

Results of Directional Survey

DD

API number:	30-025-40563		
OGRID:		Operator:	MACK ENERGY CORP
		Property:	ARKANSAS STATE # 3

surface	ULSTR:	H	35	T 18S	R 36E
				2120 FNL	330 FEL

BH Loc	ULSTR:	H	35	T 18S	R 36E
8580 MD		8573.3	TVD	2280 FNL	333 FEL

Top Perf/OH	ULSTR:	H	35	T 18S	R 36E
7849 MD		7842.5	TVD	2280 FNL	344 FEL

Bot Perf/OH	ULSTR:	H	35	T 18S	R 36E
7922 MD		7915.5	TVD	2279 FNL	344 FEL

	MD	N/S	E/W	VD
	7864	-159.58	-13.99	7857.51
TOP PERFS/OH	7849	-159.84	-14.00	7842.51
	8054	-156.31	-13.89	8047.48
	7864	-159.58	-13.99	7857.51
BOT PERFS/OH	7922	-158.58	-13.96	7915.50
	8054	-156.31	-13.89	8047.48

NEXT TO LAST	8245	-155.98	-11.10	8238.45
LAST READING	8580	-160.27	-2.92	8573.32
TD	8580	-160.27	-2.92	8573.32

Surface Location	2120 FN	330 FE
Projected BHL	2280 FN	333 FE
Location of		
Top Perfs/OH	2280 FN	344 FE
Bottom Perfs/OH	2279 FN	344 FE

SUMMARY of Subsurface Locations

Surface Location	H-35-18S-36E	2120 FN	330 FE	Vert. Depth
Top Perfs/OH	H-35-18S-36E	2280 FN	344 FE	7842.51
Bottom Perfs/OH	H-35-18S-36E	2279 FN	344 FE	7915.50
Projected TD	H-35-18S-36E	2280 FN	333 FE	8573.32

JUL 2.5 2012



HOBBS OCD

JUL 20 2012

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SCANNED

PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

June 15, 2012

Mack Energy Corporation
PO Box 960
Artesia, NM 88211-0960

SUR: H-35-18s-35e, 2120/N & 330/E
BHL: H-35-18s-36e, 2280/N & 333/E
API # 30-025-40563

RE: Arkansas State #3
2310' FNL & 330' FEL
Sec. 35, T18S, R36E
Lea County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 15th day of June, 2012.

Notary Public

Arkansas State #3

Date	Depth	Dev	Dir	TVD
5/31/2012	291	0.20		
5/31/2012	617	0.50		
6/1/2012	920	0.10		
6/1/2012	1240	0.50		
6/1/2012	1570	0.30		
6/2/2012	1676	0.35	311.20	
6/2/2012	1739	0.53	5.16	1792.00
6/3/2012	1834	0.18	272.17	1833.00
6/3/2012	1929	1.32	208.01	1928.00
6/4/2012	2024	3.25	194.30	2023.00
6/4/2012	2119	4.57	186.04	2172.00
6/4/2012	2215	4.66	186.83	2263.00
6/4/2012	2310	4.40	187.83	236.20
6/4/2012	2500	4.04	190.70	
6/4/2012	2786	4.22	177.69	
6/4/2012	2881	3.96	174.90	
6/4/2012	3167	3.61	180.15	3163.91
6/4/2012	3262	4.22	185.60	3258.68
6/4/2012	3357	3.61	186.04	3353.46
6/4/2012	3453	4.04	187.71	3449.25
6/4/2012	3548	3.61	185.05	3544.04
6/4/2012	3643	2.81	185.34	3638.89
6/4/2012	3738	3.61	181.47	3733.74
6/4/2012	3834	3.52	181.41	3829.00
6/4/2012	3929	4.13	180.77	
6/4/2012	4024	3.96	180.77	
6/4/2012	4119	3.61	175.67	
6/4/2012	4214	4.13	179.45	
6/4/2012	4395	4.13	178.04	4335.00
6/4/2012	4435	3.17	182.61	4429.00
6/4/2012	4530	2.02	191.84	4524.00
6/5/2012	4626	0.35	234.20	4620.00
6/5/2012	4816	0.53	220.32	4810.00
6/5/2012	5006	0.44	213.99	
6/5/2012	5197	0.26	224.10	5191.02
6/5/2012	5387	0.26	164.07	5381.00
6/5/2012	5578	0.44	119.33	5572.00
6/5/2012	5768	0.79	85.32	5762.00
6/6/2012	5959	1.32	108.17	
6/6/2012	6149	0.79	105.88	
6/6/2012	6340	1.41	118.36	6343.00
6/7/2012	6530	1.41	122.76	6523.00
6/7/2012	6721	0.53	94.19	

