

Results of Directional Survey

API number:	30-025-40601		
OGRID:		Operator:	MACK ENERGY CORP
		Property:	LEO STATE # 6

surface	ULSTR:	B	18	T	18S	R	35E
				150	FNL	2140	FEL

BH Loc	ULSTR:	B	18	T	18S	R	35E
9495	MD	9479.7	TVD	338	FNL	2244	FEL

Top Perf/OH	ULSTR:	B	18	T	18S	R	35E
8422	MD	8407.2	TVD	340	FNL	2272	FEL

Bot Perf/OH	ULSTR:	B	18	T	18S	R	35E
9164	MD	9148.9	TVD	341	FNL	2255	FEL

	MD	N/S	E/W	VD
	8338	-190.10	-135.08	8323.25
TOP PERFS/OH	8422	-189.68	-131.96	8407.19
	8433	-189.63	-131.55	8418.18
	9090	-191.68	-116.90	9074.96
BOT PERFS/OH	9164	-191.27	-115.41	9148.94
	9186	-191.15	-114.97	9170.94

NEXT TO LAST	9443	-188.47	-106.27	9427.77
LAST READING	9495	-188.33	-103.96	9479.72
TD	9495	-188.33	-103.96	9479.72

Surface Location	150	FN	2140	FE
Projected BHL	338	FN	2244	FE
Location of				
Top Perfs/OH	340	FN	2272	FE
Bottom Perfs/OH	341	FN	2255	FE

SUMMARY of Subsurface Locations

Surface Location	B-18-18S-35E	150	FN	2140	FE	Vert. Depth
Top Perfs/OH	B-18-18S-35E	340	FN	2272	FE	8407.19
Bottom Perfs/OH	B-18-18S-35E	341	FN	2255	FE	9148.94
Projected TD	B-18-18S-35E	338	FN	2244	FE	9479.72

OCT 25 2012



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

HOBBS OCD

OCT 01 2012

RECEIVED

July 9, 2012

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

RE: Leo State #6
330' FNL & 2310' FEL
Sec. 18, T18S, R35E
Lea County, New Mexico

Dear Sir,

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

Very truly yours,

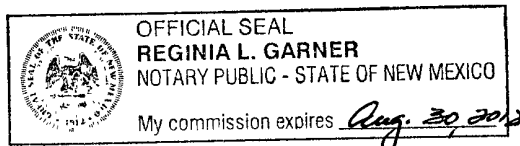
Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

SUR: B-18-18S-35E, 150/N & 2140/E
BHL: B-18-18S-35E, 338/N & 2244/E
API # 30-025-40601

SCANNED

The foregoing was acknowledged before me this 9th day of July, 2012.

