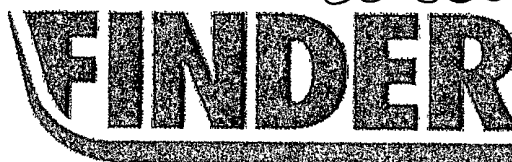


30-005-29164



An Operating Unit of Smith International, Inc.

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DIRECTIONAL SURVEY REPORT

MACK ENERGY

ROAD RUNNER FED COM #1H

CHAVES COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

Pathfinder Energy Services, Inc.
6213 W. Interstate 20 • Midland, TX • 79706
(432) 681-6000

NOV 21 2011

Pathfinder

5733 W. Interstate 20
Midland, Texas 79705
Tel: 432.681.1641
Fax: 432.687.1544



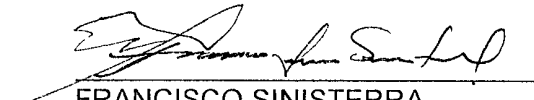
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JOHN PATTERSON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 05-13-11 TO 05-18-11
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
ROAD RUNNER FED COM #1H
CHAVES COUNTY, NM
RIG: SILVER OAK 7

9. SURVEY CERTIFIED FROM: 6420 TO 8947 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 8.80 FEET ON A BEARING OF 46.64 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 9000 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 05/12/2011
Date Completed: 05/18/2011

MACK ENERGY CORPORATION
ROADRUNNER FED COM #1H
CHAVES COUNTY, NEW MEXICO
Rig:SILVER OAK #7
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:J PATTERSON

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:33.0.8.0745 N LON:103.52.13.4101 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 641927.2000 Y: 728641.1000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.54° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 19.00' Rotary Table To Ground
Altitude:4457.00' Ground To MSL

Measured Depth	9000.00	(feet)
Inclination	0.18	(deg)
Azimuth	74.73	(deg)
True Vertical Depth	8999.50	(feet)
Vertical Section	6.04	(feet)
Survey X cord	641933.58	(feet)
Survey Y cord	728647.12	(feet)
Survey Lat	33.00225938 N	(deg)
Survey Lon	103.87037082 W	(deg)
Rectangular Corr. N/S	6.04 N	(feet)
Rectangular Corr. E/W	6.40 E	(feet)
Closure Distance	8.80	(feet)
Direction of Closure	46.64	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

HOBBS OCD

NOV 21 2011

MACK ENERGY CORPORATION
ROADRUNNER FED COM #1H
CHAVES COUNTY, NEW MEXICO
Rig:SILVER OAK #7

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: J PATTERSON

Survey Horiz. Reference:WELLHEAD
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North Aligned To:GRID NORTH
Total Magnetic Correction: 7.54° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 19.00' Rotary Table To Ground
Altitude:4457.00' Ground To MSL