Date	Depth	Dev	Dir	TVD
6/7/2012	6816	1.41	325.70	6869.82
6/7/2012	6911	2.46	317.08	6904.76
6/8/2012	7102	1.23	323.85	7095.00
6/8/2012	7293	1.23	315.50	7286.61
6/9/2012	7483	1.14	323.25	
6/9/2012	7673	1.06	332.99	
6/9/2012	7864	1.06	348.64	7857.51
6/9/2012	8054	0.97	16.41	8049.00
6/10/2012	8245	4.58	117.66	8238.00

PATHFINDER[®]

A Schlumberger Company

HOBBS OCD

JUL 20 2012

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DIRECTIONAL SURVEY REPORT

MACK ENERGY

ARKANSAS STATE #3

LEA COUNTY, NEW MEXICO

SUR: H-35-18s-35e, 2120/N & 330/E
BHL: H-35-18s-36e, 2280/N & 333/E
API # 30-025-40563

PREPARED BY: JUAN ALCOCER

Pathfinder

6213 WCR 112
Midland, Texas 79706
Tel (432)687-1647
Fax (432)687-1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) ROLDAN DIAZ
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 6-02-12 TO 6-10-12
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:

MACK ENERGY
ARKANSAS STATE #3
LEA COUNTY, NM
RIG: SILVER OAK 2

9. SURVEY CERTIFIED FROM: 1,676 TO 8,245 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 160.30 FEET ON A BEARING OF 181.04 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 8,580 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


JUAN ALCOCER
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 06/02/2012
Date Completed: 06/11/2012

MACK ENERGY CORPORATION
ARKANSAS STATE #3
LEA COUNTY, NEW MEXICO
Rig:SILVER OAK 2 / API: 30-025-40563
PathFinder Office Supervisor: Juan Alcocer
PathFinder Field Engineers:Roldan Diaz

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.42.19.4608 N LON:103.19.1.3052 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 812620.0000 Y: 621835.8000
North Aligned To:GRID NORTH
Total Magnetic Correction: 6.83° EAST TO GRID
Vertical Section Plane: 187.96
Survey Vert. Reference: 17.50' Kelly Bushing To Ground
Altitude:3762.00' Ground To MSL

Measured Depth	8580.00	(feet)
Inclination	1.58	(deg)
Azimuth	117.66	(deg)
True Vertical Depth	8573.32	(feet)
Vertical Section	159.13	(feet)
Survey X cord	812617.08	(feet)
Survey Y cord	621675.53	(feet)
Survey Lat	32.70496537 N	(deg)
Survey Lon	103.31704369 W	(deg)
Rectangular Corr. N/S	160.27 S	(feet)
Rectangular Corr. E/W	2.92 W	(feet)
Closure Distance	160.30	(feet)
Direction of Closure	181.04	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 ARKANSAS STATE #3
 LEA COUNTY, NEW MEXICO
 Rig:SILVER OAK 2 / API: 30-025-40563
 PathFinder Office Supervisor: Juan Alcocer
 PathFinder Field Engineers: Roldan Diaz

Survey Horiz. Reference:WELLHEAD
 Ref Coordinates: LAT:32.42.19.4608 N LON:103.19.1.3052 W
 GRID Reference:NAD27 new mexico east Transverse Mercator
 Ref GRID Coord: X: 812620.0000 Y: 621835.8000
 North Aligned To:GRID NORTH
 Total Magnetic Correction: 6.83° EAST TO GRID
 Vertical Section Plane: 187.96
 Survey Vert. Reference: 17.50' Kelly Bushing To Ground
 Altitude:3762.00' Ground To MSL