Notary Public

Leo State #6

Date	Depth	Deviation	Direction	TVD
6/16/2012	149	0.30		
6/16/2012	300	0.50		
6/16/2012	479	0.40	341.00	
6/17/2012	868	37.00	20.60	
6/17/2012	1059	0.50	7.60	
6/17/2012	1249	0.70		
6/17/2012	1440	0.90	0.60	
6/17/2012	1547	1.30	315.60	
6/19/2012	1682	0.26	111.16	1681.89
6/19/2012	1587	1.41	33.03	1586.91
6/19/2012	1619	1.49	35.13	1618.90
6/19/2012	1650	0.88	49.20	1649.89
6/19/2012	1714	0.26	187.54	1713.89
6/19/2012	1873	3.17	226.12	1872.80
6/19/2012	2063	6.95	216.63	2062.00
6/19/2012	2254	8.18	209.25	2251.00
6/19/2012	244	7.39	209.69	24.39
6/19/2012	2634	7.47	206.43	2627.24
6/19/2012	2919	5.63	210.04	2910.90
6/19/2012	3014	6.24	216.19	3005.40
6/20/2012	3204	5.98	216.54	3194.36
6/20/2012	3300	5.80	217.42	3289.85
6/20/2012	3395	5.54	219.00	3384.25
6/20/2012	3586	4.84	215.40	3574.00
6/20/2012	3681	4.48	220.85	3669.00
6/20/2012	3871	4.22	224.18	3858.00
6/20/2012	4062	4.75	220.06	4049.00
6/20/2012	4157	4.48	219.18	4143.00
6/20/2012	4253	4.57	202.13	4239.00
6/21/2012	4443	4.04	206.70	4429.04
6/21/2012	4538	1.93	190.17	4523.00
6/21/2012	4633	0.97	105.89	4618.00
6/21/2012	4824	1.06	47.88	4809.00
6/21/2012	4919	1.14	41.38	4904.84
6/21/2012	5109	0.79	20.98	5094.82
6/22/2012	5299	0.97	31.36	5284.80
6/22/2012	5394	0.44	12.02	5379.00
6/22/2012	5489	0.44	2.35	5474.00
6/22/2012	5680	1.32	321.31	5665.00
6/22/2012	5870	2.02	247.83	5855.00
6/22/2012	5966	0.62	220.76	5951.00
6/22/2012	6061	0.18	193.43	6046.66
6/24/2012	6442	0.79	39.97	6427.62

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Date	Depth	Deviation	Direction	TVD
6/24/2012	6537	0.88	335.37	6522.00
6/24/2012	6633	0.70	290.98	6618.60
6/24/2012	6728	0.88	304.61	6713.59
6/24/2012	6823	0.88	263.74	6808.58
6/25/2012	6918	0.62	228.41	6903.00
6/25/2012	7013	0.53	234.47	6998.00
6/25/2012	7109	0.53	230.34	7094.00
6/25/2012	7204	0.26	292.74	7189.00
6/25/2012	7299	0.44	27.58	7284.00
6/26/2012	7395	1.06	4.64	7380.00
6/26/2012	7490	1.32	332.38	7475.00
6/27/2012	7585	0.44	196.77	7570.00
6/28/2012	7609	1.14	254.42	7594.00
6/28/2012	7672	0.53	167.50	7657.00
6/28/2012	7768	0.35	61.77	7753.00
6/28/2012	7863	1.32	17.64	7848.51
6/29/2012	7958	1.32	55.97	7943.49
6/30/2012	8053	2.20	109.14	8038.45
6/30/2012	8148	2.20	117.31	8133.38
7/1/2012	8243	2.11	110.19	8228.81
7/1/2012	8338	2.11	80.84	8323.25
7/1/2012	8433	2.20	83.91	8418.18
7/2/2012	8528	1.93	67.83	8513.12
7/3/2012	8614	1.41	69.41	8599.08
7/3/2012	8710	1.93	153.35	8695.06
7/3/2012	8805	1.23	122.24	8790.02
7/3/2012	8900	0.97	79.26	8885.00
7/3/2012	9090	1.06	105.89	9074.76
7/3/2012	9186	1.58	54.12	9170.94
7/4/2012	9281	1.93	68.97	9265.90
7/4/2012	9376	2.29	77.85	9360.00
7/4/2012	9443	2.55	86.64	9427.77

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A Schlumberger Company

DIRECTIONAL SURVEY REPORT

MACK ENERGY

LEO STATE #6

LEA COUNTY, NEW MEXICO

SUR: B-18-18S-35E, 150/N & 2140/E
BHL: B-18-18S-35E, 338/N & 2244/E
API # 30-025-40601

PREPARED BY: MARCUS MITCHAM

SCANNED

Pathfinder

6213 WCR 112
Midland, Texas 79706-3725, USA
Tel (432) 697-1647
Fax (432) 687-1544



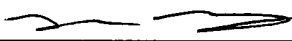
DIRECTIONAL SURVEY COMPANY REPORT:

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: 6/19/12 TO 7/04/12
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
LEO STATE #6
LEA COUNTY, NM
RIG: SILVER OAK 2

