22
4649.00	0.20	322.30	4648.64	91.00	-20.41	21.93 N	20.31 E	29.89@ 42.80	0.27
4753.00	0.20	319.50	4752.64	104.00	-20.18	22.21 N	20.08 E	29.94@ 42.12	0.01
4909.00	0.40	284.30	4908.64	156.00	-19.48	22.55 N	19.37 E	29.73@ 40.67	0.17
4940.00	0.10	293.10	4939.64	31.00	-19.35	22.59 N	19.24 E	29.67@ 40.43	0.97
5028.00	0.10	240.70	5027.64	88.00	-19.21	22.58 N	19.11 E	29.58@ 40.24	0.10
5111.00	0.60	286.40	5110.63	83.00	-18.73	22.67 N	18.63 E	29.34@ 39.41	0.64
5201.00	0.80	293.10	5200.63	90.00	-17.70	23.05 N	17.60 E	29.00@ 37.36	0.24
5296.00	0.80	288.50	5295.62	95.00	-16.46	23.52 N	16.36 E	28.65@ 34.82	0.07
5389.00	0.40	282.20	5388.61	93.00	-15.53	23.79 N	15.42 E	28.35@ 32.95	0.43
5483.00	0.60	275.50	5482.61	94.00	-14.72	23.91 N	14.61 E	28.02@ 31.43	0.22
5576.00	0.70	293.10	5575.60	93.00	-13.72	24.18 N	13.61 E	27.74@ 29.37	0.24
5669.00	0.80	277.30	5668.60	93.00	-12.55	24.48 N	12.44 E	27.46@ 26.93	0.25
5763.00	0.60	295.50	5762.59	94.00	-11.46	24.78 N	11.34 E	27.25@ 24.60	0.32

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
5852.00	0.70	281.10	5851.58	89.00	-10.50	25.08 N	10.39 E	27.15@	22.50	0.21
5949.00	0.70	281.50	5948.58	97.00	-9.34	25.32 N	9.23 E	26.95@	20.03	0.01
6042.00	0.40	301.20	6041.57	93.00	-8.51	25.60 N	8.39 E	26.94@	18.16	0.38
6136.00	0.80	306.80	6135.57	94.00	-7.71	26.16 N	7.59 E	27.24@	16.17	0.43
6198.00	0.70	307.20	6197.56	62.00	-7.06	26.65 N	6.94 E	27.54@	14.60	0.16
6353.00	0.40	302.90	6352.55	155.00	-5.86	27.52 N	5.73 E	28.11@	11.77	0.20
** TIED INTO NAVIGATE ENERGY SERVICES SURVEY @ 6476' MD.										
6476.00	0.50	302.90	6475.55	123.00	-5.05	28.04 N	4.92 E	28.47@	9.95	0.08
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
6740.00	0.35	3.93	6739.54	264.00	-4.14	29.47 N	4.01 E	29.74@	7.74	0.17
6895.00	0.44	195.82	6894.54	155.00	-4.01	29.37 N	3.88 E	29.62@	7.52	0.51
6989.00	0.70	227.45	6988.54	94.00	-3.49	28.63 N	3.36 E	28.83@	6.69	0.42
7082.00	0.79	169.05	7081.53	93.00	-3.19	27.62 N	3.06 E	27.79@	6.32	0.79
7176.00	0.79	164.18	7175.52	94.00	-3.48	26.36 N	3.36 E	26.57@	7.26	0.07
7269.00	1.85	152.38	7268.50	93.00	-4.34	24.41 N	4.23 E	24.78@	9.83	1.17
7362.00	2.11	164.88	7361.44	93.00	-5.47	21.43 N	5.37 E	22.09@	14.07	0.54
7456.00	1.58	156.46	7455.39	94.00	-6.43	18.57 N	6.34 E	19.63@	18.85	0.63
7549.00	1.58	151.12	7548.36	93.00	-7.55	16.27 N	7.47 E	17.91@	24.67	0.16
7643.00	1.58	144.79	7642.32	94.00	-8.91	14.08 N	8.85 E	16.63@	32.14	0.19
7736.00	2.29	163.69	7735.27	93.00	-10.16	11.25 N	10.11 E	15.12@	41.94	1.02
7829.00	2.11	167.51	7828.20	93.00	-11.03	7.80 N	11.00 E	13.48@	54.68	0.25
7923.00	2.02	165.17	7922.14	94.00	-11.82	4.50 N	11.80 E	12.63@	69.10	0.13
8016.00	1.76	164.14	8015.09	93.00	-12.61	1.55 N	12.61 E	12.70@	83.01	0.28
8110.00	1.32	136.50	8109.06	94.00	-13.74	0.63 S	13.75 E	13.76@	92.62	0.90
INTERPOLATED SURVEY BETWEEN PILOT HOLE SURVEYS AND CURVE SURVEYS.										
8195.00	0.92	143.86	8194.04	85.00	-14.82	1.89 S	14.82 E	14.94@	97.26	0.50