Survey Calculations by RX5 V6.04A using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)	TEMP (F)	Course Length (ft)
THE FOLLOWING ARE SCIENTIFIC DRILLING GYRO SURVEYS.									
100.00	0.34	39.81	100.00	-0.25	0.22 N 0.20 E	0.30@ 42.36	0.00	0.00	0.00
200.00	0.42	30.66	200.00	-0.84	0.77 N 0.58 E	0.96@ 37.13	0.10	0.00	100.00
300.00	0.28	33.53	300.00	-1.40	1.28 N 0.90 E	1.57@ 35.06	0.14	0.00	100.00
400.00	0.07	340.94	400.00	-1.67	1.55 N 1.02 E	1.85@ 33.33	0.24	0.00	100.00
500.00	0.05	254.92	500.00	-1.71	1.59 N 0.95 E	1.86@ 30.94	0.08	0.00	100.00
600.00	0.04	330.98	600.00	-1.72	1.61 N 0.90 E	1.84@ 29.06	0.06	0.00	100.00
700.00	0.28	326.81	700.00	-1.93	1.85 N 0.74 E	1.99@ 21.96	0.24	0.00	100.00
800.00	0.33	347.29	799.99	-2.39	2.33 N 0.55 E	2.40@ 13.22	0.12	0.00	100.00
900.00	0.35	329.99	899.99	-2.90	2.88 N 0.33 E	2.90@ 6.57	0.10	0.00	100.00
1000.00	0.21	330.04	999.99	-3.28	3.30 N 0.09 E	3.30@ 1.51	0.14	0.00	100.00
1100.00	0.34	296.20	1099.99	-3.52	3.59 N 0.27 W	3.60@ 355.69	0.20	0.00	100.00
1200.00	0.33	305.83	1199.99	-3.75	3.89 N 0.77 W	3.97@ 348.80	0.06	0.00	100.00
1300.00	0.40	293.93	1299.99	-3.98	4.20 N 1.32 W	4.40@ 342.52	0.10	0.00	100.00
1400.00	0.41	324.15	1399.98	-4.33	4.63 N 1.85 W	4.99@ 338.21	0.21	0.00	100.00
1500.00	0.31	316.13	1499.98	-4.76	5.12 N 2.25 W	5.59@ 336.28	0.11	0.00	100.00
1600.00	0.38	299.16	1599.98	-5.04	5.47 N 2.73 W	6.11@ 333.53	0.12	0.00	100.00
** TIED-IN TO SCIENTIFIC DRILLING GYRO SURVEY @ 1605'MD.									
1605.00	0.30	309.79	1604.98	-5.06	5.49 N 2.75 W	6.14@ 333.39	2.03	0.00	5.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.									
1676.00	0.35	311.20	1675.98	-5.27	5.75 N 3.06 W	6.51@ 332.02	0.07	108.25	71.00
1739.00	0.53	5.16	1738.98	-5.67	6.17 N 3.17 W	6.94@ 332.77	0.68	111.87	63.00
1834.00	0.18	272.17	1833.98	-6.09	6.61 N 3.28 W	7.38@ 333.59	0.60	119.09	95.00
1929.00	1.32	208.01	1928.97	-5.05	5.65 N 3.95 W	6.89@ 325.07	1.32	122.71	95.00
2024.00	3.25	194.30	2023.89	-1.35	2.08 N 5.13 W	5.53@ 292.04	2.10	126.32	95.00

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 ARKANSAS STATE #3
 LEA COUNTY, NEW MEXICO
 RIG:SILVER OAK 2 / API: 30-025-40563

