



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

HOBBS OCD

JUN 25 2012

RECEIVED

April 18, 2012

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

RE: State 35 #7
~~1400 FSL & 1400 FWL~~
Sec. 35, T17S, R33E
Lea County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well

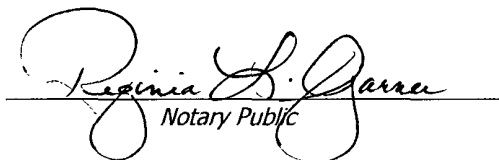
SUR: L-35-17s-33e, 1600/S & 1200/W
BHL: K-35-17s-33e, 1403/S & 1397/W
API # 30-025-40319

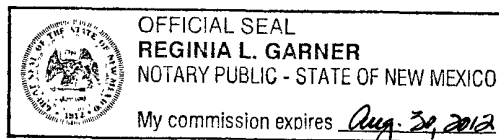
Very truly yours,


Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 13th day of March, 2012.


Regina L. Garner
Notary Public



JUL 16 2012

Pason DataHub Deviation Survey
Well Dossier 3642757 - State 35 #7
#

# Date	Depth	Deviation	Direction	TVD
3/17/2012	115	0.20	121.70	0
3/17/2012	258	0.40	117.70	0
3/17/2012	435	0.10	145.70	0
3/17/2012	614	0.40	246.70	0
3/17/2012	790	1.20	295.70	0
3/17/2012	907	1.80	291.70	0
3/17/2012	1000	2.10	298.70	0
3/17/2012	1031	2.20	299.70	0
3/18/2012	1093	1.90	299.70	0
3/18/2012	1186	1.50	305.70	0
3/18/2012	1280	1.70	301.70	0
3/18/2012	1373	1.90	312.70	0
3/18/2012	1477	2.00	315.70	0
3/20/2012	1565	2.29	317.88	1564.58
3/20/2012	1627	1.14	3292.04	1626.55
3/20/2012	1689	0.97	168.29	1688.54
3/20/2012	1751	2.29	144.21	1750.52
3/20/2012	1814	3.87	144.04	1813.42
3/20/2012	1876	5.54	138.59	1875.21
3/20/2012	1938	6.07	137.71	1936.89
3/20/2012	2032	5.98	137.78	2030.38
3/20/2012	2125	6.16	138.76	2122.85
3/20/2012	2218	6.24	139.82	2215.31
3/20/2012	2312	6.24	138.32	2308.75
3/20/2012	2405	6.95	125.67	2401.14
3/20/2012	2498	6.95	126.19	2493.46
3/20/2012	2591	7.03	125.84	2585.77
3/20/2012	2685	7.12	123.21	2679.05
3/20/2012	2778	6.16	133.23	2771.43
3/20/2012	2871	5.72	129.45	2863.93
3/20/2012	2965	5.28	129.97	2957.50
3/20/2012	3058	5.36	142.06	3050.10
3/20/2012	3152	6.07	137.76	3143.63
3/21/2012	3245	5.54	133.30	3236.16
3/21/2012	3339	5.19	133.30	3329.74
3/21/2012	3432	4.92	129.65	3422.38
3/21/2012	3525	4.31	130.60	3515.08
3/21/2012	3619	5.10	132.86	3608.76
3/21/2012	3712	5.98	131.52	3701.33
3/21/2012	3805	5.01	129.91	3793.90
3/21/2012	3899	5.98	135.28	3887.47