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
8221.00	3.96	241.47	8220.02	26.00	-14.15	2.49 S	14.16 E	14.37@	99.96	16.09
8252.00	7.39	249.69	8250.86	31.00	-11.33	3.69 S	11.35 E	11.93@	108.02	11.34
8283.00	10.90	255.92	8281.46	31.00	-6.61	5.10 S	6.63 E	8.36@	127.54	11.75
8315.00	13.89	261.78	8312.72	32.00	0.13	6.38 S	0.11 W	6.38@	180.94	10.13
8346.00	15.92	263.58	8342.67	31.00	8.05	7.39 S	8.01 W	10.90@	227.32	6.71
8377.00	17.76	265.03	8372.34	31.00	16.99	8.27 S	16.95 W	18.86@	243.98	6.09
8408.00	20.58	264.13	8401.62	31.00	27.12	9.24 S	27.08 W	28.61@	251.16	9.15
8439.00	22.95	263.76	8430.41	31.00	38.56	10.46 S	38.51 W	39.91@	254.81	7.66
8470.00	25.32	263.26	8458.69	31.00	51.16	11.89 S	51.10 W	52.47@	256.90	7.67
8501.00	26.29	264.14	8486.60	31.00	64.58	13.37 S	64.52 W	65.89@	258.29	3.36
8533.00	28.23	265.81	8515.05	32.00	79.18	14.65 S	79.12 W	80.46@	259.51	6.52
8564.00	31.57	266.11	8541.92	31.00	94.60	15.73 S	94.53 W	95.83@	260.55	10.79
8595.00	34.56	267.24	8567.89	31.00	111.49	16.71 S	111.41 W	112.66@	261.47	9.85
8626.00	37.72	269.06	8592.93	31.00	129.76	17.29 S	129.68 W	130.83@	262.41	10.76
8638.00	38.69	270.32	8602.36	12.00	137.18	17.33 S	137.10 W	138.19@	262.80	10.37
8730.00	46.17	274.59	8670.23	92.00	199.10	14.50 S	199.04 W	199.56@	265.83	8.71
8761.00	50.21	274.03	8690.89	31.00	222.13	12.77 S	222.07 W	222.44@	266.71	13.10
8793.00	54.17	273.26	8710.50	32.00	247.35	11.17 S	247.30 W	247.55@	267.41	12.52
8825.00	58.21	272.66	8728.31	32.00	273.89	9.80 S	273.84 W	274.02@	267.95	12.72
8857.00	62.08	270.83	8744.24	32.00	301.62	8.96 S	301.58 W	301.71@	268.30	13.07
8889.00	66.13	271.12	8758.21	32.00	330.39	8.47 S	330.35 W	330.46@	268.53	12.68
8921.00	70.70	270.68	8769.98	32.00	360.13	8.01 S	360.10 W	360.19@	268.73	14.34
8952.00	74.39	270.72	8779.27	31.00	389.69	7.65 S	389.66 W	389.74@	268.88	11.90
8984.00	77.91	270.39	8786.93	32.00	420.76	7.35 S	420.73 W	420.79@	269.00	11.05
9016.00	79.32	270.24	8793.25	32.00	452.12	7.17 S	452.10 W	452.15@	269.09	4.43