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)	Course Length (ft)
2120.00	4.57	186.04	2119.66	5.18	4.36 S	6.20 W	7.58@	234.86	1.49	133.55	96.00
2215.00	4.66	186.83	2214.35	12.82	11.96 S	7.06 W	13.89@	210.55	0.12	133.55	95.00
2310.00	4.40	187.88	2309.06	20.32	19.40 S	8.02 W	20.99@	202.45	0.29	133.55	95.00
2405.00	4.31	190.26	2403.78	27.54	26.52 S	9.15 W	28.06@	199.04	0.21	137.17	95.00
2500.00	4.04	190.70	2498.53	34.45	33.33 S	10.41 W	34.91@	197.35	0.29	137.17	95.00
2596.00	3.96	192.81	2594.30	41.13	39.88 S	11.77 W	41.58@	196.45	0.17	137.17	96.00
2691.00	4.75	184.90	2689.02	48.32	47.00 S	12.84 W	48.72@	195.28	1.04	133.55	95.00
2786.00	4.22	177.69	2783.73	55.69	54.41 S	13.03 W	55.95@	193.47	0.81	137.17	95.00
2881.00	3.96	174.70	2878.49	62.32	61.17 S	12.59 W	62.45@	191.63	0.35	133.55	95.00
2976.00	3.34	175.58	2973.30	68.22	67.19 S	12.07 W	68.27@	190.18	0.65	137.17	95.00
3072.00	3.87	176.55	3069.11	74.13	73.22 S	11.66 W	74.14@	189.05	0.56	137.17	96.00
3167.00	3.61	180.15	3163.91	80.23	79.41 S	11.47 W	80.23@	188.22	0.37	137.17	95.00
3262.00	4.22	185.60	3258.68	86.69	85.88 S	11.82 W	86.69@	187.84	0.75	137.17	95.00
3357.00	3.61	186.04	3353.46	93.17	92.33 S	12.48 W	93.17@	187.70	0.64	137.17	95.00
3453.00	4.04	187.71	3449.25	99.57	98.69 S	13.25 W	99.57@	187.65	0.46	137.17	96.00
3548.00	3.61	185.95	3544.04	105.91	104.98 S	14.01 W	105.91@	187.60	0.47	133.55	95.00
3643.00	2.81	185.34	3638.89	111.22	110.27 S	14.54 W	111.22@	187.51	0.84	129.94	95.00
3738.00	3.61	181.47	3733.74	116.52	115.58 S	14.83 W	116.53@	187.31	0.87	133.55	95.00
3834.00	3.52	181.91	3829.55	122.45	121.55 S	15.01 W	122.47@	187.04	0.10	133.55	96.00
3929.00	4.13	180.77	3924.34	128.75	127.88 S	15.15 W	128.78@	186.76	0.65	133.55	95.00
4024.00	3.96	180.77	4019.10	135.40	134.58 S	15.24 W	135.44@	186.46	0.18	133.55	95.00
4119.00	3.61	175.67	4113.89	141.57	140.84 S	15.06 W	141.65@	186.10	0.51	133.55	95.00
4214.00	4.13	179.45	4208.68	147.88	147.25 S	14.80 W	147.99@	185.74	0.61	133.55	95.00
4341.00	4.13	178.04	4335.35	156.91	156.39 S	14.60 W	157.07@	185.33	0.08	133.55	127.00
4435.00	3.17	182.61	4429.16	162.83	162.37 S	14.60 W	163.03@	185.14	1.07	133.55	94.00
4530.00	2.02	191.84	4524.06	167.11	166.63 S	15.06 W	167.31@	185.17	1.28	137.17	95.00
4626.00	0.35	234.20	4620.03	169.01	168.46 S	15.65 W	169.19@	185.31	1.85	126.32	96.00

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 ARKANSAS STATE #3
 LEA COUNTY, NEW MEXICO
 RIG:SILVER OAK 2 / API: 30-025-40563

