

Results of Directional Survey

DD

API number:	30-025-40244		
OGRID:		Operator:	MACK ENERGY CORP
		Property:	BROOK FEDERAL # 1

surface	ULSTR:	A	30	T 17S	R 32E
				635 FNL	10 FEL

BH Loc	ULSTR:	A	30	T 17S	R 32E
7062	MD	7014.7	TVD	355 FNL	358 FEL

Top Perf/OH	ULSTR:	A	30	T 17S	R 32E
5327	MD	5282.5	TVD	324 FNL	307 FEL

Bot Perf/OH	ULSTR:	A	30	T 17S	R 32E
6648	MD	6618.1	TVD	350 FNL	357 FEL

	MD	N/S	E/W	VD
	5300	310.47	-297.22	5255.47
TOP PERFS/OH	5327	311.02	-297.31	5282.46
	5395	312.41	-297.55	5350.44
	6631	285.14	-347.06	6583.70
BOT PERFS/OH	6648	284.69	-347.03	6618.06
	6678	283.90	-346.98	6678.69

NEXT TO LAST	7005	281.06	-348.13	6957.67
LAST READING	7062	280.32	-348.39	7014.67
TD	7062	280.32	-348.39	7014.67

Surface Location	635 FN	10 FE
Projected BHL	355 FN	358 FE
Location of		
Top Perfs/OH	324 FN	307 FE
Bottom Perfs/OH	350 FN	357 FE

SUMMARY of Subsurface Locations

Surface Location	A-30-17S-32E	635 FN	10 FE	Vert. Depth
Top Perfs/OH	A-30-17S-32E	324 FN	307 FE	5282.46
Bottom Perfs/OH	A-30-17S-32E	350 FN	357 FE	6618.06
Projected TD	A-30-17S-32E	355 FN	358 FE	7014.67

FEB 01 2012



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

HOBBS OCD

JAN 11 2012

RECEIVED

October 31, 2011

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

RE: Brook Federal #1
330' FNL & 330' FEL
Sec. 30, T17S, R32E
Lea County, New Mexico

Dear Sir,

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

SUR: A-30-17s-32e, 635/N & 10/E
BHL: A-30-17s-32e, 355/N & 358/E
API # 30-025-40244

Very truly yours,

A handwritten signature in cursive script, appearing to read "Chris Graham".

Chris Graham
Drilling Superintendent

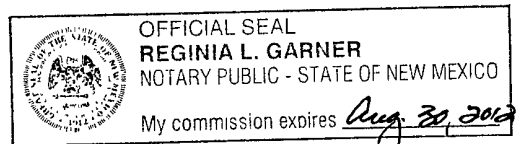
State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 31st day of October, 2011.

A handwritten signature in cursive script, appearing to read "Regina L. Garner".