#	Date	Depth	Deviation	Direction	TVD
3/21/2012		3992	7.30	137.87	3979.84
3/21/2012		4086	6.68	136.83	4073.14
3/21/2012		4179	5.89	138.00	4165.58
3/22/2012		4273	5.45	137.50	4259.12
3/22/2012		4366	5.10	137.62	4351.73
3/22/2012		4460	4.84	138.15	4445.38
3/22/2012		4553	4.66	138.12	4538.06
3/22/2012		4646	4.66	136.47	4630.75
3/22/2012		4740	5.10	140.85	4724.41
3/22/2012		4802	3.69	129.96	4786.23
3/22/2012		4864	1.93	118.36	4848.15
3/22/2012		4926	0.62	54.99	4910.13
3/26/2012		5038	0.79	19.03	5022.13
3/29/2012		5282	0.70	0.00	0
3/29/2012		5471	0.50	0.00	0
3/29/2012		5658	1.30	0.00	0
3/29/2012		5845	1.20	0.00	0
3/30/2012		6031	1.40	0.00	0
3/31/2012		6342	2.60	0.00	0
3/31/2012		6459	2.90	0.00	0
4/2/2012		6495	2.79	26.41	0
4/2/2012		6557	2.94	321.74	0
4/2/2012		6713	0.88	53.61	6696.65
4/4/2012		6899	2.00	89.31	6882.50
4/4/2012		7179	2.20	0.00	0
4/5/2012		7369	3.30	0.00	0
4/5/2012		7462	3.70	0.00	0
4/8/2012		7555	2.30	7.10	7537.00
4/8/2012		7618	1.30	29.10	7600.00
4/8/2012		7711	1.80	18.50	7693.00
4/8/2012		7804	2.00	2.80	7786.52
4/9/2012		7898	2.10	2.10	7880.46
4/9/2012		7991	2.40	355.50	7973.00
4/9/2012		8085	2.30	348.50	8067.00
4/10/2012		8178	2.30	340.70	8160.00
4/11/2012		8272	2.50	354.20	8254.00
4/11/2012		8365	1.80	352.40	8347.00
4/11/2012		8458	1.60	347.10	8440.00
4/11/2012		8552	1.30	316.50	8534.00
4/11/2012		8645	1.40	350.90	8626.00
4/12/2012		8708	1.40	291.80	8689.00
4/12/2012		8832	1.40	278.90	0
4/12/2012		8926	1.20	277.60	0
4/12/2012		9056	1.00	281.50	9037.00

EOF

PATHFINDER[®]

A Schlumberger Company

DIRECTIONAL SURVEY REPORT

HOBBS OCD

JUN 25 2012

RECEIVED

MACK ENERGY

STATE 35 #7

LEA COUNTY, NEW MEXICO

SUR: L-35-17s-33e, 1600/S & 1200/W
BHL: K-35-17s-33e, 1403/S & 1397/W
API # 30-025-40319

PREPARED BY: STEVE BIBB

OK

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) SEAN RENARD
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 03-19-12 TO 03-26-12
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
STATE 35 #7
LEA COUNTY, NM
RIG: SILVER OAK 7

9. SURVEY CERTIFIED FROM: 1477 TO 5038 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 278.75 FEET ON A BEARING OF 134.85 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 5179 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "St. Bibb".

STEVE BIBB
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 03/19/2012
Date Completed: 03/27/2012

MACK ENERGY CORP.
STATE 35 #7
LEA COUNTY, NM
Rig:SILVER OAK #7
PathFinder Office Supervisor: STEVE BIBB
PathFinder Field Engineers:SEAN RENARD

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.47.17.5261 N LON:103.38.16.5470 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 713709.2000 Y: 651161.1000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.19°EAST TO GRID
Vertical Section Plane: 134.48
Survey Vert. Reference: 20.00' Kelly Bushing To Ground
Altitude:4111.00' Ground To MSL

Measured Depth	5179.00	(feet)
Inclination	0.79	(deg)
Azimuth	19.03	(deg)
True Vertical Depth	5163.12	(feet)
Vertical Section	278.74	(feet)
Survey X cord	713906.81	(feet)
Survey Y cord	650964.50	(feet)
Survey Lat	32.78765776 N	(deg)
Survey Lon	103.63729097 W	(deg)
Rectangular Corr. N/S	196.60 S	(feet)
Rectangular Corr. E/W	197.61 E	(feet)
Closure Distance	278.75	(feet)
Direction of Closure	134.85	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORP.
STATE 35 #7
LEA COUNTY, NM
Rig:SILVER OAK #7
PathFinder Office Supervisor: STEVE BIBB
PathFinder Field Engineers: SEAN RENARD