9. SURVEY CERTIFIED FROM: 1,587 TO 9,443 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 215.12 FEET ON A BEARING OF 208.90 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 9,495 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



MARCUS MITCHAM
M/LWD SERVICE COORDINATOR

SCANNED

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 06/18/2012
Date Completed: 07/04/2012

MACK ENERGY CORPORATION
LEO STATE #6
LEA COUNTY, NM
Rig:SILVER OAK 2
PathFinder Office Supervisor: Juan Alcocer
PathFinder Field Engineers:Roldan Diaz

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.45.16.4756 N LON:103.29.41.2365 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 757797.2000 Y: 639246.6000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.01° EAST TO GRID
Vertical Section Plane: 214.80
Survey Vert. Reference: 17.50' Kelly Bushing To Ground
Altitude:3963.00' Ground To MSL

Measured Depth	9495.00	(feet)
Inclination	2.55	(deg)
Azimuth	86.64	(deg)
True Vertical Depth	9479.72	(feet)
Vertical Section	213.98	(feet)
Survey X cord	757693.21	(feet)
Survey Y cord	639058.25	(feet)
Survey Lat	32.75406115 N	(deg)
Survey Lon	103.49513097 W	(deg)
Rectangular Corr. N/S	188.33 S	(feet)
Rectangular Corr. E/W	103.96 W	(feet)
Closure Distance	215.12	(feet)
Direction of Closure	208.90	(deg)
Dogleg Severity	0.00	(deg/100ft)

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PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION

LEO STATE #6

LEA COUNTY, NM

Rig:SILVER OAK 2

PathFinder Office Supervisor: Juan Alcocer

PathFinder Field Engineers: Roldan Diaz

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.45.16.4756 N LON:103.29.41.2365 W

GRID Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 757797.2000 Y: 639246.6000

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.01° EAST TO GRID

Vertical Section Plane: 214.80

Survey Vert. Reference: 17.50' Kelly Bushing To Ground

Altitude:3963.00' Ground To MSL

Survey Calculations by RX5 V6.04A 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.										
149.00	0.30	0.60	149.00	0.00	-0.32	0.39 N	0.00 E	0.39@	0.31	0.00
300.00	0.50	352.60	299.99	151.00	-1.14	1.44 N	0.08 W	1.44@	356.87	0.14
479.00	0.40	348.60	478.99	179.00	-2.15	2.83 N	0.30 W	2.84@	353.88	0.06
657.00	0.30	19.60	656.98	178.00	-3.03	3.87 N	0.27 W	3.88@	356.02	0.12
868.00	0.70	20.60	867.98	211.00	-4.81	5.60 N	0.37 E	5.61@	3.78	0.19
1059.00	0.50	7.60	1058.97	191.00	-6.68	7.52 N	0.89 E	7.57@	6.75	0.13
1249.00	0.70	35.60	1248.96	190.00	-8.58	9.28 N	1.68 E	9.43@	10.23	0.18
1440.00	0.90	0.60	1439.94	191.00	-10.99	11.73 N	2.37 E	11.97@	11.42	0.27
** TIED-IN TO TELEDRIFT SURVEYS AT 1547'MD.										
1547.00	1.30	315.60	1546.92	107.00	-11.91	13.44 N	1.53 E	13.53@	6.49	0.86
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
1587.00	1.41	33.03	1586.91	40.00	-12.49	14.18 N	1.48 E	14.25@	5.96	4.24
1619.00	1.49	35.13	1618.90	32.00	-13.30	14.85 N	1.93 E	14.97@	7.42	0.30
1650.00	0.88	49.20	1649.89	31.00	-13.93	15.33 N	2.35 E	15.51@	8.70	2.17
1682.00	0.26	111.16	1681.89	32.00	-14.18	15.47 N	2.60 E	15.68@	9.54	2.47
1714.00	0.26	187.54	1713.89	32.00	-14.14	15.37 N	2.66 E	15.60@	9.82	1.00
1746.00	1.06	209.60	1745.89	32.00	-13.78	15.04 N	2.50 E	15.25@	9.45	2.58
1777.00	1.58	215.40	1776.88	31.00	-13.07	14.44 N	2.11 E	14.60@	8.33	1.73
1873.00	3.17	226.12	1872.80	96.00	-9.14	11.52 N	0.57 W	11.54@	357.19	1.71
1968.00	5.01	225.24	1967.55	95.00	-2.48	6.78 N	5.41 W	8.67@	321.44	1.94
2063.00	6.95	216.63	2062.03	95.00	7.34	0.75 S	11.78 W	11.80@	266.34	2.24
2159.00	7.74	208.98	2157.25	96.00	19.58	11.07 S	18.38 W	21.46@	238.94	1.31
2254.00	8.18	209.25	2251.33	95.00	32.67	22.56 S	24.78 W	33.51@	227.68	0.46
2349.00	8.53	210.39	2345.32	95.00	46.42	34.54 S	31.65 W	46.84@	222.50	0.41