Notary Public

SCANNED



Pason DataHub Deviation Survey
Well Dossier 1318423399 - Brook Federal #1
#

# Date	Depth	Deviation	Direction
10/15/2011	208	0.00	127.00
10/15/2011	359	0.10	121.00
10/16/2011	539	0.30	0.00
10/16/2011	731	0.20	0.00
10/18/2011	808	0.09	217.99
10/18/2011	903	0.18	274.79
10/18/2011	998	0.18	204.67
10/18/2011	1093	0.44	179.45
10/18/2011	1284	0.60	144.20
10/18/2011	1855	1.14	98.80
10/18/2011	1950	0.18	60.35
10/18/2011	2046	0.35	128.53
10/18/2011	2141	0.18	90.64
10/18/2011	2236	2.02	316.61
10/18/2011	2331	4.04	320.92
10/19/2011	2426	5.63	314.69
10/19/2011	2522	7.56	313.06
10/19/2011	2617	9.58	314.31
10/19/2011	2713	11.34	314.54
10/19/2011	2808	12.93	314.08
10/19/2011	2903	13.19	315.00
10/19/2011	3094	13.89	314.09
10/19/2011	3189	14.07	315.61
10/19/2011	3284	13.37	315.83
10/20/2011	3380	13.63	315.10
10/20/2011	3475	13.37	315.03
10/20/2011	3570	13.98	315.35
10/20/2011	3666	13.89	315.24
10/20/2011	3761	14.18	315.47
10/20/2011	3856	13.81	316.13
10/20/2011	3952	12.49	315.58
10/20/2011	4047	11.43	314.10
10/20/2011	4142	9.67	311.14
10/21/2011	4237	7.83	313.43
10/21/2011	4333	6.16	313.34
10/21/2011	4524	3.34	317.77
10/22/2011	4633	1.93	313.05
10/22/2011	4728	0.62	8.16
10/22/2011	4823	0.53	342.55
10/22/2011	4919	0.88	349.21
10/22/2011	5014	0.79	349.16
10/22/2011	5109	0.88	347.67
10/22/2011	5204	1.14	346.15
10/22/2011	5300	1.06	346.53
10/23/2011	5395	1.32	353.51
10/23/2011	5490	0.97	310.80
10/23/2011	5585	1.06	300.96
10/23/2011	5776	0.53	332.43
10/23/2011	5871	2.20	246.86

SCANNED

#	Date	Depth	Deviation	Direction
	10/24/2011	5966	5.32	235.61
	10/24/2011	6061	6.77	238.29
	10/24/2011	6157	6.86	237.60
	10/24/2011	6252	6.77	238.40
	10/25/2011	6345	4.22	232.53
	10/25/2011	6440	0.97	193.94
	10/25/2011	6536	0.79	161.72
	10/26/2011	6631	0.88	160.20
	10/26/2011	6726	0.70	196.64
	10/26/2011	6821	0.62	202.68
	10/26/2011	6917	0.53	207.25
	10/26/2011	7005	0.79	199.16
# EOF				

SCANNED



A Schlumberger Company

HOBBS OCD

DIRECTIONAL SURVEY REPORT

JAN 11 2012

RECEIVED

MACK ENERGY

BROOK FEDERAL #1

LEA COUNTY, NEW MEXICO

SUR: A-30-17s-32e, 635/N & 10/E
BHL: A-30-17s-32e, 355/N & 358/E
API # 30-025-40244

PREPARED BY: STEVE BIBB

Pathfinder

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

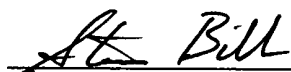


DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) MURAD ALIYEV
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 10-17-11 TO 10-26-11
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
BROOK FEDERAL #1
LEA COUNTY, NM
RIG: SILVER OAK 2
9. SURVEY CERTIFIED FROM: 808 TO 7005 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 447.16 FEET ON A BEARING OF 308.82 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 7062 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



STEVE BIBB
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 10/17/2011
Date Completed: 10/26/2011

MACK ENERGY CORPORATION
BROOK FEDERAL #1
LEA COUNTY, NM
Rig:SILVER OAK #2
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:MURAD ALIYEV
NABIL MERIDJI

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.48.39.7266 N LON:103.47.48.1962 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 664867.1000 Y: 659184.0000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.40°EAST TO GRID
Vertical Section Plane: 313.36
Survey Vert. Reference: 17.50' Kelly Bushing To Ground
Altitude:3928.00' Ground To MSL

Measured Depth	7062.00	(feet)
Inclination	0.79	(deg)
Azimuth	199.16	(deg)
True Vertical Depth	7014.67	(feet)
Vertical Section	445.76	(feet)
Survey X cord	664518.71	(feet)
Survey Y cord	659464.32	(feet)
Survey Lat	32.81181052 N	(deg)
Survey Lon	103.79785044 W	(deg)
Rectangular Corr. N/S	280.32 N	(feet)
Rectangular Corr. E/W	348.39 W	(feet)
Closure Distance	447.16	(feet)
Direction of Closure	308.82	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION

BROOK FEDERAL #1

LEA COUNTY, NM

Rig: SILVER OAK #2

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: MURAD ALIYEV

NABIL MERIDJI

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.48.39.7266 N LON: 103.47.48.1962 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 664867.1000 Y: 659184.0000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.40° EAST TO GRID

Vertical Section Plane: 313.36

Survey Vert. Reference: 17.50' Kelly Bushing To Ground

Altitude: 3928.00' Ground To MSL

Survey Calculations by RX5 V6.03E 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)
THE FOLLOWING ARE TELEDRIFT SURVEYS.										
0.00	0.00	0.00	0.00	0.00	-0.00	0.00 N	0.00 E	0.00@	79.55	0.00
181.00	0.10	12.70	181.00	181.00	0.08	0.15 N	0.04 E	0.16@	14.28	0.06
208.00	0.00	0.00	208.00	27.00	0.09	0.18 N	0.04 E	0.18@	14.08	0.37
359.00	0.10	128.70	359.00	151.00	-0.04	0.10 N	0.15 E	0.18@	57.06	0.07
539.00	0.30	121.70	539.00	180.00	-0.66	0.25 S	0.67 E	0.72@	110.46	0.11
**	TIE INTO TELEDRIFT SURVEY AT 721'MD.									
721.00	0.20	264.70	721.00	182.00	-0.92	0.53 S	0.76 E	0.93@	124.89	0.26
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
808.00	0.09	217.99	808.00	87.00	-0.82	0.60 S	0.57 E	0.82@	136.53	0.18
903.00	0.18	274.79	903.00	95.00	-0.71	0.64 S	0.37 E	0.74@	149.99	0.16
998.00	0.18	204.67	998.00	95.00	-0.64	0.77 S	0.16 E	0.78@	168.14	0.22
1093.00	0.44	179.45	1093.00	95.00	-0.94	1.27 S	0.10 E	1.27@	175.39	0.30
1188.00	0.62	150.61	1187.99	95.00	-1.69	2.08 S	0.36 E	2.11@	170.23	0.33
1284.00	0.88	144.06	1283.99	96.00	-2.91	3.13 S	1.05 E	3.30@	161.53	0.28
1379.00	0.70	105.65	1378.98	95.00	-4.14	3.88 S	2.03 E	4.38@	152.33	0.58
1474.00	0.88	110.26	1473.97	95.00	-5.32	4.29 S	3.28 E	5.39@	142.61	0.20
1569.00	0.62	62.51	1568.96	95.00	-6.16	4.30 S	4.42 E	6.16@	134.25	0.69
1664.00	1.14	60.35	1663.95	95.00	-6.61	3.60 S	5.69 E	6.73@	122.28	0.55
1760.00	1.14	57.16	1759.93	96.00	-7.12	2.61 S	7.33 E	7.78@	109.58	0.07
1855.00	1.14	98.80	1854.91	95.00	-8.12	2.24 S	9.05 E	9.33@	103.89	0.85
1950.00	0.18	60.35	1949.91	95.00	-8.94	2.31 S	10.12 E	10.38@	102.86	1.06
2046.00	0.35	128.53	2045.90	96.00	-9.28	2.42 S	10.48 E	10.75@	102.99	0.34
2141.00	0.18	90.64	2140.90	95.00	-9.68	2.60 S	10.85 E	11.16@	103.47	0.25
2236.00	2.02	316.61	2235.89	95.00	-8.11	1.38 S	9.85 E	9.95@	98.00	2.26
2331.00	4.04	320.92	2330.75	95.00	-3.12	2.43 N	6.59 E	7.03@	69.76	2.14