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
9048.00	81.16	268.80	8798.67	32.00	483.66	7.44 S	483.63 W	483.69@	269.12	7.26
9080.00	83.71	269.02	8802.89	32.00	515.37	8.04 S	515.34 W	515.41@	269.11	8.00
9112.00	86.53	269.10	8805.61	32.00	547.25	8.57 S	547.22 W	547.29@	269.10	8.82
9143.00	88.99	269.33	8806.82	31.00	578.23	8.99 S	578.19 W	578.26@	269.11	7.97
9175.00	89.43	269.65	8807.26	32.00	610.22	9.27 S	610.19 W	610.26@	269.13	1.70
9207.00	90.40	269.74	8807.31	32.00	642.22	9.44 S	642.18 W	642.25@	269.16	3.04
9238.00	92.42	269.25	8806.55	31.00	673.21	9.72 S	673.17 W	673.24@	269.17	6.70
9270.00	93.03	269.48	8805.02	32.00	705.17	10.07 S	705.14 W	705.21@	269.18	2.04
9301.00	93.47	270.14	8803.27	31.00	736.12	10.17 S	736.08 W	736.15@	269.21	2.56
9333.00	91.71	269.72	8801.82	32.00	768.09	10.21 S	768.05 W	768.12@	269.24	5.65
9365.00	91.63	269.75	8800.89	32.00	800.07	10.36 S	800.04 W	800.10@	269.26	0.27
9397.00	91.45	269.51	8800.03	32.00	832.06	10.57 S	832.02 W	832.09@	269.27	0.94
9429.00	90.75	270.22	8799.41	32.00	864.06	10.64 S	864.02 W	864.08@	269.29	3.12
9461.00	90.92	270.19	8798.95	32.00	896.05	10.53 S	896.01 W	896.08@	269.33	0.54
9493.00	90.84	269.98	8798.46	32.00	928.05	10.48 S	928.01 W	928.07@	269.35	0.70
9524.00	91.01	269.92	8797.96	31.00	959.04	10.51 S	959.01 W	959.06@	269.37	0.58
9556.00	90.92	270.04	8797.42	32.00	991.04	10.52 S	991.00 W	991.06@	269.39	0.47
9588.00	90.13	269.69	8797.12	32.00	1023.04	10.60 S	1023.00 W	1023.05@	269.41	2.70
9683.00	90.48	269.73	8796.62	95.00	1118.04	11.08 S	1118.00 W	1118.05@	269.43	0.37
9779.00	90.48	270.19	8795.81	96.00	1214.03	11.14 S	1213.99 W	1214.04@	269.47	0.48
9842.00	90.75	270.48	8795.14	63.00	1277.02	10.77 S	1276.99 W	1277.03@	269.52	0.63
9938.00	91.36	269.68	8793.37	96.00	1373.01	10.64 S	1372.97 W	1373.01@	269.56	1.05
10002.00	91.80	269.19	8791.61	64.00	1436.98	11.27 S	1436.94 W	1436.99@	269.55	1.03
10034.00	92.15	269.59	8790.50	32.00	1468.96	11.61 S	1468.92 W	1468.97@	269.55	1.66
10129.00	89.96	269.36	8788.75	95.00	1563.94	12.48 S	1563.90 W	1563.95@	269.54	2.32
10225.00	89.52	269.18	8789.19	96.00	1659.93	13.71 S	1659.89 W	1659.94@	269.53	0.50