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)	Course Length (ft)
4816.00	0.53	220.32	4810.03	170.15	169.47 S	16.69 W	170.29@	185.62	0.11	133.55	190.00
5006.00	0.44	213.99	5000.02	171.55	170.75 S	17.67 W	171.66@	185.91	0.06	133.55	190.00
5197.00	0.26	224.10	5191.02	172.56	171.66 S	18.38 W	172.65@	186.11	0.10	133.55	191.00
5387.00	0.26	164.07	5381.02	173.30	172.39 S	18.56 W	173.38@	186.14	0.14	137.17	190.00
5578.00	0.44	119.33	5572.01	173.96	173.16 S	17.80 W	174.08@	185.87	0.16	137.17	191.00
5768.00	0.79	85.32	5762.00	173.94	173.42 S	15.86 W	174.14@	185.23	0.26	137.17	190.00
5959.00	1.32	108.17	5952.97	174.04	173.99 S	12.46 W	174.44@	184.09	0.35	126.32	191.00
6149.00	0.79	105.88	6142.94	174.61	175.03 S	9.12 W	175.27@	182.98	0.28	133.55	190.00
6340.00	1.41	118.36	6333.90	175.61	176.51 S	5.78 W	176.61@	181.88	0.35	140.78	191.00
6530.00	1.41	122.76	6523.84	177.41	178.89 S	1.76 W	178.90@	180.56	0.06	137.17	190.00
6625.00	0.62	123.46	6618.83	178.12	179.80 S	0.35 W	179.80@	180.11	0.83	137.17	95.00
6721.00	0.53	94.19	6714.82	178.31	180.12 S	0.53 E	180.12@	179.83	0.32	137.17	96.00
6816.00	1.41	325.70	6809.82	177.42	179.19 S	0.31 E	179.19@	179.90	1.88	137.17	95.00
6911.00	2.46	317.08	6904.76	175.27	176.73 S	1.74 W	176.74@	180.56	1.14	140.78	95.00
7102.00	1.23	323.85	7095.66	171.21	172.07 S	5.74 W	172.17@	181.91	0.65	144.39	191.00
7293.00	1.23	315.50	7286.61	168.49	168.95 S	8.39 W	169.16@	182.84	0.09	144.39	191.00
7483.00	1.14	323.85	7476.57	165.89	165.97 S	10.93 W	166.33@	183.77	0.10	133.55	190.00
7673.00	1.06	332.99	7666.54	163.09	162.88 S	12.84 W	163.39@	184.51	0.10	137.17	190.00
7864.00	1.06	348.64	7857.51	159.98	159.58 S	13.99 W	160.19@	185.01	0.15	137.17	191.00
8054.00	0.97	16.41	8047.48	156.73	156.31 S	13.89 W	156.93@	185.08	0.26	140.78	190.00
8245.00	1.58	117.66	8238.45	156.02	155.98 S	11.10 W	156.38@	184.07	1.05	144.39	191.00
STRAIGHT LINE PROJECTION TO BIT @ 8580' MD.											
8580.00	1.58	117.66	8573.32	159.13	160.27 S	2.92 W	160.30@	181.04	0.00	0.00	335.00

** 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.



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY CORPORATION		
LEASE / WELL No.:	ARKANSAS STATE	#3	
WELL LOCATION:	LEA COUNTY		
COUNTY / STATE / COUNTRY:	LEA COUNTY	NM	USA
RIG:	SILVER OAK DRILLING 2		
API WELL No:	30-025-40563		
JOB No:	12MLD0228		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	P. E. S.		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	6.82	LWD Calculated:	6.835375
		Agreed Upon:	6.83
X =	812620 000000	Feet	Y = 621835.800000
		Feet	
SITE LATITUDE:	32.705406 N	SITE LONGITUDE:	103.317029 W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	New Mexico East
PROPOSED DRIFT DIRECTION:	187.96		
KELLY BUSHING ELEVATION:	17.5		
ALTITUDE:	3762	Feet	WATER DEPTH:
			0
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	1605		
DRIFT ANGLE:	0.3		
DRIFT DIRECTION:	309.79		
TRUE VERTICAL DEPTH:	1604.98		
VERTICAL SECTION:	6.03		
RECTANGULAR COORDINATE (N / S) :	5.49 N		
RECTANGULAR COORDINATE (E / W) :	2.75 W		
CLOSURE DISTANCE / DIRECTION:	6.14	333.42	
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:	1944	TOTAL DEPTH:	8707.5
KICKOFF ANGLE:	3.69	MAX ANGLE:	3.89

PES Engineers:

Roldan Diaz, Jr.