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
BROOK FEDERAL #1
LEA COUNTY, NM
RIG:SILVER OAK #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)
2426.00	5.63	314.69	2425.41	95.00	4.85	8.31 N	1.17 E	8.39@	8.02	1.76
2522.00	7.56	313.06	2520.77	96.00	15.88	15.93 N	6.79 W	17.32@	336.91	2.02
2617.00	9.58	314.31	2614.70	95.00	30.03	25.72 N	17.02 W	30.84@	326.51	2.14
2713.00	11.34	314.54	2709.10	96.00	47.46	37.92 N	29.46 W	48.02@	322.16	1.83
2808.00	12.93	314.08	2801.98	95.00	67.42	51.87 N	43.75 W	67.86@	319.85	1.68
2903.00	13.19	315.00	2894.52	95.00	88.88	66.93 N	59.05 W	89.25@	318.58	0.35
2998.00	13.19	314.53	2987.01	95.00	110.56	82.19 N	74.44 W	110.89@	317.83	0.11
3094.00	13.89	314.09	3080.35	96.00	133.03	97.89 N	90.53 W	133.33@	317.24	0.74
3189.00	14.07	315.61	3172.53	95.00	155.97	114.07 N	106.80 W	156.26@	316.89	0.43
3284.00	13.37	315.83	3264.82	95.00	178.48	130.20 N	122.53 W	178.79@	316.74	0.74
3380.00	13.63	315.10	3358.17	96.00	200.88	146.18 N	138.25 W	201.20@	316.60	0.32
3475.00	13.37	315.03	3450.54	95.00	223.04	161.88 N	153.91 W	223.37@	316.45	0.27
3570.00	13.98	315.35	3542.85	95.00	245.49	177.81 N	169.74 W	245.82@	316.33	0.65
3666.00	13.89	315.24	3636.02	96.00	268.60	194.24 N	186.00 W	268.94@	316.24	0.10
3761.00	14.16	315.47	3728.19	95.00	291.61	210.62 N	202.18 W	291.96@	316.17	0.29
3856.00	13.81	316.13	3820.38	95.00	314.54	227.08 N	218.19 W	314.91@	316.14	0.41
3952.00	12.49	315.58	3913.86	96.00	336.36	242.76 N	233.39 W	336.75@	316.13	1.38
4047.00	11.43	314.10	4006.79	95.00	356.04	256.65 N	247.34 W	356.43@	316.06	1.16
4142.00	9.67	311.14	4100.18	95.00	373.43	268.45 N	260.11 W	373.79@	315.90	1.94
4237.00	7.83	313.45	4194.08	95.00	387.87	278.15 N	270.82 W	388.21@	315.76	1.97
4333.00	6.16	313.34	4289.36	96.00	399.56	286.18 N	279.31 W	399.89@	315.70	1.74
4428.00	4.84	311.18	4383.92	95.00	408.66	292.32 N	286.04 W	408.98@	315.62	1.41
4524.00	3.34	317.77	4479.67	96.00	415.50	297.05 N	290.97 W	415.82@	315.59	1.63
4633.00	1.93	313.05	4588.55	109.00	420.50	300.66 N	294.44 W	420.82@	315.60	1.31
4728.00	0.62	8.16	4683.53	95.00	422.40	302.26 N	295.54 W	422.73@	315.64	1.74
4823.00	0.53	342.55	4778.53	95.00	423.08	303.19 N	295.60 W	423.44@	315.73	0.28
4919.00	0.88	349.21	4874.52	96.00	424.06	304.34 N	295.87 W	424.45@	315.81	0.37
5014.00	0.79	349.16	4969.51	95.00	425.18	305.70 N	296.13 W	425.61@	315.91	0.09

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
BROOK FEDERAL #1
LEA COUNTY, NM
RIG:SILVER OAK #2