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
10320.00	90.92	268.73	8788.82	95.00	1754.92	15.44 S	1754.87 W	1754.94@	269.50	1.55
10416.00	91.36	268.28	8786.91	96.00	1850.88	17.94 S	1850.82 W	1850.90@	269.44	0.65
10447.00	91.45	268.22	8786.15	31.00	1881.86	18.89 S	1881.79 W	1881.89@	269.42	0.35
10543.00	89.96	268.44	8784.97	96.00	1977.82	21.69 S	1977.74 W	1977.86@	269.37	1.57
10575.00	90.04	268.67	8784.97	32.00	2009.81	22.49 S	2009.73 W	2009.86@	269.36	0.76
10670.00	91.54	270.22	8783.66	95.00	2104.80	23.41 S	2104.71 W	2104.84@	269.36	2.27
10765.00	90.57	269.11	8781.91	95.00	2199.78	23.97 S	2199.69 W	2199.82@	269.38	1.55
10861.00	92.33	269.62	8779.49	96.00	2295.74	25.03 S	2295.65 W	2295.79@	269.38	1.91
10957.00	92.42	269.84	8775.51	96.00	2391.66	25.48 S	2391.57 W	2391.70@	269.39	0.25
11052.00	92.51	270.67	8771.42	95.00	2486.57	25.06 S	2486.48 W	2486.60@	269.42	0.88
11105.00	94.18	270.39	8768.33	53.00	2539.47	24.57 S	2539.38 W	2539.50@	269.45	3.19
11137.00	93.74	272.06	8766.12	32.00	2571.38	23.89 S	2571.30 W	2571.41@	269.47	5.38
11205.00	90.40	272.23	8763.66	68.00	2639.27	21.35 S	2639.20 W	2639.28@	269.54	4.92
11233.00	91.01	273.34	8763.32	28.00	2667.22	19.99 S	2667.16 W	2667.24@	269.57	4.52
11296.00	92.68	273.29	8761.29	63.00	2730.07	16.35 S	2730.02 W	2730.07@	269.66	2.65
11328.00	90.48	272.79	8760.41	32.00	2762.00	14.65 S	2761.96 W	2762.00@	269.70	7.05
11392.00	89.69	271.93	8760.31	64.00	2825.93	12.01 S	2825.91 W	2825.93@	269.76	1.82
11424.00	88.64	270.25	8760.78	32.00	2857.92	11.41 S	2857.90 W	2857.92@	269.77	6.19
11456.00	88.72	269.97	8761.52	32.00	2889.91	11.34 S	2889.89 W	2889.91@	269.78	0.91
11488.00	87.76	268.73	8762.50	32.00	2921.89	11.71 S	2921.87 W	2921.89@	269.77	4.90
11530.00	87.14	268.52	8764.37	42.00	2963.84	12.71 S	2963.81 W	2963.84@	269.75	1.56
11562.00	87.14	268.39	8765.96	32.00	2995.79	13.57 S	2995.76 W	2995.79@	269.74	0.41
11594.00	87.76	268.45	8767.39	32.00	3027.75	14.46 S	3027.72 W	3027.75@	269.73	1.95
11626.00	89.34	268.65	8768.20	32.00	3059.74	15.27 S	3059.70 W	3059.74@	269.71	4.98
11657.00	90.13	268.23	8768.34	31.00	3090.73	16.11 S	3090.69 W	3090.73@	269.70	2.89
11689.00	91.71	268.34	8767.83	32.00	3122.71	17.07 S	3122.67 W	3122.71@	269.69	4.95

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
11721.00	92.24	268.65	8766.72	32.00	3154.68	17.91 S	3154.64 W	3154.69@	269.67	1.92
11753.00	93.12	269.01	8765.23	32.00	3186.65	18.56 S	3186.59 W	3186.65@	269.67	2.97
11785.00	92.95	269.26	8763.53	32.00	3218.60	19.04 S	3218.54 W	3218.60@	269.66	0.94
11817.00	92.33	272.00	8762.06	32.00	3250.56	18.69 S	3250.51 W	3250.56@	269.67	8.77
11849.00	90.57	271.79	8761.25	32.00	3282.52	17.63 S	3282.48 W	3282.52@	269.69	5.54
11881.00	91.71	271.97	8760.61	32.00	3314.49	16.58 S	3314.45 W	3314.49@	269.71	3.61
11912.00	91.28	271.83	8759.80	31.00	3345.46	15.56 S	3345.43 W	3345.46@	269.73	1.46
11976.00	89.60	272.36	8759.31	64.00	3409.40	13.22 S	3409.38 W	3409.40@	269.78	2.75
12008.00	88.29	272.01	8759.90	32.00	3441.37	12.00 S	3441.35 W	3441.37@	269.80	4.24
12040.00	88.81	272.07	8760.71	32.00	3473.33	10.86 S	3473.32 W	3473.34@	269.82	1.64
12071.00	89.69	271.26	8761.12	31.00	3504.31	9.96 S	3504.30 W	3504.32@	269.84	3.86
12103.00	88.20	268.76	8761.71	32.00	3536.30	9.95 S	3536.29 W	3536.31@	269.84	9.09
12135.00	87.58	268.10	8762.89	32.00	3568.27	10.83 S	3568.26 W	3568.28@	269.83	2.83
12167.00	88.02	267.99	8764.11	32.00	3600.23	11.92 S	3600.22 W	3600.24@	269.81	1.42
12199.00	89.34	267.84	8764.85	32.00	3632.21	13.08 S	3632.19 W	3632.21@	269.79	4.15
12231.00	89.87	267.28	8765.07	32.00	3664.18	14.44 S	3664.16 W	3664.18@	269.77	2.41
12262.00	92.42	267.25	8764.45	31.00	3695.15	15.92 S	3695.11 W	3695.15@	269.75	8.23
12294.00	94.09	267.99	8762.64	32.00	3727.07	17.25 S	3727.03 W	3727.07@	269.73	5.71
12326.00	91.28	268.15	8761.14	32.00	3759.02	18.33 S	3758.98 W	3759.02@	269.72	8.79
12358.00	89.16	267.98	8761.01	32.00	3791.00	19.41 S	3790.95 W	3791.00@	269.71	6.65
12390.00	86.35	268.04	8762.27	32.00	3822.96	20.52 S	3822.91 W	3822.96@	269.69	8.78
12422.00	86.35	268.11	8764.30	32.00	3854.88	21.59 S	3854.83 W	3854.89@	269.68	0.22
12454.00	85.56	268.97	8766.56	32.00	3886.80	22.40 S	3886.73 W	3886.80@	269.67	3.64
12485.00	86.70	269.07	8768.65	31.00	3917.72	22.93 S	3917.66 W	3917.73@	269.66	3.69
12506.00	86.88	268.88	8769.83	21.00	3938.69	23.31 S	3938.62 W	3938.69@	269.66	1.25
12537.00	89.52	270.01	8770.80	31.00	3969.67	23.61 S	3969.60 W	3969.67@	269.66	9.26