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.47.17.5261 N LON:103.38.16.5470 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coor: X: 713709.2000 Y: 651161.1000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.19° EAST TO GRID
Vertical Section Plane: 134.48
Survey Vert. Reference: 20.00' Kelly Bushing To Ground
Altitude:4111.00' Ground To MSL

Survey Calculations by RX5 V6.04 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
THE FOLLOWING ARE TELEDRIFT SURVEYS.											
164.00	0.30	116.70	164.00	0.00	0.41	0.19 S 0.38 E	32.78820117 N	103.63792849 W	0.43@	116.48	0.00
258.00	0.40	117.70	258.00	94.00	0.95	0.45 S 0.89 E	32.78820044 N	103.63792683 W	1.00@	116.93	0.11
435.00	0.10	145.70	435.00	177.00	1.70	0.87 S 1.53 E	32.78819929 N	103.63792478 W	1.76@	119.63	0.18
614.00	0.40	246.70	614.00	179.00	1.61	1.24 S 1.04 E	32.78819826 N	103.63792637 W	1.62@	140.09	0.24
790.00	1.20	295.70	789.98	176.00	-0.36	0.69 S 1.18 W	32.78819983 N	103.63793359 W	1.37@	239.85	0.56
848.00	1.50	295.70	847.96	58.00	-1.66	0.10 S 2.42 W	32.78820148 N	103.63793759 W	2.42@	267.74	0.52
907.00	1.80	291.70	906.94	59.00	-3.24	0.58 N 3.97 W	32.78820337 N	103.63794264 W	4.01@	278.34	0.54
1000.00	2.10	298.70	999.89	93.00	-6.23	1.94 N 6.82 W	32.78820716 N	103.63795189 W	7.09@	285.87	0.41
1031.00	2.20	299.70	1030.86	31.00	-7.35	2.51 N 7.84 W	32.78820873 N	103.63795518 W	8.23@	287.74	0.34
1093.00	1.90	299.70	1092.82	62.00	-9.49	3.61 N 9.77 W	32.78821179 N	103.63796142 W	10.41@	290.27	0.48
1186.00	1.50	305.70	1185.78	93.00	-12.19	5.08 N 12.09 W	32.78821588 N	103.63796897 W	13.12@	292.79	0.47
1280.00	1.70	301.70	1279.75	94.00	-14.76	6.53 N 14.28 W	32.78821991 N	103.63797605 W	15.70@	294.58	0.24
1373.00	1.90	312.70	1372.70	93.00	-17.65	8.30 N 16.59 W	32.78822482 N	103.63798351 W	18.55@	296.59	0.43
** TIED INTO TELEDRIFT SURVEYS @ 1477' MD.											
1477.00	2.00	315.70	1476.64	104.00	-21.19	10.77 N 19.12 W	32.78823165 N	103.63799171 W	21.94@	299.39	0.14
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.											
1565.00	2.29	317.88	1564.58	88.00	-24.48	13.17 N 21.37 W	32.78823829 N	103.63799898 W	25.11@	301.65	0.34
1627.00	1.14	292.04	1626.55	62.00	-26.29	14.32 N 22.77 W	32.78824148 N	103.63800352 W	26.90@	302.17	2.19
1689.00	0.97	168.29	1688.55	62.00	-26.42	14.04 N 23.24 W	32.78824071 N	103.63800504 W	27.15@	301.14	3.00
1751.00	2.29	144.21	1750.52	62.00	-24.76	12.52 N 22.41 W	32.78823652 N	103.63800237 W	25.67@	299.20	2.35
1814.00	3.87	144.04	1813.43	63.00	-21.42	9.78 N 20.42 W	32.78822895 N	103.63799597 W	22.64@	295.59	2.51
1876.00	5.54	138.59	1875.22	62.00	-16.38	5.84 N 17.22 W	32.78821807 N	103.63798562 W	18.18@	288.74	2.79
1938.00	6.07	137.71	1936.90	62.00	-10.12	1.17 N 13.03 W	32.78820516 N	103.63797210 W	13.08@	275.14	0.87
2032.00	5.98	137.71	2030.38	94.00	-0.27	6.13 S 6.39 W	32.78818498 N	103.63795065 W	8.85@	226.21	0.10
2125.00	6.16	138.76	2122.86	93.00	9.55	13.46 S 0.16 E	32.78816470 N	103.63792950 W	13.46@	179.33	0.23