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
LEO STATE #6
LEA COUNTY, NM
RIG:SILVER OAK 2

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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)
2444.00	7.39	209.69	2439.40	95.00	59.53	45.92 S	38.24 W	59.76@	219.78	1.20
2539.00	7.30	208.98	2533.63	95.00	71.62	56.51 S	44.19 W	71.74@	218.02	0.13
2634.00	7.47	206.43	2627.84	95.00	83.74	67.32 S	49.86 W	83.77@	216.53	0.39
2729.00	7.39	205.91	2722.04	95.00	95.88	78.35 S	55.28 W	95.88@	215.21	0.11
2824.00	5.98	209.42	2816.39	95.00	106.85	88.15 S	60.38 W	106.85@	214.41	1.54
2919.00	5.63	210.04	2910.90	95.00	116.42	96.50 S	65.14 W	116.43@	214.02	0.37
3014.00	6.24	216.19	3005.40	95.00	126.22	104.70 S	70.52 W	126.23@	213.96	0.93
3109.00	5.89	219.79	3099.86	95.00	136.24	112.61 S	76.69 W	136.25@	214.26	0.54
3204.00	5.98	216.54	3194.36	95.00	146.04	120.33 S	82.76 W	146.04@	214.52	0.37
3300.00	5.80	217.42	3289.85	96.00	155.89	128.20 S	88.68 W	155.89@	214.67	0.21
3395.00	5.54	219.00	3384.38	95.00	165.25	135.58 S	94.49 W	165.25@	214.87	0.32
3490.00	5.19	213.03	3478.97	95.00	174.12	142.74 S	99.71 W	174.12@	214.94	0.69
3586.00	4.84	215.40	3574.60	96.00	182.51	149.68 S	104.43 W	182.51@	214.90	0.42
3681.00	4.48	220.85	3669.29	95.00	190.21	155.76 S	109.18 W	190.21@	215.03	0.60
3776.00	3.96	228.06	3764.03	95.00	197.09	160.76 S	114.04 W	197.10@	215.35	0.78
3871.00	4.22	224.80	3858.79	95.00	203.73	165.43 S	118.95 W	203.75@	215.72	0.37
3967.00	4.57	224.01	3954.51	96.00	210.98	170.69 S	124.09 W	211.03@	216.02	0.37
4062.00	4.75	220.06	4049.19	95.00	218.63	176.42 S	129.25 W	218.70@	216.23	0.39
4157.00	4.48	219.18	4143.88	95.00	226.25	182.31 S	134.13 W	226.33@	216.34	0.29
4253.00	4.57	202.13	4239.59	96.00	233.72	188.76 S	137.94 W	233.79@	216.16	1.40
4347.00	4.40	202.22	4333.30	94.00	240.89	195.56 S	140.71 W	240.92@	215.74	0.18
4443.00	4.04	206.70	4429.04	96.00	247.83	201.99 S	143.62 W	247.85@	215.41	0.51
4538.00	1.93	190.17	4523.91	95.00	252.60	206.56 S	145.41 W	252.61@	215.14	2.38
4633.00	0.97	105.89	4618.88	95.00	253.80	208.35 S	144.92 W	253.80@	214.82	2.18
4729.00	1.06	56.49	4714.87	96.00	252.71	208.08 S	143.40 W	252.71@	214.57	0.89
4824.00	1.06	47.88	4809.86	95.00	251.04	207.01 S	142.01 W	251.04@	214.45	0.17
4919.00	1.14	41.38	4904.84	95.00	249.24	205.71 S	140.74 W	249.25@	214.38	0.16