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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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)
12569.00	90.48	270.50	8770.80	32.00	4001.67	23.47 S	4001.60 W	4001.67@	269.66	3.37
12601.00	92.24	270.39	8770.04	32.00	4033.65	23.22 S	4033.59 W	4033.66@	269.67	5.51
12633.00	92.33	270.37	8768.77	32.00	4065.63	23.00 S	4065.56 W	4065.63@	269.68	0.29
12665.00	92.42	270.69	8767.44	32.00	4097.60	22.71 S	4097.54 W	4097.60@	269.68	1.04
12697.00	92.59	270.97	8766.04	32.00	4129.56	22.25 S	4129.50 W	4129.56@	269.69	1.02
12729.00	92.86	270.66	8764.52	32.00	4161.52	21.79 S	4161.46 W	4161.52@	269.70	1.28
12761.00	90.84	270.11	8763.49	32.00	4193.50	21.58 S	4193.44 W	4193.50@	269.71	6.54
12792.00	91.01	270.49	8762.99	31.00	4224.49	21.41 S	4224.44 W	4224.49@	269.71	1.34
12824.00	91.01	270.28	8762.42	32.00	4256.48	21.20 S	4256.43 W	4256.48@	269.71	0.66
12856.00	91.19	269.98	8761.81	32.00	4288.48	21.13 S	4288.43 W	4288.48@	269.72	1.09
12887.00	91.10	270.02	8761.19	31.00	4319.47	21.13 S	4319.42 W	4319.47@	269.72	0.32
12919.00	91.71	270.19	8760.41	32.00	4351.46	21.07 S	4351.41 W	4351.46@	269.72	1.98
12951.00	91.71	269.93	8759.45	32.00	4383.45	21.03 S	4383.40 W	4383.45@	269.73	0.81
12983.00	92.15	269.60	8758.37	32.00	4415.43	21.17 S	4415.38 W	4415.43@	269.73	1.72
13015.00	91.36	270.43	8757.39	32.00	4447.41	21.16 S	4447.36 W	4447.41@	269.73	3.58
13110.00	90.48	270.08	8755.87	95.00	4542.39	20.73 S	4542.35 W	4542.39@	269.74	1.00
STRAIGHT LINE PROJECTION TO BIT @ 13193' MD.										
13193.00	90.48	270.08	8755.17	83.00	4625.39	20.62 S	4625.34 W	4625.39@	269.74	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.