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORP.
STATE 35 #7
LEA COUNTY, NM
RIG:SILVER OAK #7

Page 02/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2218.00	6.24	139.82	2215.31	93.00	19.55	21.08 S	6.71 E	32.78814365 N	103.63790835 W	22.12@	162.34	0.15
2312.00	6.24	138.32	2308.76	94.00	29.74	28.79 S	13.40 E	32.78812232 N	103.63788674 W	31.76@	155.04	0.17
2405.00	6.95	125.67	2401.14	93.00	40.34	35.85 S	21.33 E	32.78810278 N	103.63786108 W	41.72@	149.24	1.73
2498.00	6.95	126.19	2493.46	93.00	51.47	42.45 S	30.45 E	32.78808446 N	103.63783157 W	52.24@	144.35	0.07
2591.00	7.03	125.84	2585.77	93.00	62.66	49.11 S	39.60 E	32.78806601 N	103.63780193 W	63.09@	141.12	0.10
2685.00	7.12	123.21	2679.05	94.00	74.06	55.67 S	49.14 E	32.78804781 N	103.63777103 W	74.25@	138.57	0.36
2778.00	6.16	133.23	2771.43	93.00	84.70	62.24 S	57.60 E	32.78802958 N	103.63774365 W	84.80@	137.22	1.61
2871.00	5.72	129.45	2863.93	93.00	94.31	68.60 S	64.81 E	32.78801197 N	103.63772032 W	94.38@	136.63	0.63
2965.00	5.28	129.97	2957.50	94.00	103.29	74.36 S	71.74 E	32.78799602 N	103.63769789 W	103.33@	136.03	0.47
3058.00	5.36	142.06	3050.10	93.00	111.86	80.53 S	77.69 E	32.78797894 N	103.63767866 W	111.90@	136.03	1.21
3152.00	6.07	137.76	3143.64	94.00	121.17	87.68 S	83.73 E	32.78795921 N	103.63765916 W	121.24@	136.32	0.88
3245.00	5.54	133.30	3236.16	93.00	130.57	94.40 S	90.31 E	32.78794062 N	103.63763791 W	130.64@	136.27	0.75
3339.00	5.19	133.30	3329.75	94.00	139.36	100.42 S	96.70 E	32.78792394 N	103.63761723 W	139.41@	136.08	0.37
3432.00	4.92	129.65	3422.39	93.00	147.54	105.85 S	102.83 E	32.78790890 N	103.63759739 W	147.58@	135.83	0.45
3525.00	4.31	130.60	3515.08	93.00	155.00	110.67 S	108.56 E	32.78789555 N	103.63757887 W	155.03@	135.55	0.66
3619.00	5.10	132.86	3608.77	94.00	162.70	115.81 S	114.30 E	32.78788132 N	103.63756029 W	162.72@	135.38	0.86
3712.00	5.98	131.52	3701.33	93.00	171.67	121.84 S	120.96 E	32.78786464 N	103.63753876 W	171.68@	135.21	0.96
3805.00	5.01	129.91	3793.90	93.00	180.56	127.65 S	127.70 E	32.78784853 N	103.63751695 W	180.56@	134.99	1.06
3899.00	5.98	135.28	3887.47	94.00	189.54	133.76 S	134.30 E	32.78783161 N	103.63749562 W	189.55@	134.89	1.17
3992.00	7.30	137.87	3979.84	93.00	200.29	141.59 S	141.67 E	32.78780998 N	103.63747180 W	200.29@	134.98	1.45
4086.00	6.68	136.83	4073.15	94.00	211.71	150.01 S	149.41 E	32.78778670 N	103.63744678 W	211.72@	135.11	0.67
4179.00	5.89	138.00	4165.59	93.00	221.88	157.50 S	156.31 E	32.78776599 N	103.63742451 W	221.90@	135.22	0.86
4273.00	5.45	137.50	4259.13	94.00	231.15	164.37 S	162.55 E	32.78774698 N	103.63740434 W	231.17@	135.32	0.47
4366.00	5.10	137.62	4351.73	93.00	239.69	170.68 S	168.32 E	32.78772953 N	103.63738570 W	239.72@	135.40	0.38
4460.00	4.84	138.15	4445.38	94.00	247.82	176.72 S	173.78 E	32.78771283 N	103.63736806 W	247.85@	135.48	0.28
4553.00	4.66	138.12	4538.06	93.00	255.50	182.46 S	178.92 E	32.78769697 N	103.63735146 W	255.55@	135.56	0.19
4646.00	4.66	136.47	4630.75	93.00	263.05	188.01 S	184.05 E	32.78768162 N	103.63733491 W	263.10@	135.61	0.14
4740.00	5.10	140.85	4724.41	94.00	271.02	194.02 S	189.31 E	32.78766501 N	103.63731789 W	271.08@	135.70	0.61