Page 03/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
5109.00	0.88	347.67	5064.50	95.00	426.32	307.05 N	296.41 W	426.78@	316.01	0.10
5204.00	1.14	346.15	5159.48	95.00	427.72	308.68 N	296.79 W	428.21@	316.13	0.28
5300.00	1.06	346.53	5255.47	96.00	429.26	310.47 N	297.22 W	429.81@	316.25	0.08
5395.00	1.32	353.51	5350.44	95.00	430.83	312.41 N	297.55 W	431.44@	316.40	0.31
5490.00	0.97	310.80	5445.43	95.00	432.47	314.03 N	298.28 W	433.11@	316.47	0.94
5585.00	1.06	300.96	5540.41	95.00	434.13	315.00 N	299.65 W	434.76@	316.43	0.21
5680.00	1.14	297.45	5635.40	95.00	435.90	315.89 N	301.24 W	436.50@	316.36	0.11
5776.00	0.53	332.43	5731.38	96.00	437.24	316.73 N	302.29 W	437.83@	316.34	0.80
5871.00	2.20	246.86	5826.36	95.00	438.38	316.40 N	304.17 W	438.89@	316.13	2.34
5966.00	5.36	235.61	5921.14	95.00	440.05	313.17 N	309.51 W	440.31@	315.34	3.40
6061.00	6.77	238.29	6015.61	95.00	442.44	307.73 N	317.94 W	442.47@	314.06	1.51
6157.00	6.86	237.76	6110.93	96.00	445.32	301.69 N	327.60 W	445.35@	312.64	0.11
6252.00	6.77	238.40	6205.26	95.00	448.18	295.73 N	337.17 W	448.49@	311.25	0.12
6345.00	4.22	232.53	6297.82	93.00	450.15	290.78 N	344.55 W	450.85@	310.16	2.80
6440.00	0.97	193.94	6392.72	95.00	450.31	287.87 N	347.52 W	451.27@	309.64	3.70
6536.00	0.79	161.72	6488.71	96.00	449.33	286.45 N	347.51 W	450.35@	309.50	0.54
6631.00	0.88	160.20	6583.70	95.00	448.10	285.14 N	347.06 W	449.17@	309.41	0.10
6726.00	0.70	196.64	6678.69	95.00	447.19	283.90 N	346.98 W	448.32@	309.29	0.55
6821.00	0.62	202.68	6773.68	95.00	446.75	282.87 N	347.34 W	447.95@	309.16	0.11
6917.00	0.53	207.25	6869.68	96.00	446.44	282.00 N	347.75 W	447.72@	309.04	0.10
7005.00	0.79	199.16	6957.67	88.00	446.08	281.06 N	348.13 W	447.43@	308.92	0.31
STRAIGHT LINE PROJECTION TO BIT AT 7062'MD.										
7062.00	0.79	199.16	7014.67	57.00	445.76	280.32 N	348.39 W	447.16@	308.82	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.



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY CORPORATION		
LEASE / WELL No.:	BROOK FEDERAL	#1	
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	SILVER OAK #2		
API WELL No:	30-025-40244		
JOB No:	700004063-WT-WT		
P.O. / AFE No.	2844.001		
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.39	LWD Calculated:	7.401558
Agreed Upon:		7.401558	
X =	664867.100000	Feet	Y = 659184.000000
		Feet	
SITE LATITUDE:	32° 48' 39.7266" N	SITE LONGITUDE:	103° 47' 48.1962" W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	313.36		
KELLY BUSHING ELEVATION:	17.5		
ALTITUDE:	3928	Feet	WATER DEPTH:
		N/A	
		Feet	

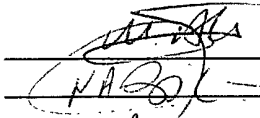
TIE-IN SURVEY

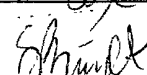
MEASURED DEPTH:	721		
DRIFT ANGLE:	0.2		
DRIFT DIRECTION:	264.7		
TRUE VERTICAL DEPTH:	721		
VERTICAL SECTION:	-0.91		
RECTANGULAR COORDINATE (N / S) :	-0.53		
RECTANGULAR COORDINATE (E / W) :	0.76		
CLOSURE DISTANCE / DIRECTION:	0.92	125.1	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	TELEDRIFT		
COPY OF TIE-IN SURVEY REPORT	☒ YES		☐ NO