FINDER

ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY CORPORATION		
LEASE / WELL No.:	TOM STATE	#1	
WELL LOCATION:	CHAVES COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	CHAVES	NM	USA
RIG:	SILVER OAK #7		
API WELL No:	30-005-29081		
JOB No:	101010476-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

MAGNETIC DECLINATION:			
On Wall Plat:	7.6	LWD Calculated:	7.608
		Agreed Upon:	7.61
X =	657750.500000	Feet	Y = 730635.600000
			Feet
SITE LATITUDE:	33.007523 N	SITE LONGITUDE:	103.818749 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	269.74		
KELLY BUSHING ELEVATION:	18		
ALTITUDE:	4410	Feet	WATER DEPTH:
			N/A
			Feet

TIE-IN SURVEY

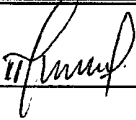
MEASURED DEPTH:	6476		
DRIFT ANGLE:	0.5		
DRIFT DIRECTION:	302.9		
TRUE VERTICAL DEPTH:	6475.55		
VERTICAL SECTION:	28.04		
RECTANGULAR COORDINATE (N / S) :	28.04		
RECTANGULAR COORDINATE (E / W) :	4.92		
CLOSURE DISTANCE / DIRECTION:	28.47	9.96	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	NAVIGATE ENERGY SERVICES		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	8272.5	TOTAL DEPTH:	13171.72
KICKOFF ANGLE:	0	MAX ANGLE:	90.95

PES Engineers:

R. DONARUMMA



**Signature of both field engineers required if applicable

N/A

Directional Driller: W. TEETER



DATE: 28-May-2010

SWD SURVEY REPORT

SUR @ A-21-15s-31e, 355/N & 330/E
BHL @ D-21-15s-31e, 375/N & 4955/E
API # 30-005-39081

Job Number : WNM-2050-S
Report Date : May 20,2010
Operator : Mack Energy Services
Lease / Well : Tom State #1
Location : Chaves county, New Mexico
Field :
Contractor / Rig : Silver Oak 7
Directional Company :
MWD Field Rep. : Brandon Ramirez
Tie In Survey Reference : Surface
Calculation Method : MINIMUM CURVATURE
API Number : N/A

Target +N / -S = 0.0'
Target +E / -W = 0.0'
Target TVD = 7000.0'
Magnetic Declination +E / -W = 7.90°
Grid Convergence +E / -W = 0.28°
Total Correction +E / -W = 7.62°
North Reference = Grid
RKB Height = 19.50'
Ground Level Elevation = 4410'
Vertical Section Azimuth = 0.00°

Comments :