Survey Calculations by RX4 using Minimum Curvature

RECEIVED

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)
TIE INTO TELEDRIIFT SURVEYS @ 6326' MD.										
6326.00	0.80	280.80	6325.60	0.00	11.96	11.96 N	7.49 E	14.11@	32.06	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
6420.00	0.62	292.98	6419.59	94.00	12.28	12.28 N	6.38 E	13.84@	27.44	0.25
6515.00	0.62	250.20	6514.59	95.00	12.31	12.31 N	5.42 E	13.45@	23.77	0.48
6608.00	0.70	206.32	6607.58	93.00	11.63	11.63 N	4.70 E	12.54@	21.99	0.54
6701.00	0.70	216.88	6700.58	93.00	10.66	10.66 N	4.10 E	11.43@	21.04	0.14
6887.00	0.53	249.76	6886.56	186.00	9.46	9.46 N	2.61 E	9.81@	15.44	0.21
6982.00	0.62	231.24	6981.56	95.00	8.98	8.98 N	1.80 E	9.16@	11.33	0.22
7075.00	0.62	171.81	7074.56	93.00	8.17	8.17 N	1.48 E	8.30@	10.26	0.66
7168.00	0.62	169.65	7167.55	93.00	7.18	7.18 N	1.64 E	7.36@	12.88	0.02
7262.00	0.62	153.23	7261.54	94.00	6.22	6.22 N	1.96 E	6.53@	17.50	0.19
7449.00	0.79	134.10	7448.53	187.00	4.42	4.42 N	3.34 E	5.55@	37.08	0.15
7542.00	0.97	139.07	7541.52	93.00	3.38	3.38 N	4.32 E	5.49@	51.93	0.21
7635.00	0.62	177.47	7634.51	93.00	2.29	2.29 N	4.86 E	5.37@	64.80	0.67
7728.00	0.18	259.54	7727.51	93.00	1.76	1.76 N	4.74 E	5.05@	69.65	0.67
7822.00	0.00	3.19	7821.51	94.00	1.73	1.73 N	4.59 E	4.91@	69.36	0.19
7915.00	0.09	335.04	7914.51	93.00	1.80	1.80 N	4.56 E	4.90@	68.51	0.10
8009.00	0.09	23.72	8008.51	94.00	1.93	1.93 N	4.56 E	4.95@	67.05	0.08
8102.00	0.26	39.92	8101.51	93.00	2.16	2.16 N	4.72 E	5.19@	65.44	0.19
8289.00	0.35	14.70	8288.51	187.00	3.04	3.04 N	5.14 E	5.97@	59.43	0.09
8476.00	0.35	10.21	8475.50	187.00	4.15	4.15 N	5.39 E	6.80@	52.38	0.01
8662.00	0.26	6.47	8661.50	186.00	5.13	5.13 N	5.54 E	7.55@	47.18	0.05
8861.00	0.26	53.67	8860.50	199.00	5.85	5.85 N	5.95 E	8.34@	45.50	0.10
8947.00	0.18	74.73	8946.50	86.00	6.00	6.00 N	6.24 E	8.65@	46.12	0.13
STRAIGHT LINE PROJECTION TO BIT AT 9000' MD.										
9000.00	0.18	74.73	8999.50	53.00	6.04	6.04 N	6.40 E	8.80@	46.64	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY CORPORATION		
LEASE / WELL No.:	ROAD RUNNER	FED COM #1H	
WELL LOCATION:	CAVEZ CO. NM		
COUNTY / STATE / COUNTRY:	CAHAVEZ	NEW MEXICO	USA
RIG:	SILVER OAK #7		
API WELL No:	30-005-29164		
JOB No:	700002379 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.58	LWD Calculated:	7.54
Agreed Upon:		7.54	
X =	641927.200000	Feet	Y = 728641.100000
		Feet	
SITE LATITUDE:	33.002243	SITE LONGITUDE:	103.870392
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	269.69		
KELLY BUSHING ELEVATION:	19 FEET		
ALTITUDE:	4457	Feet	WATER DEPTH:
		Feet	

TIE-IN SURVEY

MEASURED DEPTH:	6326		
DRIFT ANGLE:	0.8		
DRIFT DIRECTION:	280.8		
TRUE VERTICAL DEPTH:	6325.6		
VERTICAL SECTION:	-7.55		
RECTANGULAR COORDINATE (N / S) :	11.96		
RECTANGULAR COORDINATE (E / W) :	7.49		
CLOSURE DISTANCE / DIRECTION:	14 11	3206	
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:	TOTAL DEPTH:
KICKOFF ANGLE:	MAX ANGLE:

PES Engineers:

**Signature of both field engineers required if applicable

Directional Driller:

DATE: 5/12/11



SURVEY REPORT

Page 1 of 2

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 6.00

Report created using job file: Mack Energy Road Runner Fed Com #1-03MAY11

Report saved on 12 May 2011 14:33

Depth in feet

WELL NAME Road Runner Fed Com #1
NORTH CORRECTION 7.8°
JOB ID Mack Energy Road Runner Fed Com #1
COMPANY Mack Energy
CONTRACTOR Silver Oak #7
START DATE 03 MAY 11
API #