Signature of both field engineers required if applicable

Directional Driller: William Scott

DATE: 11-Jun-2012



Scientific Drilling

Gyroscopic Survey Report for MACK ENERGY

Well Location	LEA COUNTY, NEW MEXICO
Well Name	ARKANSAS STATE #3
Rig Name	SILVER OAK 2
Survey Date	6/2/2012
Latitude	32.7050000°N
North Reference	Grid North
Grid Correction	-0.55 deg
Depth Reference	RKB (17.50 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 344.33Azim (deg)
Definitive Survey	FINAL GYRO SURVEY
Operator(s)	FRANK RENTERIA

Well Notes



Survey:		FINAL GYRO SURVEY							
Survey Date:		6/2/2012							
MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Direction	Dogleg Severity	Closure Distance
ft	deg	deg	ft	ft	ft	ft	deg	7100ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00
100.00	0.34	39.81	100.00	0.17	0.23	0.19	39.81	0.34	0.30
200.00	0.42	30.66	200.00	0.60	0.78	0.57	36.33	0.10	0.97
300.00	0.28	33.53	300.00	1.01	1.30	0.89	34.57	0.15	1.58
400.00	0.07	340.94	399.99	1.22	1.55	1.01	33.02	0.24	1.85
500.00	0.05	254.92	499.99	1.28	1.60	0.95	30.78	0.08	1.86
600.00	0.04	330.98	599.99	1.32	1.62	0.89	28.89	0.06	1.85
700.00	0.28	326.81	699.99	1.59	1.86	0.74	21.68	0.24	2.00
800.00	0.33	347.29	799.99	2.11	2.34	0.54	12.96	0.12	2.41
900.00	0.35	329.99	899.99	2.69	2.89	0.33	6.43	0.10	2.90
1000.00	0.21	330.04	999.99	3.16	3.31	0.08	1.43	0.14	3.31
1100.00	0.34	296.20	1099.99	3.53	3.59	-0.27	355.67	0.20	3.60
1200.00	0.33	305.83	1199.99	3.95	3.89	-0.77	348.82	0.06	3.97
1300.00	0.40	293.93	1299.99	4.40	4.20	-1.32	342.55	0.10	4.40
1400.00	0.41	324.15	1399.98	4.96	4.63	-1.85	338.25	0.21	4.99
1500.00	0.31	316.13	1499.98	5.53	5.11	-2.24	336.32	0.11	5.58
1600.00	0.38	299.16	1599.98	6.00	5.47	-2.72	333.56	0.13	6.11
1605.00	0.30	309.79	1604.98	6.03	5.49	-2.75	333.42	2.09	6.14



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Mack Energy
Arkansas State #3
Lea County, Tx
Rig: Silver Oak 2

Fri Jun 01 15:59:09 2012

Coordinates

Latitude: 32.705406 N (32 deg. 42 min. 19.4608 sec.)
Longitude: 103.317029 W (-103 deg. 19 min. 1.3052 sec.)
Elevation: 3779.50 feet.
Calculation Date: Jun/01/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6514 degrees
Total Magnetic Field: 0.48835 gauss
Magnetic Declination: 7.382656 degrees
Horizontal Intensity: 0.239352 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.382656 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 812620.0000 feet
Y: 621835.8000 feet
True to Grid: (convergence) -0.549171 degrees
Magnetic to Grid: 6.833485 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 6.833485 Degs.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORPORATION
ARAKANSAS STATE #3
LEA COUNTY
Rig:SILVER OAK DRILLING #2

Sat Jun 02 04:11:03 2012

Field Calc.

Coordinates

Latitude: 32.705406 N (32 deg. 42 min. 19.4616 sec.)
Longitude: 103.317029 W (-103 deg. 19 min. 1.3044 sec.)
Elevation: 3779.50 feet.
Calculation Date: Jun/01/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6514 degrees
Total Magnetic Field: 0.48864 gauss
Magnetic Declination: 7.384546 degrees
Horizontal Intensity: 0.239492 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.384546 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 812620.0680 feet
Y: 621835.8863 feet
True to Grid: (convergence) -0.549171 degrees
Magnetic to Grid: 6.835375 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 6.835375 Degr.