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORP.
STATE 35 #7
LEA COUNTY, NM
RIG:SILVER OAK #7

Page 03/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
4802.00	3.69	129.96	4786.23	62.00	275.74	197.44 S	192.58 E	32.78765556 N	103.63730733 W	275.81@	135.71	2.63
4864.00	1.93	118.36	4848.15	62.00	278.74	199.21 S	195.03 E	32.78765063 N	103.63729940 W	278.79@	135.61	2.97
4926.00	0.62	54.99	4910.14	62.00	279.80	199.52 S	196.23 E	32.78764977 N	103.63729552 W	279.84@	135.48	2.81
5038.00	0.79	19.03	5022.13	112.00	279.58	198.44 S	196.97 E	32.78765272 N	103.63729307 W	279.60@	135.21	0.41
STRAIGHT LINE PROJECTION TO BIT DEPTH @ 5179' MD.												
5179.00	0.79	19.03	5163.12	141.00	278.74	196.60 S	197.61 E	32.78765776 N	103.63729097 W	278.75@	134.85	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		
LEASE / WELL No.:	STATE 35 #7		
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	SILVER OAKS #7		
API WELL No:	30-025-40319		
JOB No:	12MLD0098		
P.O. / AFE No.	946007		
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.19	LWD Calculated:	7.188588
		Agreed Upon:	7.19
X =	713709.200000	Feet	Y = 651161.100000
			Feet
SITE LATITUDE:	32° 47' 17.5261" N	SITE LONGITUDE:	103° 38' 16.5470" W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	134.48°		
KELLY BUSHING ELEVATION:	20'		
ALTITUDE:	4111	Feet	WATER DEPTH: N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	1477'		
DRIFT ANGLE:	2.00°		
DRIFT DIRECTION:	315.70°		
TRUE VERTICAL DEPTH:	1476.64'		
VERTICAL SECTION:	-21.19		
RECTANGULAR COORDINATE (N / S) :	10.77' N		
RECTANGULAR COORDINATE (E / W) :	19.12' W		
CLOSURE DISTANCE / DIRECTION:	21.94'	299.39°	
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:	1600'	TOTAL DEPTH:	9072'
KICKOFF ANGLE:	0°	MAX ANGLE:	5.14°

PES Engineers:



**Signature of both field engineers required if applicable

Directional Driller:

DATE: 18-Mar-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

SUR: L-35-17s-33e, 1600/S & 1200/W
BHL: K-35-17s-33e, 1403/S & 1397/W
API # 30-025-40319

ProView Version 6.10
Report created using job file: mack-02MAR12
Report saved on 18 Mar 2012 23:15
Depth in feet

WELL NAME dash for cash state 1
NORTH CORRECTION 7.7°
JOB ID mack
COMPANY mack
CONTRACTOR silver oak 7
START DATE 02 MAR 12
API #