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
LEO STATE #6
LEA COUNTY, NM
RIG:SILVER OAK 2

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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)
5014.00	0.62	29.42	4999.83	95.00	247.79	204.56 S	139.86 W	247.80@	214.36	0.58
5109.00	0.79	20.98	5094.82	95.00	246.64	203.50 S	139.37 W	246.65@	214.41	0.21
5204.00	0.88	32.06	5189.81	95.00	245.28	202.27 S	138.75 W	245.28@	214.45	0.19
5299.00	0.97	31.36	5284.80	95.00	243.75	200.96 S	137.95 W	243.75@	214.47	0.10
5394.00	0.44	12.02	5379.79	95.00	242.61	199.92 S	137.45 W	242.61@	214.51	0.60
5489.00	0.44	2.35	5474.79	95.00	241.96	199.20 S	137.36 W	241.96@	214.59	0.08
5585.00	0.62	348.46	5570.78	96.00	241.29	198.32 S	137.45 W	241.29@	214.72	0.23
5680.00	1.32	321.31	5665.77	95.00	240.63	196.96 S	138.24 W	240.63@	215.06	0.86
5775.00	1.67	278.50	5760.74	95.00	240.93	195.90 S	140.29 W	240.95@	215.61	1.20
5870.00	2.02	247.83	5855.69	95.00	242.95	196.33 S	143.21 W	243.01@	216.11	1.09
5966.00	0.62	220.76	5951.66	96.00	244.88	197.36 S	145.11 W	244.97@	216.33	1.56
6061.00	0.18	193.43	6046.66	95.00	245.53	197.90 S	145.48 W	245.62@	216.32	0.49
6156.00	0.26	27.40	6141.66	95.00	245.46	197.85 S	145.42 W	245.54@	216.32	0.46
6251.00	0.79	25.91	6236.66	95.00	244.60	197.07 S	145.03 W	244.69@	216.35	0.56
6347.00	1.49	40.14	6332.64	96.00	242.70	195.52 S	143.94 W	242.79@	216.36	0.78
6442.00	0.79	39.97	6427.62	95.00	240.82	194.07 S	142.72 W	240.90@	216.33	0.74
6537.00	0.88	335.37	6522.61	95.00	239.80	192.91 S	142.61 W	239.90@	216.47	0.94
6633.00	0.70	290.98	6618.60	96.00	239.56	192.03 S	143.46 W	239.70@	216.76	0.65
6728.00	0.88	304.61	6713.59	95.00	239.70	191.41 S	144.60 W	239.89@	217.07	0.27
6823.00	0.88	263.74	6808.58	95.00	240.18	191.07 S	145.93 W	240.42@	217.37	0.65
6918.00	0.62	228.41	6903.58	95.00	241.16	191.49 S	147.04 W	241.43@	217.52	0.54
7013.00	0.53	234.47	6998.57	95.00	242.07	192.09 S	147.78 W	242.36@	217.57	0.11
7109.00	0.53	230.34	7094.57	96.00	242.92	192.63 S	148.48 W	243.22@	217.63	0.04
7204.00	0.26	292.74	7189.56	95.00	243.39	192.83 S	149.02 W	243.70@	217.70	0.49
7299.00	0.44	27.58	7284.56	95.00	243.07	192.42 S	149.05 W	243.40@	217.76	0.56
7395.00	1.06	4.64	7380.55	96.00	241.94	191.21 S	148.81 W	242.29@	217.89	0.71
7490.00	1.32	332.38	7475.53	95.00	240.67	189.36 S	149.25 W	241.11@	218.24	0.74