SURVEY #0 = TIE IN SURVEY

LAST SURVEY = STRAIGHT LINE PROJECTED SURVEY TO BOTTOM HOLE DEPTH

Srv. No.	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates +N / -S (ft)	+E / -W (ft)	Closure Distance (ft)	Azimuth (deg)	Dogleg Severity (deg/100')
0	0.00'	0.00°	0.00°		0.00'	0.00'	0.00'	0.00'			
1	189.00'	0.50°	181.60°	189'	189.00'	-0.82'	-0.82'	-0.02'	0.82'	181.60°	0.26°
2	395.00'	0.50°	128.20°	206'	394.99'	-2.28'	-2.28'	0.66'	2.37'	163.89°	0.22°
3	575.00'	0.50°	41.70°	180'	574.99'	-2.18'	-2.18'	1.80'	2.82'	140.46°	0.38°
4	754.00'	0.40°	255.50°	179'	753.98'	-1.75'	-1.75'	1.71'	2.45'	135.64°	0.48°
5	941.00'	0.10°	106.10°	187'	940.98'	-1.96'	-1.96'	1.24'	2.32'	147.73°	0.26°
6	1101.00'	0.70°	334.60°	160'	1100.98'	-1.12'	-1.12'	0.95'	1.47'	139.52°	0.48°
7	1300.00'	1.60°	350.40°	199'	1299.94'	2.72'	2.72'	-0.03'	2.72'	359.32°	0.48°
8	1393.00'	0.90°	349.30°	93'	1392.91'	4.72'	4.72'	-0.38'	4.74'	355.34°	0.75°
9	1485.00'	1.00°	359.20°	92'	1484.90'	6.23'	6.23'	-0.53'	6.25'	355.14°	0.21°
10	1578.00'	1.60°	44.90°	93'	1577.88'	7.96'	7.96'	0.38'	7.97'	2.70°	1.24°
11	1669.00'	0.80°	359.50°	91'	1668.86'	9.50'	9.50'	1.27'	9.58'	7.59°	1.30°
12	1764.00'	1.40°	74.10°	95'	1763.85'	10.48'	10.48'	2.38'	10.75'	12.78°	1.49°
13	1856.00'	0.50°	131.00°	92'	1855.83'	10.52'	10.52'	3.76'	11.18'	19.66°	1.31°
14	1950.00'	1.50°	54.00°	94'	1949.82'	10.98'	10.98'	5.07'	12.09'	24.77°	1.56°
15	2040.00'	1.80°	68.80°	90'	2039.79'	12.18'	12.18'	7.34'	14.22'	31.06°	0.58°
16	2129.00'	1.80°	103.90°	89'	2128.74'	12.35'	12.35'	10.00'	15.89'	38.98°	1.22°
17	2227.00'	1.50°	27.30°	98'	2226.71'	13.12'	13.12'	12.08'	17.84'	42.63°	2.10°
18	2317.00'	0.80°	125.70°	90'	2316.70'	13.80'	13.80'	13.13'	19.05'	43.57°	2.00°
19	2410.00'	0.40°	140.90°	93'	2409.70'	13.17'	13.17'	13.86'	19.12'	46.46°	0.46°
20	2597.00'	0.20°	163.40°	187'	2596.69'	12.35'	12.35'	14.37'	18.95'	49.31°	0.12°
21	2691.00'	1.00°	65.60°	94'	2690.69'	12.53'	12.53'	15.16'	19.67'	50.42°	1.11°
22	2784.00'	0.50°	103.90°	93'	2783.68'	12.77'	12.77'	16.29'	20.70'	51.91°	0.73°
23	2877.00'	0.40°	19.60°	93'	2876.68'	12.98'	12.98'	16.80'	21.23'	52.30°	0.65°
24	2972.00'	0.40°	15.40°	95'	2971.68'	13.61'	13.61'	17.00'	21.77'	51.31°	0.03°
25	3065.00'	0.60°	58.60°	93'	3064.67'	14.18'	14.18'	17.50'	22.52'	50.98°	0.44°