LOCATION Road Runner Fed Com#1

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

SURVEY #	SURVEY DEPTH	DATE	TIME	INCLINATION	AZIMUTH
Manual	0.0	08-May-11	03:32	00.2	353.8
Tie-in	145.0	03-May-11	11:34	00.0	0.0
0001	351.0	04-May-11	05:50	00.2	204.8
0009	590.0	04-May-11	10:02	00.4	117.8
0016	770.0	04-May-11	13:32	00.1	297.8
0021	939.0	04-May-11	15:01	00.2	320.8
0026	1124.0	04-May-11	17:45	00.3	135.8
0040	1491.0	05-May-11	04:06	00.2	77.8
0046	1669.0	05-May-11	06:22	00.8	67.8
0053	1849.0	05-May-11	08:54	01.6	79.8
0055	1891.0	05-May-11	09:48	01.9	97.8
0057	1922.0	05-May-11	10:40	01.7	79.8
0059	1953.0	05-May-11	11:33	02.1	99.8
0062	2014.0	05-May-11	13:19	01.7	80.8
0072	2201.0	05-May-11	18:38	01.3	69.8
0082	2383.0	05-May-11	23:46	00.9	88.8
0092	2541.0	06-May-11	04:44	00.7	82.8
0101	2698.0	06-May-11	09:06	00.1	80.8
0107	2885.0	06-May-11	12:58	00.3	58.8
0113	3073.0	06-May-11	16:29	00.3	9.8
0119	3260.0	06-May-11	20:24	00.5	319.8
0125	3447.0	07-May-11	02:04	00.2	23.8

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



SURVEY REPORT

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SURVEY #	SURVEY DEPTH	DATE	TIME	INCLINATION	AZIMUTH
0130	3638.0	07-May-11	07:10	00.6	343.8
0136	3822.0	07-May-11	11:53	00.5	359.8
0142	3983.0	07-May-11	17:42	00.6	7.8
0145	4108.0	07-May-11	21:40	00.6	8.8
0151	4246.0	08-May-11	03:14	00.2	0.8
0156	4479.0	08-May-11	07:05	00.3	318.8
0160	4663.0	08-May-11	12:00	00.2	329.8
0167	4855.0	08-May-11	17:28	00.3	236.8
0170	5041.0	09-May-11	01:38	00.0	258.8
0179	5235.0	10-May-11	04:32	00.6	271.8
0182	5423.0	10-May-11	10:25	00.4	278.8
0189	5610.0	10-May-11	18:58	00.7	263.8
0191	5797.0	11-May-11	00:40	01.1	241.8
0192	5975.0	11-May-11	06:40	00.8	279.8
0198	6165.0	11-May-11	14:25	00.7	273.8
0204	6326.0	12-May-11	02:51	00.8	280.8



PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORP.
ROAD RUNNER FED COM #1H
CHAVES COUNTY, NEW MEXICO
Rig:SIULVEROAK 7

Thu Apr 28 18:22:31 2011

Coordinates

Latitude: 33.002243 N (33 deg. 0 min. 8.0745 sec.)
Longitude: 103.870392 W (-103 deg. 52 min. 13.4101 sec.)
Elevation: 4476.00 feet.
Calculation Date: Apr/28/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.8571 degrees
Total Magnetic Field: 0.49057 gauss
Magnetic Declination: 7.799040 degrees
Horizontal Intensity: 0.238903 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.799040 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 641927.2000 feet
Y: 728641.1000 feet
True to Grid: (convergence) -0.252155 degrees
Magnetic to Grid: 7.546885 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.546885 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORPORATION
ROAD RUNNER FED COM #1H
CHAVEZ CO. NM
Rig:SILVER OAK #7

Thu May 12 17:54:28 2011

Coordinates

Latitude: 33.002605 N (33 deg. 0 min. 9.3779 sec.)
Longitude: 104.005218 W (-104 deg. 0 min. 18.7852 sec.)
Elevation: 4476.00 feet.
Calculation Date: May/12/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.8329 degrees
Total Magnetic Field: 0.49038 gauss
Magnetic Declination: 7.856738 degrees
Horizontal Intensity: 0.238992 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.856738 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 641927.2000 feet
Y: 728641.1000 feet
True to Grid: (convergence) -0.178718 degrees
Magnetic to Grid: 7.678020 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.678020 Degr.