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
LEO STATE #6
LEA COUNTY, NM
RIG:SILVER OAK 2

Page 04/04

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)
7585.00	0.44	196.77	7570.53	95.00	240.51	188.74 S	149.86 W	241.00@	218.45	1.75
7672.00	0.53	167.50	7657.52	87.00	241.10	189.46 S	149.87 W	241.57@	218.35	0.30
7768.00	0.35	61.77	7753.52	96.00	241.14	189.75 S	149.51 W	241.58@	218.24	0.74
7863.00	1.32	17.64	7848.51	95.00	239.84	188.57 S	148.93 W	240.29@	218.30	1.15
7958.00	1.32	55.97	7943.49	95.00	237.77	186.92 S	147.69 W	238.22@	218.31	0.91
8053.00	2.20	109.14	8038.45	95.00	236.26	186.90 S	145.06 W	236.59@	217.82	1.85
8148.00	2.20	117.31	8133.38	95.00	235.53	188.34 S	141.71 W	235.70@	216.96	0.33
8243.00	2.11	110.19	8228.31	95.00	234.85	189.78 S	138.45 W	234.91@	216.11	0.30
8338.00	2.11	80.84	8323.25	95.00	233.20	190.10 S	135.08 W	233.21@	215.40	1.12
8433.00	2.20	83.91	8418.18	95.00	230.79	189.63 S	131.55 W	230.79@	214.75	0.15
8528.00	1.93	67.83	8513.12	95.00	228.25	188.83 S	128.25 W	228.27@	214.18	0.67
8614.00	1.41	69.41	8599.08	86.00	226.17	187.91 S	125.92 W	226.20@	213.83	0.61
8710.00	1.93	153.35	8695.06	96.00	225.97	188.94 S	124.09 W	226.05@	213.29	2.36
8805.00	1.23	122.24	8790.02	95.00	226.69	190.92 S	122.51 W	226.84@	212.69	1.14
8900.00	0.97	79.26	8885.00	95.00	226.07	191.31 S	120.86 W	226.29@	212.28	0.89
8995.00	1.41	96.92	8979.98	95.00	224.95	191.30 S	118.91 W	225.24@	211.86	0.60
9090.00	1.06	105.89	9074.96	95.00	224.12	191.68 S	116.90 W	224.52@	211.38	0.42
9186.00	1.58	54.12	9170.94	96.00	222.58	191.15 S	114.97 W	223.06@	211.03	1.30
9281.00	1.93	68.97	9265.90	95.00	220.02	189.81 S	112.42 W	220.60@	210.64	0.60
9376.00	2.29	77.85	9360.83	95.00	217.31	188.84 S	109.07 W	218.07@	210.01	0.51
9443.00	2.55	86.64	9427.77	67.00	215.41	188.47 S	106.27 W	216.36@	209.42	0.68
STRAIGHT LINE PROJECTION TO BIT DEPTH AT 9495' MD.										
9495.00	2.55	86.64	9479.72	52.00	213.98	188.33 S	103.96 W	215.12@	208.90	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.