LOCATION dash for cash state 1
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	02-Mar-12	16:54	00.0	0.0
0028	164.0	17-Mar-12	00:30	00.3	116.7
0030	258.0	17-Mar-12	03:24	00.4	117.7
0035	435.0	17-Mar-12	07:03	00.1	145.7
0040	614.0	17-Mar-12	09:51	00.4	246.7
0045	790.0	17-Mar-12	13:09	01.2	295.7
0047	848.0	17-Mar-12	14:01	01.5	295.7
0050	907.0	17-Mar-12	15:16	01.8	291.7
0052	1000.0	17-Mar-12	16:29	02.1	298.7
0054	1031.0	17-Mar-12	21:45	02.2	299.7
0056	1093.0	17-Mar-12	23:55	01.9	299.7
0059	1186.0	18-Mar-12	02:27	01.5	305.7
0062	1280.0	18-Mar-12	05:02	01.7	301.7
0065	1373.0	18-Mar-12	07:16	01.9	312.7
0068	1477.0	18-Mar-12	08:45	02.0	315.7

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY
STATE 35 #7
LEA COUNTY, NM
Rig:SILVER OAKS #7

Sun Mar 18 22:57:59 2012

Field

Coordinates

Latitude: 32.788202 N (32 deg. 47 min. 17.5261 sec.)
Longitude: 103.637930 W (-103 deg. 38 min. 16.5470 sec.)
Elevation: 4131.00 feet.
Calculation Date: Mar/18/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6783 degrees
Total Magnetic Field: 0.48868 gauss
Magnetic Declination: 7.565187 degrees
Horizontal Intensity: 0.239313 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.565187 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 713709.2000 feet
Y: 651161.1000 feet
True to Grid: (convergence) -0.376599 degrees
Magnetic to Grid: 7.188588 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.188588 Degr.



A Schlumberger Company **PathFinder Energy Services, Inc.**

Magnetic & Grid Calculations

Mack Energy
State 35 #7
Lea County, NM
Rig: Silver Oak 7

Sat Mar 17 12:57:22 2012

Coordinates

Latitude: 32.788202 N (32 deg. 47 min. 17.5261 sec.)
Longitude: 103.637930 W (-103 deg. 38 min. 16.5470 sec.)
Elevation: 4131.00 feet.
Calculation Date: Mar/17/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6784 degrees
Total Magnetic Field: 0.48868 gauss
Magnetic Declination: 7.565525 degrees
Horizontal Intensity: 0.239314 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.565525 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 713709.2000 feet
Y: 651161.1000 feet
True to Grid: (convergence) -0.376599 degrees
Magnetic to Grid: 7.188926 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.188926 Degr.

PathFinder Energy Services, Inc.
Electro Magnetic Error Report

"S" WELL

Sat Mar 17 13:49:45 2012

Job #: 12MLD0098

Customer Name: Mack Energy

Well Name: State 35 #7

M/LWD Run #: S - WELL

Electro Magentic Units Below Magnetometers:	3000.00
Electro Magnetic Units Above Magnetometers:	3500.00
Distance Above Magnetometers:	48.20
Incline:	5.14
Direction:	45.52
Horizontal Intensity:	0.239
Maximum Error:	0.750
Distance Below Magnetometers:	12.800

R-TOOL: PULSER
TCM
HDAS
BMS

RAW DATA FOR BACK UP STATIC SEQUENCE MANDATORY

Recommended Distance Below Magnetometers:	8.2551
Recommended Error:	0.750
Actual Error:	0.326

This assembly requires 30.00 feet of additional non-mag spacing above the M/LWD monel and 0.00 feet of additional non-mag spacing below the PathFinder M/LWD orienting sub or M/LWD float sub to yield an error of .75 degree(s) or less in direction.

Date

M/LWD Engineer

Directional Driller

Company Representative

The above calculations are based on empirical data. The estimated error is based on average values of electromagnetic units. This estimated error is to be used only as a guide. PathFinder uses its best efforts to provide its customers with accurate information and interpretations in conjunction with services performed. PathFinder does not warrant the accuracy of such information or interpretations. PathFinder will not, except in the case of gross or willful negligence on its part, be liable or responsible for loss, cost, damages or expenses incurred or sustained by anyone as a result of any interpretations.