Srv. No.	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (deg/100')
							+N / -S (ft)	+E / -W (ft)	Distance (ft)	Azimuth (deg)	
26	3126.00'	0.40°	353.20°	61'	3125.67'	14.56'	14.56'	17.74'	22.95'	50.64°	0.93°
27	3251.00'	0.60°	34.70°	125'	3250.67'	15.53'	15.53'	18.07'	23.82'	49.32°	0.32°
28	3344.00'	0.40°	47.40°	93'	3343.66'	16.15'	16.15'	18.58'	24.62'	49.01°	0.24°
29	3438.00'	0.60°	37.90°	94'	3437.66'	16.76'	16.76'	19.13'	25.43'	48.78°	0.23°
30	3531.00'	0.50°	63.90°	93'	3530.66'	17.32'	17.32'	19.79'	26.30'	48.81°	0.29°
31	3625.00'	0.50°	34.70°	94'	3624.85'	17.84'	17.84'	20.39'	27.09'	48.82°	0.27°
32	3720.00'	0.30°	91.30°	95'	3719.65'	18.17'	18.17'	20.88'	27.68'	48.96°	0.44°
33	3811.00'	0.10°	353.60°	91'	3810.65'	18.25'	18.25'	21.11'	27.90'	49.15°	0.36°
34	3904.00'	0.20°	300.50°	93'	3903.65'	18.41'	18.41'	20.96'	27.89'	48.70°	0.17°
35	3997.00'	0.20°	65.60°	93'	3996.65'	18.56'	18.56'	20.96'	28.00'	48.48°	0.38°
36	4092.00'	0.40°	325.40°	95'	4091.65'	18.90'	18.90'	20.93'	28.20'	47.91°	0.50°
37	4431.00'	0.40°	357.10°	339'	4430.64'	21.06'	21.06'	20.20'	29.18'	43.80°	0.06°
38	4558.00'	0.20°	38.20°	127'	4557.64'	21.67'	21.67'	20.31'	29.70'	43.14°	0.22°
39	4649.00'	0.20°	322.30°	91'	4648.64'	21.92'	21.92'	20.31'	29.89'	42.81°	0.27°
40	4753.00'	0.20°	319.50°	104'	4752.64'	22.21'	22.21'	20.08'	29.94'	42.12°	0.01°
41	4909.00'	0.40°	284.30°	156'	4908.64'	22.55'	22.55'	19.38'	29.73'	40.68°	0.17°
42	4940.00'	0.10°	293.10°	31'	4939.63'	22.58'	22.58'	19.25'	29.67'	40.44°	0.97°
43	5028.00'	0.10°	240.70°	88'	5027.63'	22.58'	22.58'	19.11'	29.58'	40.25°	0.10°
44	5111.00'	0.60°	286.40°	83'	5110.63'	22.66'	22.66'	18.63'	29.34'	39.42°	0.64°
45	5201.00'	0.80°	293.10°	90'	5200.63'	23.04'	23.04'	17.60'	29.00'	37.37°	0.24°
46	5296.00'	0.80°	288.50°	95'	5295.62'	23.51'	23.51'	16.36'	28.65'	34.83°	0.07°
47	5389.00'	0.40°	282.20°	93'	5388.61'	23.79'	23.79'	15.43'	28.35'	32.96°	0.44°
48	5483.00'	0.60°	275.50°	94'	5482.61'	23.91'	23.91'	14.62'	28.02'	31.44°	0.22°
49	5576.00'	0.70°	293.10°	93'	5575.60'	24.18'	24.18'	13.61'	27.74'	29.38°	0.24°
50	5669.00'	0.80°	277.30°	93'	5668.59'	24.48'	24.48'	12.44'	27.46'	26.94°	0.25°
51	5763.00'	0.60°	295.50°	94'	5762.59'	24.78'	24.78'	11.35'	27.25'	24.61°	0.32°
52	5852.00'	0.70°	281.10°	89'	5851.58'	25.08'	25.08'	10.39'	27.15'	22.51°	0.21°
53	5949.00'	0.70°	281.50°	97'	5948.57'	25.31'	25.31'	9.23'	26.94'	20.04°	0.01°
54	6042.00'	0.40°	301.20°	93'	6041.57'	25.60'	25.60'	8.40'	26.94'	18.17°	0.38°
55	6136.00'	0.80°	306.80°	94'	6135.56'	26.16'	26.16'	7.59'	27.24'	16.18°	0.43°
56	6198.00'	0.70°	307.20°	62'	6197.56'	26.65'	26.65'	6.94'	27.54'	14.61°	0.16°
57	6353.00'	0.40°	302.90°	155'	6352.55'	27.51'	27.51'	5.74'	28.10'	11.78°	0.20°
58	6476.00'	0.50°	302.90°	123'	6475.55'	28.04'	28.04'	4.92'	28.47'	9.96°	0.08°

TIE IN

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY
TOM STATE #1
CHAVES COUNTY, NEW MEXICO
Rig:SILVER OAK 7

Tue May 18 13:41:56 2010

Coordinates

Latitude: 33.007523 N (33 deg. 0 min. 27.0821 sec.)
Longitude: 103.818749 W (-103 deg. 49 min. 7.4955 sec.)
Elevation: 4428.00 feet.
Calculation Date: May/18/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.8948 degrees
Total Magnetic Field: 0.49162 gauss
Magnetic Declination: 7.891777 degrees
Horizontal Intensity: 0.239130 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.891777 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 657750.5000 feet
Y: 730635.6000 feet
True to Grid: (convergence) -0.280325 degrees
Magnetic to Grid: 7.611452 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.611452 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORPORATION
TOM STATE #1
CHAVES COUNTY, NEW MEXICO
Rig:SILVER OAK #7

Wed Feb 10 05:35:24 2010

Coordinates

Latitude: 33.007523 N (33 deg. 0 min. 27.0821 sec.)
Longitude: 103.818749 W (-103 deg. 49 min. 7.4955 sec.)
Elevation: 4428.00 feet.
Calculation Date: May/28/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.8941 degrees
Total Magnetic Field: 0.49159 gauss
Magnetic Declination: 7.888420 degrees
Horizontal Intensity: 0.239122 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.888420 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 657750.5000 feet
Y: 730635.6000 feet
True to Grid: (convergence) -0.280325 degrees
Magnetic to Grid: 7.608095 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.608095 Degr.