SCANNED



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY CORPORATION		
LEASE / WELL No.:	LEO STATE	#6	
WELL LOCATION:	LEA COUNTY		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	SILVER OAK #2		
API WELL No:	30-025-40601		
JOB No:	12MLD0257		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	P.E.S.		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7	LWD Calculated:	7.011326
		Agreed Upon:	7.01
X =	757797.200000	Feet	Y = 639246.600000
			Feet
SITE LATITUDE:	32.754577 N	SITE LONGITUDE:	103.494788 W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	214.8		
KELLY BUSHING ELEVATION:	17.5		
ALTITUDE:	3963	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	1547		
DRIFT ANGLE:	1.3		
DRIFT DIRECTION:	315.6		
TRUE VERTICAL DEPTH:	1546.92		
VERTICAL SECTION:	-11.91		
RECTANGULAR COORDINATE (N / S) :	13.44		
RECTANGULAR COORDINATE (E / W) :	1.53		
CLOSURE DISTANCE / DIRECTION:	13.53	6.5	
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:	1650	TOTAL DEPTH:	10012
KICKOFF ANGLE:	5.8	MAX ANGLE:	8.53

PES Engineers: ROLDAN DIAZ

**Signature of both field engineers required if applicable

Directional Driller: WILLIAM SCOTT

SCANNED

DATE: 4-Jul-2012



SURVEY REPORT

Page 1 of 1

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

ProView Version 6.10
Report created using job file: mack energy-15JUN12
Report saved on 18 Jun 2012 12:11
Depth in feet

WELL NAME Leo State #6
NORTH CORRECTION 7.6°
JOB ID mack energy
COMPANY Mack Energy
CONTRACTOR Silver oak #2
START DATE 15 JUN 12
API #
LOCATION Leo State #6

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

SURVEY #	SURVEY DEPTH	DATE	TIME	INCLINATION	AZIMUTH
Tie-in	0.0	15-Jun-12	14:22	00.0	0.0
0001	149.0	16-Jun-12	08:11	00.3	0.6
0005	300.0	16-Jun-12	11:03	00.5	352.6
0011	479.0	16-Jun-12	13:41	00.4	348.6
0016	657.0	16-Jun-12	16:57	00.3	19.6
0021	868.0	16-Jun-12	22:02	00.7	20.6
0026	1059.0	17-Jun-12	01:20	00.5	7.6
0027	1249.0	17-Jun-12	04:29	00.7	35.6
0032	1440.0	17-Jun-12	07:29	00.9	0.6
0033	1547.0	17-Jun-12	10:06	01.3	315.6

SCANNED

9525 Pole Rd, Oklahoma City, Oklahoma 73143.
Tel (405) 631-4882 Fax (405) 631-8344
www.teledrift.com



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Mack Energy Corp.

Leo State #6

Lea County, Nm

Rig: Silver Oak 2

Sat Jun 16 23:53:37 2012

Coordinates

Latitude: 32.754577 N (32 deg. 45 min. 16.4756 sec.)
Longitude: 103.494788 W (-103 deg. 29 min. 41.2365 sec.)
Elevation: 3980.50 feet.
Calculation Date: Jun/16/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6655 degrees
Total Magnetic Field: 0.48840 gauss
Magnetic Declination: 7.465037 degrees
Horizontal Intensity: 0.239271 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.465037 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 757797.2000 feet
Y: 639246.6000 feet
True to Grid: (convergence) -0.453711 degrees
Magnetic to Grid: 7.011326 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.011326 Degr.

SCANNED

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORPORATION
LEO STATE #6
BONE SPRING

Mon Jun 18 17:40:43 2012

Coordinates

Latitude: 32.754577 N (32 deg. 45 min. 16.4756 sec.)
Longitude: 103.494788 W (-103 deg. 29 min. 41.2365 sec.)
Elevation: 3980.50 feet.
Calculation Date: Jun/18/2012

Field Calc.

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6653 degrees
Total Magnetic Field: 0.48839 gauss
Magnetic Declination: 7.464359 degrees
Horizontal Intensity: 0.239269 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.464359 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 757797.2000 feet
Y: 639246.6000 feet
True to Grid: (convergence) -0.453711 degrees
Magnetic to Grid: 7.010647 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.010647 Degr.

SCANNED