WELL PLAN

KICKOFF DEPTH:	2200	TOTAL DEPTH:	7046.7
KICKOFF ANGLE:	0	MAX ANGLE:	13.73

PES Engineers:





**Signature of both field engineers required if applicable

Directional Driller:

DATE: 10/17/2011



SURVEY REPORT

Page 1 of 1

PROSHOT MWD BY TELEDRIFT
P.O. BOX 94395
OKLAHOMA CITY, OK 73143-4395
TEL: 405-631-4882
FAX: 405-631-8344
WWW.TELEDRIFT.COM

ProView Version 6.10

Report created using job file: Mack

brook federal 1-14OCT11

Report saved on 16 Oct 2011 13:58

Depth in meters

WELL NAME brook federal 1
NORTH CORRECTION 7.7°
JOB ID Mack brook federal 1
COMPANY Mack Energy
CONTRACTOR Silver Oak # 2
START DATE 14 OCT 11
API #
LOCATION Brook Fed # 2

All azimuths are referenced to true north
and corrected with the north correction above.

SURVEY #	SURVEY DEPTH	DATE	TIME	INCLINATION	AZIMUTH
0018	181.0	16-Oct-11	08:02	00.1	12.7
Tie-in	208.0	14-Oct-11	17:10	00.0	0.0
0005	359.0	15-Oct-11	20:26	00.1	128.7
0011	539.0	16-Oct-11	01:14	00.3	121.7
0017	721.0	16-Oct-11	06:42	00.2	264.7

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

Mack Energy Corporation
Brook Federal #1
Lea County, NM
Rig: Silver Oak 2

Fri Oct 14 07:43:44 2011

Coordinates

Latitude: 32.811035 N (32 deg. 48 min. 39.7266 sec.)
Longitude: 103.796721 W (-103 deg. 47 min. 48.1962 sec.)
Elevation: 3945.50 feet.
Calculation Date: Oct/14/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6828 degrees
Total Magnetic Field: 0.48908 gauss
Magnetic Declination: 7.693347 degrees
Horizontal Intensity: 0.239476 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.693347 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 664867.1000 feet
Y: 659184.0000 feet
True to Grid: (convergence) -0.290780 degrees
Magnetic to Grid: 7.402567 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.402567 Degr.

Field Calculation

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

MACK ENERGY CORPORATION
BROOK FEDERAL #1
LEA COUNTY, NM
Rig: SILVER OAK #2

Mon Oct 17 01:22:49 2011

Coordinates

Latitude: 32.811035 N (32 deg. 48 min. 39.7266 sec.)
Longitude: 103.796721 W (-103 deg. 47 min. 48.1962 sec.)
Elevation: 3945.50 feet.
Calculation Date: Oct/17/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6825 degrees
Total Magnetic Field: 0.48907 gauss
Magnetic Declination: 7.692338 degrees
Horizontal Intensity: 0.239474 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.692338 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 664867.1000 feet
Y: 659184.0000 feet
True to Grid: (convergence) -0.290780 degrees
Magnetic to Grid: 7.401558 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.401558 Degr.

Pathfinder

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

PATHFINDER
A Schlumberger Company

October 28, 2011

Mack Energy
P.O. Box 960
Artesia, NM 88211

HOBBS OCD

JAN 11 2012

RECEIVED

RE: Mack Energy
Brook Federal #1
Lea County, NM
RIG: Silver Oak 2
FIELD: Maljamar, Yeso, West
PES FILE NO.: 700004063-WT-WT

Dear Sir:

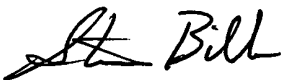
We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

DIRECTIONAL SURVEY DATA

- 1 – Original survey report
- 2 – Survey report copies

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (432) 687-1647

Sincerely,



STEVE BIBB
M/LWD Service Coordinator
PathFinder Energy Services